Public policy & the promise of digital credit for financial inclusion

C. Leigh Anderson, Pierre E. Biscaye, Adam L. Hayes, Marieka M. Klawitter, and Travis W. Reynolds
University of Washington Evans School Policy Analysis & Research Group (EPAR)

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Defining Digital Credit

• **Instant** - Products take no more than 72 hours to approve and disperse loans

• **Automated** - Products use automated processes to determine credit-worthiness, though live professionals may make the final loan decision

• **Remote** - Product services can be accessed remotely (potentially with initial in-person registration)

http://www.cgap.org/blog/responsible-digital-credit-merchants-insights-kenya
Digital credit products may offer loans to customers who have historically lacked access to the formal financial system, including those lacking documentation, credit history, a bank account, or physical proximity to financial services.

1. **Do product features have particular risks for this cohort?**

2. **To what extent do existing or proposed digital credit regulations address financial inclusion by considering cohorts of previously underbanked and potentially vulnerable borrowers?**
Hypothesized Consumer Risks

• Lack of experience and knowledge of default consequences
  • Poor understanding of loan costs
  • Incentives to easily renew loans (CGAP, Mazer & McKee, 2017)

• Automated credit scoring biases:
  • Algorithms may indirectly discriminate between cohorts on the basis of characteristics that indirectly co-vary with credit risk, rather than varying directly with credit-worthiness (Lepri et al., 2017; Hwang, 2016).
  • Or produce biases in machine learning classification algorithms from asymmetries in data availability. (Barocas & Selbst, 2016).
  • Hence even “unbiased” machine learning algorithms can lead to systematic disadvantages for particular groups (Chouldechova, 2017; Aitken, 2017).
Hypothesized Producer Risks

• Increased risk of default from all of the above behaviors (and without collateral or proximity to collect)
• and from insecure, low and seasonal income streams
• Digital Credit Product Search
  • Focus country web searches
  • Cross-checked with GSMA* and other databases
  • Review of product websites

• Formal Regulations Search
  • Review of literature on digital credit regulatory issues
  • Broad web searches for LMIC country regulatory documents

*Groupe Spéciale Mobile Association
• Web scraping
  • Extend to include non-regulatory documents
    • Automate the search and retrieval of relevant URLs
    • 50 search strings, scrape 70 results per string
  • Include web documents that:
    • Contain keywords related to (1) policy or regulation or some variant and (2) digital/mobile lending/credit.

• Text mining documents for financial inclusivity
  • Search documents for words related to groups less “banked”

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Key Words (terms were stemmed and variants were included in the search)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Female, Woman, Girl, Wife, Mother, Daughter</td>
</tr>
<tr>
<td>Rural</td>
<td>Rural, Farm, Agrarian, Agriculture, Peasant, Subsistence</td>
</tr>
<tr>
<td>Poor</td>
<td>Poor, Poverty, Impoverished, Underprivileged, Beggar, Peasant, Slum, Subsistence</td>
</tr>
<tr>
<td>Non-specific</td>
<td>Less/Least privileged, Under-banked, Under-represented</td>
</tr>
</tbody>
</table>

*Groupe Spéciale Mobile Association
Findings on Digital Credit Product Offerings

• First digital credit products introduced in 2007 (India), and in 2011 (SSA); 39 more by 2016

• Partnerships with Banks (14), Mobile Network Operators (MNOs) (25), Retailers (10), Others (e.g. Private lenders, investment groups and non-bank financial institutions (16)

• Bundling: 31 products bundle digital credit with other services
  • Digital Financial Services (savings accounts, bill pay, money transfers): 27 products
  • Other financial services (insurance plans, traditional home or business loans): 4 products

Note: Products may have multiple partners
Product Technology Platforms

- Feature Phone
  - SSA: 18
  - India: 5
- Smartphone App
  - SSA: 13
  - India: 14
- Internet
  - SSA: 0
  - India: 32

Source: Authors’ calculations
Note: 14 products use multiple technology platforms. 11 use an app combined with an internet platform, and 3 use an app combined with a feature phone platform.
Alternative Data

- Mobile Money Data
- Mobile Phone Data
- Traditional Financial Data
- Online Activity and Social Media
- Previous Credit Digital Loans
- Other Personal Information

Number of Products

- SSA
- India

Digital Credit Products
## Digital Credit Loan Terms

<table>
<thead>
<tr>
<th></th>
<th>Average Minimum Length (days)</th>
<th>Average Maximum Length (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>Mode</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>Mean</td>
<td>64</td>
<td>427</td>
</tr>
<tr>
<td>Number of Products with Data</td>
<td>46</td>
<td>51</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Average Minimum APR</th>
<th>Average Maximum APR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>13%</td>
<td>24%</td>
</tr>
<tr>
<td>Mode</td>
<td>12%</td>
<td>24%</td>
</tr>
<tr>
<td>Mean</td>
<td>38%</td>
<td>71%</td>
</tr>
<tr>
<td>Number of Products with Data</td>
<td>37</td>
<td>41</td>
</tr>
<tr>
<td>Country (No. of Products with Data)</td>
<td>Min (USD)</td>
<td>Avg Min (USD)</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td>Uganda (1)</td>
<td>$0.84</td>
<td>$0.84</td>
</tr>
<tr>
<td>Tanzania (2)**</td>
<td>$0.46</td>
<td>$0.46</td>
</tr>
<tr>
<td>Kenya (15)</td>
<td>$0.49</td>
<td>$8.70</td>
</tr>
<tr>
<td>Nigeria (4)</td>
<td>$1.60</td>
<td>$12.27</td>
</tr>
<tr>
<td>India (32)</td>
<td>$0.02</td>
<td>$475.09</td>
</tr>
</tbody>
</table>

*Local currency figures were converted to USD using current exchange rates

**Only 1 product in Tanzania provides data for minimum loan size
Digital Credit Fees

- **Percentage of Principal Loan Amount (one-time or incremental)**: 13
- **Fee charged, but fee structure unclear**: 9
- **Processing Fee (per transaction)**: 6
- **Registration Fee**: 5 (SSA) / 7 (India)
- **Fixed Fee***: 4 (SSA) / 5 (India)
- **Listing Fee (when borrower requests a loan)**: 2

*Fixed fees refer to a flat amount that is charged for taking out a loan (may relate to the loan size)
Product x Cohort: Target Populations

- Low-income populations
- Urban Borrowers
- Small Business Owners
- Students
- Women

Note: 10 products in India (6 in SSA) target multiple groups
• Diversity in digital credit models

• Incentives are to target urban, less poor, smart phone/web enabled users with credit history & make larger loans

• Loan fees, high APR and short terms will exclude some borrowers

• As competition for marginal borrowers increases & reward/marketing features expand, do regulations protect these consumers and suppliers by reducing the risk of default?
Review of Regulatory Documents

Identified 23 regulatory documents across 14 countries:

- Bangladesh
- China, Hong Kong
- Ghana
- India
- Indonesia
- Kenya
- Lesotho
- Malaysia
- Pakistan
- Singapore
- Sri Lanka
- Tanzania
- Thailand
- Zambia
## Regulatory Issues

<table>
<thead>
<tr>
<th>Regulatory Issue</th>
<th>No. of Regulatory Documents</th>
<th>Brief Description of Regulatory Approach</th>
<th>Countries with Regulatory Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market Conduct</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Management and Privacy</td>
<td>10</td>
<td>Data privacy, Data management requirements, Confidentiality</td>
<td>Bangladesh; China; Ghana; India; Indonesia; Pakistan; Zambia</td>
</tr>
<tr>
<td>Product Disclosure</td>
<td>6</td>
<td>Transparency of fees, terms, etc.</td>
<td>China; India; Kenya; Tanzania; Zambia</td>
</tr>
<tr>
<td>Customer Redress</td>
<td>4</td>
<td>Redress procedure, Internet/telephone complaint center</td>
<td>China; India; Ghana; Pakistan</td>
</tr>
<tr>
<td>Consumer Overindebtedness</td>
<td>2</td>
<td>Lending amount limits</td>
<td>China; Indonesia</td>
</tr>
<tr>
<td>Rates and Pricing</td>
<td>1</td>
<td>Rate caps, Length of terms, Competitive pricing</td>
<td>Kenya</td>
</tr>
<tr>
<td><strong>Systemic Risk</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licensing and Reporting</td>
<td>7</td>
<td>License requirements, Business continuity plan, Reporting requirement</td>
<td>Bangladesh; China; Ghana; India; Indonesia; Pakistan; Zambia</td>
</tr>
<tr>
<td>Lending Prohibition</td>
<td>6</td>
<td>Prohibits lending from certain types of institutions</td>
<td>Democratic Republic of Congo; Ghana; Lesotho; Malaysia; Sri Lanka; Zambia</td>
</tr>
<tr>
<td>Regulatory Sandboxes</td>
<td>5</td>
<td>Allow organizations to experiment with new models within defined time and space limits</td>
<td>Hong Kong; Indonesia; Malaysia; Singapore; Thailand</td>
</tr>
<tr>
<td>Capital Requirements</td>
<td>5</td>
<td>Equity in relation to debt, Ratio of capital to risk-weighted assets</td>
<td>India; Indonesia; Ghana; Pakistan; Zambia</td>
</tr>
<tr>
<td>Governance Requirements</td>
<td>2</td>
<td>Managing financial risk, Maturities of loans and investments, Organizational governance standards</td>
<td>India; Indonesia</td>
</tr>
</tbody>
</table>

**Countries**: Bangladesh; China; Ghana; India; Indonesia; Pakistan; Zambia; Democratic Republic of Congo; Ghana; Lesotho; Malaysia; Sri Lanka; Zambia; Hong Kong; Indonesia; Malaysia; Singapore; Thailand; India; Indonesia; Ghana; Pakistan; Zambia; Hong Kong; Indonesia; Malaysia; Singapore; Thailand
Coverage of Digital Credit Regulatory Dimensions (max=5/category)
Cohort-Relevant Keywords in Regulatory Documents by Country (n=23 docs)

- **Bangladesh**
- **China**
- **Sri Lanka**
- **Singapore**
- **Thailand**
- **Pakistan**
- **Ghana**
- **Tanzania**
- **Dem Rep Congo**
- **Zambia**
- **Malaysia**
- **Lesotho**
- **Kenya**
- **Indonesia**
- **India**

Keywords: poor keywords, rural keywords, female keywords, non-specific keywords
Informal Web Documents

• Identified 298 unique relevant web documents
  • Provides a broader picture of the (informal) policy environment.
  • Documents are not necessarily strictly regulatory.
  • They include:
    • blog entries
    • news items on digital credit
    • financial industry websites
    • NGO websites

• All countries are included among the web documents, but:
  • More than 75% of web documents focus on either China, India, or Kenya. Each exceeds 20% share of total documents.
  • No other countries exceed 4% of the total documents.
Proportion of country documents mentioning cohort-relevant keywords

- Pakistan
- Lesotho
- Bangladesh
- Sri Lanka
- Dem Rep Congo
- Ghana
- Indonesia
- Malaysia
- Zambia
- Gambia
- Thailand
- India
- Hong Kong
- China
- Tanzania
- Kenya

Proportion of documents mentioning keywords:
- non-specific
- rural
- female
- poor

Values range from 0.0 to 1.0.
Discussion

The Promise of Inclusion

• Product features may continue to exclude those previously under-served by the traditional credit market (tech platform, cost & fees, data)

• No regulatory documents explicitly mention digital credit and most do not include any particular consideration for these borrowers

• Discussion of these cohorts (female, in particular) are more prevalent in online web documents than formal regulatory documents.

Policy Challenges

• Digital Credit products overlap regulatory domains - governments may need to rely on higher level guidelines to cover gaps and clarify how general financial and other regulations apply to digital credit providers

• In addition to over-debtedness and default, data management and privacy is a concerning issue particularly due to the use of alternative data

• The speed of growth in the digital credit industry is a challenge for regulators
Evans School Policy Analysis & Research Group (EPAR)

Professor C. Leigh Anderson, Principal Investigator
Professor Travis Reynolds, co-Principal Investigator
Professor Marieka Klawitter, Faculty Advisor

PIerre Biscaye, Kirby Callaway, Melissa Greenaway
Daniel Lunchick-Seymour, & Max McDonald

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