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Assessing Gender Gap in Financial Inclusion:

Evidence from the 2021 World Bank Global Findex Data

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"O possível já está feito. O impossível faremos amanhã."- José Saramago

This thesis is for my parents. You have given me the greatest gift of all—the luxury of opportunity. The opportunity to study, to grow, to dream beyond limits, and to become the person I am today. You have shown me, not through words but through your own lives, the value of hard work, of integrity, and of education. You have sacrificed and believed in me in ways I will never be able to fully put into words. I am the first in our family to do this, but I do it for all of us.

To my brother, my best friend. My safe place, my greatest supporter, the person who reminds me that, no matter where life takes us, we will always have each other.

To my boyfriend, my biggest cheerleader. The one who celebrates my wins louder than I do and never lets me forget what I'm capable of.

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Resumo

A inclusão financeira é cada vez mais reconhecida como um motor essencial do crescimento inclusivo e da igualdade de género. Embora os esforços globais tenham ampliado o acesso a serviços financeiros, persistem disparidades de género, especialmente nas economias em desenvolvimento. À medida que a igualdade de género melhora em áreas como a educação, o emprego e a participação política, é importante avaliar se esse progresso se reflete também num acesso mais equitativo aos serviços financeiros entre homens e mulheres.

Utilizando dados de 2021 do Global Findex do World Bank, este estudo analisa a diferença de género na inclusão financeira em três dimensões: posse de conta bancária, posse de serviços bancários móveis e comportamento de poupança. Estimamos o efeito do género nos resultados de inclusão financeira, controlando por características individuais e fatores ao nível dos países. Adicionalmente, avaliamos se essa relação varia consoante o grau de igualdade institucional de género, representado pelo Gender Gap Index (GGI).

Os resultados estimados mostram que as mulheres têm significativamente menos probabilidade do que os homens de estarem incluídas financeiramente nos três tipos de indicadores. Apresentamos evidência de que um maior nível de igualdade institucional de género está associado a uma menor disparidade de género na posse de contas bancárias. Contudo, essa associação não se verifica no caso da posse de serviços financeiros móveis ou do comportamento de poupança, o que sublinha a necessidade de intervenções mais específicas que complementem as reformas estruturais existentes.

Palavras-chave: inclusão financeira, disparidade de género, igualdade de género
Número de palavras: 8017.

Abstract

Financial inclusion is increasingly recognized as a key driver of inclusive growth and gender equality. While global efforts have expanded access to financial services, persistent gender gaps remain, particularly in developing economies. As broader gender parity improves across dimensions such as education, employment, and political participation, it is important to assess whether this progress is reflected in more equitable financial access between men and women.

Using data from the 2021 wave of the World Bank Global Findex, this study examines the gender gap in financial inclusion across three dimensions: account ownership, mobile banking ownership, and savings behavior. We estimate the effect of gender on financial inclusion outcomes, controlling for individual characteristics and country-level factors. Furthermore, we assess whether the relationship between gender and financial inclusion is moderated by institutional gender equality, proxied by the Gender Gap Index (GGI).

Our results show that women are significantly less likely than men to be financially included across all three indicators. We provide evidence that higher institutional gender equality is associated with a smaller gender gap in account ownership. No such moderating effect is found for mobile banking or saving behavior, highlighting the need for targeted interventions that go beyond structural reforms.

Key words: financial inclusion, gender gap, gender equality
Word count: 8017.

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List of Abbreviations

GGI	Gender Gap Index
LPM	Linear Probability Model
GDP	Gross Domestic Product

1. Introduction

Financial inclusion has become a central policy objective for governments, international institutions, and development agencies due to its critical role in promoting inclusive growth, reducing poverty, and enhancing individual and household welfare. Defined as the ability of individuals to access and effectively use a range of financial services—such as payments, savings, credit, and insurance—financial inclusion enables greater economic participation and resilience. Yet, despite widespread progress in expanding financial access globally, significant disparities persist, particularly along gender lines. According to the World Bank Global Findex (2021), the gender gap in account ownership in developing economies remains at 6 percentage points, with women systematically underrepresented in the formal financial system.

Achieving gender equality is not only a development goal in itself—as reflected in Sustainable Development Goal 5—but is also closely intertwined with other economic and social outcomes. Access to finance empowers women by enhancing their ability to manage resources, invest in education and health, and participate in labor markets. However, numerous socio-economic, cultural, and institutional barriers continue to hinder women's financial inclusion across countries. These include lower levels of education and income, legal restrictions, limited autonomy in household financial decision-making, and broader gender norms.

This study investigates the gender gap in financial inclusion across 128 countries, drawing on microdata from the World Bank Global Findex Database 2021, which covers more than 120,000 individuals in 142 economies. It aims to identify the extent to which women are excluded from formal financial services relative to men, and to understand what explains this exclusion. Specifically, the

analysis focuses on three key dimensions of financial inclusion: account ownership, mobile banking ownership, and savings behaviour. These indicators are selected for their centrality in the financial inclusion literature and their relevance in capturing both access and use of financial services. This wave of the Global Findex is particularly relevant, as it captures financial behavior in the context of the COVID-19 pandemic, which has accelerated the adoption of digital financial services. In this context, mobile banking ownership emerges as a key indicator, reflecting how technology can offer new pathways to financial inclusion, especially for underserved groups such as women.

To explain the observed gender gaps, this study considers both individual-level characteristics and country-level factors, including economic development and institutional gender equality. The latter is proxied by the World Economic Forum's Gender Gap Index (GGI), which provides a standardized measure of gender parity across education, health, economic participation, and political empowerment. A central question is whether progress towards societal gender equality is associated with narrower gender gaps in financial inclusion.

The empirical strategy involves estimating a series of probability models (both Linear Probability and Probit models) to analyze the likelihood of an individual being financially included. Three model specifications are employed for each financial inclusion outcome. The first includes only individual-level controls and country fixed effects. The second replaces country dummies with broader region dummies and adds macroeconomic indicators such as GDP per capita and GGI. The third specification includes an interaction term between gender and GGI to assess whether the impact of being female varies depending on a country's level of gender equality.

Preliminary evidence from the literature suggests that gender disparities in financial inclusion persist even after controlling for individual characteristics.

Whether these disparities are mitigated by higher levels of institutional gender equality remains an open question that this study seeks to explore.

This study contributes to the growing literature on the drivers of gendered financial exclusion by offering cross-country evidence based on the most recent wave of the Global Findex. By combining individual and institutional-level determinants in a multi-level framework, it provides insights into how both personal attributes and broader societal conditions interact to shape women's financial inclusion. Our results show that women are significantly less likely than men to be financially included across all three indicators. We find that higher levels of institutional gender equality are associated with a smaller gender gap in account ownership, but no such effect is found for mobile banking ownership or saving behavior. These findings highlight the importance of structural reforms, but also point to the need for complementary targeted interventions to promote women's financial inclusion.

This study is organized as follows: **Section 2** reviews the relevant literature on financial inclusion, gender inequality, and the intersection between the two. **Section 3** describes the data sources, key variables, and descriptive statistics. **Section 4** outlines the empirical methodology, including the model specifications and estimation techniques. **Section 5** presents the results of the regression analysis and robustness checks. Finally, **Section 6** concludes with a summary of the findings and their implications for policy and future research.

2. Literature Review

Financial inclusion, as defined by the World Bank, refers to the ability of individuals and businesses to access useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit, and insurance—delivered in a responsible and sustainable way. It is widely acknowledged as a critical driver of sustainable economic development, particularly in addressing poverty and reducing inequality. Financial inclusion not only supports individual empowerment but also improves broader economic resilience by integrating underserved populations into the formal financial system.

Financial inclusion has emerged as a cornerstone of sustainable economic development, particularly in addressing the persistent gender disparities in access to financial services worldwide. Research underscores that financial inclusion is integral to economic growth, poverty alleviation, and gender equality (Demirgüc-Kunt et al., 2021). However, the gender gap remains a significant challenge, with women systematically underrepresented in formal financial systems. The World Bank Global Findex Database (2021) reveals a persistent global gender gap in account ownership, particularly pronounced in developing economies (Demirgüc-Kunt et al., 2022). Studies attribute this disparity to socio-economic, cultural, and institutional barriers (Anyangwe et al., 2022).

The role of employment and income disparity is frequently highlighted as a primary driver of the gender gap in financial inclusion. Research has shown that in Central and South Eastern Europe, employment status was a significant determinant of financial inclusion among women (Botrić & Broz, 2017). Moreover, the lack of property ownership and financial literacy exacerbates

women's financial exclusion, limiting their ability to secure credit and participate in formal financial systems (Roy & Patro, 2022). These financial disadvantages are further compounded by socio-cultural norms that assign women a secondary role in household financial decision-making, limiting their agency and access to formal financial services (Deléchat et al., 2018).

Legal and institutional frameworks profoundly influence financial inclusion. Discriminatory legal practices and insufficient institutional support delays women's financial inclusion across developing economies (Deléchat et al., 2018). For instance, the absence of robust regulatory protections often prevents women from claiming ownership over financial resources, which in turn affects their ability to participate in broader economic activities (Anyangwe et al., 2022). Similarly, cultural norms, including those related to mobility and decision-making autonomy, further strengthen these barriers (Deléchat et al., 2018).

Education and income levels significantly correlate with financial inclusion. Tertiary education mitigates the gender gap, especially among younger populations in developing countries (Ozşuca, 2024). Educated women are more likely to participate in formal financial systems due to their increased financial literacy and economic independence. However, significant challenges persist, particularly in regions where educational attainment for women remains low. Additionally, digital financial services present opportunities to reduce barriers, but adoption among women remains constrained by lower digital literacy and limited access to technology (Demirgüc-Kunt et al., 2022). For instance, a digital divide persists in certain regions of Sub-Saharan Africa, where access to mobile technology and digital infrastructure remains uneven. Although mobile money systems have demonstrated potential to increase account ownership among women, limited digital literacy and cultural constraints restrict their widespread use.

An essential parallel to financial inclusion is financial literacy, as highlighted by Lyons et al. (2019). Financial literacy—the ability to understand and effectively use financial skills, including personal financial management—is a critical enabler of financial inclusion. Lyons et al. (2019) argue that while financial literacy is necessary for individuals to maximize the benefits of financial inclusion, it is particularly important for vulnerable populations such as women in low-income and developing regions. It is underlined that the Middle East and North Africa (MENA) region emphasizes the interaction between financial literacy and inclusion, showing that improvements in financial literacy often lead to greater utilization of financial services. Women with better financial literacy are more likely to open accounts, save money, and invest in formal financial products. Conversely, gaps in financial literacy compound the structural barriers to financial inclusion, creating a cycle of exclusion.

Financial inclusion not only facilitates women's economic participation but also enhances household welfare. Studies demonstrate that access to formal financial services empowers women to make informed financial decisions, contributing to greater gender equality (Roy & Patro, 2022). Moreover, inclusive financial ecosystems have broader developmental impacts, including poverty reduction and enhanced economic resilience (Demirgüc-Kunt et al., 2022). Women's financial inclusion has been directly linked to improved outcomes in children's education and health, as women are more likely than men to allocate resources toward household well-being.

Several strategies have been proposed to bridge the gender gap in financial inclusion. Digital financial services, including mobile money, have shown promise in enhancing women's access to financial products (Demirgüc-Kunt et al., 2022). For instance, targeted mobile banking initiatives in East Africa have led to a significant increase in account ownership among women, demonstrating the potential of technology-driven solutions. Tailored financial literacy programs

and policies promoting women's property rights are essential in addressing structural inequalities (Roy & Patro, 2022). Such interventions should also consider the role of community-based organizations in fostering trust and familiarity with financial systems among underserved populations.

Policy interventions, such as digitalizing government payments and fostering public-private partnerships, are also critical. For instance, targeted initiatives in Sub-Saharan Africa have demonstrated the potential of digital accounts in narrowing gender disparities among the unbanked (Demirgüc-Kunt et al., 2022). Programs like India's Jan Dhan Yojana, which aims to provide universal access to banking facilities, have also shown the potential of integrated policy frameworks to advance financial inclusion. Furthermore, aligning financial inclusion efforts with broader gender equality initiatives can amplify the impact of these policies, ensuring that women's financial empowerment translates into tangible economic and social benefits.

In conclusion, the literature reveals that while progress has been made in advancing financial inclusion, the gender gap remains a persistent challenge. Addressing this gap requires a multi-faceted approach that integrates legal reforms, educational initiatives, and technology-driven solutions to create an enabling environment for women's financial empowerment.

3. Data

The data used in this study come from the Global Findex Database 2021, a comprehensive dataset compiled by the World Bank, which provides detailed information on financial inclusion across more than 140 economies. The Global Findex Database is based on nationally representative surveys conducted with individuals aged 15 and older, covering various aspects of financial access and usage. The 2021 edition is particularly relevant as it captures shifts in financial behavior following the COVID-19 pandemic, a period marked by the accelerated adoption of digital financial services and policy-driven financial inclusion initiatives.

The data used to construct these indicators originate from a nationally representative survey conducted by Gallup, Inc., in collaboration with the World Bank, using a standardized questionnaire. Gallup has been conducting the Gallup World Poll since 2005, annually surveying approximately 1,000 individuals per country in more than 160 economies. The Global Findex survey follows Gallup's established methodology, using face-to-face or phone interviews depending on national circumstances. The 2021 survey reached almost 145,000 individuals across 142 economies, representing 97% of the global population.

For this study, our final sample consists of 128,341 individuals from 128 different countries. This dataset ensures broad representation, allowing for a cross-country analysis of financial inclusion trends. The sample includes both developed and developing economies, providing insights into the disparities in financial access based on gender, income, and macroeconomic conditions.

Financial inclusion in this study is measured through three key dependent variables: account ownership, mobile banking ownership, and savings behavior. Account ownership serves as a fundamental indicator of financial inclusion, as having an account at a financial institution or with a mobile money provider is widely considered the first step toward financial integration. Without an account, individuals are excluded from essential financial services, such as secure savings, credit, and electronic transactions, limiting their ability to participate in the formal economy. Measuring mobile banking ownership is crucial because mobile financial services have emerged as a key driver of financial inclusion, particularly in developing economies where access to traditional banking infrastructure is limited. The rapid expansion of mobile money has allowed millions of previously unbanked individuals—especially women—to access financial services, receive wages, and engage in digital transactions, reducing reliance on cash-based economies. Savings behavior is included as a key indicator because saving is an essential aspect of financial security and economic resilience. The Global Findex 2021 defines savings broadly, capturing both formal and informal saving methods. Individuals are considered to have saved if they set aside money in the past year, regardless of whether it was deposited in a financial institution, stored in a mobile money account, contributed to a savings club, entrusted to a person outside their family, or held informally at home. The inclusion of informal savings recognizes that, while many people lack access to formal banking, they may still engage in financial planning through alternative means.

The survey collected data through specific questions designed to measure financial inclusion. Respondents were asked: " Do you currently have an account at a financial institution, a mobile money account, or both?" to determine account ownership. To assess mobile banking ownership, individuals were asked: "In the past year, have you used a mobile money service to pay bills or to send or receive money?". Savings behaviour was measured through the question: " Have you

personally saved or set aside any money—whether using an account at a financial institution, a mobile money account, through a savings club or a person outside your family, or for any reason, in the past year?" These structured questions ensure the consistency and reliability of financial inclusion metrics across different economies.

Table 1 shows the descriptive statistics for the variables used in the empirical analysis by gender. The gender gap in financial inclusion is further evidenced by key financial indicators. While 72% of the total sample has a bank account, a significant disparity exists between men (76%) and women (68%). Similarly, mobile banking ownership is higher among men (29%) compared to women (23%), indicating that women are less engaged with digital financial services. Savings behavior also exhibits a gender gap, with 58% of men saving money compared to 51% of women, a statistically significant difference.

At the individual level, the analysis includes age, gender, education level, employment status, income quantiles, and geographic region. Age is a critical determinant of financial inclusion, as financial behavior and access to financial services often evolve over the life cycle. **Table 1** shows that the mean age in the dataset is 41.28 years, with no significant gender disparity. Employment status significantly affects financial inclusion, as individuals in the workforce are more likely to have a bank account, use mobile banking, and have savings. The data show that 66% of respondents are employed, with a notable gender gap where 58% of women are employed compared to 76% of men. Education level is another major determinant of financial inclusion. Financial literacy and familiarity with banking systems increase with educational attainment. In the dataset, 27% of respondents have primary education or less, 50% have secondary education, and 23% have tertiary education. Income level is a significant driver of financial inclusion, as wealthier individuals are more likely to have the financial means to maintain a bank account, save regularly, and use financial products. The dataset

categorizes respondents into five income quintiles, from the lowest (bottom 20%) to the highest (top 20%).

At the country level, two macroeconomic indicators—the Gender Gap Index (GGI) and GDP per capita—are included to assess how broader economic and institutional factors shape financial access. The GGI, published by the World Economic Forum, provides a composite measure of gender disparities across economic participation, educational attainment, health, and political empowerment. The index ranges from 0 to 1, with 1 representing perfect gender parity and 0 indicating complete inequality. Countries with a higher GGI score generally have smaller gender disparities in employment, wages, and financial decision-making power, which are all factors that influence financial inclusion levels. Given that gender inequality has been widely identified as a key barrier to financial access, the GGI serves as a critical variable in understanding financial inclusion disparities across countries. GDP per capita, on the other hand, serves as a proxy for economic development, as financial inclusion is typically higher in wealthier economies with more advanced financial systems. The 2021 values of GDP per capita and GGI are used in the analysis to ensure consistency with the timing of the individual-level data.

Figure 1 illustrates the relationship between the Gender Gap in Account Ownership and the Gender Gap Index (GGI) across 128 countries.[1] Countries like Sweden, Iceland, and New Zealand, which have some of the highest GGI scores, exhibit near-zero gender gaps in financial account ownership. In contrast, countries such as Afghanistan and Pakistan, with some of the lowest GGI scores, display substantial gender gaps in account ownership. Pakistan, for example, has a gender gap in account ownership exceeding 22 percentage points, reflecting

[1] The gender gap in account ownership is defined as the difference between the proportion of females and the proportion of males who have an account in a given country. Detailed statistics on the gender gap across countries are presented in Table A.1 in the appendix.

severe structural and cultural barriers to women's financial participation. Middle-income countries such as Brazil and South Africa show moderate GGI scores and correspondingly narrower gender gaps, while some nations, such as Iran and Saudi Arabia, exhibit significant gender gaps despite their relatively higher GDP per capita. The positive slope in Figure 1 indicates that as gender equality increases in a country, the gender gap in account ownership in favor of males becomes smaller, suggesting that institutional and socio-cultural factors play a crucial role in shaping women's financial engagement.

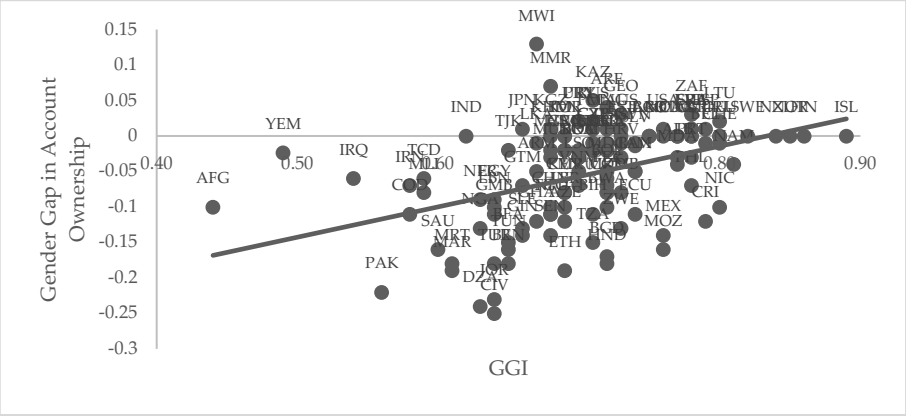

Figure 1
The relationship between Gender Gap in Account Ownership and the Gender Gap Index (GGI) across countries

Figure 2 explores the relationship between Gender Gap in Mobile Banking Ownership and the GGI.[2] While high-GGI countries like Finland and Canada exhibit minimal gender gaps in mobile banking, nations such as Morocco and Jordan display larger disparities than expected given their GGI scores. This suggests that technological constraints or regulatory barriers may restrict

[2] The gender gap in mobile banking ownership is defined as the difference between the proportion of females and the proportion of males who used a mobile money account to make payments, buy things, or to send or receive money in the past year, in a given country. Detailed statistics on the gender gap across countries are presented in Table A.1 in the appendix.

women's access to mobile financial services, even in countries with relatively high gender equality in other domains.

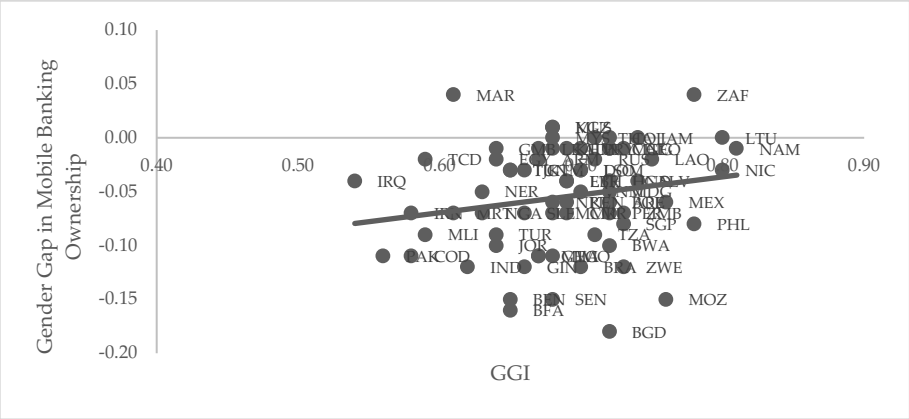

Figure 2
The relationship between Gender Gap in Mobile Banking Ownership and the Gender Gap Index (GGI) across countries

Figure 3 examines the relationship between the Gender Gap in Saving and the GGI across countries.[3] The relationship between GGI and savings behavior is less clear-cut. Countries such as Uruguay and Indonesia show relatively large gender gaps in savings despite moderate GGI scores, suggesting that factors such as economic instability, household financial roles, and cultural attitudes toward financial planning may influence saving behaviors more than overall gender equality.

[3] The gender gap in saving is defined as the difference between the proportion of females and the proportion of males who report having saved money in a given country. Detailed statistics on the gender gap across countries are presented in Table A.1 in the appendix.

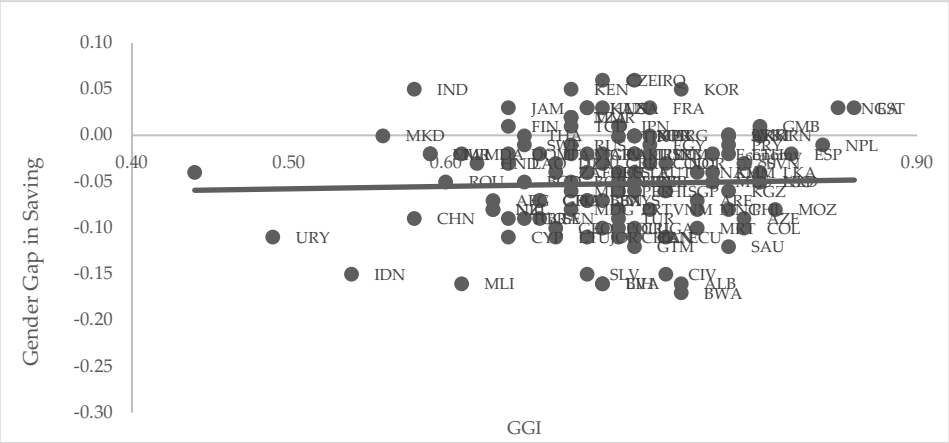

Figure 3
The relationship between Gender Gap in Saving and the Gender Gap Index (GGI) across countries

Figures 1-3 provide evidence that higher levels of institutional gender equality (GGI) tend to be associated with smaller gender gaps in account ownership and, to a lesser extent, in mobile banking and saving across countries.

Table 1 - Individual-level variables: definitions and descriptive statistics.

		Full sample		Female		Male		
Variable	**Description**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**t-statistic**
Account Ownership	=1 if the respondent has an account at a financial institution	0.72	(0.45)	0.68	(0.47)	0.76	(0.43)	[31.67]***
Mobile Banking Ownership	=1 if the respondent used mobile money services to pay bills or to send or receive money in the past year	0.26	(0.44)	0.23	(0.42)	0.29	(0.45)	[20.69]***
Saved Money	=1 if the respondent has saved money in the past year	0.54	(0.50)	0.51	(0.5)	0.58	(0.5)	[22.40]***
Age	Respondent's age in years.	41.28	(17.40)	41.5	(17.61)	41.04	(17.14)	[-6.08]***
Employed	=1 if the respondent is currently in the workforce	0.66	(0.47)	0.58	(0.49)	0.76	(0.43)	[69.39]***
Primary Education	=1 if the respondent's highest education level is primary education or less	0.27	(0.44)	0.30	(0.46)	0.24	(0.43)	[-25.03]***
Secondary Education	=1 if the respondent's highest education level is secondary education	0.50	(0.50)	0.49	(0.50)	0.52	(0.5)	[12.47]***
Tertiary Education	=1 if the respondent's highest education level is tertiary education	0.23	(0.42)	0.22	(0.41)	0.24	(0.43)	[11.54]***
Lowest Income Quintile	Respondent's household income falls in the lowest 20% within the country.	0.16	(0.37)	0.18	(0.38)	0.14	(0.35)	[-16.57]***
Second-Lowest Income Quintile	Respondent's household income falls in the second-lowest 20% within the country.	0.17	(0.38)	0.19	(0.39)	0.16	(0.36)	[-13.91]***
Middle Income Quintile	Respondent's household income falls in the middle 20% within the country.	0.19	(0.39)	0.20	(0.4)	0.18	(0.39)	[-7.32]***
Second-Highest Income	Respondent's household income falls in the second-highest 20% within the country.	0.22	(0.41)	0.21	(0.41)	0.22	(0.41)	[3.20]***
Highest Income Quintile	Respondent's household income falls in the top 20% within the country.	0.26	(0.44)	0.23	(0.42)	0.30	(0.46)	[-29.61]***
Region: East Asia & Pacific	=1 if the respondent is in East Asia & Pacific	0.10	(0.29)	0.10	(0.3)	0.09	(0.29)	[9.55]***
Region: Europe & Central Asia	=1 if the respondent is in Europe & Central Asia	0.13	(0.33)	0.14	(0.34)	0.12	(0.32)	[-9.44]***
Region: High Income	=1 if the respondent is in a high-income country	0.30	(0.46)	0.29	(0.45)	0.31	(0.46)	[10.67]***
Region: Latin America & Caribbean	=1 if the respondent is in Latin America & the Caribbean	0.12	(0.32)	0.13	(0.33)	0.11	(0.31)	[-12.40]***
Region: Middle East & North Africa	=1 if the respondent is in the Middle East & North Africa	0.07	(0.25)	0.06	(0.24)	0.72	(0.26)	[9.55]***
Region: South Asia	=1 if the respondent is in South Asia	0.06	(0.24)	0.06	(0.23)	0.06	(0.25)	[5.38]***
Region: Sub-Saharan Africa	=1 if the respondent is in Sub-Saharan Africa	0.23	(0.42)	0.24	(0.42)	0.23	(0.42)	[-1.68]*
N	Number of observations.	128,341		68,183		60,158		

Notes: The number of observations for the Mobile Banking Ownership variable differs, with the full sample consisting of 75,685 respondents, 40,928 females, and 34,757 males. The list of countries by region is presented in the appendix. The last column presents t-statistics. t-test compares the difference in the means of the two samples. *** significant at 1%, ** significant at 5%, and, * significant at 10%.

4. Empirical Methodology

In this section, we present the empirical methodology used to analyze the determinants of financial inclusion. We employ a Linear Probability Model (LPM), a widely used econometric approach for modeling binary dependent variables. This method is chosen due to its simplicity and ease of interpretation, despite its limitations.

The LPM is a special case of the Ordinary Least Squares (OLS) regression applied to a binary dependent variable. The main advantage of this approach is that the estimated coefficients can be directly interpreted as changes in probability associated with unit changes in explanatory variables. However, it has some limitations.[4]

Building upon this general framework, we specify three models to investigate the gender gap in financial inclusion. The first specification serves as the baseline model:

$$FI_{ic} = \beta_0 + \beta_1 Female_{ic} + X'_{ic}\beta_2 + \alpha_c + \varepsilon_{ic} \quad \textbf{(1)}$$

where FI_{ic} represents the financial inclusion indicator for individual i in country c, taking a value of 1 if the individual has access to financial services and 0 otherwise. The variable $Female_{ic}$ is a binary indicator equal to 1 if the individual is female and 0 if male. The vector X'_{ic} includes a set of individual-level control variables, namely education, income, employment status, and

[4] Limitations of the LPM: This model does not impose constraints on predicted probabilities, allowing values to fall outside the [0,1] interval. Additionally, it violates the homoscedasticity assumption, which can lead to inefficient standard errors. To mitigate these issues, robust standard errors are employed.

age. α_c captures country fixed effects, accounting for unobserved heterogeneity at the national level. Finally, ε_{ic} represents the error term.

The second specification extends the model by incorporating additional country-level determinants of financial inclusion, replacing country fixed effects with explanatory variables that capture gender equality and economic development. Furthermore, this specification introduces regional dummies to account for geographical variation in financial access:

$$FI_{ic} = \gamma_0 + \gamma_1 Female_{ic} + X'_{ic}\gamma_2 + \gamma_3 GGI_c + \gamma_4 GDP_c + \sum_{r=1}^{6} \delta_r region_r + u_{ic} \quad \textbf{(2)}$$

where FI_{ic} represents the financial inclusion indicator for individual i in country c, taking a value of 1 if the individual has access to financial services and 0 otherwise. The variable $Female_{ic}$ is a binary indicator equal to 1 if the individual is female and 0 if male. The vector X'_{ic} includes a set of individual-level control variables, namely education, income, employment status, and age.

At the country level, GGI_c denotes the Gender Gap Index, which quantifies gender disparities in economic participation, education, health, and political empowerment. Similarly, GDP_c represents GDP per capita, capturing the role of economic development.

Additionally, the model incorporates regional fixed effects, which control for geographical variation in financial access by including regional dummy variables. Finally, u_{ic} is the error term.

The final specification examines the relationship between the gender gap in financial inclusion, captured by the female dummy variable, and societal-level gender equality, measured by the Gender Gap Index. By incorporating an interaction term between these two variables, this model assesses whether higher

levels of gender equality at the country level mitigate financial inclusion disparities between men and women. The equation of the third specification is:

$$FI_{ic} = \theta_0 + \theta_1 Female_{ic} + X'_{ic}\theta_2 + \theta_3 GGI_c + \theta_4 GDP_c + \sum_{r=1}^{6} \delta_r region_r + \theta_5 (Female_{ic} \times GGI_c) + \xi_{ic} \quad \textbf{(3)}$$

where the interaction term between the female dummy and GGI, $Female_{ic} \times GGI$, allows us to assess whether higher gender equality at the country level is associated with a smaller gender gap in financial inclusion. A positive and statistically significant coefficient θ_5 would indicate that gender parity enhances women's financial access more than men's, meaning that the negative effect of being female on financial inclusion diminishes as societal gender equality improves.

This empirical approach provides a comprehensive analysis of the determinants of financial inclusion by considering both individual-level and country-level factors. Additionally, it examines the extent to which gender equality at the national level influences financial inclusion outcomes. The findings contribute to a better understanding of gender disparities in financial access and provide insights for policies aimed at fostering more inclusive financial systems.

To ensure the robustness of our findings, we also estimate a Probit Model[5].

[5] In the Probit model, the probability of financial inclusion for an individual i in country c, given the explanatory variables, is modeled as follows:

$P(FI_{ic} = 1 \mid Female_{ic}, X'_{ic}, \alpha_c) = \Phi(\beta_0 + \beta_1 Female_{ic} + X'_{ic}\beta_2 + \alpha_c)$ (4) , where $\Phi(\cdot)$ represents the cumulative distribution function (CDF) of the standard normal distribution, ensuring probabilities remain within the [0,1] interval. We also estimate the second and third specifications presented in equations (2) and (3) using a Probit framework. Comparing the results of the Linear Probability Model (LPM) with Probit estimates allows us to assess the robustness of the results to different model specifications.

5. Results

5.1 LPM Estimates for Financial Inclusion

The results from our empirical analysis are presented in **Tables 2, 3,** and **4**, which display the estimates for account ownership, mobile banking ownership, and savings, respectively. Each table includes three specifications, progressively incorporating additional explanatory variables to assess the robustness of the findings.

Table 2 presents the estimates for account ownership, one of the most fundamental indicators of financial inclusion. In Specification (1), which controls for individual characteristics such as education, income, and employment, as well as country-fixed effects, the estimated coefficient for the female dummy is -0.03 and statistically significant at the 1% level. This suggests that, on average, women are 3 percentage points less likely than men to own an account, even after accounting for unobserved country-specific characteristics such as cultural, institutional, or structural factors. The inclusion of country-fixed effects allows the model to isolate within-country variation, so the estimated coefficient reflects gender differences in account ownership within each country. Regarding income, the estimated coefficient for the highest income quintile is 0.07 and statistically significant at the 1% level, indicating that individuals in the highest quintile are 7 percentage points more likely to own an account than those in the lowest. This finding provides evidence that financial access is strongly associated with economic resources. Education also plays a critical role: individuals with tertiary education are 44 percentage points more likely to have an account compared to those with primary education or less. Employment status is another key determinant—employed individuals are, on average, 11 percentage points

more likely to own an account than those who are unemployed. These findings highlight the importance of education, income, and labor market participation in shaping financial inclusion outcomes.

In Specification (2), country fixed effects are replaced by two country-level variables—GGI and GDP—as well as region dummies. The estimated coefficient for the female dummy remains negative and statistically significant at the 1% level, with a magnitude of -0.03. This suggests that women are still 3 percentage points less likely than men to own an account, even after controlling for differences in gender equality, economic development, and regional characteristics. The persistence of this effect across specifications indicates that the gender gap in account ownership is a robust and consistent finding, not driven by country-specific unobserved heterogeneity. Income continues to play a significant role: individuals in the highest income quintile are 11 percentage points more likely to have an account than those in the lowest quintile. Education remains a strong predictor as well, with tertiary education increasing the likelihood of account ownership by 30 percentage points. In this specification, the estimated coefficient for the Gender Gap Index (GGI) is positive and statistically significant at the 1% level, indicating that higher levels of institutional gender equality are associated with a greater likelihood of account ownership overall. In contrast, GDP per capita is not statistically significant, suggesting that economic development alone does not explain differences in account ownership once other factors are controlled for.

Specification (3) builds on Specification (2) by including an interaction term between the female dummy and the Gender Gap Index (GGI), allowing the effect of being female on financial inclusion to vary with the level of institutional gender equality. The coefficient for the female dummy decreases further to -0.18 and remains statistically significant, but its interpretation changes due to the inclusion of an interaction term between female and GGI. Unlike in the previous

specifications, the effect of being female is now conditional on the level of gender equality in the country. The estimated impact of being female on account ownership is given by the sum of the estimated coefficient of the female dummy and the product of the interaction term's estimated coefficient multiplied by the level of gender equality in the country ($\widehat{\theta_1}+\widehat{\theta_5} \times GGI$). The estimated coefficient of the interaction term is 0.21 and statistically significant at the 5% level, suggesting that as gender equality improves, the gender gap in account ownership decreases. In the linear probability model, a positive and significant coefficient on the interaction term between the female dummy and the Gender Gap Index (GGI) indicates that gender equality at the country level is associated with a smaller gender gap in account ownership. Specifically, as GGI increases (i.e., as gender equality improves), the negative impact of being female on account ownership diminishes. In other words, in countries with higher gender equality, women are more likely to own an account compared to those in less equal societies, which suggests that gender equality benefits women's financial inclusion more than men's, thereby reducing the gender gap.

Table 2
Linear Probability Model Estimates for Account Ownership.

	(1)	(2)	(3)
Female	-0.03*** (0.01)	-0.03*** (0.01)	-0.18** (0.08)
Age	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Employed	0.11*** (0.00)	0.11*** (0.01)	0.10*** (0.01)
Secondary Education	0.30*** (0.02)	0.22*** (0.02)	0.22*** (0.02)
Tertiary Education	0.44*** (0.02)	0.30*** (0.02)	0.30*** (0.02)
Second-Lowest Income Quintile	0.02*** (0.01)	0.03*** (0.01)	0.03*** (0.01)
Middle Income Quintile	0.03*** (0.01)	0.05*** (0.01)	0.05*** (0.01)
Second-Highest Income Quintile	0.05*** (0.01)	0.07*** (0.01)	0.07*** (0.01)
Highest Income Quintile	0.07*** (0.01)	0.11*** (0.01)	0.11*** (0.01)
GDP	-	0.00 (0.01)	0.00 (0.01)
GGI	-	0.99*** (0.27)	0.88** (0.28)
GGI*female	-	-	0.21** (0.11)
Region Dummies	No	Yes	Yes
Country Fixed Effects	Yes	No	No
R-squared	0.36	0.27	0.27
N	128,341	128,341	128,341

Notes: GDP is per capita (×10,000 USD). Robust standard errors clustered at the country level are reported in parentheses. *** significant at 1%, ** at 5%, * at 10%.

Table 3 presents the results for mobile banking ownership, which captures whether an individual has used mobile banking services in the past year. In Specification (1), the estimated coefficient for the female dummy is -0.02 and statistically significant at the 1% level, indicating that, on average, women are 2 percentage points less likely than men to use mobile banking, after controlling for individual characteristics and country-fixed effects. Income plays a significant

role in mobile banking adoption, with individuals in the highest income quintile being 14 percentage points more likely to use mobile banking than those in the lowest quintile. Education is also a crucial determinant, with tertiary-educated individuals being 17 percentage points more likely to use mobile banking compared to those with only primary education. Employment status is strongly associated with mobile banking use, as employed individuals are 11 percentage points more likely to report using mobile financial services.

In Specification (2), which replaces country-fixed effects with GGI, GDP and region dummies, the estimated coefficient for the female dummy remains negative and statistically significant at the 1% level, with a magnitude of -0.03. This suggests that, even after controlling for GGI, GDP and region dummies, women are 3 percentage points less likely than men to use mobile banking. The estimated coefficients for income and education remain positive and statistically significant, reinforcing the notion that financial and digital literacy, along with economic resources, are crucial for mobile banking adoption. In addition, both GGI and GDP are positively associated with mobile banking ownership, and their coefficients are statistically significant at 1% level, suggesting that higher institutional gender equality and economic development foster greater use of mobile financial services.

In Specification (3), the estimated coefficient of the interaction term GGI × female is not statistically significant, suggesting that the effect of gender on mobile banking ownership does not significantly vary with the level of gender equality. While the GGI itself remains positive and statistically significant, indicating that higher levels of gender equality are associated with greater mobile banking ownership overall, it does not appear to disproportionately benefit women. This result implies that additional barriers—such as digital literacy gaps, access to mobile technology, or socio-cultural norms—may still hinder women's engagement with mobile banking, even in more gender-equal environments.

Table 3
Linear Probability Model Estimates for Mobile Banking Ownership.

	(1)	(2)	(3)
Female	-0.02*** (0.01)	-0.03*** (0.01)	0.04 (0.09)
Age	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Employed	0.11*** (0.01)	0.08*** (0.01)	0.08*** (0.01)
Secondary Education	0.11*** (0.02)	0.12*** (0.02)	0.12*** (0.02)
Tertiary Education	0.17*** (0.03)	0.23*** (0.02)	0.23*** (0.02)
Second-Lowest Income Quintile	0.02*** (0.01)	0.02*** (0.01)	0.02*** (0.01)
Middle Income Quintile	0.04*** (0.01)	0.05*** (0.01)	0.05*** (0.01)
Second-Highest Income Quintile	0.08*** (0.01)	0.08*** (0.01)	0.08*** (0.01)
Highest Income Quintile	0.14*** (0.02)	0.12*** (0.01)	0.12*** (0.01)
GDP	-	0.08*** (0.03)	0.08*** (0.03)
GGI	-	0.80*** (0.24)	0.85*** (0.25)
GGI*female	-	-	-0.10 (0.12)
Region Dummies	No	Yes	Yes
Country Fixed Effects	Yes	No	No
R-squared	0.24	0.15	0.15
N	75,155	75,155	75,155

Notes: GDP is per capita (×10,000 USD). Robust standard errors clustered at the country level are reported in parentheses. *** significant at 1%, ** at 5%, * at 10%.

Table 4 presents the estimates for savings behavior, another critical dimension of financial inclusion. The estimated coefficient for the female dummy is negative and statistically significant in Specifications (1) and (2), confirming that women are less likely to save than men. In Specification (1), the estimated coefficient is -0.01 and statistically significant at the 5% level, indicating that women, on average, are 1 percentage point less likely to save compared to men, after

accounting for individual characteristics and country fixed effects. Income is strongly associated with savings behavior: individuals in the highest income quintile are 19 percentage points more likely to save than those in the lowest quintile, and this effect is statistically significant at the 1% level. Employment status also plays a significant role, as employed individuals are 12 percentage points more likely to save than unemployed individuals. Education shows a similar trend: individuals with tertiary education are 29 percentage points more likely to save compared to those with primary education or less, with significance at the 1% level.

In Specification (2), which replaces country-fixed effects with GGI, GDP and region dummies, the estimated coefficient for the female dummy remains negative and statistically significant at the 5% level. This consistent finding across Specification (1) and (2) reinforces the robustness of the negative gender gap in saving. In the second specification, both the Gender Gap Index (GGI) and GDP per capita are positively and statistically significantly at the 1% level. This suggests that individuals living in countries with higher levels of gender equality and economic development are more likely to save money, highlighting the relevance of structural macroeconomic conditions in shaping financial behaviours.

In Specification (3), the estimated coefficient of the interaction term between the GGI and female dummy variable is negative but not statistically significant, indicating that the relationship between gender equality and women's likelihood to save does not significantly differ from that of men. Although GGI itself is positive and significant at the 1% level, suggesting that gender-equal countries tend to have higher overall savings rates, it does not appear to disproportionately benefit women. This implies that even in more gender-equal contexts, other factors—such as cultural attitudes, intra-household financial roles, or risk aversion—may still hinder women's propensity to save.

Table 4

Linear Probability Model Estimates for Saving.

	(1)	(2)	(3)
Female	-0.01** (0.01)	-0.01** (0.01)	0.07 (0.05)
Age	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)
Employed	0.12*** (0.01)	0.11*** (0.01)	0.11*** (0.01)
Secondary Education	0.18*** (0.02)	0.13*** (0.01)	0.13*** (0.01)
Tertiary Education	0.29*** (0.02)	0.19*** (0.01)	0.19*** (0.01)
Second-Lowest Income Quintile	0.05*** (0.01)	0.06*** (0.01)	0.06*** (0.01)
Middle Income Quintile	0.05*** (0.01)	0.11*** (0.01)	0.11*** (0.01)
Second-Highest Income Quintile	0.13*** (0.01)	0.15*** (0.01)	0.15*** (0.01)
Highest Income Quintile	0.19*** (0.01)	0.21*** (0.01)	0.21*** (0.01)
GDP	-	0.03*** (0.01)	0.03*** (0.01)
GGI	-	0.68*** (0.14)	0.74*** (0.15)
GGI*female	-	-	-0.11 (0.07)
Region Dummies	No	Yes	Yes
Country Fixed Effects	Yes	No	No
R-squared	0.22	0.18	0.18
N	128,341	128,341	128,341

Notes: GDP is per capita (×10,000 USD). Robust standard errors clustered at the country level are reported in parentheses. *** significant at 1%, ** at 5%, * at 10%.

The empirical findings provide robust evidence of a persistent gender gap in financial inclusion. While higher levels of institutional gender equality, as measured by the GGI, are associated with greater overall financial inclusion, their effect on reducing the gender gap differs across financial services. A significant

interaction effect emerges for account ownership only, highlighting the importance of institutional and economic factors. The absence of such an effect for mobile banking and savings suggests that other barriers—such as digital literacy or cultural attitudes—may continue to restrict women's financial engagement.

5.2. Robustness checks

To ensure the robustness of our findings, we re-estimate our models using a Probit specification, given that our dependent variables are binary. **Table 5** presents the average marginal effects derived from the Probit model, which are directly compared to the results obtained from the Linear Probability Model (LPM) in **Tables 2, 3**, and **4.** This comparison allows us to evaluate whether the LPM provides a reasonable approximation of the probability effects or whether the non-linearity captured by the Probit model leads to significantly different conclusions.

Across both models, we find a consistent and statistically significant negative effect of being female on financial inclusion indicators. In the LPM, the estimated coefficient of the Female dummy is negative and statistically significant at the 1% level, indicating that women are less likely to own an account, use mobile banking, or save compared to men. The Probit marginal effects confirm this pattern: the estimated coefficient of the Female dummy remains negative and statistically significant at the 1% level across all financial inclusion outcomes. Specifically, women are approximately 3 percentage points less likely to own an account, between 2 and 3 percentage points less likely to use mobile banking, and about 1 percentage point less likely to save.

The effect of age on financial inclusion outcomes is generally small but statistically significant across most models. For account ownership and mobile

banking, the estimated coefficient in the LPM is close to zero but statistically significant, and this result is largely confirmed by the Probit model, where the marginal effect remains small and positive, significant at the 1% level. However, for savings, the LPM estimate is not statistically significant, whereas the Probit model reveals a small but statistically significant negative effect of age in Specification (2), significant at the 5% level. This suggests that, as individuals grow older, their likelihood of saving slightly decreases—an effect only captured in the Probit specification.

Employment is a key determinant of financial inclusion in both models. The LPM results suggest that employed individuals are approximately 11, 8 and 11 percentage points more likely to own an account, use mobile banking, and save, respectively. The Probit marginal effects confirm these findings, showing similar magnitudes across all financial inclusion indicators.

Education remains a strong predictor of financial inclusion, with secondary and tertiary education having highly significant effects in both models. In the LPM, individuals with secondary education are 22, 12 and 13 percentage points more likely to own an account, use mobile banking and save, respectively. For those with tertiary education, the effects are even larger – 30, 23 and 19 percentage points, respectively. The Probit marginal effects yield slightly lower but still substantial estimates, with tertiary education increasing financial inclusion by 43, 17, and 28 percentage points for account ownership, mobile banking ownership, and saving, respectively compared to those with primary education - all statistically significant at the 1% level. These results confirm the crucial role of education in improving financial access.

Income also plays a significant role in financial inclusion. In both the LPM and Probit models, individuals in the highest income quintile are between 7 and 21 percentage points more likely to own an account, use mobile banking, or save, compared to those in the lowest quintile. While the estimated effects are slightly

lower in the Probit model, they remain highly significant, reinforcing the strong link between income and financial inclusion.

At the macroeconomic level, GDP per capita and the Gender Gap Index (GGI) exhibit consistent effects across models. GDP has a positive and statistically significant impact at the 1% level, confirming that higher economic development is associated with greater financial inclusion. Similarly, GGI is strongly significant at the 1% level in both models, with estimates ranging from 0.71 to 0.92, suggesting that greater gender equality at the national level enhances financial inclusion[6].

Overall, the Probit results confirm the findings from the LPM. The estimates are similar in size and significance, showing that both models lead to consistent conclusions.

[6] In nonlinear models with interaction terms (e.g., Probit models), the coefficient of the interaction term does not directly represent the interaction effect. Instead, the interaction effect is defined as the difference in the marginal effect of one variable when the other interacted variable takes different values. Using the Probit estimation results from column 3 of Table A.2 in the Appendix, we calculate the marginal effect of GGI on the likelihood of account ownership for females and males separately at the mean values. The results show that a one-percentage-point increase in the Gender Gap Index (GGI) is associated, with a 0.90 percentage-point increase in the likelihood of account ownership for males and a 1.01 percentage-point increase for females. This is consistent with the Linear Probability Model (LPM) results, where the estimated coefficient of the interaction term is positive and statistically significant, indicating that a larger GGI effect for females.

Table 5

Marginal Effects from the Probit Model for Financial Inclusion.

	Account Ownership		Mobile Banking Ownership		Savings	
	(1)	**(2)**	**(1)**	**(2)**	**(1)**	**(2)**
Female	-0.03*** (0.01)	-0.03*** (0.01)	-0.02*** (0.01)	-0.03*** (0.01)	-0.01** (0.01)	-0.01** (0.01)
Age	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00 (0.00)	-0.00** (0.00)
Employed	0.09*** (0.01)	0.10*** (0.01)	0.12*** (0.01)	0.09*** (0.01)	0.12*** (0.01)	0.11*** (0.01)
Secondary Education	0.24*** (0.02)	0.16*** (0.01)	0.11*** (0.02)	0.14*** (0.01)	0.17*** (0.02)	0.13*** (0.01)
Tertiary Education	0.43*** (0.02)	0.30*** (0.02)	0.17*** (0.03)	0.25*** (0.02)	0.28*** (0.02)	0.21*** (0.02)
Second-Lowest Income Quintile	0.02*** (0.01)	0.03*** (0.01)	0.03*** (0.01)	0.03*** (0.01)	0.05*** (0.01)	0.06*** (0.01)
Middle Income Quintile	0.03*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.09*** (0.01)	0.10*** (0.01)
Second-Highest Income Quintile	0.04*** (0.01)	0.06*** (0.01)	0.09*** (0.01)	0.08*** (0.01)	0.13*** (0.01)	0.14*** (0.01)
Highest Income Quintile	0.07*** (0.01)	0.10*** (0.01)	0.14*** (0.01)	0.11*** (0.01)	0.19*** (0.01)	0.21*** (0.01)
GDP	-	0.00*** (0.00)	-	0.00*** (0.00)	-	0.04*** (0.01)
GGI	-	0.92*** (0.22)	-	0.86*** (0.27)	-	0.71*** (0.15)
Region Dummies	No	Yes	No	Yes	No	Yes
Country Fixed Effects	Yes	No	Yes	No	Yes	No
Pseudo R-squared	0.17	0.28	0.07	0.15	0.07	0.15
N	128,341	128,341	75,155	75,155	128,341	128,341

Notes: Average marginal effects, calculated from the Probit model estimates, are reported. GDP is per capita (×10,000 USD). Robust standard errors clustered at the country level are reported in parentheses. *** significant at 1%, ** at 5%, * at 10%.

6. Conclusion

This study investigates the gender gap in financial inclusion using microdata from the World Bank Global Findex 2021, covering over 120,000 individuals in 128 economies. Focusing on three key dimensions—account ownership, mobile banking ownership, and savings—we assess whether women are systematically less financially included than men, even after accounting for individual and country-level characteristics. We also test whether institutional gender equality, measured by the World Economic Forum's Gender Gap Index (GGI), helps reduce these gender disparities.

Our results confirm the existence of significant gender gaps across all three indicators. Women are systematically less likely than men to own a bank account, own a mobile banking account, or save, even after accounting for differences in education, income, employment status, and age. These gaps remain statistically significant across different specifications, indicating that gender is an independent and robust predictor of financial inclusion. Additionally, both the Gender Gap Index (GGI) and GDP per capita are positively and statistically significantly associated with financial inclusion. This suggests that individuals in more gender-equal and economically developed countries are more likely to be financially included.

The interaction effect between gender and the Gender Gap Index (GGI) confirms that institutional gender equality helps reduce the gender gap in financial inclusion, but only for account ownership. In countries with higher levels of gender equality, women are more likely to have a bank account compared to those in less equal societies.

However, no significant interaction effects are found for mobile banking and saving, suggesting that other barriers—such as limited digital access, lower financial literacy, or traditional household roles—may still prevent women from fully engaging with these financial services.

Finally, future research could build on these findings by analyzing changes in gender gaps over time by using earlier waves of the Findex database or to focus on specific regions where gaps are most pronounced.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of my written thesis, *Assessing Gender Gap in Financial Inclusion: Evidence from the 2021 World Bank Global Findex Data*, ChatGPT was used for the following tasks: grammatical and language corrections, with the prompts used listed at the end of the document in the Prompts List section. After using this tool, I reviewed and edited the content as necessary, and I take full responsibility for the content of the work presented.

I also declare that I am aware of and respect the Artificial Intelligence Rules of Conduct of Católica Porto Business School.

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Appendix

Table A.1

Gender Gap in Financial Inclusion, Gender Gap Index (GGI), and GDP per Capita Across Countries

Country	Gender Gap in Account Ownership	N Account Ownership	Gender Gap in Mobile Banking Ownership	N Mobile Banking Ownership	Gender Gap in Saving	N Saving	GGI	GDP
Afghanistan	-0.10***	1002	0.00	1002	-0.04**	1002	0.44	0.04
Albania	-0.03	1000	-	-	-0.02	1000	0.77	0.64
Algeria	-0.24***	1002	-	-	-0.07**	1002	0.63	0.42
Argentina	0.00	1003	-0.08**	1003	-0.16***	1003	0.75	1.07
Armenia	-0.05	1000	-0.02	1000	-0.03	1000	0.67	0.47
Australia	0.01**	1000	-	-	0.00	1000	0.73	6.06
Austria	0.00	1000	-	-	0.00	1000	0.78	5.36
Azerbaijan	-0.12***	1008	-	-	-0.04	1008	0.69	0.54
Bangladesh	-0.17***	1000	-0.18***	1000	-0.04	1000	0.72	0.25
Belgium	-0.01	1012	-		-0.09***	1012	0.79	5.17
Benin	-0.18***	1000	-0.15***	1000	-0.05*	1000	0.65	0.13
Bolivia	-0.06**	1000	-0.06**	1000	-0.05	1000	0.72	0.34
Bosnia and Herzegovina	-0.11***	1000	-	-	-0.05	1000	0.71	0.73
Botswana	-0.1***	1000	-0.1***	1000	0.00	1000	0.72	0.78
Brazil	-0.03	1002	-0.12***	1002	-0.16***	1002	0.70	0.80

Table A.1
(continued)

Country	Gender Gap in Account Ownership	N Account Ownership	Gender Gap in Mobile Banking Ownership	N Mobile Banking Ownership	Gender Gap in Saving	N Saving	GGI	GDP
Bulgaria	0.00	1005	-	-	-0.17***	1005	0.75	1.23
Burkina Faso	-0.15***	1000	-0.16***	1000	-0.09***	1000	0.65	0.09
Cambodia	0.00	1000	-0.01	1000	-0.05*	1000	0.68	0.22
Cameroon	-0.08**	1000	-0.07**	1000	-0.07**	1000	0.69	0.17
Canada	0.00	1007	-	-	-0.04*	1007	0.77	5.25
Chad	-0.06**	1000	-0.02	1000	-0.02	1000	0.59	0.07
Chile	-0.02	1000	-0.01*	1000	-0.11***	1000	0.72	1.62
China	-0.10***	3500	-	-	0.01	3500	0.68	1.26
Colombia	-0.08***	1000	0.00	1000	-0.06*	1000	0.72	0.62
Congo, Dem. Rep.	-0.11***	1000	-0.11***	1000	-0.09***	1000	0.58	0.06
Costa Rica	-0.12***	1001	-	-	-0.10***	1001	0.79	1.28
Croatia	-0.03*	1001	-	-	-0.03	1001	0.73	1.78
Cyprus	-0.01	1019	-	-	-0.10***	1019	0.71	3.37
Czechia	-0.01	1005	-	-	-0.05**	1005	0.71	2.77
Côte d'Ivoire	-0.25***	1000	-0.2***	1000	-0.11***	1000	0.64	0.25
Dominican Republic	-0.03	1000	-0.03*	1000	0.06*	1000	0.70	0.85
Denmark	0.00	1002	-	-	0.02	1002	0.77	6.97
Ecuador	-0.11***	1000	-	-	-0.15***	1000	0.74	0.61
Egypt, Arab Rep.	-0.09***	1003	-0.02*	1003	-0.02	1003	0.64	0.38
El Salvador	-0.014***	1002	-0.04*	1002	-0.11***	1002	0.74	0.46
Estonia	0.00	1001	-	-	-0.01	1001	0.73	2.80

Table A.1
(continued)

Country	Gender Gap in Account Ownership	N Account Ownership	Gender Gap in Mobile Banking Ownership	N Mobile Banking Ownership	Gender Gap in Saving	N Saving	GGI	GDP
Ethiopia	-0.19***	1000	-0.04***	1000	-0.15***	1000	0.69	0.09
Finland	0.00	1000	-	-	0.03	1000	0.86	5.31
France	0.01*	1000	-	-	-0.02	1000	0.78	4.37
Gambia, The	-0.11***	1000	-0.01	1000	0.01	1000	0.64	0.08
Georgia	0.03	1000	-0.01	1000	0.03	1000	0.73	0.51
Germany	0.00	1000	-	-	0.01	1000	0.80	5.23
Ghana	-0.12***	1000	-0.11***	1000	-0.10***	1000	0.67	0.24
Greece	-0.02**	1003	-		-0.04	1003	0.69	2.07
Guatemala	-0.07**	1000	-0.03**	1000	-0.07**	1000	0.66	0.49
Guinea	-0.14***	1000	-0.12***	1000	-0.07**	1000	0.66	0.12
Honduras	-0.18***	1000	-0.04**	1000	-0.12***	1000	0.72	0.27
Hungary	-0.02	1003	-	-	-0.02	1003	0.69	1.88
Iceland	-	-	-	-	0.00	502	0.89	6.93
India	0.00	3000.00	-0.12***	3000	-0.03**	3000	0.62	0.22
Indonesia	0.00	1062	-0.01	1062	0.03	1062	0.69	0.43
Iran, Islamic Rep.	-0.07***	1005	-0.07***	1005	0.05	1005	0.58	0.43
Iraq	-0.06**	1012	-0.04***	1012	-0.15***	1012	0.54	0.49
Ireland	0.00	1000	-	-	0.00	1000	0.80	10.56
Israel	-0.02	1000	-	-	0.06**	1000	0.72	5.23
Italy	-0.01**	1000	-	-	-0.02	1000	0.72	3.69
Jamaica	-0.05	502	0.00	502	-0.8**	502	0.74	0.52

Table A.1
(continued)

Country	Gender Gap in Account Ownership	N Account Ownership	Gender Gap in Mobile Banking Ownership	N Mobile Banking Ownership	Gender Gap in Saving	N Saving	GGI	GDP
Japan	0.01	1010	-	-	-0.02	1010	0.66	4.01
Jordan	-0.23***	1009	-0.1***	1009	0.03	1009	0.64	0.42
Kazakhstan	0.05**	1000	-	-	0.01	1000	0.71	1.00
Kenya	-0.08***	1000	-0.06**	1000	-0.11***	1000	0.69	0.21
Korea, Rep.	0.00	1011	-	-	0.03	1011	0.69	3.51
Kyrgyz Republic	0.01	1000	0.01	1000	0.05*	1000	0.68	0.13
Lao PDR	0.00	1000	-0.02	1000	0.05	1000	0.75	0.25
Latvia	0.01	1000	-	-	-0.06**	1006	0.78	2.03
Lebanon	-0.1***	1022	-	-	-0.03	1022	0.64	0.40
Lesotho	-0.05*	1025	-0.03	1025	-0.16***	1025	0.70	0.11
Liberia	-0.1***	1000	-0.04	1000	-0.07**	1000	0.69	0.07
Lithuania	0.02*	1009	0.00***	1000	-0.05*	1009	0.80	2.39
Madagascar	-0.05*	1000	-0.05*	1000	-0.05	1000	0.72	0.05
Malawi	0.13***	1000	-0.11***	1000	-0.11***	1000	0.67	0.06
Malaysia	-0.02	1000	0.00	1000	-0.08***	1000	0.68	1.09
Mali	-0.08***	1000	-0.09***	1000	-0.02	1000	0.59	0.09
Malta	-0.02	1000	-	-	-0.07**	1000	0.70	3.80
Mauritania	-0.18***	1000	-0.07***	1000	-0.16***	1000	0.61	0.19
Mauritius	-0.03*	1000	0.01	1000	-0.06*	1000	0.68	0.91
Mexico	-0.14***	1000	-0.06**	1000	-0.10***	1000	0.76	1.03
Moldova	-0.04	1000	-	-	-0.05	1000	0.77	0.53

Table A.1
(continued)

Country	Gender Gap in Account Ownership	N Account Ownership	Gender Gap in Mobile Banking Ownership	N Mobile Banking Ownership	Gender Gap in Saving	N Saving	GGI	GDP
Mongolia	0.01	1000	-0.01	1000	0.00	1000	0.72	0.45
Morocco	-0.19***	1000	0.04**	1000	-0.02	1000	0.61	0.38
Mozambique	-0.16***	1000	-0.15***	1000	-0.08**	1000	0.76	0.05
Myanmar	0.07**	1000	-0.07**	1000	-0.02	1000	0.68	0.12
Namibia	-0.04	1000	-0.01	1000	-0.08**	1000	0.81	0.44
Nepal	-0.11***	1000	-0.06***	1000	0.02	1000	0.68	0.13
Netherlands	0.00	1000	-	-	-0.04*	1000	0.76	6.01
New Zealand	0.00	1000	-	-	-0.01	1000	0.84	4.96
Nicaragua	-0.1***	1007	-0.03*	1007	-0.05*	1007	0.80	0.21
Niger	-0.09***	1000	-0.05***	1000	-0.08***	1000	0.63	0.06
Nigeria	-0.13***	1000	-0.07***	1000	-0.08***	1000	0.63	0.20
North Macedonia	-0.08***	1003	-	-	0.00	1003	0.72	0.76
Norway	0.00	1001	-	-	0.03	1001	0.85	9.31
Pakistan	-0.22***	1002	-0.11***	1002	0.00	1002	0.56	0.15
Panama	-0.05	1002	-	-	-0.03	1002	0.74	1.55
Paraguay	0.02	1000	-0.01	1000	-0.02	1000	0.70	0.60
Peru	-0.07**	1000	-0.07***	1000	-0.11***	1000	0.72	0.68
Philippines	-0.07**	1000	-0.08***	1000	-0.01	1000	0.78	0.35
Poland	0.01	1001	-	-	-0.06**	1001	0.71	1.86
Portugal	-0.03**	1002	-	-	-0.08***	1002	0.78	2.47
Romania	-0.03	1001	-	-	-0.10***	1001	0.70	1.50

Table A.1
(continued)

Country	Gender Gap in Account Ownership	N Account Ownership	Gender Gap in Mobile Banking Ownership	N Mobile Banking Ownership	Gender Gap in Saving	N Saving	GGI	GDP
Russian Federation	0.02	2011	-0.02	2011	-0.08***	2011	0.71	1.25
Saudi Arabia	-0.16***	1019	-	-	-0.05	1019	0.60	2.84
Senegal	-0.14***	1000	-0.15***	1000	-0.01	1000	0.68	0.16
Serbia	0.01	1001	-	-	-0.12***	1001	0.78	0.97
Sierra Leone	-0.13***	1001	-0.07***	1001	-0.09***	1001	0.66	0.09
Singapore	-0.01	1000	-0.08***	1000	-0.02	1000	0.73	7.96
Slovak Republic	-0.02**	1005	-	-	-0.04	1005	0.71	2.21
Slovenia	-0.01*	1000	-	-	-0.06*	1000	0.74	2.92
South Africa	0.03	1014	0.04	1014	0.00	1014	0.78	0.68
Spain	0.01	1000	-	-	-0.03	1000	0.79	3.08
Sri Lanka	-0.01	1005	-0.01	1005	-0.04	1005	0.67	0.40
Sweden	0.00	1006	-	-	-0.02	1006	0.82	6.12
Switzerland	-0.01*	1000	-	-	-0.04*	1000	0.80	9.34
Tajikistan	-0.02	1000	-0.03***	1000	-0.01	1000	0.65	0.09
Tanzania	-0.15***	1001	-0.09***	1001	-0.11***	1001	0.71	0.12
Thailand	-0.02*	1017	0.00	1017	-0.001	1017	0.71	0.71
Togo	-0.11***	1000	-0.11***	1000	0.02	1000	0.68	0.09
Tunisia	-0.16***	1000	-0.03*	1000	0.00	1000	0.65	0.39
Turkey	-0.18***	1000	-0.09***	1000	-0.09***	1000	0.64	0.97
Uganda	-0.02	1000	-0.04	1000	-0.02	1000	0.72	0.09
Ukraine	-0.02	1001	-	-	-0.09***	1001	0.71	0.48

Table A.1
(continued)

Country	Gender Gap in Account Ownership	N Account Ownership	Gender Gap in Mobile Banking Ownership	N Mobile Banking Ownership	Gender Gap in Saving	N Saving	GGI	GDP
United Arab Emirates	0.04*	1000	-0.06**	1000	-0.10***	1000	0.72	4.34
United Kingdom	0.00	1000	-	-	0.001	1000	0.78	4.69
United States	0.01	1007	-	-	-0.07***	1007	0.76	7.13
Uruguay	0.02	1000	-	-	-0.03	1000	0.70	1.79
Vietnam	-0.07**	1000	-0.05**	1000	0.03	1000	0.70	0.37
Yemen, Rep.	-0.024***	1000	-	-	-0.11***	1000	0.49	0.05
Zambia	-0.08**	1000	-0.07**	1000	-0.08**	1000	0.73	0.11
Zimbabwe	-0.13***	1000	-0.12***	1000	-0.02	1000	0.73	0.17

Notes: GDP is measured in per capita terms (×10,000 USD) and refers to 2021 (World Bank). GGI data is sourced from the World Economic Forum and also refers to 2021. *** significant at 1%, ** at 5%, * at 10%.

Table A.2

Probit Regression Results – Account Ownership.

	(1)	(2)	(3)
Female	-0.12*** (0.02)	-0.11*** (0.02)	-0.12 (0.30)
Age	0.02*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Employed	0.33*** (0.04)	0.41*** (0.03)	0.41*** (0.03)
Secondary Education	0.84*** (0.06)	0.59*** (0.04)	0.59*** (0.04)
Tertiary Education	1.54*** (0.08)	1.14*** (0.06)	1.14*** (0.06)
Second-Lowest Income Quintile	0.07*** (0.02)	0.12*** (0.02)	0.12*** (0.02)
Middle Income Quintile	0.10*** (0.02)	0.19*** (0.02)	0.19*** (0.02)
Second-Highest Income Quintile	0.16*** (0.03)	0.28*** (0.03)	0.28*** (0.03)
Highest Income Quintile	0.26*** (0.04)	0.46*** (0.04)	0.46*** (0.04)
GDP	-	0.29*** (0.09)	0.29*** (0.09)
GGI	-	3.75*** (0.94)	3.74*** (0.95)
GGI*female	-	-	0.02 (0.43)
Region Dummies	No	Yes	Yes
Country Fixed Effects	Yes	No	No
pseudo R-squared	0.17	0.28	0.28
N	128,341	128,341	128,341

Notes: GDP is per capita (×10,000 USD). Robust standard errors clustered at the country level are reported in parentheses. *** significant at 1%, ** at 5%, * at 10%.

Table A.3

Probit Regression Results – Mobile Banking Ownership.

	(1)	(2)	(3)
Female	-0.08*** (0.03)	-0.13*** (0.02)	-0.59** (0.30)
Age	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)
Employed	0.40*** (0.04)	0.35*** (0.04)	0.34*** (0.04)
Secondary Education	0.38*** (0.06)	0.45*** (0.05)	0.44*** (0.05)
Tertiary Education	0.56*** (0.10)	0.82*** (0.08)	0.82*** (0.08)
Second-Lowest Income Quintile	0.09*** (0.02)	0.10*** (0.02)	0.10*** (0.02)
Middle Income Quintile	0.18*** (0.02)	0.19*** (0.02)	0.19*** (0.02)
Second-Highest Income Quintile	0.30*** (0.03)	0.30*** (0.03)	0.30*** (0.03)
Highest Income Quintile	0.46*** (0.04)	0.43*** (0.04)	0.43*** (0.04)
GDP	-	0.29*** (0.10)	0.29*** (0.10)
GGI	-	2.86*** (1.03)	2.86*** (1.03)
GGI*female	-	-	0.67 (0.43)
Region Dummies	No	Yes	Yes
Country Fixed Effects	Yes	No	No
pseudo R-squared	0.07	0.15	0.15
N	75,155	75,155	75,155

Notes: GDP is per capita (×10,000 USD). Robust standard errors clustered at the country level are reported in parentheses. *** significant at 1%, ** at 5%, * at 10%.

Table A.4

Probit Regression Results – Savings.

	(1)	(2)	(3)
Female	-0.04** (0.02)	-0.03** (0.02)	0.21* (0.14)
Age	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)
Employed	0.33*** (0.03)	0.32*** (0.02)	0.32*** (0.02)
Secondary Education	0.46*** (0.04)	0.34*** (0.03)	0.34*** (0.03)
Tertiary Education	0.76*** (0.07)	0.55*** (0.04)	0.55*** (0.04)
Second-Lowest Income Quintile	0.15*** (0.01)	0.17*** (0.02)	0.17*** (0.02)
Middle Income Quintile	0.26*** (0.02)	0.32*** (0.02)	0.32*** (0.02)
Second-Highest Income Quintile	0.36*** (0.02)	0.43*** (0.02)	0.43*** (0.02)
Highest Income Quintile	0.51*** (0.03)	0.63*** (0.02)	0.63*** (0.02)
GDP	-	0.11*** (0.02)	0.11*** (0.02)
GGI	-	2.13*** (0.45)	2.30*** (0.46)
GGI*female	-	-	-0.34* (0.20)
Region Dummies	No	Yes	Yes
Country Fixed Effects	Yes	No	No
pseudo R-squared	0.07	0.15	0.15
N	128,341	128,341	128,341

Notes: GDP is per capita (×10,000 USD). Robust standard errors clustered at the country level are reported in parentheses. *** significant at 1%, ** at 5%, * at 10%.

Country Classification by Region

In each region, the following countries were included in the analysis, based on the Global Findex 2021 classification:

East Asia & Pacific:

Cambodia, China, Indonesia, Malaysia, Mongolia, Myanmar, Philippines, Thailand, Vietnam.

Europe & Central Asia:

Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, North Macedonia, Romania, Russian Federation, Serbia, Tajikistan, Türkiye, Ukraine, Uzbekistan.

Latin America & the Caribbean:

Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela (RB).

Middle East & North Africa:

Algeria, Egypt (Arab Rep.), Jordan, Lebanon, Morocco, Tunisia, West Bank and Gaza.

South Asia:

Bangladesh, India, Nepal, Pakistan, Sri Lanka.

Sub-Saharan Africa:

Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Democratic Republic of Congo, Ethiopia, Gabon, Ghana, Guinea, Kenya, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, South Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

High-Income Economies:

Australia, Austria, Belgium, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Korea (Rep.), Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States.

AI Prompts List:

1. "Please review the following paragraph I wrote and correct any grammatical or syntactical errors."

2. “Edit this section of my writing for grammar, punctuation, and clarity, while preserving my original tone."

3. "Could you check this text I composed and suggest improvements to enhance its grammatical accuracy?"

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