Mobile money, Market Information, and Tools for Improving Food Security: Prospects and Challenges in Mozambique

Alan de Brauw
Markets Trade and Institutions Division
International Food Policy Research Institute
November 20, 2014
Goals of Talk

• Discuss Cell Phone / Inputs project IFPRI is doing in Nampula province
  • Project is a follow up of a pilot done last year (funded by USAID’s Bureau of Food Security)
  • Focus on opportunity and challenges
  • Narrow type of project relative to other work done at IFPRI

• Broaden to discuss IFPRI’s Food Security Portal
  • Funded by EU and Swiss Agency for Development and Cooperation
  • Discuss some of the data and tools on the Food Security Portal and how they could be useful in Mozambique

• Some concluding discussion
Development Challenge: Agricultural Productivity

• Agricultural Input use is exceptionally low in Mozambique
  • High potential for increased agricultural productivity through use of improved seeds, etc.

• Financing purchases is a major obstacle
  • Banking nearly non-existent

• Possible solution: Mobile Money
  • If mobile money allows farmers to save between crop sales and input purchases, then productivity can improve in the next season
Challenges to Mobile Money in Northern Mozambique

• Cell phone penetration not that high (25% in FTF Intervention zone)
  • Farmers also may not know how to work cell phones
  • Charging cell phones...

• Mobile money available in Mozambique (mKesh, M-PESA) but largely confined to cities (Maputo) and largely used for phone credit
  • But people are eager to try to use it
  • According to M-PESA, better usage in Mozambique year one than Tanzania year one
  • There is a risk to using mobile money (forgotten password, etc.)

• Farmers also may lack access to inputs (TIA- distance)
Our project

• Working with IKURU in Nampula Province and Vodacom Mozambique

• Idea is to promote use of mobile money and provide inputs at the same time
  • By providing incentives for farmers to use mobile money, we can promote input use and therefore improve productivity and incomes

• Farmer groups in project all receive training on mobile money, chance to buy phones

• Treatment groups also offered inputs

• If pay with mobile money, receive a 10% rebate
Our Project (cont.)

- Working with IKURU farmer groups to innovate on input provision for groundnut and sesame production
- Farmers are all linked to (output) markets through IKURU
- All participating farmers encouraged to sign up for M-Pesa (through innovative partnership)
- Randomly selected groups are given incentives to use M-Pesa for input purchases
- Initial Results next year
Challenges overcome

• Cell phone penetration

• Mobile money availability

• Farmers also may lack **access** to inputs

• Farmers being offered cell phone for purchase
  • Problem: battery life

• Working with Vodacom to ensure mobile money agents available in rural areas

• Working with IKURU to make inputs available before planting, make purchase happen through mobile money
But... some challenges remain

• Concern about agent retention
• Difficult to get all partners coordinated
  • Easy to talk about coordination, but more difficult to make it take place in practice
• Keeping agents “interested” is difficult
  • Box of Cokes problem
• Trust
Financial Contributors

Swiss Agency for Development and Cooperation

The European Commission
250,000
Total users
Data
<table>
<thead>
<tr>
<th>Data Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Agricultural Land</td>
<td>% of total area</td>
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<tr>
<td>Agriculture Value Added</td>
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<td>Calorie Supply Per Capita, Crops Equivalent</td>
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<tr>
<td>Calorie Supply per Capita, Livestock Equivalent</td>
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<tr>
<td>Children Undernourished (%)</td>
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<tr>
<td>Commodities Futures Data</td>
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<td>Countries</td>
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<td>CPI</td>
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<td>External Debt (% of GNI)</td>
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<td>Foreign Direct Investment (Current $US)</td>
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<td>GDP (current $US)</td>
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<td>Global Hunger Index</td>
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<td>Global Inflation Dataset</td>
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<tr>
<td>GNI per Capita (current $US)</td>
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<td>Maize Exports</td>
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<td>Maize Imports</td>
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<td>Maize Prices</td>
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<td>Maize Production</td>
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<td>National Poverty Rates (%)</td>
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<td>Population</td>
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<td>Population Density</td>
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<tr>
<td>Price</td>
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<td>Population Undernourished (%)</td>
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<td>Receipts of Food Aid (cereals)</td>
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<td>Regions</td>
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<td>Rice Exports</td>
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<td>Rice Imports</td>
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<td>Rice Prices</td>
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<td>Rice Production</td>
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<td>Soybean Exports</td>
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<td>Soybean Imports</td>
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<td>Soybean Production</td>
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<td>Under 5 Mortality Rate (per 1,000)</td>
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<td>Unemployment</td>
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<td>Weekly Commodities Prices</td>
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<td>Wheat Exports</td>
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<td>Wheat Imports</td>
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<td>Wheat Prices</td>
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<td>Wheat Production</td>
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<tr>
<td>World Commodity Prices</td>
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<tr>
<td>World Maize Price</td>
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<td>World Oil Price</td>
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<tr>
<td>World Rice Price</td>
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<tr>
<td>World Soybean Price</td>
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<td>World Wheat</td>
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Tools
Excessive Food Price Variability Early Warning System

Days of Excessive Volatility Per Year, 2002-2013

Please note: Days of excessive volatility for 2013 are through March 2013

Hard Wheat Excessive Food Price Variability
Early Warning System

http://www.foodsecurityportal.org/hard-wheat-price-volatility-alert-mechanism
Food Security Media Analysis (FOMA) System

This tool uses sophisticated linguistic and semantic object network-mapping algorithms to analyze the relationships between key terms found in media articles that influence commodity price volatility.

Food Security Media Analysis (FOMA) System

Welfare impact of changing food prices: online simulator
What is the welfare impact of changing food prices?

Define Food price changes

User-defined parameters

1. Single household simulations

Country representative household surveys

2. Country level simulations

Descriptive statistics

Food consumption patterns

Welfare impact

Poverty impact

Welfare impact of changing food prices: online simulator

(developer testing site)
1. Single household simulations
2. Country level simulations

What is the welfare impact of changing food prices?

Define food price changes

Descriptive statistics
Food consumption patterns

User-defined parameters

Food Group Details

Price change of food group

Name of Food Groups
price change
Consumption Share (sh1)
Production Share (sy1)

Name of Food Groups
price change
Consumption Share (sh2)
Production Share (sy2)

Name of Food Groups
price change
Consumption Share (sh3)
Production Share (sy3)

Name of Food Groups
price change
Consumption Share (sh4)
Production Share (sy4)

Submit

Single House Hold Simulation

No. Of Food Groups
4
Total House Hold Expenditure
1000

Submit
• Option to simulate consumption and production elasticities
• This captures substitution effects

Simulation results
1. Single household simulations

2. Country level simulations

What is the welfare impact of changing food prices?

Define Food price changes

Country representative household surveys

User-defined parameters

Descriptive statistics

Food consumption patterns

Welfare impact

Poverty impact

Current programming development stage: Guatemala
Initial set of countries for which data is available:

- Latin America: Mexico, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Dominican Republic, Jamaica, Ecuador, Peru
- Africa: Kenya, Ghana
- Asia: Bangladesh, Pakistan, Vietnam

Additional datasets can enter the system over time
Welcome to IFPRI

The food groups considerate and the respective price changes for each group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Dph1</th>
<th>Dph2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Corn</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Bread and Wheat</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>Legumes &amp; Pulses</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Roots &amp; Tubers</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Fruits</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Vegetables</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Meat, Fish &amp; Dairy</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Oils &amp; Fats</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Sugars</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Other Food</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Non Food</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Center the line points in bars

Download As CSV
How to Use Food Security Portal (generally)?

• Can be used to help guide thinking about what is needed in specific contexts

• In Mozambique, a potential need to focus on understanding availability of more nutritious foods for the diet
  • Key message from a policy dialogue held earlier this year

• For example, use of household simulator could shed light on tradeoffs necessary—though for specific areas it could require collection of specialized data
Tying it all together- FSP and Projects...

• If projects like Cell Phone project are successful, can use the FSP to build scenarios at national (or specific regional) level

  • E.g. if we can stimulate increase in input use by 10% for a specific crop, how does that change food availability generally if it is scaled up?

Thank you!