

“Financial inclusion as a strategy for income inequality reduction and economic growth: PLS-SEM analysis based on cross-country evidence”

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FINANCIAL INCLUSION AS A STRATEGY FOR INCOME INEQUALITY REDUCTION AND ECONOMIC GROWTH: PLS-SEM ANALYSIS BASED ON CROSS-COUNTRY EVIDENCE

Abstract

This study examines the impact of financial inclusion, specifically the dimensions of access and usage, on income inequality and economic growth in 70 developing countries using data from 2014, 2017, and 2021. Drawing from multiple international databases, the study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess formative constructs of financial inclusion and to test the hypothesized relationships. Results show that financial access significantly reduces income inequality ($\beta = -0.124$, $p < 0.05$) and promotes economic growth ($\beta = 0.261$, $p < 0.01$). Similarly, financial usage has a negative effect on inequality ($\beta = -0.223$, $p < 0.01$) and a positive effect on growth ($\beta = 0.412$, $p < 0.01$). Among control variables, trade openness is associated with lower inequality, while population growth and corruption increase it; population growth also weakly hinders economic growth. The model explains 30.2% of the variance in income inequality and 45.6% in economic growth. The analysis distinguishes between upper-middle-income and lower-income groups, revealing that financial access is more impactful in wealthier developing countries, while usage is more influential in lower-income ones. These results underscore the need for income-specific policy design. To address concerns of generalization, additional descriptive country-level analysis was conducted for six selected countries, highlighting national-level variation in financial inclusion dynamics. Overall, the findings offer valuable insights for policymakers and international agencies seeking to design inclusive financial systems that support equitable growth and reduced inequality.

Keywords

financial inclusion, financial access, financial usage,
income inequality, economic growth, developing
countries, trade openness, PLS-SEM

JEL Classification

O15, G20, O47, D33, F43

INTRODUCTION

Financial inclusion has emerged as a substantial strategy for fostering economic development and addressing persistent socioeconomic challenges, particularly in emerging economies. By extending access to formal financial services, financial inclusion enables marginalized populations to improve their living standards and actively contribute to economic growth (Kim, 2016). However, despite global efforts, significant gaps remain, especially in terms of access and usage, which hinder inclusive economic development and exacerbate disparities. This study focuses on the scientific problem of understanding how financial inclusion impacts two critical economic domains – income inequality and economic growth – by addressing the dynamic interplay between access, usage, and broader macroeconomic factors. In the context of emerging economies, financial inclusion not only promotes

equitable resource distribution but also enhances the efficiency of financial intermediation, which contributes to the reduction of structural inequalities (Demir et al., 2022). However, limited empirical research comprehensively examines these impacts at a cross-country level. This study addresses this gap by analyzing data from 70 emerging economies across three time-points, including 2014, 2017, and 2021, which correspond to the most recent waves of the Global Findex database that provide data on financial inclusion indicators in the form of waves every three years.

1. LITERATURE REVIEW AND HYPOTHESES

Financial inclusion refers to the process that ensures convenient access, availability, and use of the formal financial system for all individuals within an economy (Sarma, 2008). Conversely, financial exclusion pertains to the mechanisms that prevent poor and marginalized social groups from accessing the financial system (Leyshon & Thrift, 1995). It is essential to distinguish between the two forms of exclusion: voluntary and involuntary. According to the World Bank (2013), voluntary exclusion occurs when segments of the population or businesses choose not to use financial services, either because they do not need them or due to cultural or religious beliefs. In contrast, involuntary exclusion results from factors such as low income, high-risk profiles, discrimination, and market failures or imperfections. Consequently, policy and research efforts should prioritize addressing involuntary exclusion, which can be mitigated through appropriate economic programs and policies designed to increase income levels and rectify market failures and imperfections.

The frequency of policies promoting financial inclusion has increased since the global financial crisis (GFC). The 2008 World Bank Annual Report, titled “Finance for All,” highlighted the significance of financial inclusion within the broader transition toward an inclusive market model of the Post-Washington Consensus (Mendoza & Thelen, 2008). In 2011, a significant international policy initiative for financial inclusion emerged with the establishment of the Alliance for Financial Inclusion (AFI), which comprises policymakers and regulators from 90 emerging countries. Half of its members have signed the Maya Declaration, demonstrating a collective commitment to “reaching the world’s 2.5 billion unbanked individuals” and implementing national financial inclusion strategies in collaboration with private sector en-

ties (AFI, 2014). In this context, the focus on financing the poor and other vulnerable segments of the population has shifted from microcredit provided by microfinance institutions to a broader concept of financial inclusion. This term encompasses a much wider range of financial products and service providers (Gabor & Brooks, 2017).

In light of this, policymakers and academics in both developed and emerging economies have focused on the impact of expanding the role of formal finance in the economy (Adedokun & Ağa, 2023; Emara & El Said, 2021). Specifically, financial inclusion in emerging economies is regarded as a vital component of broader economic development strategies aimed at increasing access to developmental financing (Kim, 2016). Furthermore, researchers argue that financial inclusion enhances the intermediary role of financial institutions in efficiently allocating funds. Ultimately, this inclusion plays a significant role in reducing income inequality and promoting economic growth (Demir et al., 2022; Kling et al., 2022).

The literature on financial inclusion recognizes it as a multidimensional concept comprising a set of indicators that represent various dimensions or aspects of financial inclusion. These dimensions include access, usage, quality, and affordability of financial services, which collectively contribute to an inclusive financial system within a specific economy (Mialou et al., 2017; Sarma, 2012). Scholars studying financial inclusion typically evaluate its impact in two primary ways: first, by assessing the implications of individual financial inclusion indicators; and second, by developing multidimensional financial inclusion indices that assess the overall impact of financial inclusion.

Sarma (2008) conducted a leading study on the development of a financial inclusion index. His research employs three dimensions to measure this index: depth (the number of bank accounts

per 100,000 individuals), availability (the number of bank branches per 1,000 individuals), and usage (the ratio of bank deposits and credit to GDP). Following Sarma's methodology, several other researchers have developed financial inclusion indices that incorporate a broader range of indicators as more data has become available. For instance, Omar and Inaba (2020) utilized Sarma's research framework to establish a financial inclusion index that includes the dimensions of penetration (the number of deposits within formal financial institutions per 1,000 adults and the number of depositors within formal financial institutions per 1,000 adults), usage (the number of loan accounts per 1,000 adults and the number of borrowers from financial institutions per 1,000 adults), and availability (the number of financial institution branches per 100,000 adults and the number of ATMs per 100,000 adults).

Le et al. (2019) employed Principal Components Analysis (PCA) to construct a composite index of financial inclusion, consolidating multiple variables into a single latent variable. Their analysis included five indicators of financial inclusion: the number of ATMs per 100,000 adults, the density of commercial bank branches per 100,000 adults, the presence of commercial banking institutions, outstanding deposits with commercial banks as a percentage of GDP, and outstanding loans with commercial banks as a percentage of GDP. Similarly, Kouladoum et al. (2022) and Yorulmaz (2018) also employed PCA to develop composite indices for financial inclusion.

Moreover, researchers argue that incorporating additional dimensions can enhance the comprehensiveness and clarity of the financial inclusion index (Gupte et al., 2012). In this context, scholars expanded the set of financial inclusion dimensions to include both supply-side and demand-side indicators (Liu et al., 2022). In conclusion, while the body of literature on financial inclusion is expanding, it is evident that a consensus on a standardized methodology for comprehensive measurement of financial inclusion within an economy remains elusive (Kim, 2016).

Financial inclusion fundamentally concerns the financial well-being of poor or underserved groups (Marron, 2013). Early studies on financial

exclusion examined how financial institutions discriminate against specific socio-economic groups (Leyshon & Thrift, 1995). This raised questions about how the financial sector shapes and exacerbates income inequality by favoring wealthy or powerful groups. Theoretically, researchers argue that limited access to formal financial services (financial exclusion) prevents poor individuals from escaping poverty (Galor & Zeira, 1993). When low-income households are unable to borrow money to invest in education or businesses, they remain trapped in a cycle of poverty (Banerjee & Newman, 1993). Therefore, financial inclusion has the potential to mitigate income inequality by providing poor households and other disadvantaged groups with access to and the ability to utilize a range of financial services.

Despite these arguments, empirical research findings on the relationship between financial inclusion and income inequality are mixed. Most cross-country studies have identified a negative association between financial inclusion and income inequality. Research by Honohan (2008) indicates that greater financial accessibility is linked to lower levels of income disparities, based on a sample of 160 countries. A more recent study by Park and Mercado Jr. (2018) used data from 176 countries to investigate the impact of financial inclusion on income inequality. Their findings demonstrate that the accessibility, availability, and usage of financial services contribute to reducing income inequality. Similar findings were reported by Omar and Inaba (2020) in a study involving 116 developing countries, which examined the dimensions of penetration, availability, and usage of financial inclusion. Demir et al. (2022) further illustrate that financial inclusion significantly mitigates income inequality, using the number of accounts, borrowing, and savings at formal financial institutions as indicators, based on data from 140 countries.

According to regional studies, the empirical results regarding the relationship between financial inclusion and income inequality reveal significant variations across different regions. For instance, financial inclusion has been shown to reduce the wealth gap between the rich and poor in the Middle East and North Africa (Neaime & Gaysset, 2018), while it has been associated with increased income inequality in other areas, such

as Latin America (Dabla-Norris et al., 2015) and sub-Saharan Africa (Tita & Aziakpono, 2017). Similarly, studies conducted in individual countries demonstrate contrasting relationships; some researchers reported a positive relationship between financial inclusion and income inequality, as observed in Nigeria (Dimova & Adebowale, 2018), while others identified a negative relationship, as seen in China (Zhang & Posso, 2019). Furthermore, some researchers suggest that this relationship may evolve over time. For instance, Alter and Yontcheva (2015) found that in Mexico, financial inclusion positively affects income inequality in the short term but has a negative impact in the long run as financial inclusion continues to grow. These variations in previous research results can be attributed to variations in factors influencing income inequality, such as the development level of financial institutions, overall economic development, financial literacy, the quality and effectiveness of regulatory bodies, and other relevant considerations (Demir et al., 2022).

Economic growth results from the collective efforts of all sectors within an economy. Theorists argue that the financial sector is a fundamental component of this growth (Shaw, 1973). This importance is attributed to the significant intermediary role the financial sector plays, including mobilizing savings, allocating available resources, providing a range of affordable financial services, and reducing financing risks and information costs (Ifediora et al., 2022).

In contemporary discourse, financial inclusion is widely recognized by policymakers and regulatory bodies as a crucial strategy for developing the financial sector and enhancing a country's financial infrastructure, which, in turn, promotes economic growth and development (Ratnawati, 2020). Consequently, financial inclusion has emerged as a policy priority and a fundamental component of the overall economic development strategy (Kim, 2016). In this context, a substantial body of empirical research demonstrates the relationship between financial inclusion and economic growth. For instance, Inoue and Hamori (2019) investigated this relationship across 168 countries and found that financial inclusion, facilitated by increased

accessibility to financial services, significantly improves economic growth, as measured by real per capita GDP.

In a similar vein, Van and Linh (2019) examined the impact of financial inclusion on economic development using a sample of 23 Asian countries. Their results indicate that a greater number of ATMs, bank branches, and domestic credit in the private sector are positively associated with the economic development of these countries. Similarly, Ifediora et al. (2022) analyzed the effects of financial inclusion on economic growth by examining the dimensions of availability, penetration, and usage in a sample of 22 sub-Saharan African countries. Their findings demonstrate that financial availability and penetration have a positive and significant influence on economic growth. Comparable results have also been reported in other regions, including various parts of Africa (Makina & Walle, 2019) and Europe (Huang et al., 2021).

The literature reveals that financial inclusion is a multidimensional concept that can be measured through various indicators, including access and usage. While most studies suggest that financial inclusion reduces income inequality and promotes economic growth, results vary significantly across different regions and time frames. Research methods have evolved from examining individual indicators to developing comprehensive indices; however, no standardized measurement approach has yet emerged.

This paper contributes to existing research in several significant ways. First, it addresses the complexity of the financial inclusion model by employing PLS-SEM analysis techniques, which offer several advantages. PLS-SEM can simultaneously evaluate the connections among indicators or observable variables and their alignment with constructs or latent variables. Additionally, it facilitates the examination of the connections between these constructs (Henseler et al., 2009). This approach enhances the body of knowledge regarding methodologies used to investigate financial inclusion. Second, the scope of this study expands upon previous research by examining the impact of financial inclusion, specifically in terms of access and usage, utilizing five indicators at the coun-

try level. Furthermore, this study analyses these relationships using an international sample of 70 emerging economies, where economic growth and income inequality are persistent challenges, thereby underscoring the relevance of the current investigation. Finally, the findings of this study provide various implications and policy recommendations for policymakers, regulators, and international agencies, while also presenting intriguing avenues for further research.

Building on this discussion, this study aims to examine the impact of financial inclusion, considering the dimensions of access and usage, on income inequality and economic growth in 70 emerging economies for the years 2014, 2017, and 2021. Specifically, it seeks to address the following question: How do the dimensions of financial inclusion, namely, financial access and usage, impact income inequality and economic growth in developing countries? The main findings indicate that both dimensions of financial inclusion contribute to the reduction of income inequality and have a positive impact on economic growth. Further findings suggest that trade openness reduces income inequality, while corruption and population growth rates increase it. Conversely, the population growth rate is found to reduce economic growth. On the other hand, the effects of financial inclusion may vary significantly across countries at different stages of economic development (Kim, 2016; Omar & Inaba, 2020; Rahma & Fakhrunnas, 2022). Thus, the study addresses this gap by examining how financial inclusion affects macroeconomic outcomes across two income-based country groups. This provides more context-specific insights into the financial inclusion-growth-inequality nexus. The following hypotheses are proposed:

H1a: Financial inclusion, in terms of its access dimension, negatively affects income inequality.

H1b: Financial inclusion, in terms of its usage dimension, negatively affects income inequality.

H2a: Financial inclusion, in terms of its access dimension, positively affects economic growth.

H2b: Financial inclusion, in terms of its usage dimension, positively affects economic growth.

2. METHODS

This section outlines the data sources, sample selection, and variable definitions. It also describes the analytical approach employed to examine the impact of financial inclusion on income inequality and economic growth.

2.1. Data and sample

This study relied on secondary data collected from various sources. First, the Standardized World Income Inequality Database (SWIID) was utilized to gather data on income inequality measures. Second, financial inclusion data, specifically financial access indicators, were extracted from the Financial Access Survey conducted by the International Monetary Fund (IMF). Third, the study utilized the Global Findex database to collect financial inclusion data related to usage indicators. Fourth, data for economic growth measures, trade openness, and population growth rates were obtained from the World Development Indicators (WDI) provided by the World Bank. Finally, the World Governance Indicators (WGI) from the World Bank database were used to assess corruption measures.

The sample for this study comprises 70 developing countries worldwide for the years 2014, 2017, and 2021. These countries were selected after excluding all high-income countries, as defined by World Bank classification, and other developing countries that faced data availability issues concerning the study variables. Appendix 1 displays a list of countries included in this study.

2.2. Variables

The dependent variables of this study are income inequality and economic growth (Table 1). Income inequality is measured using the Gini coefficient, which ranges from 0 (indicating perfect equality) to 100 (indicating perfect inequality). This method is widely used in previous empirical literature on income inequality (Omar & Inaba, 2020; Ratnawati, 2020). Consistent with prior research (Ifediora et al., 2022; Kim, 2016), economic growth is measured as GDP per capita.

The dimensions of financial inclusion represent the independent variables of this study. As previ-

ously mentioned, financial inclusion is a multi-dimensional concept broadly defined as the access to and usage of formal financial services. In this context, access and usage were employed as the dimensions of financial inclusion in this study (Sahay et al., 2015; Sarma, 2008). Financial access indicates the extent of geographic or demographic reach of financial services through the physical locations of financial institutions, such as offices, branches, and ATMs. The accessibility of financial services in this context is measured by two indicators: the density of commercial bank branches per 100,000 adults (Park & Mercado Jr, 2018; Sarma, 2012) and the number of ATMs per 100,000 adults (Cámara & Tuesta, 2014; Le et al., 2019). The usage dimension refers to the utilization of various types of formal financial services. Following Demir et al. (2022) and Allen et al. (2016), the usage of financial services by clients is indicated by three metrics: the proportion of adults (aged 15+) who own accounts in a formal financial institution; the share of adults who save at a formal financial institution; and the proportion of adults who borrow from a formal financial institution.

Finally, this study uses trade, population, and corruption as control variables. Trade openness is quantified as the sum of exports and imports expressed as a proportion of GDP. It is anticipated

that trade will reduce income inequality (Turegano & Herrero, 2018) and promote economic growth (Ifediora et al., 2022). Conversely, population growth, as measured by the population growth rate, is expected to exacerbate income inequality (Demir et al., 2022) and hinder economic growth (Nizam et al., 2020). The corruption measure, derived from the Worldwide Governance Indicators (WGI), assesses the extent to which public power is exploited for private gain (Kaufmann et al., 2011). WGI assigns a corruption rating on a scale from -2.5 to 2.5, where a higher value indicates a greater level of corruption. An increase in corruption is predicted to intensify inequality and obstruct economic growth (Neaime & Gaysset, 2018).

2.3. Analytical approach

This study employed partial least squares structural equation modeling (PLS-SEM) to analyze the overall relationships among the constructs. The decision to use PLS in this study is grounded in the presence of formative constructs within the model (Rodgers & Guiral, 2011). PLS-SEM offers several advantages over other multivariate analysis techniques, such as principal components analysis, factor analysis, covariance-based SEM (CB-SEM) etc., for several reasons: (1) as primarily a non-parametric statistical technique, it does not

Table 1. Summary of the study variables

Variable Type	Variable Name	Measurement	Data Sources	
Independent Variables	Financial Inclusion Access	NOCB	Number of commercial bank branches/ (adults' population/ 100,000)	Financial Access Survey, IMF
		ATMs	Number of ATMs / (adults' population/ 100,000)	Financial Access Survey, IMF
		Accounts	Having an account at a formal financial institution (% age above 15)	Global Findex
	Financial Inclusion Usage	saving	Saving at a formal financial institution (% age above 15)	Global Findex
		Borrowing	Borrowing from a formal financial institution (% age above 15)	Global Findex
Dependent Variables	Income Inequality	GINI inequality index	The Standardized World Income Inequality Database (SWIID)	
	Economic Growth	GDP per capita	World Development Indicators (World Bank)	
Control Variables	Trade	The sum of exports and imports as a proportion of GDP	World Development Indicators (World Bank)	
	Population Growth	Population growth rate	World Development Indicators (World Bank)	
	Control of Corruption	A score within a range spanning from -2.5 (low level of corruption) to 2.5 (a high level of corruption)	World Governance Indicators (WGI)	

require assumptions of data normality; (2) it imposes minimal constraints on scale measurement and sample size compared to causal modeling techniques; (3) it effectively accommodates both reflective and formative measurements within complex models; and (4) it can generate efficient econometric estimates, providing improved solutions for inferring dynamic changes compared to cross-sectional data (Sarstedt et al., 2014).

3. RESULTS

This section presents empirical results, including descriptive statistics and PLS-SEM findings, to evaluate the impact of financial inclusion on income inequality and economic growth.

3.1. Descriptive statistics

Table 2 summarizes the descriptive statistics for the study variables, based on data from 70 countries across three years: 2014, 2017, and 2021. Income inequality, with a mean value of 44.793 and a standard deviation of 9.537, peaked at 74.244 in Burkina Faso in 2021, while Serbia reported the lowest income inequality in the same year, with a value of 28.103. On average, economic growth was recorded at 0.06, with a standard deviation of 0.118. Zimbabwe experienced the highest economic growth in 2021, with a value of -0.861 , while Guinea reported the lowest economic growth in 2014, with a value of 0.292.

The “Account” variable exhibits a mean value of 0.451 and a standard deviation of 0.232. Mongolia reported the highest account value in 2021 at 0.982, while the lowest value, 0.062, was observed in Guinea in 2014. Regarding “Saving,” the mean value and standard deviation are 0.136 and 0.096, respectively. The range of saving values extends from a minimum of 0.01 in Guinea (2014) to a maximum of 0.523 in Thailand (2021). Turning to “Borrowing,” this variable has a mean value of 0.152 and a standard deviation of 0.089. Turkey reported the highest borrowing in 2017 at 0.428, whereas Pakistan recorded the lowest borrowing in 2014, with a value of 0.016.

The NOCB variable has a mean value of 14.85 and a standard deviation of 13.706. Bolivia reported the highest NOCB value in 2021, reaching 72.065, while

Ukraine recorded the lowest value for the same year at 0.385. For the “ATMs” variable, the mean value and standard deviation are 40.599 and 44.872, respectively. The maximum value of 316.308 was observed in China in 2021, whereas Afghanistan reported the lowest value of 0.75 in 2014.

Regarding the control variables, trade has a mean value of 69.205 and a standard deviation of 28.471. The highest recorded value, 146.722, was observed in North Macedonia in 2021, while the lowest value, 22.577, was noted in Nigeria in the same year. The mean value and standard deviation of population growth are 1.43 and 1.536, respectively. Jordan reported the highest population growth rate of 11.794 in 2014, whereas the lowest rate, -2.146 , was found in Lebanon in 2017. Lastly, corruption shows a mean value of -0.532 and a standard deviation of 0.499. Guinea recorded the highest corruption value in 2014, standing at 1.014, while Venezuela recorded the lowest value of -1.606 in 2021.

Table 2. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Income Inequality	210	44.793	9.537	28.103	74.244
Economic Growth	210	0.060	0.118	-0.861	0.292
Account	210	0.451	0.232	0.062	0.982
Saving	210	0.136	0.096	0.010	0.523
Borrowing	210	0.152	0.089	0.016	0.428
NOCB	210	14.850	13.706	0.385	72.065
ATMs	210	40.599	44.872	0.750	316.308
Trade	210	69.205	28.471	22.577	146.722
Population Growth	210	1.430	1.536	-2.416	11.794
Corruption	210	-0.532	0.499	-1.606	1.014

Notes: This Table shows the descriptive statistics of the study variables. Income inequality is measured by the Gini coefficient. Economic growth is measured as the growth in per capita GDP. Account refers to the percentage of adults having an account in a formal financial institution (age +15). Saving is the percentage of adults who save at a formal financial institution (age +15). Borrowing is the percentage of adults who borrow from a formal financial institution (age +15). NOCB denotes the number of commercial bank branches per 100,000 adults. ATMs represent the number of ATMs per 100,000 adults. Trade is measured as the sum of exports plus imports as a percentage of GDP. Population growth denotes the population growth rate. Corruption is measured as a score within a range spanning from -2.5 (low level of corruption) to 2.5 (a high level of corruption).

3.2. PLS-SEM results

The results were extracted using SmartPLS 4.0 software. The PLS-SEM evaluates both the outer (measurement) model and the inner (structural)

Table 3. Outer model results

Variables and Constructs	Weights	Standard deviation (STDEV)	t-values	P-values
ATMs → Access	0.801	0.076	10.486	0.000***
Account → Usage	0.821	0.136	6.055	0.000***
Borrowing → Usage	0.487	0.117	4.161	0.000***
NOCB → Access	0.326	0.095	3.428	0.000***
Saving → Usage	-0.402	0.123	3.268	0.001***

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The results were generated by running PLS with 5000 sub-samples through bootstrapping.

model. The measurement model assesses the relationship between the indicators and the constructs. In this study, two formative constructs are considered. First, financial inclusion access is measured by two indicators: the number of commercial bank branches per 100,000 adults (NOCB) and the number of ATMs per 100,000 adults (ATMs). Second, financial inclusion usage is measured using three indicators: account ownership, savings, and borrowing.

The results of the outer model indicate that all formative indicators of financial inclusion access, specifically, the number of commercial bank branches per 100,000 adults and the number of ATMs per 100,000 adults, exhibit statistically significant weights at $p < 0.01$. Similarly, the results of the formative indicators of financial inclusion usage, which include account ownership, borrowing, and saving, also demonstrate significant weights at $p < 0.01$, as shown in Table 3.

Moreover, potential multicollinearity among the formative indicator measures can lead to unstable estimates. Table 4 presents the variance inflation factor (VIF) results for all the formative indicators in the outer model, all of which are below 5. This indicates no multicollinearity problem according to the rule of thumb established by Sarstedt et al. (2014).

Table 4. Variance Inflation Factor (VIF) results

Indicators	VIF
Account	3.075
Borrowing	1.997
ATMs	1.304
NOCB	1.304
Saving	1.947

Table 5 presents the findings of the structural or inner model. This model assesses the relationships between constructs, specifically latent variables, to

test the hypotheses proposed in this study. The results indicate that access to financial inclusion has a significantly negative impact on income inequality ($\beta = -0.124$; $t = 2.162$; $p < 0.05$). Furthermore, the usage of financial inclusion also demonstrates a negative and significant impact on income inequality ($\beta = -0.223$; $t = 2.415$; $p < 0.01$). These results confirm hypotheses 1(a) and 2(b).

Conversely, access to financial inclusion shows a positive and significant impact on economic growth ($\beta = 0.261$; $t = 3.181$; $p < 0.01$). Furthermore, the results show that the usage of financial inclusion has a positive impact on economic growth ($\beta = 0.412$; $t = 4.571$; $p < 0.01$). These results support hypotheses 2(a) and 2(b).

Finally, the results of the control variables used in this study indicate that trade has a significantly negative impact on income inequality ($\beta = -0.18$; $t = 2.785$; $p < 0.01$). Conversely, corruption positively influences income inequality ($\beta = 0.309$; $t = 5.265$; $p < 0.01$). Similarly, population is positively and significantly linked to income inequality ($\beta = 0.229$; $t = 2.502$; $p < 0.01$) and negatively affects economic growth ($\beta = -0.086$; $t = 1.291$; $p < 0.1$). However, other control variables demonstrate no significant impact on economic growth.

R-squared (R^2) and adjusted R-squared (adjusted R^2) represent the proportion of variance in the outcome variable (dependent variable) that is explained by the explanatory variables within the sample (R^2) and provide an estimate for the population (adjusted R^2) (Miles, 2005). The results of R^2 and adjusted R^2 , as shown in Table 6, are 30.2% and 28.6%, respectively, for income inequality, while they are 45.6% and 44.3%, respectively, for economic growth, indicating an acceptable level of explanatory power, as displayed in Table 6.

Table 5. Hypothesis testing results (structural model)

Path Hypotheses	Path coefficient	Standard deviation (STDEV)	t-values	P-values
Access → Economic Growth	0.261	0.082	3.181	0.001***
Access → Income Inequality	-0.124	0.057	2.162	0.015**
Corruption → Economic Growth	0.049	0.067	0.735	0.231
Corruption → Income Inequality	0.309	0.059	5.265	0.000***
Population → Economic Growth	-0.089	0.069	1.291	0.098*
Population → Income Inequality	0.229	0.091	2.502	0.006***
Trade → Economic Growth	-0.029	0.058	0.507	0.306
Trade → Income Inequality	-0.180	0.065	2.785	0.003***
Usage → Economic Growth	0.412	0.090	4.571	0.000***
Usage → Income Inequality	-0.223	0.092	2.415	0.008***

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1. The results were generated by running PLS with 5000 sub-samples through bootstrapping.

The results suggest that R-squared values indicate the model’s reasonable predictive power for both economic growth and income inequality. The included variables, particularly those related to financial inclusion, significantly contribute to explaining the observed variations in these economic outcomes. This underscores the importance of financial inclusion policies in shaping economic growth and income distribution. Figure 1 presents the results in the form of a graph extracted from the SmartPLS output.

Table 6. Predictive power of the Model (R²)

Dependent variables	R-square	R-square adjusted
Economic Growth	0.456	0.443
Income Inequality	0.302	0.286

3.3. Robustness check

3.3.1. Disentangling effects across income groups

This section examines the heterogeneous effects across countries by clustering them into income groups based on their income levels. The analysis uses two groupings: upper-middle-income countries (G1) and lower-middle-income and low-income countries (G2). Lower-middle-income and low-income countries were combined into a single group. This is because neither category contained sufficient sample units individually to yield statistically reliable estimates.

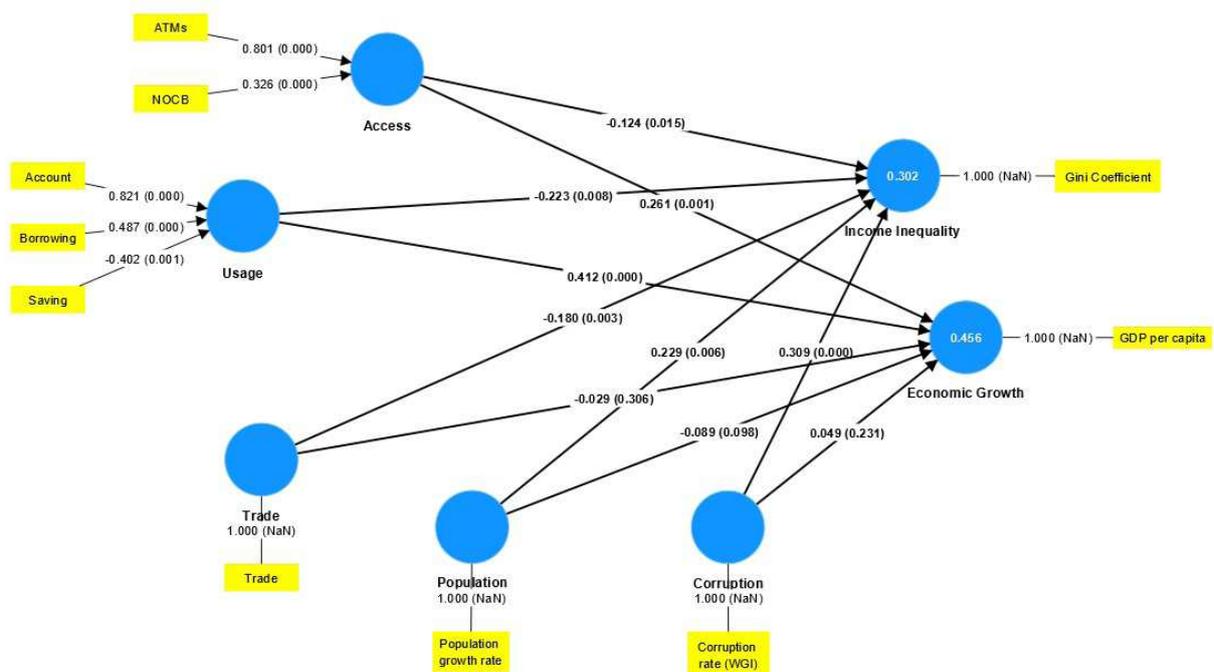


Figure 1. SmartPLS results output

Table 7. G1 Results of the hypothesis testing (structural model)

Path Hypotheses	Path coefficient	Standard deviation (STDEV)	t-values	P-values
Access → Economic Growth	0.599	0.139	4.301	0.000
Access → Income Inequality	-0.412	0.101	4.065	0.000
Corruption → Economic Growth	0.135	0.053	2.543	0.006
Corruption → Income Inequality	0.144	0.075	1.926	0.027
Population → Economic Growth	-0.083	0.105	0.789	0.215
Population → Income Inequality	0.212	0.077	2.751	0.003
Trade → Economic Growth	-0.176	0.066	2.682	0.004
Trade → Income Inequality	0.051	0.074	0.691	0.245
Usage → Economic Growth	0.106	0.115	0.926	0.177
Usage → Income Inequality	-0.116	0.113	1.031	0.151

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1. The results generated by running PLS with 5000 sub-samples through bootstrapping.

Table 7 shows the results for Upper-Middle-Income Countries (G1). Firstly, financial access demonstrates a strong positive impact on economic growth ($\beta = 0.599, p < 0.01$) and significantly reduces income inequality ($\beta = -0.412, p < 0.01$). However, financial usage does not show statistically significant effects in this group. Among control variables, corruption exacerbates inequality ($\beta = 0.144, p < 0.05$) and unexpectedly enhances growth ($\beta = 0.135, p < 0.01$). Population growth worsens inequality ($\beta = 0.212, p < 0.01$), while trade openness negatively affects growth ($\beta = -0.176, p < 0.01$) but has no significant impact on inequality.

Regarding Lower-Middle and Low-Income Countries (G2), Financial usage becomes a power-

ful driver of economic growth ($\beta = 0.532, p < 0.01$), while access maintains its inequality-reducing effect ($\beta = -0.235, p < 0.05$) but has weaker growth impacts. Corruption has intensified effects, significantly increasing inequality ($\beta = 0.366, p < 0.01$) and potentially reducing growth ($\beta = -0.159, p = 0.089$). Trade openness reduces both inequality ($\beta = -0.29, p < 0.01$) and growth ($\beta = -0.234, p < 0.05$). Population growth again worsens inequality ($\beta = 0.217, p < 0.05$), as displayed in Table 8.

Variance inflation factors (all <2.5) confirm the absence of multicollinearity concerns, as shown in Table 9. In addition, Table 10 demonstrates that the models have good explanatory power, with R² values of 0.501 for economic growth and 0.427 for

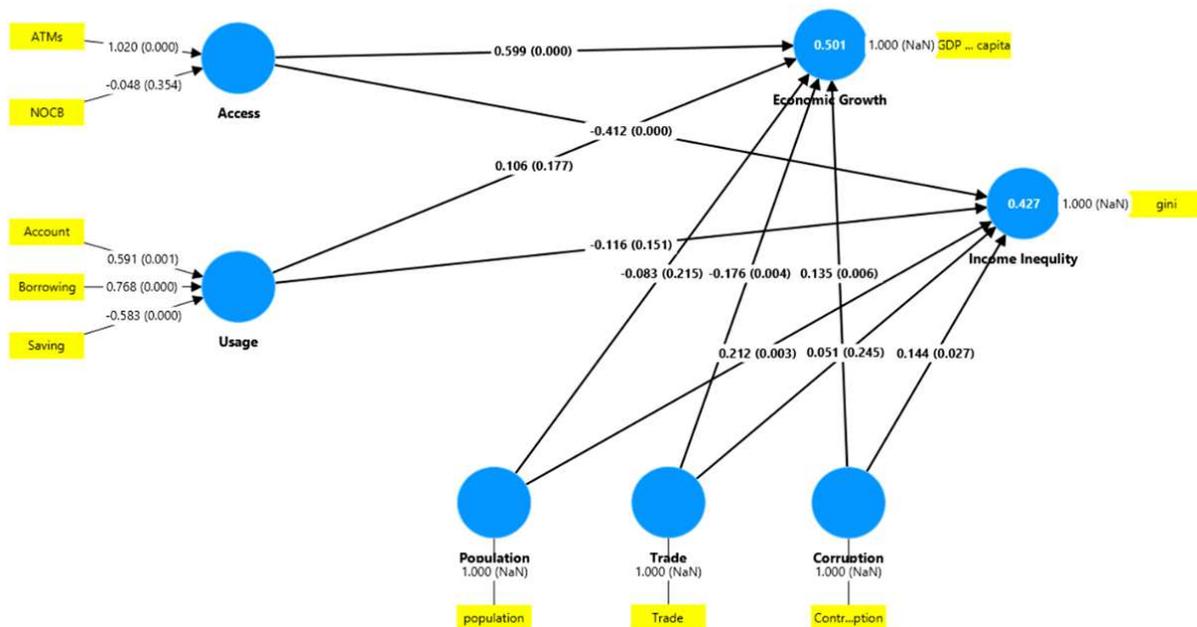


Figure 2. G1 SmartPLS results output

Table 8. G2 Results of the hypothesis testing (structural model)

Path Hypotheses	Path coefficient	Standard deviation (STDEV)	t-values	P-values
Access → Economic Growth	0.185	0.124	1.496	0.067
Access → Income Inequality	-0.235	0.113	2.083	0.019
Corruption → Economic Growth	-0.159	0.118	1.350	0.089
Corruption → Income Inequality	0.366	0.076	4.834	0.000
Population → Economic Growth	-0.020	0.086	0.230	0.409
Population → Income Inequality	0.217	0.099	2.189	0.014
Trade → Economic Growth	-0.234	0.106	2.212	0.013
Trade → Income Inequality	-0.290	0.103	2.825	0.002
Usage → Economic Growth	0.532	0.189	2.821	0.002
Usage → Income Inequality	0.208	0.192	1.087	0.138

Notes: *** p < 0.01, ** p < 0.05, * p < 0.1. The results were generated by running PLS with 5000 sub-samples through bootstrapping.

inequality in G1 countries, and 0.229 for growth and 0.418 for inequality in G2 countries. These findings underscore the importance of considering country income levels when designing financial inclusion policies, as the mechanisms of impact vary substantially across development stages.

Table 9. Variance Inflation Factor (VIF) by income group

Indicator	G1 (Upper-middle)	G2 (Lower-middle & Low-income)
ATMs	1.226	1.226
Account	2.383	2.431
Borrowing	1.782	1.428
Control of Corruption	1	1
GDP per capita	1	1
NOCB	1.226	1.226
Saving	1.748	1.88
Trade	1	1
Gini	1	1
Population	1	1

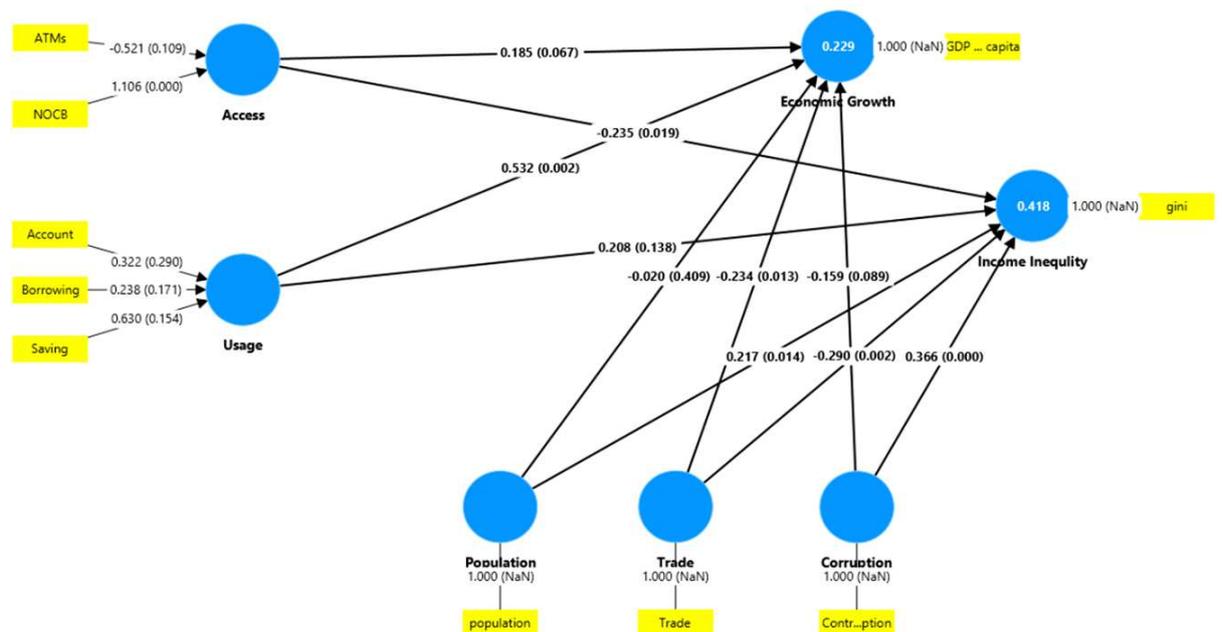


Figure 3. G2 SmartPLS Results Output

Table 10. Predictive power of the Model (R^2) by income group

Dependent variables	G1- R^2	G1- R^2 Adjusted	G2- R^2	G2- R^2 Adjusted
Economic Growth	0.501	0.479	0.229	0.184
Income Inequality	0.427	0.402	0.418	0.384

3.3.2. Country-level analysis

The Global Findex database serves as the primary data source for financial inclusion usage indicators in this study. It provides the data in the form of waves every three years, with the most recent publicly available waves corresponding to the years 2014, 2017, and 2021. Accordingly, these three time points were selected for analysis. This triennial structure, while comprehensive in coverage, imposes inherent limitations on the application of conventional econometric techniques at the individual country level. In particular, time-series analyses and within-country regressions are statistically infeasible due to the minimal number of temporal observations ($T = 3$), which results in insufficient degrees of freedom and low estimation reliability (Brown, Butts, & Westerlund, 2023; Ahn, Lee, & Schmidt, 2013). Similarly, applying fixed-effects panel models at the country level with such limited time points risks overfitting and under-identification, which leads to potentially spurious or unstable parameter estimates (Klosin, 2024).

Despite these constraints, the triennial Global Findex database remains a widely accepted source in the empirical literature on financial inclusion and its macroeconomic and distributional effects (Ahmed & Khan, 2024). Accordingly, this section adopts a descriptive analytical approach to examine temporal patterns in financial inclusion, disaggregated by access and usage, alongside changes in income inequality and economic growth at the country level. While the analysis is not inferential in nature, it offers important insights into observed dynamics and institutional trends that inform the broader cross-country findings of the study.

To facilitate this analysis, a fully interactive dashboard was developed using Power BI, which provides dynamic visualizations of key variables across the three available time points. To balance depth and representativeness, six coun-

tries were purposively selected based on their World Bank income classifications. Specifically, two countries were chosen from each income tier: low-income countries (Burkina Faso and Afghanistan), lower-middle-income countries (Benin and Kazakhstan), and upper-middle-income countries (Thailand and the Russian Federation). These selections were made to capture geographic and structural diversity. In addition, it enables meaningful comparison of financial inclusion patterns within and across income groups.

The analysis proceeds in three stages. First, each country is examined individually to identify unique trends and institutional dynamics. Second, intra-group comparisons are conducted to assess variations in financial inclusion and socioeconomic outcomes within each income bracket. Finally, cross-group comparisons are used to draw broader conclusions about how the relationship between financial inclusion, inequality, and growth may vary by level of economic development.

3.3.2.1. Afghanistan

Figure 4 of Afghanistan shows a marked decline in financial access and usage between 2017 and 2021. Both the number of ATMs and bank branches (access indicators) as well as account ownership, saving, and borrowing (usage indicators) dropped in the latter period. GDP per capita, i.e., economic growth, also declined, while the Gini coefficient (income inequality) remained relatively high, indicating persistent income inequality. These patterns reflect the broader socio-political instability Afghanistan has faced in recent years, which has eroded institutional trust and disrupted the financial services infrastructure. The stagnation in financial inclusion, particularly in usage, likely impedes poverty alleviation and restricts the broader population from participating in economic activity, consistent with findings by Demir et al. (2022) and Omar and Inaba (2020).

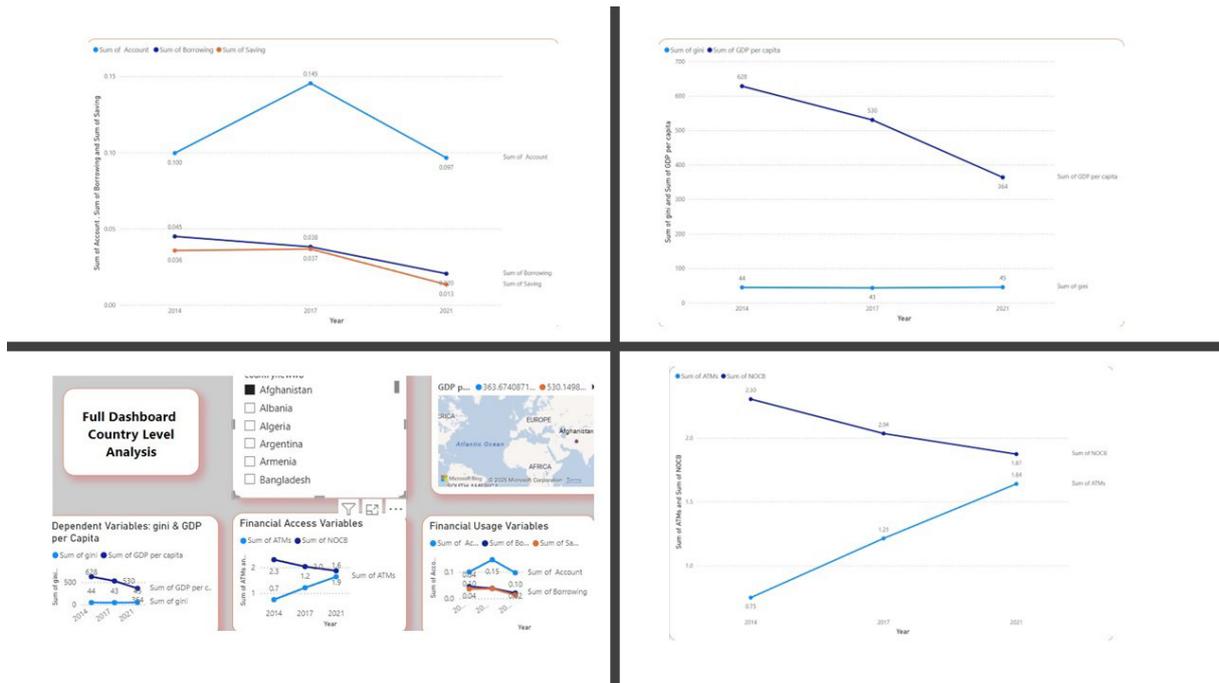


Figure 4. Trends in financial inclusion, income inequality, and economic growth in Afghanistan (2014–2021)

3.3.2.2. Burkina Faso

In Burkina Faso, financial access indicators showed modest improvement between 2014 and 2017 but plateaued thereafter. Financial usage, especially saving and borrowing, also increased during the earlier

period but experienced a decline post-2017. While GDP per capita improved slightly in 2021, income inequality remained high, as shown in Figure 5. These outcomes suggest that initial progress in financial inclusion may have been limited to access, without translating into long-term, sustained usage or equi-

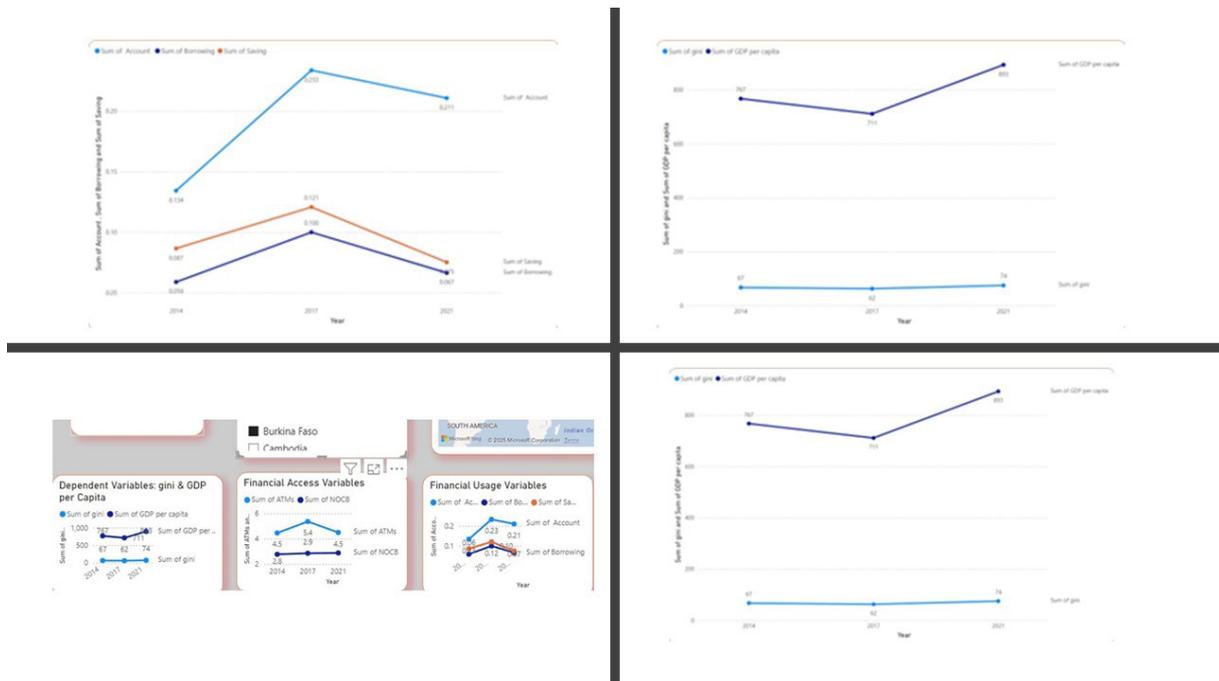


Figure 5. Trends in financial inclusion, income inequality, and economic growth in Burkina Faso (2014–2021)

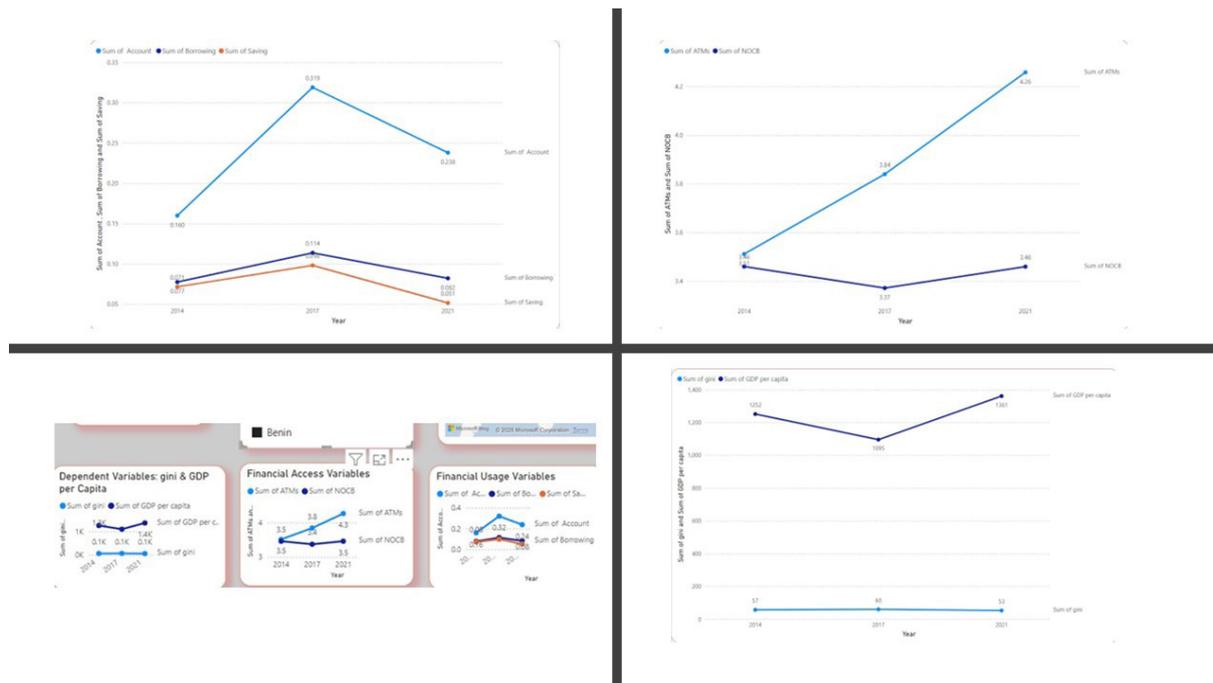


Figure 6. Trends in financial inclusion, income inequality, and economic growth in Benin (2014–2021)

table economic development. This aligns with earlier research indicating that physical access alone is insufficient for achieving inclusion unless accompanied by affordable, trusted, and tailored financial services (Allen et al., 2016).

3.3.2.3. Benin

Benin’s analysis reveals gradual improvements in financial access between 2014 and 2021, especially in the availability of ATMs and bank branches. However, financial usage remained comparatively low, with slow growth in saving and borrowing behavior. GDP per capita displayed an upward trend, while income inequality remained stable, as displayed in Figure 6. This suggests that although financial infrastructure has expanded, behavioral and systemic barriers may still hinder the active use of financial services by the general population. This case illustrates the critical gap between supply-side progress and demand-side engagement, where access does not automatically lead to meaningful usage (Park & Mercado Jr., 2018).

3.3.2.4. Kazakhstan

Kazakhstan presents a more favorable trend, with strong increases in both access and usage dimen-

sions of financial inclusion. Between 2014 and 2021, there was a steady rise in account ownership, savings, and borrowing, along with improvements in ATM and branch density. GDP per capita recovered after a dip in 2017, and income inequality decreased modestly, as shown in Figure 7. The synchronized rise in financial inclusion and economic performance indicates an effective integration of financial services into the broader economic framework, supported by relatively high institutional quality. This case supports the argument that financial usage becomes a critical driver of inclusive growth in lower-middle-income settings (Inoue & Hamori, 2019).

3.3.2.5. Russian Federation

The Russian Federation exhibits consistently high levels of financial access and usage across the observed years. Notably, account ownership and savings increased steadily, while borrowing remained moderate. GDP per capita rebounded after a 2017 trough, and income inequality showed slight improvement, as shown in Figure 8. The overall financial system appears well-developed and resilient. However, the limited reduction in inequality despite stable inclusion points to the need for complementary redistributive or inclusive growth pol-

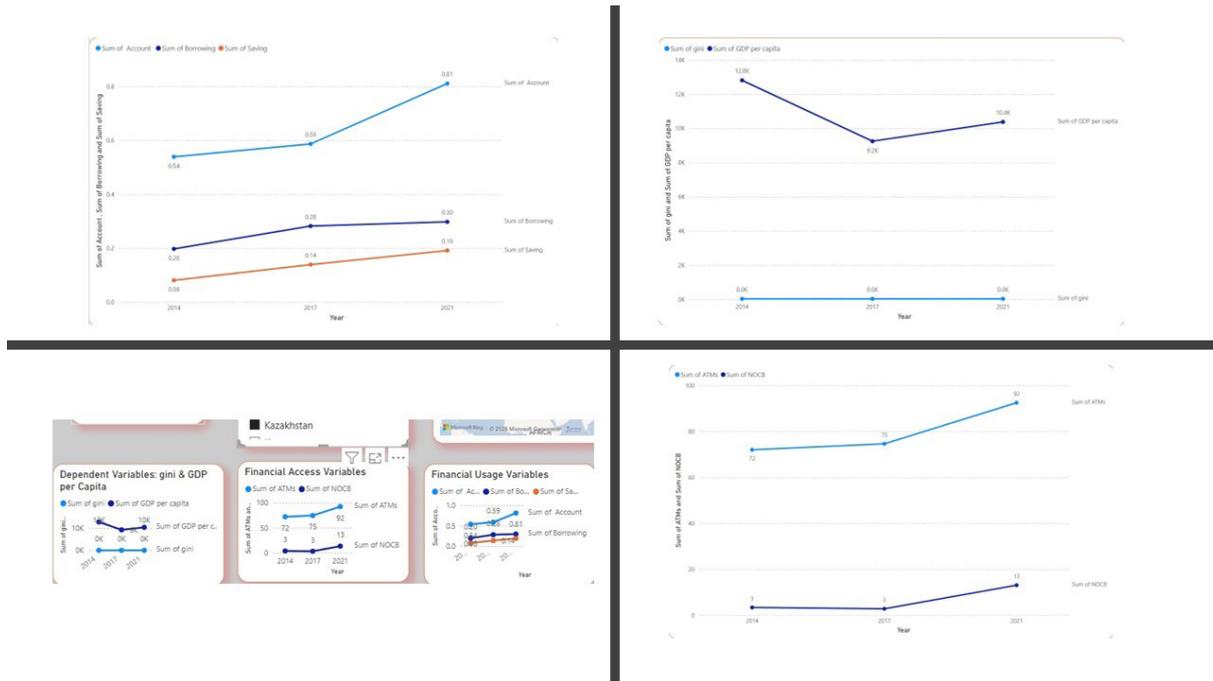


Figure 7. Trends in financial inclusion, income inequality, and economic growth in Kazakhstan (2014–2021)

icies. This finding supports the idea that in more advanced economies, financial inclusion alone may not significantly alter distributional outcomes unless aligned with broader policy frameworks (Ratnawati, 2020).

3.3.2.6. Thailand

Thailand also demonstrates strong upward trends in financial usage, especially in saving and borrowing, as well as consistent improvement in fi-

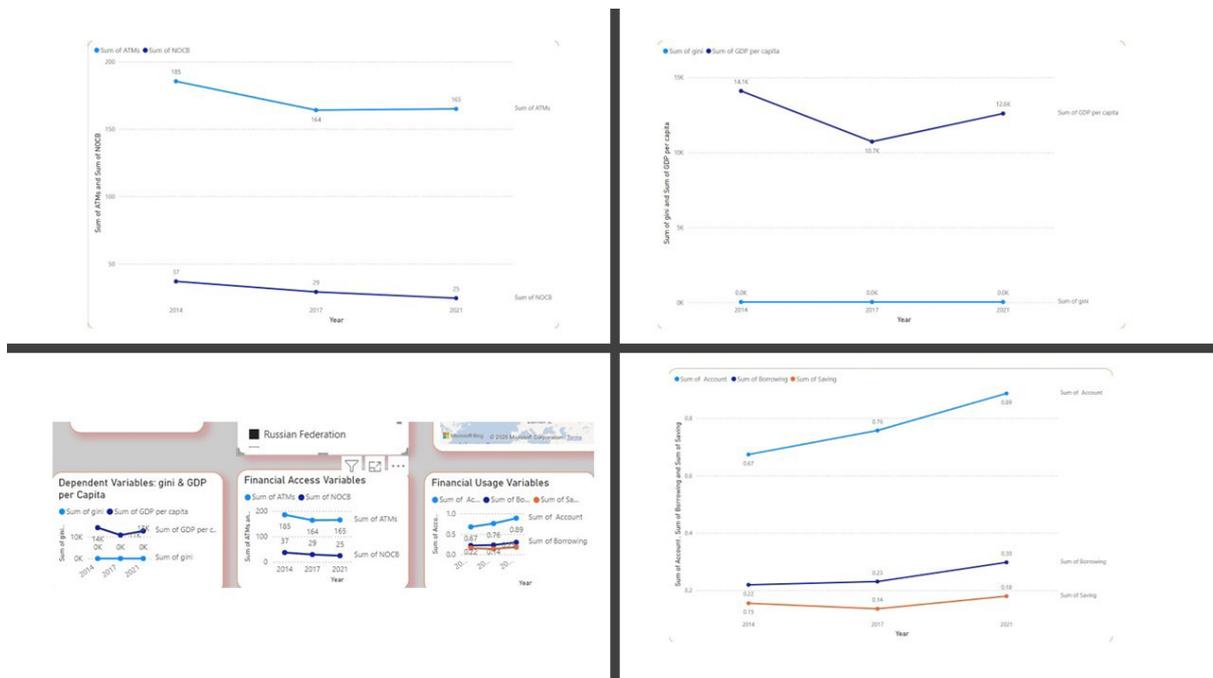


Figure 8. Trends in financial inclusion, income inequality, and economic growth in the Russian Federation (2014–2021)

nancial access. GDP per capita steadily increased across all three years, whereas the Gini coefficient remained relatively flat, as shown in Figure 9. This suggests that economic growth occurred without significant redistribution of income. While Thailand shows a more dynamic use of financial services compared to Russia, the persistence of income inequality highlights those broader socio-economic factors, such as labor market conditions or taxation policies, may mediate the ultimate equity impacts of financial inclusion (Kim, 2016).

3.3.2.7. Comparative insights

When comparing countries within and across income groups, distinct patterns emerge. Among low-income countries, both Afghanistan and Burkina Faso exhibit fragile progress in financial inclusion and weak economic outcomes. Limited institutional capacity and ongoing instability appear to suppress both access and usage, resulting in persistent inequality. Within the lower-middle-income group, Benin and Kazakhstan present diverging paths – Benin expanded financial infrastructure without substantial usage gains, while Kazakhstan effectively translated access into usage and economic improvements. This underscores the importance of institutional quality

and financial literacy in converting access into inclusive outcomes. Finally, among upper-middle-income countries, Russia and Thailand both show strong financial inclusion and economic performance, but neither country has achieved significant reductions in income inequality. This suggests that in more advanced settings, financial inclusion must be complemented by policy mechanisms that actively promote redistribution. Overall, the comparative results reinforce the central argument of the analysis: the developmental stage of a country critically shapes the nature and impact of financial inclusion, which requires context-specific strategies to ensure equitable and sustainable growth.

4. DISCUSSION

In recent years, financial inclusion, particularly in emerging economies, has become an important element of broader economic development strategies (Kim, 2016). As a result, researchers have begun to explore the implications of financial inclusion for a particular economy, focusing on factors such as income inequality and economic growth (Adedokun & Ağa, 2023; Dimova & Adebowale, 2018). In this context, this study investigated the impact of financial inclusion, in terms

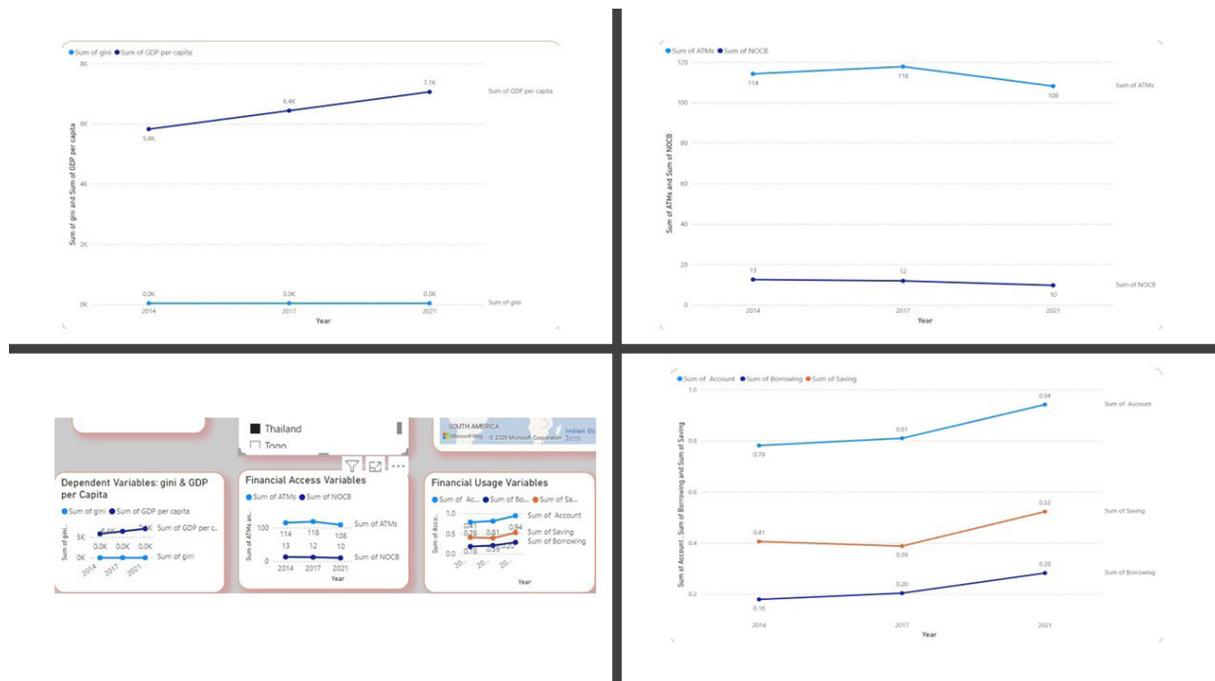


Figure 9. Trends in financial inclusion, income inequality, and economic growth in Thailand (2014–2021)

of access and usage, on income inequality and income growth. This analysis utilizes a sample of 70 emerging economies from the years 2014, 2017, and 2021, while controlling for variables such as trade openness, population growth rate, and levels of corruption.

The results demonstrate that financial inclusion, particularly in terms of access, reduces income inequality. This indicates that as financial accessibility increases, income inequality decreases. Improved access to financial services may provide individuals with lower incomes greater opportunities to save, invest, and access credit. Such empowerment can contribute to reducing income inequality by enabling individuals to enhance their financial situations. Conversely, when low-income households cannot borrow money for investments in education or businesses, they may remain trapped in a low-income cycle. Furthermore, easier access to various financial services, particularly for small businesses and start-ups, can lead to job creation and income generation, potentially narrowing the income gap. Indeed, access to financial services is crucial for achieving financial inclusion. Limited accessibility to diverse financial services can result in involuntary financial exclusion. However, these findings align with previous empirical research (Kim, 2016; Omar & Inaba, 2020; Park & Mercado Jr, 2018).

Further findings reveal a negative relationship between financial inclusion in terms of usage and income inequality. The results suggest that increased utilization of formal financial services can mitigate income inequality. Enhanced engagement with financial services can lead to greater income mobility, enabling individuals to save, invest, and borrow more effectively. This, in turn, may contribute to a reduction in income inequality as individuals acquire the means to improve their financial situations. Furthermore, higher usage of savings accounts may indicate that individuals are better equipped to withstand financial shocks or downturns. This financial resilience can foster a more stable income distribution across various economic strata. Conversely, greater utilization of financial services, particularly borrowing, may signify increased entrepreneurial activities. This could lead to job creation and income opportunities, potentially narrowing the income gap. Similar findings were reported by Demir et al. (2022) and Ratnawati (2020).

Regarding the relationship between financial inclusion and economic growth, the results indicate that financial inclusion, particularly in terms of financial access, positively impacts economic growth. This suggests that increased accessibility to financial inclusion correlates with enhanced economic growth. Improved access to various financial services can stimulate economic activities by providing the necessary financial resources to start or expand businesses, which in turn leads to job creation and higher income levels. Additionally, financial inclusion, in terms of access to financial services, can indirectly boost economic growth by stimulating customer spending and demand, especially when individuals have access to credit. Increased demand can drive economic growth by encouraging businesses to produce more, hire additional employees, and invest in expansion. Furthermore, broader access to formal financial services is crucial for maintaining the financial stability necessary for achieving sustained economic growth. These results align with previous research that reported a positive relationship between financial inclusion, in terms of financial access, and economic growth (Adedokun & Ağa, 2023; Emara & El Said, 2021; Nizam et al., 2020).

The findings also indicate that financial inclusion, concerning the usage dimension, is positively linked to economic growth. This suggests that increased usage of financial services promotes economic development. Enhanced use of financial services, including savings and borrowing, can facilitate capital formation. This capital can subsequently be utilized for productive investments, ultimately resulting in higher economic output, as evidenced by GDP per capita. When the usage of financial services rises, it allows a broader segment of the population to actively engage in economic activities, thereby contributing to overall economic growth.

Furthermore, the utilization of financial services, particularly regarding savings and borrowing, may contribute to poverty reduction. As more individuals are lifted out of poverty, the overall income distribution within society can improve, positively influencing economic growth (Ratnawati, 2020). Importantly, these findings align with previous research that established a positive association between financial inclusion,

in terms of usage dimensions, and economic growth (Ifediora et al., 2022; Inoue & Hamori, 2019; Makina & Walle, 2019).

The results concerning the control variables reveal that trade negatively impacts income inequality. This suggests that trade openness reduces income inequality by enabling businesses to access global markets. Such expanded market access can benefit various industries, which contribute to job creation and potentially reduce income inequality. These findings align with previous empirical studies (Dorn et al., 2022; Turegano & Herrero, 2018). Additionally, the results demonstrate that the population growth rate positively affects income inequality while negatively impacting economic growth. This implies that population growth increases income inequality and reduces economic growth as measured by per capita GDP. Rapid population growth may lead to an increased labor supply. When job opportunities do not keep pace with population growth, it can result in higher unemployment and lower wages, thereby contributing to income inequality and hindering economic growth. Similar results have been reported in prior research (Dabla-Norris et al., 2015; Nizam et al., 2020).

Further analysis results highlight the importance of tailoring financial inclusion strategies based on income group context. In G1 countries, expanding access, both physical and digital, is key to fostering growth and reducing inequality. In contrast, G2 countries benefit more from enhancing the actual usage of financial services. This result strongly suggests a need for educational and infrastructural support. The roles of corruption, trade openness, and demographic changes differ markedly across income groups, which reinforces the complexity of policy design.

Finally, as anticipated, the results indicate that corruption increases income inequality. Corruption can contribute to the inequitable distribution of resources within a society, such as land, employment opportunities, and trade. When corrupt practices allow a select few individuals to accumulate wealth and power, the income gap between the privileged and the disadvantaged widens. This finding aligns with the empirical research conducted by Gupta et al. (2002) and Keneck-Massil et al. (2021), which identified a positive correlation between corruption and income inequality.

CONCLUSION

This study examined the impact of financial inclusion, through the dimensions of access and usage, on income inequality and economic growth in 70 emerging economies. The findings indicate that financial inclusion significantly reduces income inequality and enhances economic growth. Access empowers low-income individuals and businesses by facilitating savings, investment, and credit, while usage promotes income mobility and entrepreneurship. Among control variables, trade openness was found to reduce inequality, whereas population growth and corruption were associated with worsening inequality and hindered growth.

Importantly, while financial inclusion generally serves as a driver of inclusive development, its effectiveness varies by income level. In more advanced developing economies, expanding access yields the strongest impact, while in lower-income countries, enhancing usage becomes critical. These patterns underscore the need for tailored, context-specific financial inclusion strategies.

To further address concerns of over-generalization, a country-level descriptive analysis was conducted using Global Findex data from 2014, 2017, and 2021. Six countries – two from each income group – were analyzed via an interactive Power BI dashboard. The results revealed marked cross-country differences: for example, upper-middle-income countries (e.g., Thailand, Russia) showed high inclusion with modest equity gains, while lower-income countries (e.g., Afghanistan, Burkina Faso) faced persistent access and usage challenges. These findings affirm that a country's developmental stage mediates the socio-economic impacts of financial inclusion.

The study offers several policy implications. Policymakers should promote both access and active usage of financial services, particularly for underserved populations, by investing in infrastructure, financial literacy, and inclusive product design. Trade liberalization policies that foster fair participation in global markets may reduce inequality, while strategies to manage demographic shifts and strengthen governance are essential to support inclusive growth.

This study fits into the theme of investment management and financial innovation by addressing the role of financial services in fostering economic equity and sustainability. Future research should explore subnational and qualitative dimensions of financial inclusion, including trust, digital adoption, and voluntary exclusion. Moreover, extending this analysis to developed countries may yield valuable comparative insights.

AUTHOR CONTRIBUTIONS

Conceptualization: Ibrahim Eriqat, Nemer Badwan, Suhaib Al-Khazaleh.

Data curation: Ibrahim Eriqat.

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Methodology: Ibrahim Eriqat, Zahra Mohamed El Shlmani.

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Validation: Nemer Badwan, Suhaib Al-Khazaleh, Zahra Mohamed El Shlmani.

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Writing – original draft: Ibrahim Eriqat.

Writing – review & editing: Nemer Badwan, Suhaib Al-Khazaleh, Zahra Mohamed El Shlmani.

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APPENDIX A

Table A1. List of countries included in the study sample

Low income	Honduras	Uzbekistan	Lebanon
Afghanistan	India	West Bank and Gaza	Malaysia
Burkina Faso	Indonesia	Zambia	Mauritius
Guinea	Kazakhstan	Zimbabwe	Moldova
Malawi	Kenya	Upper middle income	Namibia
Mali	Kosovo	Albania	North Macedonia
Uganda	Kyrgyz Republic	Argentina	Panama
Lower middle income	Mongolia	Armenia	Peru
Algeria	Myanmar	Bosnia and Herzegovina	Romania
Bangladesh	Nepal	Brazil	Russian Federation
Benin	Nicaragua	Bulgaria	Serbia
Bolivia	Nigeria	China	South Africa
Cambodia	Pakistan	Colombia	Thailand
Cameroon	Philippines	Costa Rica	Togo
Congo, Rep.	Senegal	Dominican Republic	Turkey
Cote d'Ivoire	Tajikistan	Ecuador	Venezuela, RB
Egypt, Arab Rep.	Tanzania	Georgia	
El Salvador	Tunisia	Iraq	
Ghana	Ukraine	Jordan	

Notes: The economic classifications are low income, lower middle income, and upper middle income, based on the World Bank classification, whereas low-income economies are those with a gross national product (GNI) per capita of ≤ \$1,045. Lower middle-income economies are those with a GNI per capita of \$1,046–\$4,095. Upper middle-income economies are those with a GNP per capita of \$4,096–\$12,695.

POWER BI ANALYSIS

Afghanistan

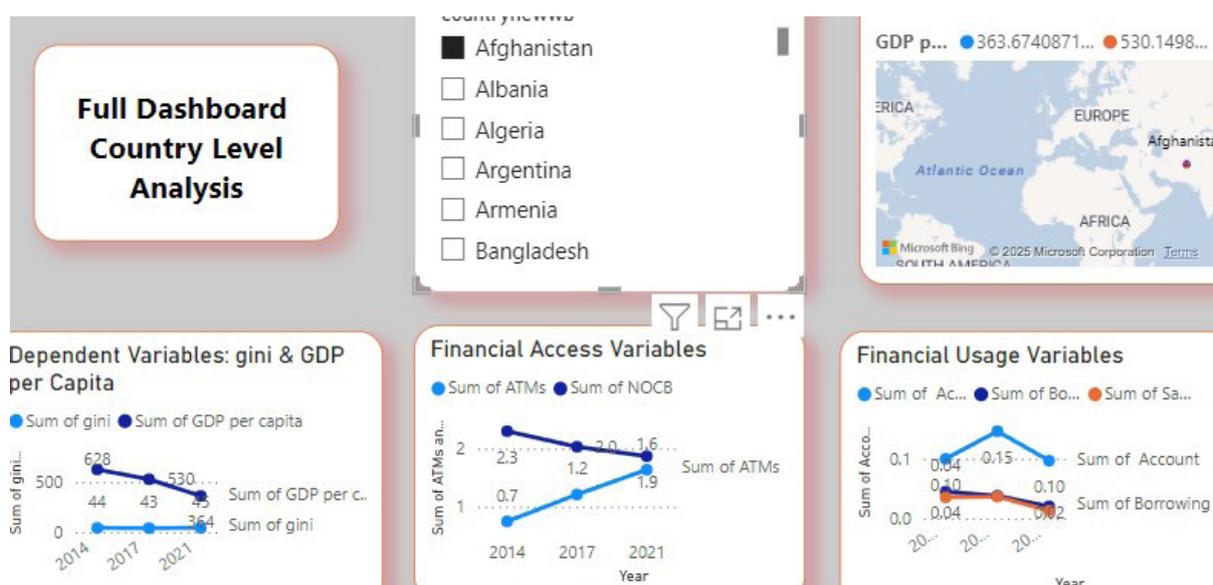


Figure A1. Afghanistan Overview of Access, Usage, GDP per Capita, and Inequality

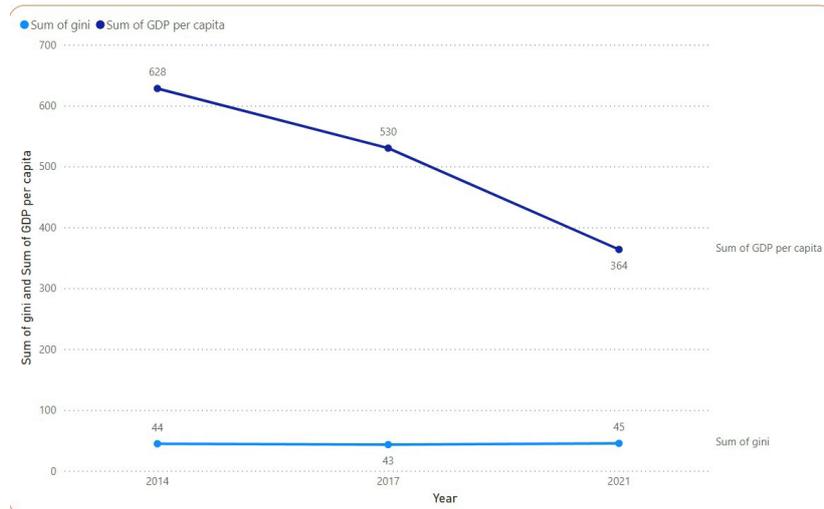


Figure A2. Trends in GDP per Capita and Income Inequality (Gini Index) in Afghanistan (2014–2021)

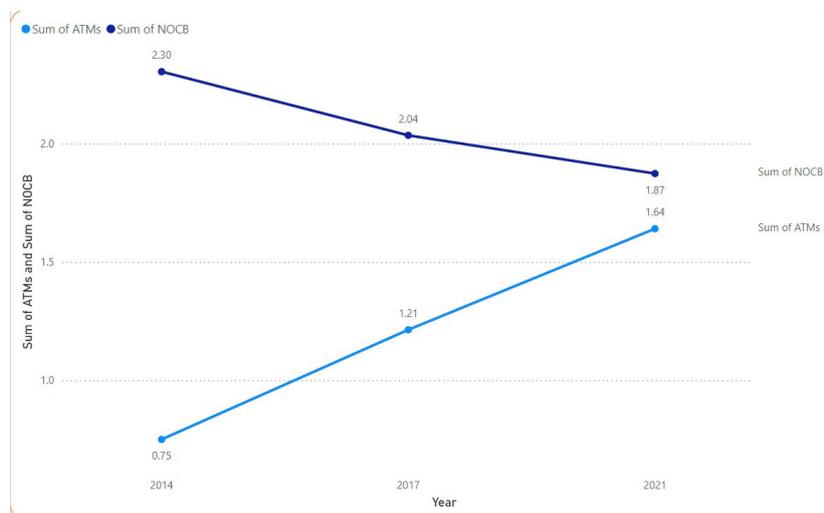


Figure A3. Trends in Financial Access in Afghanistan: Number of ATMs and Commercial Bank Branches (2014–2021)

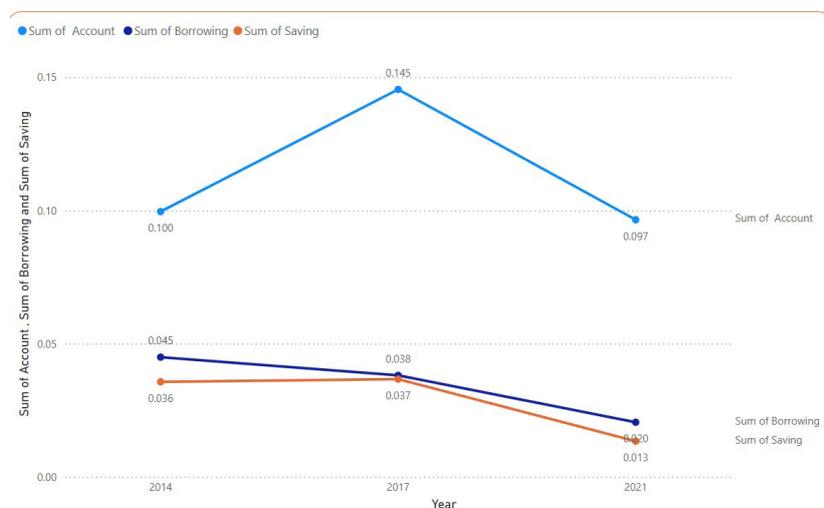


Figure A4. Trends in Financial Usage in Afghanistan: Account Ownership, Borrowing, and Saving (2014–2021)

Burkina Faso

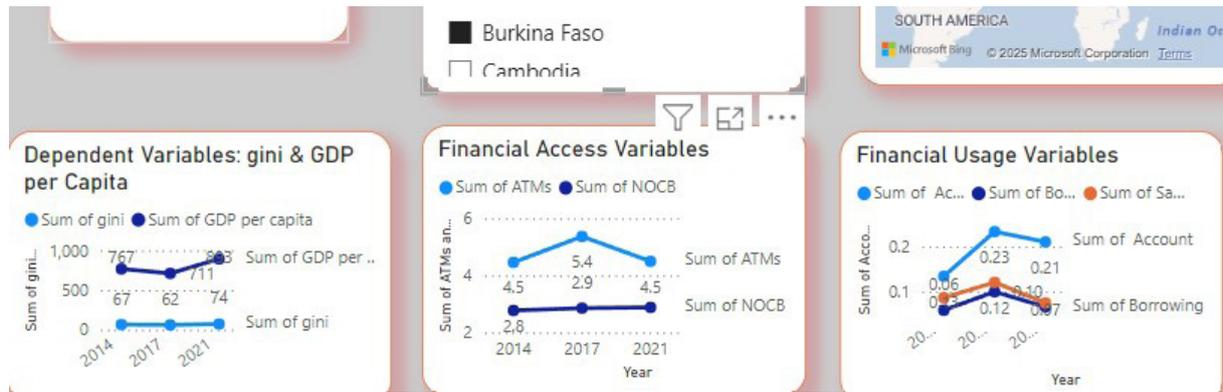


Figure A5. Burkina Faso Overview of Access, Usage, GDP per Capita, and Inequality

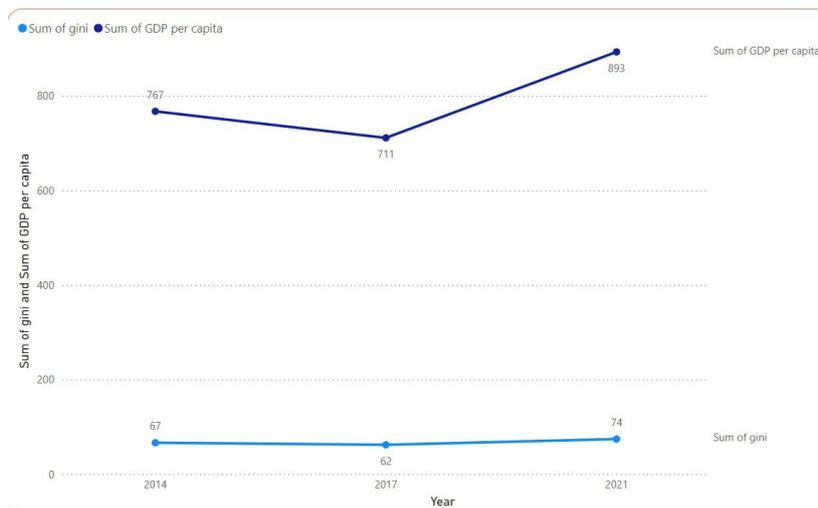


Figure A6. Trends in GDP per Capita and Income Inequality (Gini Index) in Burkina Faso (2014–2021)

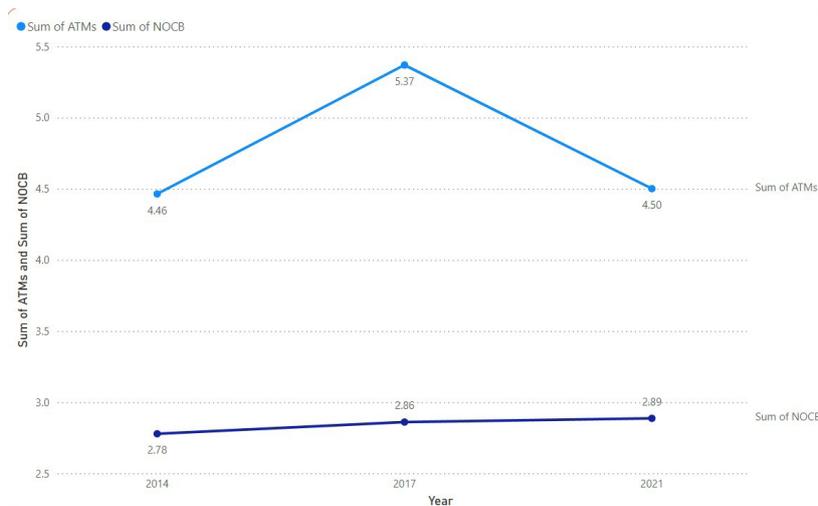


Figure A7. Trends in Financial Access in Burkina Faso: Number of ATMs and Commercial Bank Branches (2014–2021)

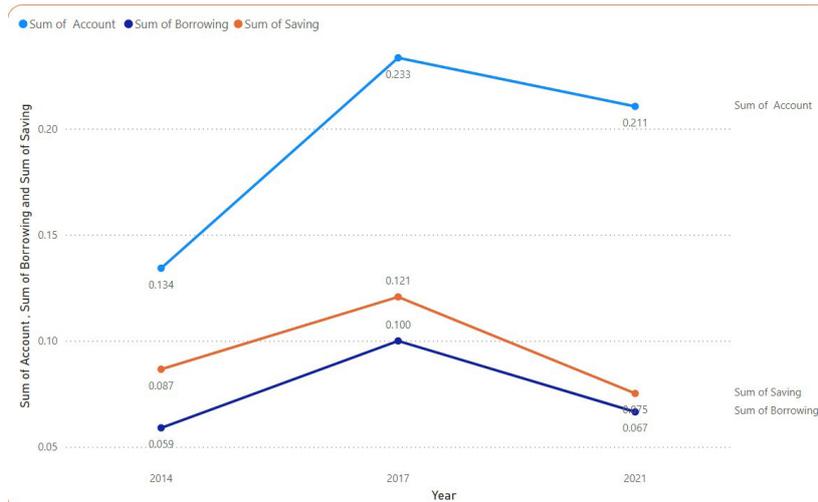


Figure A8. Trends in Financial Usage in Burkina Faso: Account Ownership, Borrowing, and Saving (2014–2021)

Benin

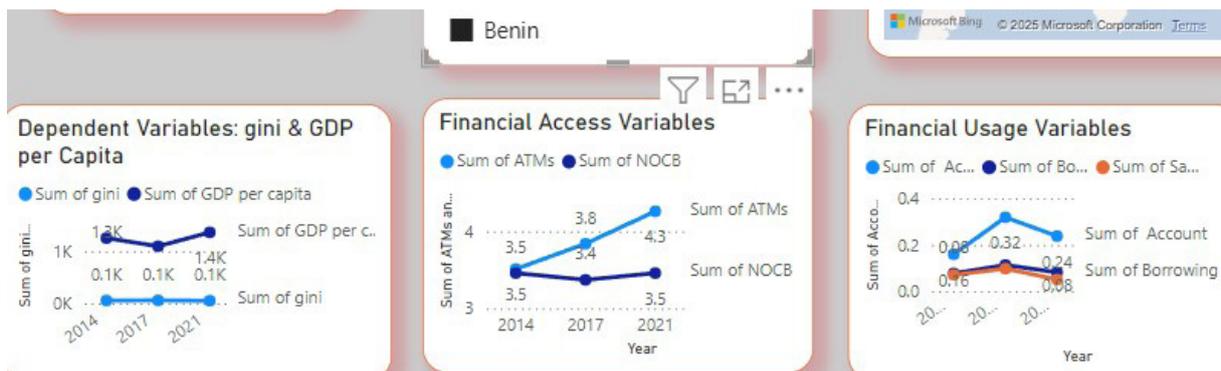


Figure A9. Benin Overview of Access, Usage, GDP per Capita, and Inequality

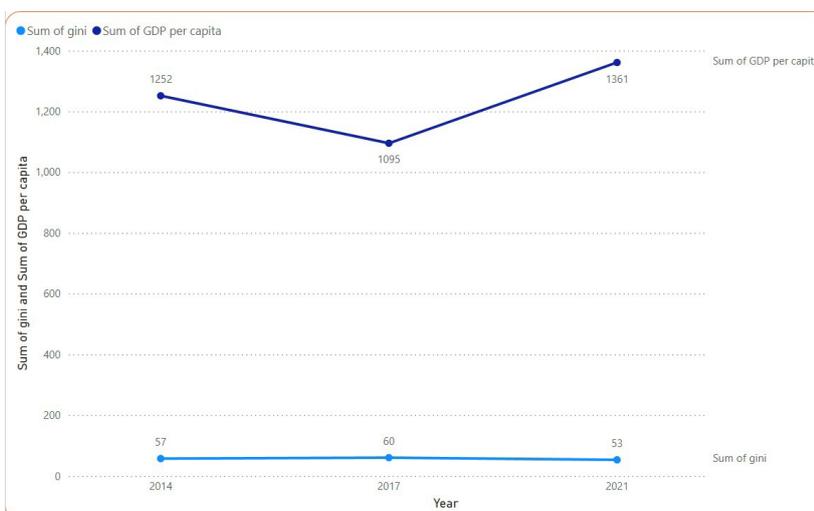


Figure A10. Trends in GDP per Capita and Income Inequality (Gini Index) in Benin (2014–2021)

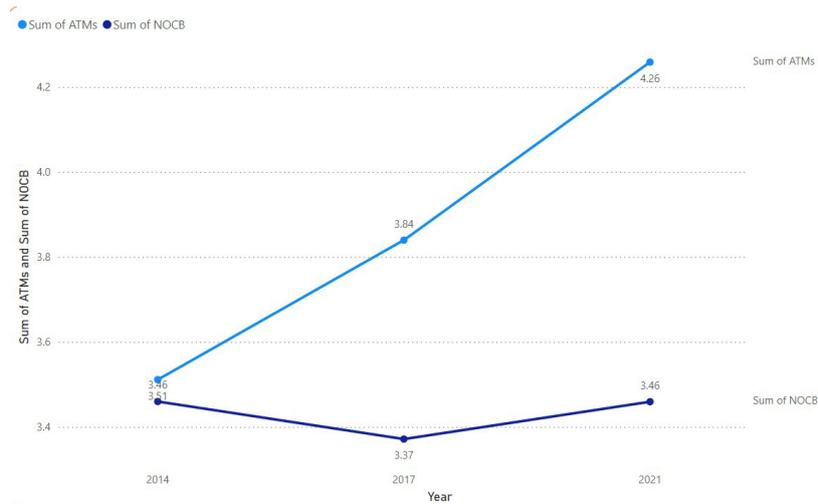


Figure A11. Trends in Financial Access in Benin: Number of ATMs and Commercial Bank Branches (2014–2021)

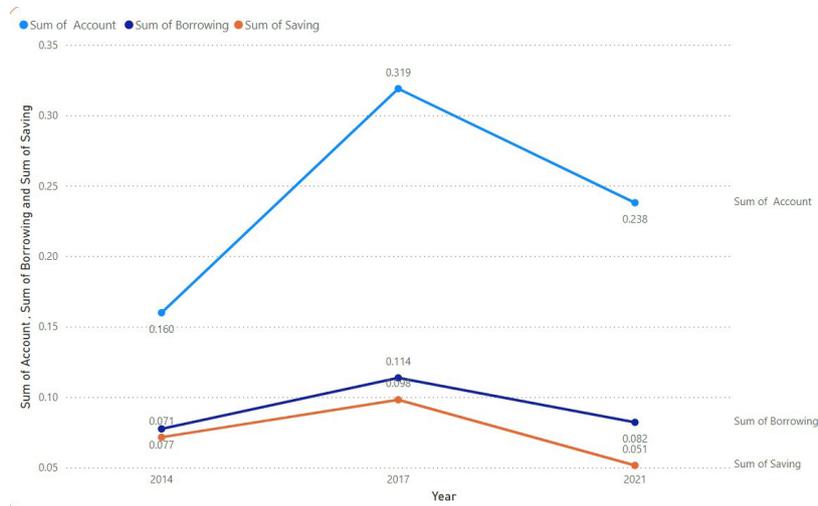


Figure A12. Trends in Financial Usage in Benin: Account Ownership, Borrowing, and Saving (2014–2021)

Kazakhstan

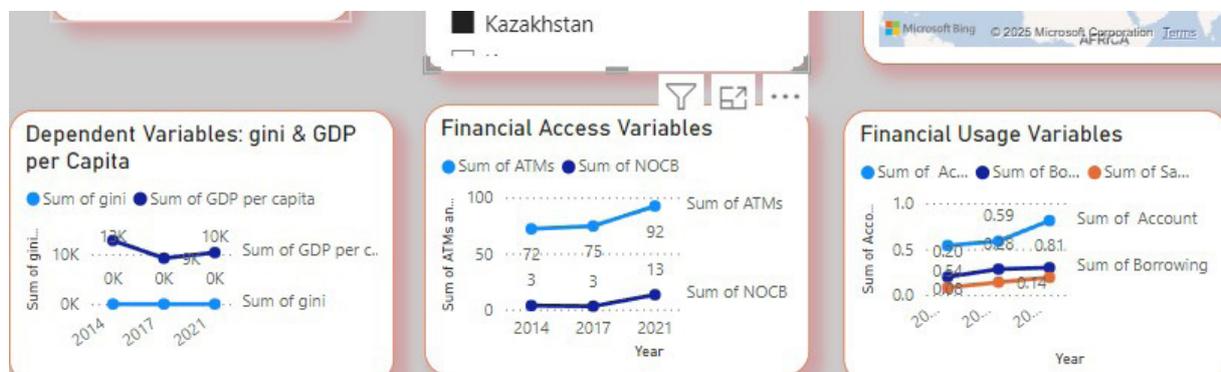


Figure A13. Kazakhstan Overview of Access, Usage, GDP per Capita, and Inequality

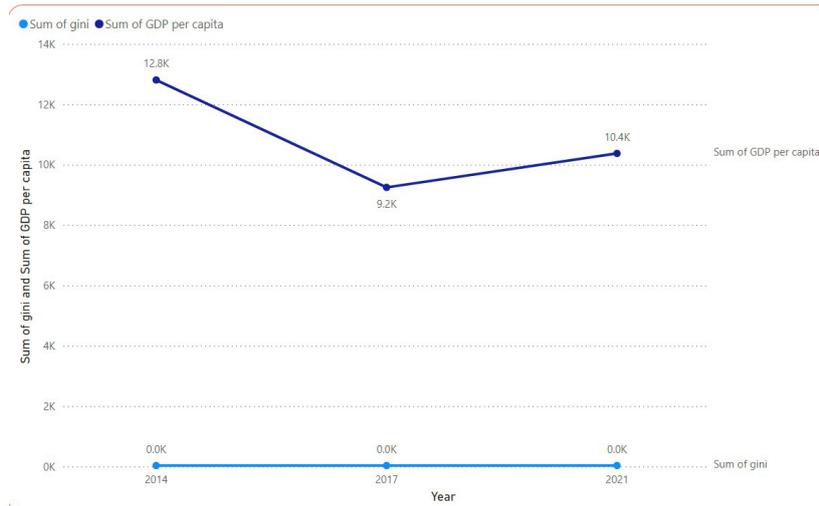


Figure A14. Trends in GDP per Capita and Income Inequality (Gini Index) in Kazakhstan (2014–2021)

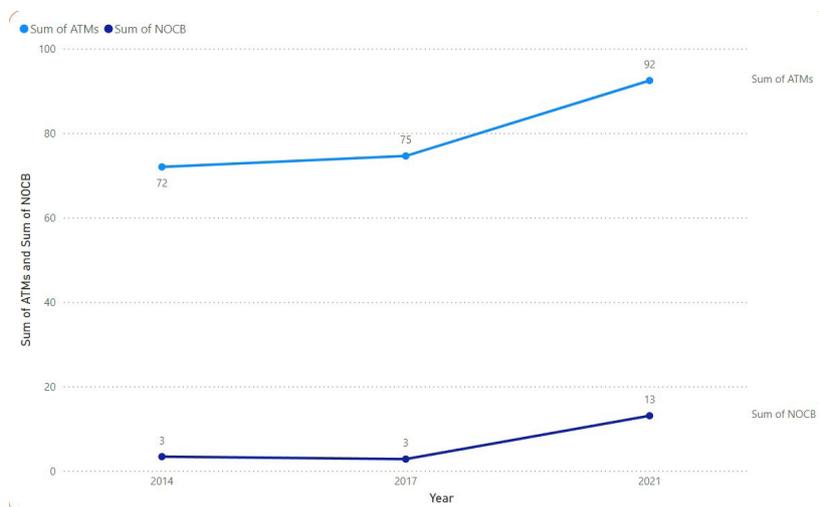


Figure A15. Trends in Financial Access in Kazakhstan: Number of ATMs and Commercial Bank Branches (2014–2021)

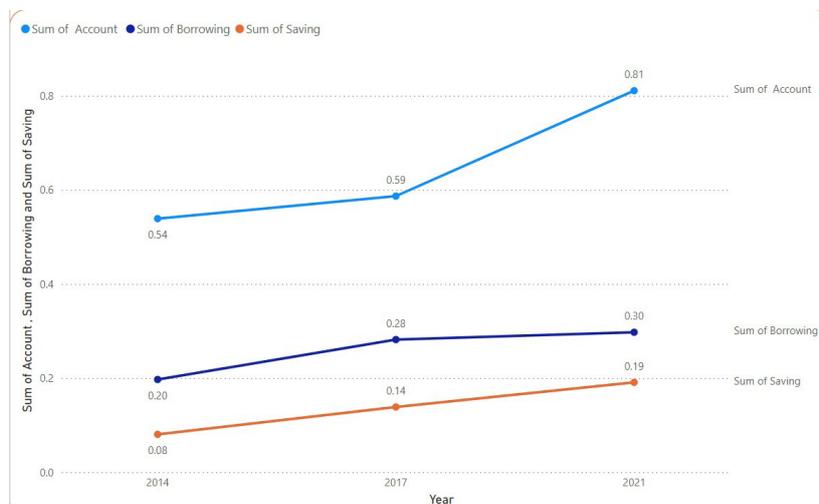


Figure A16. Trends in Financial Usage in Kazakhstan: Account Ownership, Borrowing, and Saving (2014–2021)

Russian Federation

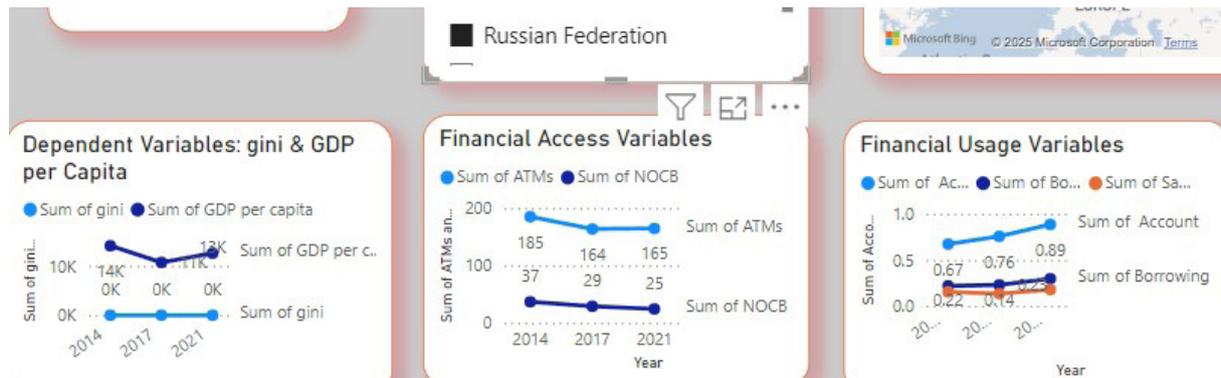


Figure A17. Russian Federation Overview of Access, Usage, GDP per Capita, and Inequality

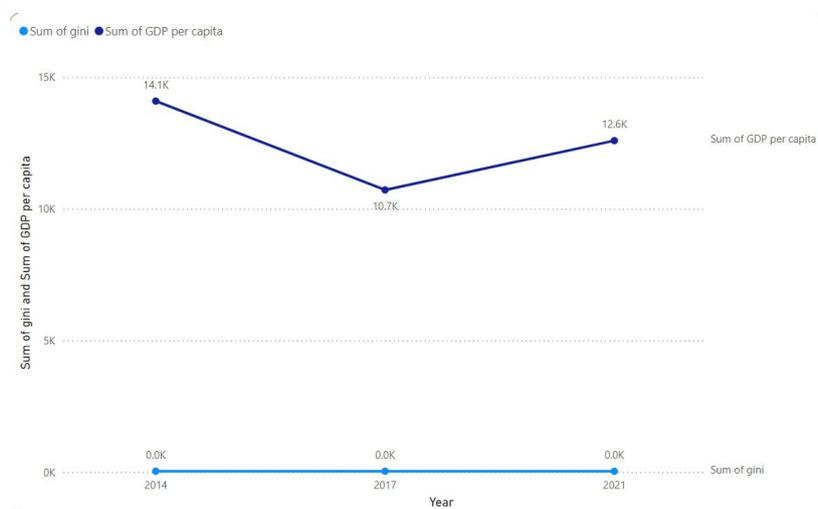


Figure A18. Trends in GDP per Capita and Income Inequality (Gini Index) in Russian Federation (2014–2021)

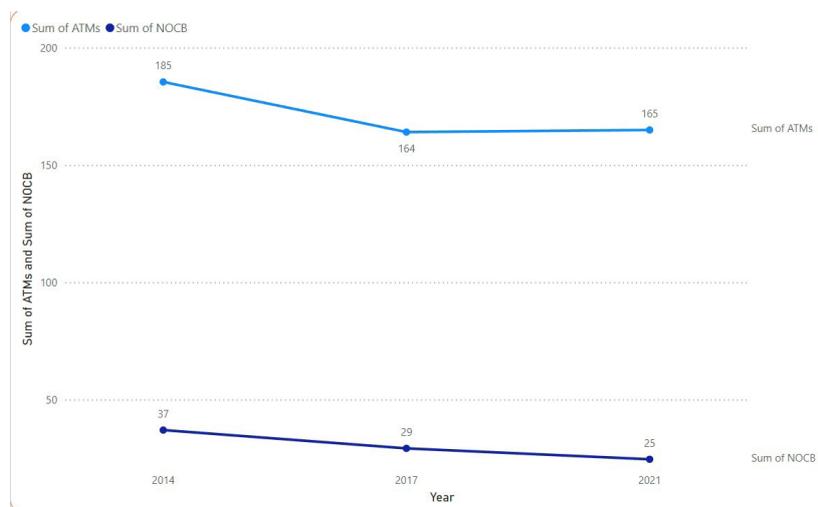


Figure A19. Trends in Financial Access in Russian Federation: Number of ATMs and Commercial Bank Branches (2014–2021)

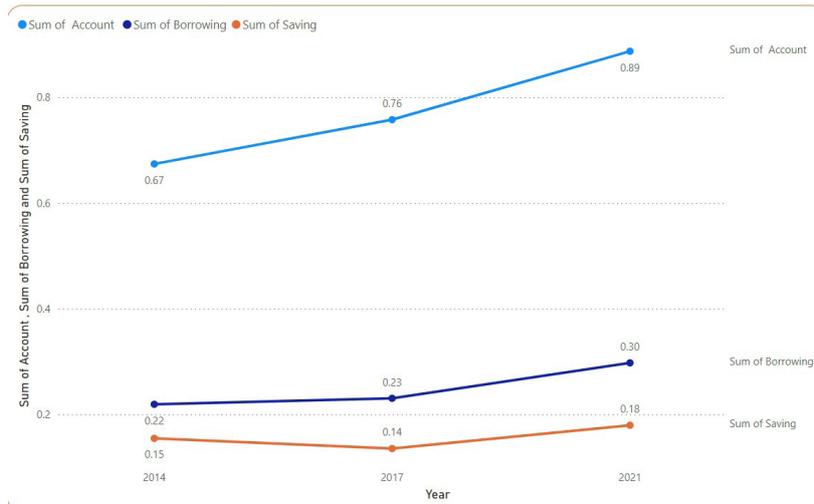


Figure A20. Trends in Financial Usage in Russian Federation: Account Ownership, Borrowing, and Saving (2014–2021)

Thailand

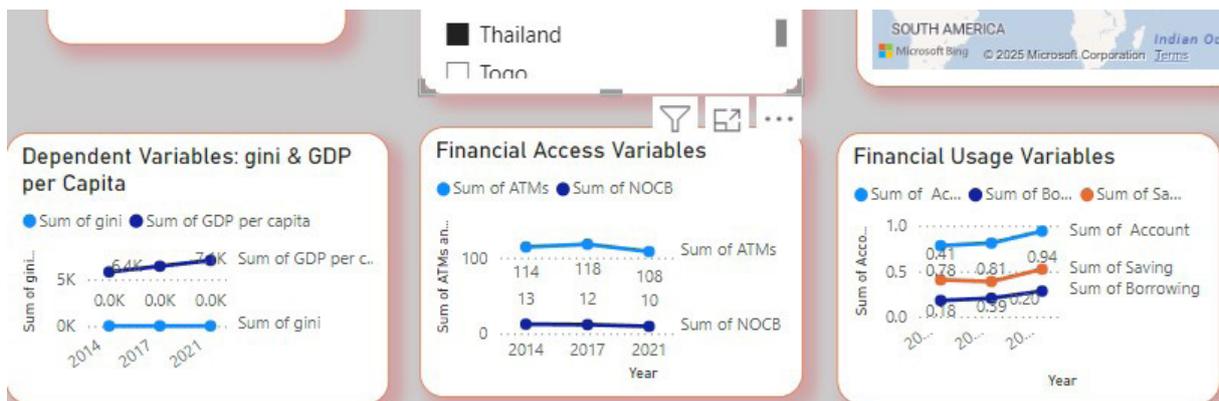


Figure A21. Thailand Overview of Access, Usage, GDP per Capita, and Inequality

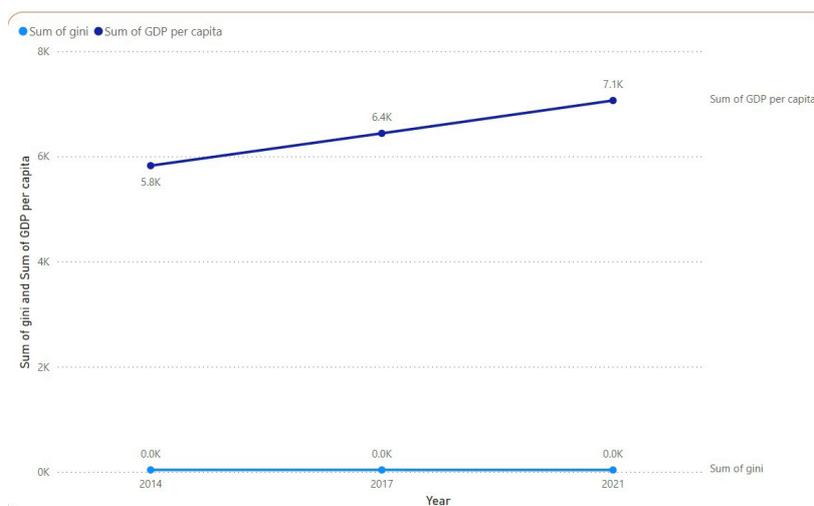


Figure A22. Trends in GDP per Capita and Income Inequality (Gini Index) in Thailand (2014–2021)

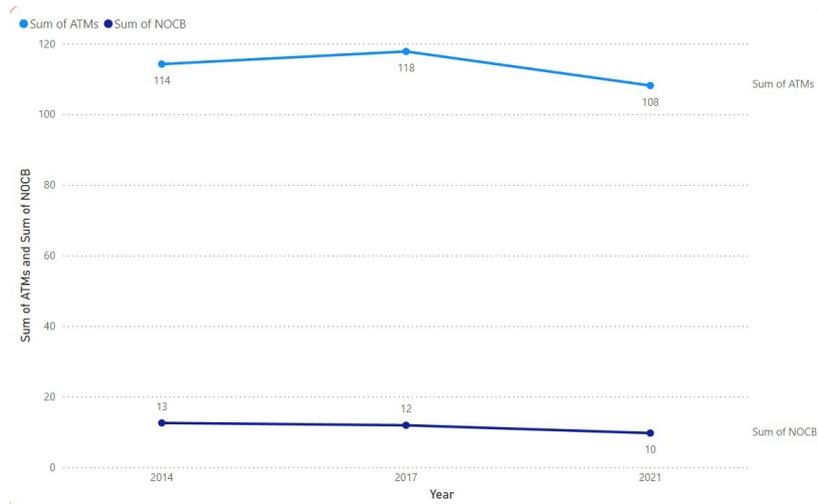


Figure A23. Trends in Financial Access in Thailand: Number of ATMs and Commercial Bank Branches (2014–2021)

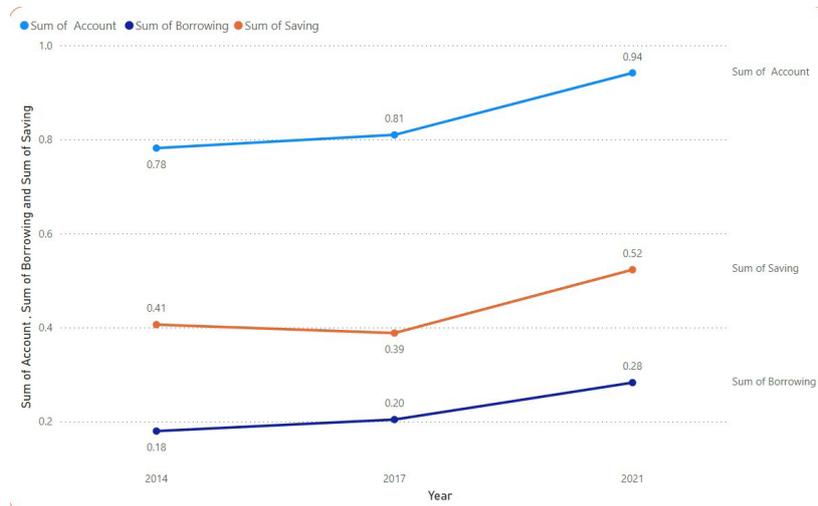


Figure A24. Trends in Financial Usage in Thailand: Account Ownership, Borrowing, and Saving (2014–2021)