The Mobile Money Revolution in Kenya
Based on research by William Jack and Tavneet Suri
An Efficient Financial System

- Decades of research: efficient financial systems are key to economic growth and poverty reduction

- One major reason financial markets in the developing world lack efficiency is high transaction costs
  - Traditionally, financial systems have been bank based: branches are few and far between and accounts expensive to maintain

- How can we lower transaction costs?
Mobile Money: First Four Years

The graph illustrates the growth of customers and agents over the first four years (2007-2011). The red line represents customers, while the dashed line represents agents. The y-axis indicates the number of customers or agents, ranging from 0 to 14,000,000, and the x-axis represents the months from April 2007 to April 2011.
The Industry: Next Four Years

- Subscriptions (left axis)
- Agents (right axis)
Household Survey

- Large household panel survey across most of Kenya (92% coverage)
- Funded by FSD Kenya and the Gates Foundation
  - Last two rounds excluded Nairobi
M-PESA Adoption by Households
A core component of financial health/wellbeing is resilience, the ability to respond to unexpected negative events, or shocks.

How do we accomplish this in the developed world?
- Banks to save for a rainy day
- Purchase insurance
- Receive unemployment insurance and transfers from the govt.
Resilience and Social Economies

• In the developing world, little private insurance and few public sector safety nets

• Instead: social ties create an insurance network to pool risk: is this efficient?
  – Ideal network is as different in risk profile from you as possible
  – But transactions have to cross geographical space which has costs
Financial Intermediation
Transaction Costs

- Kenyans faced large costs of transacting with the financial system
  - The distance to the closest bank branch in 2007 was 9.2 km
  - 32% of households lived more than 10 km from a bank branch
  - 19% of households lived more than 20 km from a bank branch

- M-PESA lowered transaction costs dramatically
  - Costs: for average distance of 200 km, KShs 35 vs. a KShs 460 bus
  - Distance to an agent was 4.9 km in 2007 (fell to 1.9 km by 2011)
  - 46% of households lived within 1 km of an agent
Financial Service Points, 2007-2011
Economic Activity

POPULATION DENSITY
(number of people per sq. km)

- > 600
- 300 - 600
- 100 - 300
- 50 - 100
- 20 - 50
- <= 20
- No data

OTHER FEATURES

- District boundaries
- Selected national parks and reserves
- Water bodies
Resilience: Remittances

No Shock -3.7%

Negative Shock +4.8%

M-PESA Users

Nonusers

Likelihood of receiving remittances
Resilience: Networks

Number of people sending remittances

M-PESA Users

No Shock

Nonusers

Negative Shock

+8.5%

-4.9%
Resilience to Health Events

Consumption

M-PESA Users

No Shock

Total Expenditure

Medical

Non-Food

Food

-2.7%

+11.8%

+29.6%

+33.4%

+10.2%

+4.7%

-13.7%

-4.4%

Nonusers
Eight Years Later….

- Better access to M-PESA has the following long term effects:
  - Increases savings and consumption, hence reducing poverty, mostly for female headed households
    - Poverty reductions of about 2 percentage points
  - Does not increase physical assets
  - Changes occupational choice (less likely to be a farmer, more likely to be in a business), especially for women in the household
Financial Service Points, 2007-2011
Financial Service Points, 2011-2015
### Access, 2007-2015

#### Average Distance to Closest Financial Institution

<table>
<thead>
<tr>
<th>Year</th>
<th>Bank Branches</th>
<th>Bank Agents</th>
<th>Mobile Money Agents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>9.2 km</td>
<td>NA</td>
<td>4.9 km</td>
</tr>
<tr>
<td>2011</td>
<td>7.0 km</td>
<td>5.2 km</td>
<td>1.9 km</td>
</tr>
<tr>
<td>2015</td>
<td>6.0 km</td>
<td>1.9 km</td>
<td>1.4 km</td>
</tr>
</tbody>
</table>
Few Spillovers

- By end 2014, outside Nairobi, 96% of HHs used M-PESA for P2P
  - On average one transaction a month – limits to P2P transactions
- Less than a third use it for:
  - Paying bills, receiving payments or wages from an organization, paying for other goods or services

- Only 5% used it to repay loan. However, M-Shwari (digital savings & credit product (Commercial Bank of Africa)) now has 12m users

- Next frontiers that will require a lot more innovation: P2B, B2B, G2P (being used in India)
Conclusions

- Lowering the transaction costs of interacting with the financial system has improved the lives of Kenyans
  - Resilience and vulnerability
  - Savings and investment
  - Occupational shifts for adults, especially women

- Financial markets interact with all other markets: little evidence of spillovers from mobile money yet
  - Still a long way to go on that front and a much harder way to go