

# Determinants of Financial Inclusion in Ethiopia: Evidence from the Global Findex 2025 Database

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## ABSTRACT

This study analyzed the determinants of financial inclusion in Ethiopia using the latest Global Findex 2025 database. Financial inclusion, defined as ownership of a formal financial account, remains a critical policy objective for inclusive growth and poverty reduction. Using binary logistic regression on a nationally representative sample of 1,001 adults, the study examined how demographic, socioeconomic, and digital factors affect account ownership. The results revealed that gender, age, education, income quintile, employment status, place of residence, and internet use significantly influenced financial inclusion. Men and urban residents are 2.1 times more likely to hold accounts, while individuals with higher education and internet access show substantially greater participation in the financial system. Education and digital connectivity emerge as the most influential predictors, highlighting the importance of human capital and technology in expanding financial access. Conversely, rural residence and unemployment significantly constrained financial inclusion. The study concludes that financial inclusion in Ethiopia remains uneven, a consequence of disparities across education, income, geography, and digital access. The findings provide timely evidence for policymakers, financial institutions, and development partners committed to promoting inclusive financial access and digital finance in Ethiopia.

**Keywords:** Binary logistic regression, Digital finance, Digital Infrastructure, Financial inclusion, Global Findex 2025.

## INTRODUCTION

### Background and statement of problems

Over the past two decades, financial inclusion has become a cornerstone of inclusive economic development and poverty reduction strategies. It refers to ensuring that individuals and businesses can access and effectively use affordable, appropriate, and reliable financial services such as savings, credit, payments, and insurance delivered in a responsible and sustainable manner (World Bank, 2024). Financial inclusion is closely linked to the United Nations 2030 Sustainable Development Goals (SDGs), particularly SDG 1 (no poverty), SDG 5 (gender equality), and SDG 8 (decent work and economic growth). Access to formal financial services enhances individual welfare, facilitates investment, supports entrepreneurship, and promotes economic resilience. Despite these facts, disparities persist across countries, regions, and population groups particularly between rural and urban residents, men and women, and high- and low-income households. Across Africa,

financial inclusion is increasingly viewed as an instrument for inclusive growth, gender empowerment, and rural development. However, structural challenges such as limited digital infrastructure, low financial literacy, and weak institutional capacity continue to constrain progress (Kumar, 2022).

Financial inclusion in Sub-Saharan Africa (SSA) persists at notably low levels, despite its acknowledged instrumental role in fostering economic growth, poverty reduction, and entrepreneurial development (World Bank, 2025). Reflecting a broader regional trend, Ethiopia has sought to address these disparities by implementing its National Financial Inclusion Strategy (NFIS) in phases (2017 and 2021), aimed at expanding access to affordable and appropriate financial services (National Bank of Ethiopia, 2021). While these initiatives have contributed to an increase in account ownership rising from 22% in 2014 and 35% in 2017 to 49% in 2024 this figure notably lags behind both the global average of 79% and the Sub-Saharan average of 58%. Illustratively, neighbouring nations such as Kenya have achieved significantly higher penetration rates (e.g., 90% account ownership in 2024) through the early and widespread adoption of mobile money platforms such as M-Pesa. In stark contrast, Ethiopia's financial sector reforms remain in nascent stages, concurrently hampered by both supply-side and demand-side constraints. Consequently, financial access continues to be disproportionately restricted for vulnerable demographics, including rural populations, women, and low-income segments, thereby exacerbating extant patterns of poverty and inequality (World Bank, 2025).

In Ethiopia the gender gap is 14 percent, slightly above the regional level of 12 percent. Digital financial service use is also limited, with low levels of digital payments (16 percent), saving (49 percent), borrowing (53 percent) and mobile money account ownership (9 percent). Critically, mobile phone ownership a fundamental prerequisite for digital financial access is often the first step in this journey. The Global Findex data reveals a stark digital divide: while 81% of adults in Sub-Saharan Africa own a mobile phone, the ownership rate in Ethiopia is significantly lower at 58%. Therefore, low mobile phone penetration, driven by economic constraints, acts as a critical bottleneck. It directly limits the potential pool of users for digital financial services, explaining the country's low mobile money account and digital payment rates. To address the low performance, it is crucial to investigate factors influencing financial inclusion in Ethiopia.

However, the results in empirical works with regard to factors influencing financial inclusion in Ethiopia are not conclusive and are mixed. According to Abenet (2023) factors such as economic status, education level, residence location, age group, and employment in formal sector are crucial factors influencing financial inclusion in Ethiopia. According to this author, financial inclusion is higher among the rich, educated, urban dwellers, young age group, and formal sector workers than among the poor, less educated, rural, older, and informal sector workers. However, for Gashaw and Gebe (2017) the main determinants of financial inclusion in Ethiopia are better education, financial literacy, gender, age, urban dwelling (e.g. living in the capital city), and preference for formal financial services.

Moreover, considering the dynamic nature of factors influencing financial inclusion in Ethiopia, there is a need to continuously investigate and understand these factors. Furthermore, currently, there is a profound and rapid process of digitalization in the Ethiopian financial sector. This might create some changes in Ethiopian financial inclusion and needs to be understood. Hence, this study investigated the determinants of financial inclusion in Ethiopia by employing the recent Findex 2025 microdata. This is crucial in providing recent information to devise policies and strategies and mitigate the challenges of financial inclusion in Ethiopia.

## Theoretical Review

The Social Exclusion theory, originally introduced by René Lenoir (1974) and later expanded by Sen (2000), posits that marginalized groups, including women, face structural and cultural barriers that limit participation in formal systems such as finance (Yang *et al.*, 2021). These factors can limit their control over assets, income, and mobility, thereby reducing their access to and use of formal financial services. Global evidence from the Findex database consistently shows a persistent gender gap in account ownership, with women in Ethiopia (41.62%) having notably lower ownership rates than men (56.53%) in 2024, a gap wider than the global average (76.63% for women vs. 80.86% for men). Various empirical work support the existing gender gap in financial inclusion (Dar, & Ahmed, 2021). For instance, studies conducted in South Asia indicated the less likelihood of women to hold an account relative to men (Mossie, 2022; Aziz *et al.*, 2022). Likewise, in Ethiopia a recent study by Bekele

(2023) indicated the negative effect of gender on financial inclusion. Based on the robust theoretical and empirical evidence, the following hypothesis is formulated:

H1: Women in Ethiopia are less likely to own a formal financial account compared to men.

Social Exclusion theory highlights geographical marginalization. Rural residents are often physically distant from financial infrastructure like bank branches (Leyshon *et al.*, 2008). The Digital Divide theory also explains how rural areas often lack internet and electricity which are necessary for digital finance, (Xia, & Lu, 2008). Urbanicity plays a crucial role in financial inclusion in Ethiopia, in 2024 while 73.20% of urban residents own an account, only 43.30% of rural residents do, reflecting a common challenge in developing economies where rural populations often face difficulty to access financial services. The urban-rural gap in financial access is a well-documented phenomenon, particularly in Sub-Saharan Africa (World Bank, 2024). Despite the growth of mobile money, rural populations remain disproportionately excluded due to persistent infrastructure and connectivity issues (Abdu & Adem, 2021; Suri *et al.*, 2016; Giday, 2023). Based on this rationale, the working hypothesis is that

H2: Individuals residing in rural areas are less likely to own a financial account compared to those in urban areas.

The New Institutional Economics framework, pioneered by Ronald Coase (1937) and expanded by Douglass North (1990), emphasizes the role of formal and informal institutions in shaping economic behavior and reducing transaction costs. This perspective helps explain how education and institutional quality promote financial inclusion by improving trust and lowering information asymmetries (Klein, 1998). Similarly, according to the Technology Acceptance Model developed by Davis (1989), education enhances perceived ease of use and usefulness, increasing the likelihood of adopting digital financial services (Easterly *et al.*, 1994). Educational attainment remains a critical factor for financial inclusion, as the 2024 Findex projections indicate only 41.73% of Ethiopians with primary education or less own an account, a stark contrast to the 79.95% of those with secondary education or more, mirroring a global pattern where higher education correlates with greater financial access (69.63% vs. 85.61% globally). A strong, positive correlation between educational attainment and financial inclusion is one of the most robust findings in the literature. Demirgüç-Kunt *et al.* (2018) identify it as a key driver globally, with studies in Sub-Saharan Africa confirming its paramount importance (Tamene *et al.*, 2024; Zins & Weill, 2016; Dagnachew & Mawugatie, 2022). Based on this analysis, we hypothesize that

H3: There is a positive relationship between an individual's level of education and the likelihood of owning a formal financial account.

Higher income promotes financial inclusion by altering the cost-benefit assessment for individuals; specifically, the increased financial capacity diminishes the relative burden of fixed access costs, such as account fees and minimum balance requirements. This economic rationale makes account ownership a more compelling choice for those with higher earnings (Hill, 2012). Income is a fundamental determinant of financial inclusion. Income disparities strongly influence account ownership, as evidenced by the 2024 Findex data where only 42.58% of the poorest 40% of Ethiopians own an account, significantly less than the 52.99% among the richest 60%, a gap that, while present globally (72.36% vs. 82.99%), is particularly acute in Ethiopia. Recent research in Ethiopia (Tamene *et al.*, 2024; Abdu & Adem, 2021; Mossie, 2022; Giday, 2023) recognized poor adults do not access formal accounts due to involuntary exclusion. Based on these explanations, the following hypothesis is proposed:

H4: Individuals in higher income quintiles are more likely to own a financial account than those in lower quintiles.

New Institutional Economics suggests that formal employment acts as a direct channel into the financial system, often through mandatory payroll accounts, thereby eliminating individual acquisition costs (Klein, 1998). In contrast, those in informal or agricultural employment face higher barriers due to irregular cash flows and a lack of documented income. In 2024, the Findex data reveals that account ownership in Ethiopia is higher among those in the labor force (52.72%) compared to those out of the labor force (44.84%), a difference that is consistent with global trends but with lower overall penetration rates than the world average (80.55% vs. 67.18%). Studies show that formally employed individuals are significantly more likely to be banked (Giday, 2023). In Africa,

the high rate of informal employment is frequently cited as a major structural barrier to broadening financial inclusion (Allen *et al.*, 2016). Based on the aforementioned evidence, the hypothesis formulated is that:

H5: Formally employed individuals are more likely to have a financial account compared to those in informal employment, unpaid work, or unemployment.

The relationship between age and financial inclusion is theorized to be non-linear. Younger adults may be excluded due to a lack of stable income or credit history, while older adults may face exclusion due to lower digital literacy and a stronger reliance on informal financial systems. Technology Adoption models also suggest lower perceived usefulness and higher anxiety among older populations (Easterly *et al.*, 1994). The Findex data for 2024 indicates that account ownership in Ethiopia is significantly lower among young adults (15-24 years) at 37.94% compared to older adults (25+ years) at 54.04%, reflecting a common trend but with more pronounced disparities than the global figures (69.10% vs. 81.19%). Empirical studies often find a curvilinear (inverted U-shape) relationship, where account ownership increases from youth to middle age, peaking around the prime earning years, and then potentially declining among the elderly (Dagnachew & Mawugatie, 2022; Mossie, 2022; Fungáčová & Weill, 2015). Based on this the following hypothesis is formulated:

H6: Older adults have a significantly higher probability of owning financial accounts compared to younger adults.

The Diffusion of Innovation Theory, introduced by Everett Rogers (1962), explains how new technologies spread through social systems based on perceived advantages, compatibility, and ease of use. This theory provides a useful lens for understanding the rapid growth of digital finance and the adoption of mobile banking services in Ethiopia (Ashraf *et al.*, 2022). Internet use is a direct proxy for digital literacy and access, which are critical for using mobile banking and digital payment platforms, and drastically reducing transaction costs. In 2024 the Findex data shows that only 3.06% of Ethiopians aged 15 and above applied for a loan using a mobile phone, which is lower than the Sub-Saharan African average of 11.15%, suggesting a nascent stage of digital financial service utilization for credit. Recent empirical work highlights internet access as a powerful new determinant of financial inclusion, enabling the use of digital financial services. Studies find that internet users are significantly more likely to have and use a financial account, a relationship that is strengthening over time (Datta *et al.*, 2022). In Ethiopia Abdu, & Adem, (2021) found that lack of internet access, associated with financial exclusion. Based on this the following hypothesis is formulated:

H7: Individuals who use the internet are more likely to own a formal financial account compared to non-users.

## MATERIALS AND METHODS

This study utilizes data from the Global Findex Database (2025 edition), which is based on field data collected in 2024 and compiled by the World Bank. The 2025 Global Findex round covers 145,000 respondents from 141 countries worldwide. For Ethiopia, the dataset includes a nationally representative sample of 1,001 adults. The dataset is publicly available and can be accessed through the World Bank's official data portal upon online request<sup>4</sup>. The use of this dataset is appropriate for this study because it provides detailed individual-level information relevant to financial inclusion, demographics, economic activities, and digital access, which are essential for analyzing determinants of account ownership in Ethiopia.

The dependent and independent variables were extracted from the Global Findex Ethiopia sample and coded in line with previous studies and the World Bank's coding guide. Financial Account Ownership (account): This is a binary variable coded as 1 if an individual owns an account at a financial institution (bank, credit union, cooperative, or microfinance institution), and 0 if otherwise. It represents the key indicator of financial inclusion. The explanatory variables were selected based on prior literature and data availability in the Findex dataset. All variables were coded and analyzed using SPSS version 26 statistical software.

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<sup>4</sup> [worldbank.org/en/publication/globalfindex](https://worldbank.org/en/publication/globalfindex)

Table 1 Variables used and measurements

Variable	Type	Description
Gender (Male)	Dummy	0 = Female, 1= Male
Age	Continuous	Respondent's age in years
Education (educ)	Categorical	1 = Primary or less, 2 = Secondary, 3 = Tertiary or more
Income Quintile (inc_q)	Ordinal	Household income level, from 1 (lowest) to 5 (highest)
Employment Status (emp_in)	Dummy	1 = Not employed, 2 = Employed
Urbanicity (urbanicity)	Dummy	1 = Urban, 0 = Rural
Internet Use (internet_use)	Dummy	1 = Uses internet, 0 = Does not use

The study applied descriptive and econometric methods to identify the determinants of financial inclusion in Ethiopia. Given the binary nature of the dependent variable (account ownership), the study employed a Binary Logistic Regression Model to estimate the probability of an individual owning a financial account. The model is specified as follows:

$$\text{logit}(P_i) = \ln \left( \frac{P_i}{1 - P_i} \right) = \beta_0 + \beta_1 \text{Female}_i + \beta_2 \text{Age}_i + \beta_3 \text{Educi} + \beta_4 \text{IncQi} + \beta_5 \text{Empi} + \beta_6 \text{Urbani} + \beta_7 \text{Internet}_i + \varepsilon_i$$

Where:  $P_i$  = probability that an individual a owns a financial account

$\beta_0$  = constant term

$\beta_1, \beta_2, \dots, \beta_7$  = coefficients to be estimated

$\varepsilon_i$  = random error term

The logistic model estimates the log-odds of financial account ownership as a function of individual socio-demographic, economic, and digital variables.

## RESULTS

The binary logistic regression model significantly predicted financial account ownership (Omnibus Test:  $\chi^2(8) = 258.668$ ,  $p < 0.001$ ) with an overall classification accuracy of 71.3%. In step 0 of the binary logistic regression, the constant term, representing the log odds of financial account ownership when all predictors are zero or at their reference level, was 0.353 (S.E. = 0.064, Wald = 30.278,  $p < 0.001$ ), indicating initial odds of 1.424 for account ownership before any explanatory variables were included. The results, presented in Table 2, identify the key determinants of financial inclusion in Ethiopia.

Table 2: Determinants of Financial Account Ownership in Ethiopia

Variable	B	S.E.	Wald	Sig.	Exp(B)
Constant	-0.646	1.133	0.326	0.568	0.524
Gender (Male)	0.516	0.152	11.479	0.001	1.675
Age	0.031	0.006	29.976	0.000	1.031



Education (Overall)			79.718	0.000	
Primary	-3.266	1.024	10.163	0.001	0.038
Secondary	-1.751	1.029	2.892	0.089	0.174
Income Quintile	0.112	0.053	4.488	0.034	1.118
Employment Status	0.441	0.150	8.599	0.003	1.554
Urbanicity	0.751	0.221	11.564	0.001	2.120
Internet Use	0.841	0.248	11.525	0.001	2.319

Source: Author's computation based on Global Findex 2025 microdata.

Education emerged as the most powerful predictor of financial inclusion (Wald = 79.718,  $p < 0.001$ ). Individuals with only a primary education had 96.2% lower odds (OR = 0.038,  $p = 0.001$ ) of owning an account compared to those with tertiary education. Digital access and Urbanity were also critical drivers. Internet users had 2.319 times higher odds of being financially included than non-users ( $p = 0.001$ ). Similarly, urban residents were 2.120 times more likely to own an account than their rural counterparts ( $p = 0.001$ ).

Socioeconomic and demographic factors further shaped inclusion. Men had 1.675 times higher odds of account ownership than women ( $p = 0.001$ ). Each additional year of age increased the odds of inclusion by 3.1% (OR = 1.031,  $p < 0.001$ ), though the linear specification does not test for a potential decline in older age. Formally employed individuals were 1.554 times more likely to have an account than the reference group ( $p = 0.003$ ). Finally, each step up the income quintile was associated with an 11.8% increase in the odds of account ownership (OR = 1.118,  $p = 0.034$ ). In summary, educational attainment, internet use, and urban residence were the strongest predictors of financial account ownership in Ethiopia.

## DISCUSSION OF KEY FINDINGS

The current discussion elucidates the significance of identified determinants by linking them to established theoretical explanations and prior empirical investigations. A statistically significant and positive relationship was observed between gender and financial account ownership, with men demonstrating a higher propensity (Exp = 1.675) to hold accounts than women, thereby confirming traditional expectations. According to the Global Findex 2025 data, about 57 percent of men in Ethiopia own a formal financial account compared to only 42 percent of women, highlighting a persistent gender gap of nearly 18 percentage points in financial inclusion. This finding is consistent with reports from the National Bank of Ethiopia (2025), which highlight that women in Ethiopia experience lower rates of formal loan acquisition and receive substantially smaller loan amounts compared to men. Moreover, the divergence in account ownership is escalating, with a decline in women's access relative to men occurring at a rate faster than both global and Sub-Saharan African averages. These disparities are particularly pronounced within rural female populations, who often encounter additional impediments such as limited access to identification, diminished financial literacy, and restricted mobility (Mossie, 2022; Aziz *et al.*, 2022).

The positive and significant effect of age ( $\beta = 0.031$ ,  $p < 0.001$ ) indicates that older adults are more likely to own financial accounts. This supports the life-cycle hypothesis, which posits that financial participation rises with age as individuals accumulate income and assets (Tamene *et al.*, 2024; Zins & Weill, 2016; Dagnachew & Mawugatie, 2022). Younger populations may still depend on informal financial networks or lack steady income, consistent with findings from Demirgüç-Kunt *et al.* (2022). Education shows the strongest overall influence. Individuals with only primary education are 96 % less likely to hold accounts than those with tertiary education. This finding confirms the human-capital perspective and the financial capability framework, which link knowledge and literacy to effective participation in financial systems. Education enhances financial literacy, trust, and the ability to navigate digital platforms key enablers of inclusion (Allen *et al.*, 2021). The non-

significant result for secondary education suggests that a tertiary education may be the critical threshold to overcome structural and informational barriers (Zins & Weill, 2016; Dagnachew & Mawugatie, 2022).

Income quintile shows a modest but significant effect ( $p = 0.034$ ), implying that higher-income groups are more likely to hold accounts. However, employment status exerts a stronger influence: unemployed individuals are 44 % less likely to own accounts. This highlights that labor-market participation, rather than income alone, determines financial inclusion. Access to wages, pensions, or business earnings often requires a formal account, reinforcing institutional and livelihood theories that link employment systems to formal financial participation (Mossie, 2022; Giday, 2023). The rural–urban gap remains significant. Urban residents are 2.1 times more likely to own accounts, confirming persistent structural disparities in access to financial institutions and digital infrastructure. This pattern aligns with institutional theory rural areas face weaker institutional presence, higher transaction costs, and limited service points. Addressing these spatial inequalities requires expansion of agent banking and digital channels (Suri & Jack, 2016; Giday, 2023).

Internet use emerges as a major determinant of financial inclusion ( $\text{Exp} = 2.319$ ,  $p = 0.001$ ). Digital connectivity directly facilitates account opening, mobile banking, and digital payments, validating the diffusion of innovation theory (Rogers, 2003). The increasing role of digital technology bridges the gap created by physical distance to banks, particularly in rural Ethiopia. Thus, digital access acts both as an enabling infrastructure and as a proxy for modern financial literacy (Ashraf *et al.*, 2022; Abdu & Adem, 2021).

### Limitations and Directions for Future Research

This study is limited by its reliance on cross-sectional data from the Global Findex 2025, which restricts the ability to capture causal relationships and dynamic changes in financial behavior over time. The analysis also focuses on socio-demographic and digital determinants, while behavioral factors such as risk attitudes, trust in financial institutions, and cultural perceptions were not examined due to data constraints. Future research should incorporate longitudinal or panel data to observe trends in financial inclusion over time and explore behavioral and institutional variables that influence financial decision-making. Additionally, integrating financial resilience indicators such as savings for emergencies or coping mechanisms during economic shocks would provide a more comprehensive understanding of inclusive financial well-being in Ethiopia.

## CONCLUSION AND RECOMMENDATIONS

This study examined the determinants of financial inclusion in Ethiopia using the Global Findex 2025 dataset. Employing a binary logistic regression model, it identified gender, age, education, income, employment status, urbanicity, and internet use as key factors influencing financial account ownership. The findings provide strong empirical evidence that demographic, socioeconomic, and digital variables jointly shape the extent of inclusion within Ethiopia's evolving financial landscape.

The results revealed that Men are significantly more likely to hold accounts than women. Age was positively associated with account ownership, consistent with the life-cycle hypothesis, suggesting that financial engagement increases with maturity and accumulated economic activity. Education emerged as the most powerful determinant, with higher educational attainment strongly enhancing the likelihood of financial participation. Income and employment status also contributed meaningfully, indicating that stable earnings and labor force participation are important enablers of financial access. The findings further underscore the rural–urban divide, as rural residents remain significantly less included due to physical and infrastructural constraints. Internet use exhibited a strong positive influence, confirming that digital connectivity is a transformative driver of financial inclusion.

The study concludes that financial inclusion in Ethiopia remains uneven, shaped by disparities in education, income, geography, and digital access. While progress has been achieved through policy efforts such as the National Financial Inclusion Strategy, large gaps persist between urban and rural areas, low- and high-income groups, and less- and more-educated citizens.

Achieving several United Nations Sustainable Development Goals, particularly SDG 1, SDG 5, and SDG 8, requires a multifaceted policy approach to promote and expand inclusive financial account ownership within Ethiopia. Firstly, strengthening financial literacy and integrating it into national education and adult training programs is crucial, particularly for rural and less-educated demographics, to enhance awareness and capability. Secondly, expanding digital financial infrastructure, including internet connectivity, mobile money platforms, and agent banking networks, is essential to bridge spatial access gaps and improve service delivery, especially for rural populations.

Concurrently, promoting inclusive employment and income generation, alongside supporting micro and small enterprises, will naturally increase formal financial engagement. Targeted interventions, such as tailored financial products, subsidized transaction costs, and the prioritization of rural and low-income segments who remain structurally excluded. Furthermore, given the observed progress in female inclusion, fostering gender-sensitive innovation in digital financial products can further support women's financial autonomy. Finally, continuous monitoring and evaluation through updated national data, like the Global Findex and administrative surveys, are indispensable for tracking progress against National Financial Inclusion Strategy targets and ensuring adaptive policy adjustments. Collectively, these measures are vital for enhancing equitable access to formal financial services, promoting inclusive economic growth, and advancing Ethiopia's broader development agenda.

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