WELCOME

LEVERAGING WhatsApp FOR RAPID RESPONSE RESEARCH

Wednesday, September 30, 2020

We will get started shortly.
Immigration Policy Lab
Designing solutions for an integrated world

- **Evaluation:** We use rigorous scientific methods to assess current and prospective immigration policies, offering new evidence of what works and what doesn’t

- **Design:** We develop new programs and tools to support the integration of immigrants, refugees, and asylum seekers worldwide

- **Civic-Sector Collaboration:** We forge partnerships with governments, NGOs, and service providers to pilot-test and scale evidence-based programs

- **Academic Innovation:** We use an experiential model of social science to train young scholars to operate in a fast-paced and policy-focused research environment
Immigration Policy Lab
A wide-ranging research agenda

- Refugees and forced migrants
- Unauthorized immigrants
- Economic immigrants
- Naturalized citizens
The Migration and Development Initiative

- **Refugees’ Journey Home**: panel study of 3,000 Syrian households in Lebanon about their decisions to return
- **Asylum Policy in the Developing World**: original dataset of asylum and refugee policies in 90+ countries since 1951
- **Planning for Productive Migration**: pilot program to test effect of comprehensive migration counseling, skills training and transit subsidy on cross-border migration in West Africa
- **Migration Data Analytics**: using IOM data to understand determinants of migration and migrant profiles in West Africa
- **#Asylum**: evaluating the spread of (dis)information in refugees’ online information environment
Agenda

• Data collection: challenges & motivations
• Low cost, automated WhatsApp surveys
• Initial survey results in Colombia & the U.S.
• Q&A
Data Collection: Challenges & Motivations

Working with mobile populations
How to minimize attrition with communities on the move?

Traditional data collection methods are costly
How to reduce enumerator time?

Continuing research & client outreach during COVID-19
How to develop more virtual engagement options?
Project Partnership with Mercy Corps

- **Research question:** what effect does cash have on onward migration?
- **Study population:** ~2,600 Venezuelan refugees in La Guajira, Cesar & Antioquia, Colombia (enrollment ongoing)
- **Research design:** regression discontinuity design based on the VenEsperanza program vulnerability score
- **Treatment:** $80 cash assistance for six months, distributed via an ATM debit card
Colombia Cash: Evaluation Design

- VenEsperanza Program Evaluation
  - Basic household info
  - Vulnerability screening
  - Consent for follow-up research
  - IPL-12 integration questions

- Assignment into treatment (cash assistance) or control (no cash)
  - Based on vulnerability score

- Follow-up surveys (3, 6, 9 months)
  - Migration questions
  - Additional outcomes: housing quality, food security, health care access, schooling
  - IPL-12 integration questions
Data Collection: Challenges & Motivations

How can we implement surveys with a potentially mobile population, at a low cost, during COVID-19?
Use Commercial Communications Technology for Research and Outreach

AlertSU: Wildfire smoke in Stanford area. Take precautions; Dish closed. More at emergency.stanford.edu

Vote by Mail Ballot Applications Due 8/26 by 5 p.m. & Other Important Elections Information. Visit www.somervillema.gov/elections for more information.

Help Support Somerville by Completing the Census It takes just 10 minutes to respond online at www.my2020census.gov or by phone at (844) 330-2020

Order Alert from Vermont Country Deli: Thank you for your purchase. Your order is ready for pickup. Please visit your order page for your pickup location, instructions or to opt out from SMS messages: https://

CVS Pharmacy: Schedule a FLU shot now to save time in store. Pharmacists are taking precautions to keep you safe. TAP i.cvs HELP for help
Systems & Vocabulary

- **Twilio**: cloud communications platform
- **WhatsApp Business API**: access for a verified business to use WhatsApp for large-scale messaging
- **Google**: use Google Sheets API & Apps Scripts for contact lists and databases
Low-Cost, Automated WhatsApp Surveys

Google Sheets
Phone numbers stored

Google Scripts
Sends the contact list to Twilio

Twilio API
Requests a survey execution to be started

Twilio Flow
Hosts the designed survey and triggers Twilio Function when survey is complete

Twilio Function
Collects and sends data received in the WhatsApp conversation

Google Sheets API
receives and completes data throughput to Google Sheets

Participants receive and respond to text message surveys via WhatsApp

Google Sheets
Data stored to be quickly downloaded and analyzed
Why WhatsApp?

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Why WhatsApp?

Twilio API Requests a survey execution to be started

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Google Scripts Sends the contact list to Twilio
Benefits of surveys via WhatsApp

For the user

• Familiar platform
• Accessible over WiFi and 2G/3G networks
• Free over WiFi and often included for free on data plans
  • In Colombia, WhatsApp is free or included in data packages on Claro, Tigo & Virgin
Benefits of surveys via WhatsApp

For the user

Most popular global mobile messenger apps, based on number of monthly active users (in millions)

- WhatsApp: 2,000
- Facebook Messenger: 1,300
- WeChat: 1,203
- QQ: 694
- Telegram: 400
- Snapchat*: 398

*Statista, July 2020
Benefits of surveys over WhatsApp

For the NGO/researcher

• Global coverage
• Participants can keep the same WhatsApp number even if they move or get a new SIM card
Benefits of surveys over WhatsApp

For the NGO/researcher
Benefits of WhatsApp Business API

For the NGO/researcher

- Bulk messaging to >256 contacts at a time
- Allows for automation in WhatsApp conversations
- Data export of messages and metadata

Note: to access the WhatsApp Business API, you must have a verified Facebook Business Manager.
Designing WhatsApp Surveys

- **Google Sheets**
  - Phone numbers stored

- **Twilio API**
  - Requests a survey execution to be started

- **Twilio Flow**
  - Hosts the designed survey and triggers Twilio Function when survey is complete

- **Twilio Function**
  - Collects and sends data received in the WhatsApp conversation

- **Google Sheets**
  - Data stored to be quickly downloaded and analyzed

- **Google Scripts**
  - Sends the contact list to Twilio

- **Google APIs**
  - Receives and completes data throughput to Google Sheets

Participants receive and respond to text message surveys via WhatsApp.
Adapting Survey Logic for WhatsApp

In Qualtrics

<table>
<thead>
<tr>
<th>q2</th>
<th>¿Todavía reside en Colombia?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sí</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

Display This Question:
- If ¿Todavía reside en Colombia? Sí Is Selected

<table>
<thead>
<tr>
<th>q6</th>
<th>¿Usted o su familia se ha mudado a otra ciudad en estos últimos tres meses?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sí</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

Display This Question:
- If ¿Todavía reside en Colombia? No Is Selected

<table>
<thead>
<tr>
<th>q3</th>
<th>¿En qué país reside?</th>
</tr>
</thead>
</table>

-
Twilio Studio: Designing Survey Logic
Sending Surveys

Google Sheets
Phone numbers stored

Google Scripts
Sends the contact list to Twilio

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Google Sheets
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Google APIs
Creating Automated Contact Lists on Google Sheets & Script Editor

Tools → Script Editor

```
function batchSurvey(numSheet) {
  Logger.log("batchSurvey called");
  var ACCOUNT_SID = PropertiesService.getScriptProperties().getProperty("ACCOUNT_SID");
  var ACCOUNT_TOKEN = PropertiesService.getScriptProperties().getProperty("ACCOUNT_TOKEN");
  var flowId = "YOUR_FLOW_ID";
  var sheetName = "survey-numbers";
  // Set the batch size (the number of surveys to trigger together)
  var batchSize = 4;

  var options = {
    "method": "post",
    "headers": {
      "Authorization": "Basic " + Utilities.base64Encode(ACCOUNT_SID + ":" + ACCOUNT_TOKEN)
    }
  }
}
```
Collecting Data

Google Sheets
Phone numbers stored

Google Scripts
Sends the contact list to Twilio

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Twilio Flow
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Twilio Function
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Google Sheets
Data stored to be quickly downloaded and analyzed

Google Sheets API
receives and completes data throughput to Google Sheets

Participants receive and respond to text message surveys via WhatsApp

Google APIs

Twilio

Hackathon
HACK FOR SOCIAL GOOD
Link Twilio Studio to Google Sheets API for Data Export
Participants receive and respond to text message surveys via WhatsApp.

Google Sheets
Data stored to be quickly downloaded and analyzed.

Google Scripts
Sends the contact list to Twilio.

Twilio API
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Twilio Flow
Hosts the designed survey and triggers Twilio Function when survey is complete.

Twilio Function
Collects and sends data received in the WhatsApp conversation.

Google Sheets API
receives and completes data throughput to Google Sheets.
Results

- How well did this work?
- What did it cost?
- What are the limitations?
Results

• How well did this work?
  • Response rates
  • Survey completion rate
  • Identity verification
  • Efficiency indicators
Colombia: Response Rates

Preliminary results for March–May registrants*

- 2,671 participants consented to follow-up research on WhatsApp
- 2,180 had phone numbers registered on WhatsApp
- 1,686 participants sent at least one message on WhatsApp

77% response rate among participants with phone numbers on WhatsApp

*Results are based on preliminary data and subject to change/updates.
Colombia: Survey Completion Rate

Preliminary results for March–May registrants*

- 1,686 participants sent at least one message on WhatsApp
- 1,628 completed surveys

97% survey completion rate
Colombia: Identity Verification

Preliminary results for March–May registrants*

- Of 1,628 completed surveys, 1,453 could be merged to baseline data based on WhatsApp number, gender, and the first 3 characters of first name

89% of completed surveys could be matched to baseline data to verify user’s identity
Colombia: Survey Efficiency

Number of Inbound Messages Sent to Complete the Survey
June Survey (March Registrants)
Colombia: Preliminary Descriptive Statistics

Q9: What was your household income last month (in Colombian pesos)?

Antioquia N = 568,  Cesar N = 254,  La Guajira N = 438
Colombia: Preliminary Descriptive Statistics

Q9: What was your household income last month (in Colombian pesos)?

Baseline

3-Month Survey

N = 3443

N = 1439
Colombia: Preliminary Descriptive Statistics

Q12: What is the type of housing you have lived in for the past month?

Baseline

- House or Apartment: 60%
- Room or hotel: 20%
- Shared roof/tenancy: 10%

N = 3443

3-Month Survey

- House or Apartment: 50%
- Room or hotel: 30%
- Shared roof/tenancy: 20%

N = 1438
Results

• How well did this work?
• What did it cost?
  • Messaging fees
  • Incentives
  • Staff time
## Colombia: Survey Costs

For a 22-question survey over WhatsApp:

<table>
<thead>
<tr>
<th>Cost</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Messaging fees</td>
<td>$0.34</td>
</tr>
<tr>
<td>Incentive payment</td>
<td>$1.43 (5000 Colombian pesos)</td>
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<tr>
<td>Staff costs</td>
<td>$1.17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2.94</strong></td>
</tr>
</tbody>
</table>

This WhatsApp survey cost 24% of the budget estimate for a phone survey.
Results

• How well did this work?
• What did it cost?
• What are the limitations?
  • WhatsApp-specific design considerations
  • Applicability
WhatsApp-Specific Design Considerations

• **Consent**: to initiate the WhatsApp conversation with an outbound message, separate opt-in is required

• **Template message approval**: first outbound message must be approved by Facebook

• **Question format**: For consistency in data analysis, multiple-choice questions are limited to numerical answers

• **Direct engagement**: considerations for human oversight for an automated WhatsApp “survey chatbot”
Applicability

- WhatsApp’s reach among participants
  - In Colombia, 82% of participants had phone numbers registered on WhatsApp
- Literacy of participants
- Cell phone ownerships/multiple households per phone
Additional Use Cases

• Panel research with mobile populations
• Quick check-ins between full survey rounds
• As a supplement to phone/in-person engagement
• Rapid response client outreach for non-profit partners
Today’s WhatsApp Survey

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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</thead>
<tbody>
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</tr>
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<td>51</td>
<td>2020-09-30T21:1</td>
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<td></td>
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<td>1</td>
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<tr>
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<tr>
<td>53</td>
<td>2020-09-30T21:1</td>
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<td></td>
<td>1</td>
<td>2</td>
<td>I don't</td>
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<tr>
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<tr>
<td>55</td>
<td>2020-09-30T21:1</td>
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<td></td>
<td>1</td>
<td>3</td>
<td>No</td>
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<tr>
<td>56</td>
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<tr>
<td>57</td>
<td>2020-09-30T21:1</td>
<td>1</td>
<td></td>
<td>1</td>
<td>4</td>
<td>I don't even know which of yours</td>
</tr>
<tr>
<td>58</td>
<td>whatsapp</td>
<td></td>
<td></td>
<td></td>
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</tr>
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<td>59</td>
<td>2020-09-30T21:1</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>I don't have any</td>
</tr>
<tr>
<td>60</td>
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Upcoming Workshops

• October 21: Survey Methodology Overview
• October 28: Technical How-To Session

WEBINAR
Staying Connected: Low-Cost, Automated WhatsApp Surveys
October 21, 2020
8:00 am PT / 11 am ET

REGISTER NOW
Questions?
Upcoming King Center Event
Speaker Series: A Conversation with David Miliband, President and CEO of the International Rescue Committee
Thursday, October 29 at 12pm PT • Register on our website!

THANK YOU
To learn more about us, please visit:
kingcenter.stanford.edu and immigrationlab.org