Mapping the financial sector: microfinance and beyond

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1 This presentation was prepared for the workshop. The views expressed are those of the author and do not necessarily reflect the views of the BIS or the central banks and other institutions represented at the workshop.
Mapping the financial sector

• Who we are

• Geospatial analysis for financial inclusion

• Long-run trends for data on financial inclusion
Who are we?

MIX is the premier source for objective, qualified, and relevant microfinance performance data and analysis.

Committed to strengthening financial inclusion and the microfinance sector by promoting transparency, MIX provides information on microfinance institutions (MFIs), funders, networks and service providers dedicated to serving the financial sector needs for low-income clients.
MIX’s Role in the microfinance sector

2002 - 2012

MIX Basics

- 2,100+ MFIs
- 150 Networks
- 200 Funders
- 300 Service Providers

MFI Networks

Donors and Investors

Regulators

Raters

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How has data on microfinance evolved?

- Average of 250 data points per MFI
- Steady increases in transparency over time
Where does this data come from?

- Majority of data from audits
- Ratings for some (8 - 15%)
- Roughly 1/3 now unaudited (self-reported)
Research: recent publications using MIX data

- Selected papers referencing MIX data from the last year or so (not exhaustive):
  - “Microfinance in evolution: An industry between crisis and advancement” Cédric Lützenkirchen, Christian Weistroffer, Deutsche Bank Research
  - “External Validity and Partner Selection Bias,” Hunt Allcott and Sendhil Mullainathan, NYU/NBER, Harvard
  - “Competition, loan rates and information dispersion in microcredit markets,” Guillermo Baquero, Malika Hamadi, Andréas Heinen, ESMT Research Working Papers
  - “The Profit Orientation of Microfinance Institutions and Effective Interest Rates” Peter W. Roberts, World Development
  - “Do Institutions Matter for Microfinance Profitability? Evidence from Africa” Peter Muriu, University of Birmingham - The Birmingham Business School
  - “Risky Business: An Empirical Analysis of Foreign Exchange Risk Exposure in Microfinance,” Julie Abrams, Microfinance Analytics
  - “Over-indebtedness and Microfinance: Constructing an Early Warning Index,” Vivien Kappel, Annette Krauss, Laura Lontzek* Center for Microfinance, University of Zurich
Key questions for geospatial analysis

• Access
  o How many people are within X km of a point of service?
  o What percent of the population is served (by product, by type of institution)?

• Market trends
  o What are trends in access? How has the market grown?
  o Are there hotspots or clusters of activity? Are there areas that are relatively under-served?
• Motivating questions
  o **Financial Sector Charter** goals for access based on physical proximity
    ▪ A sales point within 15 km of a qualifying area
    ▪ A service point within 10 km of a qualifying area
    ▪ A transaction point within 5 km of a qualifying area

• How we did it
  o Public data: Branch and PoS listings for customers + regulatory databases
  o Technology: Web scrapers to extract and consolidate data automatically
  o Results: 40K access points mapped to town level
Kenya: long-run trends in channel development

Figure 3: Growth of financial sector infrastructure and agents in Kenya - 1900 - 2011
Nigeria: testing microfinance bank locations

• Motivating questions
  o Can we monitor proliferation of 900+ banks?
  o Can we track or find patterns in license revocations (200+)?
  o Can we identify supply / demand gaps?

• How we did it
  o Location info from registry of banks posted by CBN
  o Rule-based and manual scrubbing of location info
  o Utilize NIGECS database of demographic data at LGA (admin-2) level; more detailed than census data
Nigeria: testing microfinance bank locations

State Name: Cross River

Number of Licensed MFBs
Circle size indicates number of MFBs
Source: Central Bank of Nigeria

Sample findings from Nigeria and S. Africa

Nigeria

At the district level, a clear inverse relationship between poverty and access to microfinance banks

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<td>Bank branches per 1000 km²</td>
<td>2.22</td>
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<td>Bank branches per 100,000 adults</td>
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Bottom-up aggregation of identified access points finds 50% more bank branches than global surveys indicate
• Motivating questions
  o Could we have foreseen the microcredit crisis using spatial data?

• How we did it
  o Location information a standard disclosure in audits
  
  o Calculate market share for individual MFIs and compute HHI (Hirschman-Herfindahl Index) to look at concentration
Bosnia: identifying hotspots for crises
Bosnia: identifying hotspots for crises

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Mapping the financial sector

• A growing database on microfinance
• Expanding beyond microfinance to look at key questions using geospatial analysis
  o Access, supply-demand gaps
  o Trends, monitoring and tracking performance
  o Market concentration and early warning systems
• Key principles for data and indicators
  o Use public data whenever possible
  o Use technology for efficiency
  o Make more data publicly available
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