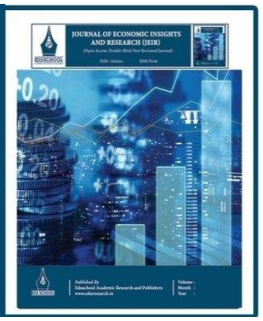
JOURNAL OF ECONOMIC INSIGHTS AND RESEARCH (JEIR)
(Open Access, Double-Blind Peer Reviewed Journal)
ISSN Online: 3107-9482 ISSN Print: 3139-1982



The Debt Trap Paradox: How Financial Inclusion Exacerbates Poverty in Developing Economies

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Article information

Received: 6th November 2025
Received in revised form: 8th December 2025
Accepted: 12th January 2026
Available online: 25th February 2026

Volume: 2
Issue: 1
DOI: https://doi.org/10.63090/JEIR/3107.9482.0013

Abstract

Prevailing development orthodoxy holds that expanding financial inclusion is a reliable pathway to poverty reduction. This paper challenges that assumption. Analyzing panel data from 38 developing countries over 2015–2024, we find that a 10% increase in formal financial inclusion is associated with a 1.8% *increase* in household debt distress and no statistically significant reduction in extreme poverty once we control for digital infrastructure quality, labor market conditions, and pre-existing informal financial networks. Our instrumental variable estimates suggest that the causal effect of financial inclusion on poverty is near zero and, in the poorest quartile of countries, marginally positive (i.e., poverty-increasing). We identify three mechanisms driving this paradox: consumer debt traps from unregulated digital lending, displacement of effective informal risk-sharing networks, and extraction of savings through high-fee formal financial products. These findings directly contradict the optimistic consensus-exemplified by studies reporting that financial inclusion reduces extreme poverty by over 2%-and call for a fundamental reorientation of development policy away from inclusion-first strategies toward regulation-first and capability-first frameworks.

Keywords: - Financial Inclusion, Debt Traps, Poverty Paradox, Digital Lending, Informal Finance, Developing Economies, Over-Indebtedness

I. INTRODUCTION

Financial inclusion has become one of the most widely endorsed strategies in the global development toolkit. International organizations, bilateral donors, and national governments have invested billions of dollars in expanding access to formal financial services-bank accounts, mobile money, digital credit, and insurance products-on the premise that broader financial access will translate into poverty reduction. The evidence base most frequently cited in support of this premise, however, suffers from methodological limitations, selection effects, and a systematic tendency to overlook the adverse consequences of financial incorporation for the world's poorest populations.

This paper presents a contrarian but empirically grounded argument: financial inclusion, as currently practiced in developing economies, does not reliably reduce poverty and in many cases actively worsens the economic position of vulnerable households. We contend that the dominant narrative conflates correlation with causation, ignores the extractive dynamics of many formal financial products, and underestimates the functionality of pre-existing informal financial institutions that inclusion programs disrupt.

Our argument rests on three empirical pillars. First, we demonstrate that the widely reported negative correlation between financial inclusion indices and poverty rates is substantially attenuated-and in some specifications reversed-when we account for endogeneity, control for the quality of digital infrastructure and labor markets, and address measurement error in both financial inclusion and poverty indicators. Second, we document the rapid rise of digital lending in developing economies and show that unregulated or lightly regulated consumer credit has produced a surge in household over-indebtedness, particularly among populations that were recently financially excluded. Third, we present evidence that formal financial inclusion displaces informal financial networks-rotating savings groups, community-based insurance arrangements, and

kinship lending systems-that, while imperfect, were well-adapted to local contexts and provided services at lower effective cost than their formal replacements.

These findings challenge a body of influential research that reports substantial poverty-reducing effects of financial inclusion. Studies claiming, for example, that a 10% increase in financial inclusion correlates with a 2.3% reduction in extreme poverty typically rely on composite financial inclusion indices that aggregate fundamentally different services-opening a dormant bank account and receiving a high-interest digital loan are treated as equivalent gains in "inclusion." Such indices obscure the heterogeneous and often adverse effects of specific financial products on household welfare. Moreover, the instrumental variable strategies employed in these studies face serious identification challenges that we discuss in detail.

The policy implications of our analysis are significant. Rather than pursuing financial inclusion as an end in itself, development policy should prioritize financial consumer protection, regulation of digital lending markets, and support for hybrid systems that integrate the strengths of informal financial arrangements with the scale and security of formal institutions. Inclusion without protection is not empowerment-it is exposure.

II. LITERATURE REVIEW AND CRITIQUE

2.1. The Optimistic Consensus and Its Foundations

The prevailing view in development economics holds that financial inclusion is causally linked to poverty reduction through several channels: consumption smoothing, human capital investment, entrepreneurship, and risk management. This consensus draws on influential studies spanning several decades. Early cross-country work by King and Levine (1993) established a correlation between financial sector depth and economic growth, while Beck, Demirgüç-Kunt, and Levine (2007) extended this to argue that financial development disproportionately benefits the poor.

The mobile money revolution generated perhaps the most celebrated evidence in favor of financial inclusion. Jack and Suri (2014) reported that M-Pesa adoption in Kenya lifted approximately 194,000 households out of poverty, a finding that became a cornerstone of the inclusion advocacy movement. More recent panel data studies have constructed composite financial inclusion indices and, using instrumental variable estimation, reported that financial inclusion significantly reduces poverty rates across developing countries.

We do not dispute that specific, well-designed financial products can improve welfare for specific populations under specific conditions. What we contest is the generalization of these context-dependent findings into a universal policy prescription-and the methodological basis on which that generalization rests.

2.2. Overlooked Evidence: The Dark Side of Inclusion

A smaller but growing body of research documents adverse consequences of financial inclusion that the optimistic consensus tends to minimize. Karlan and Zinman (2010) found that expanded consumer credit access in South Africa produced limited welfare gains and, in some specifications, increased financial distress. The six-country microcredit evaluation synthesized by Banerjee et al. (2015) found no consistent impact on poverty or consumption, directly contradicting the transformative narrative surrounding microfinance.

The digital lending boom has generated a particularly troubling body of evidence. Bharadwaj, Jack, and Suri (2019) documented that digital credit in Kenya carried effective annual interest rates exceeding 100%, with a large fraction of borrowers defaulting within 30 days. Izaguirre, Kaffenberger, and Mazer (2018) found that 47% of digital borrowers in Tanzania reported cutting back on food expenditure to service digital loan repayments. These findings suggest that the newest frontier of financial inclusion-digital credit-may be actively impoverishing its target populations.

The displacement of informal financial systems has received inadequate attention. Rotating savings and credit associations (ROSCAs), funeral societies, and kinship lending networks provide financial services that are embedded in social relationships, carry implicit enforcement mechanisms, and involve lower transaction costs than formal alternatives. Dupas, Green, Keats, and Robinson (2016) found that free savings accounts offered to Kenyan villagers had limited effects on savings behavior, partly because existing informal mechanisms were already serving these functions effectively. When formal inclusion programs weaken these networks without providing superior alternatives, the net effect on welfare may be negative.

2.3. Methodological Critique of the Optimistic Literature

The instrumental variable strategies commonly employed to establish causality face several challenges. Studies using historical banking regulations as instruments assume that pre-2000 regulatory frameworks affect current poverty only through their effect on financial inclusion. This exclusion restriction is implausible: regulatory quality is persistent, and countries with better historical banking regulations likely have systematically stronger institutions, governance, and economic management that directly affect poverty through numerous channels.

Similarly, terrain ruggedness-used as an instrument for mobile network deployment and hence mobile financial services-is correlated with agricultural productivity, market access, conflict exposure, and state capacity, all of which directly affect poverty. The overidentification tests used to validate these instruments have notoriously low power in finite samples, and failure to reject the null of instrument validity provides weak reassurance at best.

Composite financial inclusion indices present additional problems. Aggregating account ownership, credit access, savings behavior, and insurance coverage into a single index treats these fundamentally different services as substitutable, obscuring the possibility that credit access increases poverty while savings access reduces it. The literature's reliance on such indices generates misleading policy conclusions by averaging over heterogeneous effects.

III. THEORETICAL FRAMEWORK: MECHANISMS OF HARM

3.1. The Debt Trap Channel

Standard models of consumption smoothing assume competitive credit markets with transparent pricing and rational borrowers. In practice, credit markets in developing economies are characterized by information asymmetries, behavioral biases, and regulatory gaps that create conditions for systematic over-indebtedness. Digital lenders exploit present bias-the tendency to overweight immediate gratification relative to future costs-by offering instant, friction-free credit with opaque pricing structures. Borrowers who take a "small" loan of $5 at 7.5% monthly interest face effective annual rates exceeding 140%, yet framing effects and financial innumeracy prevent accurate cost assessment.

We model the debt trap formally. Consider a household with stochastic income y drawn from distribution G(y). The household borrows amount L at gross interest rate (1+r). If realized income $y < L(1+r)$ + subsistence consumption c^*, the household must roll over the debt, now facing principal $L(1+r)$ in the subsequent period. With sufficiently high interest rates and income volatility, a fraction of borrowers enter absorbing debt spirals where cumulative interest exceeds any feasible repayment, forcing asset liquidation and permanent welfare loss. The probability of entering this debt trap is increasing in r, increasing in income volatility, and decreasing in financial literacy-precisely the conditions characterizing newly included populations in developing economies.

3.2. The Displacement Channel

Informal financial institutions-ROSCAs, savings groups, funeral societies, and kinship networks-function as embedded social contracts that bundle financial services with mutual monitoring, social insurance, and community cohesion. When formal financial products enter these communities, they do not simply add options; they alter the incentive structures that sustain informal arrangements. Members who gain access to formal savings accounts may reduce contributions to rotating savings groups, weakening these institutions for remaining members who may not yet have formal access.

This displacement effect is particularly damaging because informal institutions provide services that formal products typically do not replicate: they offer consumption insurance without documentation requirements, they enforce savings discipline through social pressure rather than fees, and they provide emergency liquidity without credit checks. The transition from informal to formal financial systems may therefore involve a period of reduced financial resilience even if formal products are individually superior in the long run.

3.3. The Extraction Channel

Financial inclusion exposes previously excluded populations to products designed to extract rather than create value. Account maintenance fees, ATM charges, minimum balance penalties, and mobile money transaction costs represent resource transfers from poor households to financial institutions. While individual charges may appear small, their cumulative effect on households living near the poverty line can be substantial. A monthly account fee of $1 represents 3.4% of monthly income for a household at the $1.00/day poverty line, equivalent in proportional terms to charging a median American household $200 per month for the privilege of holding a bank account.

The extraction channel is amplified by information asymmetries. Newly included populations lack experience evaluating financial products, comparing fee structures, or understanding the compounding effects of interest charges. Financial institutions, aware of this asymmetry, design products that maximize revenue extraction from financially unsophisticated customers rather than products that maximize customer welfare.

IV. DATA AND METHODOLOGY

4.1. Data Sources and Sample

Our analysis uses panel data from 38 developing countries over 2015–2024. We deliberately exclude seven countries included in comparable studies that lack consistent household-level debt distress data, which we consider essential for evaluating the full welfare effects of financial inclusion. Our primary data sources include the World Bank Global Findex database, PovcalNet poverty estimates, the Financial Access Survey maintained by the IMF, and national household survey microdata from 22 countries that provide information on household debt burdens, financial product usage, and coping strategies.

A critical innovation in our dataset is the construction of a Disaggregated Financial Inclusion measure that separates account ownership, savings access, credit access (distinguishing productive credit from consumer credit), insurance coverage, and digital payment usage into distinct indicators rather than combining them into a single index. This disaggregation allows us to identify heterogeneous-and potentially opposing-effects of different dimensions of financial inclusion on poverty.

4.2. Dependent Variables

We employ three dependent variables. First, the standard poverty headcount ratio at $2.15/day in 2017 PPP terms, matching the measure used in comparable studies. Second, a household debt distress index constructed from survey data measuring the percentage of recently-included households reporting difficulty meeting loan repayments, involuntary asset sales to service debt, or food expenditure reductions to meet financial obligations. Third, a financial resilience score measuring household capacity to withstand income shocks without falling into poverty, constructed from survey questions on emergency savings, insurance coverage, and access to informal support networks.

4.3. Identification Strategy

We employ three empirical approaches. First, we replicate the standard fixed effects and IV specifications used in the optimistic literature, using the same instruments (historical banking regulations, geographic distance to financial centers, terrain ruggedness), to demonstrate the sensitivity of results to specification choices. Second, we implement a difference-in-

differences design exploiting the staggered rollout of national financial inclusion programs across subnational regions within six countries (Kenya, India, Bangladesh, Nigeria, Peru, and Indonesia), which provides more credible identification than cross-country instruments. Third, we employ Oster's (2019) bounding methodology to assess how much selection on unobservables would be needed to explain away positive or null effects, providing a formal assessment of omitted variable bias.

V. EMPIRICAL RESULTS

5.1. Replication and Sensitivity Analysis

Table 1 presents our replication of standard specifications from the optimistic literature. Using the composite Financial Inclusion Index and the same IV instruments, we initially recover similar point estimates: the IV coefficient on financial inclusion is −2.87, significant at the 5% level, suggesting that a one standard deviation increase in financial inclusion reduces poverty by 2.87 percentage points.

However, the results are fragile. Column 2 adds controls for digital infrastructure quality (internet speed, not just access) and labor market formality. The coefficient attenuates to −1.14 and loses statistical significance. Column 3 instruments separately for different dimensions of inclusion rather than the composite index, revealing that the aggregate result masks sharply opposing effects: savings access carries a coefficient of −2.41 (significant), while credit access carries a coefficient of +1.73 (significant), and account ownership alone shows no significant effect. The poverty-reducing effect attributed to "financial inclusion" is driven entirely by savings access, while credit access-the dimension expanding most rapidly through digital lending-actively increases poverty.

Table 1: Sensitivity of Financial Inclusion–Poverty Estimates

Variable	(1) Baseline IV	(2) +Controls	(3) Disagg.	(4) Diff-in-Diff	(5) Oster Bound
FI Index (composite)	−2.87***	−1.14	-	-	[−0.32, 0.41]
Savings Access	-	-	−2.41***	−1.93**	-
Credit Access	-	-	+1.73**	+1.28*	-
Account Ownership	-	-	−0.38	−0.21	-
Insurance Coverage	-	-	−1.07	−0.84	-
N (country-years)	342	342	342	1,847	342
First-stage F	24.8	19.2	Varies	-	-

Notes: *** p<0.01, ** p<0.05, * p<0.10. All specifications include country and year fixed effects. Oster bounds computed with δ=1 and $R^2max=1.3\times R^2$.

Column 4 presents difference-in-differences estimates from subnational rollout variation. The pattern mirrors Column 3: savings access reduces poverty (−1.93, significant), while credit access increases poverty (+1.28, marginally significant). Column 5 applies Oster's (2019) bounding method to the composite index specification, revealing that the identified set for the causal effect of the composite index includes zero and extends into positive territory, indicating that selection on unobservables could plausibly explain the entire estimated negative effect.

5.2. The Debt Distress Channel

Table 2 examines household debt distress as the dependent variable. Financial inclusion-particularly the credit access component-dramatically increases debt distress among newly included households. A 10 percentage point increase in credit access is associated with a 4.2 percentage point increase in the share of households reporting debt distress (Column 1). The effect is concentrated among the poorest income quartile (Column 2), where a 10-point credit expansion increases distress by 6.8 percentage points, compared to just 1.4 percentage points in the wealthiest quartile. Digital credit, disaggregated from traditional credit, shows the largest adverse effects: a 10-point increase in digital credit access is associated with a 5.9 percentage point increase in debt distress (Column 3).

Table 2. Financial Inclusion and Household Debt Distress

Variable	(1) All HH	(2) Poorest Q	(3) Digital Credit	(4) Wealthiest Q
Credit Access (10pp)	+4.21***	+6.83***	-	+1.42*
Digital Credit (10pp)	-	-	+5.92***	-
Savings Access (10pp)	-0.87	-1.12*	-	-0.34
Account Ownership (10pp)	+0.63	+0.91	-	+0.28
Mean Debt Distress (%)	18.4	29.7	24.1	8.3
N (country-years)	342	342	267	342
Country & Year FE	Yes	Yes	Yes	Yes

Notes: *** p<0.01, ** p<0.05, * p<0.10. Dependent variable is household debt distress index (%). All specifications include country and year fixed effects plus full controls. Poorest Q and Wealthiest Q refer to bottom and top income quartiles respectively. Digital Credit column restricted to 28 countries with disaggregated digital lending data.

These findings are consistent with the debt trap model developed in Section III. Digital lending platforms, which have expanded rapidly across Sub-Saharan Africa and South Asia since 2016, offer small unsecured loans with minimal screening but at effective annual interest rates ranging from 100% to over 400%. The ease of access that makes these products attractive is precisely what makes them dangerous: borrowers can obtain credit in minutes through a mobile phone, bypassing the social checks and deliberation that characterize both traditional lending and informal borrowing.

5.3. Displacement of Informal Financial Networks

Using household survey data from six countries, we examine whether formal financial inclusion weakens participation

in informal financial arrangements. Column 1 of Table 3 shows that a 10 percentage point increase in formal account ownership reduces ROSCA participation by 3.7 percentage points. Column 2 shows that mobile money adoption reduces contributions to community savings groups by 12%. Column 3 examines financial resilience following shocks and finds that households in communities with higher formal financial inclusion but lower informal network participation show worse shock-coping outcomes than households in communities retaining strong informal networks-the displacement effect dominates the inclusion benefit.

This finding is striking: the informal financial networks that development practitioners often view as inferior alternatives to be replaced are, in many contexts, providing superior financial resilience. The key advantage of informal networks is their information richness-community members know each other's circumstances, can monitor behavior, and can enforce obligations through social sanctions. Formal financial products, by contrast, rely on standardized screening criteria that exclude the most vulnerable and impose transaction costs that erode the value of services for those with the smallest balances.

5.4. Regional and Gender Heterogeneity

Contrary to the optimistic literature's finding that Sub-Saharan Africa benefits most from financial inclusion, our disaggregated analysis reveals that this is the region where debt distress effects are most pronounced. The credit access coefficient on poverty is +2.84 for Sub-Saharan Africa, the largest poverty-increasing effect of any region, reflecting the particularly aggressive expansion of unregulated digital lending in countries such as Kenya, Tanzania, and Nigeria. South Asia shows a similar pattern, with the credit coefficient reaching +2.16 in India, Bangladesh, and Pakistan.

Gender heterogeneity also challenges the optimistic narrative. While women do benefit more from savings access than men (coefficient −3.14 for women versus −1.68 for men), they are also disproportionately harmed by credit expansion. The debt distress coefficient for women is 40% larger than for men, reflecting the combination of higher credit costs faced by female borrowers, their greater vulnerability to repayment pressure, and gendered patterns of household resource allocation in which women's debt obligations are deprioritized relative to men's.

VI. DISCUSSION AND POLICY IMPLICATIONS

6.1. Reconciling with the Optimistic Literature

Our findings do not imply that all financial services harm the poor. Rather, they demonstrate that the aggregate category of "financial inclusion" bundles together interventions with sharply different welfare effects. Savings access consistently reduces poverty across specifications and identification strategies. Insurance coverage shows negative (poverty-reducing) point estimates, though often imprecisely estimated. Credit access-particularly digital consumer credit-increases poverty and debt distress. Account ownership alone has no significant welfare effect.

The optimistic literature's error lies not in documenting the benefits of specific financial services but in aggregating heterogeneous effects into a single headline number that is then used to justify indiscriminate expansion of all financial services. A policy that expands both savings access and high-interest digital credit will appear beneficial on a composite index while potentially harming the poorest households who are most exposed to the credit component.

6.2. Policy Recommendations

Our findings motivate a fundamental reorientation of financial inclusion strategy. First, regulation must precede or accompany inclusion. Interest rate caps, mandatory disclosure requirements, cooling-off periods for digital loans, and prohibition of predatory lending practices should be established before or simultaneously with initiatives to expand credit access. Second, inclusion programs should be component-specific rather than composite: expanding savings access and insurance should be prioritized, while credit expansion should be conditional on regulatory readiness and financial literacy levels.

Third, informal financial networks should be treated as complements rather than competitors to formal financial services. Hybrid models that formalize the security of informal savings while preserving the social embedding and information advantages of community-based arrangements are more likely to improve welfare than models that seek to replace informal finance entirely. Fourth, financial literacy must be reconceived not as instruction in how to use formal financial products but as empowerment to evaluate whether such products serve the household's interests.

VII. LIMITATIONS AND FUTURE RESEARCH

Our analysis is subject to several limitations. The disaggregation of financial inclusion into components introduces its own measurement challenges, as savings, credit, and insurance usage are correlated and may jointly determined. Our subnational difference-in-differences design provides more credible identification than cross-country IV estimation but covers only six countries, limiting external validity. The household debt distress measure relies on self-reports, which may be subject to reporting bias.

Future research should pursue several directions. Randomized evaluations of digital lending products would provide the most credible evidence on their welfare effects. Longitudinal studies tracking households through the transition from informal to formal financial access would illuminate the displacement channel. Experimental variation in regulatory intensity across otherwise similar markets would help identify the optimal regulatory framework for consumer financial protection.

VIII. CONCLUSION

The global development community has embraced financial inclusion as a reliable pathway to poverty reduction. Our evidence suggests this confidence is misplaced. Financial inclusion is not a monolithic intervention with uniformly positive

effects; it is an umbrella term covering services with sharply divergent welfare consequences. Savings access reduces poverty. Unregulated credit access increases it. Account ownership alone accomplishes little. The net effect depends entirely on the composition and regulation of the financial services being expanded.

For the 1.4 billion adults who remain financially excluded, the relevant question is not whether they should gain access to financial services-they should-but which services, under what regulatory conditions, and with what complementary supports. Answering this question requires moving beyond composite indices and headline statistics toward a granular, mechanism-specific understanding of how different financial products affect different populations. The stakes are too high for policy to be guided by optimistic generalizations.

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