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Article

Financial literacy education and inclusion for migrants: A logistic regression model exploration

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Abstract: This study investigates the financial literacy and inclusion of Ghanaian migrants in the UK, focusing on demographic impacts on financial behaviors. Analyzing data from 400 structured survey respondents through descriptive statistics, correlation analysis, and logistic regression, the research finds that most Ghanaian migrants in the UK are younger, unmarried males with less than a university education. Educational attainment emerges as a significant predictor of financial asset ownership, with higher education levels correlating with ownership of savings accounts, investments, and pensions. Marital status also influences financial behaviors, with married individuals exhibiting different financial patterns than singles. Correlation analysis reveals a positive relationship between the length of stay in the UK, age, financial inclusion, and literacy, indicating that longer residency is linked to better financial integration and literacy. Older migrants tend to have larger households and higher financial engagement and literacy. The study provides empirical data on the financial behaviors of Ghanaian migrants in the UK, underscoring the need for financial literacy and inclusion for socio-economic integration. Recommendations include targeted educational programs for younger, unmarried Ghanaian males and support services for new migrants to navigate the UK's financial system, aiming to promote economic empowerment and integration within the migrant community.

Keywords: migrants; educational attainment; financial behavior; Ghanaian; United Kingdom

1. Introduction

Financial education and markets hold a significant role in driving economic activities not only in industrialized economies but also in emerging ones. They are essential for mobilizing funds and ensuring the effective allocation of resources across various economic sectors. With the evolution of modern financial markets, new and sophisticated financial instruments have emerged, necessitating a high level of financial literacy among individuals to engage effectively in these markets [1]. This requirement is particularly critical for immigrants adapting to new environments where the social and economic landscapes have undergone considerable changes [2].

The adaptation of financial products and services to changing social and economic conditions highlights the importance of financial literacy [3]. Making informed financial decisions is crucial for individuals, particularly in regions with inadequate financial literacy, to secure both short-term and long-term benefits. Prior studies indicate that financial literacy challenges are present not only in underdeveloped nations but also in certain industrialized countries [4]. This raises the

question of whether migrant populations in these developed nations, who might face complexities due to unfamiliar financial systems and cultural differences, contribute to these challenges.

Despite the evident advantages of financial literacy, widespread financial illiteracy remains a global issue, posing a significant barrier to achieving full financial inclusion. Following the global financial crisis, numerous studies have explored the role of financial literacy in enhancing access to and utilization of financial services [5,6]. Menon [7] emphasizes that enhancing financial literacy should go hand in hand with financial inclusion policies to maximize the benefits of financial inclusion efforts. Research underscores the importance of financial inclusion at both individual and macroeconomic levels. Kumar and Ahuja [8] assert that financial inclusion is a comprehensive tool for fostering economic progress, enabling individuals to utilize their income for personal financial well-being, and contributing to national development. Sharma [9] argues that financial inclusion drives economic growth by supporting infrastructure development. Klapper et al. [10] view financial inclusion as crucial for achieving the Sustainable Development Goals (SDGs), with Abor et al. [11] highlighting its significance as a target in eight of the seventeen SDGs. Consequently, financial inclusion remains a vital agenda globally.

Many Ghanaians have suffered greatly due to a lack of financial knowledge, falling prey to Ponzi schemes and failing to maximize their surplus income due to limited access to savings and investment information. This financial illiteracy has led some to take out high-interest loans, resulting in substantial debt to financial institutions [12]. These challenges have deterred residents from exploring alternative financial assets like the stock market. The FinScope poll highlights consistently low levels of financial literacy across several African nations [13]. Furthermore, significant differences in stock market participation rates have been observed between Europeans and Africans, with the assumption that African immigrants in the UK may possess greater stock market knowledge [14]. However, no research has specifically confirmed this for Ghanaian immigrants in the UK, suggesting their limited financial literacy may hinder their ability to capitalize on stock market opportunities. The World Bank has explored how financial literacy impacts financial inclusion, finding substantial effects from educational efforts in South Africa [15]. Similarly, Klapper et al. [10] identified positive correlations between financial literacy, informed financial decisions, and bank account ownership, especially in low-income countries. Despite these findings, there is a gap in research directly linking financial literacy, financial inclusion, and stock market participation among immigrant households in the UK, highlighting the need for further investigation into how financial literacy can enhance both financial inclusion and stock market engagement for migrant communities.

The research problem addressed in this study is the lack of comprehensive understanding of the financial behaviors of Ghanaian migrants in the UK, particularly in relation to financial literacy and inclusion, and how these factors influence their participation in the stock market. The specific objectives of this study are to examine the level of financial literacy and inclusion among Ghanaian migrants in the UK, identify key demographic factors influencing financial behaviors such as bank account ownership, credit card possession, and stock market participation, assess the impact of financial literacy on financial inclusion and stock market participation among

Ghanaian migrants, and to provide evidence-based recommendations for policies and interventions aimed at improving financial literacy and inclusion within this community. By addressing these objectives, the study aims to fill a critical gap in the existing literature and provide actionable insights for policymakers and stakeholders.

The structure of the study is organized as follows: Section 2 covers the theoretical framework and literature review, Section 3 details the materials and methods used in the study, Section 4 presents the study's results, Section 5 offers a discussion of the findings, Section 6 provides the study's conclusion, and Section 7 concludes with the study's recommendations.

2. Theoretical framework and literature review

Theoretical thinking: Financial literacy is a cornerstone for understanding the financial behaviors of Ghanaian migrants in the UK. It addresses a myriad of factors, from psychological biases to economic growth and social networks. In this regard, our study is guided by the behavioural finance theory and finance-growth theory. The behavioural finance theory emphasizes the psychological factors that influence financial decisions. Financial literacy, by providing individuals with the knowledge and tools to make informed choices, can help mitigate cognitive biases and irrational behaviors [16]. For migrants, who may face cultural and linguistic barriers, financial literacy can be particularly crucial in navigating unfamiliar financial systems and avoiding costly mistakes. Furthermore, the finance-growth theory underscores the macroeconomic implications of financial literacy. By promoting financial inclusion and fostering a more efficient financial system, financial literacy can contribute to economic growth and development [17]. For Ghanaian migrants, access to financial services can facilitate their integration into the UK economy and improve their overall well-being.

Literature review: Financial literacy is a multidimensional concept that encompasses awareness of the financial system, economic influences on household decisions, and essential money management skills like budgeting, saving, investing, and insurance [18,19]. Various definitions highlight the ability to make informed judgments about money management and confident decisions regarding financial matters [20–22]. Despite its importance, financial literacy remains inadequately addressed in both developed and developing countries, posing barriers to financial inclusion and economic stability [7]. Financial inclusion involves providing accessible, high-quality financial services to enhance community well-being [23,24]. Key metrics include access, usage, and service quality [25]. Financial inclusion is crucial for economic empowerment and stability, facilitating better financial planning and broader economic participation [9,10]. Significant barriers to financial inclusion persist, particularly among low-income and migrant populations [13,15].

Studies show a positive impact of financial literacy on financial inclusion. Financial education improves saving behavior and access to financial services [26,27]. However, some research indicates mixed results, suggesting the need for more targeted investigations [28]. Furthermore, recent studies have shown that financial literacy significantly influences stock market participation, with higher literacy associated with greater investment and wealth-building [29,30]. The ability to navigate financial

markets reduces vulnerability to financial crises and promotes informed investment decisions [10]. However, low participation rates among certain demographic groups indicate gaps in financial education and access [28]. While existing research establishes the relationship between financial literacy, inclusion, and stock market participation, there is a notable gap concerning migrant populations, particularly Ghanaian migrants in the UK. Previous studies have not sufficiently explored how financial literacy and inclusion affect stock market participation in this demographic [31,32]. This study addresses these gaps by providing empirical evidence on the financial literacy, inclusion, and stock market participation of Ghanaian migrants in the UK. By focusing on key demographic factors and their influence on financial behaviors, this research contributes to a deeper understanding of how financial literacy and inclusion can be improved within this community. The findings will inform targeted policies and interventions, enhancing financial empowerment and socio-economic integration for Ghanaian migrants. In conclusion**,** financial literacy plays a pivotal role in understanding the financial behaviors of Ghanaian migrants in the UK. It addresses the psychological, economic, social, and human capital dimensions of financial decision-making. By providing migrants with the knowledge, skills, and support they need to make informed financial choices, financial literacy can help them achieve their financial goals and improve their overall quality of life.

3. Materials and methods

3.1. Study design

The study adopts a cross-sectional research design to gather data from the target population at a single point in time, focusing on understanding the relationships between various study variables. Utilizing a deductive approach, hypotheses are formulated based on theoretical frameworks and then tested using the collected data. This process involves deriving research questions from existing theories, testing these hypotheses with empirical data, and drawing conclusions. The deductive approach ensures that the study's findings are grounded in a theoretical perspective, allowing for a robust examination of the relationships between the variables under investigation.

The study's population comprises Ghanaian migrants in the UK who have lived there for over two years and are over 18 years old. According to the migration observatory [33], there are about 114,000 Ghanaian immigrants in the UK, and this is the population size of interest in this study [34]. The sample size for this study was determined using Yamane's formula for sample size calculation:

$$n = \frac{N}{1 + N(e^2)}$$

where:

n is the sample size;

N is the population size (estimated at approximately 114,000);

e^2 is the margin of error (set at 5%).

Using this formula, the required sample size was calculated to be 399 participants, which was rounded up to 400, which provides a balance between precision and feasibility. This sample size is adequate to achieve reliable and valid results, given the

large population of Ghanaian migrants in the UK. A multi-stage sampling technique was employed to ensure a representative sample of the target population. The process included purposive sampling, where initially towns and cities with significant Ghanaian populations were identified. This ensured that the sample included areas with high concentrations of the target demographic. Systematic Sampling where these selected locations, systematic sampling was used to select individual participants. This method involved selecting every nth individual from a list of Ghanaian migrants, ensuring a random and unbiased selection process.

The combination of purposive and systematic sampling techniques ensures that the sample is representative of the target population and reduces the risk of selection bias. This approach provides a comprehensive and accurate description of the financial behaviors of Ghanaian migrants in the UK. Data was collected through structured questionnaires administered to the selected sample. The questionnaire was designed to capture detailed information on demographic characteristics, financial inclusion, financial literacy, and stock market participation. Responses were entered into Excel and analyzed using SPSS software to conduct correlational and logistic regression analyses.

The study employed descriptive statistics to profile the demographic composition of the sample and utilized correlation analysis to examine relationships between variables like financial inclusion, financial literacy, and demographic characteristics. Logistic regression models were employed to identify significant predictors of financial behaviors, including ownership of UK bank accounts, credit cards, participation in stock markets, and risk-taking behaviors.

The logit model used in this study estimates the association between financial inclusion and various demographic factors using maximum likelihood estimation. The model's variables include gender, age, marital status, educational level, financial factors, and an index score indicative of financial inclusion and literacy.

3.2. The logit Model

Equation (1) represents this logit model:

$$Y_{1j}^{*} = X_{1j}^{'}\,\rho + R_{1j}^{'}\beta + S_{1j}^{'}\,\gamma + \epsilon_{1j} \tag{1}$$

where:

$$Y_{1j} = 1\ if\ Y_{1j}^{*} > 0, and\ Y_{1j} = 0\ if\ Y_{1j}^{*} \leq 0.$$

Y_{1j}^{*} is the dependent variable measuring stock market participation, with a binary value of 1 indicating ownership of stocks and 0 otherwise.

$X_{1j}^{'}$ encompasses variables such as gender, age, marital status, level of education, and other financial factors like risk aversion $R_{1j}^{'}\beta$ affecting an index score indicative of the respondent's level of financial inclusion.

$S_{1j}^{'}$ represents an index score reflecting the respondent's level of financial literacy.

ϵ_{1j} denotes a normally distributed random error with a mean of zero and constant variance.

This model is employed to examine how these factors collectively influence individuals' financial inclusion and their likelihood of participating in the stock market.

3.3. Variables description

This research focuses on three main variables: financial literacy, financial inclusion, and engagement in the stock market. Financial literacy is evaluated using seven established indices from the literature, utilizing Jin, Kanagaratnam, and Cheng's [35] annual statewide financial literacy index derived from NFCS surveys. The questions used in this study are consistent with those widely used in prior economic and business research on financial literacy, as seen in the NFCS questions (https://www.finra.org/financial_literacy_quiz). To gauge respondents' knowledge of interest rates, inflation, risk diversification, bonds, and mortgages, a set of seven questions is employed, and the total score for each respondent is calculated based on the number of correct answers.

Financial inclusion is assessed using five key metrics related to the utilization and accessibility of banking services, as outlined by Cihak et al. [36] and Akakpo et al. [32]. Furthermore, stock market participation is determined through two main indicators: current investment in stocks and the willingness to buy or sell shares when the opportunity arises to convert shares into cash promptly [32]. All study variables and their descriptions are listed in **Table 1**.

Table 1. Variable notations, description and scale.

Variable Notation	Description	Scale
Gender	Gender of respondent as chosen by the respondent	1 = Male, 0 = Otherwise
Age	Age of respondents in completed years	Years
MS	Marital status of the respondent (legally married or not)	1 = Married, 0 = Otherwise
HS	Number of individuals in the respondent's household	Number
Edu	Educational level of the respondent	1 = University Degree and above, 0 = Otherwise
Financial Inclusion (Independent Variable)		
ACCUK	Respondent's ownership of a UK bank account	1 = Yes, 0 = No
UDP	Use of the account for direct purchases in the UK	1 = Yes, 0 = No
Freq.Wd	Frequency of withdrawing from the account at least once a month	1 = Yes, 0 = No
CC	Possession of a credit card	1 = Yes, 0 = No
Financial Behavior (Control Variable)		
RA	Ability to take financial risks	1 = Yes, 0 = No
Financial Literacy (Independent Variable)		
SV	Understanding of the value of stocks/shares	1 = Correct, 0 = Wrong
FS	Understanding of the future value of stocks/shares	1 = Correct, 0 = Wrong
SI	Understanding of simple interest	1 = Correct, 0 = Wrong
Amt	Understanding of interest plus principal	1 = Correct, 0 = Wrong
RR	Understanding the relationship between risk and return	1 = Correct, 0 = Wrong
RD	Understanding of risk diversification/spread	1 = Correct, 0 = Wrong
	Total Financial Literacy Index = 7	
Stock Market Participation (Dependent Variable)		
Stock Investment	Currently investing in stocks	1 = Yes, 0 = Otherwise
Agent Trade	Willingness to invest in stocks given the opportunity	1 = Yes, 0 = Otherwise

4. Results

Table 2. Demographic profile of respondents.

Demographic Variable	Group	Frequency	Percent
Gender	Otherwise	168	42.0
	Male	232	58.0
	Total	400	100.0
Marital Status (MS)	Otherwise	290	72.5
	Married	110	27.5
	Total	400	100.0
Educational Level (Edu)	Otherwise	272	68.0
	University Degree and above	128	32.0
	Total	400	100

Table 3. Summary statistics on respondents.

Variables	Mean	Std. Deviation	*N*
Years in UK	3.087	3.1502	400
Age	30.607	4.4723	399
Household Size	3.562	2.2195	399
Financial Inclusion	3.009	1.16127	376
Financial Literacy	3.260	1.938	390

From **Tables 2** and **3**, the sample consists predominantly of younger, unmarried male migrants with educational backgrounds mostly below university degrees. Specifically, 58% of respondents are male, 72.5% are unmarried, and 68% have educational levels below a university degree. The average duration of stay in the UK is 3.09 years, with a mean age of 30.61 years and an average household size of 3.56 members. The mean financial literacy score is 3.26 out of 7, indicating varied understanding of concepts such as interest rates, inflation, risk diversification, and mortgages. These statistics highlight a diverse sample in terms of demographics and financial engagement.

From **Table 4** and regarding financial inclusion, 89% of respondents own a UK bank account, 87% use their accounts for direct purchases, and 88.0% withdraw from their accounts at least once a month. Additionally, 60.25% possess a credit card. In terms of risk-taking, a slight majority, 54.25%, are not willing to take financial risks. The mean financial literacy score is 3.26 out of 7, indicating varied understanding of concepts such as interest rates, inflation, risk diversification, and mortgages. These findings indicate that the majority of respondents are well-integrated into the financial system, actively use their bank accounts for transactions, and regularly withdraw funds. However, a notable portion is cautious about financial risks, and a significant number possess credit cards, reflecting their engagement with diverse financial products.

Table 4. Statistics on financial behaviors of respondents.

Financial Inclusion	Response	Frequency	Percent
Respondent's ownership of a UK bank account	No	44	11.00
	Yes	356	89.00
	Total	400	100.00
Use of the account for direct purchases in the UK	No	52	13.00
	Yes	348	87.00
	Total	400	100.00
Frequency of withdrawing from the account at least once a month	No	48	12.00
	Yes	352	88.00
	Total	400	100.00
Ability to take financial risks	No	217	54.25
	Yes	183	45.75
	Total	400	100.0
Possession of a credit card	No	159	39.75
	Yes	241	60.25
	Total	400	100.0

Table 5. Correlation matrix.

		Years in UK	Age	HS	Financial Inclusion	Financial Literacy
Years in UK	Pearson Correlation	1	0.321**	0.078	0.323**	0.204**
Age	Pearson Correlation	0.321**	1	0.160*	0.141*	0.371**
HS	Pearson Correlation	0.078	0.160*	1	0.071	0.023
Financial Inclusion	Pearson Correlation	0.323**	0.141*	0.071	1	0.445**
Financial Literacy	Pearson Correlation	0.204**	0.371**	0.023	0.445**	1

**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

Table 5 reports the Pearsons correlation coefficients alongside their significance. The correlation analysis reveals that longer stays in the UK positively correlate with higher financial inclusion ($r = 0.323$, $p < 0.01$) and financial literacy ($r = 0.204$, $p < 0.01$). Age also positively correlates with financial inclusion ($r = 0.141$, $p < 0.05$) and financial literacy ($r = 0.371$, $p < 0.01$). The logistic regression analysis indicates that credit card ownership is significantly predicted by marital status ($B = 1.122$, $p < 0.01$), educational level ($B = 1.477$, $p < 0.01$), and years in the UK ($B = 0.456$, $p < 0.01$). Bank account ownership is strongly influenced by educational level ($B = 2.366$, $p < 0.01$), while stock market participation is predicted by non-risk aversion ($B = 2.019$, $p < 0.01$) and financial inclusion ($B = 0.543$, $p < 0.05$).

The logistic regression analysis presented in **Table 6**, highlights significant predictors for various financial behaviors and risk-taking among Ghanaian migrants in the UK. Marital status ($B = 1.122$, $p < 0.01$), educational level ($B = 1.477$, $p < 0.01$), and duration of stay in the UK ($B = 0.456$, $p < 0.01$) significantly predict credit card ownership, indicating that married individuals, those with higher education, and longer-term residents are more likely to own credit cards. Educational level ($B = 2.366$,

$p < 0.01$) also strongly predicts UK bank account ownership, suggesting that higher education increases the likelihood of owning a bank account. For account usage for direct purchases, higher education ($B = 3.168$, $p < 0.01$) is a positive predictor, although a longer stay slightly decreases this likelihood ($B = -0.195$, $p < 0.05$). Monthly withdrawal frequency is influenced by marital status ($B = -1.090$, $p < 0.05$), with married individuals less likely to withdraw, while higher education ($B = 2.216$, $p < 0.01$) increases the likelihood of monthly withdrawals. Financial risk-taking is more likely among males ($B = 0.816$, $p < 0.01$) and less likely among individuals from larger households ($B = -0.157$, $p < 0.05$). Overall, educational level consistently emerges as a strong predictor across multiple financial behaviors, with gender, marital status, years in the UK, household size, and age also playing significant roles in specific financial behaviors. The Wald statistics confirm the high significance of these predictors, emphasizing the importance of targeted financial education and support tailored to the demographic characteristics of Ghanaian migrants in the UK.

Table 6. Logit model on Migrants characteristics and it effect on financial inclusion.

Variables in the Equation	Credit Card	Account	Transfer	Withdrawal	Risk
Gender (Male)	−0.319	−0.335	−0.753	0.196	0.816**
Marital Status (Married)	1.122**	−0.376	−0.987	−1.090*	−0.287
Educational Level (Degree and above)	1.477**	2.366**	3.168**	2.216**	0.207
Years in Uk	0.456**	0.104	−0.195*	0.063	−0.028
Household Size	−0.030	0.201	0.072	−0.167	−0.157*
Age	−0.208**	0.053	0.124	0.000	−0.004
Constant	3.800**	−1.212	−1.989	1.683	0.673
Wald	1.644	93.788	90.029	92.074	9.114
Sig.	0.200	0.000	0.000	0.000	0.003

**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

From **Figure 1**, the report on stock market participation among Ghanaian migrants in the UK shows that only 27.4% currently invest in stocks, while 72.6% do not, indicating low active engagement. However, 76.3% expressed willingness to invest if given the opportunity, compared to 23.7% who were reluctant. This gap between willingness and actual participation suggests potential interest hindered by perceived financial risks, varying financial literacy levels, and barriers to accessing and understanding financial markets.

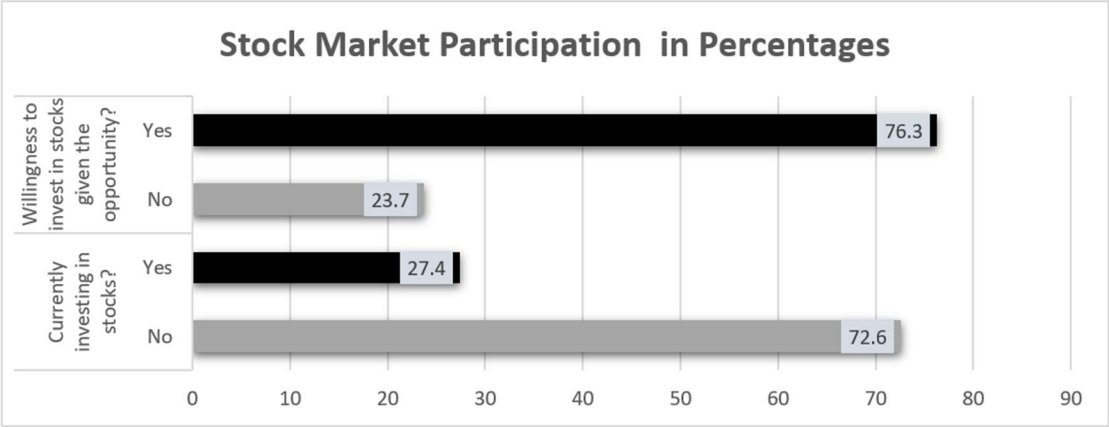

Figure 1. Stock market participation by respondents.

Table 7. Logit analysis of stocks participation by Ghanaian migrants in the UK.

	Own Stocks		**Willingness to Own Stocks**	
Variables in the Equation	***B***	**Exp(B)**	***B***	**Exp(B)**
Gender (Male)	0.405	1.499	−0.265	0.767
Marital Status (Married)	−0.374	0.688	2.373**	10.732
Educational Level (Degree and above)	0.075	1.078	−0.378	0.685
Not Risk Averse? (Yes)	2.019**	7.531	0.193	1.213
Years in UK	−0.006	0.994	0.321**	1.378
Household Size	−0.210*	0.811	0.188*	1.206
Age	0.010	1.010	−0.258**	0.773
Financial Inclusion	0.543*	1.722	−0.168	0.845
Financial Literacy	0.230	1.258	0.009	1.009
Constant	−3.309*	0.037	1.504*	4.499
Wald	41.373		49.02	
Sig.	0.000		0.000	

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

The analysis reveals several significant predictors influencing stock ownership among Ghanaian migrants in the UK (see **Table 7**). Individuals who are not risk-averse have a substantially higher probability of owning stocks (B = 2.019, Exp(B) = 7.531), indicating that willingness to take financial risks strongly correlates with stock ownership. Conversely, larger household sizes decrease the likelihood of owning stocks (B = −0.210, Exp(B) = 0.811). Higher levels of financial inclusion also positively influence stock ownership (B = 0.543, Exp(B) = 1.722), suggesting that better access to and use of financial services are associated with increased stock ownership rates. When examining the willingness to own stocks, marital status emerges as a highly significant factor (B = 2.373, Exp(B) = 10.732), with married individuals more inclined to own stocks compared to their unmarried counterparts. Age negatively impacts willingness to own stocks (B = −0.258, Exp(B) = 0.773), while a longer duration of stay in the UK (B = 0.321, Exp(B) = 1.378) and larger household sizes (B = 0.188, Exp(B) = 1.206) positively influence this willingness. These findings highlight the complex interplay of personal characteristics and external factors such

as risk aversion, marital status, age, household size, and duration of stay in the UK in shaping both the likelihood and willingness to engage in stock ownership. These insights are valuable for policymakers and financial institutions aiming to promote broader participation in financial markets and enhance financial literacy among diverse demographic groups.

5. Discussion

This study aimed to identify patterns in financial literacy and financial inclusion among Ghanaian migrants in the UK and generalize these findings with support from previous research. The correlation analysis indicated a positive relationship between financial literacy and financial inclusion, showing that higher financial literacy scores correlate with greater financial inclusion, particularly in terms of credit card ownership. However, unlike findings in Ghana, where financial literacy positively impacted account ownership and withdrawal frequency but negatively affected account use for purchases, this study did not observe such effects on these specific aspects of financial inclusion. Similar associations between financial literacy and financial inclusion have been documented by Zins and Weill [37], Masiyandima et al. [38], and Grohmann et al. [39], underscoring the robustness of this relationship across different contexts.

Regarding demographic influences on financial inclusion, the study highlighted that marital status, education level, and risk aversion significantly impact individuals' financial inclusion behaviors. Married individuals were less likely to use accounts for purchases but showed a higher likelihood of owning credit cards, consistent with findings by Masiyandima et al. [38] and Akakpo et al. [32]. Additionally, larger household sizes were found to decrease the frequency of account withdrawals, aligning with findings by Baidoo et al. [40] but contrasting with Akakpo et al. [32], who found that larger households withdraw more frequently. Higher education positively influenced financial inclusion in terms of making purchases and account withdrawal frequency, a trend supported by studies in various regions such as Zins and Weill [37] and Tran and Le [41], indicating a universal trend where education enhances financial inclusion.

The study also explored the relationship between financial literacy and stock market participation, revealing that higher financial literacy scores increased the likelihood of individuals investing in stocks. This finding contrasts with studies by Banyen and Nkuah [42] but is supported by recent research in Ghana [32] and studies by Kadoya and Khan [43] and Acquah-Sam [44], demonstrating that financial literacy positively impacts stock market participation. Household size influenced individuals' willingness to engage in the stock market, with larger households more inclined to express willingness but smaller households actually investing. Similarly, ownership of a credit card and frequent account purchases were associated with higher likelihoods of stock investment, highlighting behavioral factors influencing investment decisions. Moreover, individuals categorized as not risk-averse showed a greater propensity to invest in stocks, aligning with previous findings [45]. While gender did not significantly influence stock market participation in this study, marital status emerged as a consistent predictor, with married individuals more likely to trade stocks, corroborating findings by Akakpo et al. [32].

6. Conclusion

After engaging with participants and researchers on financial literacy, it is evident that the topic has garnered significant interest over the past decades. Our study provides valuable insights into the financial behaviors, literacy, and inclusion of Ghanaian migrants in the UK. Predominantly, the study cohort consists of younger, unmarried males with lower educational attainment, suggesting specific target groups for financial inclusion initiatives tailored to migrants. The findings reveal that the average duration of stay in the UK varies widely among migrants, reflecting diverse migration histories and settlement patterns. The relatively youthful population, coupled with varying household sizes, indicates diverse family structures within the migrant community. Financially, migrants demonstrate moderate levels of financial inclusion and literacy, suggesting a foundational understanding of financial concepts and varying degrees of integration into the UK financial system. Correlation analysis highlights that longer stays in the UK correlate positively with age, financial inclusion, and financial literacy. This indicates that longer residency is associated with improved financial integration and literacy. Additionally, older migrants tend to have larger households and higher financial engagement and literacy levels. A strong positive correlation between financial inclusion and financial literacy among migrants underscores the importance of financial knowledge in enhancing financial integration. Logistic regression models identify significant predictors of financial behaviors specific to migrant populations. Marital status and educational level significantly predict financial behaviors such as credit card ownership and account use, with higher education consistently emerging as a strong predictor across various financial behaviors. Risk aversion influences willingness to engage in financial risk-taking, with non-risk-averse migrants showing a greater propensity for such behaviors.

6.1. Implication for policy, practice and research

Firstly, we suggest the need to develop and implement financial education programs specifically tailored for younger, unmarried male migrants with lower educational attainment. These programs should cover fundamental financial concepts, risk management, and investment strategies to improve financial literacy and encourage stock market participation. Secondly, financial institutions should provide more accessible credit options and support services to help migrants navigate the financial system. This includes multilingual financial advice services and culturally sensitive financial products. Thirdly, initiatives should be created to support newly arrived migrants in understanding and integrating into the UK financial system. This might involve orientation programs that include financial literacy components and guidance on using financial services effectively. Lastly, the study advocates for family-oriented financial planning programs, especially for married individuals. These programs should emphasize the benefits of joint financial decision-making and the use of financial services to improve household financial stability.

Limitations and future research

This study has limitations that should be acknowledged. The sample size, while statistically significant, may not fully capture the diversity within the Ghanaian migrant community in the UK. Also, the cross-sectional nature of the study provides

a snapshot in time, which may not reflect changes in financial behaviors over a longer period. Future research should consider longitudinal studies to track changes in financial literacy and inclusion over time and explore the impact of targeted interventions. Furthermore, expanding the study to include other migrant groups could provide a more comprehensive understanding of financial inclusion and literacy across different cultural contexts.

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