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Digital Financial Inclusion in Emerging Economies: Evidence from Jordan

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Abstract: This study explores the role of digital financial inclusion in mitigating poverty and bolstering economic growth, with a special focus on developing nations during the COVID-19 era. Centering on Jordan, it seeks to identify key influencers of financial access by analyzing data from 260 participants using a non-linear probit regression model. The research uncovers a significant disparity in financial inclusion between Jordanian adult males and females, attributable to differences in education, wealth, employment, and income levels. These findings point to the necessity of prioritizing financial accessibility for marginalized groups such as women, the elderly, and those with lower income to effectively combat poverty and facilitate economic advancement and sustainable development in emerging markets.

Keywords: financial inclusion; financial exclusion; COVID-19 conditions; financial technology; emerging economies and Jordan

1. Introduction

The World Bank (2017) defines an inclusive financial system as one that provides and effectively utilizes various financial services such as bank accounts, loans, savings, credit, and insurance for both individuals and businesses. Financial inclusion, therefore, is about ensuring that even the most vulnerable, disadvantaged, and low-income groups have timely and affordable access to these services (Bruhn and Love 2009; Cull et al. 2012; Fareed et al. 2022). Policymakers regard digital financial inclusion as a key strategy for reducing poverty and enhancing economic development (Aziz and Naima 2021; Beck et al. 2007b; Beck et al. 2008; Aterido et al. 2013; Cámara and Tuesta 2014; Ozili 2018; Ahamed and Mallick 2017).

Digital financial inclusion refers to the accessibility and availability of financial services facilitated through digital technologies, with the aim of ensuring that individuals and communities, particularly those traditionally underserved or excluded, can participate in the formal financial system (Sun 2018). It involves leveraging digital tools such as mobile banking, electronic payments, and other technological innovations to provide a range of financial services, including savings, credit, insurance, and payment transactions (Ozili 2018). The primary goal is to bridge the gap between the unbanked or underbanked populations and mainstream financial services, fostering economic empowerment, reducing financial inequalities, and promoting broader financial well-being through the integration of technology into financial systems.

Digital financial inclusion offers benefits such as improved financial system integrity and safety but also carries risks for both consumers and providers (Sun 2018). The IMF (2015) notes that while digital financial inclusion can boost macroeconomic growth, expanding credit access without adequate banking supervision can threaten macro-financial stability.

Despite advancements in digital financial inclusion, achieving comprehensive, affordable, and sustainable financial inclusion remains a global challenge (Ozili 2018). Notably, in emerging economies, it is often the small and medium enterprises (SMEs) and ordinary citizens who struggle to access sufficient financing, rather than large corporations or the wealthy (Sun 2018). In these regions, about two billion people lack bank accounts, with only a minority having access to credit cards or loans (Abubakar et al. 2020). This study, therefore, concentrates on identifying the determinants of financial inclusion in Jordan, an emerging economy.

The literature extensively covers financial inclusion, highlighting its importance and diverse impacts (Beck et al. 2007b; Sahay et al. 2015; Allen et al. 2016; Chauveta and Jacolin 2017; Neaime and Gaysset 2018; Abubakar et al. 2020; Mushtaq and Bruneau 2019). However, to achieve true financial inclusivity, it is crucial to consider the varied needs of different customer groups and ensure that financial products are accessible to all. Understanding the factors driving financial inclusion is a key factor to encouraging the adoption of financial products and services. Financial inclusion varies between countries due to a multitude of factors, both micro and macro in nature.

This study is motivated by the need to understand the determinants of financial inclusion, particularly in the context of the COVID-19 pandemic's impact on emerging economies. The existing literature (Beck et al. 2007b; Beck et al. 2007a; Beck et al. 2009; Sahay et al. 2015; Allen et al. 2016; Chauveta and Jacolin 2017; Neaime and Gaysset 2018; Abubakar et al. 2020; Mushtaq and Bruneau 2019) overlooks the individual-level factors that contribute to financial inclusion, focusing instead on broader, country-level indicators such as culture, income, regulatory environment and affordability. Previous studies have also found that financial inclusion is also affected by governmental policies for onboarding access (Beck et al. 2007b; Honohan 2008). This paper provides additional theoretical lenses on how the determinates of financial inclusion could be managed to overcome the main financial implications of the pandemic. This gap presents a significant contribution; as such indicators may not accurately reflect the varying impacts of policy based on personal attributes like income, gender, location, or age.

To address these empirical gaps, this study raises two key questions: what individual characteristics determine digital financial inclusion in emerging countries, and how has the COVID-19 pandemic affected this inclusion? By examining the situation in Jordan, where the pandemic has exacerbated poverty and unemployment (Department of Statistics in Jordan 2020a), the study aims to provide insights into the micro-level dynamics of financial inclusion.

Employing probit estimation to analyze data from 260 rural Jordanian respondents, the study finds significant disparities in financial inclusion based on gender, education, wealth, employment, and income. Notably, Jordanian adult males, with higher levels of these attributes, are more likely to be financially included than females. Additionally, the study highlights the pandemic's detrimental effects on financial access, especially for disadvantaged groups.

This research contributes to the existing literature in several ways. First, it extends the scope of financial inclusion studies to an emerging economy heavily impacted by the COVID-19 crisis, Jordan, complementing prior research that predominantly focused on developed countries (Allen et al. 2016; Zins and Weill 2016; Fungáčová and Weill 2015; Klapper and Miller 2021). Second, it enriches the debate on the role of financial inclusion in mitigating the adverse effects of the pandemic, offering novel insights into the interplay between individual characteristics and financial access during times of crisis.

The rest of the paper is organized as follows: Section 2 discusses relevant studies and develops the main hypotheses, while Section 3 describes the research design. Section 4 presents the main empirical findings, and Section 5 concludes with key remarks, practical implications, limitations, and suggestions for future research.

2. Literature Review

2.1. Prior Studies

According to Scott (2004), institutional processes are not only affected by natural economic laws but also by cultural, social and political factors, which distinguishes institutional theory. Hence, we suggest a link between cultural and social factors, including religious ones, and the formation and reference of institutions.

The emergence of Islamic banks and financial institutions that provide services to a particular segment of society that observes Islamic law helps to meet customers' needs in Islamic societies. The literature confirms that credit granted by Islamic institutions has contributed significantly to improving financial inclusion and the joining of new individuals to the financial and banking sector who had previously excluded themselves for specific religious and cultural reasons. (Demirguc-Kunt et al. 2013a; Ben Naceur et al. 2015; Shihadeh 2018).

Demirgüç-Kunt (2012) and the World Bank (2014) have established the significant role of financial inclusion in fostering economic growth and alleviating poverty by enabling access to financial services. Al-Smadi (2018) focus specifically on Jordan, underscoring challenges like limited financial service access, low financial literacy, and minimal technology usage, advocating for targeted measures to improve financial inclusion among marginalized groups. The COVID-19 pandemic, as indicated in KPMG's (2020) study, has notably accelerated the adoption of digital financial services, especially among low-income and marginalized demographics.

However, the current body of research presents notable limitations. A significant gap is a reliance on self-reported or secondary data, which may not fully encapsulate actual financial behaviours and outcomes. These critical points need more interdisciplinary and cross-sectoral research that integrates financial inclusion with sustainable development goals such as health, education, and gender equality. Furthermore, there is a scarcity of research on the determinants of digital financial inclusion in Middle Eastern contexts, particularly in countries like Jordan. Additionally, limited research exists on the specific impacts of the COVID-19 pandemic on digital financial inclusion, with only one study directly addressing this issue.

To bridge these gaps, the current study aims to (i) explore the drivers of digital financial inclusion in an emerging economy, Jordan, (ii) use newly gathered primary data for an in-depth understanding of how specific sustainable development goals, including health, education, and gender, influence digital financial inclusion, and (iii) analyze the effects of the COVID-19 pandemic on digital financial inclusion, considering both pre and post-pandemic scenarios. This research thus seeks to contribute significantly to the existing literature by providing nuanced insights into the intersection of financial inclusion, sustainable development, and the impacts of global health crises.

2.2. Hypotheses Development

Building upon the foundations laid by earlier studies (Allen et al. 2016; Zins and Weill 2016; Soumaré et al. 2016), this research aims to explore the influence of personal attributes, including income, education, age, and gender, on financial inclusion. The study is contextualized within an emerging economy, with a particular emphasis on understanding the ramifications of the COVID-19 pandemic on these dynamics. As a result, the primary hypotheses of this research are established as follows.

2.2.1. The Level of Income and Digital Financial Inclusion

Research indicates that individual needs for and access to financial services is shaped by a myriad of factors (Demirguc-Kunt et al. 2015; Allen et al. 2016). Both supply-side and demand-side aspects play a role in financial inclusion, particularly affecting vulnerable demographics, such as women, the less educated, and the economically disadvantaged. Predominant among these impediments are low income and unemployment, which are key barriers to financial inclusion (Allen et al. 2013; Klapper and Singer 2018; Kabakova and Plaksenkov 2018). For

low-income individuals, the cost of formal financial services often proves prohibitive (Degryse et al. 2016). Financial institutions may view serving this segment as too risky and unprofitable due to their tendency for minimal account balances and smaller-scale transactions (Allen et al. 2016). Consequently, certain financial service providers engage in exclusionary tactics, such as imposing high fees for small withdrawals, demanding substantial minimum balances, and focusing their marketing on more affluent customers (Kempson and Whyley 1999; Kempson et al. 2000; Beck et al. 2000; Dupas et al. 2018).

The literature also points out those rural, impoverished adults are especially prone to exclusion from formal financial systems (Leyshon and Thrift 1995; Burgess and Pande 2005; Demirguc-Kunt et al. 2013a; Allen et al. 2016). There is a recognized positive correlation between financial access, rural poverty alleviation, and income enhancement (Burgess and Pande 2005). However, factors such as low income (often derived from agriculture), limited literacy rates, and high unemployment can deter banks from setting up branches and ATMs in rural regions (Burgess and Pande 2005). Given these considerations, the first hypothesis this study seeks to investigate is as follows:

Hypothesis 1 (H1). *The likelihood of financial inclusion in Jordan is significantly associated with income and employment assuming all other relevant factors such as gender, educational levels and demographic characteristics remain constant.*

2.2.2. The Level of Education and Digital Financial Inclusion

Educational attainment is widely recognized as a crucial factor in personal finance, serving as an indicator of the knowledge and skills needed for making informed decisions and enhancing participation in financial markets (Atkinson and Messy 2013). A lack of understanding of the intricacies of financial products, such as costs, fees, and commissions, can reduce the likelihood of financial inclusion and hinder the effective utilization of available financial services (Demirgüç-Kunt and Klapper 2013). On the other hand, education, especially financial education, can mitigate confidence barriers due to limited understanding of financial products and increase awareness of consumer protection measures, including deposit insurance plans and customer safeguards (Atkinson and Messy 2013).

Empirical evidence underscores a positive relationship between education and financial inclusion. Allen et al. (2016) leveraged the 2012 World Bank Global Findex Database to demonstrate that individuals with higher educational levels are more likely to own a bank account. In a similar vein, Fungáčová and Weill (2015) observed that in China, better-educated males are more inclined towards financial engagement. Additionally, Zins and Weill (2016) used Probit estimations and data from the World Bank Global Findex to establish that in 37 African countries, higher educational attainment correlates with increased financial inclusion opportunities. Therefore, based on these findings, we propose the following hypothesis:

Hypothesis 2 (H2). *There is a significant association between the level of education, especially financial education, and the probability of financial inclusion in Jordan assuming all other relevant factors such as gender, income and demographic characteristics remain constant.*

2.2.3. Age and Digital Financial Inclusion

Age significantly influences an individual's financial inclusion, as studies at national and international levels have shown that young people and the elderly are more likely to face financial exclusion (Cámara and Tuesta 2014). Allen et al. (2016) found that adults aged 25 to 64 are more likely to have and use formal bank accounts in 123 economies compared to their younger counterparts.

The youth's limited financial inclusion stems from various factors. Legal barriers like minimum age requirements and identification criteria play a role, as do high transaction

costs and perceptions questioning their financial management skills (Allen et al. 2013). Likewise, the elderly encounter financial exclusion due to a different range of issues. These include a lack of confidence in and familiarity with financial products, physical impairments, reluctance to adapt to new systems, social isolation, and safety and security concerns (Allen et al. 2016). Based on these findings, the following third hypothesis is proposed:

Hypothesis 3 (H3). *Age has a significant relationship with the probability of financial inclusion in Jordan, with older respondents being less likely to be financially included than younger respondents assuming all other relevant factors such as gender, income and demographic characteristics remain constant.*

2.2.4. Marital Status and Digital Financial Inclusion

Martin-Oliver (2019) identifies personal characteristics, notably marital status, as influential in determining financial inclusion. This study establishes a positive link between marital status and access to formal credit and accounts, contrasting with a negative relationship between formal savings and payments. Echoing these findings, Mhlanga and Denhere (2020), in their examination of South Africa, also recognize marital status as a critical factor, observing a heightened demand for financial services, such as bank accounts, among married individuals compared to their unmarried counterparts. These insights form the basis for the assumption that marital status positively correlates with digital financial inclusion, suggesting that married individuals are more inclined towards financial inclusion. Conversely, this research proposes that unmarried individuals exhibit a lower demand for financial services relative to married ones (Martin-Oliver 2019; Mhlanga and Denhere 2020). Consequently, the following hypothesis is proposed for testing:

Hypothesis 4 (H4). *Marital status has a significant relationship with the probability of financial inclusion in Jordan, with single/divorced/widow/widower respondents being less likely to be financially included than married respondents assuming all other relevant factors such as education, income and demographic characteristics remain constant.*

2.2.5. Gender and Digital Financial Inclusion

David et al. (2018) highlight the significant impact of gender on financial inclusion, noting disparities in account ownership, formal savings, and formal credit access. Demirguc-Kunt et al. (2013b) further corroborate this by demonstrating that women are more likely to face financial exclusion. The gender gap in formal financial inclusion has been attributed to several factors, including women's challenges in providing collateral or personal guarantees, lower financial literacy and business acumen, and societal constraints imposed by familial and societal norms, particularly in developing nations.

Conversely, Aterido et al. (2013) observed less gender discrimination in the sphere of informal finance. Their research in nine African countries indicated that women are more inclined to utilize informal financial services compared to men. In a comprehensive study, Demirguc-Kunt et al. (2013b) found that women generally have fewer opportunities to engage with formal financial systems, leading to a higher reliance on informal financial channels. This is echoed by Allen et al. (2016) and Bermeo (2019), who note that globally, women are less financially included than men, with this disparity being more acute in developing countries than in advanced economies (Klapper and Singer 2018).

These obstacles for women span various domains, including financial, educational, regional, and social barriers, making them more susceptible to financial exclusion (Demirguc-Kunt et al. 2013b; United Nations; Bermeo 2019). Research also shows that in societies with legal inequalities that limit women's economic and familial roles, there tends to be a correlation with lower incomes for women. Gender norms, such as early marriage and

gender-based violence, are identified by Demirguc-Kunt et al. (2013b) as contributing factors to these financial disparities. Therefore, the fourth hypothesis tested in this study addresses these gender-related disparities in financial inclusion.

Hypothesis 5 (H5). *Gender has a significant relationship with the probability of financial inclusion in Jordan, with female respondents being less likely to be financially included than male respondents assuming all other relevant factors such as education, income and demographic characteristics remain constant.*

3. Research Design

3.1. Sample and Data

A quantitative methodology was employed to examine the state of financial inclusion in Jordan following the COVID-19 pandemic. The research utilized both primary and secondary sources. Primary data was gathered through an online survey conducted from January to March 2021, with the aim of understanding the challenges and opportunities for financial inclusion of individuals in rural areas of Jordan. The survey targeted adults aged 18 and above residing in rural regions and was conducted in Arabic, with precise translation and a theoretical framework guiding the formulation of questions. Traditional methods of data collection, such as face-to-face interviews, were deemed impractical due to the prevailing health crisis, which necessitated quarantine measures and lockdowns across the country. Moreover, traditional approaches are expensive and time-consuming. Consequently, an innovative and cost-effective alternative was adopted, involving the use of internet-based technologies and online platforms for data collection. This method facilitated the rapid collection of a large volume of data from participants (Regmi et al. 2016).

The reliance on an online survey platform during the COVID-19 pandemic does indeed introduce a potential source of bias, as respondents were limited to those with existing access to digital communications. However, we used telephone surveys as an alternative way to reach respondents without direct physical contact. In addition, we collaborated with local community organizations and health workers to enhance outreach efforts and establish trust within communities. Additionally, we leveraged the existing infrastructure, like healthcare facilities or distribution centers for essential goods, to get access points for surveys. We maintained the highest levels of confidentiality and privacy of participants, and obtained informed consent in compliance with our ethical standards. In addition, we were very flexible in data collection techniques in order to navigate the unique challenges presented by the pandemic while ensuring inclusivity in gathering insights from individuals who lack internet access.

The study focused on four primary measures of financial inclusion: accounts, savings, credit, and payments (Sarma 2008; Sarma and Pais 2011). A formal account was defined as an individual currently holding an account at a bank either independently or jointly with another person. Formal savings refers to individuals who saved money in the past 12 months using a bank account or someone else's account. Similarly, formal credit denoted borrowing from a bank or microfinance institution within the past year. Formal payments encompassed individuals sending and receiving money through a bank account, mobile money account, or money transfer service in the previous 12 months. In Table 1, these variables were represented as binary variables with a value of one indicating a "yes" response and zero otherwise (Sarma 2008; Sarma and Pais 2011).

Table 1 presents descriptive statistics for various constructs of financial inclusion, with a focus on four key indicators: Formal Accounts, Formal Saving, Formal Credit, and Formal Payment. The "Obs." column indicates the number of observations for each construct, with varying sample sizes ranging from 86 to 258. The "Minimum" and "Maximum" columns provide the range of values observed within each construct, indicating the minimum and maximum scores. The "Mean" column represents the average value for each construct, with values ranging from 0.57 to 0.93. The standard deviation ("Std. Dev") column presents the

standard deviation, reflecting the degree of variability in the data, which ranges from 0.249 to 0.498. Lastly, the "Findex Mean" column appears to provide an overall mean score for financial inclusion, possibly derived from aggregating the means of individual indicators.

Table 1. Descriptive statistics for the constructs of financial inclusion indicators.

	Obs.	Minimum	Maximum	Mean	Std. Dev	Findex Mean
Financial inclusion indicators						
Formal Accounts	258	0	1	0.72	0.449	0.461
Formal Saving	86	0	One *	0.57	0.498	0.099
Formal Credit	139	0	1	0.60	0.491	0.207
Formal Payment	166	0	1	0.93	0.249	0.096

Source: Authors. * The value One was given for female individuals.

3.2. Descriptive Statistics

This study provides the mean for the sample and compares it with the global mean derived from the Jordan level in Global Findex (Ahamed and Mallick 2017) in order to establish a benchmark for comparing their findings with World Bank statistics. Through a descriptive analysis, the researchers drew initial conclusions as follows: The primary indicators of financial inclusion indicate that the majority of indicators related to formal accounts, savings, credit, and payment are satisfactory in relation to the sample size (Allen et al. 2013). It was discovered that 72% of the sample population possessed a bank account, indicating inclusion in the financial system. Similarly, the percentages for formal savings and formal credit were 57% and 60%, respectively, which were higher than the corresponding figures in the global Findex. This discrepancy can be attributed to the behavior of rural individuals who opt to save and borrow through formal channels. Alternatively, it could be due to their lack of sufficient funds to save or their ineligibility for bank loans, often because their income falls below the acceptable limits or they lack collateral. Regarding formal payments, a significant proportion of 92% of individuals in rural areas conducted payments through formal channels, particularly during the health pandemic when restrictions were imposed on over-the-counter transactions and most transactions were facilitated via utility applications linked to bank accounts. The subsequent section of the study delves into an exploration of the factors influencing digital financial inclusion from the perspective of individual characteristics.

3.3. Model Specification

To evaluate the drivers of financial inclusion in Jordan, we conducted probit estimations using the following equation:

$$Xi = \alpha + \beta \cdot \text{Gender } i + \beta \cdot \text{Age } i + \beta \cdot \text{Income } i + \beta \cdot \text{Education } i + \beta \cdot \text{Employment } i + \beta \cdot \text{Marital Status } i + \varepsilon \, i$$

The explanatory variables in the analysis pertain to the individual characteristics of the participants. One such dependent variable, denoted as X, represents financial inclusion. The gender variable is a binary variable that takes the value of one if the individual is female and zero otherwise. To account for the possibility of a non-linear relationship between age and financial inclusion, two measures of age are employed: one indicating the number of years (Age) and the other involving the squared value (Age2).

To control for the income variable, four dummy variables are utilized, representing different income quintiles: lowest 20%, second 20%, third 20%, and fourth 20%. The omitted dummy variable corresponds to the richest quintile. For instance, the dummy variable for the lowest 20% takes a value of one if the individual's income falls within the first income quintile and zero otherwise. Similar dummy variables are employed for primary school and secondary education, where the former takes a value of one if the individual has

completed primary education or less, and the latter takes a value of one if the individual has completed secondary education. The dummy variable for tertiary education is omitted as it overlaps with the secondary education variable and serves to control for lower education levels.

Regarding employment, the analysis incorporates three dummy variables: employed, unemployed, and self-employed (Sharma and Kar 2018). The employed variable equals one if the respondent is employed in either the private or public sector and zero otherwise. Similar specifications apply to the other employment-related dummy variables. Marital status is also considered an individual characteristic, with three dummy variables used to represent single, married, and widowed individuals. The single dummy variable equals one if the individual is single and zero otherwise, with the same coding applied to the married and widowed variables.

Descriptive statistics for the individual characteristics employed in the estimation are presented in Table 2.

Table 2. Descriptive statistics for the individual characteristics.

Variable	Definition	N	Mean	Std. Dev
Female	One for female dummy code zero otherwise	258	0.37	0.483
Single	One for single dummy code zero otherwise	258	0.26	0.437
Married	One for married dummy code zero otherwise	258	0.71	0.457
Widowed	One for widowed dummy code zero otherwise.	258	0.02	0.151
Divorced	One for divorced dummy code zero otherwise	258	0.02	0.124
Age Years	Age in number of years	258	39.24	11.685
Primary or informal education	One for primary education dummy code zero otherwise	258	0.04	0.202
Secondary	One for secondary education dummy code zero otherwise	258	0.23	0.423
Tertiary	One for university education dummy code zero otherwise	258	0.72	0.447
Employed	One for employed dummy code zero otherwise	258	0.47	0.500
Self -Employed	One for self-employed dummy code zero otherwise	258	0.12	0.321
Retired	One for retired dummy code zero otherwise	258	0.14	0.343
Unemployed	One for unemployed dummy code zero otherwise	258	0.28	0.447
Income First Quintile (lowest)	One for first income quintile dummy code zero otherwise	258	0.24	0.428
Income Second Quintile	One for the second income quintile dummy code zero otherwise	258	0.16	0.370
Income Third Quintile (Middle)	One for the third income quintile dummy code zero otherwise	258	0.28	0.449
Income Fourth Quintile	One for the fourth income quintile dummy code zero otherwise	258	0.16	0.363
Income Fifth Quintile (Richest)	One for the fifth income quintile dummy code zero otherwise	258	0.16	0.370

4. Empirical Findings

4.1. Determinants of Financial Inclusion

In Table 2, the study presents the findings of the analysis conducted on key indicators of financial inclusion, specifically formal accounts, formal savings, formal credit, and formal payments. The results reveal that financial inclusion is hindered by low-income living and unemployment, confirming previous studies (Allen et al. 2013; Klapper and Singer 2018; Plaksenkov 2018, Abel et al. 2018, Abel et al. 2018) and providing statistical support for H1.

However, contrary to previous research conducted by Allen et al. (2016) globally, Zins and Weill (2016) in Africa, and Fungáčová and Weill (2015) in China, the study finds no significant association between education and age with financial inclusion, thereby contradicting H2 and H3. This empirical evidence shows that the financial inclusion of individuals in rural areas in Jordan is not driven by their age and education. We believe that the absence of a significant association between education and age with financial inclusion suggests that other factors, such as income, employment, or gender, may have a more prominent role in determining individuals' access to digital financial services and products in rural areas in Jordan.

Marital status is not found to have an impact on financial inclusion, which is inconsistent with prior research. For example, Martin-Oliver (2019) finds a positive relationship between formal accounts and formal credit for married individuals, but a negative correlation between formal savings and formal payments. On the other hand, Mhlanga (2020) shows that widowed or separated individuals exhibit a positive correlation with all financial inclusion indicators.

Furthermore, the study's empirical evidence indicates a strong association between gender and formal account and formal saving indicators of financial inclusion as shown on Table 3. Previous studies by Demirguc-Kunt et al. (2013b), Allen et al. (2016), and Bermeo (2019) demonstrate that women generally experience lower levels of financial inclusion compared to men globally, with a more pronounced gender gap in developing countries compared to developed economies (Klapper and Singer 2018). Women in Jordan face various barriers, including financial, literacy, regional, and social obstacles, which contribute to their vulnerability to financial exclusion (Demirguc-Kunt et al. 2013b; United Nations; Bermeo 2019). This finding supports H4.

In conclusion, our study suggests that Jordanian male adults exhibit higher levels of education, wealth, employment, income, and likelihood of financial inclusion compared to female respondents.

Formal accounts, formal savings, formal credit, and formal payments are the dependent variables. Individual characteristics are the explanatory variables: gender, age, income, education, employment, and marital status. The parametric hypothesis testing shows and explains the rationale for choosing the parametric test, emphasizing any assumptions made and how they were validated. The non-parametric test shows the null hypothesis (H0) and alternative hypothesis (H1) for the parametric test. For the "Income—lowest 20%" category, there are negative coefficients for Formal Account, Formal Saving, and Formal Payment, suggesting a decrease in these financial inclusion constructs. The negative coefficient for Formal Credit is 0.522, indicating a positive impact. The "Unemployed" category has negative coefficients for all constructs, indicating a negative impact. Formal Saving and Formal Payment coefficients are statistically significant (-18.425 and -10.300, respectively).

Table 3. The main financial inclusion indicators in rural Jordan.

Predictor Factor	Constructs	Formal Account	Formal Saving	Formal Credit	Formal Payment
Income	Income—lowest 20%	−0.108	−16.673	0.522	−1.071
	Income—second 20%	0.088	−0.921	1.131	−0.310
	Income—third 20%	−0.294	−1.210	0.531	−0.612
	Income—fourth 20%	0.699	−0.474	0.213	−0.022
Employment	Employed	0.032	−0.303	0.628	−9.970
	Unemployed	−1.726	−18.425	−0.867	−10.300
	Self-Employed	−0.559	0.450	−0.279	−10.158
Education	Primary or informal education	−8.017	−5.238	−7.253	−6.309
	Secondary	−0.112	0.644	0.142	−0.038
Age	Age	0.060	0.160	3.518	1.001
	Age2	−0.001	−0.002	−0.040	−0.012
Marital Status	Single	0.800	−4.888	0.961	0.545
	Married	0.119	−5.146	0.598	−5.469
	Widowed	8.407	7.341	7.243	0.011
Gender	Female	−0.507	−0.869	0.387	−0.610
Model Fit					
Observations		186	49	84	155
Log-likelihood		181.772	73.047	155.645	59.254
Pseudo R2		0.405	0.379	0.166	0.268

Source: Authors.

4.2. The Role of COVID-19 Conditions on Financial Inclusion in Jordan

The COVID-19 pandemic had a detrimental impact on individuals' income, resulting in job losses and a significant decline in sales (AlSalhi et al. 2020). This aligns with the key findings of Al Sawalqa (2020) study conducted in Jordan, which revealed a decrease in income among Jordanians due to the COVID-19 conditions and recently implemented restrictions (Makina 2019). Additionally, the COVID-19 conditions have affected the number and amount of loans, as well as the purpose for which they are acquired (Mader 2018). Individuals have found it necessary to borrow money to cover additional expenses such as healthcare and increased costs of food and beverages during the pandemic. The determinants of financial inclusion in Jordan before and after the pandemic are presented in Table 4.

Table 4. Financial Indicators in Jordan Before and After COVID-19.

Financial Indicators	Before COVID	After COVID	Difference	Result
Non-Performing Loans.	5%	5.4%	0.4%	Increase
Unemployment Rate.	19.3%	25%	5.7%	Increase
GDP Per Capita.	4405 $	3100 $	−29.6%	Decrease
Private Sector Debt.	24.7 M	26.2 M	6.4%	Increase
Interest Rate.	8.5%	7.2%	−15.2%	Decrease

Department of Statistics in Jordan (2020b)

Table 4 shows descriptive statistics offering a quantitative overview of the financial indicators in Jordan before and after the pandemic, highlighting the distribution and variability of the financial indicators in the observed sample. The values indicate variations in macroeconomic indicators before and after the pandemic according to data source shown in Table 4 emphasizing the originality of the analysis by the authors.

According to the data presented, there are indications of the financial conditions both before and after the COVID-19 pandemic. However, it should be noted that the COVID-19 situation is still ongoing, but its major implications have been identified (Popescu 2019). One significant observation is that individual debt has increased by 6.4%, which reflects the growing demand for credit facilities from banks and specialized financial institutions, as well as the need for people to support their families. This demonstrates the rising financial

distress among individuals during the COVID-19 pandemic, which has cast a shadow over the global economy, including Jordan, since the beginning of 2020.

The impact of the COVID-19 pandemic on digital financial inclusion in Jordan can be seen from two perspectives (Popescu 2019). Firstly, there has been a negative impact on financial inclusion, as the pandemic has reduced the possibility of including more target groups in the financial sector. Secondly, the pandemic has presented not only challenges but also opportunities for digital financial inclusion. For instance, the business environment in Jordan has experienced an increased demand for digital financial services, online products, and operations in the banking sector (Wang et al. 2021). This aligns with the main findings of a study conducted by Al Sawalqa (2020) on the impact of the COVID-19 pandemic on Jordan's economy and individuals.

5. Conclusions and Recommendations

This study primarily uncovers that adult males in Jordan enjoy greater financial inclusion compared to other demographic groups, highlighting a critical need for public financial policies that are specifically tailored to support women and low-income individuals. Additionally, the data suggest that the negative effects of the COVID-19 pandemic on financial access in rural areas, exacerbated by job losses and the shutdown of small businesses, disproportionately affect marginalized communities.

This study confirms the significant role of economic status in financial inclusion, with low income and unemployment negatively impacting access to financial services (H1 approved), thus highlighting the persistence of economic barriers. Surprisingly, it rejects the influence of education and age (H2 and H3 rejected), diverging from prior research and suggesting that these factors are less critical for financial inclusion in rural Jordan. The inconsistent findings on marital status further indicate the complexity of the impacts of social factors. However, our evidence confirms an insignificant impact of marital status on financial inclusion, which suggests a rejection of H4. Importantly, this study underscores a pronounced gender disparity in financial access (H5 approved), pointing out the additional challenges faced by women in developing regions. This robust examination reveals the multifaceted nature of financial inclusion, emphasizing the need for targeted policies that address specific barriers.

From a practical standpoint, these findings offer valuable guidance for policymakers, regulators, and financial institutions. The study suggests ways to monitor financial inclusion rates across different geographical regions, from urban centers to remote villages. It also recommends strategies for identifying and supporting financially excluded groups, such as innovative lending policies, tailored financial solutions, and the integration of FinTech tools to foster economic growth. For financial institutions, the research provides insights into improving service effectiveness, especially in rural and underserved areas.

However, the study is limited by its lack of comparative data from urban regions in Jordan, a constraint imposed by the pandemic conditions. Future research should, therefore, aim to include a more diverse and extensive sample from urban areas. Furthermore, given the pandemic-related health risks that limited direct interactions, future studies should incorporate face-to-face interviews to deepen the understanding of how financial inclusion impacts people's lives and well-being. This qualitative approach could yield richer insights into the complex interplay between financial accessibility, individual circumstances, and overall societal health.

Future research should be focused on examining the combined usage of multiple digital financial services to provide a nuanced understanding of financial inclusion in the financial system.

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