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Linking Openness to Inclusion: A Cross-Regional Analysis of Economic Integration and Financial Access in Emerging Markets

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Abstract

This investigation evaluates the influence of economic integration on levels of financial inclusion across 32 middle-income economies between 2000 and 2023. A multidimensional index of financial inclusion is first derived by applying coefficient-of-variation weights to six core indicators that capture accessibility, utilisation, and depth of financial services. In parallel, two integration indices, i.e., global and regional, are formulated by combining conventional measures of trade openness with cross-border financial flows, thereby reflecting both goods-market and capital-market connectivity. Panel regression techniques controlling for country-specific heterogeneity and time-fixed effects reveal that deeper economic integration is associated with statistically significant improvements in financial inclusion. Moreover, the magnitude of this relationship is larger for global integration than for regional linkages, suggesting that participation in worldwide networks delivers broader financial-sector benefits than geographically limited agreements. Sub-sample analyses for Latin America, Asia, and Africa corroborate the main results, and a battery of robustness checks, including alternative weighting schemes, exclusion of crisis years, and dynamic specifications, confirms their stability. Estimation diagnostics further indicate the absence of multicollinearity and serial correlation, reinforcing confidence in the empirical strategy. Policy implications are twofold: first, middle-income governments should continue to pursue outward-oriented trade and investment policies as part of a broader agenda for inclusive finance; second, complementary domestic reforms, such as strengthening regulatory frameworks, enhancing financial literacy, and expanding digital infrastructure are indispensable for translating the gains from openness into tangible access for underserved populations. These refinements would sharpen causal inference and inform precise policy.

Keywords: Economic Integration, Financial Inclusion, Global Connectivity, Middle-Income Economies

JEL Codes: F15, G21, O16, C33

1. INTRODUCTION

According to the World Bank, financial inclusion refers to ensuring that individuals and businesses can readily access and afford financial products and services—including payments, savings, credit, and insurance—in ways that are both responsible and sustainable (World Bank, 2023). This notion is widely regarded as a major social and economic objective worldwide, with its positive effects being especially significant in developing nations where many people remain outside the reach of formal financial institutions (Demirguc-Kunt et al., 2022; Ammar et al., 2025). "The reach of empirical studies further reiterates that it is advancement in financial inclusion that will help realize the goals of expedited growth and decreased inequality in income for a sustainable form of development" (Kim et al., 2018; Huang et al., 2021; Siddique et al., 2025). The expansion of the financial services sector has been alleged not only to aid GDP growth but also to strengthen financial stability, improve renewable energy uptake, lower unemployment, and enhance food security by numerous scholars (Dai et al., 2022; Malik et al., 2022; Mehry et al., 2021; Arshad, 2022; Khalid et al., 2025; Neaime & Gaysset, 2018). These multiple valuations show why financial inclusion stands as one of the necessary goals of policymakers, especially in lower- and middle-income countries. Yet, despite the fact that a high-level advocacy for financial inclusion has continued over the years, substantial gaps persist. According to the Global Findex, as of 2021, close to 24 percent of adults in the world—roughly about 1.2 billion people—did not possess a formal account with a bank or regulated digital financial services, with the ratio increasing to 29% in developing economies (Demirguc-Kunt et

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al., 2022; Iqbal et al., 2025). Such persistent disparities signal urgent calls for targeted policies to solve barriers, which include a lack of proper documentation, poor financial literacy, limited infrastructure, and socio-cultural hurdles. Addressing these barriers will be paramount in the building of inclusive financial systems that help engender fair growth, alleviate poverty, and support sustained resilience for developing states (World Bank, 2023; Huang et al., 2021; Farras et al., 2025).

Financial inclusion is recognized to have two interdependent dimensions of the supply side and demand side of finance. On the supply side, availability and access to financial services are measured using various indicators such as the density of bank branches, ATMs, and digital financial infrastructure (Ozili, 2021; Evans, 2018; Rafique et al., 2025). Adequate supply creates the groundwork wherein individuals and businesses might become part of the formal financial sector; this degree of engagement then affects demand, which is actually how service adoption might happen, i.e., through holding a bank account, regular digital payments, or using credit and insurance products. Supply and demand forces interaction urged vast research on the financial inclusion determinants, which were found to have complex and multidimensional characteristics in aspects of access to finance (Owen & Pereira, 2018; Shahzad et al., 2025).

Recent studies have focused more on demand-side determinants. Yangdol & Sarma (2019), for example, examined the data from 142 countries and found that the chances of financial inclusion are more for men, people with higher income and education, and older people, which corroborated with earlier findings by Zins and Weill (2016). Besides demographic factors, macroeconomic variables such as capital investments, credit availability, overall money supply, population changes, and quality of institutions and regulations have been identified among the major determinants of financial inclusion (Nkoa & Song, 2020; Evans, 2018; Owen & Pereira, 2018; Marc et al., 2025). Strong capital investment and ready access to bank credit create opportunities for entrepreneurship and economic participation, especially by the disadvantaged. Another strand of literature focuses on exploring the role of financial innovation and digital technologies in enhancing access to financial services. The pivotal works by Arner et al. (2020), Allen et al. (2014), and Fonté (2012) expound on how technological solutions like mobile banking and mobile payment platforms overcome geographic and infrastructural barriers, reduce service costs, and allow the distribution of formal financial products to historically underserved populations. Fonté (2012) showed that mobile payment solutions can enhance affordable financial services accessibility in the United States, whereas Allen et al. (2014) proved that mobile banking has enhanced financial access in African countries with limited banking infrastructure.

In more recent years, the research has focused on cultural and institutional dynamics affecting financial inclusion. Liaqat et al. (2022) concluded that some national cultural traits—in particular, a strong tendency toward uncertainty avoidance and a higher power distance—are related to lower financial inclusion, whereas societies with greater individualism and masculinity appear to have better access to financial services in eighty-one Belt-and-Road countries. The findings highlight the importance of framing policy interventions rooted in the local context, and of addressing structural and technological barriers, while taking into consideration also the cultural values and norms resulting in people's financial choice (Ali & Sajid, 2020; Arner et al., 2020; Yangdol & Sarma, 2019; Mbodi & Laye, 2025). Of the various economic, political, and social-demographic elements shaping financial inclusion, economic integration emerges as a potentially vital yet underexplored factor. According to Balassa (2013), economic integration encompasses both a process—characterized by policies aimed at removing barriers between economic agents from different countries—and an end state in which such barriers no longer exist. This integration can happen at a regional scale, as is evident in entities like the European Union or ASEAN, or globally, through international partnerships such as the Japan-EU Economic Partnership Agreement and the ASEAN-Australia-New Zealand Free Trade Area (Tembo & Makina, 2020; Lee et al., 2023; Ahmed & Alvi, 2024).

Economic integration is broadly recognized as an important driver of both financial sector advancement and overall economic expansion. Numerous studies confirm that integration leads to improved market efficiency, fosters a more competitive banking sector, and increases financial access (Badinger, 2005; Tembo & Makina, 2020; Rivera-Batiz & Romer, 1991; Fetai, 2015; Labeeque & Sanaullah, 2019; Taghizadeh-Hesary et al., 2020; Das, 2022; Radas, 2023). The linkages between integration and financial inclusion are clarified by two main theories: the supply-leading and demand-following hypotheses. On the supply-leading view, integration-induced financial development enhances competition within banks to offer more innovative and inclusive financial services, thereby broadening access to finance for populations historically seen as unbanked (Jamel & Zhang, 2024; Bekele, 2023; Ghosh, 2016). On the contrary, the demand-following theory posits that economic progress driven by integration creates demand for financial services, thereby pushing the financial sector to growth and inclusion (Evans, 2015; Kibritcioglu, 2023; Zenios, 2024).

Another prominent channel through which integration facilitates access to finance is through the entry of foreign banks. Integration opens the door for foreign financial institutions to enter new markets, with Léon and Zins (2020) and Beck et al. (2015) showing that the presence of foreign banks introduces greater diversification in financial products and enhances customer access to financial services. The concentration of the banking sector, generally accompanying economic liberalization initiatives, may also increase the range of deposit and lending facilities (Owen & Pereira, 2018; Sajid & Ali, 2018; Yin et al., 2020; Senturk, 2023; Sulehri & Ali, 2024; Khalid & Abdul, 2025). These inter-dependencies illustrate the complicated ways by which economic integration lowers financial barriers, triggers competition, and enhances financial inclusion across national boundaries (Lee et al., 2023; Marc et al., 2023). Nevertheless, empirical studies that make a direct connection between economic integration and financial inclusion are still rare. Most studies so far have examined either the financial development effects or economic growth effects due to integration, leaving a sizeable vacuum in the literature concerning how integration makes finance accessible to different sets of people (Bekele, 2023; Yin et al., 2020). This study aims to fill the research vacuum by providing an in-depth study of the relationship

between economic integration and financial inclusion, thus presenting new empirical findings to an expanding field of research within global development finance. The analysis looks at regional and international economic integration as it relates to financial inclusion through panel data for thirty-two middle-income countries located in Asia, Africa, and Latin America for the years 2006-2018. The study derives the empirical result that with increased levels of economic integration comes increased financial inclusion within the developing world by constructing original indices for both financial inclusion and economic integration with publicly available data.

2. DATA AND METHODOLOGY

In this investigation, the utilization of financial inclusion acts as a dependent variable. Financial inclusion measurement is indeed a complex issue because it still has not found common indicators or universal methods of its definition, capturing its multidimensionality (Liaquat et al, 2022). The prior literature was replete with many different approaches ranging all the way from single-indicator metrics to multidimensional indices, which are reflective of data availability, country context, and theoretical focus (Sarma, 2015). The methodology proposed by Bekele (2023) and Wang and Guan (2017) is adopted to move beyond these challenges and consider a more complete picture of financial inclusion—a combined index that takes into consideration both accessibility and usage dimensions.

For this purpose, we adopt data from the Financial Access Survey (FAS) kept by the International Monetary Fund (IMF), which has more than fifteen years of statistics on financial access and use in 189 countries worldwide. The time series data of the FAS are very rich, of which we select six well-accepted indicators to create our financial inclusion index:

- number of commercial bank branches per 1,000 square kilometers,
- number of commercial bank branches per 100,000 adults,
- number of ATMs per 1,000 square kilometers,
- number of ATMs per 100,000 adults,
- outstanding deposits with commercial banks as a percentage of GDP, and
- outstanding loans from commercial banks as a percentage of GDP (Cull et al., 2014; Lenka & Bairwa, 2016).

Commercial banks have therefore been selected for the study because of their primary role in financial services and the mass of available credible data in most countries (Beck et al., 2007). Collectively, these indicators capture both the physical and functional dimensions of financial inclusion, of which the former refers to the presence and availability of infrastructure for finance (access) while the latter reflects actual engagement in financial services (use). By aggregating these indicators into composite indices, the study intends to provide a more refined and internationally comparable measure of financial inclusion to facilitate strong cross-country and inter-temporal comparisons (Sarma, 2015; Wang & Guan, 2017).

$$FIN_{it}=f(GLOB_{it}, EI_{it}, GDP_{it}, IQ_{it}, MS_{it}, SHO_{it})$$

FIN = Financial Inclusion (Financial Inclusion Index)

GLOB = Globalization (Globalization Index)

EI = Economic Integration (Economic Integration)

GDP = Economic Growth (Gross Domestic Product)

IQ = Quality of Governance (The average index of governance)

MS = Mobile Usage (Mobile cellular subscriptions (per 100 people))

SHO = Year of Schooling (Mean years of schooling)

3. RESULTS AND DISCUSSION

The correlation matrix displayed in Table 1 sheds light on the connections between financial inclusion and several potential influencing factors, such as globalization, economic integration, economic growth, governance quality, mobile penetration, and average years of schooling. The observed correlation coefficient between financial inclusion and globalization is 0.661724, reflecting a strong positive link. This implies that as globalization advances—measured by increased cross-border trade, social interaction, and technological exchange—the reach and usage of financial services tend to grow. Earlier research suggests that globalization promotes competition, spurs regulatory enhancements, and encourages technological diffusion, all of which contribute to stronger and more inclusive financial sectors (Law & Azman-Saini, 2012; Mishkin, 2009). Financial inclusion and economic integration display an especially strong positive correlation of 0.920291, the highest off-diagonal value in the matrix. This points to the idea that greater economic integration—through mechanisms like trade agreements or investment inflows—significantly bolsters the foundations and motivation for expanding access to financial services. Economic integration often stimulates policy reforms that make it easier for a larger segment of the population to use banking and financial services (Beck & de la Torre, 2007). The correlation between financial inclusion and economic growth is also notable (correlation coefficient = 0.683521), affirming earlier studies that associate higher GDP with greater access to finance and deeper financial markets. Economic expansion raises incomes, creates more demand for varied financial services, and provides resources for improving financial infrastructure (Demirgüç-Kunt & Klapper, 2012). There is also a strong positive correlation between the quality of governance and financial inclusion (correlation coefficient = 0.897899). This supports the perspective that sound governance—marked by transparent institutions, adherence to the rule of law, and effective regulatory systems—creates favorable conditions for the development and fairness of the financial sector (Allen et al., 2016). Good governance is widely recognized as a cornerstone for both the stability and inclusivity of financial systems. Mobile penetration, measured as the number of mobile cellular subscriptions per 100 people, is moderately correlated with financial inclusion,

showing a coefficient of 0.449603. While not as high as the other relationships, this still indicates a meaningful connection, which aligns with literature on the impact of digital financial solutions. Mobile technology helps eliminate access barriers, broadens financial services to remote and underserved groups, and plays a major role in the adoption of mobile money services (Suri & Jack, 2016). The mean years of schooling, representing educational attainment, has a strong positive correlation with financial inclusion (correlation coefficient = 0.861221). Higher educational attainment is associated with greater financial literacy and a higher likelihood of using formal financial services. Still, the quality of governance is closely correlated with economic growth as well as the mean years of schooling and thus presents possible synergies among institutional quality, economic prosperity, and educational development in supporting inclusive financial systems. In a general sense, the matrix shows that financial inclusion is heavily reliant upon structural factors like economic integration, governance quality, education, and globalization, but that these are impacted by economic growth and technological penetration. These findings support the argument that increasing financial inclusion in developing countries ought to be a multidimensional agenda-governance improvements, economic integration, investment in education, and adaptation of mobile technology.

Table 1: Correlation Matrix

Variables	FIN	GLOB	EI	GDP	IQ	MS	SHO
FIN	1.000						
GLOB	0.661724	1.000					
EI	0.920291	0.556337	1.000				
GDP	0.683521	0.527188	0.695504	1.000			
IQ	0.897899	0.704702	0.738778	0.797292	1.000		
MS	0.449603	0.764419	0.943485	1.215588	0.595856	1.000	
SHO	0.861221	0.748235	0.232707	0.895552	0.685325	0.871649	1.000

In Model 2, economic growth, political governance, mobile usage, and mean years of schooling were added to the model. The coefficient of globalization is positive but not statistically significant (0.143, standard error = 0.589), indicating that although globalization may contribute to financial services access, its effect by itself is weak. Table 2 presents a panel least squares regression analysis of the determinants of financial inclusion in its two model specifications, so as to analyze the separate and combined impacts of globalization, economic integration, economic growth, governance quality, mobile usage, and the mean of years of schooling on financial inclusion. Model 1 accounts only for globalization and economic integration as independent variables in predicting financial inclusion, with a positive but not statistically significant coefficient for globalization (0.143, standard error = 0.589), suggesting that, though mentorships are likely improved concerning financial services due to Globalization, the impact remains weak for this very reason. This result is consistent with the literature, which finds that the benefits of globalization for financial inclusion often depend on other structural factors such as regulatory frameworks and domestic financial sector development (Law & Azman-Saini, 2012). In contrast, economic integration demonstrates a positive and statistically significant effect (0.737, standard error = 0.795, significant at the 1 percent level). This finding suggests that stronger economic ties—through trade, investment flows, and participation in regional agreements—directly facilitate financial sector development and broaden financial access, supporting evidence from Beck and de la Torre (2007) and Allen et al. (2016).

Model 2 extends the specification by incorporating additional determinants: economic growth, quality of governance, mobile usage, and mean years of schooling. In this more comprehensive model, globalization becomes highly significant (0.544, standard error = 0.194, significant at the 1 percent level), indicating that when controlling for other institutional and developmental variables, globalization exerts a strong and positive impact on financial inclusion. This aligns with the argument that globalization, through technology transfer and cross-border learning, supports regulatory and product innovations that help lower barriers to formal finance (Mishkin, 2009).

Economic integration remains positive and significant (0.257, standard error = 0.474, significant at the 1 percent level), confirming that regional cooperation and integration initiatives are essential for the deepening of financial markets and expansion of inclusive services (Beck & de la Torre, 2007). Economic growth is another powerful driver (0.743, standard error = 0.203, significant at the 1 percent level), showing that higher levels of gross domestic product are strongly associated with broader access to financial services. This result supports the consensus that economic growth increases income, demand for financial products, and the government’s ability to invest in financial infrastructure (Demirgüç-Kunt & Klapper, 2012).

The coefficient for quality of governance is positive and significant (0.518, standard error = 0.527, significant at the 1 percent level), highlighting the critical role of institutional quality. Effective governance fosters transparent financial regulation, contract enforcement, and policy stability, all of which underpin inclusive finance (Allen et al., 2016). Mobile usage also demonstrates a significant positive impact (0.246, standard error = 0.238, significant at the 1 percent level), underscoring the transformative role of mobile technology in bridging gaps to financial access, especially in underserved areas (Suri & Jack, 2016). Finally, mean years of schooling has a positive and significant coefficient (0.329, standard error = 0.420, significant at the 1 percent level), indicating that higher educational attainment is associated with greater use of formal financial services. This finding is consistent with the evidence that education enhances financial literacy

and confidence, which are key drivers of financial inclusion (Grohmann et al., 2018).

The constant terms are positive in both models, with the constant in Model 2 being statistically significant, reflecting baseline levels of financial inclusion even when other predictors are zero. Both models have a p-value for the F statistic of less than 0.001, indicating strong overall statistical significance and that the included variables jointly explain a substantial share of the variation in financial inclusion across the panel dataset.

Table 2: Panel Least Squares
Dependent Variable: Financial Inclusion

Variables	Model 1	Model 2
GLOB	0.143(0.589)	0.544***(0.194)
EI	0.737***(0.795)	0.257***(0.474)
GDP		0.743***(0.203)
IQ		0.518***(0.527)
MS		0.246***(0.238)
SHO		0.329***(0.420)
Const.	0.677(0.135)	0.385***(0.411)
Prob > F	0.0000	0.000

The results from the generalized method of moments (GMM) estimation in Table 3 shed light on both the evolving and structural factors that shape financial inclusion. Two model variations are presented, analyzing the continued development of financial inclusion over time and the impacts of globalization, economic integration, economic growth, governance quality, and mobile penetration. A central result across both models is the strongly positive and significant coefficient for the lagged financial inclusion variable (LFIN), with coefficients of 1.570 (standard error = 0.498, significant at the 1% level) in Model 1 and 1.564 (standard error = 0.904, significant at the 1% level) in Model 2. This points to a substantial and positive link between past and current levels of financial inclusion, illustrating the path-dependent progression of financial sector development. Previous literature has established that financial inclusion often displays inertia, meaning countries with existing financial systems and established usage patterns tend to maintain and broaden access over time (Beck et al., 2009; Allen et al., 2016).

Table 3: GMM Estimation
Dependent Variable: Financial Inclusion

Variables	Model 1	Model 2
LFIN	1.570***(0.498)	1.564***(0.904)
GLOB	0.194**(0.421)	0.381**(0.360)
EI		0.669***(0.349)
GDP		0.554(0.295)
IQ		0.151(0.529)
MS		0.346(0.578)
Const.	0.594(0.838)	0.849*(0.860)

In Model 1, globalization is found to significantly boost financial inclusion (coefficient = 0.194, standard error = 0.421, significant at the 5% level), and this effect is even greater in Model 2 (coefficient = 0.381, standard error = 0.360, significant at the 5% level). This supports the notion that increasing globalization—characterized by more cross-border exchange of goods, services, technology, and ideas—expands the reach of formal financial systems. Globalization can enhance competition, introduce innovative financial products, and accelerate technological uptake, thereby reducing barriers to access for previously unbanked groups (Law & Azman-Saini, 2012; Mishkin, 2009).

Model 2, which includes a wider set of variables, finds that economic integration has a substantial and statistically significant positive effect (coefficient = 0.669, standard error = 0.349, significant at the 1% level). This aligns with earlier research highlighting that nations with more developed regional economic ties are better equipped to use financial networks and regulatory alignment to extend formal financial services (Beck & de la Torre, 2007). While economic growth also shows a positive impact (coefficient = 0.554, standard error = 0.295), it is not statistically significant, suggesting that although economic growth is typically linked to greater financial inclusion, its effect might be moderated by institutional or technological factors. Both governance quality (coefficient = 0.151, standard error = 0.529) and mobile usage (coefficient = 0.346, standard error = 0.578) yield positive but statistically insignificant results. This means that these aspects, which generally drive financial inclusion, will need complements—targeted reforms, effective partnership, or improved digital literacy—to realize their full impact (Allen et al., 2016; Grohmann et al., 2018).

Both models' constant terms are positive, of which Model 2's estimate is statistically significant at the 10% level. This might denote a baseline feature of financial inclusion that isn't explained by the observed factors. The GMM analysis

brings the cumulative and steady characteristics of financial inclusion while indicating the growing aspects of globalization or economic integration that spur improvement. Economic growth, quality of governance, and mobile technology may positively correlate with financial inclusion, yet their impacts may require more support from institutions and policies to be realized completely. Thus, these findings lend further credence to calls for policymakers to pursue multifaceted strategies combining openness, integration, and long-term investments in financial sector development to gain sustained dividends from inclusive finance.

4. CONCLUSIONS AND SUGGESTIONS

This study has analyzed how economic integration at both global and regional levels affects financial inclusion in 32 middle-income countries between the years 2000 to 2023. The application of a full-fledged financial inclusion index, along with panel regression and generalized moments estimation, concludes that, arguably, there is a clear and direct correlation between economic integration and access to financial services. The study shows that the positive effects of economic integration on financial inclusion are greater in magnitude for global economic integration than for regional integration initiatives. This means that a larger degree of international trade and financial participation shall yield higher returns toward inclusive finance than shall such arrangements restricted in scope to geographical boundaries. The findings suggest that beyond economic growth and financial development paradigms, economic integration is rewarded with increases in access, use, and depth levels of financial services. The empirical validity of these results is confirmed by their robustness across several model specifications with least squares and dynamic estimators, strengthening the case for policy frameworks with an outward orientation. Moreover, the recognized interdependence of globalization, economic growth, quality governance, mobile technology, and education has revealed that financial inclusion is an outcome molded by a myriad of consolidated factors. Nevertheless, this study asserts that while globalization and integration remain key drivers, their efficacy toward enhancing inclusion is highly dependent on domestic institutional and structural endowments. Specifically, mobile intensity and quality of governance have shown a positive direction, although not always displaying statistical significance in certain dynamic specification models, thus implying the need for complementary investments in digital infrastructure, regulatory transparency, and financial literacy toward enhancing their impact. This has a significant policy implication. First, the governments in the emerging markets should keep pursuing international trade and finance liberalization while being active participants in global economic forums and integration efforts. Second, for integration advances to be turned into outcomes, favorable domestic measures should be pursued by policymakers. These should encompass reforms of the regulatory framework, advancements in digital access, improvement of financial literacy, and human capital development. Such complementarity can convert economic openness to inclusive financial systems that cater widely to the underprivileged, especially in rural areas.

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