





**PREMISE**

@premisedata



“The collection of statistics needs to be modernized; it is time to use the new technologies to start collecting data.

...particularly important in developing countries where the prevalence of mobile phones now offers an unprecedented opportunity to measure the economy.”

— Diane Coyle, “GDP”



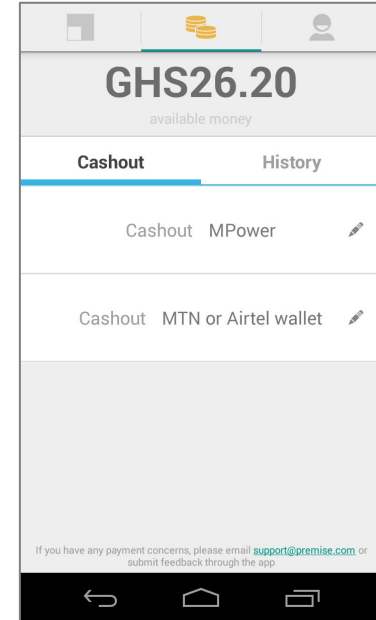
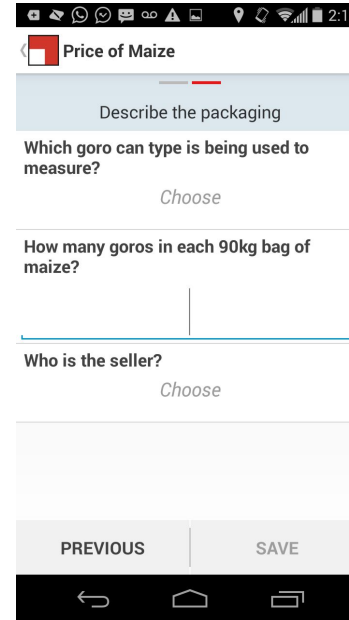
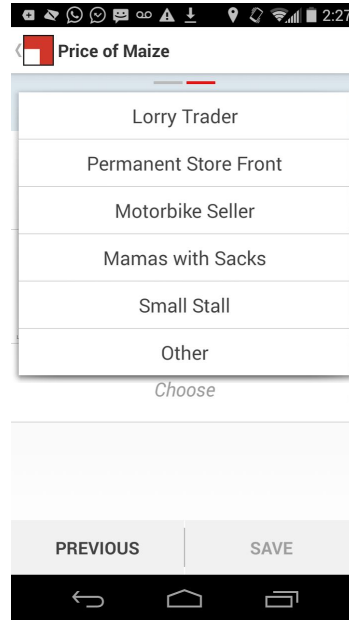
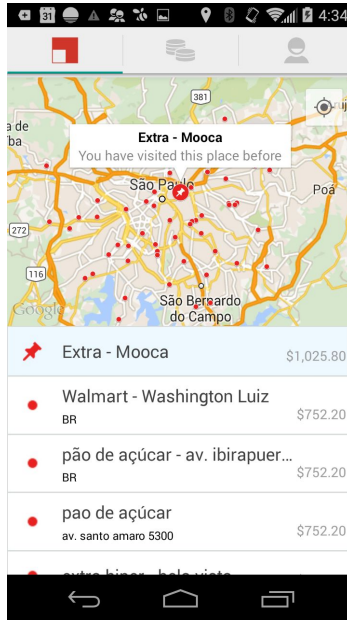


“I have been constantly surprised at how little quantitative information can be brought to bear on fundamental policy questions [...] This experience illustrates the need for flexibility in data collection, especially when policymakers consider extending new policies or need to evaluate them in real time for other reasons. Ideally, some sort of ‘rapid response’ data gathering capacity.”

— Alan Krueger, “Stress Testing Economic Data”



## PREMISE APP: DIRECTED DATA ACQUISITION



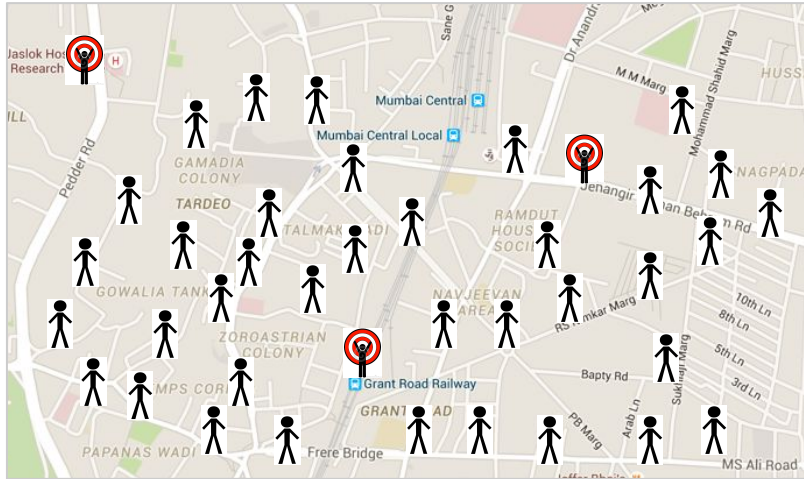


## PREMISE'S PLATFORM VS. CROWDSOURCING



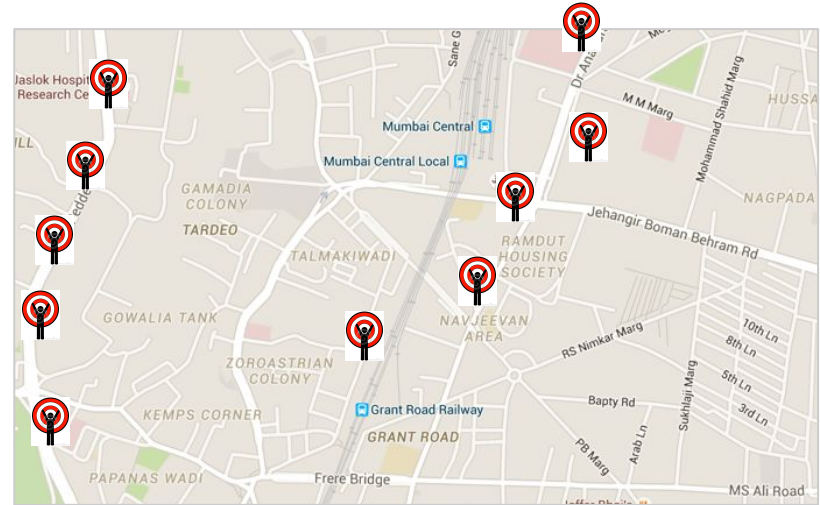
How have recent investments in road infrastructure improved travel time between northern and southern Mumbai?

### Crowdsourcing:



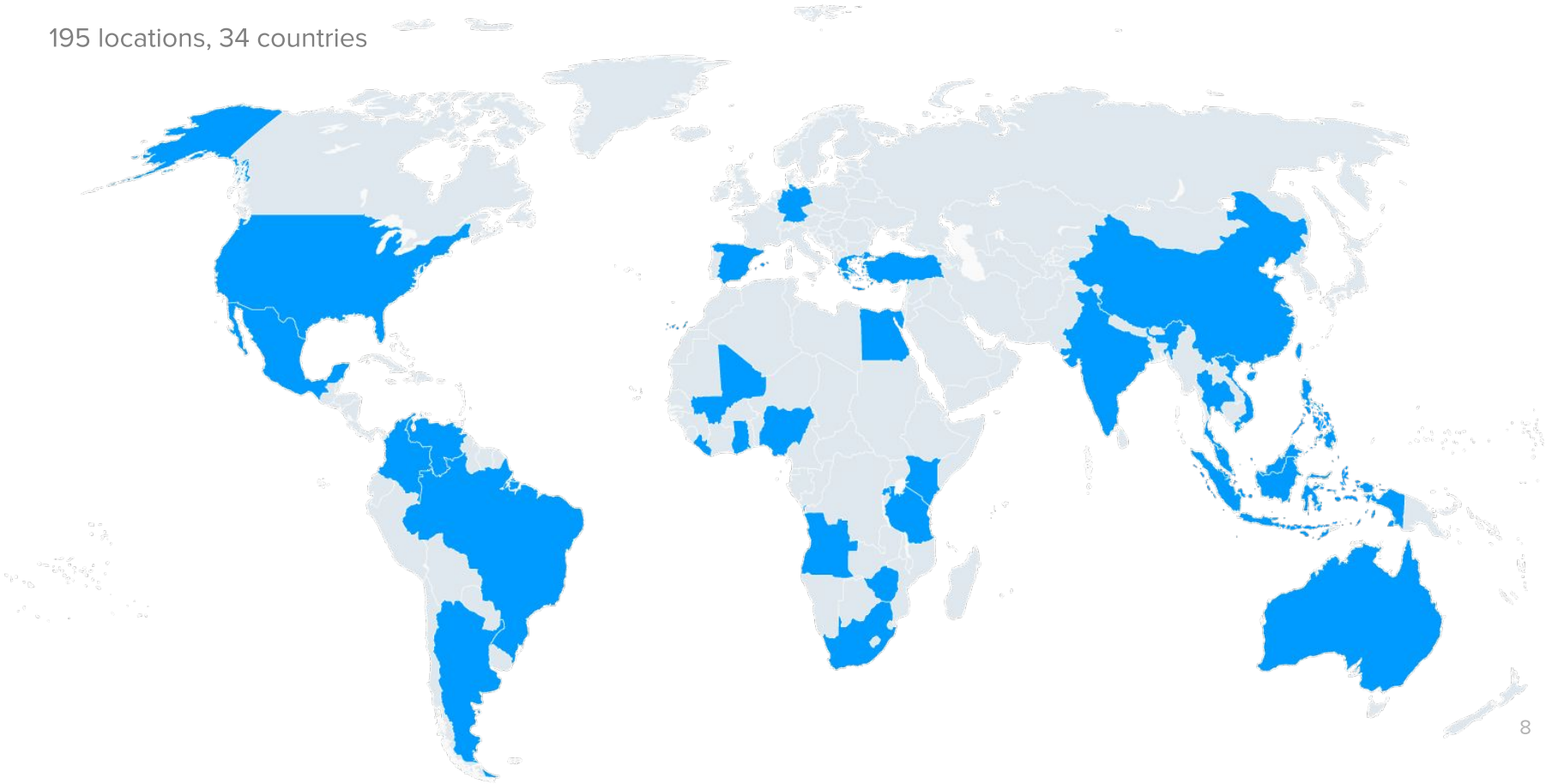
*Large distributed crowd allows for “lucky discovery.”*

### Premise:



*Task-oriented, incentivized data capture generates structured inputs that enable for rigorous signal analysis of more complex questions.*

195 locations, 34 countries





# WHAT WE MEASURE

200+ locations, 34 countries



\$175 soy milk cartons  
Caracas



Deworming in  
Bungoma, Kenya



Kurdish vs. nationalist  
tension, Istanbul



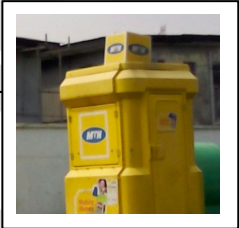
Food inflation, China



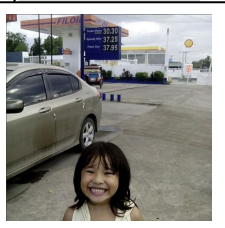
Line lengths + food  
shortages in Caracas



Financial inclusion,  
Nigeria



Petrol prices  
Tagbilaran City,  
Philippines



Ebola precautions, Liberia



Defaced election posters, food staples, Brazil



## ECONOMETRICS



Inflation  
PPP  
Market trends

## RESOURCE SECURITY



Food  
Energy  
Water

## INFRASTRUCTURE



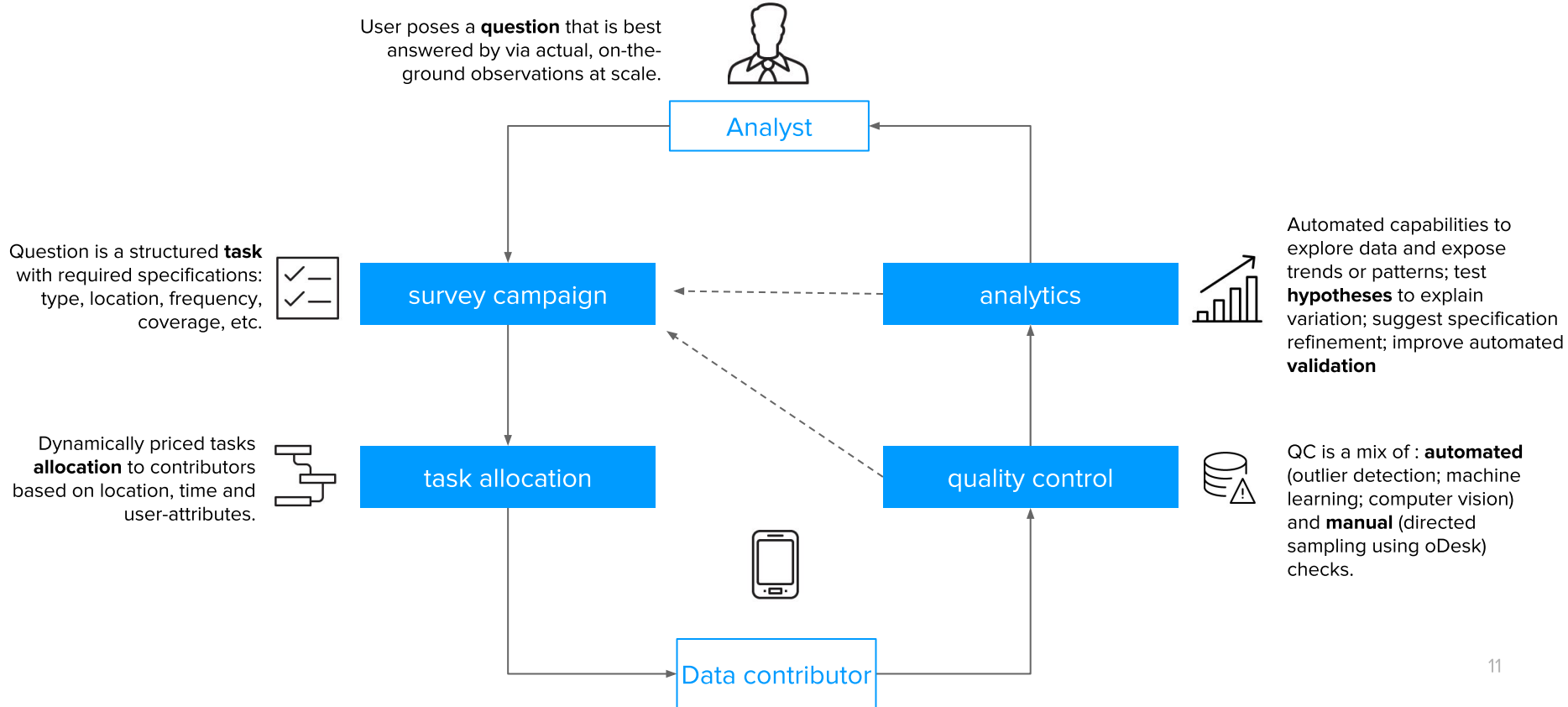
Transportation  
Electrification  
Financial access points

## PUBLIC POLICY



Population health  
Tax implementations  
Public Safety





# Market-Level Price Monitoring

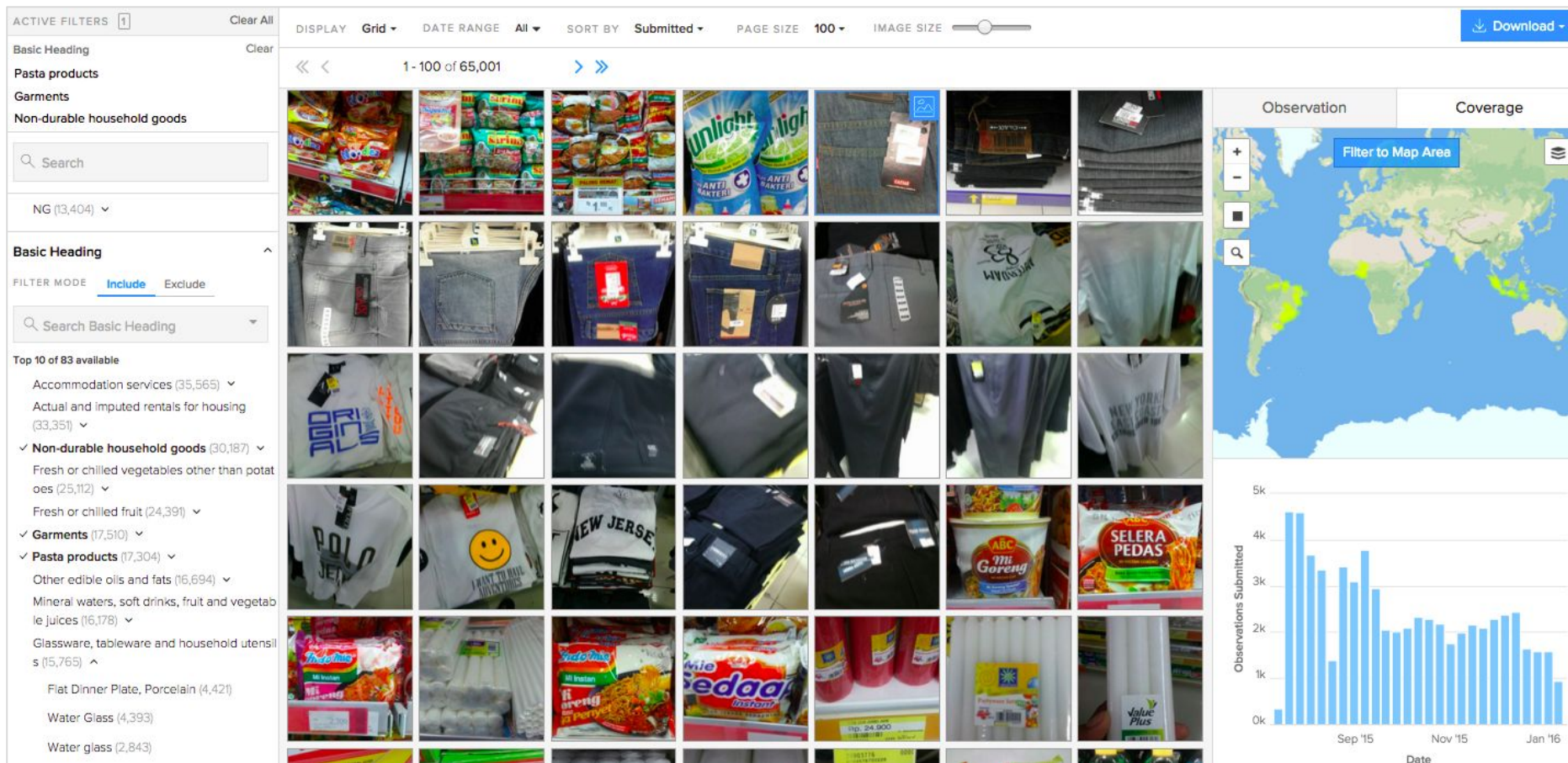




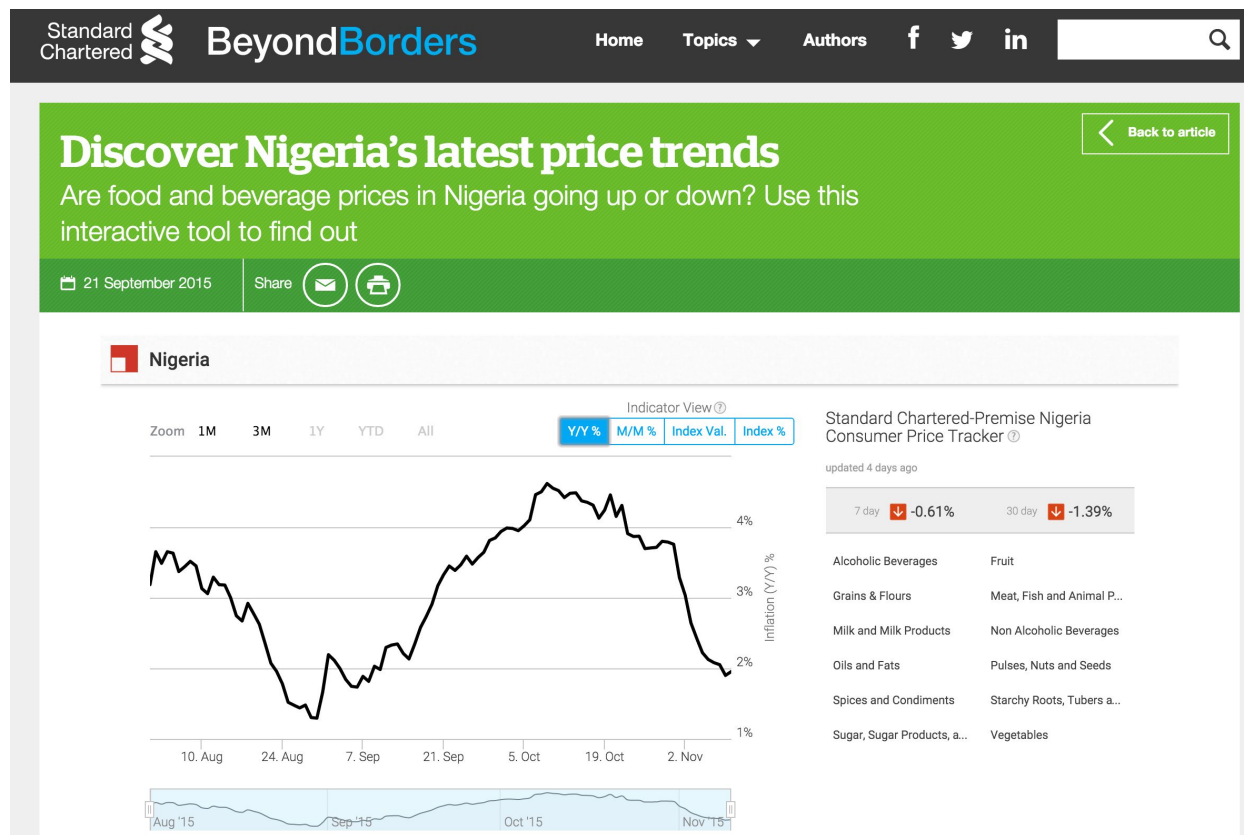




# CASE STUDY MARKET LEVEL PRICE MONITORING IN 34 COUNTRIES



- One-year anniversary of tracking consumer price inflation in Nigeria
- 12 baskets, >150 products
- Uncertainty around March elections created upward pressure on prices, observable in Premise's data six weeks prior to vote
- Fall in gas prices reduced cost of transportation and imports, but weakened the government's ability to maintain exchange rates
- Data publicly available



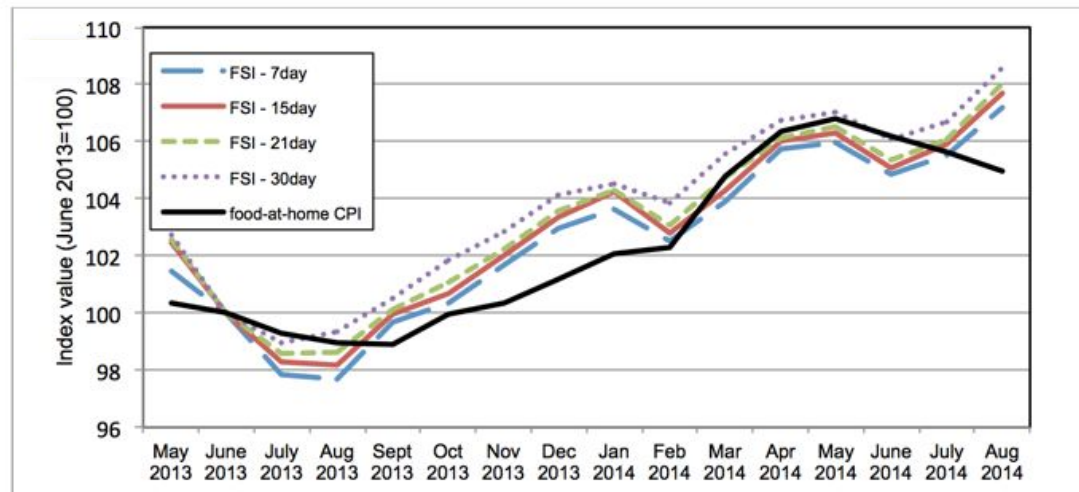


Independent FAO study determined Premise's Brazil Food Staples Index can predict food price trends up to 25 days in advance of official releases

“In terms of accuracy, the methodology and strategy followed by Premise appears to be as rigorous as that of a NSO [National Statistics Office].”

*Dubey, Sangita and Pietro Gennari. 2014. “Now-casting Consumer Price Indexes with Big Data: Public-Private Complementarities.” (FAO)*

Chart 1: Brazil's food-at-home CPI versus the Premise FSI, Jan 2013-Aug 2014



Data Source: IBGE and Premise

# Statistical Evaluation of Crowd-Sourced Market Information System in Liberia

## ABSTRACT

Many critical policy decisions depend upon reliable and up-to-date information on market prices. Such data are used to construct consumer price indices, measure inflation, detect food insecurity, and otherwise influence macroeconomic policy. In developing countries, where many of these problems are most acute, reliable market price information can be hard to come by. Here, we describe and evaluate Premise Data, a new technology for measuring price information using crowd-sourced data contributed by local citizens. Our evaluation focuses on Liberia, a country with a history of economic and political instability. Using Premise Data, which recently began data collection in Liberia, we analyze tens of thousands of individual price observations collected at hundreds of different locations in Monrovia. We illustrate how these data can be used to construct composite market price indices, and compare these constructed indices to several sources of “ground truth” data from the Central Bank of Liberia and the United Nations World Food Programme. Our results indicate that the crowd-sourced price data is strongly correlated with traditional price indices, but that statistically and economically significant deviations exist that require deeper investigation. We conclude by discussing how indices based on Premise data can be further improved with simple supervised learning methods that use traditional low-frequency data to calibrate and cross-validate the high-frequency Premise-based indices.

(Blumenstock & Keleher, ACM DEV 2015)

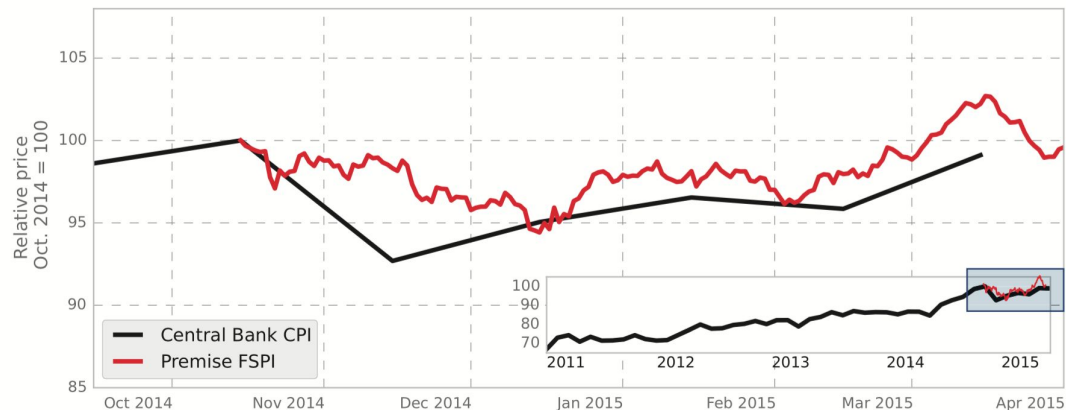


Figure 5: **Comparison of FSPI to Central Bank CPI.** Main figure shows the CPI calculated by the Central Bank of Liberia and the FSPI based on Premise data. Inset figure displays the Food and Non-Alcoholic Beverages relative price from May 2011 to April 2015.

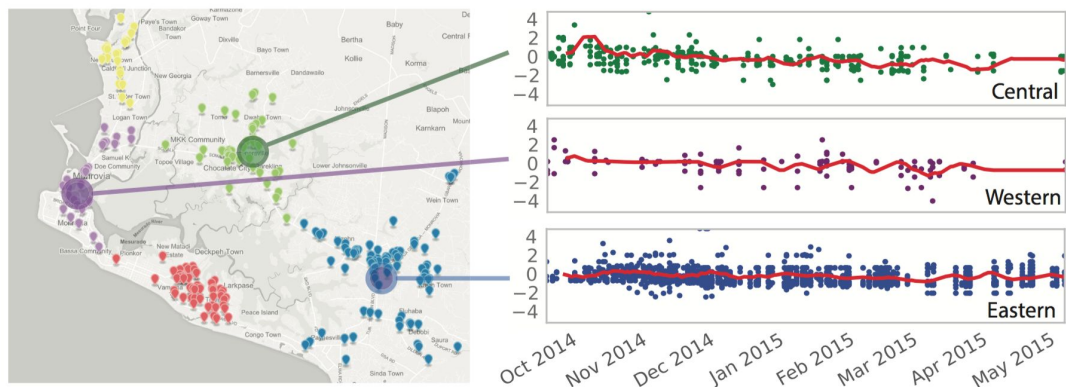


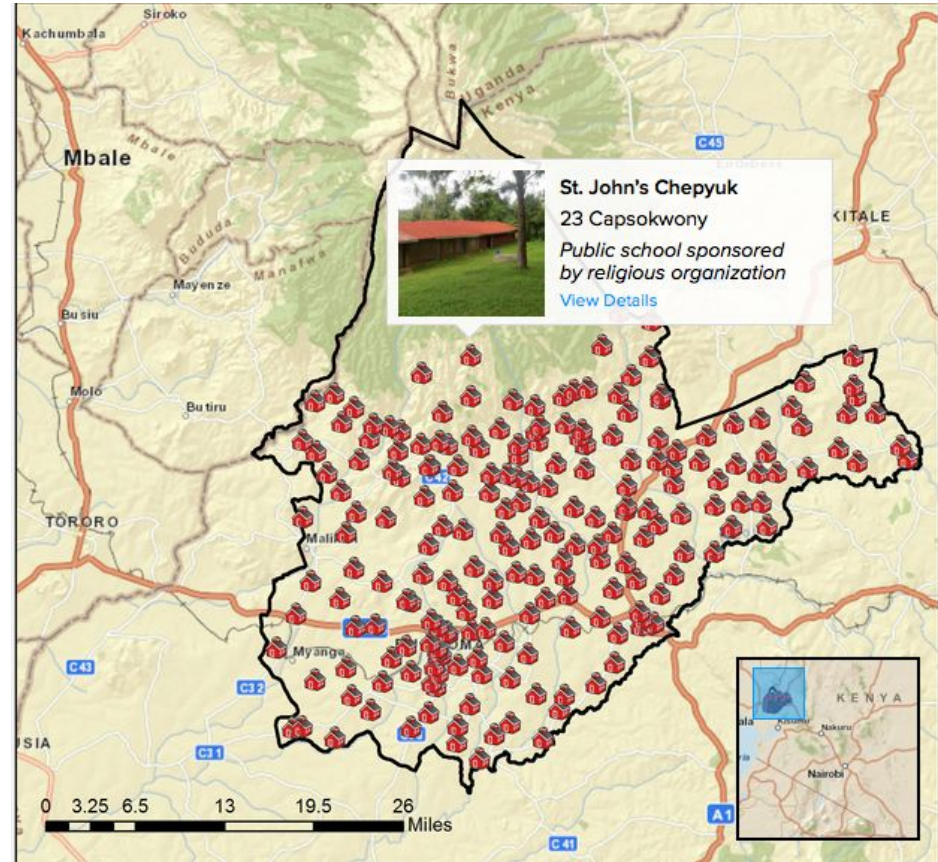
Figure 7: **Geospatially disaggregated time series.** Premise Data include individual price data for 38 consumer goods from 310 unique locations in Monrovia, Liberia. Figure shows normalized prices for grain and flour products in the three geographic locations, with a red line to indicate the 10-day moving average across all observations from each sub-region.

# Public Health: Intervention Targeting

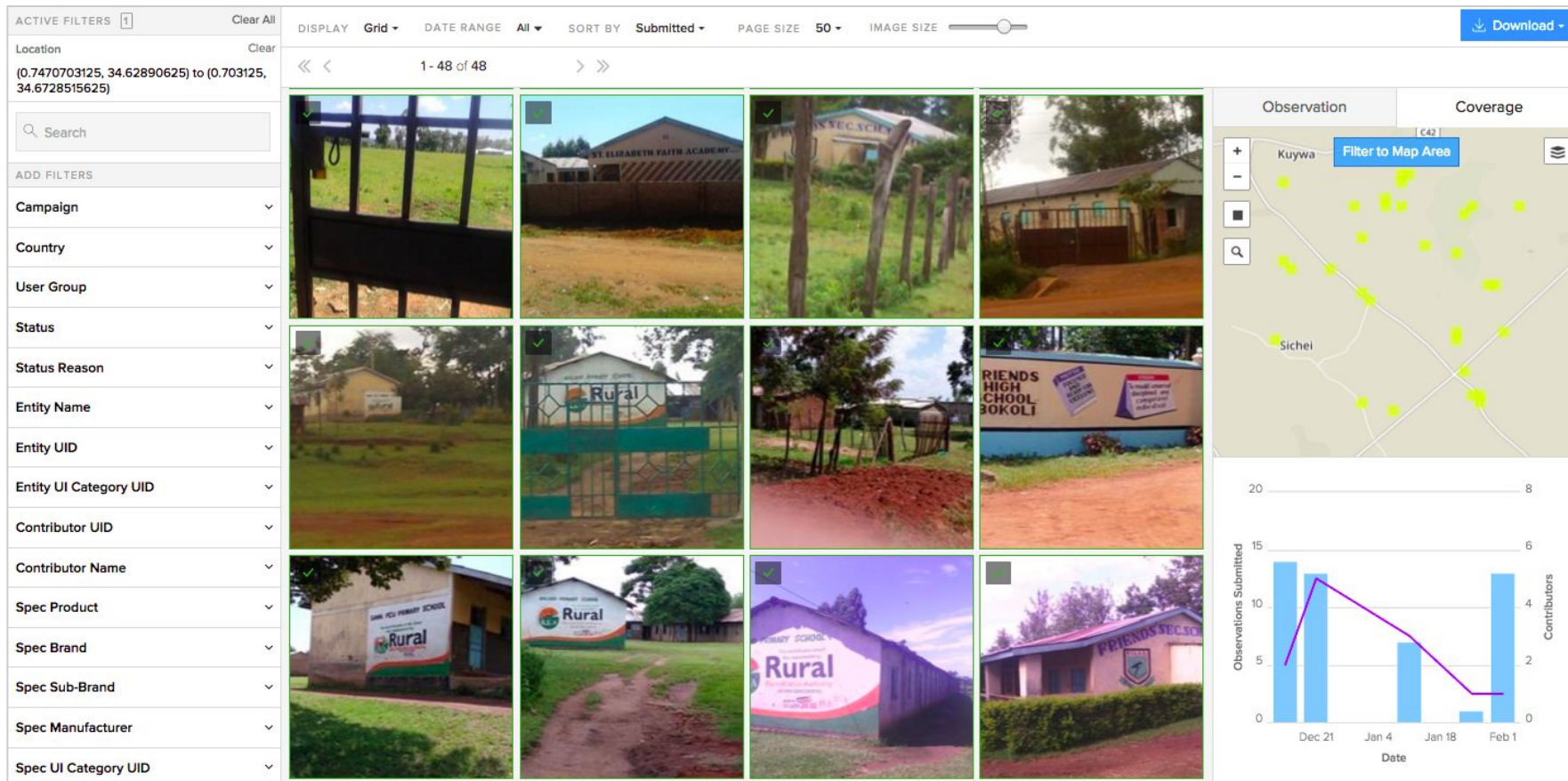




- Assessing the extent of deworming awareness and barriers to participation
- Deploy rapid surveys to measure awareness
- Mapping 1,500 schools, understanding preparedness, verifying training sessions
- Building intelligent mechanism to help Evidence Action better target interventions



# CASE STUDY EVIDENCE ACTION: EVALUATING DEWORMING AWARENESS IN KENYA



Resource Scarcity  
+  
Access Risk







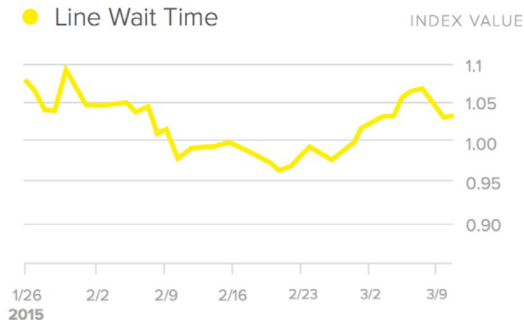




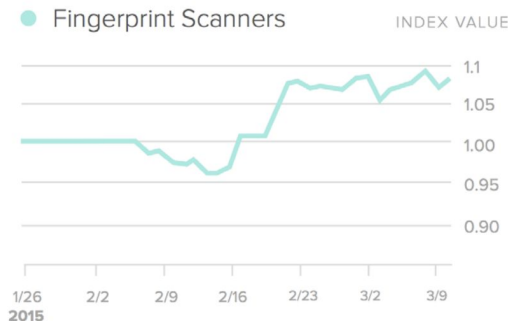
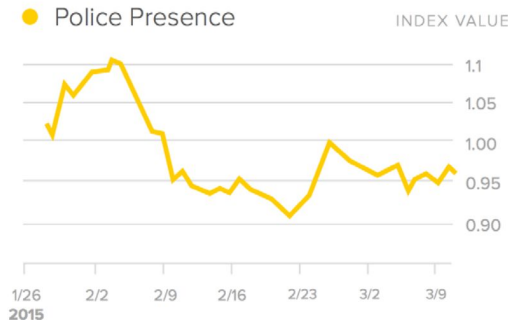


## MEASURING RESOURCE SCARCITY IN VENEZUELA

Average wait-time: ~10m longer in Maracaibo than Caracas



Police presence: ~80% in Maracaibo vs. 30-40% in Caracas



20



43



### LATIN AMERICA NEWS

## Venezuela to Install Finger Scanners to Tackle Shortages

Part of effort to stamp out hoarding and panic buying of basic goods

Venezuela

### Empty shelves and rhetoric

The government offers no solutions to a mounting economic crisis

Jan 24th 2015 | CARACAS | From the print edition

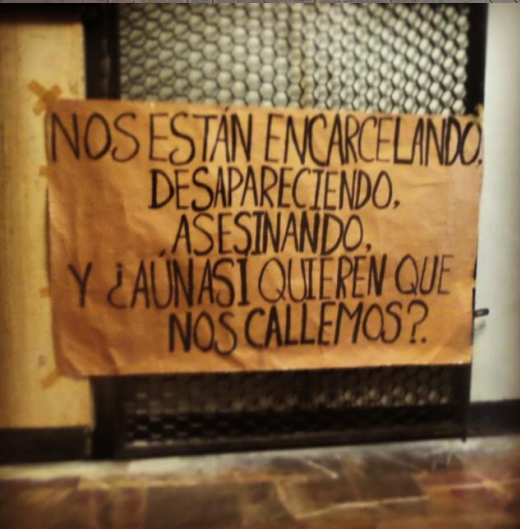


THE queue is perhaps a thousand people long. It snakes around the dusty, rubbish-strewn back lot of a giant supermarket in the heart of Caracas, Venezuela's capital. The store is the flagship of the government-run Bicentenario chain, part of a project started by President Hugo Chávez, who died in 2013, and continued by his successor, Nicolás Maduro, to seize control of the production, import and distribution of food. Never again, they swore, would opponents of the government be able to limit access to food, as they did during a business-led strike in 2002-03. Instead, it is the regime's hare-brained policies that are plucking food from citizens' mouths.

"I came here for milk," says a young mother







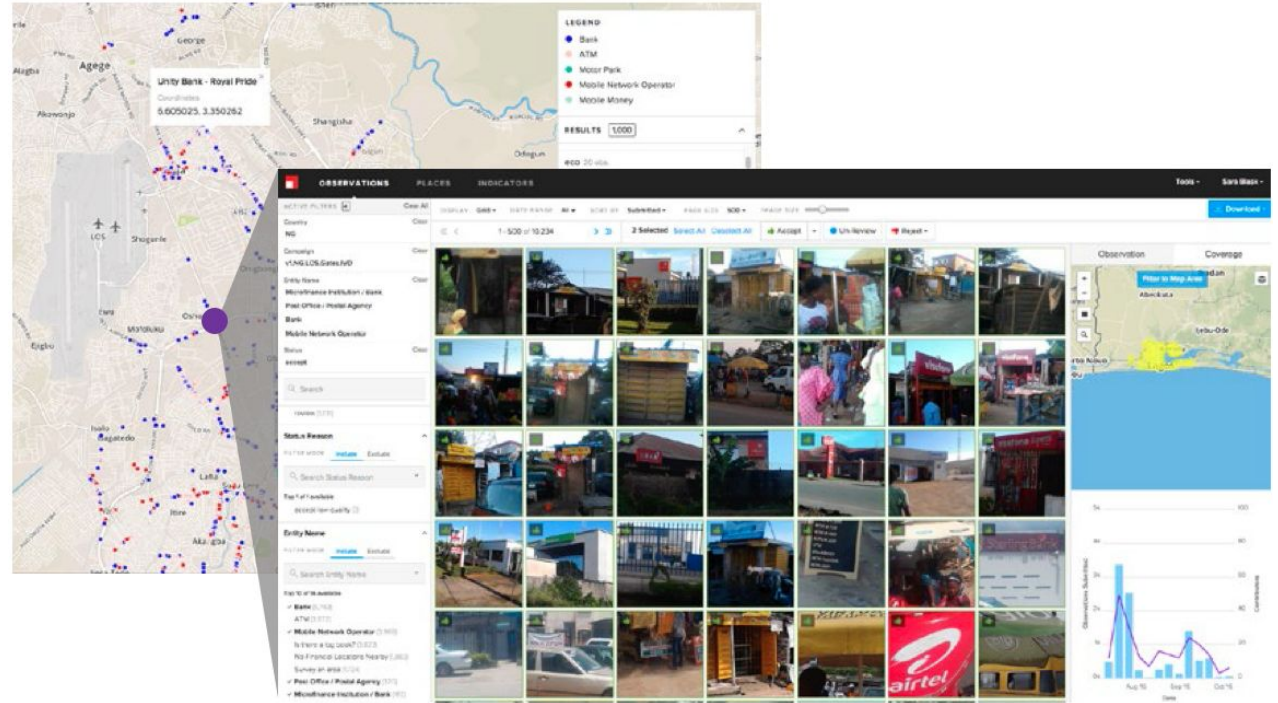
# Financial Access Risk & Inclusion





## BILL & MELINDA GATES FOUNDATION: MAPPING ACCESS TO FINANCIAL INFRASTRUCTURE IN NIGERIA

- Mapping 15 types of financial access locations in Lagos and Abuja
- Layering map with demographic and infrastructural data to understand relative prosperity
- Recommendation model ranking under-served communities

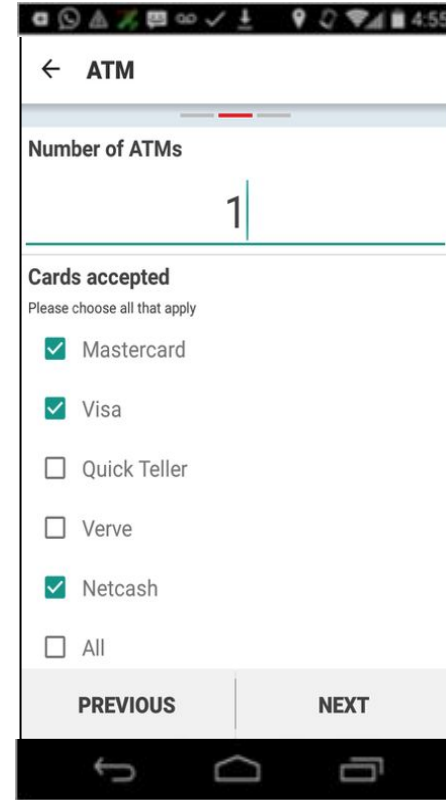
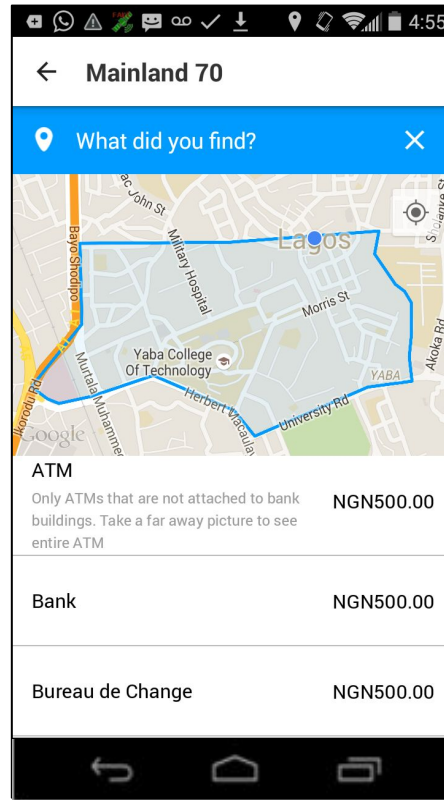
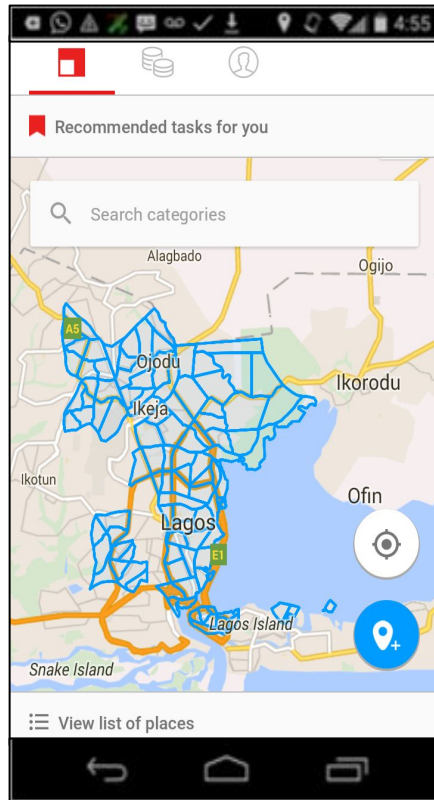




## PREMISE APP

Directed on-the-ground data acquisition in two modes:

1. Verification
2. Discovery



Search

ADD FILTERS

City

FILTER MODE

Include

Exclude

Top 2 of 2 available

Lagos (1,199)

Abuja (1,235)

Type

FILTER MODE

Include

Exclude

Top 10 of 10 available

Bank (3,041)

Mobile Network Operator (2,740)

Mobile Money (1,665)

ATM (1,404)

Other Financial Services (1,398)

Motor Park (1,172)

Microfinance Institution (490)

Post Office / Postal Agency (328)

Bureau de Change (158)

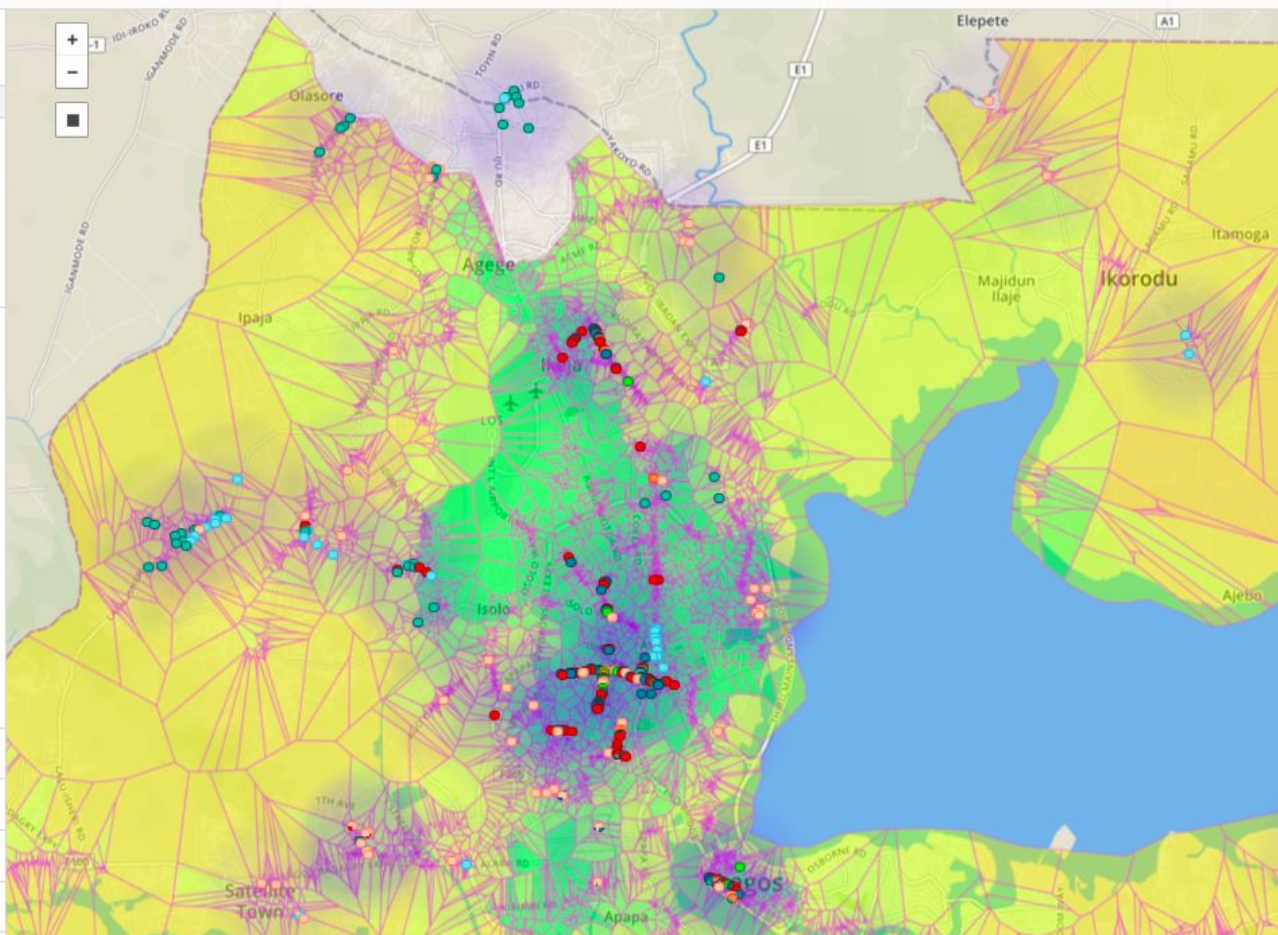
Market (38)

Name

Street Address

Open Hours

Cards Accepted



LEGEND

Financial Service Areas - % in Poverty

<= 5%

> 90%

Bank 3,041 (24.5%)

Mobile Network Operator 2,740 (22.0%)

Mobile Money 1,665 (13.4%)

ATM 1,404 (11.3%)

Other Financial Services 1,398 (11.2%)

Motor Park 1,172 (9.4%)

Microfinance Institution 490 (3.9%)

Post Office / Postal Agency 328 (2.6%)

Bureau de Change 158 (1.3%)

Market 38 (0.3%)

RESULTS

500

MTN Agbara (333 obs.)

Glory Motors Badagry Road (234 obs.)

MTN Badagry (203 obs.)

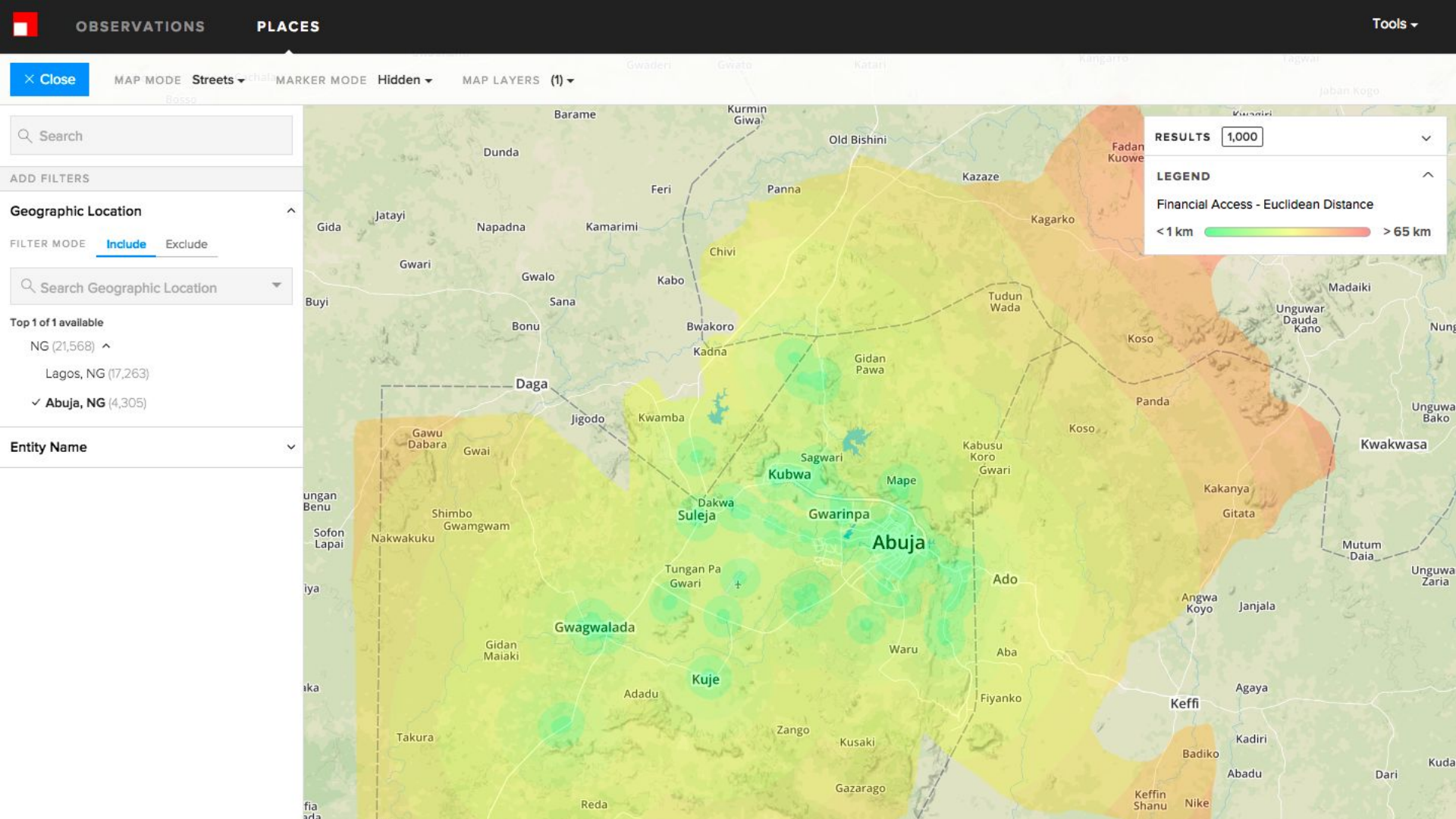
Freeman Motor Park 440 Ikorodu Road Ojota (154 obs.)

A T C Transport Ikorodu Road Jibowu (122 obs.)

Classic Motors Agbara (118 obs.)

Abiola Motors Isheri Road (110 obs.)

MTN Badagry (106 obs.)





**QUESTIONS?**

**instagram/premisedata**

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