

# Risk sharing and the economics of M-PESA

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# The problem:



# M-PESA as a risk spreading tool

- Formal insurance is limited
- Informal insurance exists, but is often incomplete.....why?
- Moral hazard: information asymmetries
- Limited commitment: contract enforcement
- Transaction costs

# Summary of findings

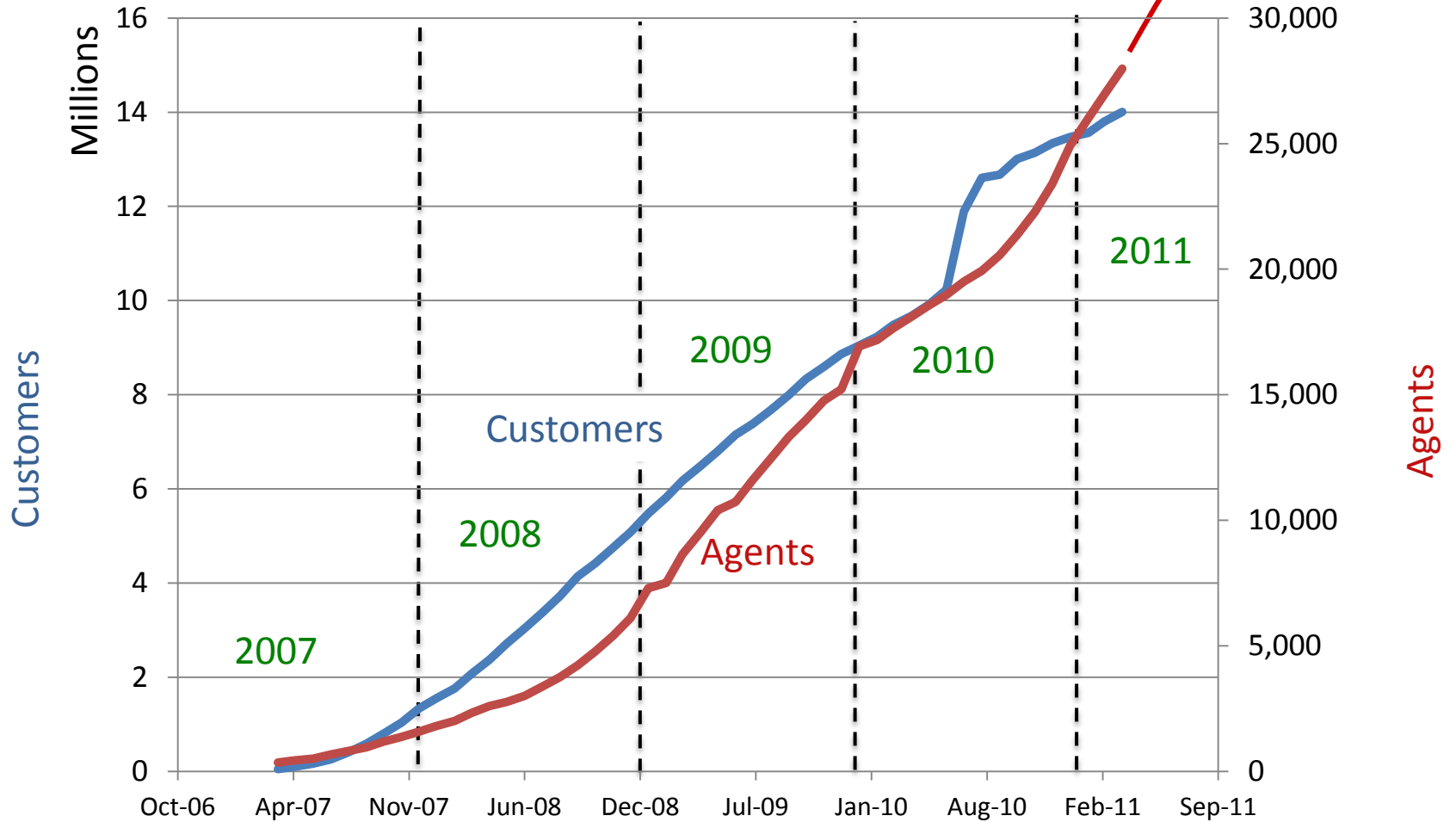
- The consumption of households who don't use M-PESA falls by about 7% - 10% when they suffer negative shocks
- Lower transaction costs allow households who use M-PESA to smooth these risks perfectly

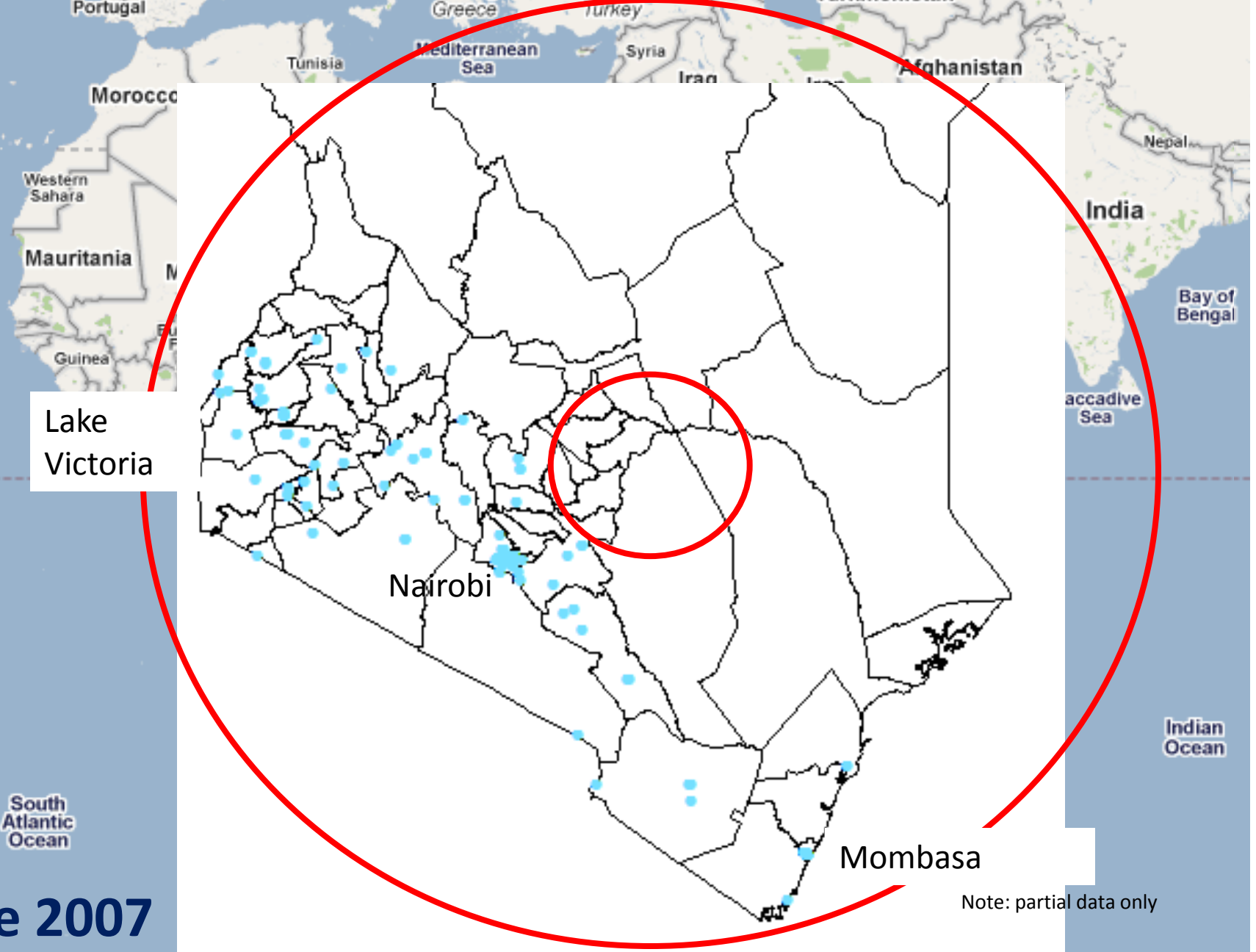
# The M-PESA concept

- Remote account storage accessed by simple SMS technology
- Cash-in and cash-out services provided by M-PESA agents



# Customer and Agent growth





Lake  
Victoria

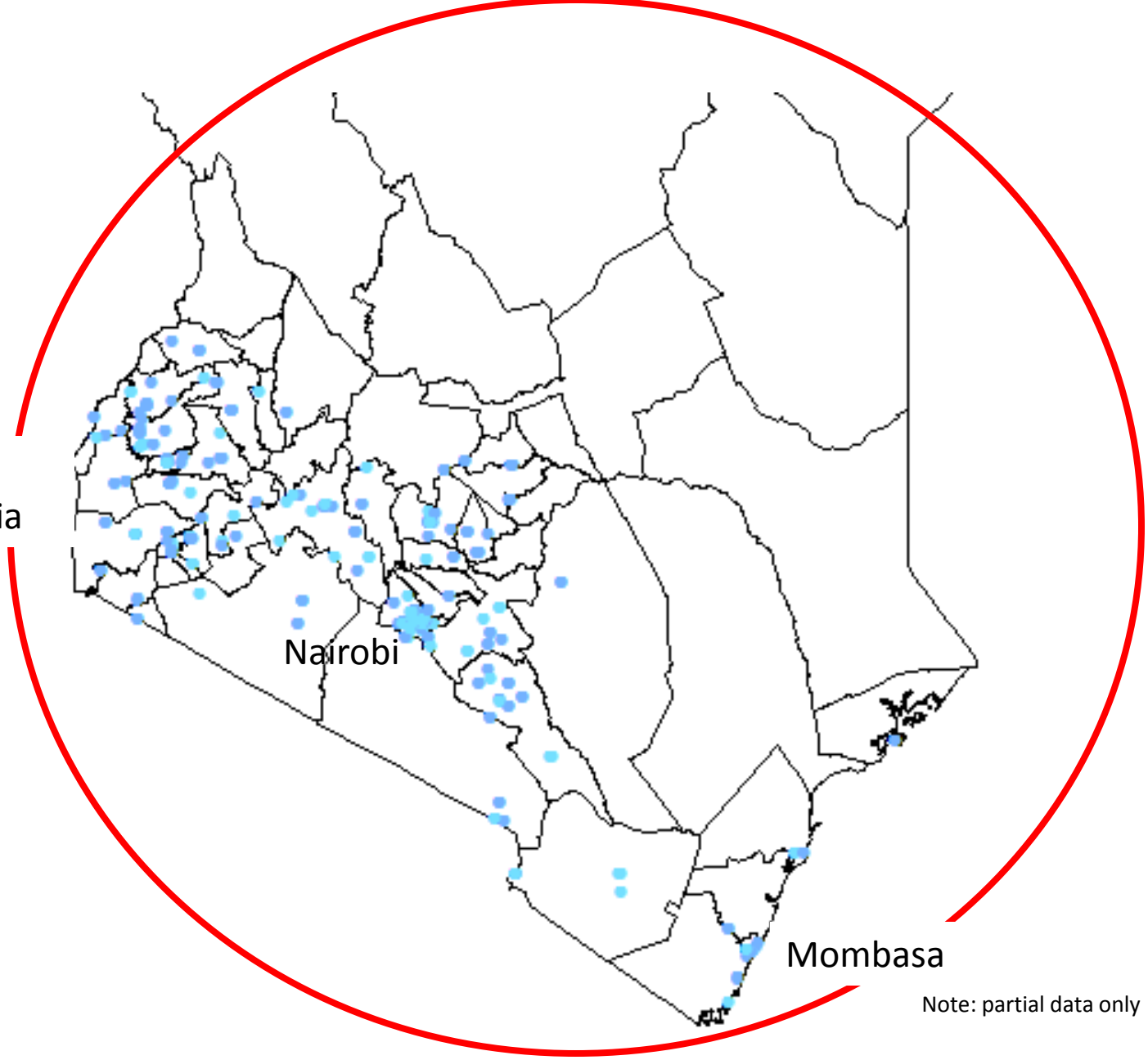
Nairobi

Mombasa

Note: partial data only

June 2007

Lake  
Victoria



Nairobi

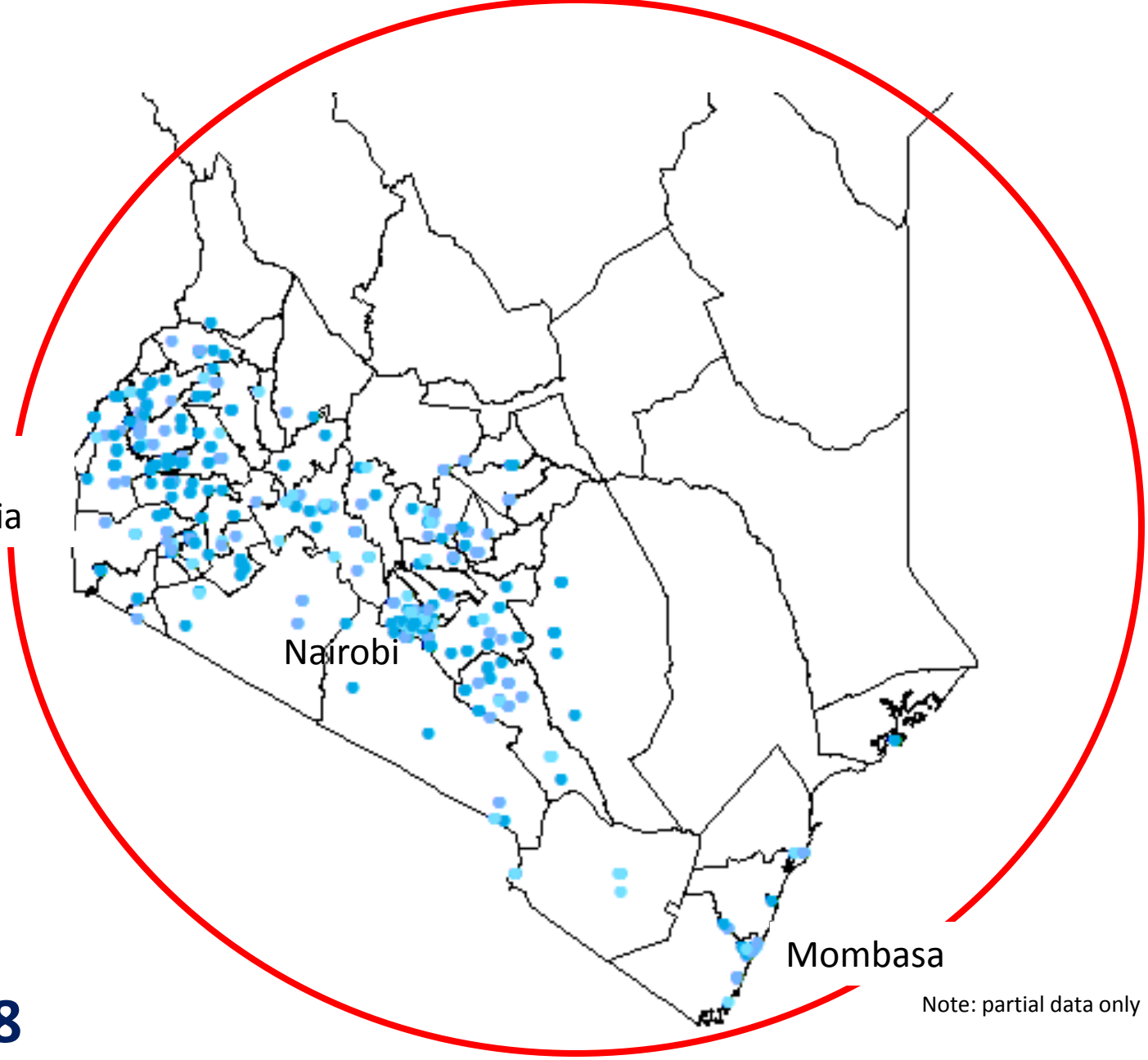
Mombasa

Note: partial data only

**Dec 2007**



Lake  
Victoria



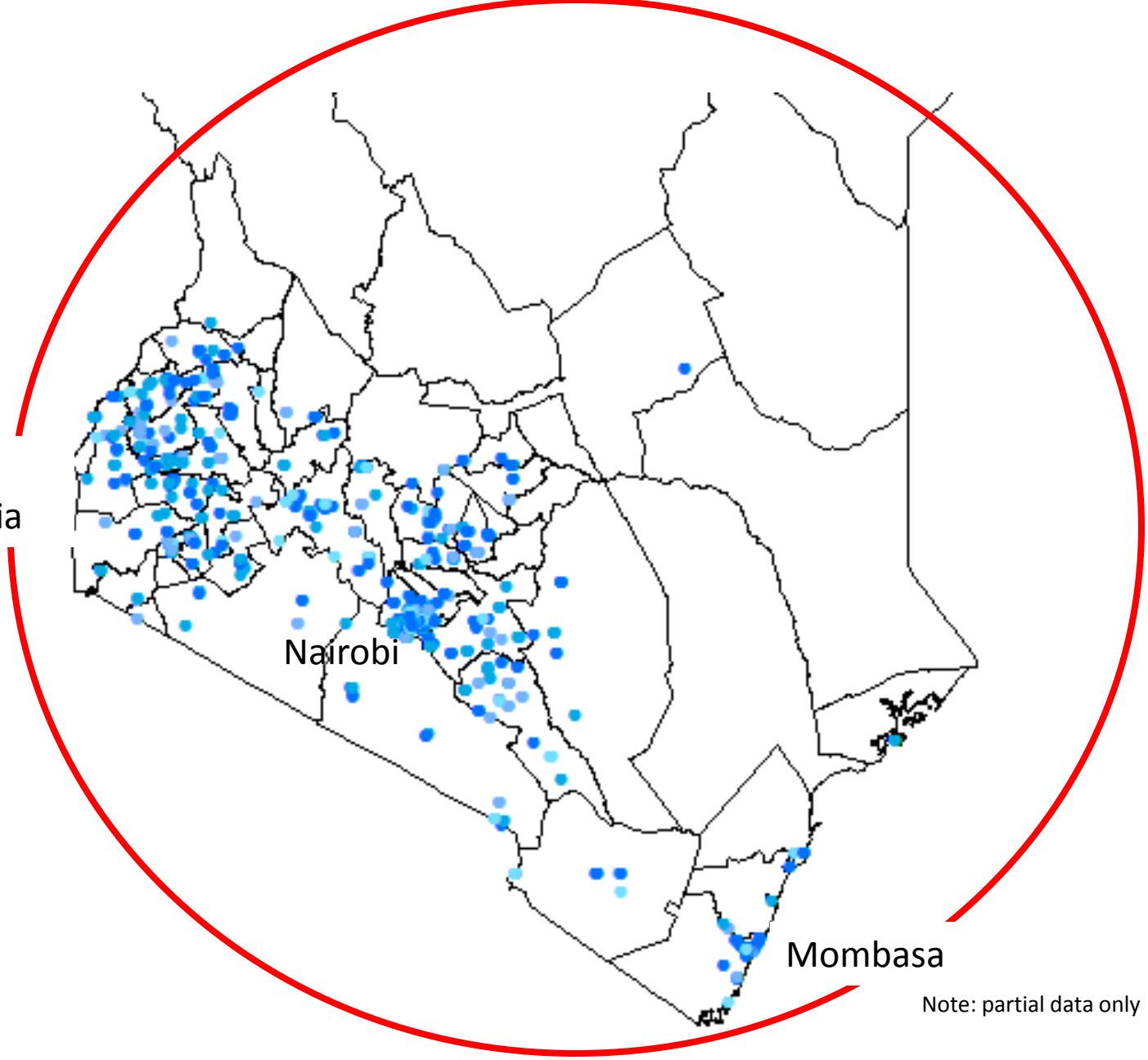
Nairobi

Mombasa

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**June 2008**

Lake  
Victoria



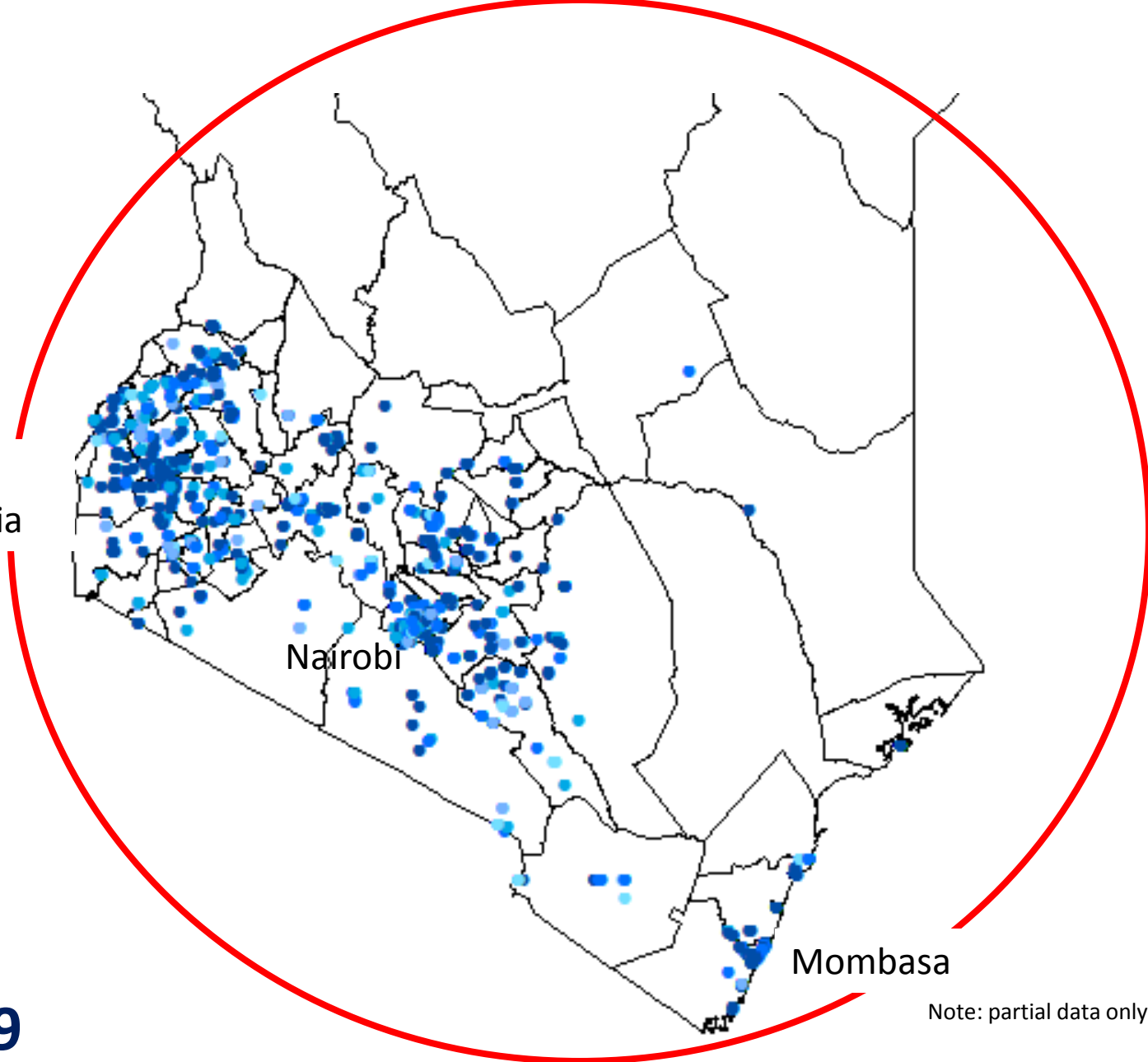
Nairobi

Mombasa

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**Dec 2008**

Lake  
Victoria



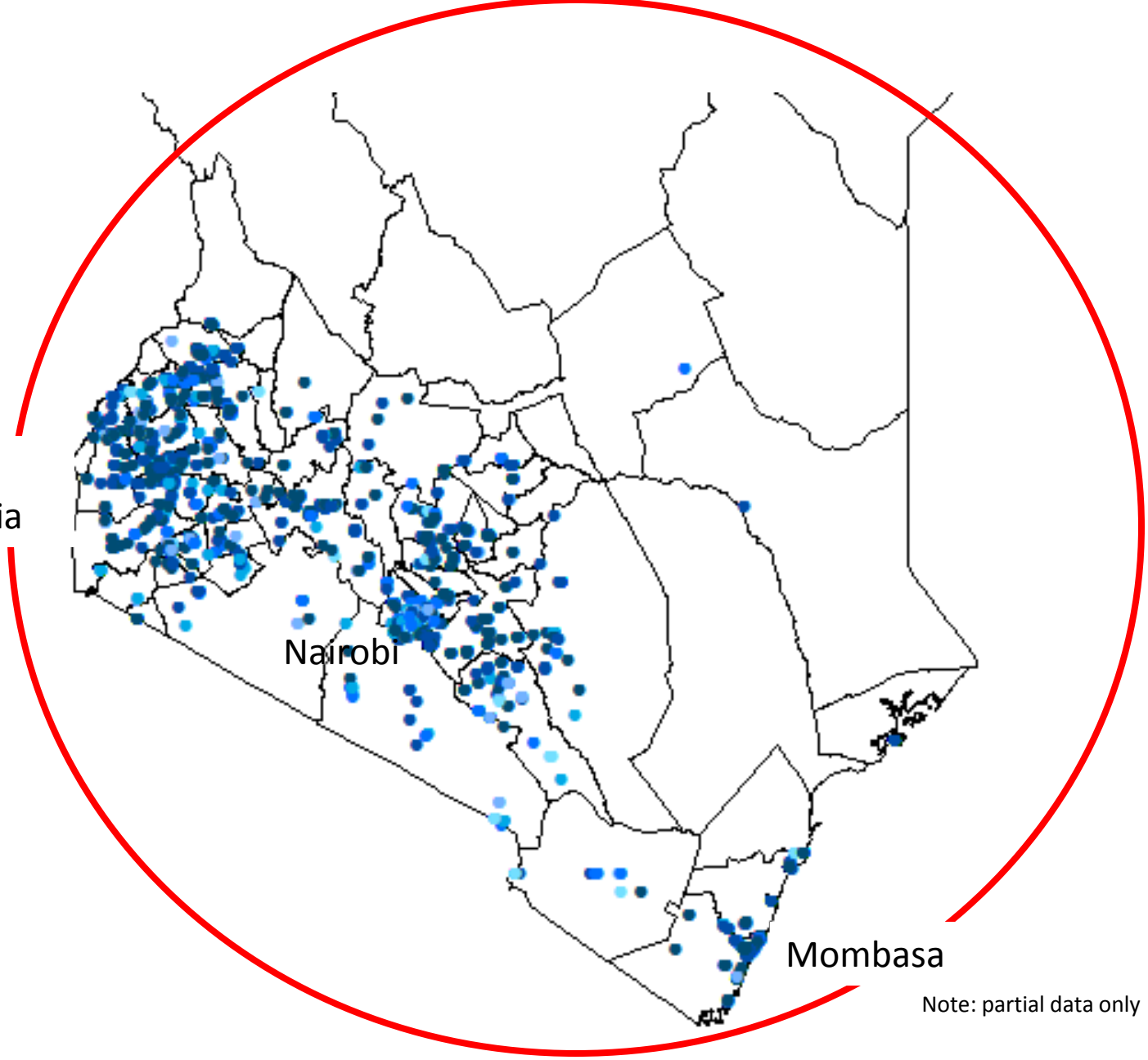
Nairobi

Mombasa

Note: partial data only

**June 2009**

Lake  
Victoria



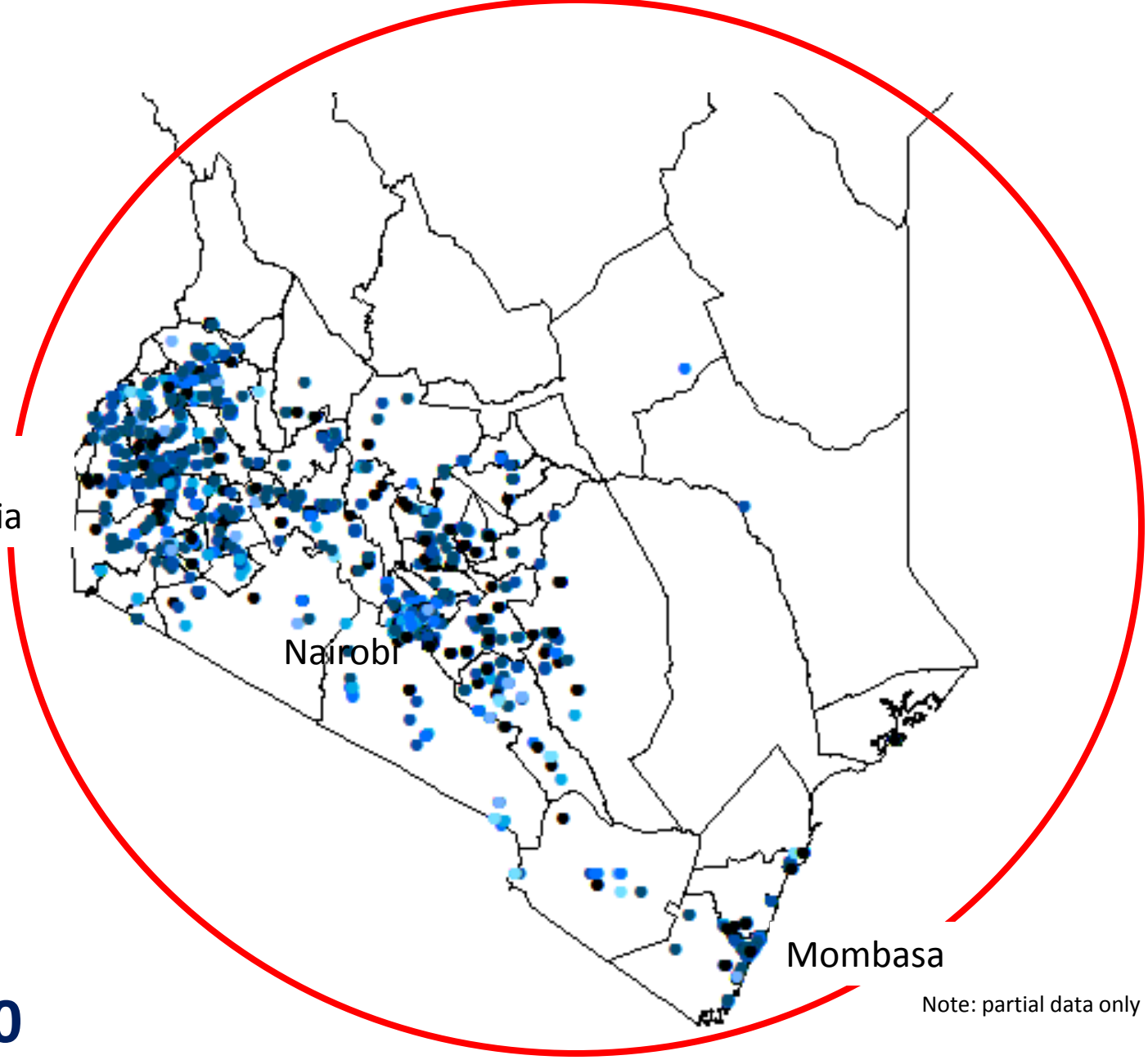
Nairobi

Mombasa

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**Dec 2009**

Lake  
Victoria



Nairobi

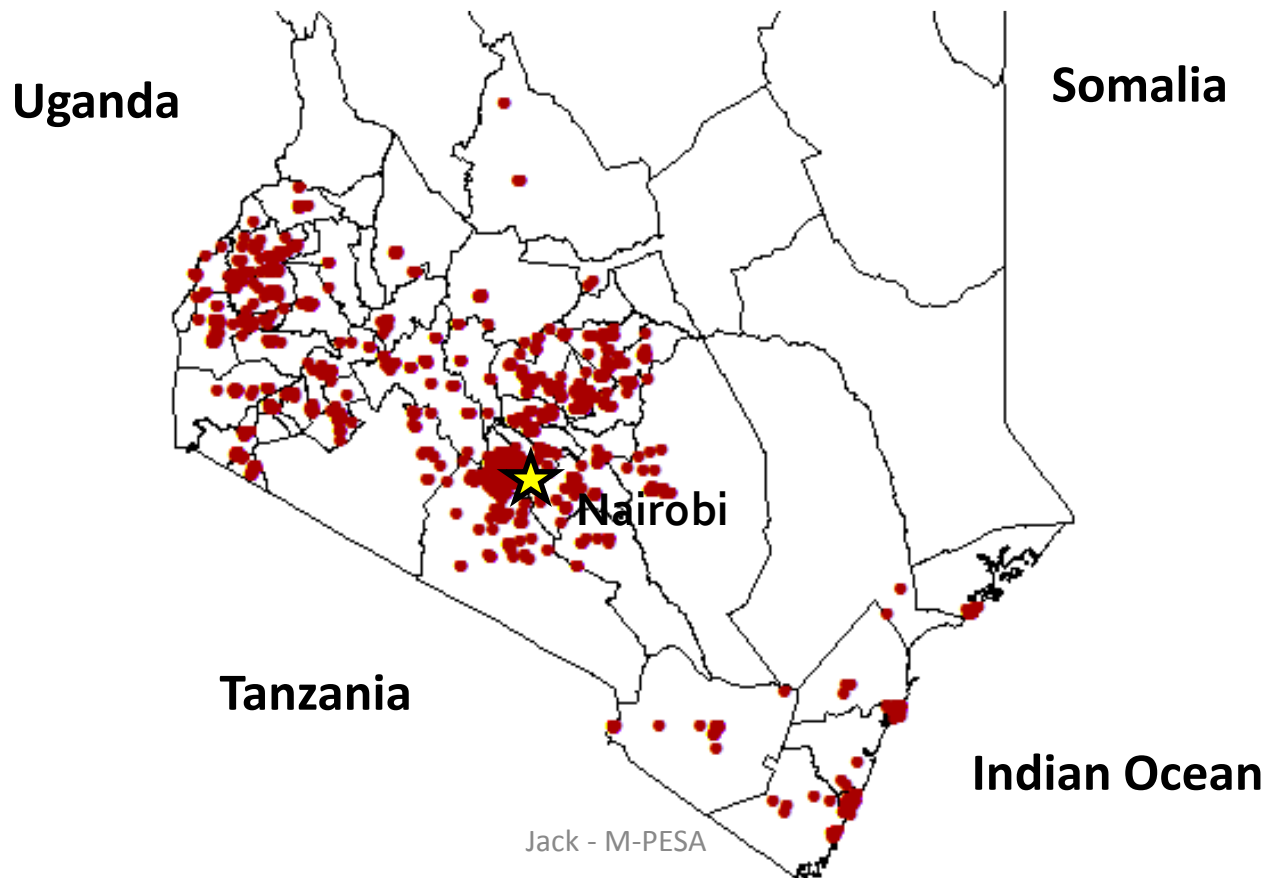
Mombasa

Note: partial data only

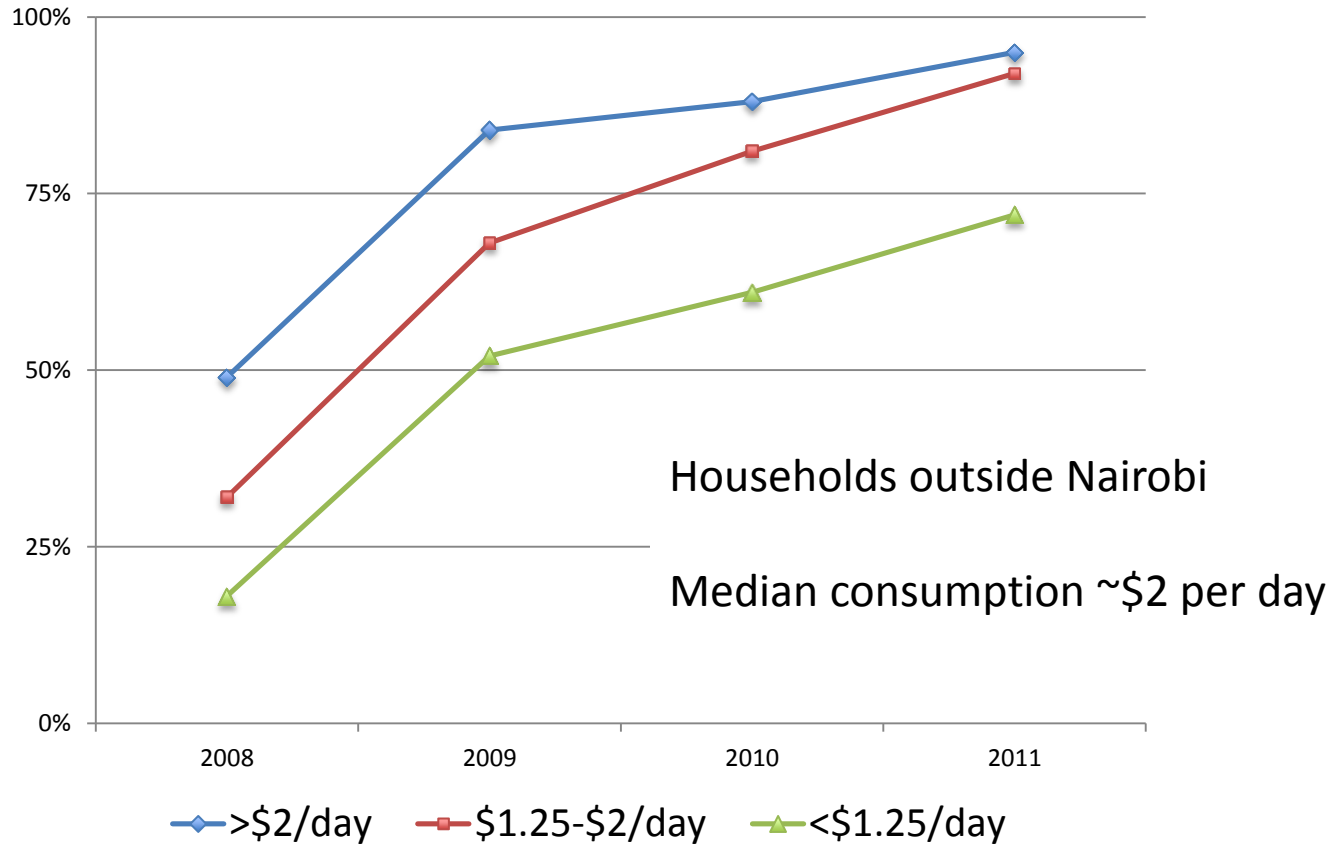
**June 2010**

# Our household survey

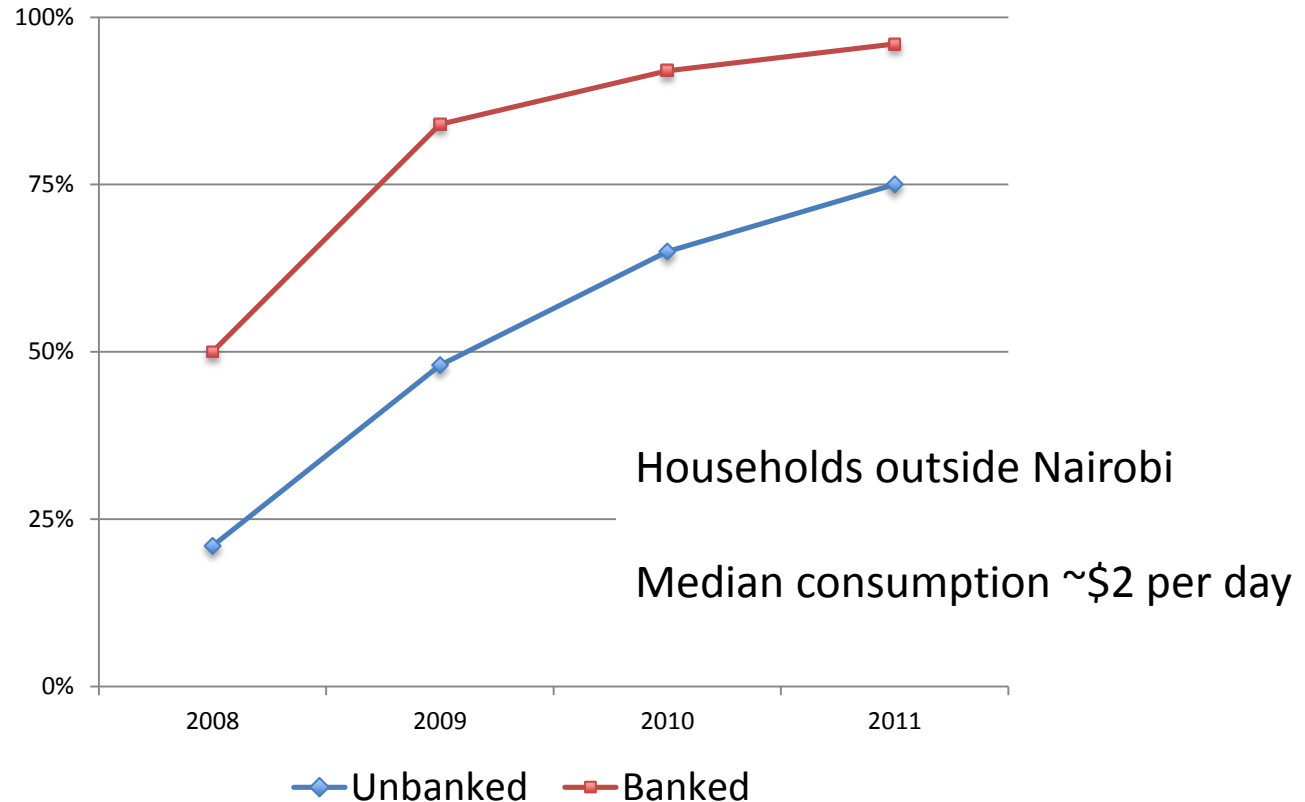
- 3,000 households across most of Kenya
- Four rounds: 2008, 2009, 2010, 2011



# Who is using M-PESA?

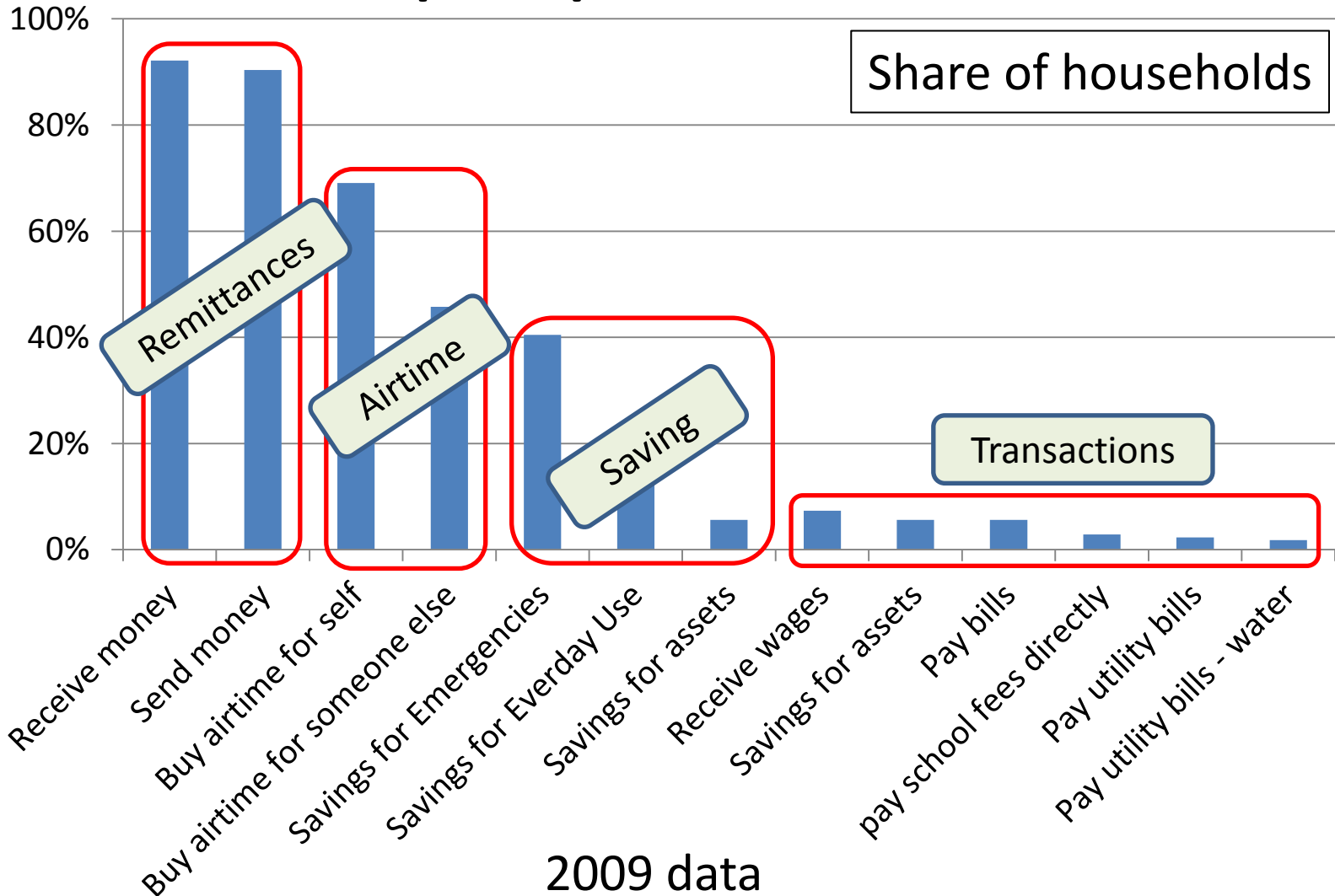


# Banking for the unbanked?

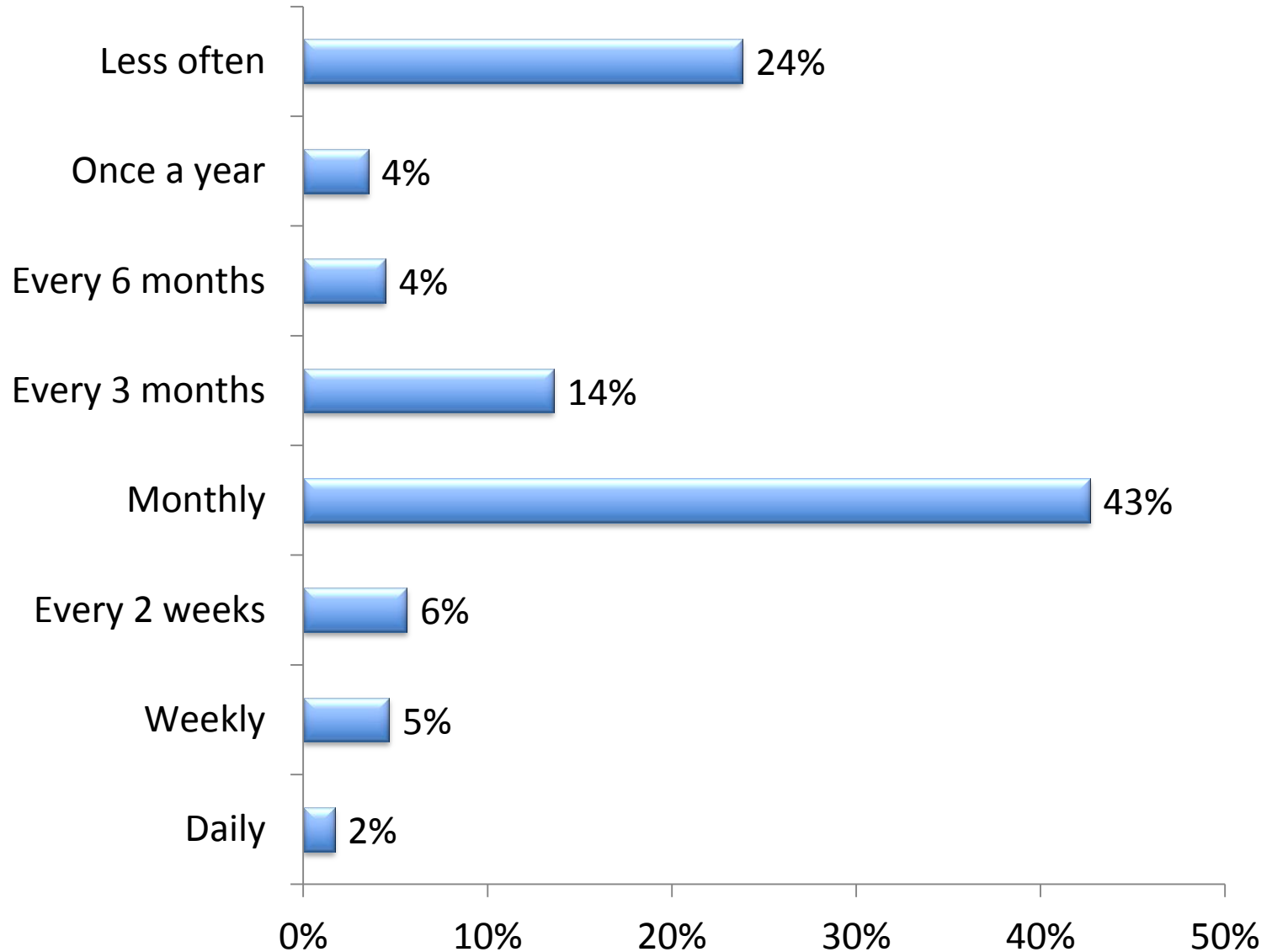




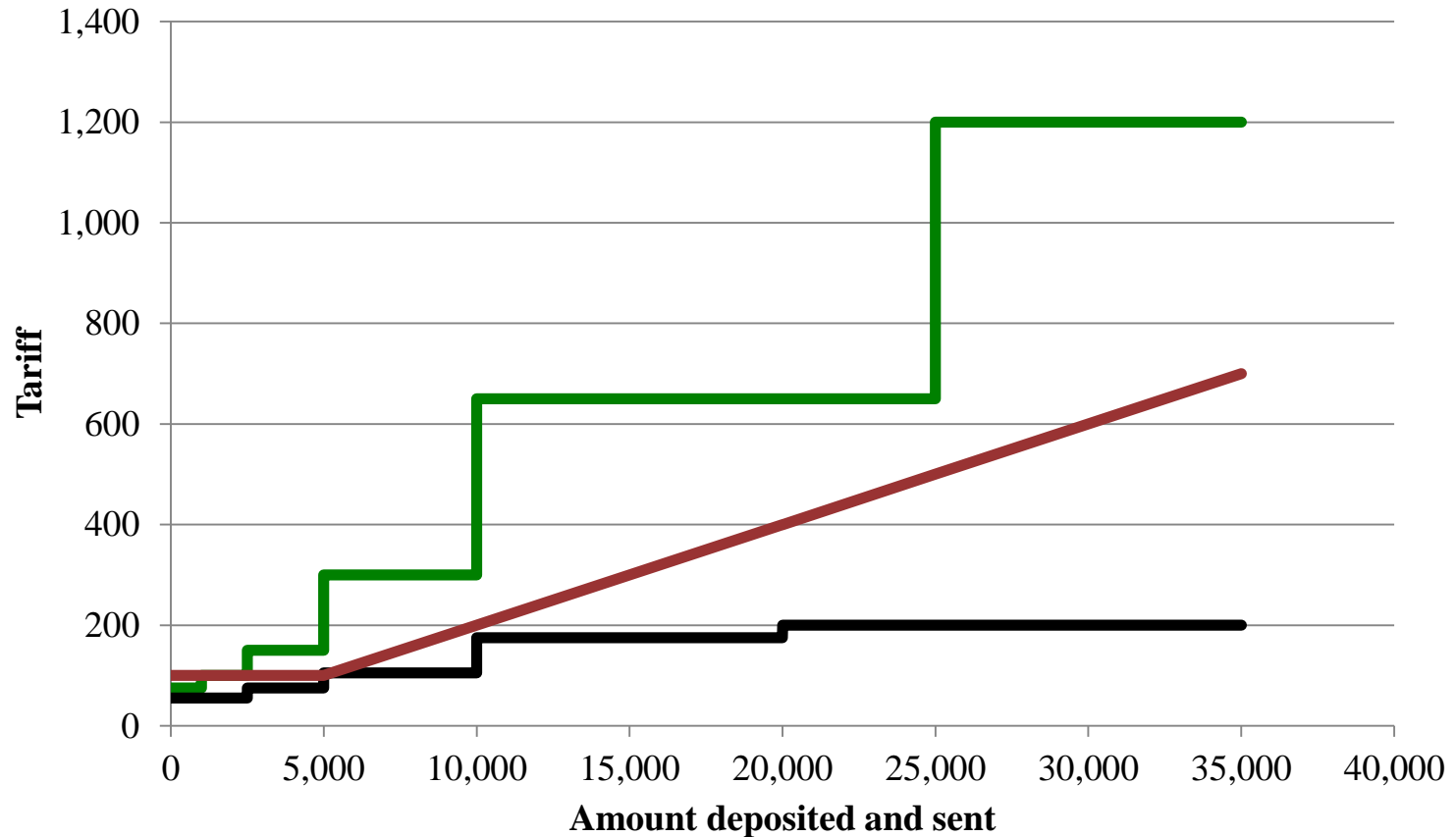
# How do people use M-PESA?



# How often do people use M-PESA?



# Transaction Costs

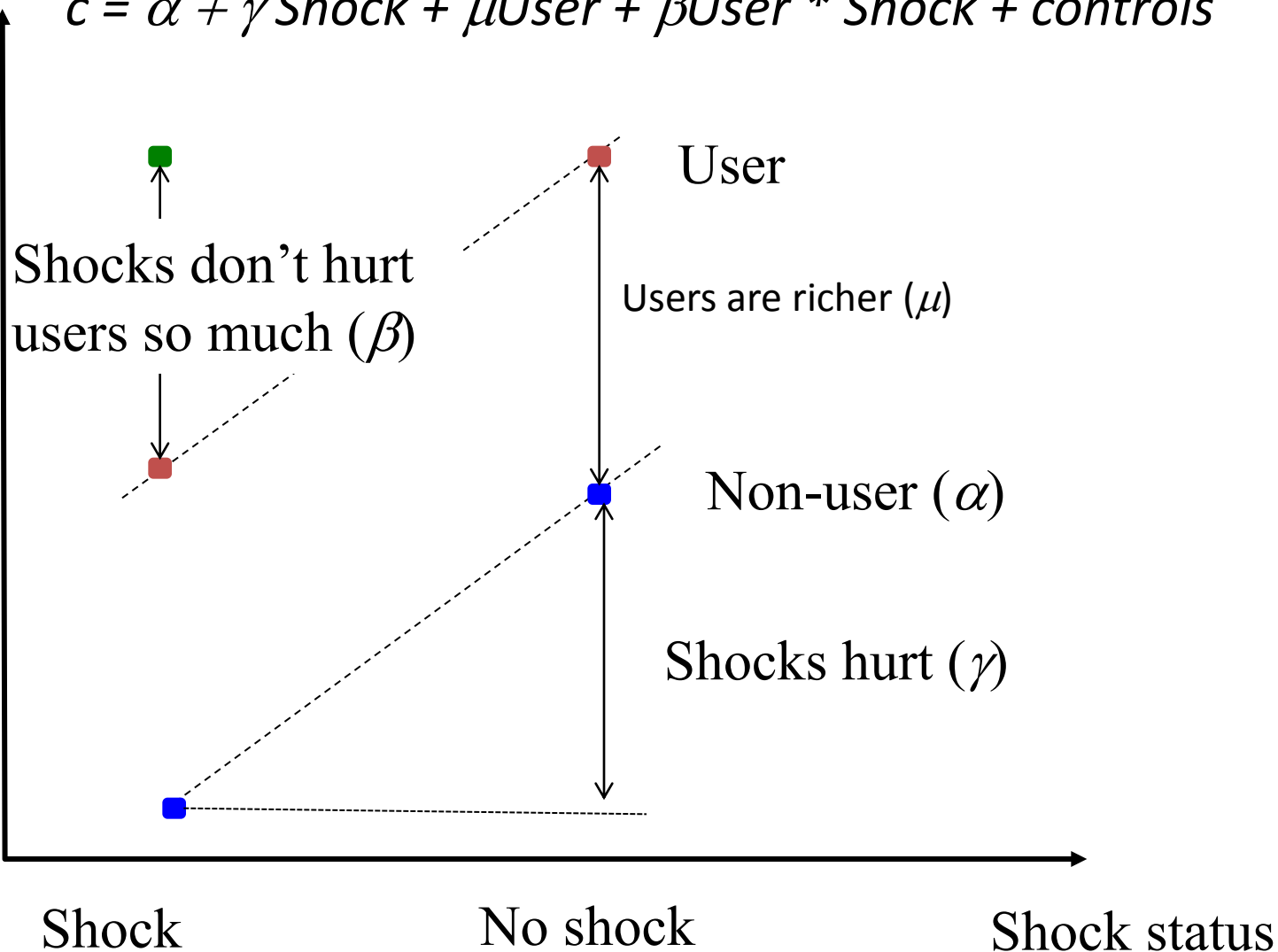


— Postapay    — M-PESA: Reg to reg    — Western Union

# Empirical strategy

$$c = \alpha + \gamma Shock + \mu User + \beta User * Shock + controls$$

Consumption

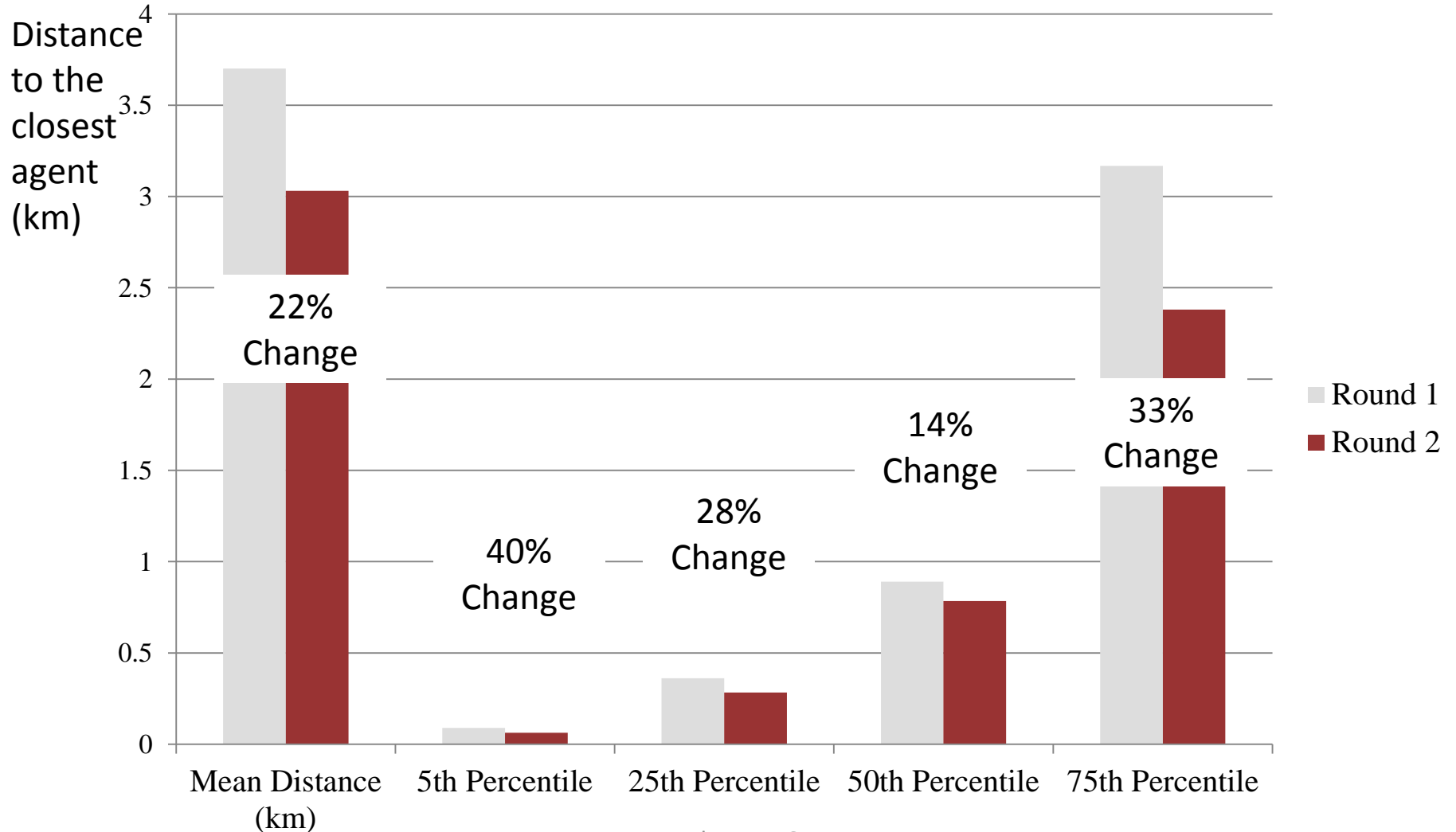


# Basic Results

	OLS <sup>A</sup>	Panel <sup>B</sup>	Panel <sup>C</sup>	Without Nairobi <sup>C</sup>
M-PESA User	0.553*** [0.037]	-0.090** [0.036]	-0.016 [0.047]	-0.008 [0.049]
Negative Shock	-0.207*** [0.038]	0.241** [0.116]	0.232 [0.169]	0.120 [0.141]
User*Negative Shock	0.101** [0.050]	0.176*** [0.050]	0.156** [0.062]	0.150** [0.065]
Shock, Users	-0.105*** [0.033]	0.052* [0.028]	0.055 [0.035]	0.050 [0.037]
Shock, Non-Users	-0.207*** [0.038]	-0.069** [0.032]	-0.068 [0.043]	-0.056 [0.045]

A: Full sample with time Fes;      B: Full sample with controls + interactions  
 C: Full sample, controls + interactions, time and time x location FEs

# Improving Agent Access



# Using Agent Roll Out

	Agents w/in 1km	Agents w/in 2km	Agents w/in 5km	Agents w/in 20km	Distance to Agent
Negative Shock	0.152 [0.152]	0.122 [0.153]	0.148 [0.160]	-0.176 [0.140]	0.619*** [0.203]
Agents	-0.022 [0.039]	-0.003 [0.031]	0.018 [0.024]	-0.002 [0.006]	0.051 [0.054]
Agents*Shock	0.055*** [0.019]	0.050*** [0.015]	0.021** [0.010]	-0.002 [0.005]	-0.058*** [0.019]

# Mechanisms

- Consumption smoothing could be effected through
  - Remittances
  - Savings
  - Information/communication
- We find remittances are the dominant factor
  - Larger network