MOBILE INSTANT CREDIT

Impacts, Challenges, and Lessons for Consumer Protection

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DISCLAIMER

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MOTIVATIONS FOR THIS REPORT

Bringing data and evidence to an open debate on mobile instant credit and informing the future of credit digitization.

The Promises and Perils of Digitizing Credit: An Open Debate

Digitizing financial services has enabled tremendous innovation in the provision of credit in low- and middle-income countries (LMICs), which some hail as a transformative development with potential to drive financial inclusion, reduce poverty, and spur economic growth.

However, others associate digital credit with a proliferation of misconduct, consumer abuses, and over-indebtedness, which can have severe consequences for the most vulnerable consumers and amplify inequality.

Evidence on Mobile Instant Credit to Inform Broader Credit Digitization

This report aims to bring evidence and data to bear on the debate, focusing on Mobile Instant Credit (MIC) and related products like airtime loans where there is now a critical mass of impact evidence.

As this sector continues to evolve and innovate, we hope this attempt to curate relevant evidence and data contributes to a shared vocabulary, reference base, and conceptual framework that advances the discussion on the relationship between the digitization of credit and development.

To ensure the continued digitization of lending best serves consumers and development priorities, we believe evidence on MIC can and should inform policy and new product design for digital credit more broadly.

KEY TAKEAWAYS

Limited Impacts

Evidence suggests the positive welfare impacts of Mobile Instant Credit and airtime loans have been modest. Most notably, studies have shown increased subjective well-being. Despite associations with debt stress and diminished financial health, none of the causal studies found negative average impacts.

1

Urgent Challenges

The absence of negative impacts contrasts with robust descriptive evidence on the diverse consumer protection challenges associated with rapidly digitizing credit, including rising debt stress, price shrouding and overcharging, predatory collections, and fraud.

2

Promising Solutions

A handful of causal studies and pilot interventions confirm the efficacy and feasibility of interventions to empower consumers, improve loan repayment, and enable better market monitoring.

3

Insights for Policy

Evidence on Mobile Instant Credit and airtime loans is particularly informative for emergent forms of consumer-oriented digital credit, such as Buy-Now, Pay-Later and overdraft products. New forms of digital credit focused on productive activities remain under-researched.

4

Looking to the Future

Evidence on the limited welfare impacts and real consumer protection risks associated with Mobile Instant Credit can inform the regulation of credit more broadly and should reorient attention towards digital credit that enables more productive economic functions.

5

DEEPER RESEARCH DRIVEN INSIGHTS FROM THIS REPORT

The technical innovations and commercial success of the first wave of digital credit (MIC and airtime loans) do not necessarily imply beneficial impacts for low-income consumers. The development impacts of emergent waves of digital credit will depend on new product design, more productive uses, and consumer protection reforms.

	Technical and Design Innovations	+	Consumer Risks and Protections	=	Net Welfare Impacts
Digital Credit Wave 1 *MIC and airtime loans were the first wave of credit digitization* (Section 1)	Novel underwriting and repayment for consumer loans expands access	+	Rise in consumer harms associated with digitization	=	Ambiguous, with limited upside potential and significant risk
Digital Credit Current + Future Waves	Can improved loan design enable productive economic activities?	+	Can innovations in market monitoring and policy reform protect consumers?	=	Still uncertain

Technological Innovations Enabled by Digital Finance

Underwriting: Mobile money and digital financial infrastructure enabled faster loan application and underwriting, informed by novel and more diverse sources of data than traditional credit.

Repayment and Loan Design: Underwriting speed coupled with the ability to link loans to mobile money accounts and communicate with borrowers in real-time has enabled repayment designs that are less practical in an analog world, such as dynamic incentives to pay otherwise unsecured loans, or overdraft facilities for airtime balances and payments accounts.

Profitability vs. Innovation vs. Impact: The growth and profitability of many new digital lenders suggests forms of digitally enabled underwriting are effective. However, it is not clear whether profits reflect i) positive innovations such as more accurate underwriting of risk, lower operating costs, or better targeting of latent, historically underserved demand, or ii) consumer abuses and regulatory arbitrage such as predatory pricing or abusive collections, or iii) both.

New Consumer Risks, but Also New Solutions

Evidence also suggests that risks of consumer harms (rising debt stress, predatory collections, fraud) have increased in parallel with the first wave of digital credit products and compound other known risks (price shrouding, overcharging, data misuse, etc.) (Section 3).

Fortunately, a handful of causal studies and pilot interventions confirm the efficacy and feasibility of interventions to empower consumers, improve loan repayment, and enable better market monitoring (Section 4).

Innovation is Real, but Does Not Imply Impact

Evidence suggests the innovation of algorithmic underwriting using new data sources can outperform traditional approaches, particularly for population segments with little to no credit history or data trails. Whether applying these innovations benefits the average consumer has now been the subject of numerous impact evaluations (Section 2).

What will be the Welfare Impacts of Subsequent Waves of Digital Credit?

Whether or not subsequent waves of digital credit improve upon the first wave to provide less risky and more transformative solutions will depend on the evolution of commercial product design and public policy to monitor markets and protect consumers.

DIVERSE RESEARCH METHODOLOGIES INCLUDED IN THIS REPORT

This report incorporates evidence derived from diverse research methodologies to take a holistic view on MIC and related digital credit products. While targeted causal evaluations on MIC do not reveal negative welfare impacts, descriptive research reveals troubling consumer protection concerns.

The deck draws on experimental and quasi-experimental studies, descriptive research and case studies.

These methods utilize different types of data, and it's important to understand how to interpret the results.

Notably, the studies that reveal causal relationships are impact evaluations, which utilize randomization, and quasi-experiments, which are used when randomization is infeasible.

Impact Evaluations

Impact evaluations are rigorous studies that examine the effectiveness of development programs.

Impact evaluations utilize random assignment to create a treatment and comparison group.

Any observed differences from between the two groups can be attributed to the program, thus providing insight into which interventions work or don't work.

Data

- Surveys
- Administrative data

Quasi-Experimental

Quasi-experimental methods also aim to measure the effectiveness of development programs, but without random assignment.

Quasi-experimental methods may instead rely on natural variation or eligibility cutoffs to "assign" treatment and comparison groups.

These methods are useful when true randomization is either impractical or unethical.

Data

- Surveys
- Administrative data

Descriptive Research

Unlike experimental impact evaluations, descriptive research does not use randomized treatment and comparison groups to measure the impact of programs. Instead, descriptive research is often used to systematically characterize a population or situation and key associations among characteristics, events, and/or behaviors.

Descriptive research may be used to affirm or reject patterns or predictions logically implied by causal claims.

Data

- Surveys
- Administrative data
- Mixed methods

Case Studies & Policy Analysis

Case studies explore complex issues by systematically investigating a single individual, business or other real situation.

Though case studies are in-depth analyses of a singular situation, they may be generalizable to larger policy, business and other issues.

Data

- Observations
- Qualitative Interviews and Focus Groups
- Desk Research

GUIDE TO READING THE REPORT & GLOSSARY

The report is organized into the following sections:

1. **MIC in the broader digital credit ecosystem:** Defines key terms, provides an overview of the market landscape, and considers how MIC differs from other forms of credit.
2. **Welfare Effects of Mobile Instant Credit:** Summarizes evidence from six primary studies, organized by key outcomes related to welfare.
3. **Misconduct Associated with Digital Credit:** Defines key forms of misconduct associated with the digitization of credit and provides examples and evidence related to each.
4. **Effects of Consumer Protection Tools:** Outlines existing evidence on the efficacy of interventions aimed at curbing misconduct and improving consumer outcomes.
5. **Ongoing Research and Open Questions:** Discusses the most pressing areas for further investigation.
6. **Summaries of Key Studies:** Provides a more in-depth summary of the studies that formed the evidence base in Section 2.

Results are focused on a specific group of digital credit products

The entire financial services industry is being impacted by rapid digitization, but this report is focused on mobile instant credit and closely related airtime loans.

Where there is not sufficient evidence based solely on mobile instant credit or airtime loans, the report draws from research on other digital credit or related products and services, such as mobile money or microinsurance.

This report is designed so it can be read as a whole or used in part as a reference guide

Throughout the report, citations are linked to the References section at the end of the deck. Additionally, each reference is linked to the spot in the report where it is cited, allowing readers to easily navigate back and forth.

Terms & Definitions

BNPL: Buy-Now, Pay-Later, an emerging form of digital credit loan that allows consumers to make installment payments on their purchases.

CRB: Credit Reference Bureau, collates and provides comprehensive consumer credit information to private lenders.

Digital Credit: Loans disbursed and repaid electronically, characterized as instant, automated and remote. This report refers to digital credit, digital loans, and mobile loans interchangeably.

DFS: Digital Financial Services

Formal Borrowing: Borrowing any money from a financial institution or through the use of a credit card or mobile money account.

G2P: Government to Person

Informal Borrowing: Borrowing from a source that is not considered formal, such as borrowing from family or buying from a local store on credit.

IPV: Intimate Partner Violence

IVR: Interactive Voice Response

LMICs: Low- and middle-income countries, as defined and categorized by the World Bank Group.

Loan Term: The length of time from when a loan is disbursed to when repayment is due.

MIC: Mobile Instant Credit, a form of small digital loans typically used for consumption.

MMPs: Mobile Money Providers

MNO: Mobile Network Operator

SMEs: Small & Medium Enterprises

Take-Up Rate: The proportion of customers who, when offered a loan, accept it.

USSD: Unstructured Supplementary Service Data, a protocol for text messaging which DFS platforms often use for communication with customers.

WEE: Women's Economic Empowerment

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MOBILE INSTANT CREDIT IN THE BROADER DIGITAL CREDIT ECOSYSTEM

1

PROLIFIC RECENT GROWTH IN THE DIGITAL CREDIT MARKET

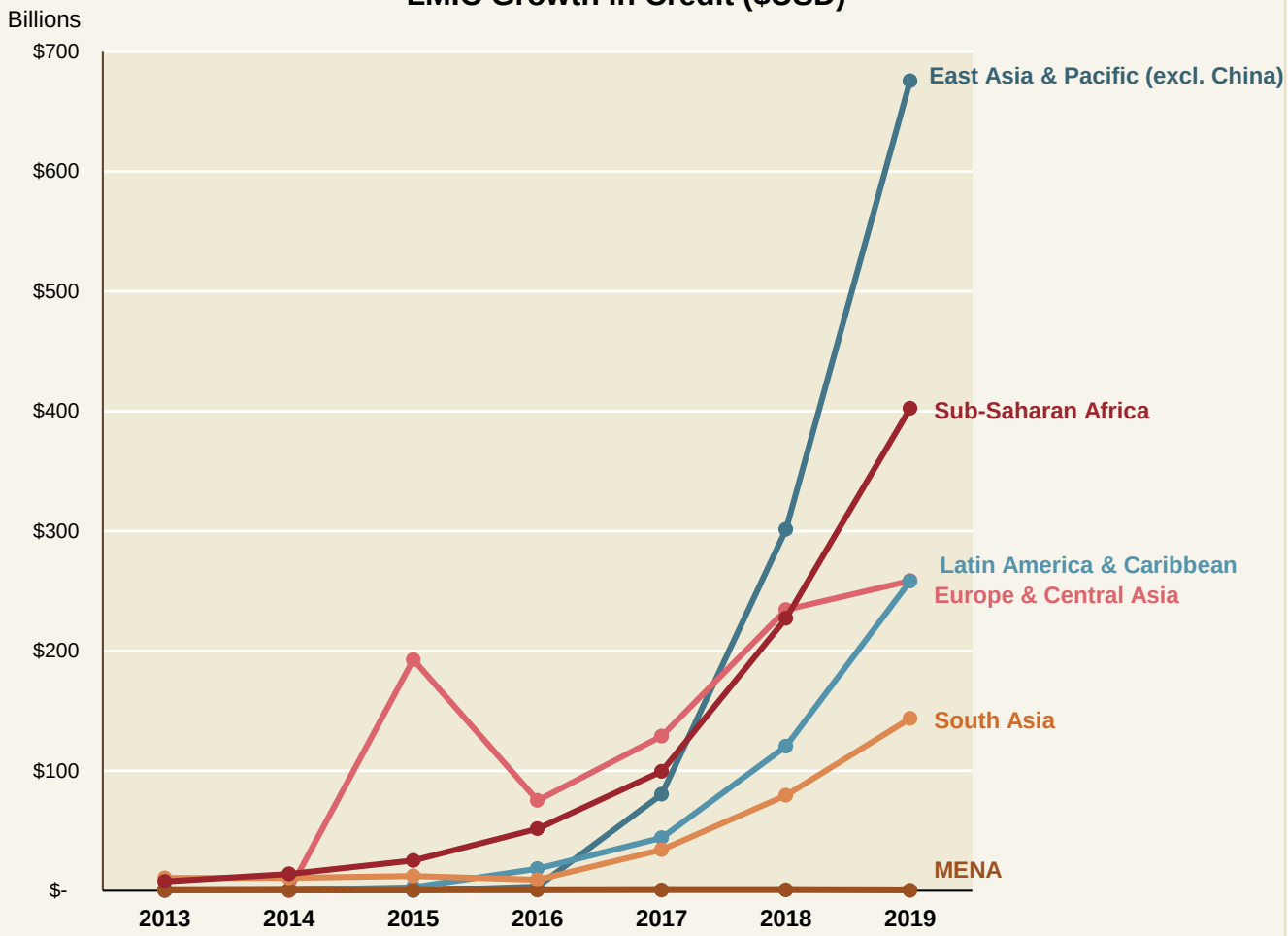
Providers

In 2012, Safaricom and the Commercial Bank of Africa launched M-Shwari, the first loan product offered via mobile device.

M-Shwari made 20 million loans to 2.6 million borrowers during the first two years.[1]

53% of all mobile money providers (MMPs) offer a digital loan product, making credit the most prevalent non-payment service they offer.[2]

Most providers offer between 1–5 credit products, and the majority of digital credit products were launched after 2019, meaning the industry is still fairly new.[3]



Users

From 2014 to 2021, the share of adults that were borrowing formally rose from 16% to 23%.[5]

Digital loans disbursed in June 2020 alone were worth $423 million.[3]

Digital credit has spread globally. A few prominent examples and the year they launched:

- **WeBank:** Launched 2014, 60mm users in China.
- **KakaoBank:** Launched 2017, 21mm users in South Korea.
- **Tala:** Launched 2014, 7mm users in Kenya, Philippines, Mexico, and India.
- **Digicel:** Launched 2015, 10mm users in Latin America and Caribbean.

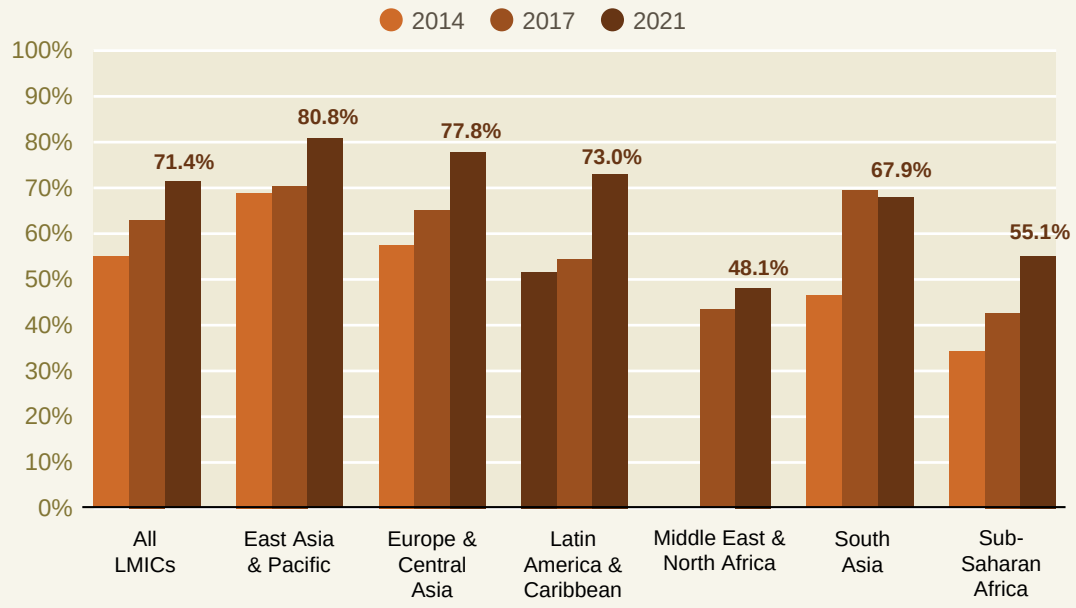
In Figure 1 (LMIC Growth in Credit ($USD)) , the figures reported are only for low- and middle-income countries in each region. Figures for East Asia & Pacific are reported exclusive of data for China, as total credit disbursed in China (USD $62.6 trillion vs. $1.7 trillion for all other LMICs combined in 2019) obscures broader trends across LMICs if presented on a single graph.

GROWTH IN FORMAL BORROWING TRACKS BROADER FINANCIAL INCLUSION

World Bank's Global Findex[1] data shows steep increases in formal borrowing since 2017 associated with broader formal account ownership.

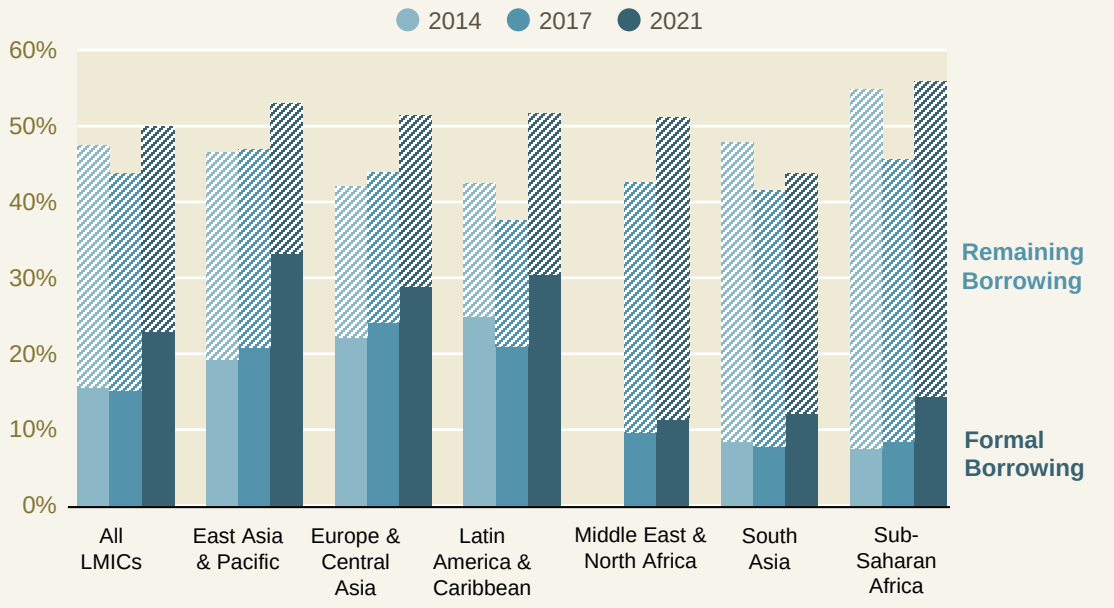
Account Ownership (% of adults)

- Account ownership across low- and middle-income countries (LMICs) has risen from 55% in 2014 to 71% in 2021.
- However, these increases have not been uniform, ranging from 5 to 19 percentage points across regions. While account ownership jumped 12% from 2017 to 2021 in Sub-Saharan Africa, South Asia saw a small 1% decline in the same metric.



Formal vs. Total Borrowing (% of adults)

- Across low- and middle-income countries, formal borrowing has risen as a percentage of total borrowing following increases in account ownership.
- Sub-Saharan Africa and South Asia have seen some of the largest percentage increases in formal borrowing, but still have much lower levels of formality than LMICs in other regions.



DEFINING MOBILE INSTANT CREDIT (MIC)

Understanding distinctive features of MIC is important for interpreting research on these products in the context of an increasingly complex digital credit ecosystem.

Mobile

Loans are disbursed and repaid remotely through mobile phones, via a smartphone's mobile application or basic phone's USSD menu. This reduces or removes some barriers to access, such as the need to visit a bank branch.

Other Considerations

Automation: Loan processing is also automated, as underwriting decisions are often made using machine learning algorithms. Providers may utilize traditional data (e.g. credit bureau data) as well as non-traditional data (e.g. mobile money usage) for assessing new borrowers' creditworthiness, which can increase access for people without formal credit histories.

Instant

Loans are generally disbursed immediately, and almost always within 24 hours.

This speed also means loan terms can be as short as a few days. In fact, most products studied in this review had terms less than a month.

Other Considerations

Repayment: Failure to repay on-time rarely results in immediate default, but often incurs substantial fees that increase the debt.

Pre-paying before the end of the loan term is common, but rarely results in discounts and, therefore, effectively increases the implied interest rate of the loan.

Credit

Loans are targeted towards individual consumers, typically borrowing cash in digital form for short-term consumption.

Mobile money overdraft facilities are similar to MIC, but structured as revolving loans, not term.

Airtime loans and Buy-Now, Pay-Later credit are also similar to MIC, but differ in that lending is tied to the consumption of specific goods or services.

Other Considerations

Loan Size: Most mobile instant credit products offer small loans which can help smooth consumption but are generally too small for productive investments such as in secondary education or starting a business. Borrowers who repay on time typically become eligible for successively larger loans, creating a dynamic incentive to repay.

COMMON FORMS OF MOBILE INSTANT CREDIT

Model	**Bank-Telco** *Offered on the mobile money platform of the Telco, with the bank providing capital. Typically feature small loans and high interest rates or fees.*	**Bank-Fintech** *Offered through a Fintech platform, with the bank providing capital. Loan sizes can be larger than in Bank-Telco partnerships.*	**Non-Bank Fintech** *Digital loans offered by fintech firms without the intermediation of a bank*
Example	M-Shwari (Kenya)	WeBank (China)	Tala (Kenya, Philippines, Mexico, India)
Average Loan Size ($USD)	$1–100	$70–44,000	$10–500
Typical Fees	7.5% (per month)	Average 18% (APR)	5–15% Extension Fee 8%
Typical Terms	Up to 30 Days	Up to 20 Months	21–90 Days

Information on loan sizes, fees, and terms from Robinson et al. (2022).[1]

MOBILE INSTANT CREDIT AMONG OTHER FORMS OF DIGITAL CREDIT

Digital credit has grown rapidly and now includes a wide variety of product types beyond the first wave of MIC and airtime loans.

Airtime Loans
Small airtime advances for a fee

Automotive Financing
Secured loan to purchase a vehicle

Credit Cards
Unsecured revolving line of credit

E-Commerce Buy Now, Pay Later
Unrestricted purchase divided into installments

Education/ Funeral Loans
Loans for consumer-specific purposes

Fixed Asset-Based Financing
Use of balance sheet assets to borrow

Gold Loans
Borrowing against gold

Group Microfinance: Group Liability
Use of social rather than material capital

Group Microfinance: Individual Liability
Borrowing against group setting but borrower is at risk only upon default

Home Mortgages
Borrowing against home

Input Financing
Capital to purchase agricultural inputs

Invoice Factoring
Supplier sells invoices to an external party at discount

Mobile Instant Credit
Small, fast, mobile-enabled loans

Overdraft
Allows transactions despite insufficient funds

P2P Lending
Connects borrowers with individual lenders

Pay-As-You-Go Buy Now, Pay Later (Solar)
Specific purchase divided into installments

Payroll Facilitation Service
Salary-on-demand without interest

Rent-to-Own Capital Equipment
Allows renting an equipment with option of buying

Reverse Factoring
Buyer sells invoices to an external party at discount

Revolving Business Credit
Revolving line of productive credit

Salary Loans
Loans paid with interest from salary

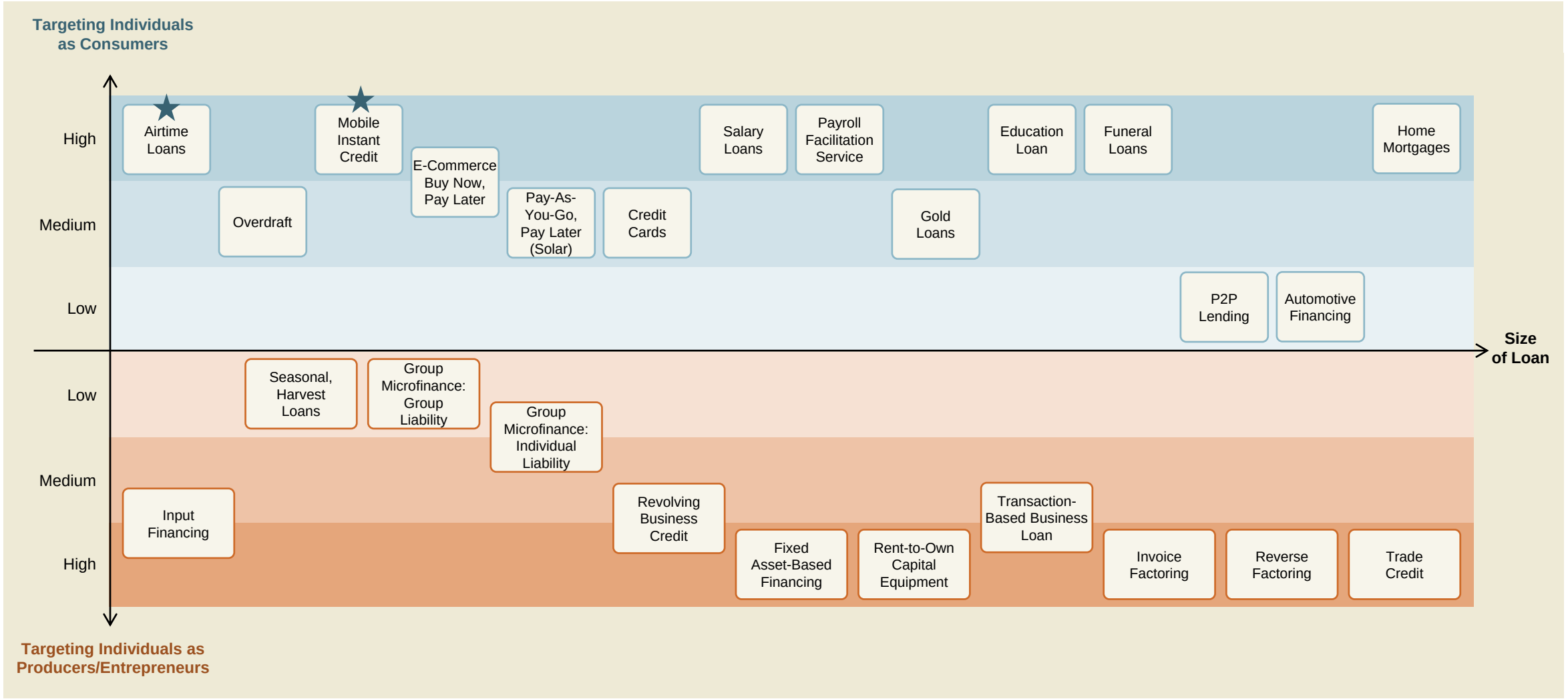
Seasonal, Harvest Loans
Agricultural output-based loan for general use

Trade Credit
Later payment of goods and services instead of on delivery

Transaction-Based Business Loan
Loans underwritten by cash flow data

The chart above includes many prominent forms of digital credit available in developing countries, but is not intended to be all-inclusive.

FORMS OF DIGITAL CREDIT VARY IN INTENDED USE AND LOAN SIZE



High: Used almost exclusively as Productive or Consumer credit. Low: Could be used as either Productive or Consumer credit.
The chart above includes many prominent forms of digital credit available in developing countries. Values are approximated based on an online review of provider information across developing countries and information provided in relevant academic studies.

OTHER KEY DIMENSIONS OF VARIATION IN DIGITAL CREDIT TYPES

Targeting Individuals as Consumers — Targeting Individuals as Producers/Entrepreneurs — Informal Loans

Level of Security (Collateralization)

High ↑ Low

	Unsecured	Semi-Secured	Secured
Rent-to-Own Capital Equipment			•
Fixed Asset-Based Financing			•
Trade Credit			•
Reverse Factoring			•
Invoice Factoring			•
Transaction-Based Business Loan			•
Revolving Business Credit			•
Home Mortgages			•
Gold Loans			•
Automotive Financing			•
Pay-As-You-Go Buy Now, Pay Later (Solar)			•
Group Microfinance: Group Liability		•	
Informal Lenders		•	
Loans from Family and Friends		•	
Salary Loans		•	
Group Microfinance: Individual Liability		•	
Overdraft		•	
Airtime Loans ★		•	
Input Financing	•		
Seasonal, Harvest Loans	•		
P2P Lending	•		
Education/Funeral Loans	•		
Payroll Facilitation Service	•		
Credit Cards	•		
E-Commerce Buy Now, Pay Later	•		
Mobile Instant Credit ★	•		

Flexibility of Loan Use

	Low	Low/Med	Med	Med/Hi	High
Credit Cards					•
Gold Loans					•
Payroll Facilitation Service					•
Salary Loans					•
P2P Lending					•
Education/Funeral Loans					•
E-Commerce Buy Now, Pay Later					•
Revolving Business Credit					•
Group Microfinance: Individual Liability					•
Seasonal, Harvest Loans					•
Informal Lenders				•	
Group Microfinance: Group Liability				•	
Home Mortgages				•	
Loans from Family and Friends		•			
Trade Credit		•			
Transaction-Based Business Loan		•			
Mobile Instant Credit ★		•			
Overdraft		•			
Pay-As-You-Go Buy Now, Pay Later (Solar)		•			
Reverse Factoring	•				
Invoice Factoring	•				
Rent-to-Own Capital Equipment	•				
Fixed Asset-Based Financing	•				
Input Financing	•				
Automotive Financing	•				
Airtime Loans ★	•				

Intensity of Human Interaction

	Low	Low/Med	Med	Med/Hi	High
Loans from Family and Friends					•
Informal Lenders					•
Group Microfinance: Group Liability					•
Group Microfinance: Individual Liability					•
Gold Loans					•
Seasonal, Harvest Loans				•	
Input Financing				•	
Fixed Asset-based Financing		•			
Rent-to-Own Capital Equipment		•			
Trade Credit		•			
Reverse Factoring		•			
Invoice Factoring		•			
Transaction-Based Business loan		•			
Revolving Business Credit		•			
Home Mortgages		•			
Automotive Financing		•			
P2P Lending		•			
Education/Funeral Loans		•			
Payroll Facilitation Service		•			
Salary Loans		•			
Credit Cards	•				
Pay-As-You-Go Buy Now, Pay Later (Solar)	•				
E-Commerce Buy Now, Pay Later	•				
Mobile Instant Credit ★	•				
Overdraft	•				
Airtime Loans ★	•				

The chart above includes many prominent forms of digital credit available in developing countries. Informal loans, highlighted in yellow, are the most common alternatives to digital credit for consumers in low- and middle-income countries. In 2021, almost half of borrowers reported that family and friends were their only source of credit.[1] Values are approximated based on an online review of provider information across developing countries and information provided in relevant academic studies.

IMPACTS OF DIGITAL CREDIT MAY DIFFER FROM THOSE OF MICROFINANCE

Digital credit differs in important ways from traditional microfinance and may therefore have different outcomes than the muted impacts suggested by evaluations of microfinance. Nevertheless, insights from research on microfinance still offer relevant insights for the future design of digital credit products.

- Microfinance (alternatively microcredit) refers to small loans offered to individuals, particularly entrepreneurs, typically excluded from formal finance. Microcredit aims to reduce poverty by promoting entrepreneurship and increasing financial inclusion.
- Microfinance and digital credit are closely related, although they differ in several key ways. Because of this, it is important to acknowledge the implications of microcredit evidence for Mobile Instant Credit (MIC) and other digital credit products.
- J-PAL's Microcredit Policy Insight[1] and VoxDevLit's Microfinance[2] literature reviews provide a more detailed summary of the evidence on microcredit.

Feature	Compare & Contrast	Implications
Purpose	Both microfinance and digital credit aim to promote financial inclusion by increasing access to credit, thereby reducing poverty.	Because microfinance and digital credit are related, the evidence on microcredit is meaningful for interpreting research on digital credit.
Target Consumer	Microfinance typically focuses on entrepreneurship whereas digital credit products have more potential use cases. MIC loans in particular are generally used for consumption.	Microcredit's focus on entrepreneurs may limit the number and type of customers for whom loans are well-suited.
Loan Size	Microcredit loans are typically larger and offered through physical branches. Initial loan sizes often range from $450 to $1600[3] (PPP USD), whereas most digital credit studies in this review offered new customers $1 to $100 loans.	This may make microcredit less accessible to the average customer, reducing its impact relative to digital credit.
Take-Up	Microcredit has generally seen modest take-up rates – often less than 33%.[3] Studies on digital credit have generally found higher take-up, typically ranging from 33 – 70%.[4]	Higher take-up rates support the notion that digital credit may be more accessible than microfinance.
Impacts	Studies on microcredit have generally found that products did not have transformative effects on poverty[1]. Evaluations of digital credit similarly do not indicate transformative impacts.	Research has found that microcredit has different impacts for different types of borrowers[3], suggesting specifically that inflexible repayment schedules and limited initial grace periods do not fit customers' needs. Digitization could offer more diverse, flexible, and personally tailored repayment structures.

Note: This review is primarily focused on unsecured cash loans which are a subset of the broader digital credit product suite and referred to here as Mobile Instant Credit (MIC).

However, larger loan products like Asset Financing and new unsecured models like Overdraft Facilities or Buy-Now, Pay-Later (BNPL) are proliferating. In some cases, traditional microfinance lenders are beginning to digitize their efforts, blurring the lines between microfinance and digital credit.

There is currently little rigorous evidence on the impacts of these other products, which are outside the main focus of this review.

HOW MOBILE INSTANT CREDIT COULD BENEFIT DEVELOPMENT OUTCOMES

Theory suggests credit constraints could limit low-income households' ability to smooth consumption across common but unexpected shocks.

The Problem of Common but Unexpected Shocks

Credit, liquidity, and savings constraints can destabilize economic wellbeing. Households living close to the poverty line may struggle to respond to economic shocks such as unexpected health expenses.

These shocks are common: in a broad, 16-country study, 10-35% of households reported experiencing a shock in the past year[1], and a study in India found that nearly half of households considered as non-poor experienced at least one month of poverty during a year.[2]

To mitigate the risks associated with these shocks, many households maintain some savings as a buffer, limiting their potential to use these assets more productively.

Theory of Change

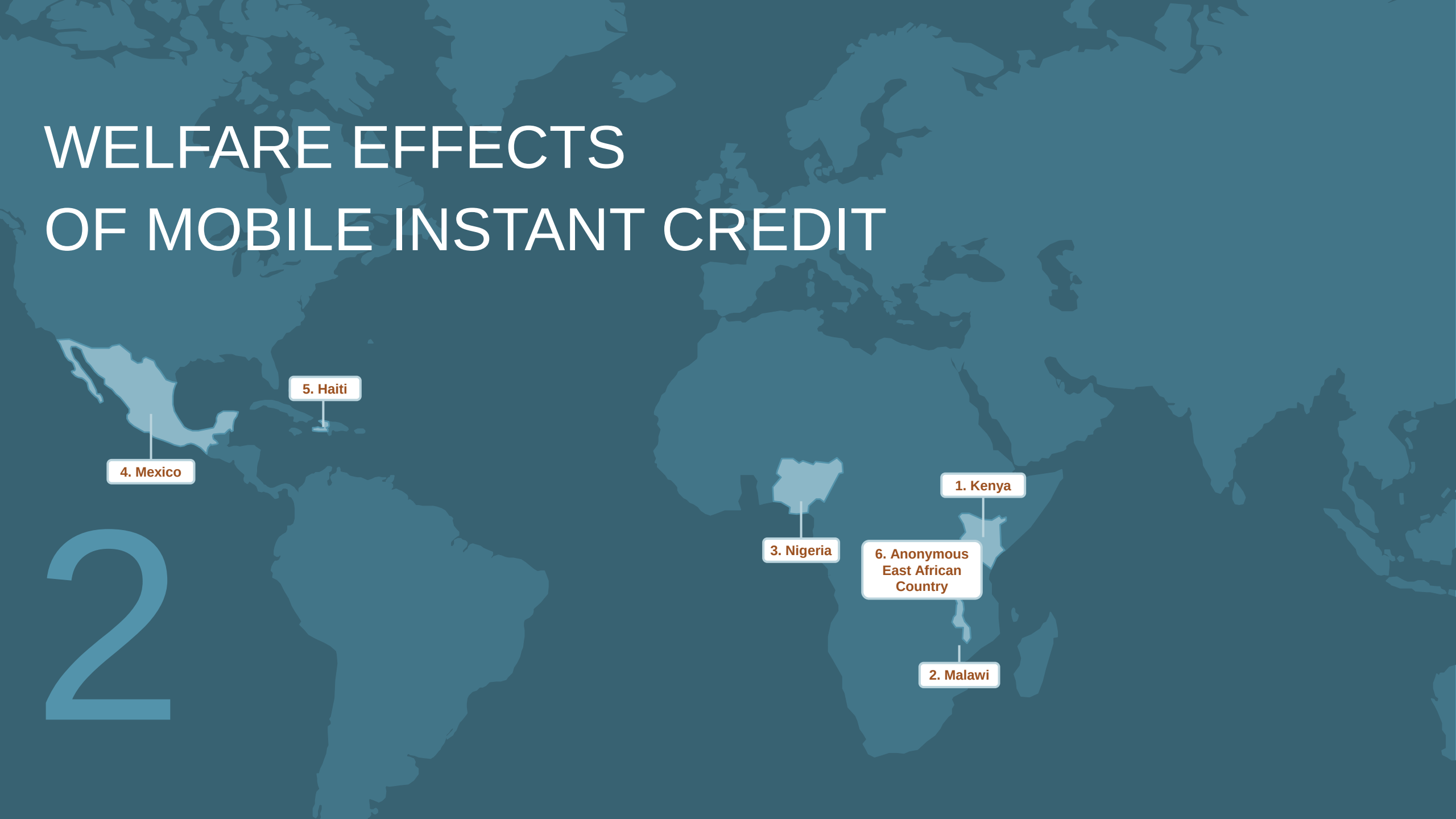
Formal financial services enable safe and affordable savings, payments, and other transactions. Informal mechanisms, on the other hand, may be less reliable, less secure, and more expensive.

Individuals with access to formal financial services have been shown to be more resilient.[3] Digital financial services and mobile money specifically have been shown to enable consumption smoothing, driven by a higher likelihood of sending and receiving larger transfers in times of shocks from a broader network of contacts.[4]

Access to digital loans with minimal transaction costs could enable borrowers to smooth consumption and improve welfare when dealing with unexpected costs.* Further, access to credit may have the indirect effect of enabling assets or savings held as a buffer against shocks to be released for other, higher utility uses.

**Credit may also enable investments and risk-taking; however, this deck focuses on small loans which are unlikely to be used for productive investments.*

WELFARE EFFECTS OF MOBILE INSTANT CREDIT



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WELFARE EFFECTS OF MOBILE INSTANT CREDIT (AND AIRTIME LOANS)

	Study Name & Authors	Form of Digital Credit	Time Period for Measuring Outcomes	Take Up Rate	Average Loan Size (USD)	Average Total Loan Value (USD)	Default Rate
1	**Fintech and Household Resilience to Shocks: Evidence from Digital Loans in Kenya** *Suri, Tavneet, Prashant Bharadwaj, and William Jack (2021)*	Mobile Instant Credit	18 months	34%	$2.80	$25	7%
2	**Digital Credit: Filling a Hole, or Digging a hole? Evidence from Malawi** *Brailovskaya, Valentina, Pascaline Dupas, and Jonathan Robinson (2023)*	Mobile Instant Credit	11 months	35%	$1.25	$2	15%
3	**Welfare Impacts of Digital Credit: A Randomized Evaluation in Nigeria** *Björkegren, Daniel, Joshua E. Blumenstock, Omowunmi Folajimi-Senjobi, Jacqueline Mauro, and Suraj R. Nair (2022)*	Mobile Instant Credit	3 months	85%	$15	$56	7%
4	**Too Fast, Too Furious? Digital Credit Speed and Repayment Rates** *Burlando, Alfredo, Michael Kuhn, and Silvia Prina (2023)*	Mobile Instant Credit	7 months	-	$91	n/a *(No Data)*	27%
5	**Liquidity or Convenience? Heterogeneous Impacts of Mobile Airtime Loans on Network Usage and Communication Expenditure** *Barriga-Cabanillas, Oscar and Travis J. Lybbert (2021)*	Airtime Loan	11 months	70%	$0.50	$2	< 2%
6	**Effects of Increasing Credit Limit in Digital Microlending: A Study of Airtime Lending in East Africa** *Shema, Alain (2021)*	Airtime Loan	8 months	45%	$0.11	$13	2-3%

Note: all monetary values in USD. Studies differ in their period over which outcomes were measured, so are not directly comparable – see first column. Average Total Loan Value refers to the total amount borrowed by the average study participants over the course of the study, accounting for repeat borrowing. We do not report take-up for Burlando et al. (2021) because their sample is restricted to people approved for loans.

WELFARE EFFECTS OF DIGITAL CREDIT

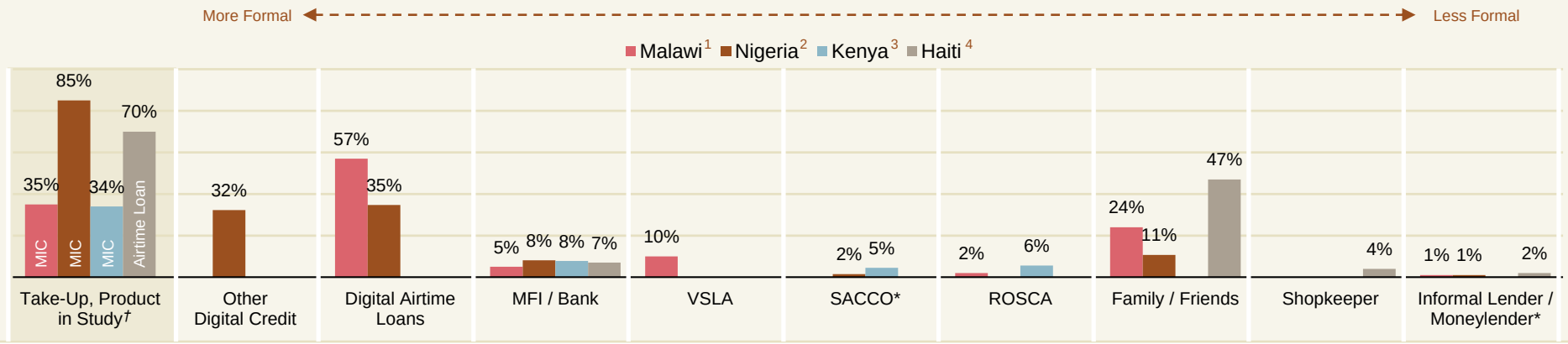
	Study Name & Authors	Intervention	Geography	Impacts: Resilience	Consumption or Expenditure	Assets or Savings	Network Cellular Usage	Financial Health	Subjective Wellbeing	Digital Credit and Gender
1	**Fintech and Household Resilience to Shocks: Evidence from Digital Loans in Kenya** *Suri, Tavneet, Prashant Bharadwaj, and William Jack (2021)*	Access to MIC loans	Kenya	Positive	Neutral	Neutral				
2	**Digital Credit: Filling a Hole, or Digging a hole? Evidence from Malawi** *Brailovskaya, Valentina, Pascaline Dupas, and Jonathan Robinson (2023)*	1. Access to MIC loans 2. Financial Literacy training	Malawi	Neutral		Neutral	Neutral	Neutral	Positive	Neutral
3	**Welfare Impacts of Digital Credit: A Randomized Evaluation in Nigeria** *Björkegren, Daniel, Joshua E. Blumenstock, Omowunmi Folajimi-Senjobi, Jacqueline Mauro, and Suraj R. Nair (2022)*	1. Access to MIC loans 2. Vary the amount of credit customers receive	Nigeria	Neutral	Neutral	Neutral		Neutral	Positive	Neutral
4	**Too Fast, Too Furious? Digital Credit Speed and Repayment Rates** *Burlando, Alfredo, Michael Kuhn, and Silvia Prina (2023)*	Speed of MIC loan disbursement	Mexico							Neutral
5	**Liquidity or Convenience? Heterogeneous Impacts of Mobile Airtime Loans on Network Usage and Communication Expenditure** *Barriga-Cabanillas, Oscar and Travis J. Lybbert (2021)*	Access to airtime loans	Haiti		Positive		Neutral			Neutral
6	**Effects of Increasing Credit Limit in Digital Microlending: A Study of Airtime Lending in East Africa** *Shema, Alain (2021)*	Changing credit limits	Anonymous East African Country		Negative		Neutral			

MOBILE INSTANT CREDIT AND ALTERNATE SOURCES OF CREDIT

The studies included in this section evaluated the impacts of Mobile Instant Credit and airtime loans. It is also important to place these loans in context: what other sources of credit could borrowers access and how might their behavior change if they did not have access to MIC?

- Four key studies in this review asked participants what sources of credit they used recently.
- Data suggests many MIC borrowers do not have other formal, reliable sources of credit available to them.
- This chart shows reported usage of alternative credit sources by study. Not all sources were included in each study.
- Analysis of MIC loans should consider the alternatives that borrowers have. Does MIC expand credit access, or shift demand from another source?
- Digital airtime loans and MIC were the most popular sources of credit, followed by informal loans from Friends and Family.
- Although alternatives may have similar or more favorable terms than MIC, their availability may be more limited. For example, in Malawi, only 5% of participants reported taking an MFI / Bank loan in the prior 3 months despite lower interest rates.

Self-Reported Usage of Alternative Sources of Credit



† Take-Up, Product in Study refers to the percentage of people in the treatment arm of each study that took a loan. Usage is less than 100% because not everyone offered the product takes a loan.

Borrowers in Malawi predominately reported taking MIC loans for convenience or because they lacked sufficient funds when they took the loan.

Why did you take out your last Kutchova instead of using your own money?[1]	
I did not have the money but needed to take care of something	48.3%
Had money coming soon, but wanted to make the purchase immediately	27.9%
Had the money but Kutchova was more accessible	23.8%

When applicants were denied MIC loans, only a quarter reported borrowing from another source. Instead, most people reduced their spending or drew upon savings.

Last time you applied for Kutchova but didn't get the loan, what did you do instead?[1]	
I did not incur the expense	37.7%
Borrowed from somewhere else	25.5%
Took money from my own savings	14.7%
Reduced the expense	9.9%

In Nigeria, increased access to MIC loans drove a shift from informal to formal credit.[2]

Random applicants were automatically approved for MIC loans, and those who otherwise may have been rejected were 37 percentage points more likely to take out a loan from any source. These borrowers had much higher rates of formal borrowing, somewhat offset by reductions in borrowing from friends and family, and to a lesser extent, from moneylenders.

+ 37pp

likelihood of auto-approved applicants taking out any loan

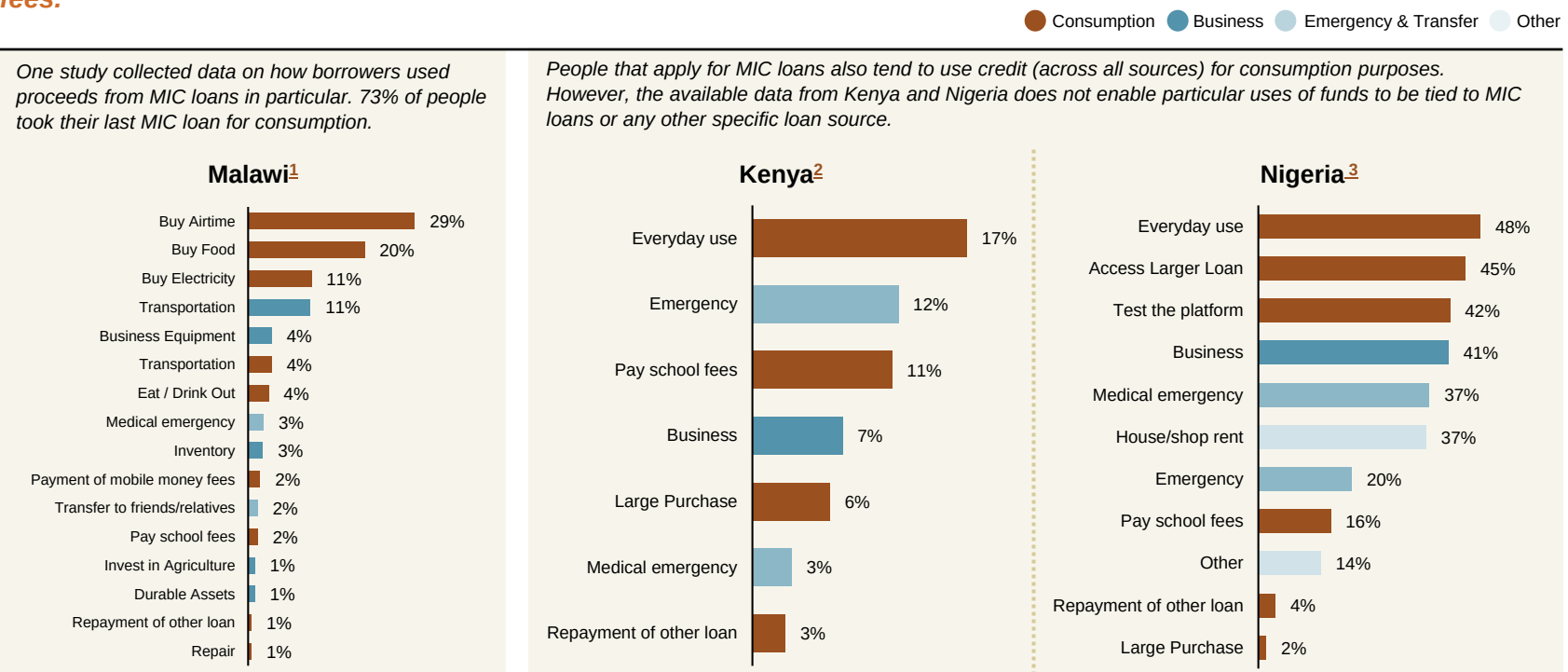
**Reported statistics for SACCOs also include loan usage from Cooperatives (in Nigeria; Björkegren et al.); statistics for Informal Lenders / Moneylenders also include loan usage from Shopkeepers (in Haiti; Barriga-Cabanillas and Lybbert).*

USAGE OF MOBILE INSTANT CREDIT LOANS

When asked how they used recent MIC loans, surveyed consumers indicated that they primarily used the funds for consumption such as buying food, airtime, or paying school fees.

- Three key studies in this review asked participants how they used funds from recent MIC loans.
- This chart shows reported usage of MIC by category. In all three studies, more than half of all use cases were for Consumption
- In this select set of studies, smaller average loan sizes were associated with a greater proportion of consumption-oriented loans
- Within the Consumption category, loans were most commonly used to pay for items like Airtime, Food, and School Fees, or to access larger future loans.
- Consumption oriented loans can play a role in improving welfare (e.g. consumption-smoothing), but are less likely to have transformative effects.
- Expanding access to productive credit – for education or starting a small business – may be more likely to generate large, sustained increases in welfare.

Recent MIC Loans by Use Case



One study collected data on how borrowers used proceeds from MIC loans in particular. 73% of people took their last MIC loan for consumption.

People that apply for MIC loans also tend to use credit (across all sources) for consumption purposes. However, the available data from Kenya and Nigeria does not enable particular uses of funds to be tied to MIC loans or any other specific loan source.

Average Loan Size (USD)

Malawi	Kenya	Nigeria
$1.25	$2.80	$15.00
In Malawi, when asked about their last Kutchova loan, 73% of survey participants reported using the funds for consumption purposes. In contrast, the same participants reported using their last MFI or Bank loans for Investment into [their] Business or Home 77% of the time, though only 5% of borrowers had taken such a loan in the prior 3 months.	Among M-Shwari users in Kenya, *Everyday Use* was the most common use of credit. Strikingly, nearly 90% of respondents reported experiencing a negative shock recently, and the second most common use of loans was to *Respond to an Emergency*.	In addition to the popularity of *Everyday Use*, paying *School Fees* was a major use of loans across studies. While not a Business use case per se, this is an investment in human capital.

Note that in Nigeria (Björkegren et al.), responses total to greater than 100% because participants were asked to report taking a loan out at least once for each purpose, across all loan sources. In Kenya (Bharadwaj et al.), participants were asked about the purpose of active loans; because not all participants had loans at the time of the survey, responses do not total to 100%.

RESILIENCE

Studies offered mixed evidence on whether MIC can bolster resilience to shocks.

Definition: The ability to respond to different types of negative shocks such as an unexpected health expense.

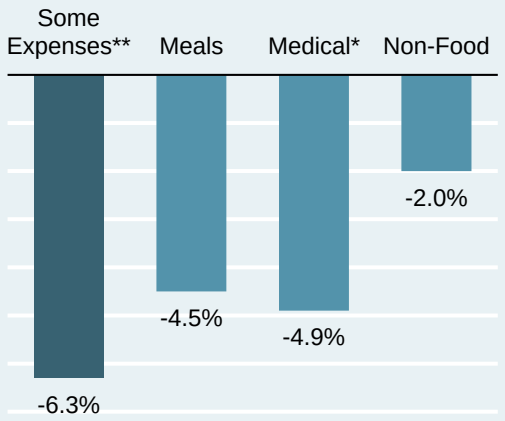
Results: These studies report mixed evidence on digital credit's effect on resilience. Most studies do not find any impacts, but this may be due to small average loan sizes.

Positive Impact

M-Shwari loans improved resilience in Kenya[1]

A study in Kenya found that households who utilized M-Shwari were 6% less likely to forego expenses due to any negative shock and 5% less likely to forego expenses due to a medical shock.

Reduced Likelihood of Foregoing Expenses



**Statistically significant at the 10% level*
***Statistically significant at the 5% level*

Neutral Impact

Small loans in Malawi did not improve borrowers' ability to cope with shocks[2]

Airtel Malawi's Kutchova product did not have an effect on coping with shocks.

Loan sizes range from USD $1.40-14.00. Given the small loan sizes, this result on resilience is not surprising.

$26
Median Amount Needed to Fully Cope with a Shock

vs.

$2
Median Loan Taken by Study Participants

Neutral Impact

Digital credit in Nigeria failed to impact resilience[3]

Access to small, consumer-focused loans did not have an effect on shock-coping or resilience.

CONSUMPTION OR EXPENDITURE

Studies generally found credit to have a small, but positive effect on consumption. Effects on specific types of spending were often more pronounced.

Definition: Total spending on goods, services, investment, etc.

Results: Most studies found that access to credit had a positive, but statistically insignificant impact on total expenditures. In some cases, spending increases on specific items were statistically significant.

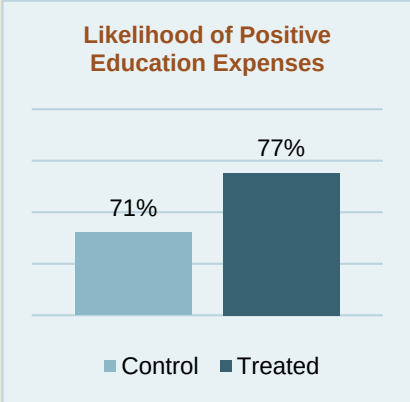
Conversely, Shema finds that a sudden increase in airtime credit limits led to a small initial increase in spending, followed by large declines. This appears to be driven by clients with newfound access to credit overextending themselves and repaying at lower rates. This inhibits their ability to buy new airtime and, in some cases, seemingly causes them to leave the network.

Neutral Impact

Access to M-Shwari did not affect spending broadly, but did have a large impact on education spending[1]

A study in Kenya found small and insignificant impacts on most measures of expenditure, except education expenses.

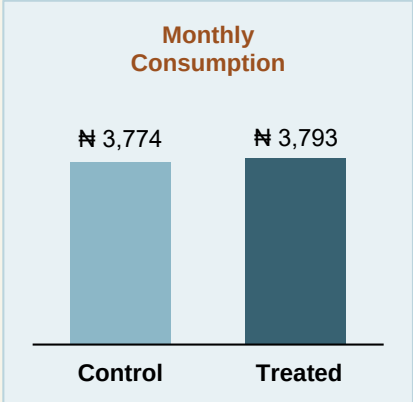
Money from loans may be spent on items customers would have foregone; this happened to be education.



Neutral Impact

Digital credit in Nigeria did not affect income or expenditures[2]

The study focused on the credit offering from an anonymous fintech.

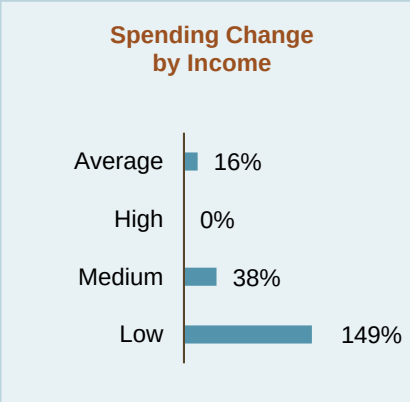


Positive Impact

Access to airtime loans in Haiti increased total communication spending, driven primarily by lower income individuals[3]

The average consumer increased airtime spending by 16%, but the impact varied widely by income tercile.

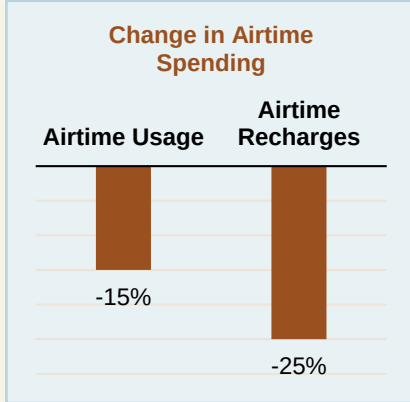
The results suggest that access to credit crowds-in additional expenditure.



Negative Impact

Increased credit limits led to short-term increases in borrowing, but were quickly followed by large and persistent declines in airtime borrowing and spending[4]

After an initial period of increased spending, customers whose credit limits were raised borrowed and recharged airtime 15% and 25% less, respectively. This may indicate that customers became over-indebted when credit was easily available.



ASSETS OR SAVINGS

Despite fears that servicing debt would cause reduced savings rates, no included studies found that MIC impacted savings or assets.

Definition: The value of assets owned (i.e. a home or livestock) and savings.

Results: The studies included in this review did not find that digital credit had an impact on customers' savings or asset ownership.

Neutral Impact

Access to M-Shwari did not have an impact on customers' total savings[1]

A study in Kenya found small and insignificant impacts on assets as well as savings. Individuals did report using a larger number of savings vehicles, which the authors attribute in part to saving more with M-Shwari to build credit, but the total amount saved across those vehicles was not impacted.

Neutral Impact

Neither access to credit, nor financial literacy training, had a large impact on customers' savings[2]

A study in Malawi found a small, positive (but statistically insignificant) effect on savings.

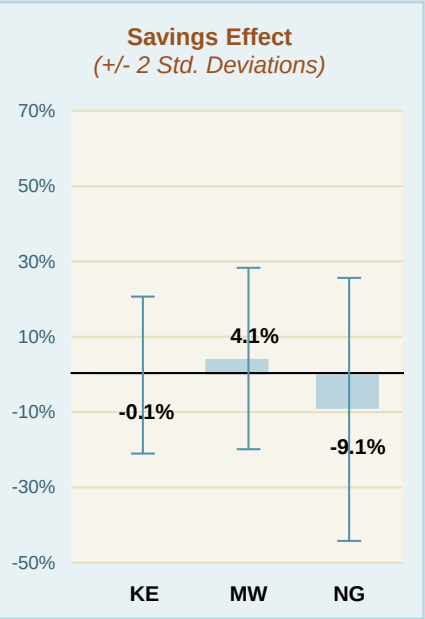
Neutral Impact

Neither access to credit, nor the amount of credit offered, impacted customers' savings[3]

A study in Nigeria found a negative (but statistically insignificant) effect on savings.

Estimates of how credit access affects savings rates varies widely across studies and borrowers within each study.

Although some effects look large, the estimates are very imprecise, as shown by the error bars, and cannot be distinguished from zero.



NETWORK CELLULAR USAGE

Airtime loans are popular, suggesting untapped demand, but evidence on repayment rates is mixed.

Definition: Time and money spent using a mobile phone for calls and/or SMS messages.

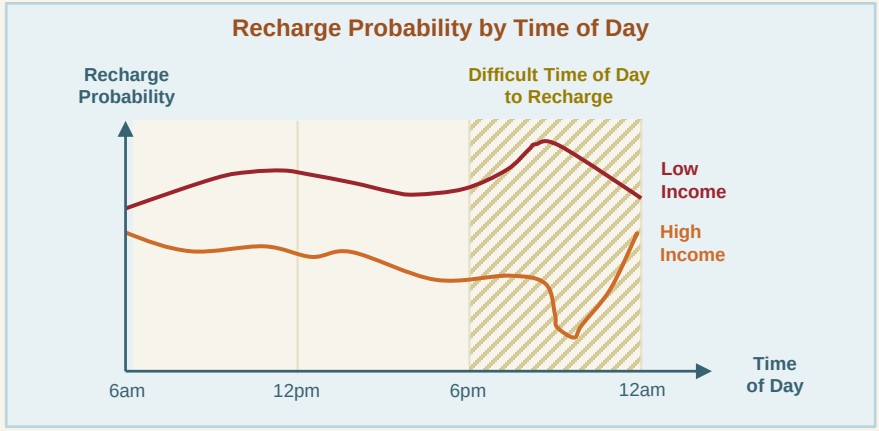
Results: The two studies focused on airtime loans both found that airtime loans were popular (high take-up). However, results on network spending were mixed.

Neutral Impact

Access to airtime loans in Haiti increased total communication spending, driven primarily by lower income individuals[1]

The average consumer increased airtime spending by 16%, but the impact varied widely by income group.

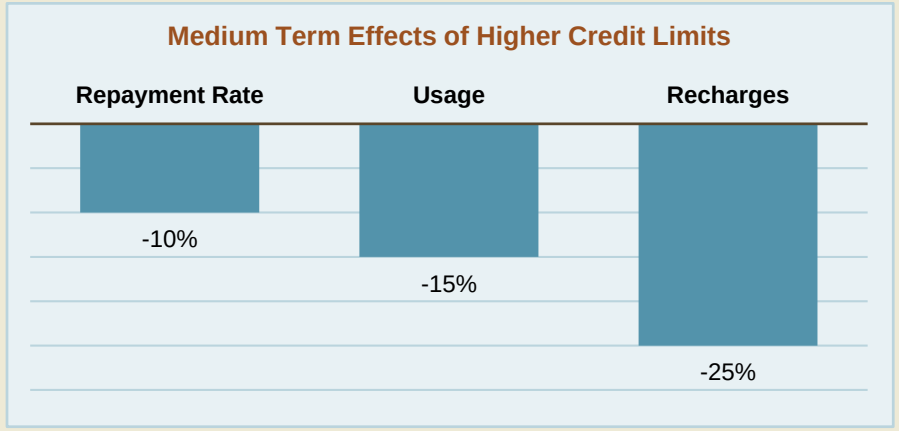
Low-income consumers were more likely to recharge at night, despite higher transaction costs, consistent with the idea that poorer customers wait until they have more certainty over their daily incomes before deciding how much to recharge.



Neutral Impact

Increased credit limits led to short-term increases in borrowing, but were quickly followed by large and persistent declines in airtime borrowing and spending[2]

Some customers of an anonymous East African mobile network operator were assigned new credit limits. Higher credit limits initially led to an 11% increase in airtime borrowing, but repayment, borrowing, and recharges all subsequently fell. This may be evidence that over-indebtedness followed from easy credit access.



FINANCIAL HEALTH

Evidence points to small, positive impacts on Financial Health, but these impacts fall far short of being transformative.

Definition: An individuals' self-reported ability to pay for necessary items like food or medical treatment, pay for non-food expenses, and prepare for emergencies. Resilience, covered earlier, is a component of many indexes designed to measure Financial Health.

Results: Most studies included in this review found small, positive, impacts on Financial Health. Researchers have not identified any evidence that digital credit has transformative impacts on Financial Health.

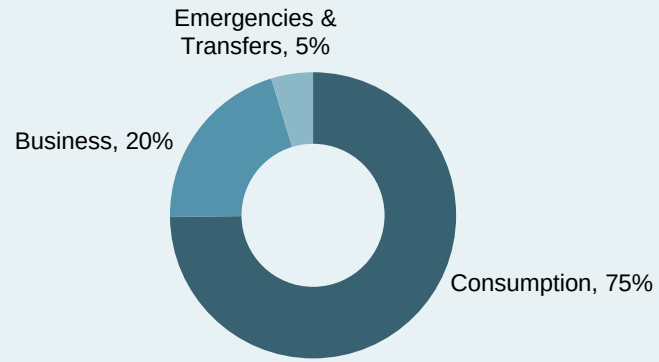
Neutral Impact

Access to credit in Malawi had almost no effect on financial security[1]

Customers with access to MIC loans reported almost no change in different measures of financial security, such as preparedness for emergencies or ability to pay for non-food expenses.

This is not surprising given the loan sizes: 75% of survey respondents used the loans for consumption.

"What was your last Kutchova loan for?"



Neutral Impact

Access to loans in Nigeria had positive, but insignificant, impacts on measures of financial health[2]

This study examined how both *access* to loans and *the amount offered* affected customers of a prominent financial service provider in Nigeria. Neither had an effect on an index of the overall financial health of the applicant.

SUBJECTIVE WELL BEING

Evidence suggests that Mobile Instant Credit can have positive effects on subjective well-being.

Definition: Considers factors such as an individuals' self-reported life satisfaction, measures of depression or distress, and perceptions of one's standing in social status.

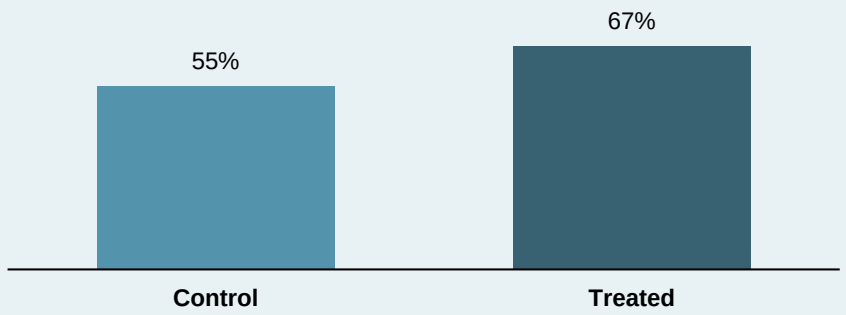
Results: The studies included in this review generally found positive impacts on subjective well-being; in multiple examples these impacts were notably large and statistically significant.

Positive Impact

Customers in Malawi reported higher levels of satisfaction with their financial well-being when they had access to credit[1]

Although access to credit only had a small and statistically insignificant impact on customers' financial health, those with access were more likely to report being satisfied with their financial well-being. This difference was large and statistically significant.

"Are you satisfied with your financial well-being?"
Percentage of respondents who said yes



Positive Impact

Access to credit increased subjective well-being for customers in Nigeria[2]

A study examined how loan access and loan size affected customers in Nigeria.

Access to MIC loans led to higher levels of subjective well-being. Effects were large, particularly compared to effects of cash transfers and antipoverty programs, which are much more expensive to implement (see figure below).

Offering larger loans, however, only had small and statistically insignificant effects on subjective well-being.

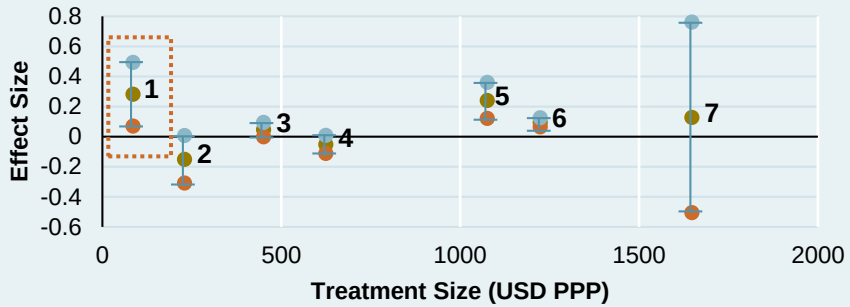


Chart and table based on Figure A9 from Björkegren et al.[2]

Study	Program Type	Outcome Measured
1. Björkegren et al.	Mobile Instant Credit	Subjective Well-Being
2. Karlan and Zinman (2010)	Consumer Loans	Mental Health Index
3. Angelucci et al.	Microfinance	Depression Index
4. Karlan and Zinman (2011)	Microfinance	Subjective Well-Being
5. Haushofer et al.	Cash Transfer	Psychological Wellbeing
6. Ridley et al.	Meta-Analysis	Misc.
7. Augsburg et al.	Microfinance	Perceived Stress Index

DIGITAL CREDIT AND GENDER (1 OF 3)

Motivation

Digital credit is a subset of the broader Digital Financial Services (DFS) landscape. Women's economic empowerment's intersection with DFS is more well studied than that with digital credit, but similar dynamics apply when examining the potential for differential impacts by gender.

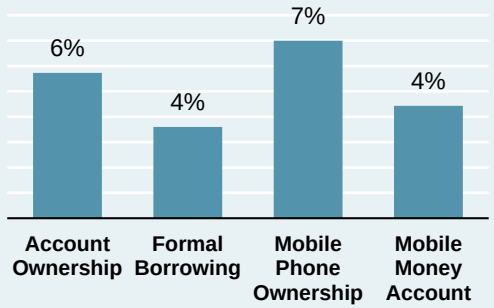
Some have speculated that DFS could be an avenue for boosting women's economic empowerment (WEE), for example by removing barriers that impede women's access to financial services.

Others worry that DFS will exacerbate existing inequities in products given large gender gaps in enabling norms and technologies, such as mobile phone ownership and usage (prerequisites for the use of mobile money or digital credit).

Background

There are persistent and well-documented gender gaps for a number of financial inclusion indicators, including account ownership and usage, credit limits and usage, as well as adjacent indicators like return on capital, phone ownership, etc.

Gender Gaps in LMICs (2021 Figures)[1, 2]



Increasing women's financial inclusion and women's economic empowerment are important for achieving the Sustainable Development Goals and building equitable societies.

Approach

- Summarizing the large body of evidence studying the components of empowerment and interventions that increase WEE would be a challenging undertaking in its own right
- This review selects a handful of pathways where digital credit may plausibly affect men and women differently. Plausibility is tied to specific, known barriers that women face for financial inclusion and economic empowerment.
- This review outlines the theories and examines the evidence produced thus far for why digital credit may be helpful or harmful.
- We present more in-depth evidence on the existence of discriminatory bias in lending in Section 3: Misconduct Associated with Digital Lending.

Additional Reading

Below is a small sample of additional reading on Women's Economic Empowerment and Digital Financial Services:

- The Impacts of Digital Financial Services on Women's Economic Empowerment | Bill & Melinda Gates Foundation
- Evidence of Digital Financial Services Impacting Women's Economic Empowerment | WEE-DiFine
- Leveraging Digital Financial Capability to Drive Women's Financial Inclusion | Women's World Banking
- Women's Economic Empowerment Meansurement in Financial Inclusion | FinEquity
- Women and Finance: Enabling Women's Economic Empowerment | CGAP
- The real story of women's financial inclusion in India | MicroSave Consulting
- Tackling Legal Impediments to Women's Economic Empowerment | IMF
- What Can Digital Credit do for Women? | Digital Credit Observatory

DIGITAL CREDIT AND GENDER (2 OF 3)

Digital Credit: Help or Hindrance for Women's Economic Empowerment?

Barrier Addressed	Why Would this Help?	*Key Stat*	Why Could this Hurt?	*Key Stat*
Distance *Traveling to bank branches represents a cost; this disproportionately affects women and people in rural areas*	Remote access to financial services can lower the monetary and time costs of traveling to a bank branch	In a survey of unbanked individuals, 31% cited distance from financial services as a barrier for not having a financial account[1]	Large and persistent gender gaps in access to and control of mobile phones may actually exacerbate financial inclusion gaps	Women are 7% less likely than men to own a mobile phone and 15% less likely to use mobile internet[5]
Financial History *Women are less likely to have robust credit histories, which can make them appear riskier to banks*	The use of alternative data such as mobile money transactions may increase financial inclusion for people without credit histories	Women were 26% more likely to receive a loan with a novel methods like psychometric screening vs. traditional screening approaches[2]	If algorithms are trained on data that include biases, they may replicate those biases at large scale, exacerbating the gender gap	When Apple and Goldman Sachs introduced the Apple Card, men received credit limits up to 20x higher than their spouses[6]
Autonomy *Cultural norms may limit women's ability to make decisions about their labor or financial resources*	Digital financial services, including credit, enable women to shield income and savings from their spouse or family, retaining decision-making power over its use	In a study in Uganda, women who received loans in their mobile money accounts had 15% higher profits than those who received cash[3]	The potential, even when it is unrealized, for privacy could create suspicion that leads to increased pressure or, in some cases, intimate partner violence (IPV)	Survey participants whose spouse had financially deceived them were 72% less likely to report being very happy in their relationship[7]
Stereotypes & Biases *Women often face discrimination in traditional financial institutions and are underrepresented among the banking sector workforce.*	Algorithms make decisions based on rules and data, and are less likely to discriminate against women based on preferences or stereotypes	Only 14% of women in the control group of a study in India reported being able to visit a bank without male supervision[4]	Without active support and products designed to meet women's needs, existing gaps in financial and digital literacy may exacerbate gaps in financial inclusion	Women were 4x more likely than men to have a loan taken out in their name but were less than half as likely to have the final say in the decision to take out the loan[8]

Results

The studies reviewed here broadly find that the impacts of MIC did not vary significantly, either positively or negatively, by gender.

Few studies were able to look at measures of women's economic empowerment but those that did found no significant impacts, positive or negative.

The following slide provides more detail on the specific studies that examine impacts by gender and what evidence they produced.

DIGITAL CREDIT AND GENDER (3 OF 3)

A cluster of causal studies broadly finds that MIC credit does not impact women's economic empowerment, nor do broader impacts of loans vary by gender.

Neutral Impact

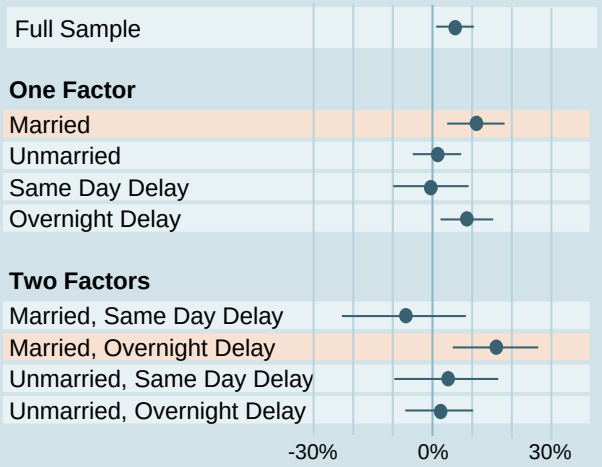
Autonomy

The speed of loan disbursement generally did not impact repayment differently by borrower gender[1]

A study in Mexico did not find differences in repayment rates by gender, nor that the effects of delays in loan disbursement differed by gender.

However, delays improved repayment rates more among married borrowers, particularly married women, suggesting a mediating role for intrahousehold gender dynamics.

Impact of the Cutoff on Loan Repayment



Impact N/A

Distance | Financial History | Autonomy | Stereotypes & Biases

Gender sensitization training did not impact key outcomes for women in India. However, agricultural loans could be designed to better fit women's needs and preferences[2]

In Odisha, a rural area of India where agricultural loans are widespread, researchers tested the effects of gender sensitization training and whether crop insurance or alternate credit scoring methods would impact demand for credit.

The gender sensitization training did not impact perceived gender roles, agricultural decision making, asset ownership, or demand for credit.

Women reported lower demand for agricultural loans - both in frequency and desired loan amount. However, both the alternative credit scoring approach and the offer of crop insurance boosted their demand for loans more than men's, suggesting that these features may be useful in designing products for women.

Loan Demand (INR)	Men	Women
Baseline	38,633	34,763
+ Khetscore	+ 1,893	+ 3,300
+ Insurance	+ 1,256	+ 2,584

Neutral Impact

Distance | Financial History | Stereotypes & Biases

Access to digital credit loans did not have an impact on women's economic empowerment in Nigeria or Malawi

Studies in Nigeria[3] and Malawi[4] investigated whether access to MIC loans had different impacts for men and women. They found neither differential impacts nor significant effects on women's economic empowerment.

Neutral Impact

Distance | Financial History

The impact of access to airtime loans did not vary by gender[5]

Women in Haiti are more likely to work in the informal economy, and on average have lower income.

After accounting for these differences, researchers do not find differences in airtime usage by gender.

MISCONDUCT ASSOCIATED WITH DIGITAL CREDIT

3

NEW AND GROWING CONSUMER RISKS

The digitization of credit, and finance more broadly, has led to new and growing consumer protection risks that must be addressed.

Robust Evidence of Growing Risks from Digitization of Finance

Consumer Protection Risks Growing with Digitization

The rapid digitization of finance in many regions of the world has revealed new and growing consumer protection risks.

Descriptive evidence from digital finance and mobile money, which underlies Mobile Instant Credit and digital credit, reveals misconduct and other risks. Select descriptive evidence, mostly from East Africa, suggests a variety of consumer protection challenges associated with MIC in particular.

Decision-making that Integrates Insights from Causal and Descriptive Studies

Although causal studies have not found clear negative impacts of MIC and airtime loans, decisionmakers should consider a broader set of evidence. Robust descriptive studies highlight diverse consumer protection challenges associated with digitizing credit, and should inform regulation and product design.

Framework for Key Consumer Protection Risks[1]

1. **High and Hidden Prices**: Consumers may overpay when prices are inadvertently or purposely obfuscated, or when providers price-discriminate, resulting in some consumers overpaying.
2. **Debt Stress**: Occurs when consumers take on more debt than they should reasonably expect to pay back without incurring undue hardship.
3. **Post-Contract Exploitation**: Providers or their actions harm consumers after take up of financial services by, for example, charging extra fees, adding unsolicited services, or using abusive debt collection practices.
4. **Fraud and Scams**: Fraud is expansive and includes fraudulent entities like a Ponzi scheme; misconduct conducted by individuals such as phishing for passwords or account numbers; and misconduct conducted by employees of legitimate entities such as mobile money agents who cheat customers.
5. **Data Security, Privacy, & Property Rights**: Risks arising when individuals do not have sufficient control over the use or sharing of personal information, or when providers violate norms or even regulations in using and sharing information for underwriting, collections, and marketing.
6. **Discrimination:** Quantitatively “irrational” taste-based and statistical discrimination reflecting deeper social and economic inequality affects access to credit through loan officer decisioning and various causes of bias in underwriting algorithms.

HIGH AND HIDDEN PRICES

Price shrouding, hidden fees, incentives to sell more costly products, non-standard price disclosures, limited consumer literacy, behavioral constraints where there is overoptimism or inattentiveness, among others, compound risks from already high costs of digital credit and other financial services.

Definition

- As digital credit is often targeted toward riskier consumers without a robust credit history, fees associated with the product including interest rates and late fees may be higher than with comparable products.
- Prices may also be inadvertently or purposely obfuscated from the consumer, especially through complex menus and contracts.
- High prices may manifest as price dispersion where prices vary dramatically for the same product, resulting in some consumers overpaying.

Cause(s)

- In some cases, high prices reflect authentic credit risks and uncertainty particularly with thin or no-file borrowers.
- Inattentive or over-optimistic consumers may commit to high cost loans even when costs are fully disclosed.[1, 2]
- Provider staff may maximize commissions and fees rather than making recommendations in the customer's best interest.
- Limited and non-standard fee disclosure requirements compounded with limited literacy facilitates price shrouding.

Examples and Evidence

Examples and Evidence on MIC

- A study in Kenya found that digital credit is relatively expensive, with a mean effective APR of 280.5% and median effective APR of 96.5%. The difference is mainly attributed to the presence of early repayment.[3]
- Using mobile app meta and review data, a study examining problematic fintech apps in the US, India, Nigeria, and the Philippines found that 69% of personal loan apps showed signs of predatory behavior, which included obfuscating the true cost of loans.[4]

Comparison of Cost Estimates for Airtime vs. Other Loans in Robinson et al. (2022)

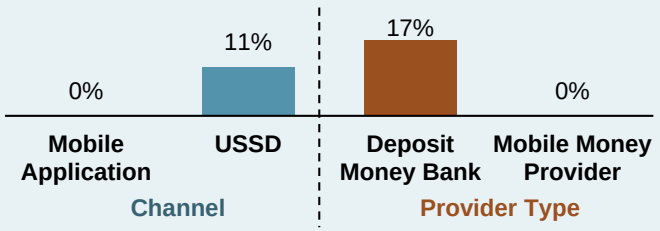
	% borrowing in last 3 months	APR
Digital/Airtime	57%	+1000%
Family	24%	101%
VSLA	10%	214%
MFI/Bank	5%	30%
ROSCA	2%	37%
Moneylender	1%	533%

Note: Data from a RCT study sample in Malawi, not nationally representative

Other Relevant Examples and Evidence

- A study of 16 LMICs found 14% of mobile money providers did not post prices on their website at all; among those that do, 30% did not link to price lists from their homepage.[5]
- A mystery shopping audit of credit and savings account providers in Ghana, Mexico and Peru found that providers disclose little unsolicited information about product cost or features, often understating costs.[6]
- An audit study in southern India found that banks rarely offered a no-cost account to consumers.[7]
- An audit in Nigeria found that consumers regularly pay fees to send transactions via electronic banking transactions that exceed caps set by the Central Bank of Nigeria.[8]

Share of Cases Wherein True Price Exceeded Government-Mandated Price Cap (Nigeria, 2021)



Source: Blackmon et al.[8]

DEBT STRESS

Easier access to expensive credit can lead to cycles of debt, multiple borrowing, reduced consumption, sell-down of productive assets, psychological stress and other outcomes associated with poor financial health.

Definition

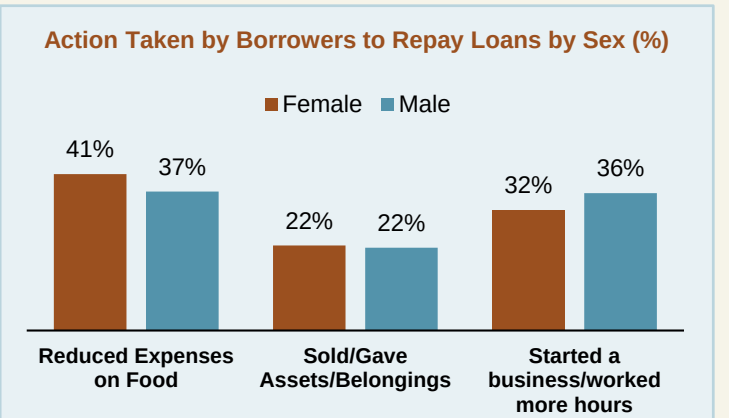
- Poor households often face financial uncertainty due to low or irregular income. Debt stress is associated with overborrowing or undue burden associated with paying back loans.
- The relatively low near-term costs of default on small short-term digital credit products can mask the more severe long-term costs when borrowers have negative credit reports, late fees and interest compound, etc.

Cause(s)

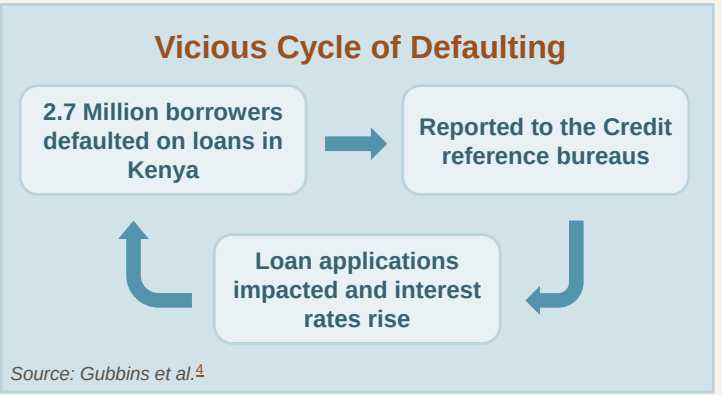
- Present bias can lead to under-saving and inability to repay loans when consumers do not calculate the tradeoffs between borrowing in the present and repaying in the future.[1]
- Exponential growth bias and limited attention can lead to underestimation of borrowing costs, which can in turn lead to overborrowing. Exponential growth bias can affect both underestimation of borrowing costs and undervaluation of savings returns.[2, 3]
- Lenders face an implicit information problem. If borrowers take on multiple concurrent loans from different providers, each provider is unable to accurately assess ability to repay the loan. Lack of universal basic identification compounds this multiple borrowing challenge in many LMICs.

Examples and Evidence

- In Kenya, the first African country to broadly introduce digital credit, one report found that 2.7 million Kenyans had been negatively listed by CRBs by 2017.[4]
- A survey of digital credit borrowers found that 12% of borrowers in Kenya and 31% of borrowers in Tanzania have defaulted.[5]
- In Mexico, a sequential line of credit led to decreased default rates for high credit score borrowers, but increased default rates for those with low credit scores, driven by differences in how each borrower segment used sequential loans.[6]
- In Mexico, borrowers who received delayed loans were 5.6 ppts more likely to repay loans, potentially suggesting present bias leads consumers to take loans they don't need or can't repay.[7]
- Randomly increasing customers' credit limits led to behavior consistent with over-indebtedness. Large initial increases in borrowing were followed by large drops in repayment rates, borrowing, and airtime recharges.[8]
- A study in India found repayment flexibility can reduce financial stress. Clients repaying monthly were 51% less likely to indicate feeling worried about repaying, 54% more likely to feel confident about repaying, and spent less time thinking about their loan than weekly clients.[9]



FSD Kenya FinAccess 2021 report[10]



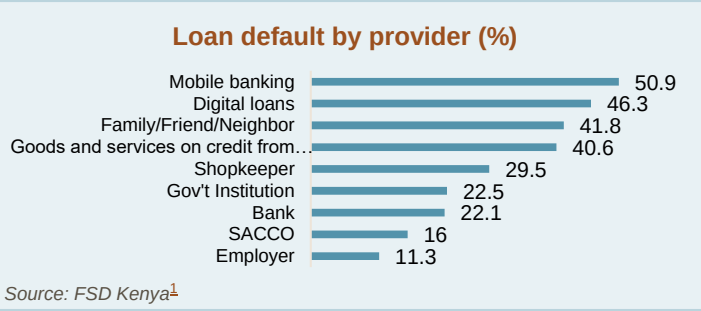
Source: Gubbins et al.[4]

CASE STUDY: DEBT STRESS IN KENYA

Kenya, an early adopter of digital credit, is an example of how access to credit can lead to debt stress without proper consumer protections.

Mobile loans and overlapping loans are associated with higher default

FSD Kenya surveys show that mobile loans have higher default rates (51%) than other formal loans.[1]



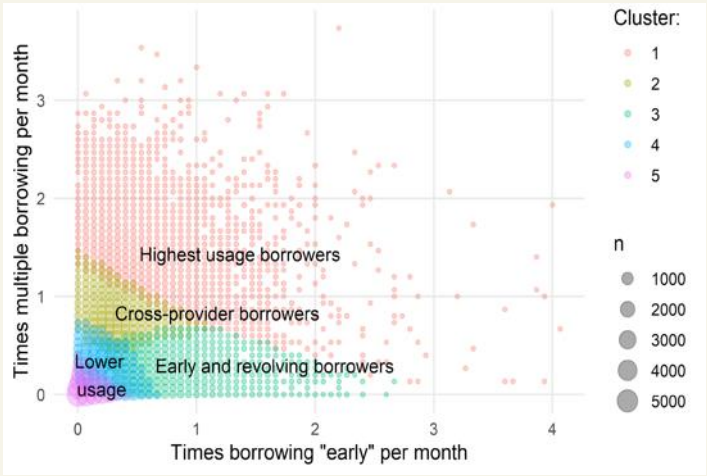
Source: FSD Kenya[1]

Administrative data show that overlapping loans are associated with higher incidence of default.[2]

Consumer Group	% Ever Late	% Ever Defaulted
Multiple borrowers, across providers	73.4%	39.6%
Repeat borrowers, single provider	64.4%	27.4%
Neither multiple nor repeat borrowing	67.3%	31.5%
All Consumers	**67.7%**	**36.2%**

Segmentation of multiple borrowers suggests specific risks and policies

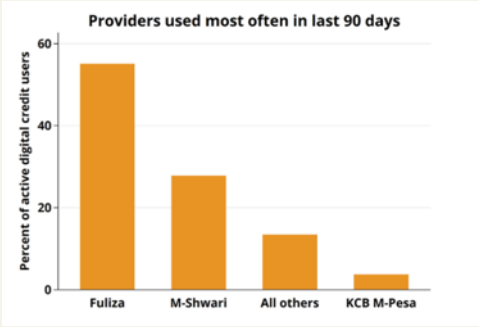
- Among those with multiple loans, of concern are the "highest usage" and "cross-provider" borrowers who have loans with multiple providers. These borrowers have a higher risk of late repayment or default.[2]
- The risk for "early and revolving borrowers" is the expense of servicing debt early, which result in expensive borrowing, rather than default. This group mainly borrows from the same provider, which has visibility on past loans and outstanding debts.



Source: Blackmon et al.[2]

New overdraft facility, Fuliza, saw a rapid uptake

- As of March 2022, value of Fuliza disbursements reached KSh 503 billion (~USD $4B), +43% from last year with 102% repayment vs disbursal rate.[3]
- Fuliza recorded the most active users across all providers. While it has provided relief, it is also subject to debt stress risks. Mobile banking loans, including Fuliza, defaulted at the highest rate in 2021.[2]



Source: Blackmon et al.[2]

- Data from Kenya's 3 Credit Reference Bureaus shows that accounts that were negatively listed rose to 3.2M in March 2020 from 2.7M the prior year. The majority were linked to mobile digital loans, with an average loan size of KSh 2,500 (roughly USD $24).[4]

POST-CONTRACT EXPLOITATION

Opaque fee structures and limited regulatory oversight enable high rates of overcharging and predatory debt collection practices.

Definition

- Post-contract exploitation occurs when providers or their actions harm consumers after take up of financial services.
- Agents may charge additional transaction fees, add unsolicited services and employ abusive debt collection practices. Even with regulated tariff structures, some agents collect informal fees.

Cause(s)

- Imperfect contracting procedures result in moral hazard whereby the provider fails to conform with the regulations or contract terms regarding fees, client onboarding and debt collection.
- Anticompetitive behavior may enable providers to exploit consumers after take up of financial products, particularly customers without many choices. Local monopolies in rural settings and mobile money markets dominated by one or two large firms contribute to providers' ability to engage in corrupt practices.

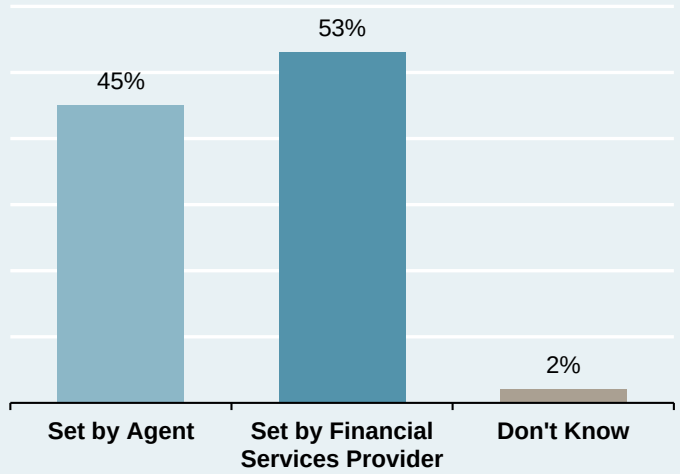
Examples and Evidence

- In Nigeria, 45% of Indirect Agents set their own customer prices, rather than using prices set by the service provider.[1]
- Mystery shopping shows cash-out transactions are most vulnerable to overcharging in Tanzania (22% of transactions), Bangladesh (20%), and Uganda (7%).[2]
- A consumer protection survey in Nigeria found agent overcharging (33%) was the largest challenge experienced by DFS users. Most consumers took no action to resolve challenges, signaling consumer redress access and usage could be improved.[3]
- A popular fintech app in Kenya and Nigeria reportedly threatened users who were late on payments that everyone on their contact list would be notified of the users' failure to pay on time, violating data privacy.[4]
- Regulators sanctioned India's Bharti Airtel for opening Airtel Payments Bank accounts, linking them to customers' national digital ID, and directing public subsidy payments into the Airtel accounts without customer consent.[5]

Agent Overcharging Among the Largest Challenge Ever Experienced by Nigerian DFS Customers[1]

33%	29%	26%
Agent Overcharging	Unexpected or Unclear Fees	Phishing Attempts

Setting Customer Fees on Transactions



Source: Blackmon et al.[2]

FRAUD AND SCAM

In most studies, the majority of surveyed consumers report that they've been the target of fraud and/or scams, which can be expensive and erode trust.

Definition

- Fraud is expansive and includes fraudulent entities like a Ponzi scheme; misconduct by individuals such as phishing for passwords or account numbers; and misconduct by employees of legitimate entities such as mobile money agents who cheat customers.
- Fraudulent digital loan products can sieve private data or processing fees from unsuspecting customers (without providing any actual financial services). Fraudulent products may go undetected because signals of fraud are often hidden by scammers who, for example, utilize fake reviews in order to make the products seem legitimate.

Consequence(s)

- More than 20% of banked respondents in Uganda, Kenya, and Nigeria reported losing money to fraud or scams, or paying bribes.[1]
- Fraud may reduce trust in the financial system and limit use of financial products that could improve consumer welfare.

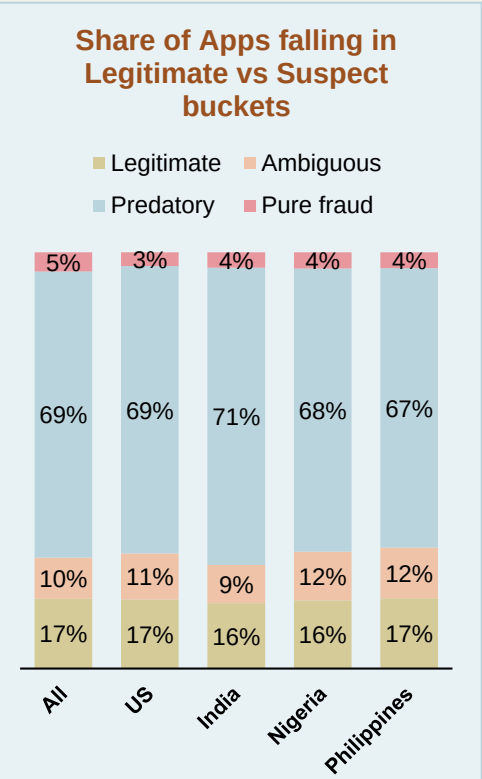
Examples and Evidence

Examples and Evidence on MIC

- In India, unlicensed lending apps employed predatory lending practices, including aggressive debt collection tactics. The crisis was serious enough that the Reserve Bank of India banned many such apps from the Google Play Store.[2]
- Using mobile app meta and review data, a study examining problematic fintech apps published on a major platform in the US, India, Nigeria, and the Philippines found more than two-thirds of personal loan apps showed signs of predatory or fraudulent practices, including providers obfuscating the true cost of loans, and misusing personal data.[3]

Other Relevant Examples

- In Kenya, only 12% of participants in a study correctly distinguished a set of spam and official messages. Training led to an 8% increase in correctly identifying spam, but also led participants to incorrectly categorize official messages as spam.[4]
- In Nigeria, educational anti-fraud interventions improved the ability to detect fraudulent communications, at cost of falsely labeling genuine communications as fraudulent (driven by men). It also increased confidence in deciphering (driven by women), in line with evidence that women typically drive broad increases in trust in DFS.[5]
- In Malawi, scammers steal more than USD $100,000 each month via fraudulent mobile money transfers.[6]
- In a survey of more than 1,200 people in Rwanda, 40% reported being targeted by fraudulent schemes and 10% were victims of fraud at least once.[7]



Source: Fu and Mishra[3]

DATA SECURITY, PRIVACY, AND PROPERTY RIGHTS (1 OF 2)

New sources of data have enabled lenders to expand access to credit and could contribute to a more secure financial system, if used responsibly.

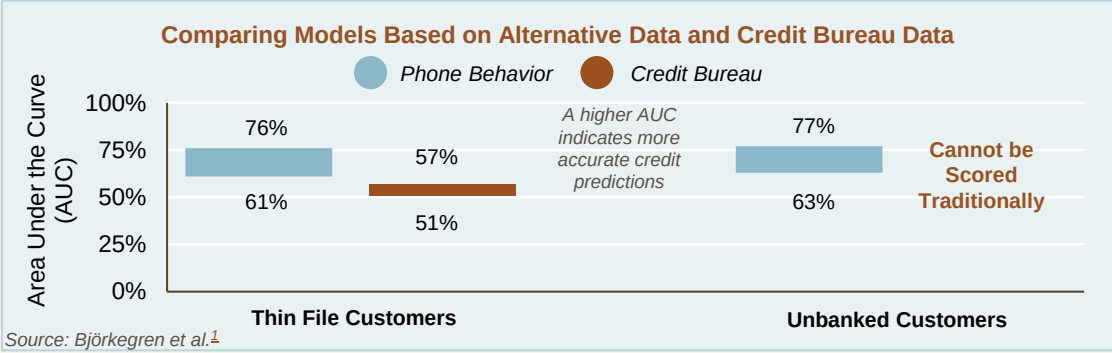
Definition

- Data security, privacy and property rights risks arise when individuals do not have sufficient control over the use or sharing of personal information or when providers violate norms or even regulations in using and sharing information for underwriting, collections, and marketing.
- Frictions arise as there are risks around harvesting personal consumer data for public interest, potentially without consent of the individual.

Alternative Data can Expand Credit Access

Machine learning algorithms using alternative data can construct credit scores for mobile phone owners, enabling lenders to expand lending to borrowers with little to no credit history.

- A credit scoring model using mobile money records in South America outperformed credit bureau models for "thin file" customers, and performed similarly well for unbanked customers.[1]
- Using social and mobile footprints, an alternative credit scoring model could extend credit to 9% more applicants without affecting default rates.[2]
- Combining credit bureau and digital footprint data from a German e-commerce company outperformed models using only credit bureau data by 5.3 percentage points, 73.6% vs. 68.3% Area Under the Curve, a common measure of the information provided by a credit score.[3]
- Analyzing 1.8mm loan transactions from a Chinese online bank showed that a machine learning-based approach predicted loan defaults better than traditional scorecard models during normal times and during shocks.[4]
- Simulations based on real data from a lender in Nigeria show that a privacy technique called Differential Privacy could be used to protect data without having large effects on profitability.[5]



Source: Björkegren et al.[1]

Data Sharing Can Contribute to Public Goods

Robust foundational identification systems can enable low-cost customer authentication and KYC compliance.

- In Malawi, fingerprinting when applying for loans led to higher repayment rates for borrowers with the highest ex ante default risk without excluding other borrowers.[6]
- More than 63 billion e-authentication requests have been processed via India's Aadhaar system.[7]

1.31 Billion

Indians have an Aadhaar number, or national ID, enabling easy identity verification and access to Government services

Data sharing between financial institutions can help prevent money laundering and fraud, lowering costs for consumers.

- A privacy enhancing technique called Secure Multiparty Computation (SMC) can enable multiple stakeholders to run fraud detection analysis on a combined dataset while ensuring each party only learns results for their data.[8]
- Banks in the Netherlands also used SMC to build prototype models improving their ability to detect money laundering.[9]

DATA SECURITY, PRIVACY, AND PROPERTY RIGHTS (2 OF 2)

Although new data sources can contribute to social welfare, their use may violate data privacy and can leave consumers more vulnerable to cyber attacks.

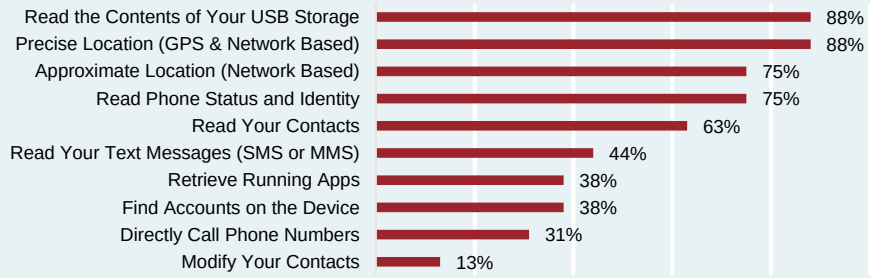
Definition

- Data security, privacy, and property rights risks arise when individuals do not have sufficient control over the use or sharing of personal information or when providers violate norms or even regulations in using and sharing information for underwriting, collections, and marketing.
- Frictions arise as there are risks around harvesting personal consumer data for public interest, potentially without consent of the individual.

Collecting Sensitive Data is Becoming Commonplace

- A 2020 analysis found that a majority of leading credit apps were collecting sensitive data such as GPS location and contact information.[1]
- In a review of data security practices among 27 prominent digital lenders, 17 used unsafe security algorithms, and 8 used unsafe server configurations.[2]
- A test of 110 popular, free apps found that 73% of Android apps shared personal information such as email address with third parties, and 47% of iOS apps shared geo-coordinates and other location data with third parties.[3]

Frequency of Digital Credit Apps Collecting Different Data Types

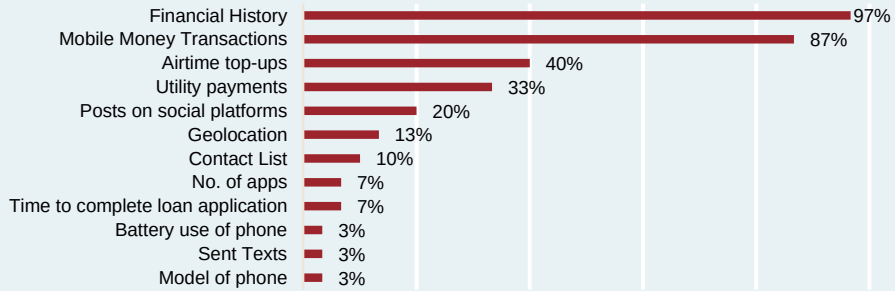


Source: Kelly et al.[1]

Data Privacy Risks Are Growing

- Most research defining notions of privacy is based on Western perspectives, but privacy concerns may differ across LMIC contexts. For example, it is common practice for Western governments to share aggregated statistics, but some African communities view this as a violation of privacy.[4]
- In a survey of Rwandan mobile money users, 80-97% reported negative views on using some types of alternative data, citing privacy risks and bias.[5]
- Data protection laws are being enacted across LMICs, but often include weaker accountability measures. For example, less than half of African data protection laws mandate disclosure of data breaches, whereas GDPR requires disclosure within 72 hours.[6]
- Cybersecurity risks to financial institutions are growing, indicated by a rising number of data breaches, ransomware attacks, and phishing attacks.[7]

Survey Respondents Who Said it is Fair to Use Different Data Sources for Credit Scoring



Source: Rizzi and Kumari[5]

DISCRIMINATION

Various forms of discrimination explain some of the inequalities in access to credit, though discrimination is often complicated to research and there is limited rigorous evidence from LMICs.

Definition

- Discrimination is often categorized into taste-based vs. statistical discrimination.
- Other categories include "paternalistic discrimination" where men discriminate out of seemingly altruistic motives, such as to protect women.
- Discrimination could materialize through loan officer decision-making or biased algorithms, which could develop biases in many ways.
- Some discrimination relevant to development issues may be illegal (e.g. race/ethnicity), but other discrimination (e.g. income) may be expected.

Gender Discrimination in Lending

Most evidence on inequality and discrimination in credit markets is from high income countries; studies from LMICs suggest a complex picture. Unequal access to credit could reflect discrimination by loan officers, that women are restricted to less productive sectors or that women's access to enablers of credit access such as identification, phones, accounts, etc. is limited. This is a brief set of examples drawn from an extensive literature.

Examples and Evidence from LMICs

- In 2021, 21% of women in LMICs used credit vs. 25% of men. How much of this gap reflects taste-based discrimination against female borrowers versus other factors remains an active focus of research.[1]
- Only 44% of surveyed low-income jurisdictions have laws or regulations prohibiting discriminatory practices.[2]
- An experiment in Turkey found loan officers are 26% more likely to require a guarantor for female entrepreneurs. Discrimination was concentrated among young, inexperienced, and gender-biased officers and focused on female loan applicants in male-dominated industries.[3]
- Researchers randomized applicants' gender shown to judges in a real business plan competition in Ethiopia, and found no evidence discrimination against women. Judges' evaluation scores, likelihood of recommending a business for a loan, and assessment of future business performance were all unaffected by the gender on the application. The intervention itself had no impact, but this has positive implications for fairness in loan recommendations.[4]

Examples and Evidence from High Income Countries

- The approval rate of loan requests submitted by female borrowers was 18% lower than the rate of otherwise identical loan requests submitted by men (28% vs 35% approved), implying gender discrimination prevents Chilean women from accessing an additional USD $12 billion in credit.[5]
- Among European SMEs, female-led enterprises receive higher interest rates than similar male-led firms, and firms whose leadership changes from female to male are more likely to receive lower interest rates.[6]
- Female credit officers in Spain have a 15% lower delinquency rate than male credit officers who are not as likely to be punished for their poor lending decisions.[7]
- Among Italian SMEs, women entrepreneurs pay more for credit than men despite being equally risky.[8]

Discrimination Against Other Vulnerable Classes

- With the exception of ethnic and racial discrimination, research on discrimination in lending to other vulnerable classes such as disabled, elderly, refugees, or LGBTQ+ individuals is limited.
- Having lower income or living in more rural locations are rarely considered protected characteristics. However, taste-based discrimination against such people may prevent them from realizing their full productive potential. This may be a particularly large constraint on development given that it is citizens with these characteristics that are more likely to experience poverty.

EFFECTS OF CONSUMER PROTECTION TOOLS

4

Image: ©Bill & Melinda Gates Foundation/Frederic Courbet

PROMISING NEW APPROACHES TO PROTECT & EMPOWER CONSUMERS

A handful of pilot interventions and causal studies confirm the efficacy and feasibility of interventions to enable better market monitoring by regulators and to directly empower consumers. Upgrading consumer protection regimes is imperative in the context of the increasing digitization of finance and credit, in particular.

Examples of Next Gen Market Monitoring Solutions for Regulators

Rich new data sources, sophisticated new data collection methods, and advanced data analytics suggest a next generation approach to market monitoring would enable regulators to push beyond retrospective towards preventative interventions.

Examples of Next Generation Market Monitoring Activities

1. "Big" data requests for commercial transaction records coupled with cutting edge data analytics
2. "Representative" mobile phone surveys at lower cost and high frequency
3. Well-designed mystery shopping
4. Analyzing standardized customer care logs
5. Real-time social media scraping and analytics to source consumer grievances
6. Scraping app meta-data to predict fraud and target app audits/removal
7. Chatbot-enabled consumer complaints reporting to regulators

Evidence on Interventions to Directly Improve Consumer Outcomes

Recent evaluations of interventions directly targeting consumer and provider behavior illuminates what are and are not promising approaches to empowering consumers during the coming waves of financial digitization.

Examples of Consumer Empowerment Interventions

1. Loan wait times
2. Repayment flexibility
3. Access to legal representation
4. Information disclosures
5. Debiasing loan underwriting with gender intentional training data
6. Financial literacy training

EVIDENCE OF CONSUMER PROTECTION INTERVENTIONS

Potential Interventions to Address the Consumer Protection Challenges.

★ *Topics we will present evidence on*

Market Monitoring Approaches

- AI to Monitor DFS
- ★ Leveraging Big Data and Data Science
- ★ Low Cost, High Frequency Phone Surveys
- ★ Mystery Shopping
- ★ Standardized Customer Care Logs
- ★ Social Media Data Scraping
- ★ Scraping App Meta-Data for Fraud Prediction
- ★ Chatbot-enabled Consumer Complaints Reporting

High and Hidden Prices

- ★ Financial Education
- ★ Wait Times
- Information Disclosure and Campaigns

Debt Stress

- ★ Financial Education
- Information Disclosure and Campaigns
- Credit Reference Bureaus
- Reminders
- ★ Flexible Repayment

Post-Contract Exploitation

- ★ Legal Representation
- Competition
- ★ Learning-by-Doing

Fraud and Scam

- Information Disclosure and Campaigns
- Consumer Complaint and Redress Mechanisms

Data Security, Privacy, & Property Rights

- Digital ID user authentication
- ★ Use of privacy enhancing technology

Discrimination

- ★ Debiasing campaigns
- Gender sensitization training
- ★ Gender disaggregated credit scoring
- ★ Alternative credit scoring approaches

Market Monitoring

BIG DATA REQUESTS & SOPHISTICATED ANALYTICS BY REGULATORS

Regulators can leverage their formal powers to demand proprietary data from industry or to require reporting of anonymized microdata on loan and other transactions.

Research Design: Merged insights from phone surveys of DFS users with analysis of administrative transaction-level data from digital credit providers to provide supply- and demand-side data on consumer protection risks with digital credit and opportunities for policy reform.

Study Dates:
- Phone Survey: Sept – Oct 2020
- Admin Data: Jan 2019 – Mar 2020

Country: Kenya

Sample:
- Phone survey - 793 DFS users
- Transaction and account-level data from six digital credit products

Considerations: Regulatory data requests from commercial providers can be slow and politicized, but are often the only way to get access to the proprietary administrative and transaction data maintained by the financials service providers. New privacy enhancing technologies (not used in this study) provide promising new methods for analyzing and aggregating insights across providers without actually sharing the original proprietary data, which could expedite these types of data requests.

Description

In February 2020, the Competition Authority of Kenya (CAK) announced a Market Inquiry into Kenya's Digital Credit Sector, conducted with research support from Innovations for Poverty Action (IPA).[1]

The inquiry leveraged administrative data from six digital credit products, acquired through regulatory data requests made by CAK to:

- Better understand the size and nature of the market,
- Identify consumer protection risks and cases of probable fraud,
- Propose solutions to increase transparency, improve consumer redress, and increase control over personal information.

Example of Administrative Data Used

Transac. Type	Transac. Value	Balance Before	Balance After	Disbursed Time	Loan Term	Interest	Penalty	City	Dob	Gender
LOAN	20000.00	0	20000	2016-03-17 09:15:18	21	0.205	0	Ilala	24/08/1975	F
PAY	24600.00	100350	75750	2016-03-17 09:15:18	21	0.205	0	Ilala	24/08/1975	F
LOAN	25000.00	36700	61700	2016-05-08 18:07:31	7	0.135	0	Ilala	24/08/1975	F
PAY	22700.00	62650	39950	2016-05-08 18:07:31	7	0.135	0	Ilala	24/08/1975	F
LOAN	27000.00	4110	31110	2016-06-16 11:21:07	14	0.17	0	Ilala	24/08/1975	F
PAY	29250.00	408760	379510	2016-06-16 11:21:07	14	0.17	0	Ilala	24/08/1975	F

Transaction level data collected—dates and amounts of disbursement and repayment

Specifics of each loan collected

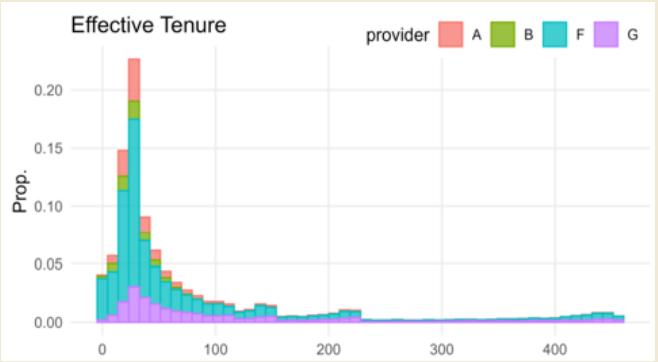
Demographics of each user collected

Analysis

Short tenure is quite common and can be very costly without refunds for early payback of MIC loans

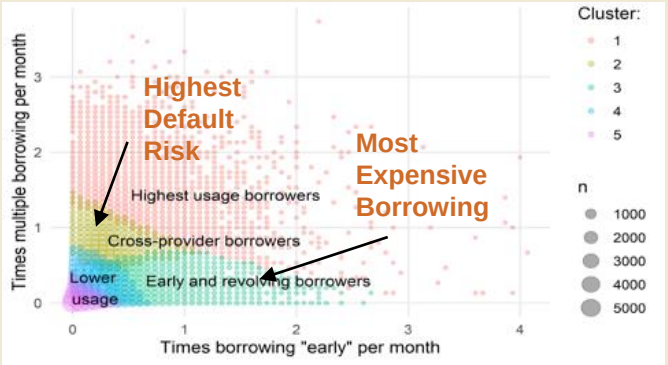
4% of borrowers hold loans for <1 day

30 days is the most common tenure



Analysis

Extensive multiple borrowing within and across providers with some segments exhibiting patterns of debt traps and others overspending through early repayment and re-borrowing.



Market Monitoring

LOW COST HIGH FREQUENCY "REPRESENTATIVE" PHONE SURVEYS

Surveys remain key means of drawing "representative" samples of users and non-users. Surveys can collect demographic and household information essential for segmentation (gender, income, etc.). Random digit dial (RDD) can drastically reduce the costs of sampling and surveying.

Research Design: Innovations for Poverty Action implemented random digit dial remote phone surveys in Kenya, Uganda, and Nigeria to surface consumer protection priorities among digital finance consumers.

Dates Studied:

- Kenya: Sep – Oct 2020
- Uganda: Aug – Sep 2020
- Nigeria: Aug 2020 – Feb 2021

Countries: Kenya, Uganda, Nigeria

Sample:

- Kenya: 793
- Uganda: 1,592
- Nigeria: 752

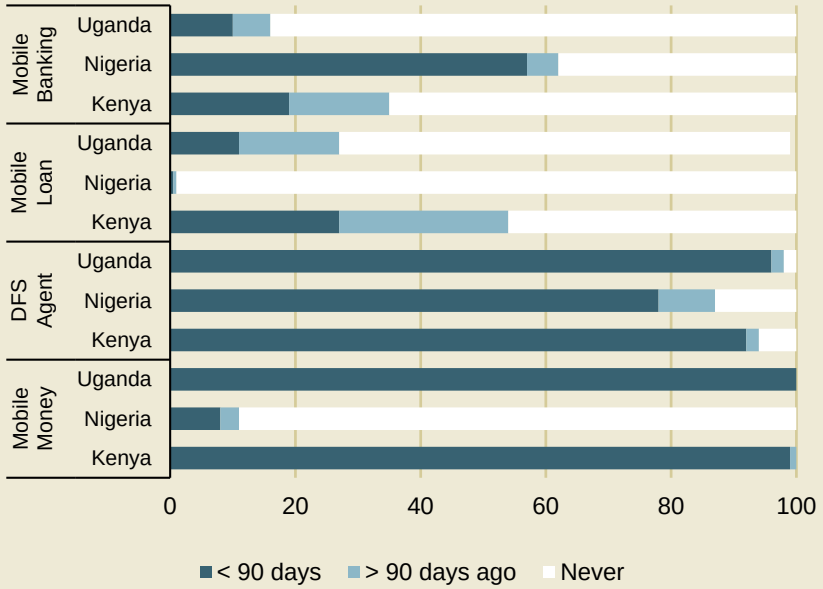
Considerations: Random digit dial and interactive voice response technologies can drastically reduce the cost of phone surveys. Representative phone surveys utilize reweighting observations, stratified sampling, etc. but they are still prone to bias as individuals that lack regular access to phones, who are disproportionately female, low income, and rural, will be excluded. Therefore, phone surveys should be just one approach to a triangulating more comprehensive market monitoring and should not be considered perfect substitutes for face-to-face surveys.

Description

Researchers conducted a random-digit dial phone survey with adults who used mobile money, mobile banking, and/or mobile loans.[1]

Usage of digital financial services (DFS) varied across countries, but usage of Mobile Money and DFS Agents were generally highest.

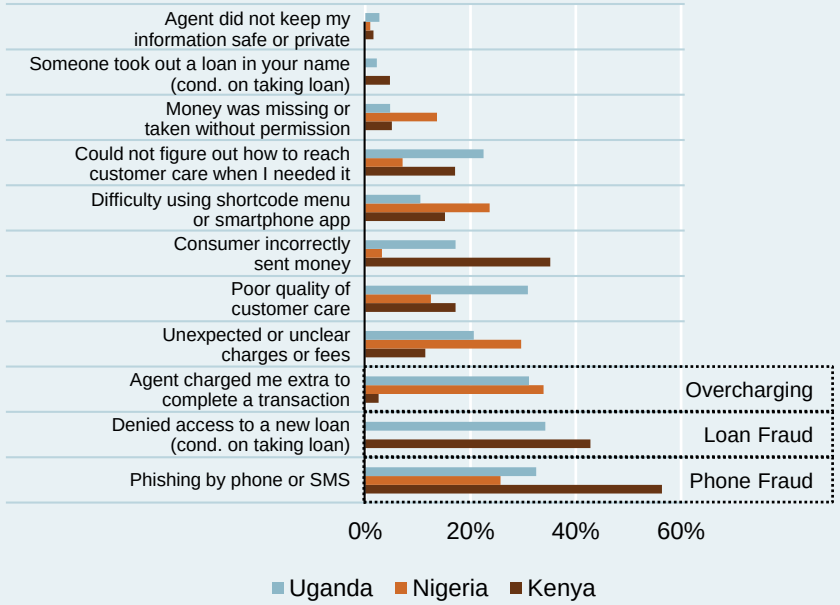
Digital Financial Service Usage, by Service Type and Country



Results

Phishing and loan fraud were leading challenges in Kenya and Uganda, while overcharging by agents was a particularly big challenge in Nigeria and Uganda. The substantial variation across countries points to the importance of avoiding generalizations in identifying and solving for local consumer protection challenges.

Self-Reported Consumer Protection Challenges from Mobile Surveys



Market Monitoring

WELL DESIGNED MYSTERY SHOPPING

Mystery shopping can measure consumer costs beyond official fees, including informal fees and opportunity costs associated with limited reliability of some DFS products. These outcomes are sensitive to the data collection method used, so weighing tradeoffs between methods is important.

Research Design: Innovations for Poverty Action's Transaction Cost Index[1] project used mystery shopping by trained enumerators and local consumers, along with intercept surveys, to measure the true cost of transacting with mobile money agents.

Dates Studied: 2022

Countries: Bangladesh, Tanzania, and Uganda

Sample: Approximately 400 agents per country, including mix of rural and urban locations.

Considerations: Transaction costs are a significant factor in the take-up and continued usage of digital financial service products. However, researchers and policymakers lack systematic data on these costs, both monetary and non-monetary. How to accurately and affordably measure these costs is an open question that IPA explores by testing mystery shopping and consumer intercept approaches.

Description

There are tradeoffs among three types of Mystery Shoppers used, suggesting each has advantages. Researchers measured key indicators related to price transparency, agent overcharging, and transaction reliability using data from all three methods.

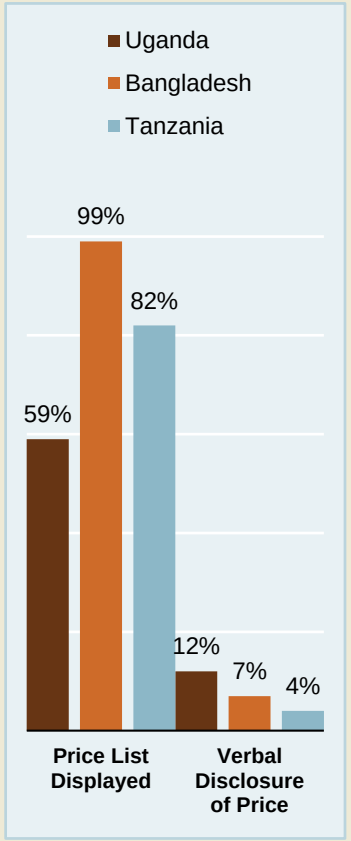
- **Professional Shoppers:** Enumerators hired to do mystery shopping
- **Intercepted Consumers:** Real consumers interviewed when leaving agent's store
- **Local Consumer Shoppers:** Recruited consumers who are paid as mystery shoppers in their local community

Data Collection Methods: Tradeoffs

	Worst	Middle	Best
Data Collection Affordability	High Cost		Low Cost
Adaptability			
Reflection of Real-World Consumer Decisions			
Data Quality			
Observer Effects	Many		Few

Results

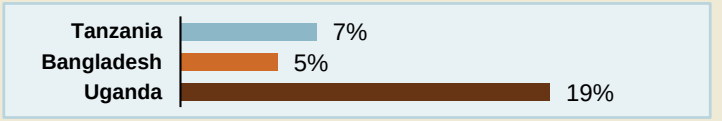
Price Transparency



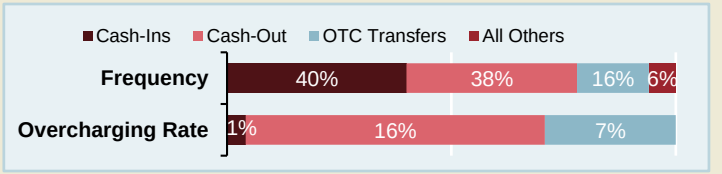
Results

Agent Overcharging

Agent overcharging rates are twice as high in Uganda as Tanzania or Bangladesh

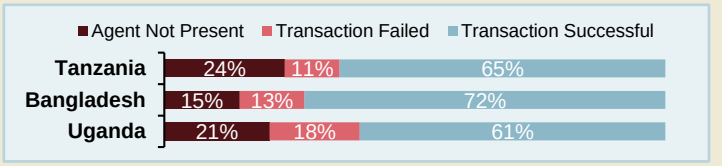


Overcharging is driven by cash-outs, *despite similar frequencies of cash-in and cash-out transactions performed by agents*



Transaction Reliability

Approximately 1 in 3 attempted transactions were not completed due to absent agents or transaction failures



Liquidity constraints are the leading cause of failed transactions

Failure Reason	Cash-In	Cash-Out	Account-to-Account Transfer	OTC Transfer
Agent Knowledge	8%	9%	39%	8%
Doesn't Offer Service	32%	29%	38%	30%
Liquidity Issue	46%	41%	6%	48%
Network or Device Issue	5%	4%	6%	4%
Other Issue	8%	17%	10%	10%
Total	100%	100%	100%	100%

Market Monitoring

STANDARDIZED CUSTOMER CARE LOGS FOR ANALYSIS AND PREDICTION

Financial providers actively track queries from their customers. These customer care logs contain valuable information about customer concerns. Regulators often require reporting on these logs, but they are rarely standardized. Standardized templates and more sophisticated analysis could yield valuable actionable insights.

Research Design: In collaboration with the Uganda Communication Commission (UCC), researchers used natural language processing and other data analytics to categorize and analyze customer complaint reports submitted by mobile network operators (MNOs) offering mobile money services.[1]

Dates Studied: Jan 2019 – Aug 2020

Country: Uganda

Sample: 3,585,864 customer care logs from four MNOs

Considerations: This study demonstrates the power of more standardized customer care templates and potential for sophisticated analytical techniques to empower proactive regulators with more targeted interventions.

Description

Although it might be natural to expect a providers' volume of complaints would be similar to their market share, this was not the case during the study period.

Provider	Avg. # Complaints / Month	Market Share	Share of Complaints
MNO 1	34,432	51%	17%
MNO 2	127,012	44%	62%
MNO 3	43,172	5%	21%

MNO 1's share of complaints is low relative to their market share. Using complaints data and other data sources, researchers were able to determine their customers face common challenges at similar rates as customers with other providers, but MNO 1 may use different guidelines to determine what constitutes a complaint.

These findings support the argument that UCC should consider standardizing complaints reporting templates and definitions, so all providers share comparable information.

Description

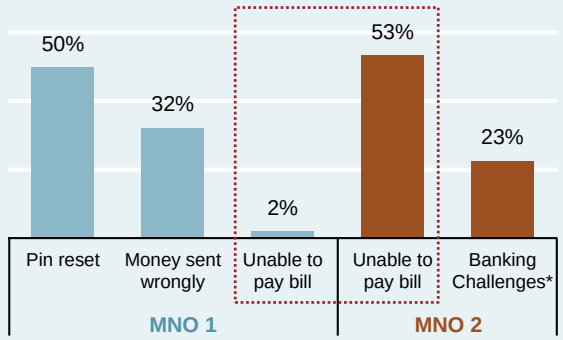
The types and frequencies of mobile money related complaints varied across the MNOs.

Most common customer issues in 2020 complaints data

MNO 1	MNO 2	MNO 3
Mobile money	Mobile money	Mobile internet
Lost airtime	Platform	Failed calls
Blocked SIM	Data	Account info and modification

For both MNO 1 and 2, mobile-money is the top area of complaints, and there were one or two primary issues. However, those issues varied by provider:

Selection of Top Complaints by Provider, 2020



Predictive Modeling

Big data and sophisticated analytics enable regulators to better predict fraud and take more proactive approaches.

A model based on consumer attributes showed seven important variables best predicted when a customer care log was related to fraud:

1. *Hour*: Earlier calls were more likely to be fraud
2. *Day*: Days in the middle of the month
3. *Month*: More prevalent January - August
4. *Age*: Older people more likely to report fraud
5. *Time-as-client*: Longer term MNO clients were more likely to report a fraud complaint
6. *Location*: Locations outside of major urban areas
7. *Gender*: Men slightly more likely to report fraud

84.6%

Accuracy of a model predicting whether complaints in Uganda were related to fraud

The analysis found that if you are an older, established, male MNO client from a rural area calling earlier in the day in the middle of June, you are more likely to be calling about a fraud-related matter.

** Banking challenges combines complaints related to Deposits, Withdrawals, and Mobile Banking*

Market Monitoring

SOCIAL MEDIA SCRAPING AND ANALYTICS OF CONSUMER GRIEVANCES

Natural language processing of social media text provides a compelling and low-cost approach to high frequency market monitoring.

Research Design: Researchers collected historical data on consumer protection-relevant content from Twitter, Facebook pages, and Google Play Store Reviews and analyzed it using Natural Language Processing (NLP) AI approaches.[1]

Dates Studied: July 2019 – July 2020

Countries: Kenya, Nigeria, and Uganda

Sample: 2.5mm consumer protection-relevant posts published on Twitter, Facebook Public Pages and Google Play Store Reviews

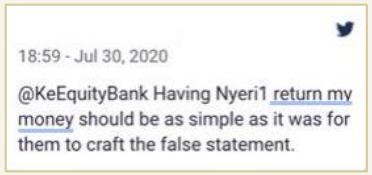
Considerations: Various commercial vendors can provide social media datasets, but customized analytics are required to ensure solutions reflect local market dynamics, local languages, and local risks. Social media is more likely to reflect the experiences of wealthier urban consumers that use smartphones and is not representative of the population. Therefore, this approach should be treated as complementary to formal complaints channels and other less frequent monitoring tools (e.g. surveys).

Description

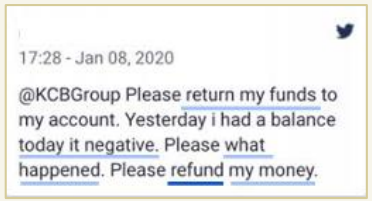
Complaint data were collected, filtered, and categorized using machine-learning algorithms specific to Kenya, Uganda, and Nigeria in Swahili, Luganda, Yoruba, Hoosa, and Pidgin.

Step 1: "Seed words" give the algorithm context of what to look for. For example, the *seed words* for Fees & Charges in Kenya were (in English and Kenyan languages): Fees, Charges, Overcharged, Refund, Deduction.

Step 2: Analyze millions of text documents to relate seed words (dark blue) and likely associated words (light blue)

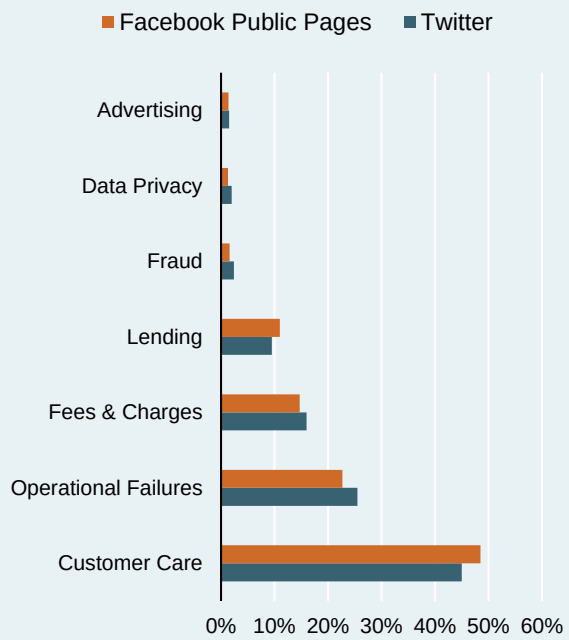


Step 3: Categorize documents that don't mention seed words. For example, "return my money" has a high probability of being associated with the category Fees & Charges.



Customers have similar complaints across Twitter and Facebook Public Page channels, but the Google Play Store reviews primarily focus on App performance and operational failures.

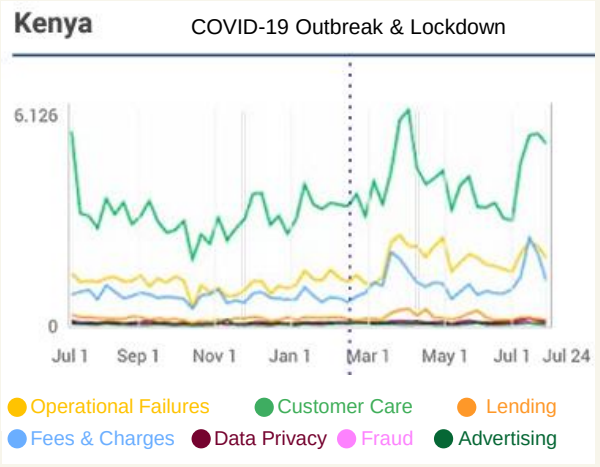
Proportion of comments related to different issues
Kenya, Nigeria, and Uganda aggregated



COVID-19 changed the way people leverage social media to report issues and interact with providers.

Social media usage to communicate challenges rose in all three markets after the COVID-19 pandemic began.

Kenyans reported more issues with Customer Care, Fees & Charges, and Operational Failures on Twitter.



The composition of issues reported did not change meaningfully after the outbreak of COVID-19, but consumers did react to specific actions providers took in response to the pandemic, underscoring the utility of this approach for high frequency market monitoring.

Market Monitoring

SCRAPING APP META-DATA TO PREDICT FRAUD AND TARGET REMOVAL

High-frequency app data can be used with machine learning techniques to efficiently flag apps displaying suspect characteristics or behavior.

Research Design: Benchmarks personal loan app terms and conditions against local lending regulations and policies to classify them as likely suspect or not, and tests a machine learning approach for identifying suspicious apps at high frequencies.[1]

Dates Studied: Jan 2020 – April 2021

Countries: India, Nigeria, and the Philippines

Sample:

- 134,744 finance apps in 63 countries
- 5,106 personal loan apps (a subset of all finance apps) available in the US, India, Nigeria, and the Philippines

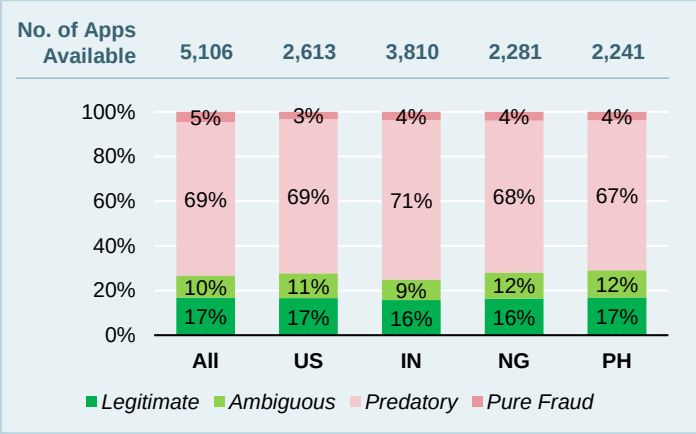
Considerations: There is a massive proliferation of personal lending apps. 80 new (English main language) personal lending apps were released on the Google Play store each week during the study period. Cutting edge techniques using meta-data from app stores can greatly enhance the capacity of regulators to target problematic apps.

Description

Systematically reviewing loan apps' meta data, review data, and web pages, researchers classified apps as Legitimate, Ambiguous, Predatory, or Pure Fraud based on key characteristics.

Legitimate	Ambiguous	Predatory	Pure Fraud
• Consistent signs of a valid provider	• Mixed signs of being valid provider • Seems to provide services • May have critical reviews/ratings	• Signs of abusive practices • Seems to not provide services • Absent signs of fake reviews	• Signs of fake reviews
13.8% of apps removed by April 2021		67.2% of apps removed by April 2021	

Likely Suspect apps were highly prevalent (73.4% of apps), but Likely Legitimate apps were downloaded nearly 10x more on a per-app basis (479,824 vs. 48,103 downloads per app).

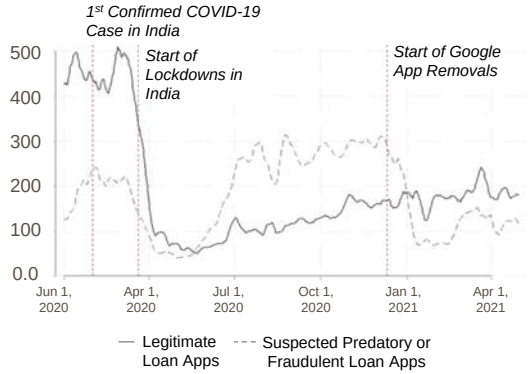


Description

Suspect Apps may harm consumers and lead to mistrust of digital finance, undermining financial inclusion efforts and imposing costs on Legitimate providers.

The share of suspect apps in a given market and point in time, or *prevalence of suspect apps,* varies over time and was particularly high when COVID-19 lockdowns began.

Number of Daily Downloads *(Thousands)*



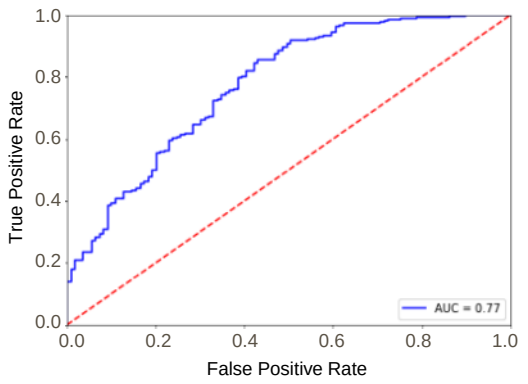
Downloads of Likely Legitimate apps are lower when there is a higher share of Likely Suspect apps. Each 1% increase in prevalence of suspect apps was associated with 18,500 fewer daily downloads of Likely Legitimate apps, a 7.4% reduction.

Description

App store metadata can be used to develop predictive models of fraudulent apps, which can drastically improve the efficiency of big tech company and regulator efforts to audit and remove fraudulent apps.

Using a broad range of data available through the Google Play Store, researchers developed models that were highly accurate in separating fraudulent and legitimate personal loan apps.

ROC of Out of Sample Test Set



Example of Meta Data Used: Title, description, Recency of Last Update, External version number, App developer's information (website, email, address, etc.), Rating and Review counts, Permissions lists, Countries and Languages available in, Other app-stores available in.

Market Monitoring

CHATBOT-ENABLED CONSUMER COMPLAINTS REPORTING TO REGULATORS

Philippines prototype demonstrates potential to cost-effectively solicit and respond to consumer complaints with automated chatbots, but this prototype also demonstrates that technology alone may not naturally reach all consumers or serve all consumers as intended without refinement.

Research Design: The Central Bank of the Philippines, *Bangko Sentral ng Pilipinas*, launched a consumer assistance chatbot in July 2020 to provide accessible, timely, and efficient complaints resolutions.

Researchers used Natural Language Processing to understand differences in the types of complaints, sentiments, and segmentations between chatbot and social media data, and generate recommendations to improve the chatbot.

Dates Studied: Aug 2020 - June 2022

Country: Philippines

Sample:

- Chatbot data: 1,372,534 messages
- Facebook, Twitter, and Google Play Store reviews on BSP and 100 financial service providers

Considerations: Chatbots are a promising, lower cost way to solicit consumer complaints and attempt to resolve them. But chatbots may not naturally reach lower income, rural consumers without greater effort from regulators, and many consumers may drop off before completing full chatbot engagement.

Description

Bangko Sentral ng Pilipinas (BSP) released its consumer assistance chatbot, BSP Online Buddy, or BOB, in July 2020, enabling consumers to file complaints against BSP-supervised financial institutions.

The first year of chatbot data was analyzed using natural language processing techniques to identify common complaints, demographic profiles of complainers, and the chatbot's performance.[1]

Converting BOB Chats into Consumer Protection Data

Unstructured Text from BOB Chats

↓

Identification of Keywords in Chats via Topic Modeling

↓

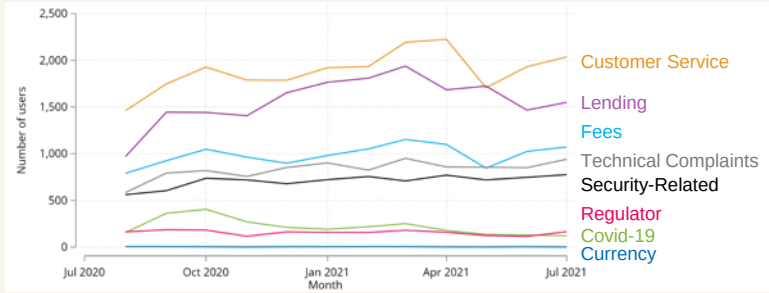
Categorization of Themes—Lexicon Detection

- Customer Service
- Lending
- Security
- Technical Failures
- Fees
- Regulator
- Covid-19
- Currency

Data Source for Analysis: 1,272,534 messages between BOB and consumers from Aug 1, 2020–July 31, 2021.

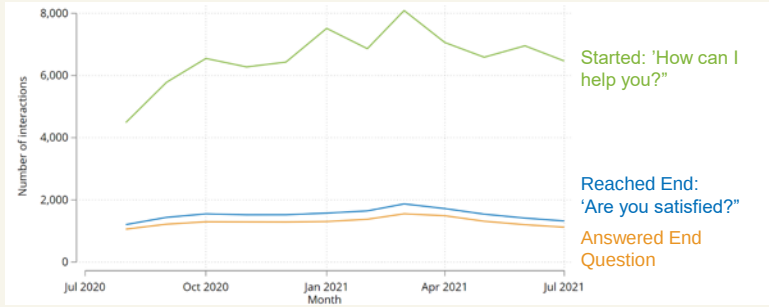
Result

Customer service and lending-related issues were the most common complaints.



Only 20% of chats reached the end of their conversation. High drop-off rates highlight opportunities to improve the user experience.

Many users failed to select one of the three options presented on the initial menu (new complaint, check status, or FAQ), causing BOB to route them to a call center, which may discourage new users.



- The chatbot immediately categorized 55% of the complaints consumers submitted, and with follow-up questions this increased to 74%. This is a substantial time-saver for BSP staff who previously had to classify complaints manually, though does not eliminate the need for manual reviews. Tools like BOB are not a "set it and forget it" solution.
- Most conversations in the first year of the chatbot use were from consumers in the National Capital Region and were either submitted via Facebook or the central bank website. To expand usage in rural areas, promoting the SMS option could be useful.

Direct to Consumer

EVIDENCE ON INTERVENTIONS TO IMPROVE CUSTOMER OUTCOMES

Introducing short borrowing wait times can improve decision-making about otherwise instant loans. Introducing more flexibility for loan repayment can greatly improve the productive impacts of loans and reduce stress. Subsidized legal representation may also improve control of collateral and credit worthiness.

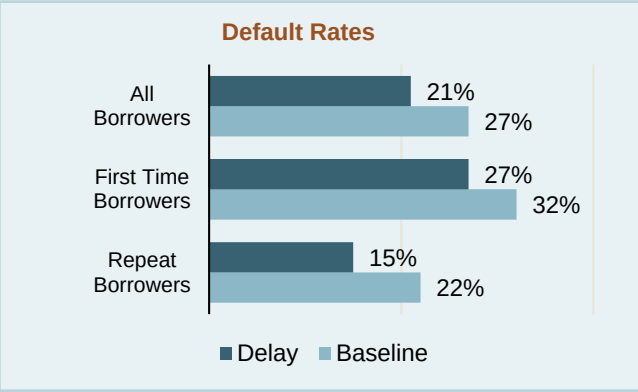
Wait Times

Positive Impact

Debt stress

Delayed loan disbursement led to higher repayment rates[1]

- A study in Mexico compared repayment for two groups of loans that were requested at similar times, but where one group was unpredictably delayed.
- Borrowers who receive delayed loans were 5.6 percentage points more likely to repay their loans than similar borrowers who receive loans faster, a 21% reduction in default rates. This suggest that wait periods could positively impact financial decision-making behavior.



Repayment Flexibility

Mixed Impact

Debt stress

Repayment Flexibility Can Reduce Financial Stress: A Randomized Control Trial with Microfinance Clients in India[2]

A study in India randomly assigned microfinance clients to monthly or a traditional weekly installment schedules. Customers repaying monthly reported a 45% reduction in stress and higher business income and investment, without changes in repayment rates.

Repayment Flexibility and Risk Taking: Experimental Evidence from Credit Contracts[3]

Microfinance customers in Bangladesh were randomly given the option to delay up to 2 monthly payments during a 12-month cycle. These clients increased their business revenue and profits, as well as household income and land ownership, while defaulting at marginally *lower* rates.

Flexible Microcredit: Effects on Loan Repayment and Social Pressure[4]

An experiment with microcredit borrowers in the Philippines found that repayment flexibility substantially lowers both repayment & social pressure. The results are consistent with a strong social norm for repayment being weakened by flexibility.

Does the Classic Microfinance Model Discourage Entrepreneurship among the Poor?[5]

A two-month grace period for repayment of microfinance contracts increased short-run business investment and long-run profits, but also default rates, indicating early repayment discourages investment and limits the potential impact of microfinance.

Legal Representation

Positive Impact

Data security, privacy and property rights

Legal representation in Kenya led to increased access to credit [6]

- In rural Kenya, an experiment examined the effect of the improved legal representation on security and property rights by providing two years of free lawyer services to individuals in rural Kenya. The lawyer helped residents navigate a complicated judiciary system and helped to enforce court decisions.
- The study found that free legal representation leads to improvements in security and property right claims, which translated into economic improvements.
- For participants with access to legal services, access to credit increased by 56% compared to individuals who did not receive legal services, suggesting that dispute resolution can improve economic activity.

Direct to Consumer

MIXED EVIDENCE ON INTERVENTIONS TO PROMOTE EQUITY IN ACCESS

There is mixed evidence on approaches to providing more equitable access of digital credit across genders.

Debiasing Campaigns

Negative Impact

Debiasing campaigns

Debiasing campaigns in Chile and the Philippines displayed disappointing results

- A study in Chile explored how providing loan officers with accurate information on female borrowers' better repayment rates affected their subsequent loan decisioning. On average, loan officers who received the treatment were no less likely to discriminate against female applicants than those who did not and, more counter-intuitively, treated "pro-male" gender-biased officers actually *increased* their rate of discrimination compared to "pro-male" officers in a control group after being informed that women had higher repayment rates.[1]
- A study in the Philippines provided loan officers with evidence on low-income borrowers' creditworthiness and training on income scorecards. Additional information on the creditworthiness of low-income households did not improve loan officers' likelihood to extend loans to such households.[2]

Alternative Credit Scoring for SMEs

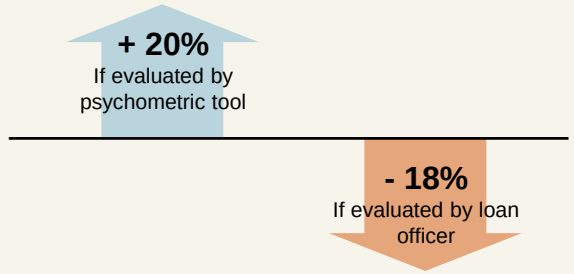
Positive Impact

Alternative credit scoring approaches

Traditional screening methods may induce gender bias

- A study Peru found that using psychometrics for SME loan evaluation, rather than traditional methods, increased the rate men and women without credit histories took out loans by 59 percentage points. Obtaining one loan offer helped applicants receive loans from other institutions as well, which explained much of this increase.[3]
- A second study explored if psychometric approaches could further expand credit access for women. It found female loan applicants were offered worse credit terms under traditional approaches, but psychometric tools reduced this gap.[4]

Probability of Obtaining a New SME Loan from Any Financial Institution



Gender Disaggregated Credit Scoring

Impact N/A

Gender disaggregated credit scoring

Gender-differentiated credit scoring could improve women's access to credit [5]

- Most credit scoring models don't incorporate the ways gender interacts with different predictors of repayment, so exclusion can be replicated by decision-making rules.
- A proof-of-concept project in the Dominican Republic developed a "gender-differentiated" credit-scoring model. Relative to the standard model, pooling men and women, it assigned 80% of women a higher probability of repaying.
- Based on these results, new research is being done in Mexico, in partnership with RappiCard, to further validate this approach.

Preliminary results show that gender differentiated models could lead to a **+14pp** increase in the share of women approved for a credit card without affecting overall default rates

These results are still pending.

Direct to Consumer

FINANCIAL EDUCATION ALONE IS INSUFFICIENT

Improving consumer financial literacy is often a necessary component of financial inclusion-related interventions, but efforts to reduce consumer harm and boost inclusion through training alone are consistently ineffective. In contrast, exposure and experience have been effective teachers, even for low literacy consumers.

Meta-Analysis of Financial Education

Mixed Impact

High and hidden prices | Debt stress

Numerous studies on financial literacy programs exist, but there is little consensus on their impacts

- A meta-analysis[1] of studies on financial education, particularly financial literacy and financial behaviors, found small improvements in borrowing behavior, such as reduced debt and default rates[2] or reduced payday loan borrowing.[3]
- However, most studies rely on self-reported data. The financial literacy programs and populations treated are extremely varied, and outcomes that measure effectiveness differ and often conflict, making it difficult to interpret the results of multiple studies holistically.[4]

Training for Airtime Loans in Malawi

Mixed Impact

High and hidden prices | Financial Education

A study in Malawi explored the effect of a simple, phone-based IVR financial literacy intervention on digital credit users' loan take up and repayment[5]

While the training boosted knowledge, it also counterintuitively drove higher demand for a very expensive product, resulting in higher default and fees for new users

Positive Impacts on Knowledge

+18pp	+16pp	+15pp
Knowledge of Fees/Interest	Knowledge of Loan Tenure	Knowledge of Late Fees

Counterintuitive Demand Impacts

+4pp	+22%	+18%
Taking a Loan	Number of Loans	Value of Loans

New User Increase Default/Fees

Null	+2pp	+3%
For Existing Users	Default for New Users	Fees Paid for New Users

Training to Identify Fraud in Kenya

Neutral Impact

Financial Education

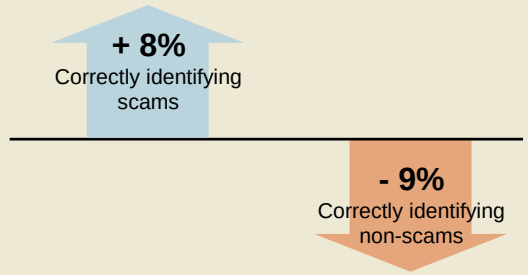
Education on how to spot scams did not improve recipients' ability to distinguish genuine messages from scams[6]

A study in Kenya tested participants' ability to distinguish scam from genuine messages, and their confidence in assigning a label, before and after receiving training.

Participants became more confident, but not more accurate, labelling both fraudulent and genuine messages as scams at higher rates.

96% of participants reported being contacted by a scammer in the past.

Effect of scam education



Learning-by-Doing in Bangladesh

Positive Impact

Post-Contract Exploitation

High and Hidden Prices

Learning to Navigate a New Financial Technology: Evidence from Payroll Accounts[7]

- A field experiment introduced payroll accounts in a population of largely unbanked factory workers in Bangladesh who mostly receive wages in cash to see if "learning-by-doing" can mitigate consumer risk.
- Workers in a treatment group received monthly wage payments into a bank or mobile money account while a control group continued to receive wages in cash.
- Exposure to payroll accounts led to increased account use and consumer learning. Treated workers learned to use the account without assistance, began using more account features, and learned to avoid illicit fees.
- The treatments also led to increased savings and improvements in the ability to cope with shocks.

Direct to Consumer

TRANSPARENCY AND INFORMATION CAMPAIGNS

A variety of interventions aimed at bolstering consumers' rights have been effective in lowering prices and increasing access to services.

Market Monitoring & Info Campaigns

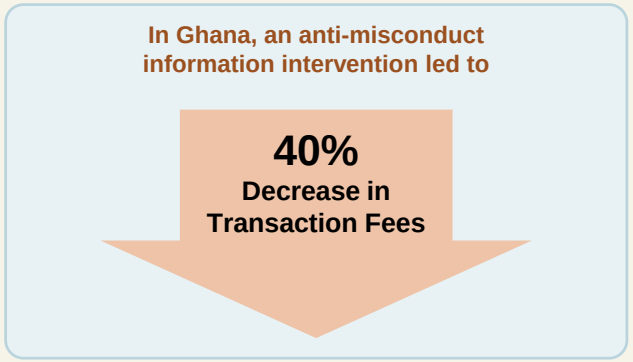
Positive Impact

Data security, privacy and property rights

Post-contract exploitation | High and hidden prices

Phone-based monitoring and information campaigns increased efficiency of services and reduced misconduct [1]

- In Ghana, an anti-misconduct information intervention significantly reduced vendor misconduct, reducing transaction fees by roughly 40%. Consumers in treated markets were 7.6% less likely to experience shocks that they could not financially remedy.



Fee Transparency

Impact N/A

High and hidden prices

Opaque fee structures enabled investment firms to collect additional fees from investors in India [2]

- A study in India examined how two law changes from the Securities and Exchange Board of India impacted the availability of different investment products and the fees paid by investors
- For 22 months, closed-end funds were able to charge more opaque fees than open-end funds
- During this time, 45 new closed-end funds raised USD $7.6bn from investors, a substantial jump from 2 new funds raising USD $0.42bn in the prior 66 months
- Closed-end funds did not perform better than similar open-end funds during this period, but they charged approximately 4.25% more in fees
- Investors lost, and fund firms gained, an estimated USD $350mm in extra fees during this time

Examples from the US

Positive Impact

Post-contract exploitation | High and hidden prices

Information on interest rates and alternative options led to reduced payday loan borrowing [3]

- A randomized experiment in the US evaluated how information on the costs of payday loans affected consumers' borrowing decisions. Borrowers who received the information treatments reduced their payday borrowing between $28-$55 USD each pay cycle, a 12-23% decline.[5]

Impact N/A

Post-contract exploitation | High and hidden prices

Limitations on hidden fees reduced costs for US credit card users [4]

- The Credit Card Accountability Responsibility and Disclosure Act of 2009 established more transparent practices for underwriting and pricing credit cards
- Among credit card issuers in the Consumer Financial Protection Bureau's database (85-90% of issuance), the annualized cost of credit paid by consumers fell 2 percentage points from 2008 – 2012.
- It is not clear how much of the change is attributable to the regulation, particularly given the effects of the Great Financial Crisis. It does, however, illustrate how regulation can provide transparency.

ONGOING RESEARCH AND OPEN QUESTIONS

5

EFFECTS OF DIGITAL CREDIT

The evidence base points to three primary areas where more data and information is urgently needed on MIC and the broader digital credit landscape.

Rethinking Product Design

- What would be the impacts on welfare and profitability of redesigning MIC to:
  A. Credit consumers for early repayment;
  B. Modestly slow down underwriting decisions; and
  C. Ease consumer comparison among providers?
- What solutions for restructuring small, defaulted MIC loans are incentive compatible for consumers and providers?
- What are the most effective and practical ways of standardizing communication on the costs of MIC and other digital credit products?
- What unconventional data sources (e.g. transaction records) could be used to improve underwriting risk assessment for productive use cases? What inhibits the use of such data currently?
- How would data sharing impact provider underwriting risk models, pricing, and loan decisioning? What is the data quality of credit reporting, and what credit products are or are not reported on?

Welfare Effects in the Next Wave

- What are the relative costs, impacts, and risks of Buy-Now, Pay-Later, mobile money overdraft facilities, and related instant credit products? What segments of the population use these newer products?
- When and why do low-income consumers prefer particular small instant credit products? Do these related but different instant products target and/or trigger different behavioral consumer “mistakes”?
- What new providers (such as e-commerce platforms) are involved in new digital instant credit products and to what extent do they fall outside of existing consumer protection strategies and financial regulations?
- How can products be developed and monitored to minimize bias against vulnerable and protected groups, such as women, youth, or low-income citizens?
- What is the impact of competition among lenders on productive credit access and terms?

Digitally-Enabled Productive Credit

- How can new digital credit products be designed to enable productive use? Can products be tailored to fit specific borrower profiles or applications (e.g. loans tailored to agricultural cycles)? If so, should they be?
- What efficiencies and new sources of demand can be unlocked by digitizing productive credit? For example, could digitization solve contracting failures in value chains and empower low-income entrepreneurs that may depend on intermediaries to reach markets?
- What kinds of regulations and contracts would enable ethical sharing of unconventional data across providers? For example, is it viable for consumers to opt in to data sharing, or to use Privacy Enhancing Technologies privately share datasets with transaction microdata?
- How should credit bureaus separate or combine underwriting relevant information on individuals and MSMEs given the majority of workers in LMICs are self-employed?

CONSUMER PROTECTION ISSUES

Key questions regarding market monitoring and direct-to-consumer style interventions could help regulators improve existing consumer protections.

Measurement and Market Monitoring

- What are the likely biases and blind spots when market supervisors rely on supply side data (transactions, social media complaints, etc.) to monitor misconduct? How are they similar or different from the biases associated with remote phone-based surveys?
- What population sub-segments should be prioritized in market monitoring surveys tracking digital credit? For example, gender, age, location, and type of phone used are all indicators of potentially marginalized groups.
- How can complaints channels be designed to reach low income, low literacy, and otherwise vulnerable population segments? What information should providers be required to share from customer care records and what indicators should regulators track?
- What are practical and compelling indicators for providers and market supervisors to track financial health/over-indebtedness?
- What are practical approaches to monitoring the costs of new loan products and to monitor price shrouding/overcharging?

Regulation and Redress

- Can traditional information and product disclosure approaches improve consumer outcomes when applied in digital credit markets?
- What information, and on what types of transactions, should credit providers be compelled to report?
- How might regulators encourage or mandate underwriting decisions be slowed down?
- What are effective and efficient models of encouraging loan restructuring in the context of default?
- What are effective and efficient models to facilitate redress of consumer grievances? For example, can alternative dispute resolution bodies, legal aid, or ombudsman be designed to help vulnerable low-income consumers?
- Would consumers monitor personal credit profiles and seek redress for mischaracterizations of borrowing history?
- Can interventions that promote competition improve lending terms for consumers?

SUMMARIES OF KEY STUDIES

6

Image: ©Gates Archive/Barbara Kinney

FINTECH AND HOUSEHOLD RESILIENCE TO SHOCKS: EVIDENCE FROM DIGITAL LOANS IN KENYA

Authors: *Tavneet Suri, Prashant Bharadwaj, and William Jack*
Publication: *Journal of Development Economics (2021)*

Intervention: Access to M-Shwari

Outcomes: Loan takeup, financial resilience, expenditures, savings

Research Design: Compares customers on either side of an eligibility threshold to assess impacts of access to credit.

Survey Dates: Jan–Mar 2015; Sep 2016–Jan 2017

Country: Kenya

Context: The take up of M-Shwari has been remarkable: within two years of launching, there were more than 4.5mm active users (nearly 20% of adults) and approximately 10 mm accounts

Sample:

- Administrative data on 156k clients just above and just below the credit eligibility threshold.
- A random subsample of 6000 clients were surveyed via phone.

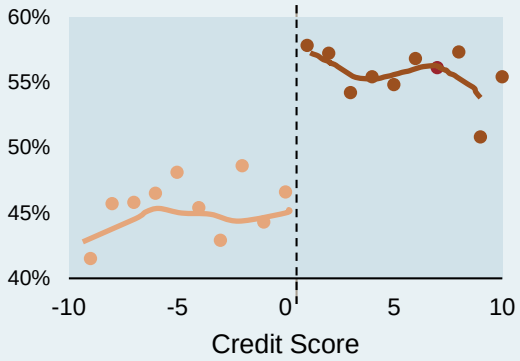
Contribution: One of the first rigorous evaluations on the welfare impacts of digital credit. Demonstrated the high takeup rates of M-Shwari (which was already known anecdotally) and documented improvements on resilience as a result of access to digital loans.

Impact

Eligibility for M-Shwari results in a large expansion of credit, as households just above the cutoff are 10.6 percentage points more likely to hold any loan. Almost half the control group held any loans (primarily non-M-Shwari loans).

Proportion of Individuals Holding Any Loan

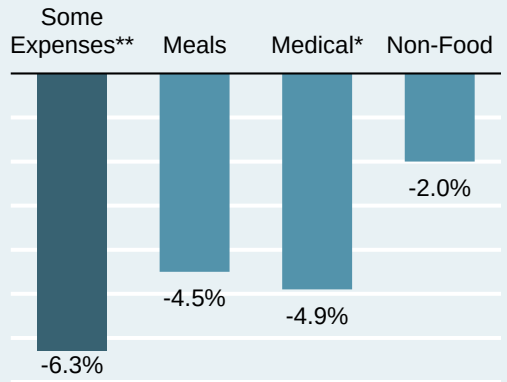
Those to the right of the cutoff line had access to M-Shwari. These individuals were 10.6 percentage points more likely to have a loan



Impact

Households with individuals above the M-Shwari loan cutoff were 6% less likely to forego expenses due to any negative shock and 5% less likely to forego expenses due to a medical shock.

Reduced Likelihood of Foregoing Expenses

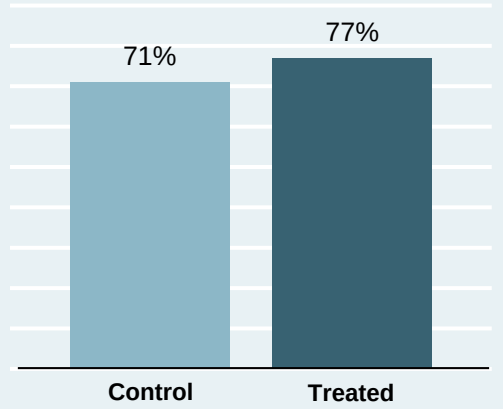


**Statistically significant at the 10% level*
***Statistically significant at the 5% level*

Impact

The study found small and insignificant impacts on most measures of expenditure, except education. Households just above the cutoff are 5.8 percentage points more likely to report spending on education.

Likelihood of Positive Education Expenses



DIGITAL CREDIT: FILLING A HOLE, OR DIGGING A HOLE? EVIDENCE FROM MALAWI (1 OF 2, RDD ANALYSIS)

Authors: *Jonathan Robinson, Pascaline Dupas, Valentina Brailovskaya*
Publication: *Working Paper (2023)*

This project has two components. Here, we focus on component one:

Intervention: Access to Airtel Malawi's MIC product, Kutchova

Outcomes: Loan take-up, credit usage, welfare impacts (i.e. resilience, financial security, well-being, etc.)

Research Design: Compares customers on either side of an eligibility threshold to assess impacts of access to credit.

Survey Dates: Jul 2019 – May 2020

Country: Malawi

Context: 60% of MNO consumers in Malawi are men, and even conditional on account ownership, women use mobile money less.

Sample:

- Admin data: 10,000 users around the credit eligibility threshold; phone surveys with 3,996 customers (46% women)
- 1,100 of whom also participated in surveys for the RCT

Contribution: One of the few evaluations on the impacts of access to digital credit. Gender-balanced sample allows for testing whether effects differ by gender.

Descriptive

Airtel Malawi has 4 million-plus subscribers. The customer base skews urban, young, male, and educated.

Kutchova Loan Terms:

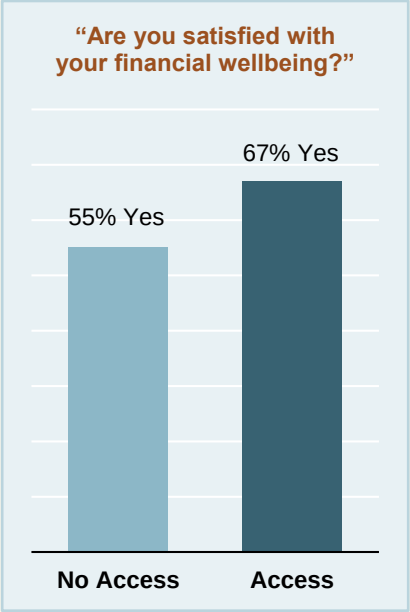
- Must have a mobile money account at least 6 months
- 10% fee, due in 2 weeks. Late fees of 2.5% fees weekly (capped at 22.5%)
- Customers in the study took an average of 4.60 loans, with a total value of USD$18.90
- The entry-level loan was for MWK 1,000 (about $1.40 USD), enough to pay for some daily expenses (e.g. a kg of maize flour, rice, or sugar)

Impact

- Substantial demand, evidenced by take-up of 44% among eligible borrowers despite very high (and poorly understood) fees
- No effect on coping with shocks (not surprising given small loan sizes)
- Positive but small, insignificant effects on food security and ability to pay for non-food expenses
- The coefficient on total savings is positive and fairly large ($5, about 4.1% of the baseline mean), though not significant as the effect varied widely among borrowers

Impact

The largest effect on wellbeing was on a self-reported subjective measure of financial wellbeing, which was 12 percentage points higher among those with access to Kutchova.



Impact

- Effects generally did not differ by gender
- Impacts on measures of financial security, especially satisfaction with financial well-being, were stronger for women
- However, they were not statistically distinguishable from impacts for men

DIGITAL CREDIT: FILLING A HOLE, OR DIGGING A HOLE? EVIDENCE FROM MALAWI (2 OF 2, RCT ANALYSIS)

Authors: *Jonathan Robinson, Pascaline Dupas, Valentina Brailovskaya*
Publication: *Working Paper (2023)*

This project has two components. Here, we focus on component two:

Intervention: Financial Literacy training

Outcome: Knowledge of loan terms and conditions; impacts on borrowing and repayment

Research Design: Evaluates the effects of a Financial Literacy interactive voice response (IVR) module delivered through a Randomized Controlled Trial.

Survey Dates: July - October 2019 (across two surveys)

Sample:

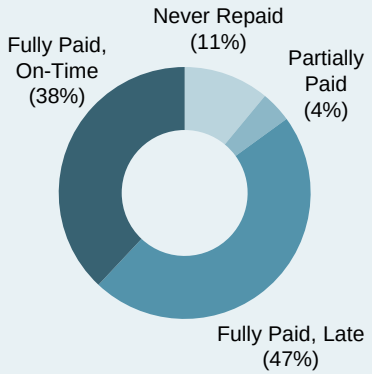
- FinLit survey with 26,467 customers (July - Aug 2019)
- Administrative data (All loans taken between July 2019 - May 2020)
- Surveys on impacts with 3,321 customers (46% women) (Sept - Oct 2019)

Contribution: Directly tests financial literacy and how improved financial literacy impacts demand for credit. A gender-balanced sample allows for testing whether effects differ by gender.

Context

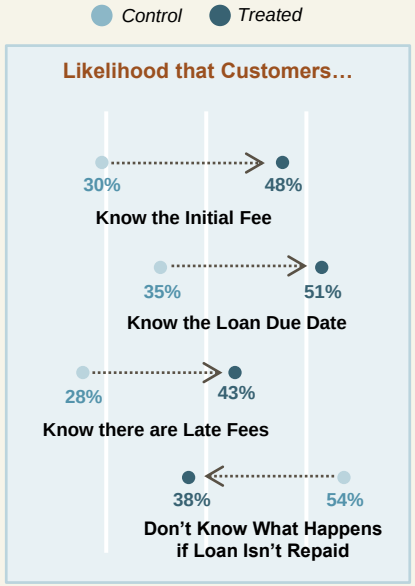
- Loans were taken out for a wide variety of uses. The most common were: airtime (29%), food (21%), electricity (11%), & business transportation (11%)
- The majority of borrowers fail to repay their loans fully and on-time

Repayment Status of Loans



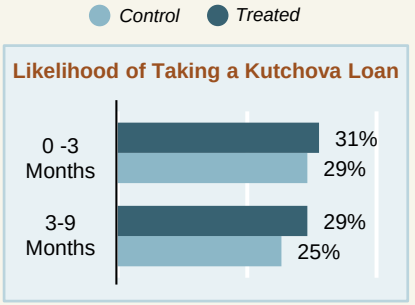
Impact

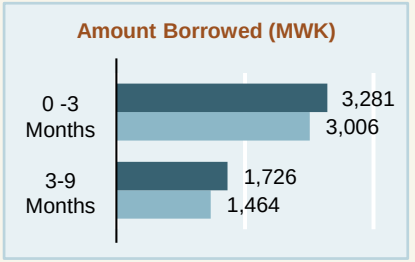
- At baseline, knowledge of loan terms and conditions is very low - many customers do not know the fees, due date, or what happens if their loan isn't repaid
- Financial Literacy IVR improved knowledge of loan terms



Impact

- Surprisingly, Financial Literacy treatment increased demand for the loans in short and longer term.
- These effects were driven entirely by new users; there were no impacts on pre-existing borrowers





Impact

Borrowers were more likely to repay on time, but increased loan demand still made users more likely to end up in default.

WELFARE IMPACTS OF DIGITAL CREDIT:
A RANDOMIZED EVALUATION IN NIGERIA

Authors: *Joshua Blumenstock, Daniel Björkegren, Suraj Nair, Omowunmi Folajimi-Senjobi, Jacqueline Mauro*
Publication: *Working Paper (2023)*

Intervention: (1) Vary access to credit and (2) Vary the amount of credit customers receive

Outcome: Access to credit, financial health, well-being, resilience, WEE

Research Design: Two-stage randomization - (1) Half of applicants were automatically approved for a loan, whereas the other half were vetted by a standard loan approval process (to identify the impact of access to credit); (2) Initial loan offer size was also randomly assigned (to identify the impact of loan size).

Survey Dates: Nov 2019 - Feb 2020

Country: Nigeria

Context: In Nigeria there are 50+ digital credit products on the market, most of which require a bank account. As of 2020, there was no regulation of digital lending in Nigeria.

Sample:

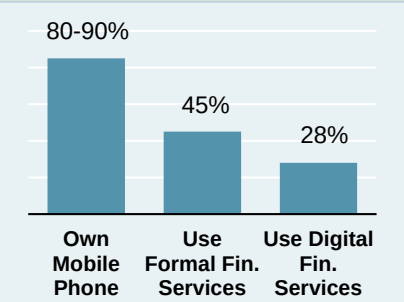
- 46,937 customers enrolled
- 1,618 phone surveys (24% female)

Contribution: One of few impact evaluations that can identify the causal impacts of digital credit on welfare. The study finds positive effects on subjective wellbeing and rules out large negative impacts from increased access to credit (such as over-indebtedness).

Context

Access to Credit

The percentage of Nigerians who:



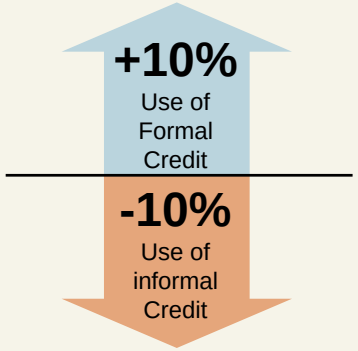
Loan Terms

- Initial loan sizes were randomized, ranging from USD$2.75 - $35.75
- Initial loans averaged USD$15, and borrowers took an average of USD$56 in loans over 3 months
- *Monthly* interest of 15 - 22% based on credit score.
- On-time payment required for future loans; no other penalty for default

Impact

Access to Credit

- The interventions mechanically increased access to formal credit by approving more applicants, 85% of whom took out a loan
- Accompanied by a small, but significant, decrease in the use of informal loans
- Those who were auto-approved but otherwise may have been rejected were 37 percentage points more likely to take out any loan, driven by higher rates of formal borrowing and reductions in borrowing from friends and family



Impact

Well-Being

- The main result is that access to credit improved subjective wellbeing
- The effect is large, particularly compared to cash transfers and other anti-poverty programs, which can cost 10-20x more to implement
- For those who were auto-approved for loans, higher credit limits did not impact wellbeing

Impact

Financial Health and Overall Wellbeing

- Small (but statistically significant) improvements in subjective wellbeing
- No large impacts (positive nor negative) on income, expenditure, and resilience
- Small (but statistically insignificant) improvement in financial health (e.g. “always able to pay a bill on time”)

Gender-Related Outcomes

- Similar impacts for female vs. male borrowers
- No impacts on women’s economic empowerment

TOO FAST, TOO FURIOUS?
DIGITAL CREDIT SPEED AND REPAYMENT RATES

Authors: *Alfredo Burlando, Michael Kuhn, and Silvia Prina*
Publication: *Working Paper (2023)*

Intervention: Speed of loan disbursement

Outcome: Repayment rates

Research Design: The study leverages a unique loan approval process which "batches" applications and compares repayment outcomes for loans submitted right before or after this cutoff time.

Survey Dates: n/a - admin data only

Country: Mexico

Context: The consumer protection implications of easy, quick credit are not well known. Digital credit may be able to help households cope with unexpected shocks, but the ease and speed of accessing lines of credit could potentially increase defaults or over-indebtedness.

Sample:

- 11,512 disbursed loan applications from 7,206 unique borrowers.
- 48% of these loans are from first-time borrowers.

Contribution: Finds that delays in credit disbursement may facilitate lower default rates.

Context

Consumers submit an application online and immediately receive a preliminary approval or rejection. Agents send approved loans to the bank in "batches" 2-4x per day at unpredictable times.

Just missing the previous batch doubles the disbursement time from 10-20 hours on average.

31%

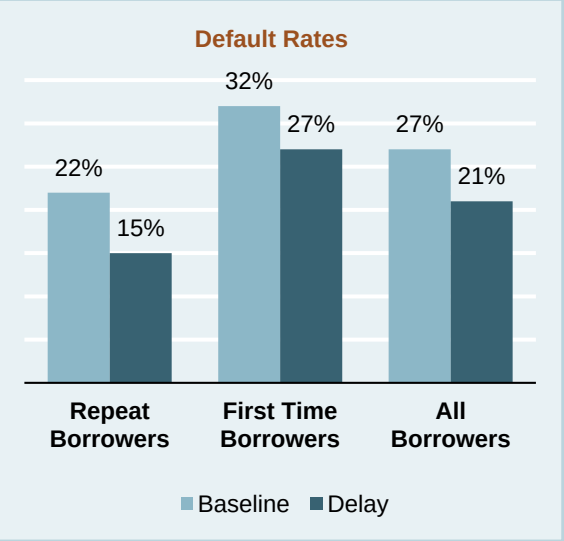
Lower likelihood of receiving funds the same day for borrowers who missed the cutoff

Loan Terms

- Loan sizes range from 1,500-3,000 Mexican pesos (~USD $75-150)
- Loan terms vary from 7-30 days
- Annualized interest rates reach up to 478.8%
- Default rate in the data for this study = 27%

Impact

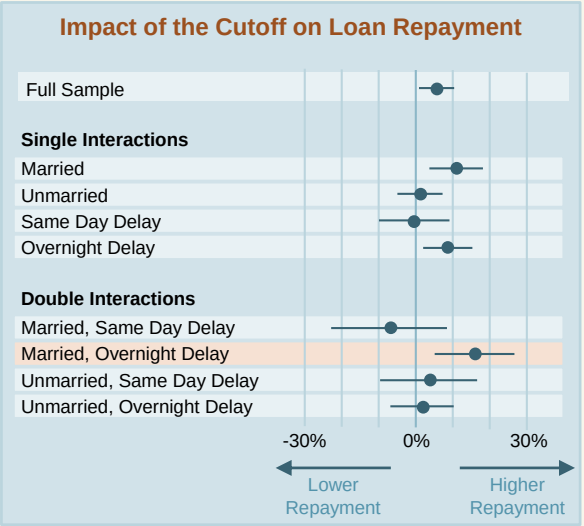
On average, delayed loan disbursement was associated with a 5.6pp reduction in non-repayment, a 21% reduction in default



These effects were larger for repeat borrowers, whose non-repayment rates fell 7pp, a 33% reduction in default.

Impact

Delays had stronger effects for certain groups: Married Borrowers, especially women, and Afternoon Applicants (whose funds were more likely to arrive the next day if delayed)



Potential mechanisms consistent with the data

- **Impulse Behavior:** Delay provides extra time to deliberate about the use of loans
- **Household Bargaining:** Delay encourages more household bargaining over loan uses

LIQUIDITY OR CONVENIENCE? HETEROGENEOUS IMPACTS OF MOBILE AIRTIME LOANS ON NETWORK USAGE AND COMMUNICATION EXPENDITURE

Authors: *Oscar Barriga-Cabanillas and Travis J. Lybbert*
Publication: *Working Paper (2021)*

Intervention: Access to airtime loans

Outcome: Total weekly communication expenditure

Research Design: The study uses administrative data to identify the impact of access to small airtime loans. To examine heterogenous effects, the study matches a unique phone survey to administrative data.

Survey Dates: January - April 2021

Country: Haiti

Context: 46% of Haitian adults lack access to any formal financial service. Cellphone ownership grew from 20% in 2010 to 60% in 2018, and airtime loans are often the first loans accessed by individuals experiencing poverty.

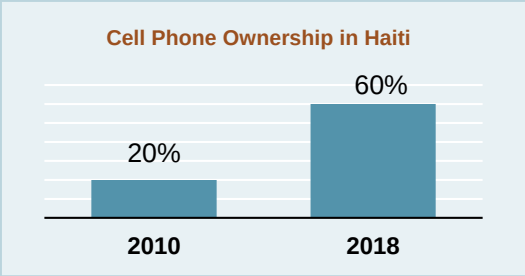
Sample:

- 96,342 out of 278,697 mobile phone lines in the administrative data
- 600 unique surveys matched to the mobile phone lines (July 2019)
- Phone surveys with 2,361 participants (Jan - Apr 2021)

Contribution: The study explores the effects of lifting liquidity constraints and what drives the demand for digital loans.

Descriptive

- Population: Cellphone ownership is low, but growing rapidly in Haiti
- Conditional on age, women in Haiti own mobile phones at a similar rate to men, but spend about 25% less on network communications

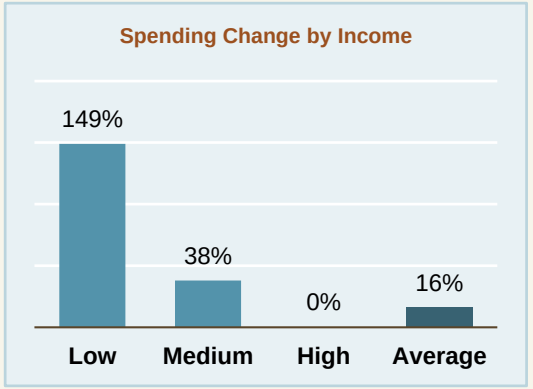


Loan Terms:

- Customers can request their first loan five weeks after initial activation
- Two-thirds of eligible customers request at least one loan every 60 days
- Loans range from USD$0.13 to USD$2.00; the median loan is USD$0.39
- 30-day term with a 10% facilitation fee
- Loans can be paid back in multiple installments

Impact

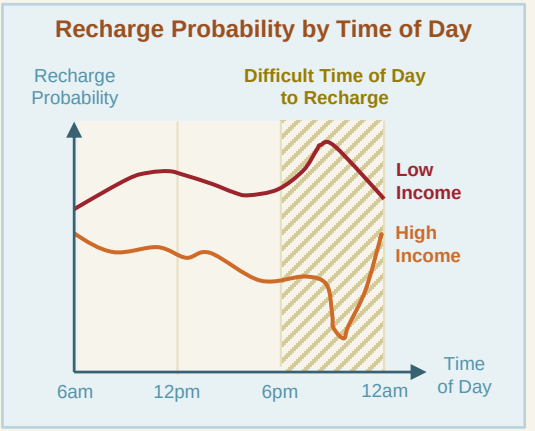
- Access to credit increases airtime spending by 16% on average



- Access to credit more than doubled airtime spending for the poorest customers, but had no effect on customers with the highest income
- Despite systematic differences in cellphone usage by gender, the study found no evidence that the impacts of airtime loans differ by customer gender

Impact

- Airtime loans could impact expenditure by relaxing liquidity constraints, reducing marginal communication costs and lowering transaction costs associated with visiting an agent



- Low-income consumers were more likely to recharge at night, despite higher transaction costs
- This result is consistent with the idea that poorer customers wait until they have more certainty over their daily incomes before deciding how much to recharge

EFFECTS OF INCREASING CREDIT LIMIT IN DIGITAL MICROLENDING: A STUDY OF AIRTIME LENDING IN EAST AFRICA

Author: *Alain Shema*
Publication: *The Electronic Journal of Information Systems in Developing Countries (2021)*

Intervention: Changing credit limits

Outcome: Airtime borrowing and spending, Repayment Rates

Research Design: Randomized controlled trial that evaluated how changing airtime loan credit limits for a subset of customers impacted borrowing, network usage, and repayment.

Survey Dates: n/a

Country: Anonymous

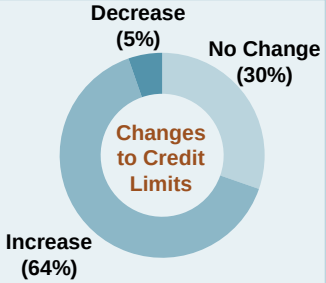
Context: About 73% of the MNO's active subscribers were qualified to borrow in July 2019, with 45% of qualified customers taking loans. Airtime loans represent ≈ 27% of the airtime spending on the network.

Sample: 46,531 existing customers were assigned new credit limits (treatment) and another random subset of 29,985 customers acted as a control group

Contribution: Tests how changes to credit limits affect consumers' credit usage and repayment. Novice borrowers (and their lender) appear to benefit from lower credit limits until they gain experience with repayment.

Descriptive

The experiment randomly creates a new credit limit for a subset of customers based on prior borrowing and repayment patterns

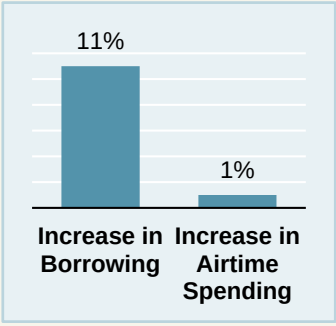


Loan Terms:

- 7 discrete loan amounts from ~USD $0.02-$0.31
- The largest loan pays for 200 minutes of voice calls and 20 SMSs
- There is a fixed service fee, ranging from 15% to 75% of the loan value
- Loans have a 30-day term

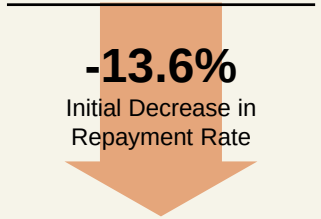
Impact

- Borrowers with increased credit limits immediately increased borrowing the next month, but did not correspondingly increase airtime spending
- Customers may have viewed borrowing as an alternative to recharging, and the borrowing did not fuel unmet demand for airtime spending



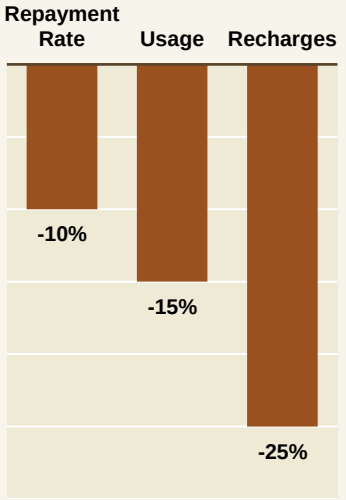
Impact

Customers who saw increases in their credit limits saw a 13.6% decrease in their repayment rate compared to similar customers who did not see a change in their credit limit



Impact

- Increased borrowing reverted in the second month, while longer term repayment, airtime usage and airtime recharges decreased
- Some customers appear to have left the network with outstanding loans



Impact

Borrowers in the following categories saw smaller changes in their repayment rates following credit limit changes:

- Longer borrowing history
- Longer-term patterns of repayment
- Smaller Loan Sizes

These results suggest experience may contribute to customers' willingness and/or ability to repay

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Growth in Formal Borrowing Tracks Broader Financial Inclusion

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THANK YOU

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