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**Article**

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# Determinants of household saving behaviour in Ghana

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## ABSTRACT

Developing countries generally exhibit low 'saving' (flow concept) and 'savings' (stock concept) rates. The factors underlying household positive or negative saving behaviours in developed and developing countries are not new in the macroeconomic literature. Whereas some determinants are theoretically generic, others are country- or community-specific and worth investigating. In this study, the determinants of household saving behaviour are examined. We obtain the results using primary data from a household survey and a logit econometric model with its associated average marginal effects. Our evidence shows that household income, level of education completed, employment status, and households with launching children (or transitioning older adults) are primary drivers of household saving behaviour in Ghana. Further heterogeneous analysis shows that saving behaviour does not statistically differ by gender but by poverty headcount. In line with the findings of this study, relevant policy prescriptions are discussed.

## IMPACT STATEMENT

This study contributes to the ongoing discourse on household saving behaviour, specifically within the context of developing countries, by providing empirical evidence from Ghana. Utilising primary household survey data, the research identifies key factors such as income, education level, employment status, and household lifecycle stages (e.g., families with launching children or transitioning older adults) as critical determinants of saving behaviour. The findings offer actionable insights for policymakers in developing economies aiming to boost saving rates, reduce poverty, and promote financial stability. By demonstrating that household saving behaviour varies by poverty headcount rather than gender, the study underscores the need for targeted financial inclusion and education policies. The results are particularly relevant for economic development strategies in countries with similar socio-economic structures, offering a foundation for tailored interventions that can foster more resilient household financial practices. This paper's insights can shape future research and policy development aimed at addressing the unique saving dynamics in developing nations, ultimately contributing to improved macroeconomic stability and individual financial security.

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## 1. Introduction

In economic theory, saving and investment play crucial roles in stimulating economic growth. Various studies, such as those conducted by Hagan and Amoah (2020), Wieliczko et al. (2020), and the recent research by Bhat et al. (2024), emphasize the significance of saving as a key driver of economic growth and development, particularly in developing countries. Similarly, Nduku (2017) has proposed that low levels of saving hinder economic growth and impede overall development.

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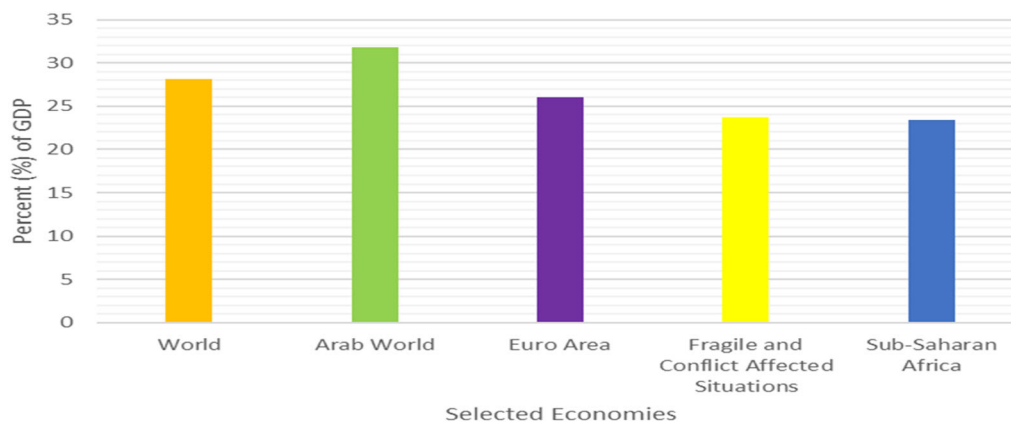
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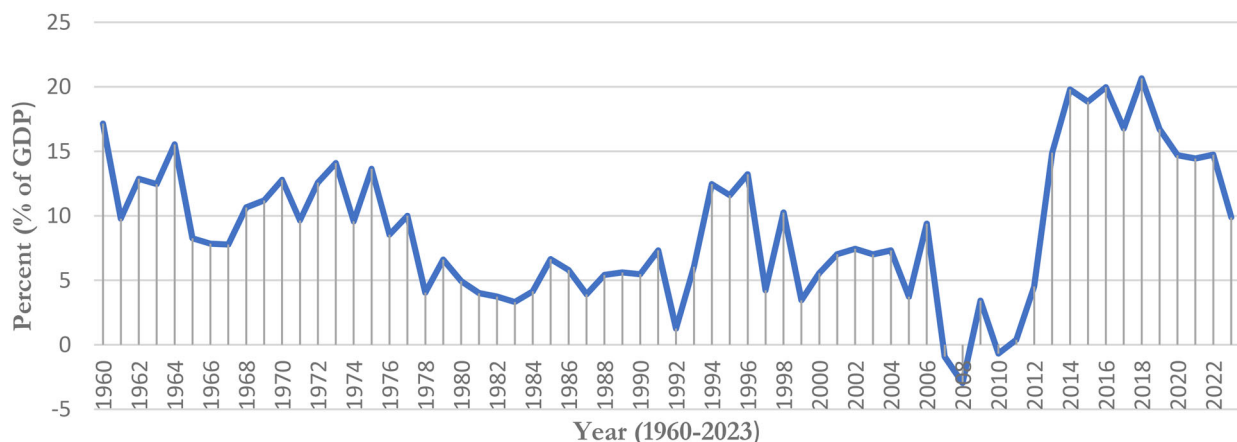
In line with the Keynesian school of thought, saving is conventionally construed as a flow concept, delineated as disposable income minus personal consumption expenditures (Smyth et al., 1993). Accordingly, it represents income not immediately allocated to goods and services. This study adopts a novel perspective, considering saving as a flow rather than a stock concept, defining it as a portion of income not immediately consumed and susceptible to accruing interest or alternative returns over the saving period. Thus, our focus is on the formal and informal saving behaviour of households, encompassing financial deposits held in banks, microfinance institutions, 'susu groups,' and other saving avenues (e.g. credit unions), as well as home-saving. The formal and informal accumulation of savings plays a pivotal role in enhancing overall welfare, furnishing a buffer against unforeseen circumstances, and serving as a financial safety net during crises.

Theoretically, saving occupies a pivotal position within the circular flow of money. Solow (1956) contends that saving propels capital accumulation, thereby fostering economic growth and expansion. Similarly, Lewis (1954) underscores the importance of saving in sustaining growth and development. Consequently, household saving holds significance for the economic development of both developed and developing nations (Iyoha et al., 2003; Opoku, 2020; Sisay, 2023). Indeed, the prospect of future investments, at both micro and macro levels, increases with the continuous growth of household saving. Regrettably, sub-Saharan Africa grapples with low saving rates, limited capital accumulation, and unsustainable growth, leading to underdevelopment. Utilizing the latest data from the World Bank (2023), Figure 1 illustrates how even fragile economies outperform those in sub-Saharan Africa in terms of domestic saving.

Ghana, an economy in sub-Saharan Africa, experienced one of the lowest levels of gross domestic saving between 2007 and 2008, as illustrated in Figure 2. However, from 2010 onwards, domestic saving exhibited a significant increase, reaching a record high of approximately 22% by 2020. Subsequently, domestic saving has seen a decline. With an inflation rate of 53.6% reported in January 2023 (Ghana



**Figure 1.** Gross domestic saving[s] (% of GDP) of selected economies in 2021. Data Source: World Bank, 2023.



**Figure 2.** Gross domestic saving [s] (% of GDP) of Ghana. Data Source: World Bank, 2023.

Statistical Service (GSS), 2023), the outlook for domestic saving is uncertain. In Ghana, the inclination towards consumption rather than saving remains a primary factor contributing to low incomes and savings among Ghanaian households (Issahaku, 2011). It is worth noting that low incomes are largely attributed to low-wage employment (Nsawah-Nuamah et al., 2012), coupled with relatively high living costs (see Kwakye et al., 2023), which leads to a preference for immediate survival (consumption) over future needs (saving). Savings in Ghana can either be formal, such as using bank savings accounts, credit unions & cooperatives, micro-finance institutions, savings and loans companies, mobile money and investments accounts, or informal, such as susu collectors, cash savings or financial instruments at home, storing in real assets, and rotating savings groups).

From Figure 2, it is evident that the notion of low saving among Ghanaians has remained consistent since the 1960s. While there was a notable improvement in dynamics after 2012, with an average gross domestic saving (% of GDP) of around 17%, this figure remains relatively low compared to the regional average in 2021, as depicted in Figure 1.

The primary objective of this study is to investigate the underlying factors contributing to the pervasive low-saving behaviour observed among Ghanaian households. In contrast to prior research endeavors (e.g. Baidoo et al., 2018; Larbi, 2013; Sakyi et al., 2021), the extent to which both formal and informal saving practices are comprehensively addressed remains uncertain. Consequently, this study aims to fill this gap by adopting a holistic approach to savings, encompassing both formal and informal methods, and subsequently analysing the associated determinants. This approach is crucial due to the inherent challenge of accurately capturing informal saving behaviours in national and global estimates, which may lead to potentially misleading conclusions regarding saving trends. To ensure contextual relevance, primary-level data is leveraged, accounting for both formal and informal saving practices. Furthermore, departing from traditional aggregate measures, this study disaggregates key determinants such as employment status to gain a more nuanced understanding of their heterogeneous nature. Moreover, this research distinguishes itself by utilizing a substantial number of observations in the survey dataset, a departure from previous studies (see Larbi, 2013; Sakyi et al., 2021) conducted in Ghana. Additionally, the study incorporates insights from household precautionary saving hypothesis and life-cycle theory, recognizing its significance in shaping household saving behaviour, as discussed by other scholars in the literature (e.g. Amoah, 2020; Baiardi et al., 2020; Nduku, 2017), who has referred to the latter as the 'household life-cycle variable' or the 'household with launching children variable'.

The remainder of the study is organised as follows: Section 2 provides a review of the literature. Section 3 outlines the methodology employed in the study. Section 4 presents the results and corresponding discussion. Finally, Section 5 encapsulates the conclusion and discusses policy implications.

## 2. Literature review

Over the years, various theories have emerged to elucidate individuals' saving and spending behaviours. One notable theory is Keynes's Keynes (1936) absolute income hypothesis, which suggests that current income levels significantly influence spending or saving decisions. Duesenberry's Duesenberry (1949) relative income hypothesis or theory suggests that income distribution plays a crucial role in influencing individuals' ability to save and aggregate saving. In contrast, Friedman (1957) contends that 'permanent' income, defined as income that remains constant over time, shapes people's consumption behaviour. According to Friedman, temporary fluctuations in income have minimal to no impact on household consumption spending. Despite the prominence of Friedman's Permanent Income Hypothesis, Ando and Modigliani (1963) delve into the influence of long-term wages on individuals' consumption and saving behaviour within the framework of the life cycle hypothesis.

The life cycle hypothesis posits that consumers distribute their lifetime consumption by utilizing their savings while actively employed, thereby smoothing, or sustaining their consumption levels during retirement (Deaton, 2005). Both the life cycle and permanent income hypotheses are recognized as substantial theories in the realm of consumption and saving. These ideas, however, do not consider the tight relationship between financial literacy and saving, which affects consumers' capacity to decide when and how to save for unforeseen expenses, as well as the importance of individual characteristics and the industry in which one works. (Baidoo et al., 2018; Sakyi et al., 2021).

The decision to save or spend money early in life plays a crucial role in determining an individual's wealth accumulation. This significance is evident in variations observed in the wealth amassed at retirement, even among those with similar lifetime incomes (Cronqvist & Siegel, 2015). The life-cycle theory outlines saving behaviour, asserting that individuals' savings levels are influenced by both age and the demographic structure of society, rather than solely by family income (Modigliani & Brumberg, 1954). The primary motivation behind this theory is the accumulation of savings for future expenditures. It posits that people make choices about their spending at different ages, constrained only by the resources available to them throughout their lives. The fundamental assumption is that individuals aim to maximize the utility derived from their life-cycle consumption. Consequently, consumption is viewed as a continuous process, even if income fluctuates over the life cycle, with people saving primarily to fund consumption during old age.

Conversely, Friedman (1957) proposed the permanent-income theory, which emphasizes that individuals regularly experience unpredictable and temporary fluctuations in their income. According to this theory, household consumption and savings are influenced by the distinction between long-term average income (permanent income) and temporary income. Furthermore, the theory suggests that changes in consumption patterns typically occur when there are adjustments to individuals' permanent income (Weiss, 2000). Both theoretical perspectives analyse savings from an economic perspective, where current income serves as an indicator of future income expectations. As a result, individual characteristics may impact people's saving behaviour because their current income can affect their anticipated future income.

Numerous empirical studies have been conducted to elucidate the factors influencing savings globally. For instance, Hüfner and Koske (2010) explored household saving rates in G7 nations and identified wealth, government debt, the old-age dependency ratio, inflation rates, long-run interest rates, and real disposable income as contributors to saving dynamics. In a model developed by Mody et al. (2012), the representative household is confronted with both a stochastic income stream and a stochastic rate of return on savings. The variability of the income stream is associated with a constant probability of household unemployment, while the fluctuating rate of return on savings reflects investment risks. In this context, households are advised to target a specific wealth-to-income ratio, aiming to accumulate a reserve of assets to buffer against fluctuations in income sources. The authors demonstrate a positive relationship between saving and unemployment, such that when unemployment risk increases, in line with the precautionary saving hypothesis, people cut back on consumption to build up emergency savings. However, they argue that the impact of increased investment risk is uncertain, as the model's calibration may lead to either the income effect or the substitution effect predominating. Nonetheless, the authors suggest that the influence of investment risk on the saving rate is minimal.

Faridi and Bashir (2010) applied an enhanced model of the life cycle hypothesis originally proposed by Ando and Modigliani (1963) to examine the determinants of household saving in the Multan district of Pakistan. Their analysis involved estimating the model using the Ordinary Least Squares approach. The study revealed that household saving is significantly influenced by factors such as spouse participation, total dependency rate, total household income, and the number of landholdings. Moreover, the ability of families to save money is notably affected by the education level of the household head, the costs associated with children's schooling, family size, debt repayment capacity, marital status, and the value of their home.

Zwane et al. (2016) used panel data estimation methods to examine the determinants of household saving in South Africa from 2008 to 2012. The investigation unveiled that household saving patterns are significantly shaped by various factors including income, age distribution, level of education, and employment status. They also revealed a negative causal association between saving behaviour and household size, indicating that larger families encounter diminished opportunities for saving.

Mori (2019) examined the determinants of individual savings among Tanzanians using 2017 national survey data with 8,959 observations. The findings reveal that Tanzanians predominantly link saving to setting money aside to ensure its safety for future use. Moreover, the results indicate that a significant number of Tanzanians opt for the informal method of keeping their money at home as a means of saving. Additionally, the study highlights that age and education level emerge as pivotal characteristics influencing positive saving behaviour among Tanzanians.

Nwosu et al. (2020) adopted a microeconomic perspective to examine the determinants of saving behaviour in Nigeria. Their analysis utilized both two-stage least squares and regular least squares methodologies. The study findings indicate that household saving in Nigeria is significantly affected by factors



such as household size, occupation, geographical location, and age demographics. Furthermore, variables such as the household's living conditions, marital status, and access to infrastructure, such as electricity, were found to play significant roles. Overall, the results highlight the importance of household socio-economic characteristics, geographical factors, and regional dynamics in shaping saving patterns in Nigeria.

Similarly, Asfaw et al. (2023) investigated the saving behaviour and intensity among pastoral and agro-pastoral communities in Ethiopia's Afar regional state. Employing a multi-stage sampling technique, the study surveyed 600 households and utilized the double hurdle model to identify economic and demographic determinants. In a related study, Sisay (2023) assessed rural household saving status in Ethiopia, revealing that over half of rural households did not save in formal financial institutions, with an estimated saving intensity of approximately US\$84 (4,788.115 ETB). Additionally, Bhat et al. (2024) examined the determinants of rural household behaviour in Metekele, Beneshangu Guzu state, Ethiopia, using a mixed-method approach and binary logistic regression analysis. Economic and demographic factors emerged as principal determinants of rural households' saving behaviour. Previous studies on saving in Ethiopia include works by Mazengiye et al. (2022), Zeleke and Endris (2019), and Abebe (2017), among others.

Contributing to the literature on Ghana, Issahaku (2011) estimated the factors influencing financial investment and saving in the Nadowli District of the Upper West Region of Ghana using a microeconomic approach. For investment and saving, two different multiple linear regression models were constructed. Despite having low salaries, the author discovered that Nadowli residents tend to invest and save money. The impact of various factors on saving behaviour was examined, revealing a negative correlation between the number of dependents and saving, while income levels, educational attainment, and occupation positively influenced saving. The study noted minimal effects of assets and age distribution on saving but identified occupation, spending, assets, and saving as pivotal elements influencing household investment decisions. Additionally, Larbi (2013) investigated the determinants of private saving in Ghana, utilizing residual-based tests for cointegration developed by Phillips and Ouliaris (1990) to explore the long-term relationship between private saving and its determinants. Larbi found significant positive associations between private saving and financial liberalization, per capita income, and inflation, suggesting support for the Ricardian Equivalence Theory based on the positive and significant coefficient of the fiscal deficit variable in Ghana. Despite a strong inclination toward saving, the study highlighted limitations in the ability to save effectively.

Also, to support their claim that financial literacy is essential for encouraging domestic saving, Baidoo et al. (2018) draw on prior research and offer evidence. Primary data was used, and their estimation method was the binary probit regression model. Their findings emphasise the importance of integrating financial literacy initiatives into a comprehensive policy framework targeting Ghanaians to bolster domestic saving, a fundamental precursor to investment and, thereby, fostering sustainable economic growth. In their study, Sakyi et al. (2021) examined factors influencing saving among commercial drivers in Ghana. Their findings revealed that drivers who own their vehicles, engage in a second job, and have proximity to financial institutions are more inclined to save. Additionally, the study highlighted a negative correlation between demographic factors such as age, education, financial literacy, and saving. Lastly, Baidoo-Mensah (2018) examined the savings frequency among tomato farmers in Ghana. The author applied a multinomial logistic regression and found factors such as the amount saved per period, education and non-farm income as determinants of saving frequency.

So far, there has been a notable scarcity of studies on household saving behaviour in Ghana. Furthermore, none of the reviewed studies have examined the precautionary saving hypothesis in Africa. To the best of our knowledge, no study has incorporated disaggregated employment levels and/or measures of family life-cycle, which are theoretically pertinent. Therefore, this study makes a valuable contribution to the existing literature in this regard.

### 3. Methodology

As per the Ghana Statistical Service (GSS, 2012), a household is defined as an individual or a collective of people, whether they are related or not, residing in the same housing unit. These individuals share responsibilities such as housekeeping and cooking and are considered a cohesive unit, with an adult male or female recognized as the household head. The composition of a household reflects the social structure of the population and may include a man, his wife or wives, children, and other relatives or

non-relatives cohabiting. It's crucial to note that members of a household are not necessarily linked by familial or marital ties.

This study utilized primary data sources collected through questionnaires distributed to a representative<sup>1</sup> sample of 1650 household heads in the Greater Accra Region (GAR), which is cosmopolitan in nature. The sample size was determined based on the total number of urban households. Further, this study could not rely the 2021 census data because it was not available at the start of the study. Therefore, we relied on the Ghana Statistical Services' earlier publicly available population and housing census final report for the administrative district information. That is, ten administrative districts and municipalities in the GAR, with a total population of approximately 4,010,054, including 733,955 urban households. It is important to note that non-responses occurred in some variables, a common occurrence in ethically validated surveys where respondents have the right to choose whether to answer or not.

The study covers all ten districts and municipalities in the GAR at the survey's time. Given that the head of the household is typically regarded as the primary provider and holds responsibility for the household's economic and social welfare, the questionnaires were exclusively administered to household heads. This approach ensures that those in the best position to provide accurate and relevant responses are targeted.

Data collection took place from April to May 2014, employing the multistage probability sampling technique. This approach was chosen due to the dispersed nature of many settlement communities in the GAR. In using the multistage probability sampling technique, the region was first and foremost divided into 10 clusters (administrative districts). Secondly, each cluster was also subdivided into communities. Thirdly, based on the Physical Planning Department's list of communities, communities in the cluster and their associated households were listed. The households were selected and interviewed using a simple random approach to arrive at the targeted sample size. In the household, the household head was interviewed on behalf of the entire household. In the event that the household head is not available, the next in the household decision-making was interviewed.

A structured questionnaire is mostly the preferred method by researchers in household surveys. This study is no exception and therefore used the face-to-face method in administering the questionnaire. One criterion used in selecting the interviewers was the ability of the interviewer to eloquently interact with the interviewees either in English or in their local dialect. Selected candidates were also trained to ensure excellent delivery of services. Overall, this was achieved and even reflected in the number of observations used for this study.

This study satisfied the University of East Anglia's ethical requirements, where ethical approval was sought from the university's Research Ethics Committee before data collection<sup>2</sup>. All respondents' involvement was voluntary as participation was not under compulsion. Further, in the event that the respondent felt uncomfortable continuing the process, they reserved the right to exit as and when necessary. Thus, respondents' informed consent was sought before questionnaires were administered. Generally, the survey instrument did not contain questions or practices that could cause physical harm or trigger psychological stress, anxiety, depression, or mental torture to the respondents or any member of their household. Consequently, this study does not raise any ethical concerns relevant to the social science discipline.

### 3.1. Econometric strategy

Theoretically, the microeconomic determinants of saving behaviour have been explained by the life-cycle hypothesis and the permanent income hypothesis. Both theories identify economic factors (e.g. wealth, income, etc.), demographic factors (age, education, employment), behavioural factors (e.g. expectations). In line with the theories and data availability, we conceptually model (Refer to [Figure A1](#) in [Appendix](#)) the household saving behaviour as a function of household economic and demographic factors. Mathematically, we show the household microeconomic saving behaviour model as:

Household saving behaviour =  $f$  (income, age, life-cycle, education, levels of employment)

$$HSB = B_0 + B_1 IM_i + B_2 AG_i + B_3 HL_i + B_4 EDU_i + B_5 EMP_i + u \quad (1)$$

Where  $HSB$  denotes household saving behaviour.  $B_0$  denotes the constant term.  $B_1, B_2, B_3, B_4$ , and  $B_5$  are parameter estimates.  $u$  is the residual or the error term.  $IM_i$  denotes the average income of the



household head in Ghana cedis per month.  $AG_i$  denotes the age of the household head in years.  $HL_i$  denotes whether the household has launching or transitioning children<sup>3</sup> in the family life-cycle,  $EDU_i$  denotes the education level attained by the household head.  $EMP_i$  denotes the levels of employment of the household head. In detail, household saving behaviour is a dummy variable where households with evidence of saving either formally or informally were coded 1, otherwise, 0. Household income is measured as the average income in Ghana cedi earned by the household head per month, Education is a dummy and is denoted by 1 for a household head that is educated and 0, otherwise. Age is the number of years attained by the household head at the time of the survey. Household with launching children in the family life-cycle. Generally, the family life-cycle includes seven stages. All other stages are coded as 0, while household with launching children are coded as 1. Employment status is a categorical variable reflecting variation in the employment of the household head. It is coded as follows: 1 for being unemployed during the last 7 days, 2 for full-time employment in a private firm, 3 for full-time employment in a public firm, 4 for self-employment without employee(s), 5 for self-employment with employee(s), 6 for casual worker, 7 for apprentice, 8 for domestic employee, 9 for contributing family worker, and 10 for a retired household head.

A priori, we expect that the household's average income will exert a significant positive impact on its saving behaviour. This aligns with the permanent income hypothesis, which posits that individuals shape their consumption decisions based on their expected long-term average income rather than their current income. This typically involves saving during periods of higher income and utilizing those savings or dis-saving during periods of lower income.

Furthermore, we expect the age of the household head to have a significant negative influence on saving behaviour, as suggested by the life cycle theory. This theory implies that individuals strategically plan their consumption and saving patterns over their lifetime, considering income fluctuations and future needs. Household heads at different ages may exhibit varying income levels based on their position in the life cycle. For instance, younger heads may find themselves in the early stages of their careers, earning less but potentially experiencing income growth over time. Conversely, older heads may be approaching retirement age, having either reached their peak earning potential or begun to experience declining income.

Based on practice, custom, culture and economic reasons, we expect household with launching or transitioning older adults or children (HL) to influence households' decision to have or not. If for cultural reasons or by practice, the parents owe their child a transitioning responsibility, we expect that to decrease their saving potential and behaviour. Alternatively, if there is no such responsibility on the parents, transitioning children rather feel obliged to support the parents hence saving potential and behaviour will be high. In the case of education, we expect the education level attained by the household head to have a positive effect on saving behaviour since education may influence household members to save more due to financial literacy. Lastly, we expect the employment status of the household head to influence saving behaviour positively. Employment of any kind so far as some income is earned at the end of the period may provide means for a household to save.

### 3.2. Model diagnostics test

The model specified in Equation 1, is evaluated to ensure the validity and accuracy of the study's estimates. First, we acknowledge the possibility that models of this nature may suffer from endogeneity stemming from reverse causality or feedback loop. This is because, it is possible for saving behaviour to correlate with socio-economic factors (for example, educational choices, employment opportunities etc.) while the reverse is also true. That is, households characterised by more saving behaviour may be able to accumulate more resources and afford better education for their children, creating reverse causality between education and saving behaviour. Similarly, the level of employment may influence saving behaviour as expected, but savings could also affect employment decisions, making it challenging to disentangle the direction of causality between the two. Given that the present data is limited in scope and time, we acknowledge this as a limitation of the study and interpret the results as regression-based correlations, treating them as associations rather than causal relationships. This acknowledgement highlights the relevance of Deaton's causality claim between savings and other economic variables (Deaton,

1999). Better still, we admit that associations are not new in empirical studies (Refer to Amoah et al., 2022; Amoah & Asamoah, 2022; Tetteh et al., 2022).

Next, we investigate the presence of multicollinearity which is commonly found in cross-sectional and time series studies (Amoah & Moffatt, 2021). Intuitively, we expect that income and levels of employment may be closely related. That is, a higher level of employment often results in higher income, so it might be difficult to distinguish the separate effects of each on saving behaviour. Statistically, this problem is investigated to ascertain whether it exists or otherwise. From the pairwise correlation test results as reported in Table A1 (Appendix), we find that the highest level of correlation between age and life-cycle is 0.27 which is not so severe as to raise multicollinearity concerns.

Another common identification problem with cross-sectional data is heteroskedasticity (Amoah & Moffatt, 2021). This identification problem occurs in empirical studies when the variance (or variability) of the error terms in a regression model is not constant across all levels of the independent variables. In studies involving different groups (e.g. districts, households, regions), heteroskedasticity can emerge if there are significant district-specific differences. In Table 5, this problem is addressed by introducing district-level dummy variables to reduce the severity of heteroskedasticity. This is further supplemented with other methods like robust standard errors to largely address heteroskedasticity issues.

## 4. Results

### 4.1.1. Descriptive statistics

Table 1 presents the descriptive statistics for the variables used in the estimation. The dependent variable, saving behaviour, denotes whether participants saved a portion of their disposable income (coded as 1) or not (coded as 0). On average, 73% of the respondents reported savings from their disposable income, while 27% did not exhibit any saving behaviour. The observed saving behaviour appears relatively high as it encompasses both formal and informal saving practices. In a related survey study on Ghana, Baidoo et al. (2018) showed that about 88% engages in saving behaviour while about 12% do not. However, the other studies that have reported low saving rates often focuses solely on formal saving behaviour (e.g. Sisay, 2023), this study accounts for both formal and informal saving behaviours. So far, the evidence of a high propensity to save behaviour is undeniable. This view has recently been buttressed by the sharp rise in mobile money transactions and savings (Amoah, 2020), which are also characterized by relatively higher interest rates (Kweku Asiamah et al., 2020). By implication, the distribution of the present study suggests that most people in the GAR engage in some form of saving (formal and informal) for future consumption and other reasons. The fact that more than 50% of individuals save indicates that residents in the GAR prioritise their long-term financial goals. They set aside money for emergencies, retirement, education, homeownership, or other future expenses. This behaviour reflects a sense of responsibility and an understanding of the importance of financial preparedness.

Regarding the independent variables, the average monthly household income was Ghs636 (\$109), which closely aligns with the national estimate of Ghs544 (\$94) (GSS, 2008). This implies that, on average, the respondents exhibit a low-income profile, a characteristic of a developing country, while also displaying a youthful age structure that is well-distributed across different age groups. The average age of the respondents is 39 years, and their ages range from 18-years to 72-years. Approximately 18% of the respondents identified their households as a family with launching children while 82% also identified their households as families characterised by the other stages of the family life cycle. This also shows a

**Table 1.** Descriptive Statistics.

Statistics	Saving Behaviour (Dummy)	Income (Ghs)	Age (Years)	HH Dummy (Launching Children)	Edu (Dummy)	Emp Status (Categorical)
Mean/Percent	73%	636	39	18%	59%	4.00
p50	1	380	37	0	1	4.00
Sd	0.45	581.35	11.86	0.29	0.49	2.16
Skewness	-1.01	2.08	0.31	-2.75	-0.35	1.15
Kurtosis	2.02	8.17	2.17	8.54	1.12	4.20
Min	0	160	18	0	0	1
Max	1	4400	72	1	1	10
N	1648	1604	1648	1645	1648	1640

reasonable spread across the different stages of the family life cycle. Regarding education, about 59% of the household heads had completed at least upper secondary school (Senior High School) reflecting the evidence provided by the Ghana Statistical Service in the 2021 Census report that approximately 41% of the population who are 18 years and older are presently pursuing a tertiary level education. The average value of employment status (Emp. Status) is around four (4), indicating that most of the respondents are self-employed individuals without employees. This observation highlights the significant presence of informal employment across various sectors in Ghana.

From Tables 2–4, we perform a heterogenous test analysis of saving behaviour. Table 2 illustrates a statistically insignificant parametric and non-parametric test of saving based on the gender of the household head. This indicates that there is no statistically significant difference in saving behaviour between male and female-headed households in the GAR.

The absence of a difference in saving behaviour between male and female household heads may be attributed to underlying socioeconomic factors. If both genders face similar economic circumstances, such as comparable income levels, expenses, and access to resources, it will naturally result in a similar level of saving. This is indicative of a society where socioeconomic factors play a greater role in determining saving behaviour than gender.

We construct the poverty headcount index according to the international poverty line purchasing power value as the threshold. Those whose monthly income is above the threshold are described as having a low poverty headcount, while those who earn below the threshold are described as having a high poverty headcount. Table 3 shows a statistically significant parametric and non-parametric test of saving by poverty headcount. This implies saving is generally low in the GAR in Ghana, as having a and this is largely a result of the relatively high poverty headcount in most developing countries. The high poverty headcount, mostly in developing countries, contributes to a range of factors inhibiting saving in the financial sector. There is vast empirical evidence indicating that individuals in underdeveloped nations face difficulties in obtaining formal financial services such as savings accounts, which consequently impedes their ability to save money. The primary reasons for this limited access to formal financial services are frequently attributed to factors like inadequate banking infrastructure and limited network coverage, high transaction costs, a lack of financial knowledge, and insufficient information. These causes have been highlighted by various studies (e.g., Allen et al., 2014; Ghosh, 2020; Jack & Suri, 2014).

Subsequently, we develop a poverty index to categorise individuals as poor or unpoor. The index is established using the World Bank's lower middle-income class poverty line as a threshold. Individuals with monthly incomes below this poverty line are categorised as poor, while those earning above it are

**Table 2.** Test of saving and gender of the household head.

Parametric test	Non-parametric test
Ho: Saving (Male) = Saving (Female)	
Two-Sample t-test with equal variances	Two-sample Wilcoxon rank-sum (Mann-Whitney) test
$t = 0.7087$	$z = 0.709$
$\Pr( T  >  t ) = 0.4786$	$\text{Prob} >  z  = 0.4784$
Statistically Insignificant	Statistically Insignificant

**Table 3.** Test of saving by poverty headcount.

Parametric test	Non-parametric test
Two-Sample t-test with equal variances	Two-sample Wilcoxon rank-sum (Mann-Whitney) test
$t = -13.8614$	$z = -13.121$
$\Pr( T  >  t ) = 0.0000$	$\text{Prob} >  z  = 0.0000$
Statistically Significant	Statistically Significant

**Table 4.** Test of saving dummy by poverty index.

Parametric test	Non-parametric test
Two-sample t-test with equal variances	Two-sample Wilcoxon rank-sum (Mann-Whitney) test
$t = -9.4959$	$z = -9.249$
$\Pr( T  >  t ) = 0.0000$	$\text{Prob} >  z  = 0.0000$
Statistically Significant	Statistically Significant

labelled as unpoor. Table 4 presents a statistically significant parametric and non-parametric test of saving based on the poverty index. This affirms the assertion that saving is generally low in the GAR, largely attributable to relatively high levels of poverty.

## 4.2 Regression analysis

In line with the life-cycle hypothesis theory, income is a key predictor of saving behaviour. So, in modelling saving behaviour, income is transformed into natural logarithm and included in the model. From Table 5, holding all else constant, we find a positive association between income and saving behaviour. That is, an increase in household income is likely to be associated with a 15% higher probability that the household will save. This implies that income exhibits a positive and statistically highly significant influence on households' saving behaviour. Empirically, our present evidence confirms the findings of earlier studies on saving behaviour in developing countries (see Faridi & Bashir, 2010; Nwosu et al., 2020; Zwane et al., 2016). Theoretically, this result corroborates with the life-cycle hypothesis, which proposes that people aim at balancing their consumption patterns over their lifetime by borrowing during periods of low income and saving during periods of high income.

Contrary to earlier studies on Ghana, the life-cycle of households is not accounted for in determining their saving behaviour; however, the present study bridges that gap by introducing a dummy of

**Table 5.** Logit regression results.

Variables	(1) logit-model	Average Marginal effects	(2) logit-model	Average Marginal effects
Household income (Log)	0.8826*** (0.104)	0.1477*** (0.016)	0.9141*** (0.108)	0.1493*** (0.016)
Age in Years	0.0010 (0.006)	0.0002 (0.001)	0.0004 (0.006)	0.0001 (0.001)
Household with launching children	-0.3223* (0.181)	-0.0478* (0.028)	-0.2897* (0.186)	-0.0456* (0.028)
Education (Levels)				
Education = 2 (Primary/J.S.S. etc.)	-0.0614 (0.250)	-0.0109 (0.044)	-0.0786 (0.251)	-0.0136 (0.043)
Education = 3 (Sec/Voc. etc.)	0.2161 (0.255)	0.0366 (0.044)	0.1918 (0.257)	0.032 (0.044)
Education = 4 (First Degree etc.)	0.1076 (0.311)	0.0186 (0.054)	0.1479 (0.314)	0.0246 (0.053)
Education = 5 (Second Degree and Above etc.)	1.0844** (0.455)	0.1531** (0.059)	1.0614** (0.449)	0.1470** (0.057)
Employment status (Unemployed during last 7 days)				
Employment status = 2, Full-time employee of a private firm	1.6383*** (0.291)	0.3384*** (0.061)	1.6523*** (0.290)	0.3314*** (0.059)
Employment status = 3, Full-time employee of a public firm	1.3089*** (0.328)	0.2778*** (0.069)	1.2937*** (0.326)	0.2673*** (0.067)
Employment status = 4, Self-employed without employee(s)	1.8495*** (0.274)	0.3733*** (0.057)	1.8505*** (0.271)	0.3634*** (0.055)
Employment status = 5, Self-employed with employee(s)	1.9838*** (0.333)	0.3939*** (0.064)	1.9920*** (0.332)	0.3846*** (0.062)
Employment status = 6, Casual worker	1.4821*** (0.399)	0.3106*** (0.078)	1.5320*** (0.405)	0.3108*** (0.076)
Employment status = 7, Apprentice	2.4233*** (0.595)	0.4515*** (0.082)	2.6182*** (0.620)	0.4613*** (0.078)
Employment status = 8, Domestic employee	1.2976*** (0.379)	0.2756*** (0.076)	1.4440*** (0.390)	0.2951*** (0.074)
Employment status = 9, Contributing family worker	1.1466*** (0.433)	0.2456*** (0.089)	1.1320** (0.445)	0.2360*** (0.089)
Employment status = 10, Retired	0.1394 (0.381)	0.0295 (0.081)	0.0224 (0.385)	0.0462 (0.079)
Constant	-5.7534*** (0.647)		-5.7408*** (0.684)	
District dummies (Fixed effect)	No		Yes	
Wald chi2(22)	215.02***		225.68***	
Pseudo R <sup>2</sup>	0.1390		0.1576	
AIC (df = 14/23)	1656.713		1639.644	
Log pseudolikelihood	-814.3566		-796.8220	
Observations	1.596	1.596	1.596	1.596

Dependent Variable: saving behaviour (Binary).

Robust standard errors in parentheses.

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

households with launching children in their life-cycle. Thus, this serves as a key contribution to the literature. This is consistent with the view shared by Capéau and De Rock (2015), that changes in family composition matter in determining saving behaviour. A priori, the outcome of this variable can vary widely depending on household circumstances, cultural norms, and financial priorities. In the present finding, we show evidence of a negative and statistically moderately significant relationship between a household with launching children in their life-cycle and households' saving behaviour. That is, if households with launching children in their life-cycle increase by 1 person, the associated saving behaviour is more likely to decrease by 5%. Indeed, parents who have stayed with their children and borne all their financial burdens still feel obliged in their children's transition to independence and self-reliance. Parents therefore continue to allocate resources to support their children's transition, leaving fewer household funds for saving. A study by Lugauer et al. (2019), demonstrates that in families where the entire family burden is less, there is a higher tendency to observe saving behaviour. This is consistent with the present study, where higher household burden decreases the probability for households to exhibit saving behaviour.

Our evidence shows that households with primary or junior secondary school education do not significantly impact their saving behaviour compared to those with no education, as indicated by the negative coefficients. The results are not statistically significant, suggesting that the level of primary education does not strongly influence the likelihood of saving. Also, secondary or vocational education has a positive but not statistically significant impact on saving behaviour compared to having no education. While the positive coefficient suggests a tendency towards better saving behaviour, the lack of significance implies that this effect is not robust. Some studies have shown that basic education might not provide sufficient financial literacy or income increase to affect saving behaviour significantly (Lusardi & Mitchell, 2014). In addition, having a first degree shows a small positive impact on saving behaviour, but it is not statistically significant. This suggests that while higher education may enhance financial awareness and capability, it does not significantly alter saving behaviour in this context given the meagre salaries being paid to first degree holders in Ghana. However, holding a second degree (e.g., a master's degree) and above (e.g., a doctorate degree) significantly increases the likelihood of saving by approximately 15% compared to having no education. The positive and statistically significant coefficients suggest that advanced education levels substantially enhance saving behaviour. This is consistent with the financial literacy theory, which suggests that higher education, especially at advanced levels, typically includes better exposure to financial knowledge and skills (Lusardi & Mitchell, 2014), as well as sufficient pay cheques generally in excess of household average expenditure. Empirical studies support the notion that higher educational attainment correlates with better financial literacy, higher income, and more disciplined financial behaviours, including savings (Bernheim et al., 2001; Lusardi & Tufano, 2015). Advanced degrees often lead to better-paying jobs and a greater understanding of the importance of saving for future security.

Undoubtedly, the level of a person's employment status is important in determining the associated work entitlements and how much can be available for saving. In this study, we disaggregate the status of employment into ten levels, with unemployment as the base case. Except for the retired status, which is found to be relatively positive, albeit statistically insignificant, all the other levels are significant. Relative to the unemployed, household heads' levels of employment, which include those who are in full-time employment in the private or public sector, self-employed with or without employees, casual workers, apprentices, domestic employees, or contributing family workers, are more likely to influence household saving behaviour, holding all else constant. This implies that, except for the retired, those who are gainfully employed are found to demonstrate some level of saving behaviour, however at different levels. Thus, households with heads who are either retired or unemployed are not likely to be associated with saving behaviour. This corroborates with Klemm (2012) who finds higher job insecurity is generally accompanied by a slightly lower saving rate; thus, a secured job may influence the level of saving significantly.

#### **4.3. A test of precautionary saving hypothesis**

The study extends the analysis by investigating whether household saving behaviour is underscored driven by the precautionary saving or spending hypothesis. The standard theory explains household saving or

spending choices under uncertainty. This theory dates back to the 1960s; however, recent considerations have triggered a significant new strand of literature (Choi et al., 2017; Baiardi et al., 2020).

In this study, to ensure robustness of the evidence, we present two main assumptions. First, we assumed that a household with formal employment (i.e. *any kind of employment where wages/salaries are earned*) may have a weaker precautionary motive for saving owing to stable and predictable income streams, job security, etc. On the other hand, a household with informal employment (i.e. *unemployed and relies on supports*) may be associated with a stronger precautionary motive for saving because of the risk of employment uncertainty.

In respect of the second assumption, the study posits that a household with formal employment (i.e. *full employment, be it public or private, etc.*) may have a weaker precautionary motive for saving owing to stable and predictable income streams, job security, etc. On the other hand, a household with informal employment (i.e. *casual worker, domestic worker, domestic employee, etc.*) may be associated with a stronger precautionary motive for saving because of the risk of employment uncertainty.

To operationalise the theory under the different assumptions, we generated new independent binary variables to measure the risk of employment uncertainty and how that can influence saving behaviour. That is, households in formal employment with stronger precautionary motives are coded as the variable of interest (1), while those in informal employment are used as the reference category (0). Adding all other controls, as in the case of Table 5, we estimate the relationship between formal employment and saving behaviour and present the results in Table 6. Relative to the informal (formal) employment, the results highlight a positive (negative) relationship between formal (informal) employment and household saving behaviour outcomes. The coefficient of the logit models and average marginal effects indicate that formal employment significantly enhances saving behaviour compared to informal employment. That is, from Table 6, under different assumptions, the coefficients (0.3956\*\* and 0.5082\*\*\*) and marginal effects (0.0727\*\* and 0.0980\*\*\*) suggest that relatively, formal (*informal*) employment is positively (*negatively*) associated with household saving behaviour, emphasizing the benefits of reliable, formal jobs over unreliable, informal ones. Indeed, unlike the evidence provided by Kennickell and Lusardi (2005) and Choi et al. (2017) in higher-income country settings, this study did not find any evidence to support the precautionary saving hypothesis. Rather, we observed saving behaviour among households with certainty regarding future incomes, which is a characteristic of most developing countries where immediate survival is prioritised over future unknowns.

For robustness checks, another dummy variable is created using the minimum wage as the threshold. Those who earn below the minimum wage are treated as having a lower income, while those who earn above the minimum income are treated as higher income. The dummy variables for income and employment status are interacted to ascertain whether we will find evidence that corroborates with the results in Table 6.

From Table 7, the first interaction (0, 0), represents the baseline category where the household is associated with low income (Household Income Dummy = 0), and is not formally employed (Formal

**Table 6.** Test results of precautionary saving hypothesis.

VARIABLES	Assumption 1 results		Assumption 2 results	
	Logit Model	Average Marginal effects	Logit Model	Average Marginal effects
Reference (Informal Employment = 0)				
Formal Employment (= 1)	0.3956** (0.166)	0.0727** (0.032)	0.5082*** (0.129)	0.0980*** (0.025)
Control Variables	Yes		Yes	
District Dummies (Fixed Effect)	Yes		Yes	
Constant	−4.6707*** (0.631)		1.0250*** (0.093)	
Wald chi2 (14/10)	166.62***		5153***	
Pseudo R2	0.1141		0.0297	
AIC (df = 14/11)	1711.528		1899.257	
Log pseudolikelihood	−840.7638		−938.629	
Observations	1,604		1,640	

Dep Variable: saving behaviour (Binary).

Robust standard errors in parentheses.

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .



**Table 7.** Robustness test results of precautionary saving hypothesis.

VARIABLES	logit Model (1)	logit Model (2)
Household income dummy $\times$ Formal employment dummy		
0 0	0.0000 (0.000)	0.0000 (0.000)
0 1	0.1645 (0.155)	0.1697 (0.157)
1 0	0.0047 (0.156)	0.0092 (0.157)
1 1	1.5625*** (0.210)	1.5423*** (0.214)
Constant	0.5715*** (0.074)	0.7736*** (0.101)
Control variables	Yes	Yes
District dummies (Fixed Effect)	No	Yes
Observations	1.640	1.640

Dependent Variable: saving behaviour (Binary).

Robust standard errors in parentheses.

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Employment Dummy = 0). The coefficient for the reference category of 0.0000, implies no effect by this interaction's effect on saving behaviour.

The next interaction, (0, 1), which represents households with low income but formal employment, reports a coefficient of 0.1645 in Model 1 and 0.1697 in Model 2. These coefficients are positive but not statistically significant. Thus, with reference to the baseline category, formal employment in a low-income household marginally increases the probability that a household would exhibit saving behaviour; however, this effect is not statistically significant.

The third interaction, (1, 0), denotes households with high income but without formal employment and reports coefficients of 0.0047 in Model 1 and 0.0092 in Model 2. Both coefficients are statistically insignificant, meaning that high household income has the probability of increasing saving behaviour, even without formal employment. This shows signs of the precautionary saving hypothesis, albeit insignificant statistically.

To further investigate this, we leverage the evidence from the fourth interaction (1,1). This represents households with both high income and formal employment. The coefficients are 1.5625 in Model 1 and 1.5423 in Model 2, with both being highly statistically significant. This implies that when both household income is high and the individual is formally employed, the probability that the household would save significantly increases. This evidence attests to the absence of the precautionary saving hypothesis as earlier established in Table 6.

#### 4.4. Discussion of results

In analysing the determinants of household saving behaviour using household survey data conducted in the Greater Accra Region of Ghana, the study estimates the factors influencing saving behaviour. The use of average marginal effects in the empirical analysis allows for a clearer interpretation of how changes in key factors influence the likelihood of saving behaviour (Deaton, 1999). The findings reveal that household disposable income, the educational attainment of household heads, employment status, and households with launching children are significant drivers of saving behaviour. These results align with existing literature on the relationship between household characteristics and saving behaviour, emphasising the role of income and education in enabling savings accumulation (Ang, 2009; Deaton, 2016; Faridi & Bashir, 2010; Kulikov et al., 2009).

In a broader sense, the study by Faridi and Bashir (2010) conducted in the Multan district of Pakistan found that total household income, spouse participation, total dependency rate, and the size of land-holdings were found to significantly increase household saving. Similarly, at the micro level in Akram (2023), household saving was observed to increase with factors such as income, residence in a nucleus family, house ownership, and the receipt of remittances from abroad, particularly among individuals in the agriculture sector. Highlighting the importance of household current income, Harris et al. (2002) assert that it is perhaps the most crucial determinant of saving.

In time series-related studies, Ang (2009) found that higher income growth in China and India promotes more household saving. Whereas Le Blanc (2016) found that in Ireland, wealthier households are relatively more likely to save than poorer households. This implies that, in most developing and even developed countries, saving behaviour is significantly influenced by households' economic power. However, under uncertainty, Guariglia (2003) suggests that households tend to save more when they anticipate a deterioration in their financial situation. This view lends support to the precautionary saving hypothesis, which is not empirically established in the present study.

In a two-person household, the extent and nature of saving, along with the corresponding time trajectory of consumption, are heavily influenced by the distribution of income within the household. The significant positive influence of income on household saving behaviour calls for policies that may promote income growth and stability for households in Ghana. Thus, creating job opportunities for financial empowerment fosters growth and leads to higher income levels for households through an increase in wages and financial assets to drive increased saving.

In economic theory, saving and investment are essential drivers of economic growth. Regarding the saving-growth nexus, Deaton (1999), explores the complex link between savings and economic growth, arguing that while savings can support growth through investment, the relationship is not straightforward. He emphasises the influence of factors like income distribution and institutional conditions and cautions against assuming a direct causal link between savings and growth. Further, Deaton (2016) critiques traditional measures of welfare and poverty, advocating for broader approaches that consider health, well-being, and consumption patterns to better understand individual behaviour and living standards. Both studies by Deaton highlight the importance of nuanced analysis in economic research and policymaking, particularly when examining the drivers of saving, growth, and welfare outcomes.

In Capéau and De Rock (2015), saving behaviour is fundamentally driven by the change in family composition. Families with fewer dependent children were also found to significantly influence saving rates (Lugauer et al., 2019). The relationship between family life-cycle and saving behaviour in Ghana can be analysed using the life-cycle and social support theory that provides insights into the mechanisms behind this influence. Per the life-cycle theory, in larger households with more spending responsibilities, the level of financial obligations easily limits households' propensity to save. As a result, saving behaviour may be influenced by the need to meet immediate household expenses rather than focusing on long-term saving goals. Also, in Ghanaian households, extended family members often live together or provide financial assistance to each other. This social support network can influence saving behaviour by enabling individuals to rely on family resources in times of need, reducing the urgency to save for emergencies or future expenses.

According to the findings of this study, education is another important driver of saving behaviour, which leads to greater financial literacy. In this light, this study highlights the need to implement comprehensive financial literacy programmes at various levels of education. These programmes should seek to equip individuals with the necessary knowledge and skills to make informed financial decisions, encouraging responsible saving habits from an early age. In addition, through education, the level of knowledge about the opportunities in saving, such as interest accruals, access to loans and overdrafts, retirement planning, etc., can be unravelled to households, which will greatly inure to their benefits.

Further, this study identifies disaggregated employment as an important determinant of saving behaviour. The study shows that, relative to the unemployed, all employed jobs positively and significantly drive saving behaviour. Although there was no such statistically significant effect with respect to the retired because they are limited with their inflows and rather depend on their savings for their upkeep. Generally, through employment, people are able to fend for themselves and their households. Now, for household heads whose employment status is associated with higher wages and salaries, they are more likely to have a very high saving behaviour as compared to those whose remuneration barely suffices for only their households. Such household heads are likely not to save.

In Ghana, where income disparities are prevalent, employment could serve as a catalyst to bridge the income gap and create a surplus that can be saved. Unfortunately, the most recent craze for illegal mining activities has created 'illegal' jobs for the youth, although this is unsustainable because of its illegal nature. Again, jobs from the legal mining sector and commodities account for a relatively low share of employment (Darvas & Palmer, 2014). To whip up interest in saving behaviour among Ghanaians,

decision makers must be intentional about creating decent jobs, which translates into decent incomes that meet households' expenditure and saving.

From the discussions, this study underscores the critical role of income, education, and employment in shaping household saving behaviour in Ghana. Policies aimed at promoting financial literacy and creating stable, well-paying jobs can serve as key strategies to enhance household savings and foster long-term economic growth.

## 5. Conclusion and policy relevance

This study seeks to identify the key determinants of households' saving behaviour in Ghana. The study relies on a household survey and estimates a logit fixed effect econometric model. The study establishes that household saving behaviour in Ghana is driven by household-specific characteristics, namely, income, household with launching children in the family life-cycle, education, and employment. The study recommends the implementation of policies geared towards income growth, financial literacy and education, job creation, and employment opportunities. These may drive a stronger financial foundation and stability.

The positive effect of income on saving behaviour suggests that as individuals' income increases, they tend to save a higher proportion of their earnings. This has significant policy implications, and policy directions on the creation of employment opportunities and income redistribution to curtail income inequality can be pursued to encourage and support this positive effect. The implication for economic policy is that focusing solely on interest rates or disposable income may not be sufficient to promote higher saving rates. Policies need to consider the broader socio-economic context, including income distribution, education/financial literacy, and employment. By addressing these factors, policymakers can create an environment that encourages and supports individuals to save a higher proportion of their income. The positive effect of employment on saving behaviour suggests that individuals who are employed tend to have higher saving rates compared to those who are unemployed. This necessitates policies towards decent job creation and the provision of social safety nets, as well as labour market policies to improve labour market conditions for all Ghanaians.

In addition to the life-cycle hypothesis theory, this study is consistent with both the permanent income hypothesis and the precautionary saving theory. These theoretical frameworks propose that individuals shape their saving decisions by considering their anticipated long-term income and the necessity to safeguard against future uncertainties. This underscores the significance of factors like employment stability and income predictability, as well as the expectation of future earnings, in influencing individuals' choices regarding saving. The study emphasises the importance of incorporating non-monetary elements, such as job security and income predictability, in economic models of saving behaviour.

For policy purposes, it is now evidential that policy makers cannot discuss and make saving behaviour decisions in isolation as the behaviour is contingent on factors such as income growth, employment opportunities, household composition, and saving knowledge stemming from education, among others. In effect, a successful policy that can influence saving behaviour will, in no uncertain terms, serve as a catalyst to drive investment activities and sustain economic growth prospects. Motivating domestic saving behaviour presents an opportunity to substitute foreign investments, which is characterised by capital flight or profit repatriation. Obviously, Ghana's overdependence on foreign countries to drive our investment opportunities has not yielded much sustainable positive results. To shun away from history repeating itself calls for mobilising domestic saving and promoting domestic private investment to sustain economic growth and development. The ripple effect includes welfare enhancement, improved cultural practices, equity and equality, inclusion, and freedom. From the evidence shown in this study, if policymakers capitalise on socio-economic factors, it can drive saving, as posited in theory.

### 5.1. Limitations

We acknowledge that the measure of saving behaviour during the data collection processes should not have been lumped together, as this made it difficult to distinguish the proportion of formal saving from informal saving.

Again, given the relationship between income and saving, we admit a possible simultaneity bias in our regression results. Hence, we are careful to claim causal impact, so our results are treated as correlational regression and interpreted as association.

## Notes

1. Following Yamane (1967),  $n = N/(1 + N(e)^2) = 733,955/(1 + 733,955(0.0025)) = 733,955/1835.89 \approx 400$ .
2. The data is a secondary source data which was originally collected as part of a PhD study.
3. Launching stage of the family life cycle comprises young adults who are transitioning from residing in their parents' home, where they have primarily lived, to establishing independent living arrangements. In essence, these are young adults preparing to embark on a path of independence.

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## Authors' contributions

AA conceptualised the study. AA, CKT, NOB, PP, GA, GH, IK, BOA contributed to the design, analysis, and interpretation of the data. All authors participated in drafting and critically revising the paper for intellectual content, providing final approval for the version to be published. All authors collectively agreed to be accountable for all aspects of the work.

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## Data availability statement

After publication, data & questionnaire would be made available upon request.

## References

- Abebe, A. (2017). Factors affecting rural household saving (in case of Wolayita Zone Ofa Woreda). *Methodology*, 36, 40–45.
- Akram, N. (2023). Household's saving behaviour in Pakistan: A micro-data analysis. *Studies in Microeconomics*, 11(2), 139–156. <https://doi.org/10.1177/23210222211024377>
- Allen, F., Carletti, E., Cull, R., Qian, J. Q., Senbet, L., & Valenzuela, P. (2014). The African financial development and financial inclusion gaps. *Journal of African Economies*, 23(5), 614–642. <https://doi.org/10.1093/jae/eju015>
- Amoah, A. (2020). Estimating averting expenditure in domestic water use: evidence from Ghana. *Journal of Water, Sanitation and Hygiene for Development*, 10(4), 894–904. <https://doi.org/10.2166/washdev.2020.197>
- Amoah, A., & Asamoah, M. K. (2022). Child survival: The role of a mother's education. *Heliyon*, 8(11), e11403. <https://doi.org/10.1016/j.heliyon.2022.e11403>
- Amoah, A., & Moffatt, P. G. (2021). Willingness to pay for reliable piped water services: evidence from urban Ghana. *Environmental Economics and Policy Studies*, 23(4), 805–829. <https://doi.org/10.1007/s10018-021-00303-z>
- Amoah, A., Jumah, A., & Korle, K. (2022). Exploring willingness-to-pay for the restoration and maintenance of reserved forests in the Greater Accra Region of Ghana. *Forest Ecosystems*, 9, 100041. <https://doi.org/10.1016/j.fecs.2022.100041>
- Ando, A., & Modigliani, F. (1963). The 'life cycle' hypothesis of saving: Aggregate implications and tests. *The American Economic Review*, 53(1), 55–84.
- Ang, J. (2009). Household saving behaviour in an extended life cycle model: A comparative study of China and India. *Journal of Development Studies*, 45(8), 1344–1359. <https://doi.org/10.1080/00220380902935840>
- Asfaw, D. M., Belete, A. A., Nigatu, A. G., & Habtie, G. M. (2023). Status and determinants of saving behavior and intensity in pastoral and agro-pastoral communities of Afar regional state, Ethiopia. *PloS One*, 18(2), e0281629. <https://doi.org/10.1371/journal.pone.0281629>. PMC: 36795676.
- Baiardi, D., Magnani, M., & Menegatti, M. (2020). The theory of precautionary saving: An overview of recent developments. *Review of Economics of the Household*, 18(2), 513–542. <https://doi.org/10.1007/s11150-019-09460-3>
- Baidoo, S. T., Boateng, E., & Amponsah, M. (2018). Understanding the determinants of saving in Ghana: Does financial literacy matter? *Journal of International Development*, 30(5), 886–903. <https://doi.org/10.1002/jid.3377>
- Bernheim, B., Garrett, D. M., & Maki, D. M. (2001). Education and saving. *Journal of Public Economics*, 80(3), 435–465. [https://doi.org/10.1016/S0047-2727\(00\)00120-1](https://doi.org/10.1016/S0047-2727(00)00120-1)
- Bhat, M. A., Gomero, G. D., & Khan, S. T. (2024). Antecedents of savings behaviour among rural households: a holistic approach. *FIIB Business Review*, 13(1), 56–71. <https://doi.org/10.1177/23197145221110281>
- Capéau, B., & De Rock, B. (2015). *The implications of household size and children for life-cycle saving* (No. 286). NBB Working Paper.
- Choi, H., Lugauer, S., & Mark, N. C. (2017). Precautionary saving of Chinese and US households. *Journal of Money, Credit and Banking*, 49(4), 635–661. <https://doi.org/10.1111/jmcb.12393>
- Cronqvist, H., & Siegel, S. (2015). The origins of savings behaviour. *Journal of Political Economy*, 123(1), 123–169. <https://doi.org/10.1086/679284>
- Darvas, & Palmer, R. (2014). Demand and Supply of Skills in Ghana. The World Bank. Available at <https://openknowledge.worldbank.org/server/api/core/bitstreams/00982995-dd76-5315-99c1-93be857fb309/content> [Accessed 19-08-2023].
- Deaton, A. (1999). 'Saving and Growth'. In Klaus Schmidt-Hebbel and Luis Servén (Eds.), Chapter 3 in *The economics of saving and growth: theory, evidence, and implications for policy*. Cambridge University Press. Available at [http://www.princeton.edu/~deaton/downloads/Deaton\\_Saving\\_and\\_Growth.pdf](http://www.princeton.edu/~deaton/downloads/Deaton_Saving_and_Growth.pdf)



- Deaton, A. (2005). Franco Modigliani and the life cycle theory of consumption. *Available at SSRN 686475*, 1, 1–20.
- Deaton, A. (2016). Measuring and understanding behavior, welfare, and poverty. *American Economic Review*, 106(6), 1221–1243. <https://doi.org/10.1257/aer.106.6.1221>
- Duesenberry, J. S. (1949). *Income, saving and the theory of consumer behaviour*. Harvard University Press.
- Faridi, M. Z., & Bashir, F. (2010). Households saving behaviour in Pakistan: A case of Multan District. *Pakistan Journal of Social Sciences (PJSS)*, 30(1), 17–29.
- Friedman, M. (1957). The permanent income hypothesis. In *A theory of the consumption function by Milton Friedman*. (pp. 20–37). Published by Princeton University Press: National Bureau of Economic Research.
- Ghana Statistical Service (GSS). (2012). 2010 Population and Housing Census: Summary Report. GSS.
- Ghana Statistical Service (GSS). (2023). Statistical Bulletin: Consumer Price Index (CPI) Available at [https://statsghana.gov.gh/gssmain/fileUpload/Price%20Indices/Bulletin\\_%20CPI%20January%20%202023.pdf](https://statsghana.gov.gh/gssmain/fileUpload/Price%20Indices/Bulletin_%20CPI%20January%20%202023.pdf) [Accessed 15-07-2023 at 11:11].
- Ghosh, S. (2020). Financial inclusion in India: Does distance matter? *South Asia Economic Journal*, 21(2), 216–238. <https://doi.org/10.1177/1391561420961649>
- Guariglia, A. (2003). Saving behaviour and earnings uncertainty: Evidence from the British household panel survey. *Family, household and work*, 135–150.
- Hagan, E., & Amoah, A. (2020). Foreign direct investment and economic growth nexus in Africa: New evidence from the new financial fragility measure. *African Journal of Economic and Management Studies*, 11(1), 1–17. <https://doi.org/10.1108/AJEMS-05-2019-0180>
- Harris, M. N., Loundes, J., & Webster, E. (2002). Determinants of household saving in Australia. *Economic Record*, 78(241), 207–223. <https://doi.org/10.1111/1475-4932.00024>
- Hüfner, F., & Koske, I. (2010). *Explaining household saving rates in G7 countries: implications for Germany*, OECD Economics Department Working Papers No. 754.
- Issahaku, H. (2011). Determinants of saving and investment in deprived district capitals in Ghana-A case study of Nadowli in the Upper West Region of Ghana. *Wibud Journals*, 4(1), 1–12.
- Iyoha, M., Oyefusi, S. A., & Oriakhi, D. E. (2003). *An introduction to modern Macroeconomics*. Mindex Publishing.
- Jack, W., & Suri, T. (2014). Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution. *American Economic Review*, 104(1), 183–223. <https://doi.org/10.1257/aer.104.1.183>
- Kennickell, A., & Lusardi, A. (2005). Disentangling the importance of the precautionary saving motive (CFS Working Paper No. 2006/15). *Frankfurt, Germany: Center for Financial Studies*
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. Macmillan Co.
- Klemm, M. (2012). Job security perceptions and the saving behaviour of German households. *Ruhr Economic Paper*, 1(380), 1–36. <https://doi.org/10.4419/86788435>
- Kulikov, D., Paabut, A., & Staehr, K. (2009). A microeconomic analysis of household saving in Estonia: Income, wealth and financial exposure. In David G. Mayes (Ed.), *Microfoundations of Economic Success* (chap 6, pp. 190–241). Edward Elgar Publishing.
- Kwakye, K. G., Corral Rodas, P. A., Elmaleh, D., & Sebastian, A. R. (2023). Seventh Ghana Economic Update: Price Surge-Unraveling Inflation's Toll on Poverty and Food Security.
- Kweku Asiamah, R., Amoah, A., & Ahiabor, G. (2020). Does mobile money business influence non-performing loans in the traditional banking sector? Evidence from Ghana. *African Journal of Business and Economic Research*, 15(4), 171–188. <https://doi.org/10.31920/1750-4562/2020/v15n4a8>
- Larbi, D. A. (2013). The long run determinants of private domestic saving in Ghana: a cointegration approach. *Journal of Economics and Sustainable Development*, 4(4), 125–136.
- Le Blanc, J. (2016). *Household Saving Behaviour in Ireland* (No. 05/EL/16). Central Bank of Ireland.
- Lewis, W. A. (1954). *Economic development with unlimited supplies of labor*. Manchester School of Economic and Social Studies.
- Lugauer, S., Ni, J., & Yin, Z. (2019). Chinese household saving and dependent children: Theory and evidence. *China Economic Review*, 57, 101091. <https://doi.org/10.1016/j.chieco.2017.08.005>
- Lusardi, A., & Mitchell, O. S. (2014). The Economic Importance of Financial Literacy: Theory and Evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5> 28579637
- Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and overindebtedness. *Journal of Pension Economics & Finance*, 14(4), 332–368. <https://doi.org/10.1017/S1474747215000232>
- Mazengiye, M. N., Seraw, G., Melesse, B., & Belete, T. (2022). Determinants of rural household saving participation: A case study of Libokemkem District, North-west Ethiopia. *Cogent Economics & Finance*, 10(1), 2127219. <https://doi.org/10.1080/23322039.2022.2127219>
- Mensahklo, E., Kornu, D. D., & Dom, B. (2017). An empirical analysis of the determinants of saving behaviour by household in Ho, Ghana: A case study of the Ho Municipality, an individual analysis. *Journal of Economics and Sustainable Development*, 8(6), 1–11.
- Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross section data. In K. Kurihara (Ed.), *Post-Keynesian economics*. Allen and Unwin.
- Mody, A., Ohnsorge, F., & Sandri, D. (2012). Precautionary saving in the great recession. *IMF Economic Review*, 60(1), 114–138. <https://doi.org/10.1057/imfer.2012.5>



- Mori, N. (2019). Determinants of individual savings among Tanzanians. *Review of Behavioral Finance*, 11(3), 352–370. <https://doi.org/10.1108/RBF-05-2018-0045>
- Nduku, P. M. (2017). *Population age structure and savings behaviour in South Africa: The relevance of the life-cycle hypothesis*. University of Johannesburg.
- Nsowah-Nuamah, N., Teal, F., & Awoonor-Williams, M. (2012). Jobs, Skills and Incomes in Ghana: How was poverty halved? *Comparative Education*, 48(2), 231–248. <https://doi.org/10.1080/03050068.2011.608899>
- Nwosu, E. O., Anumudu, C. N., & Nnamchi, C. E. (2020). Microeconomic determinants of household saving in Nigeria. *Journal of International Development*, 32(2), 150–167. <https://doi.org/10.1002/jid.3440>
- Opoku, P. K. (2020). The short-run and long-run determinants of household saving: Evidence from OECD economies. *Comparative Economic Studies*, 62(3), 430–464. <https://doi.org/10.1057/s41294-020-00123-2>
- Phillips, P. C., & Ouliaris, S. (1990). Asymptotic properties of residual based tests for cointegration. *Econometrica*, 58(1), 165–193. <https://doi.org/10.2307/2938339>
- Sakyi, D., Onyinah, P. O., Baidoo, S. T., & Ayesu, E. K. (2021). Empirical determinants of saving habits among commercial drivers in Ghana. *Journal of African Business*, 22(1), 106–125. <https://doi.org/10.1080/15228916.2019.1695188>
- Sisay, K. (2023). Rural households saving status and its determinant factors: Insight from southwest region of Ethiopia. *Cogent Economics & Finance*, 11(2), 2275960. <https://doi.org/10.1080/23322039.2023.2275960>
- Smyth, D. J., Montgomery, E. B., & Flavin, M. (1993). Toward a theory of saving. In: Gapinski, J.H. (Eds.), *The Economics of Saving. Recent Economic Thought Series* (vol 28). Springer. [https://doi.org/10.1007/978-94-017-3294-9\\_2](https://doi.org/10.1007/978-94-017-3294-9_2)
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, 70(1), 65–94. <https://doi.org/10.2307/1884513>
- Tetteh, J. E., Amoah, A., Ofori-Boateng, K., & Hughes, G. (2022). Stock market response to COVID-19 pandemic: A comparative evidence from two emerging markets. *Scientific African*, 17, e01300. <https://doi.org/10.1016/j.sciaf.2022.e01300>
- Weiss, M. J. (2000). *The Clustered World: How We Live, What We Buy, and What it All Means About Who We Are*, Little, Brown and Company.
- Wieliczko, B., Kurdyś-Kujawska, A., & Sompolska-Rzechuła, A. (2020). Savings of small farms: Their magnitude, determinants and role in sustainable development. example of Poland. *Agriculture*, 10(11), 525. <https://doi.org/10.3390/agriculture10110525>
- World Bank. (2023). Gross domestic saving (Percent (%) of GDP). Available at <https://data.worldbank.org/indicator/NY.GDS.TOTL.ZS> [23-08-2023]
- Yamane, T. (1967). *Statistics, an introductory analysis* (2nd ed., p. 886). Harper and Row.
- Zelege, A. T., & Endris, A. K. (2019). Household saving behaviour and determinants of savings in financial institutions: The case of Derra District, Oromia Region, Ethiopia. *Research Journal of Finance and Accounting*, 10(23), 2222–2847.
- Zwane, T., Greyling, L., & Maleka, M. (2016). The determinants of household saving in South Africa: A panel data approach. *International Business & Economics Research Journal*, 15(4), 209–218. <https://doi.org/10.19030/iber.v15i4.9758>