Using Smartphone Technology for Research Among Refugees in Germany

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GESIS Lecture Series, Sep 18, 2018
Acknowledgement

• Joint work with Christoph Sajons (University of Mannheim), Susan Steiner (Leibniz University Hannover, C4ED), & Mariel Leonard (University of Mannheim)

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• This research was supported by the German Research Foundation (DFG) under research grant SA2845/1-1, the Mannheim Centre for European Social Research (MZES), the Walter Eucken Institute, and Leibniz University Hannover.
Data Collection in a Historic Context

Mobile Surveys

Passive Mobile Data Collection

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Smartphones as an Alternative for Data Collection

- Smartphones “increasingly viewed as groundbreaking new data collection tools for studying human behavior” (Sugie 2016: 2)

- Flexible devices that can collect range of data
  - Self-reports through mobile web surveys
  - Passive data collection via sensors and apps

- Data collection independent of time, location, and language of smartphone user
  - Cheaper than face-to-face interviews
Compared to Surveys, Passive Mobile Data Collection Has Potential to...

- ...provide richer data
  - Because it can be collected in much higher frequencies

- ...decrease respondent burden
  - Because fewer survey questions need to be asked

- ...reduce measurement error (Boase and Ling 2013, Scherpenzeel 2017)
  - Because of reduced recall errors and social desirability
Can We Answer Traditional Social Science Research Questions with Passive Mobile Data Collection?

• How do parolees recently released from prison reintegrate into society? (Sugie 2018)

• What influence has unemployment on social participation? (Kreuter et al., under review)

• How do refugees use smartphones in integration efforts and search for a job? (Keusch et al., under review)
Context

• Over 1.2 million refugees arrived in Germany since 2015 (BAMF 2017)

• Policy-makers intend to design effective integration concepts
  – To do so, they require credible information on needs, aspirations, and life circumstances of refugees

• Using traditional survey methods for recruiting and interviewing refugees as well as longitudinal tracking is not trivial (Morville et al. 2015; Tingvold et al. 2015)
Life and Integration in Germany (LIG)

• Case study on feasibility of smartphone data collection for refugee research
  – Combining methodological questions with substantive questions on mobility, social integration, and job search

• Target population: Arabic and English-speaking refugees (18+) living in residences for temporary accommodation (>10 people from target pop.)
  – 3 districts in Baden-Wuerttemberg

• 5 month data collection with initial F2F interviews followed by (mobile) web surveys and passive mobile data collection
Study 2: LIG Timeline

- **May**: CAPI recruitment interviews in refugee residences
- **June**: Invitation to install app
- **July**: (Mobile) web surveys
- **August**: Passive mobile data collection

(from May to October 2017)
CAPI Recruitment

• 529 CAPI interviews in English & Arabic in residences for temporary accommodation ("Unterkünfte zur vorläufigen Unterbringung")
  – 75% male, 60% <30 years
  – 37% from Syria, 22% from Iraq, 21% from Gambia
  – 95% own smartphone

• Topics:
  – Flight history & refugee/asylum status in GER
  – Big five (CASI)
  – Smartphone ownership & usage
  – Demographics

• At end of interview, Rs were asked for contact information (phone number and/or email address) and consent to be contacted again for follow-up studies
(Mobile) Web Surveys

• 468 refugees with valid contact information invited to participate in four 5-min follow-up (mobile) web surveys
  – Invitations sent via WhatsApp and email
  – Questionnaires optimized for smartphones
  – Questionnaires available in English & Arabic

1. Labor market integration, language proficiency, use of Internet and apps for integration purposes (RR: 24%)
2. Mobility, expectations about future, personality (RR: 11%)
3. Political attitudes ("Wahlomat") (RR: 9%)
4. Labor market integration, language proficiency, use of Internet and apps for integration purposes (RR: 8%)

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LIG App

• LIG Android App developed by P3 insights (English & Arabic)

• RQ: How do refugees use smartphones in integration efforts (e.g., using language course apps, online dictionaries, German news apps) and search for a job?

• Three months of passive mobile data collection
  – Approximate location (every 15 minutes)
  – Internet & app usage (no content!)

• Experiment: conditional 30€-incentive for having app installed for full 3 months vs. no incentive
  – (Control group also received incentive at end of study period)
LIG App

Terms of Use and Privacy Policy

Thank you for installing our app.

The LIG-Research App (in the following, the app) is brought to you free of charge by the project team of the Life and Integration in Germany study and our partner P3 insight GmbH, Am Kraftversorgungsturm 3, 52070 Aachen, Germany ("P3 insight").

The app collects and stores information from your smartphone. It records the smartphone’s approximate location and your use of apps and the internet. We will use this information to understand how your smartphone helps you to find work, learn German, and get information about Germany. We are also interested in the potential of the app for research on migration and integration. We will use the information collected to better understand the situation of recent migrants to Germany and their efforts to integrate into German society.

This document describes the terms of use and data protection conditions for the usage of the app. Any use of the app is only allowed under

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Ethics & Data Security

• Study design reviewed and approved by ethics commission of University of Freiburg
• Biggest concern: Passively collected data considered very sensitive
  – Solution: level of granularity allows to observe behavior necessary to answer substantive research questions but without exposing individuals
• App required multiple consent steps
  – Consent to be contacted again at end of CAPI
  – Google Play Store
  – Acceptance of T&C in app
  – Separate opt-in for both location and Internet & app usage
• During invitation phase phone hotline available, e-mail, website
• Data encrypted before transfer
• Data stored in Germany
LIG App

• 27 out of 417 Android smartphone users with valid contact information downloaded app
  – Incentive treatment clustered by residence/city

• Installation rates:
  – 30€ incentive: 8.4%
  – No incentive: 5.2%

• Treatment effect: +3.2pp (n.s.)
Do Smartphone Users Differ From Non-Users?

• Mobile web surveys DV: Ownership of smartphone
  – With every ten years of age, average predicted probabilities of owning smartphone decreases by 2 p.p.
  – Average predicted probabilities of owning smartphone 23 p.p. lower for refugees from African countries (except Gambia) compared to Syria
  – Gender, relationship status, education, reading proficiency, and asylum status do not matter for smartphone ownership

• Passive mobile data collection DV: Ownership of Android smartphone
  – None of explanatory variables predict Android smartphone ownership
Do Participants Differ From Non-Participants?

• Mobile web surveys DV: Participation in at least one web survey
  – Gambian refugees on average 15 p.p. less likely to participate than refugees from Syria
  – With each additional year of education, average predicted probabilities increase by 2 p.p.
  – Accessing Internet on smartphone regularly increases average predicted probabilities by 23 p.p.

• Passive mobile data collection DV: Installation of LIG app
Conclusion

• Large majority of refugees owns smartphone and willing to share contact information for future research

• Participation rate in mobile web surveys between 8 and 24%
  – Strong attrition after first survey

• Refugees seem to be skeptical towards passive mobile data collection
  – Higher incentive and personal help with installation could increase participation rate but might be coercive
Limitations & Next Steps

- Very limited budget & resources
  - Non-probability sample of refugees in selected residences in southwest GER
  - Only two languages (English & Arabic)
  - No incentive for mobile web survey participation

- Very limited set of variables available for bias analysis
  - Coverage error estimates rely on assumption that smartphone ownership is not correlated with participation propensity in CAPI survey

- To-do: In-depth analysis of app data
Thank You!

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