BEHAVIOURAL APPLICATIONS TO DIGITAL FINANCE

The Busara Center for Behavioral Economics, CGAP, FSD-Tanzania, and the Global Insights Initiative (GINI)

April 27, 2017
ABOUT BUSARA

The Busara Center for Behavioral Economics is a behavioral research and advisory firm that works to identify core behavioral biases and structure programs, products and policies around these barriers. Our mission is to work with researchers and organizations to advance and apply behavioral science in pursuit of poverty alleviation.

RESEARCH
Identifying new barriers and unpacking their mechanisms in emerging markets

ADVISORY
Applying behavioral evidence to answer organizational challenges

Research Partners

Advisory Partners
Busara works to understand the context of decision-making in new markets, with a strong focus in sub-Saharan Africa.

Busara operates permanent offices in Kenya, Uganda, and Ethiopia, but has worked on projects with partners across the continent.
ABOUT THE PROJECT: THREE OBJECTIVES

1. Apply **behavioural insights** and test **interventions** to better understand what drives uptake and usage for specific mobile money use cases.

2. Examine **differences** in behaviors relating to mobile money use cases by customer **segment**, including demographics, geography, and gender.

3. Identify optimal **design elements** and relevant target audiences to drive rapid scalability.
ABOUT THE PROJECT: THREE PHASES

PHASE 1

In collaboration with Airtel, determined saving as the mobile money use case of choice.
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PHASE 1
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PHASE 2
Conducted research across the country to understand trends and influencers in Tanzanian saving behaviors.

PHASE 3
Ran two experiments on a digital saving platform to understand how interventions influence saving behaviours.
RECAP: TRENDS AND INFLUENCERS IN TANZANIAN SAVING BEHAVIORS

EXPERIMENTAL RESULTS:
TESTING SMS NUDGES FOR MOBILE SAVING

EXPERIMENTAL RESULTS:
MEASURING PREFERENCES FOR PRODUCT FEATURES

NEXT STEPS
HOW DO TANZANIANS SAVE?

A RECAP OF FINDINGS FROM EXPLORATORY RESEARCH
THE APPROACH

QUALITATIVE INTERVIEWS


SAMPLE: ~150 participants.

LOCATIONS: Dar es Salaam, Arusha, Dodoma, Lindi.

FOCUS: Perceptions of saving on mobile accounts, behavioral insights into mobile saving, triggers and barriers to mobile money use.

METHODS: Focus group discussions, individual interviews, behavioral narratives.
THE APPROACH

QUANTITATIVE SURVEYS

**TIMELINE:** August – October, 2016.

**SAMPLE:** ~500 participants.

**LOCATIONS:** Dar es Salaam, Arusha, Dodoma.

**FOCUS:** Summary statistics on: (i) saving habits, (ii) saving preferences, (iii) willingness to take risks, (iv) patience, (v) financial literacy.
GLOBAL THEMES

- Saving to Mitigate Risk
- Conceptualizing Risk
- Getting Trustworthy Information
- Trust and Risk
- Mental Accounting
- Saving for emergencies
- Aspirational thinking
- Social networks
- Social Influence
- Goal based saving
- Social Norms
- Trends
- Locus of Control
- Agency
- Women’s Financial Status
- Household Dynamics
- Myths and Misconceptions
PRIORITY THEMES

Agency

Trust and Risk

Mental Accounting

Social Influences
MENTAL ACCOUNTING

• Peoples’ preferred savings medium are associated with their reason for saving.

• Individuals typically use different channels to save depending on whether it is for a specific goal or for keeping excess money for emergencies.
AGENCY

• An individual’s perceptions of the agency and control they have over events seem to be associated with their preferred medium for saving.

• Perceptions of control vary by gender.
TRUST AND RISK

• There is no saving medium that is universally considered “the most trustworthy”.

• Individuals express trust in whichever saving medium they use most actively.

“[Saving in the bank is safest] because when someone takes the phone and the password is known then the money can be stolen.”

Male respondent, Dodoma environs

“[Mobile money is] one of the best ways to save money and it is a safe method to keep money. In case you lose your phone...you can get your money after renewing the line.”

Male respondent, Arusha environs

“[The safest money is that which is] saved under the mattresses, when sleep you [are] sure that your money is under you but MPESA you never know may be someone has noted your passwords.”

Male respondent, Arusha environs
SOCIAL INFLUENCES

• Social norms, networks and trends seem to influence people’s savings behaviors and the channels they use to save.

• In Dodoma and Arusha, mobile money (as primary savings channel) is largely associated with people with little or no formal education, whereas saving through formal banking channels is associated with higher education.

“Rich people or people with high income [save on mobile money platforms]. Poor people save under mattresses.”

Male respondent, Arusha environs

“Saving is for rich people, since I do not have money I cannot save.”

Male respondent, Dar es salaam
TWO EXPERIMENTS

1. TESTING SMS NUDGES FOR MOBILE SAVING
   • 550 participants.
   • Measured the impact of various SMS reminders on mobile saving rates.
   • Applications to SMS messaging approaches for encouraging customer engagement.

2. MEASURING PREFERENCES FOR PRODUCT FEATURES
   • 200 participants.
   • Measured the impact of varying product features on customer preferences for products.
   • Applications to marketing strategies for mobile saving products.
TWO EXPERIMENTS: STUDY PARTICIPANT PROFILE

GENDER

- Male: 47%
- Female: 53%

AGE

- 18-25: 20%
- 26-35: 40%
- 36-45: 30%
- 46+: 10%
TWO EXPERIMENTS: STUDY PARTICIPANT PROFILE

**EDUCATION**

- Primary and Below: 60%
- Secondary: 35%
- College and Above: 5%

**FREQUENCY OF MOBILE MONEY USAGE**

- Multiple times a day: 15%
- Once a day: 10%
- 2-6 days per week: 25%
- Once in a week: 30%
- Once in a month: 10%
- Once in 3 months: 5%
TWO EXPERIMENTS:
LOCATIONS OF RECRUITMENT
HOW TO ENCOURAGE MOBILE SAVING?
TESTING SMS NUDGES ON SAVING BEHAVIOURS
QUESTION:

“How does varying SMS-based communication influence mobile saving behaviors?”
APPROACH

EXPERIMENT 1

OVERVIEW:

1. Using their mobile phones, Participants interact with an SMS message system over 14 days.
APPROACH

OVERVIEW:

2. Each day participant are required to send an SMS message at a particular time in order to earn income.
APPROACH

OVERVIEW:

3. Once they earn income, the system asks how much they would like to deposit in to a digital saving account that would earn them interest.
EXPERIMENT 1

APPROACH

OVERVIEW:

Participants are randomly allocated to five groups. Four of the groups are sent reminder SMSs at 4 points throughout the 14 day period reminding them to save. One group (pure control) does not.

4.
APPROACH

OVERVIEW:

5. We measured their saving behaviours over the 14-day period.
INTERVENTION DESIGN

PURE CONTROL GROUP:
NO SMS MESSAGES

4 INTERVENTION GROUPS:
VARIATIONS OF SMS MESSAGES
The interventions included a “control” SMS, and three variations of the SMS that were inspired by behavioral themes found during our exploratory data collection exercise.
INTERVENTION DESIGN: INTERVENTION 1

Hi.
Remember to save today with your Busara account!

Control SMS
INTERVENTION DESIGN: INTERVENTION 2

Agency SMS

Hi. Save more and have greater control over your money and your life! Remember to save today with your Busara account!
INTERVENTION DESIGN: INTERVENTION 3

Hi. Remember to save for {} today with your Busara {} account! Every shilling saved gets you closer to your goal!

Mental Accounting SMS
INTERVENTION DESIGN: INTERVENTION 4

Hi. The successful savers in your group have a savings balance of %! Remember to save today with your Busara account!

Social Influences SMS
WHICH INTERVENTION WAS THE MOST EFFECTIVE?
RESULTS:

1. Participants nudged with SMS messages emphasizing saving balances of strong savers within their group saved at a *higher* rate compared to the control.

2. Participants nudged with SMS messages emphasizing a sense of agency saved at a *lower* rate compared to the control.
RESULTS: DATA AND VISUALIZATION

Hi. The successful savers in your group have a savings balance of %. Remember to save today with your Busara account!

VS.

Hi. Save more and have greater control over your money and your life! Remember to save today with your Busara account!

% AVERAGE AVAILABLE MONEY SAVED PER DAY

- Agency
- Control SMS
- Pure Control
- Mental Accounting
- Social Influence
RESULTS: DATA AND VISUALIZATION

Hi. The successful savers in your group have a savings balance of %. Remember to save today with your Busara account!

Hi. Save more and have greater control over your money and your life! Remember to save today with your Busara account!

SOCIAL INFLUENCE MESSAGE

AGENCY MESSAGE

% AVERAGE AVAILABLE MONEY SAVED PER DAY

<table>
<thead>
<tr>
<th></th>
<th>Agency</th>
<th>Control SMS Pure Control</th>
<th>Mental Accounting</th>
<th>Social Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td></td>
<td></td>
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</table>
RESULTS: DATA AND VISUALIZATION

Hi. The successful savers in your group have a savings balance of %! Remember to save today with your Busara account!

Hi. Save more and have greater control over your money and your life! Remember to save today with your Busara account!

VS.

SOCIAL INFLUENCE MESSAGE

AGENCY MESSAGE

% AVERAGE AVAILABLE MONEY SAVED PER DAY
EXPERIMENT 1

RESULTS: DATA AND VISUALIZATION

If a pair of individuals had 4000 TSh of excess cash a day, the individual who received the Social Influences intervention would save 12,000 TSh more per month than the individual who didn’t receive an intervention SMS.
RESULTS: IMPLICATIONS

- Comparing customers’ savings balance with others in a social group may increase mobile saving.

- The wrong message can be worse than no message. Always test with a small sample before scaling up.
LEVERAGING SOCIAL GROUPS

Comparing customers’ savings balance with others in a social group may increase mobile saving.

STEP 1
STEP 2
STEP 3
LEVERAGING SOCIAL GROUPS

Comparing customers’ savings balance with others in a social group may increase mobile saving.

STEP 1
Generate “customer profiles” using transaction and other administrative data.
LEVERAGING SOCIAL GROUPS

Comparing customers’ savings balance with others in a social group may increase mobile saving.

Step 1
Craft messaging that draws on typical behaviors exhibited by that customer profile.

Step 2

Step 3
LEVERAGING SOCIAL GROUPS

Comparing customers’ savings balance with others in a social group may increase mobile saving.

STEP 1

STEP 2

STEP 3

Roll out SMS communication at key points, i.e., one week after first deposit is made / before customer has made first saving transaction / if saving balance is at a relatively low point.
LEVERAGING SOCIAL GROUPS: TWO APPROACHES

Hi! Did you know that other Airtel Money users like you are saving an average of x TSh a week? Don’t lag behind the group. Remember to save.

SOCIAL INFLUENCE MESSAGE
LEVERAGING SOCIAL GROUPS: TWO APPROACHES

1. Identify existing groups amongst customers.

2. Use transaction data to construct groups amongst customers.
LEVERAGING SOCIAL GROUPS: IDENTIFY EXISTING GROUPS

RURAL CUSTOMERS

Hi! Did you know that other Airtel Money users in your **district** save an average of x TSh a week? Don’t lag behind the group. Remember to save.

URBAN CUSTOMERS

Hi! Did you know that other Airtel Money users who use your **agent** save an average of x TSh a week? Don’t lag behind the group. Remember to save.

LOCATION-BASED GROUPING:
LEVERAGING SOCIAL GROUPS: IDENTIFY EXISTING GROUPS

TIMING-BASED GROUPING:

Hi! Did you know that other Airtel Money users who registered at the same time as you save an average of x TSh a week? Don’t lag behind the group.

Timing of opening account
LEVERAGING SOCIAL GROUPS: USE DATA TO CONSTRUCT GROUPS

Hi! Did you know that other Top Savers like you save an average of x TSh a week? Don’t lag behind the group. Remember to save.

“Top Savers”: >10,000TSh maintained for 2 weeks

Hi! Did you know that other Premium Users like you save an average of x TSh a week? Don’t lag behind the group. Remember to save.

“Premium Users”: >2 transactions a week

Use transaction data to construct group identities and encourage a sense of belonging.
What social patterns do we have access to? What do we think would be part of customer's identity?

Source: Icon by Bernice Beltran, The Noun Project
HOW TO ENCOURAGE MOBILE SAVING?

MEASURING PREFERENCES FOR SAVINGS PRODUCT FEATURES
MOTIVATION

- Social Influence
- Mental Accounting
- Agency
- Trust and Risk
- Social Influences
During our exploratory data collection, we found that there is no saving medium that is universally considered “the most trustworthy”. Individuals express trust in whichever saving medium they use most actively.
This suggests that choice of saving product may not always reflect true preference for the product, but rather the information most readily available and accessible about the product.
APPROACH

QUESTIONS:

1. “How do customers value common features of saving products?”
2. “Are customers more likely to prefer a ‘wrong’ savings product when presented with a complex choice?”
Participants are presented with a list of eight features of savings products:

- Security
- Interest
- Accessibility
- Check Balance
- Privacy
- Fees
- Convenience
- Language
EXPERIMENT 2

APPROACH

OVERVIEW:

2. They are asked to rank these product features against each other and provide a weighting for each:

1. Security
2. Interest
3. Check Balance
4. Convenience
5. Accessibility
6. Language
7. Privacy
8. Fees

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**APPROACH**

**OVERVIEW:**

3. We used these weightings to create variations of savings products for each participant.
APPROACH

OVERVIEW:

4. We varied the complexity of the choices to see whether the selection best matched their preferences.
RESULTS

1. Participants valued the feature of *Privacy* the most. They valued *Security* the least.

2. Participants were able to understand product features and place value on them. Even so, they generally struggled to make the choice that matched their preferences.

3. The more features participants had to compare, the more likely they made an active choice between product options. However, they were also more likely to make a sub-optimal choice.
RESULT 1: DATA AND VISUALIZATION

RESULT:

Participants valued the feature of Privacy the most. They valued Security the least.
RESULT 1: DATA AND VISUALIZATION

PRIVACY: “Only you and Busara will know about the money in this account.”

VS.
“Selected family and friends will be informed about the amount of money in this account.”

SECURITY: “3 out of every 100 people will lose half of their money.”

VS.
“2 out of every 100 people will lose half of their money.”
RESULT 2&3: DATA AND VISUALIZATION

RESULTS:

Participants were able to understand product features and place value on them. Even so, they generally struggled to make the correct choice for themselves.

The more features participants had to compare, the more likely they made an active choice between product options. However, they were also more likely to have made a sub-optimal choice.
RESULTS: IMPLICATIONS

Help customers make the right choice by highlighting specific differences between your products and rival products.

Emphasizing differences between a higher number of features may engage customers, but may not support their ability to choose a product that reflects their preferences.
Drawing on existing Airtel Money marketing strategies, how could these two findings apply?
NEXT STEPS
NEXT STEPS

Source: Icon by John Winowiecki, The Noun Project
QUESTIONS
THANK YOU
APPENDIX:
FURTHER DETAIL ON EXPERIMENT 2
FULL DESCRIPTION OF EXPERIMENT 2

1. Participants are presented with a list of eight features of saving products:

- Security
- Interest
- Accessibility
- Check Balance
- Privacy
- Fees
- Convenience
- Language
They are asked to make a preference between two options for each of the product features:

2. Security: + vs. - ?
   - Accessibility: + vs. - ?
   - Privacy: + vs. - ?
   - Convenience: + vs. - ?
FULL DESCRIPTION OF EXPERIMENT 2

3. They are asked to rank preferred versions of the product features against each other:

1. Security
2. Interest
3. Check Balance
4. Convenience
5. Accessibility
6. Language
7. Privacy
8. Fees

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They are presented with three pairs of saving products, where each product is described using a combination of the product features. They are asked to choose which they would prefer for each pair. If they choose not to make a decision, they have the option to skip.
5. The pairs of saving products are described in such a way that it is relatively easy to make a choice for one pair, relatively difficult for the second pair, and somewhere in-between for the third pair.
FULL DESCRIPTION OF EXPERIMENT 2

6. Level of difficulty is determined by how many of the product features the participant is required to consider whilst making their decision.
7. The “easiest” product pairing are described almost identically, with variations in description between only two of the product features.
FULL DESCRIPTION OF EXPERIMENT 2

8. The most “difficult” product pairing are described entirely discrepantly.
9. Given their initial valuations of the product features, we measured the rate at which participants made the “wrong” choice between the options as they had to consider more and more features.
## Descriptions of Product Features Used in Experiment 2

<table>
<thead>
<tr>
<th></th>
<th>Security</th>
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<th>Fees</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dominant</strong></td>
<td>3 people out of every 100 people that save in this device will lose half of their money.</td>
<td>There is a period of seven days in which you cannot touch your money, but once the waiting period is over you can withdraw the money at any time between 8 am to 5 pm Monday to Friday.</td>
<td>Nobody but the participant and Busara will be aware that you earned money which is held in one of our devices.</td>
<td>After the waiting period is over we send the money to your mobile money account, or any other mobile money account that you request to send us.</td>
<td>4 people out of every 5 will get paid 4% daily until they decide to withdraw the money from the savings device.</td>
<td>Participants can check their balance once a day between 8 am to 5 pm during the time frame that we keep the money.</td>
<td>There is a 2% fee that will be charged when you withdraw your money.</td>
<td>All the messages and conversations revolving around this savings device should be in Swahili.</td>
</tr>
<tr>
<td><strong>Dominated</strong></td>
<td>2 people out of every 100 people that save in this device will lose their money.</td>
<td>There is a period of seven days in which you cannot touch your money, but once the waiting period is over you can withdraw the money at any time between 8 am to 12 pm Monday to Friday.</td>
<td>Selected family and friends will be called by Busara staff and notified that the participant has partaken in an experiment, where she earned TZS X, which she has stored in a device with us.</td>
<td>After the waiting period is over we can only send the money to your mobile money account.</td>
<td>The participant will get paid 2% daily until they decide to withdraw the money from the savings device.</td>
<td>Participants can check their balance once a day between 8 am and 12 pm during the time frame that we keep the money.</td>
<td>There is a 4% fee that will be charged when you withdraw your money.</td>
<td>All the messages and conversations revolving around this savings device should be in English.</td>
</tr>
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