



Public policy & the promise of digital credit for financial inclusion

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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>

Research Questions

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

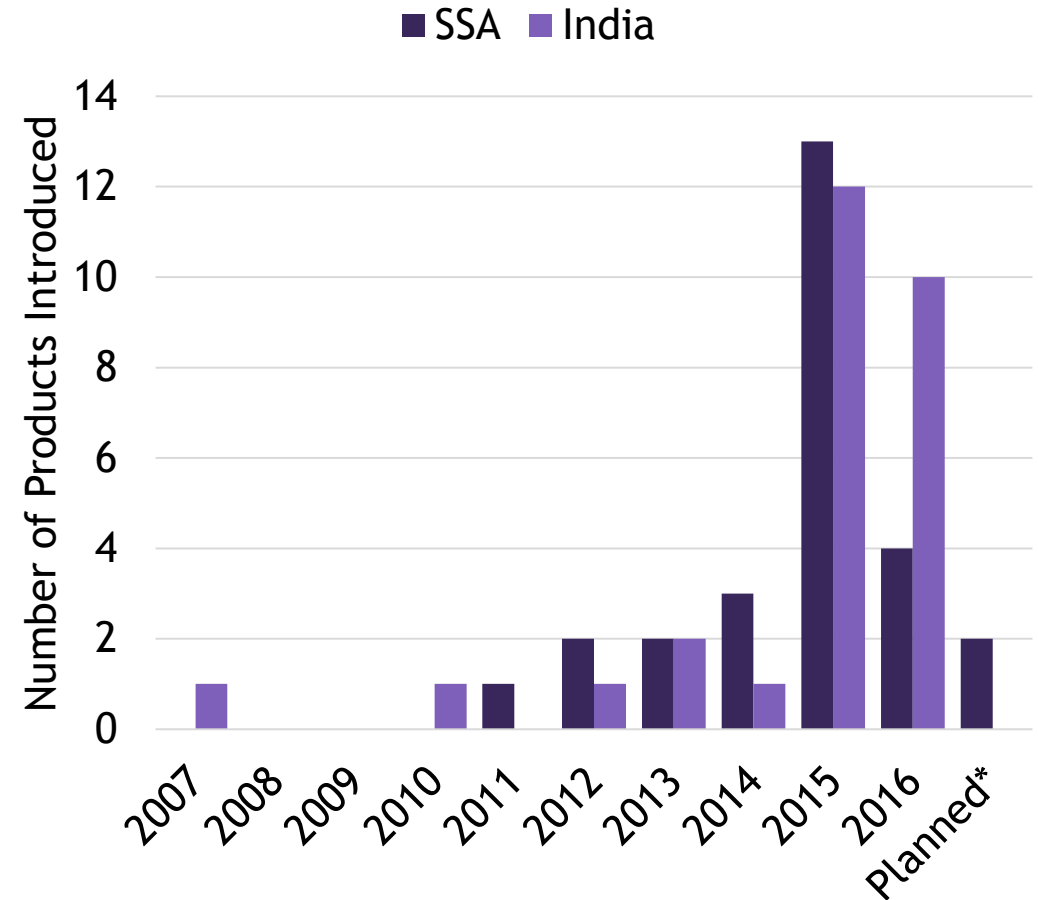
- Lack of experience and knowledge of default consequences
 - Poor understanding of loan costs
 - Incentives to easily renew loans (CGAP, Mazer & McKee, 2017)
- Automated credit scoring biases:
 - Algorithms may indirectly discriminate between cohorts on the basis of characteristics that indirectly co-vary 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

Research Methods

- 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

Research Methods

- 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”

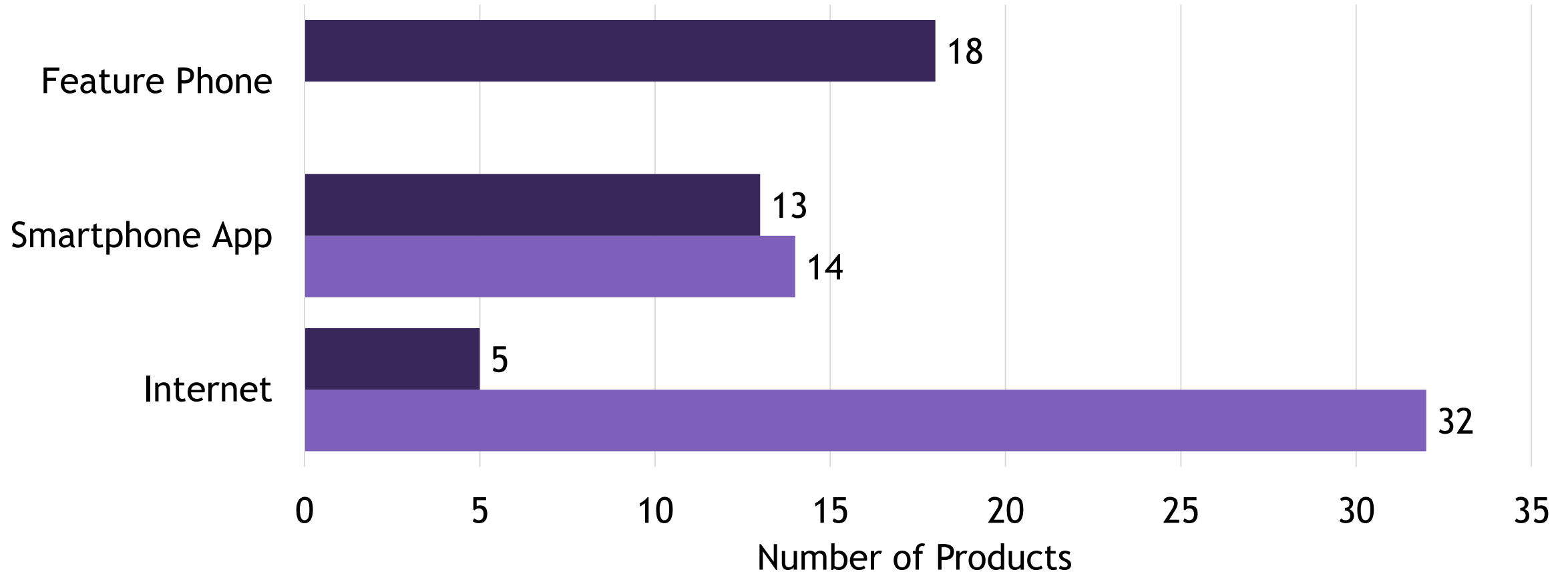
Cohort	Key Words (terms were stemmed and variants were included in the search)
Female	Female, Woman, Girl, Wife, Mother, Daughter
Rural	Rural, Farm, Agrarian, Agriculture, Peasant, Subsistence
Poor	Poor, Poverty, Impoverished, Underprivileged, Beggar, Peasant, Slum, Subsistence
Non-specific	Less/Least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

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

Product Technology Platforms

■ SSA ■ India



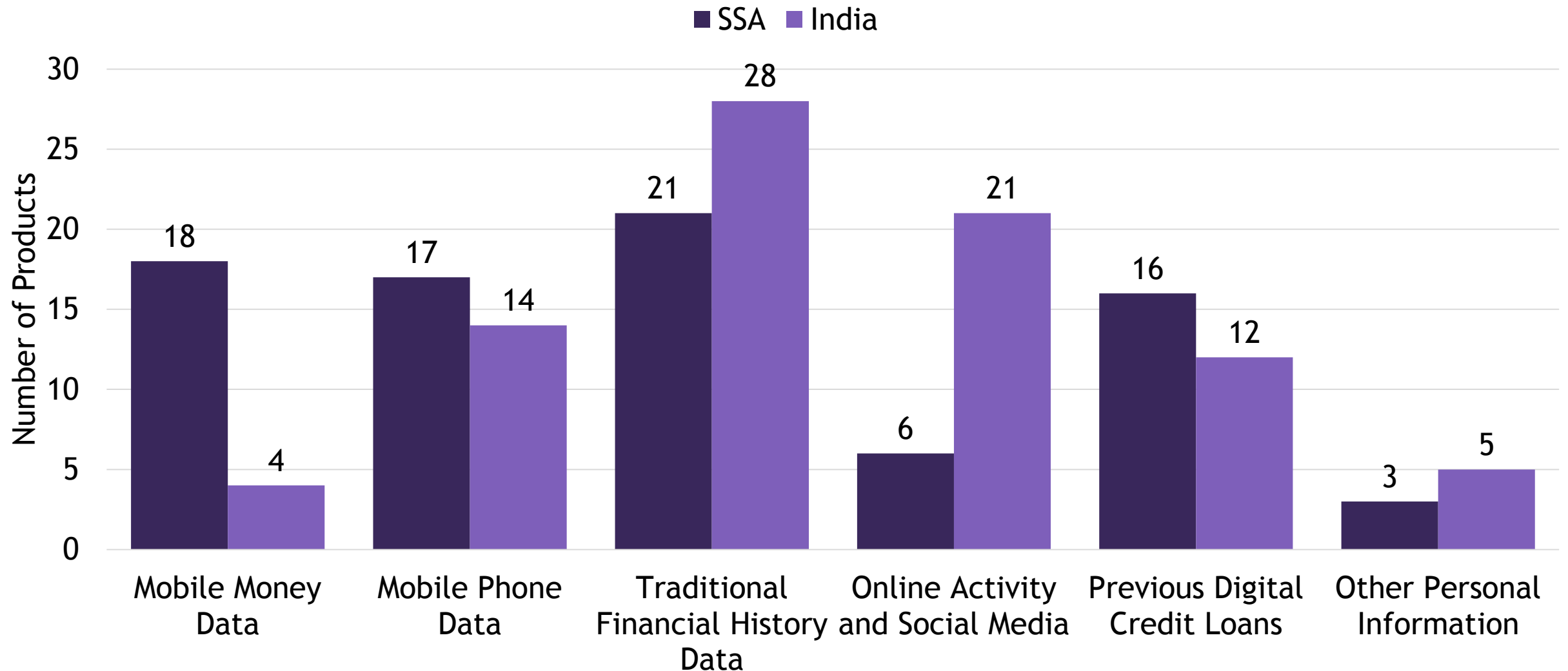
Source: Authors' calculations

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.

Digital Credit Products



Alternative Data



Digital Credit Products



Digital Credit Loan Terms

	Average Minimum Length (days)	Average Maximum Length (days)
Median	30	180
Mode	0	30
Mean	64	427
Number of Products with Data	46	51

	Average Minimum APR	Average Maximum APR
Median	13%	24%
Mode	12%	24%
Mean	38%	71%
Number of Products with Data	37	41

Loan Size*

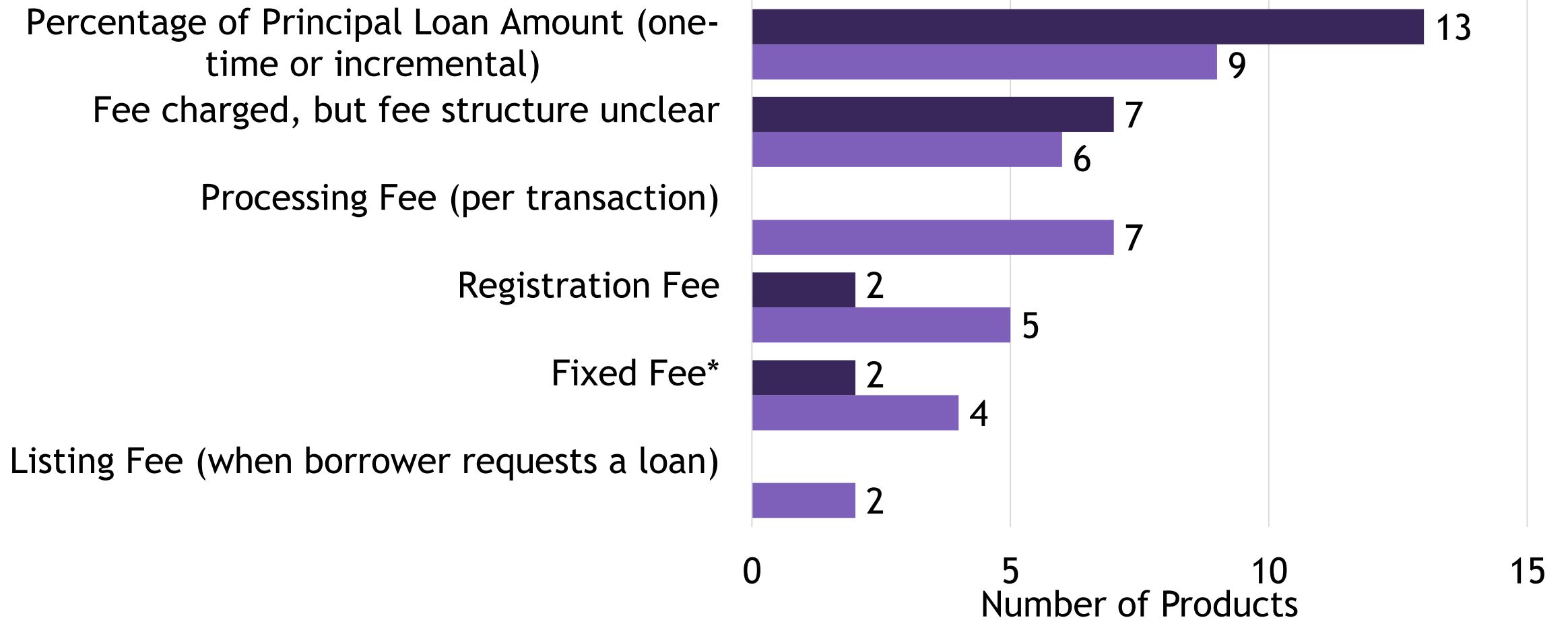
Country (No. of Products with Data)	Min (USD)	Avg Min (USD)	Max (USD)	Avg Max (USD)
Uganda (1)	\$0.84	\$0.84	\$280.00	\$280.00
Tanzania (2)**	\$0.46	\$0.46	\$230.00	\$119.60
Kenya (15)	\$0.49	\$8.70	\$29,400.00	\$4,896.08
Nigeria (4)	\$1.60	\$12.27	\$192.00	\$76.00
India (32)	\$0.02	\$475.09	\$750,000.00	\$69,343.36

*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

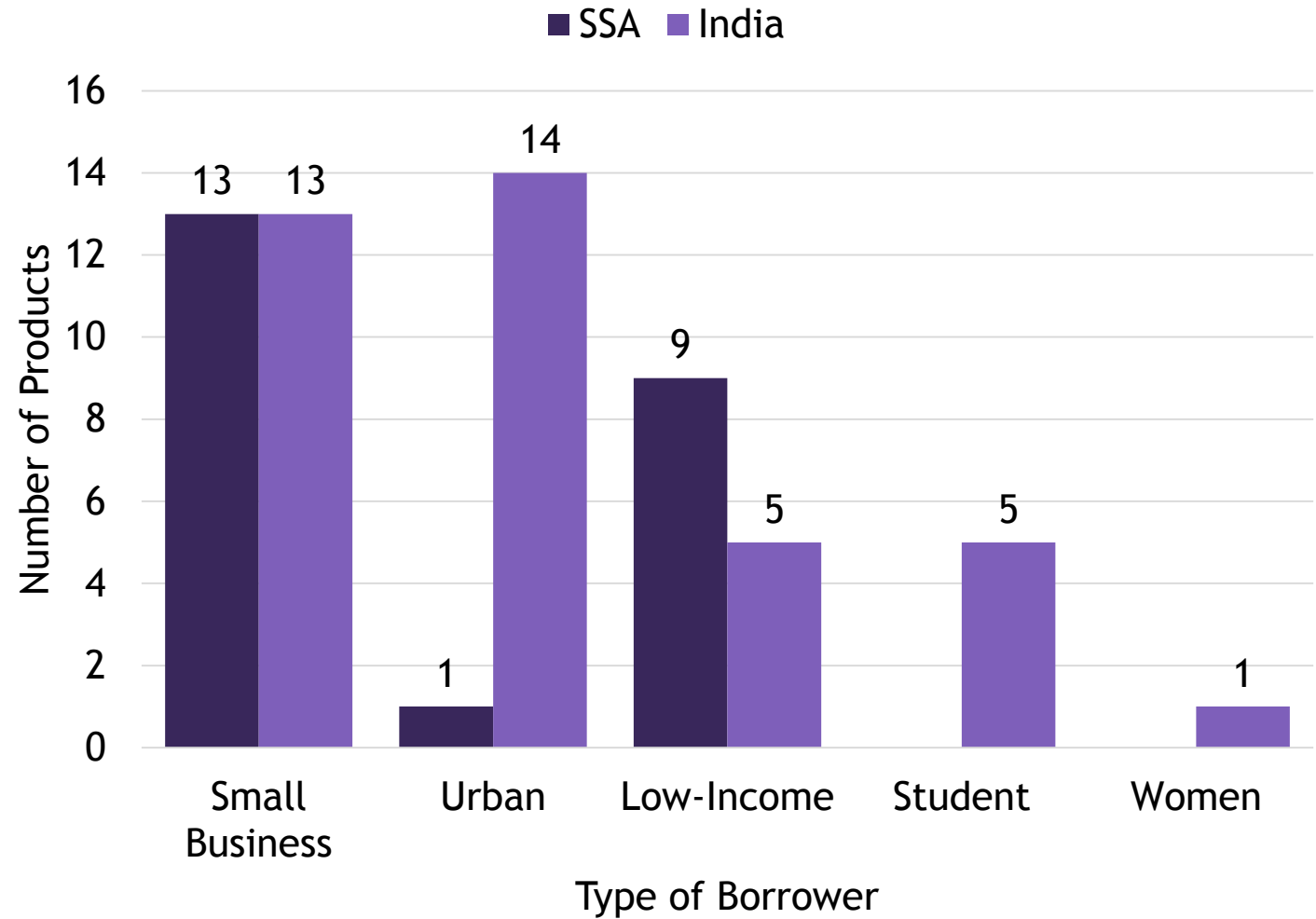
■ SSA ■ India



*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

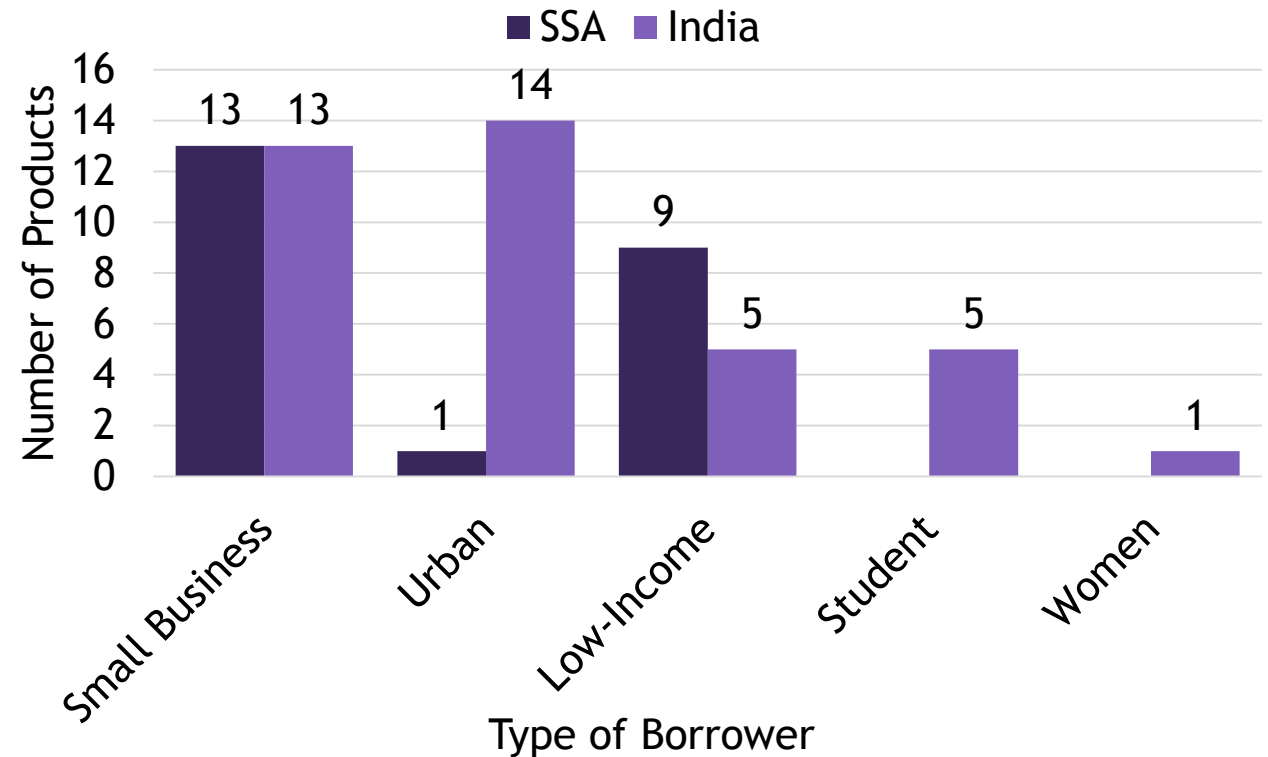
- Low-income populations
- Urban Borrowers
- Small Business Owners
- Students
- Women



Note: 10 products in India (6 in SSA) target multiple groups

Product x Cohort: Discussion

- 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

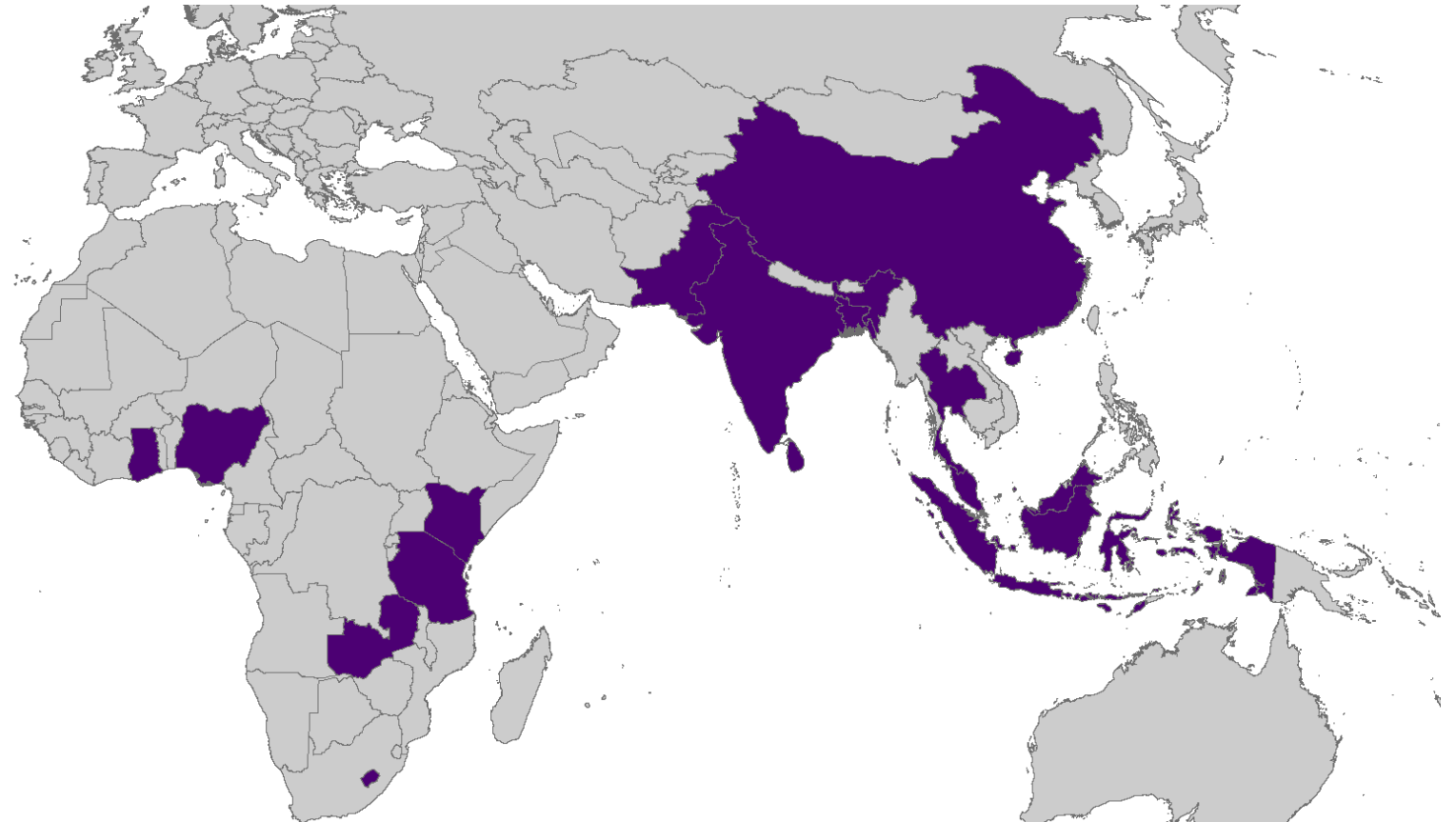


- As competition for marginal borrowers increases & reward/marketing features expand, *do regulations protect these consumers and suppliers by reducing the risk of default?*

Review of Regulatory Documents

Identified 23 regulatory documents across 14 countries:

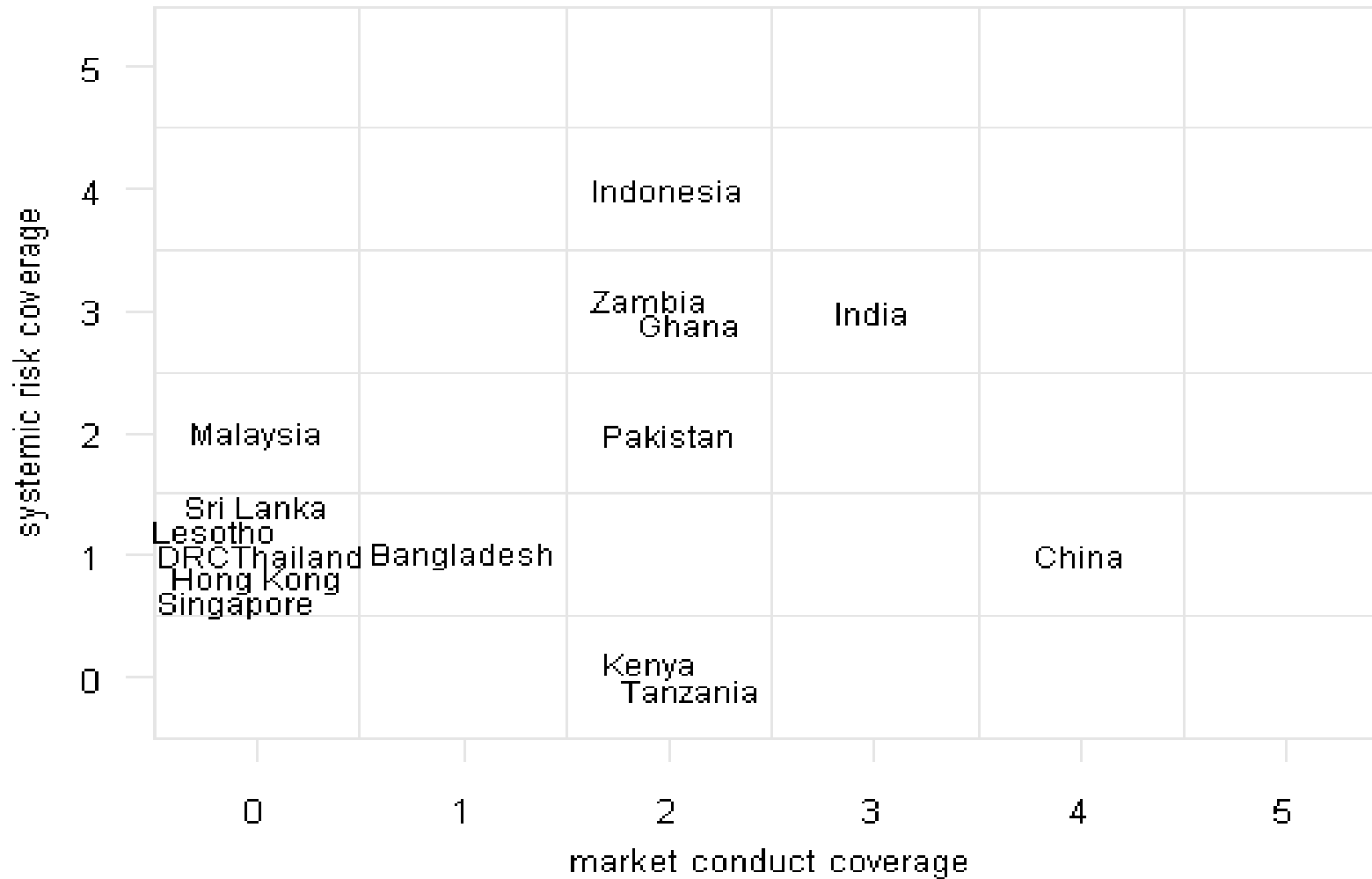
- Bangladesh
- China, Hong Kong
- Ghana
- India
- Indonesia
- Kenya
- Lesotho
- Malaysia
- Pakistan
- Singapore
- Sri Lanka
- Tanzania
- Thailand
- Zambia



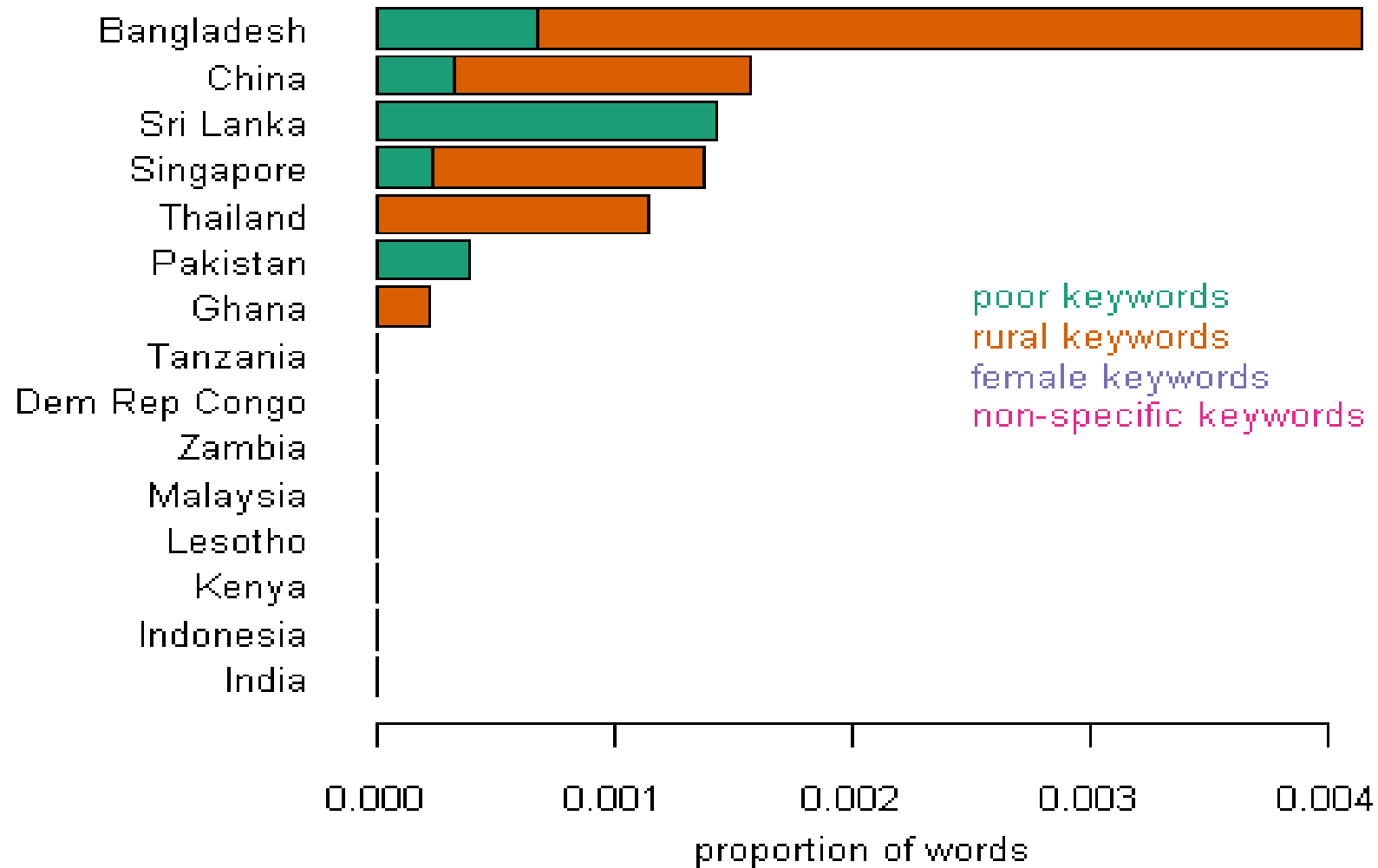
Regulatory Issues

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

Coverage of Digital Credit Regulatory Dimensions (max=5/category)



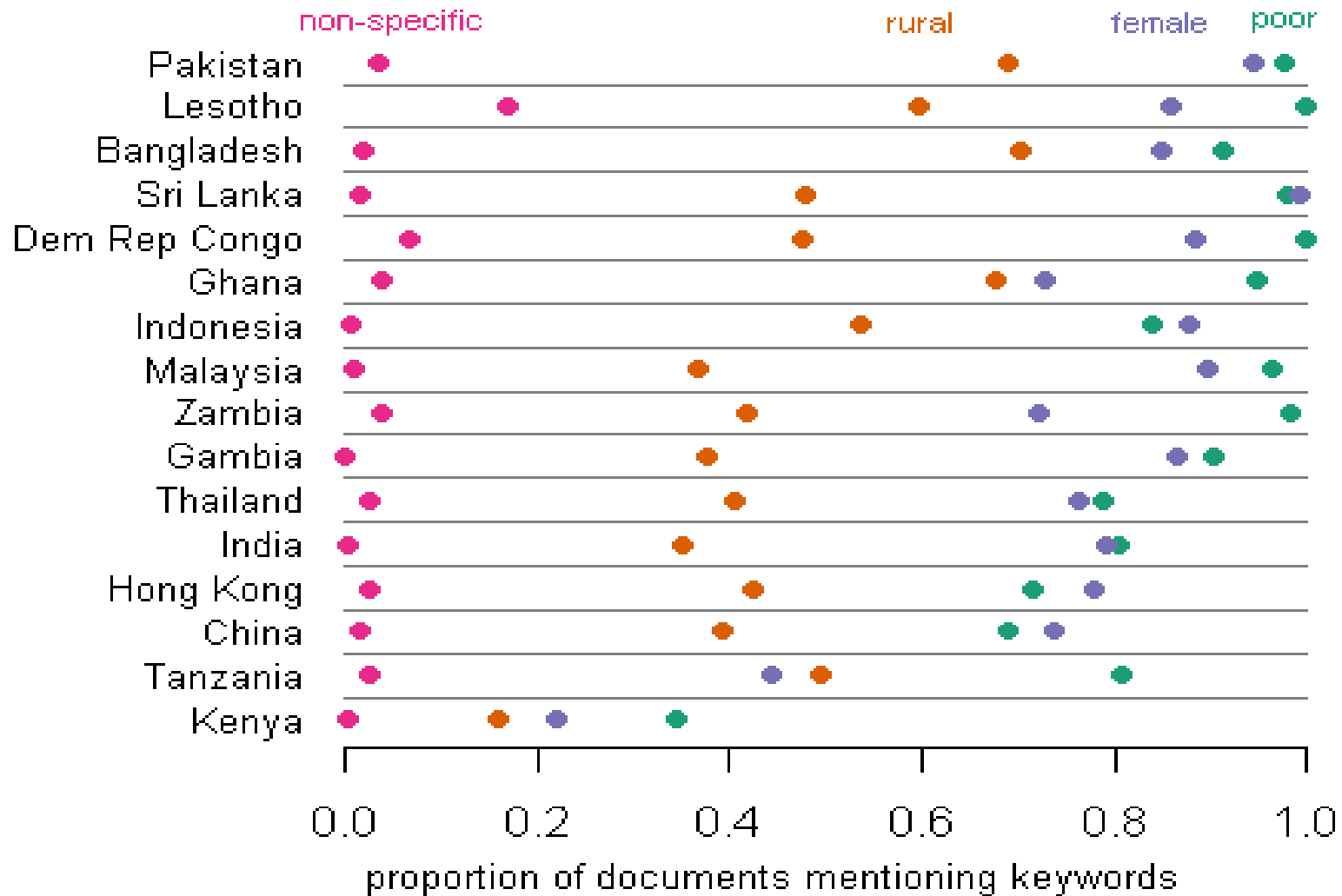
Cohort-Relevant Keywords in Regulatory Documents by Country (n=23 docs)



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



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



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