Alternative sources of data for international migration statistics

Training Workshop on the Use of Administrative Data for Migration Statistics in Maldives

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Elena De Jesús, UNSD

United Nations | Statistics Division

NON-TRADITIONAL DATA SOURCES

+ Fill data gaps
+ Hard-to-count phenomena

- Ethical considerations
- Inherent bias
- Data access
- Complex analysis

WHAT'S THE ALTERNATIVE?

BADAN PUSAT STATISTIK

BPS STATISTICS INDONESIA – MPD since 2017

8000 enumerators for **domestic tourism survey** → 4 data scientists / engineers working on MPD

MOBILE PHONE DATA

Mobile Positioning Data (MPD)

Mobile Positioning Data is defined as any type of

mobile network event data that are stored by the

mobile network operator (MNO) that includes a subscriber identifier,
time attribute and location.

Call Detail Records (CDR)

- Passively generated when a subscriber:
  Makes or receives a call
  Sends or receives an SMS
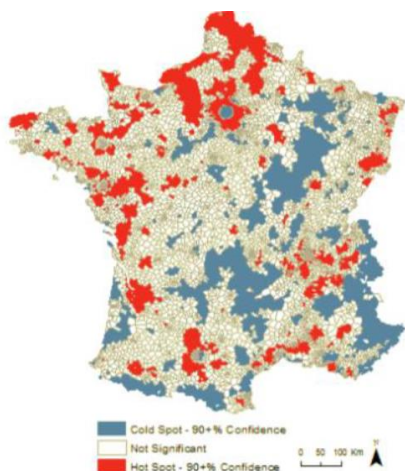 Uses mobile data

- Routinely stored by MNOs for billing purposes

Passive Signalling Data

- Passively generated when a mobile device connects to the network

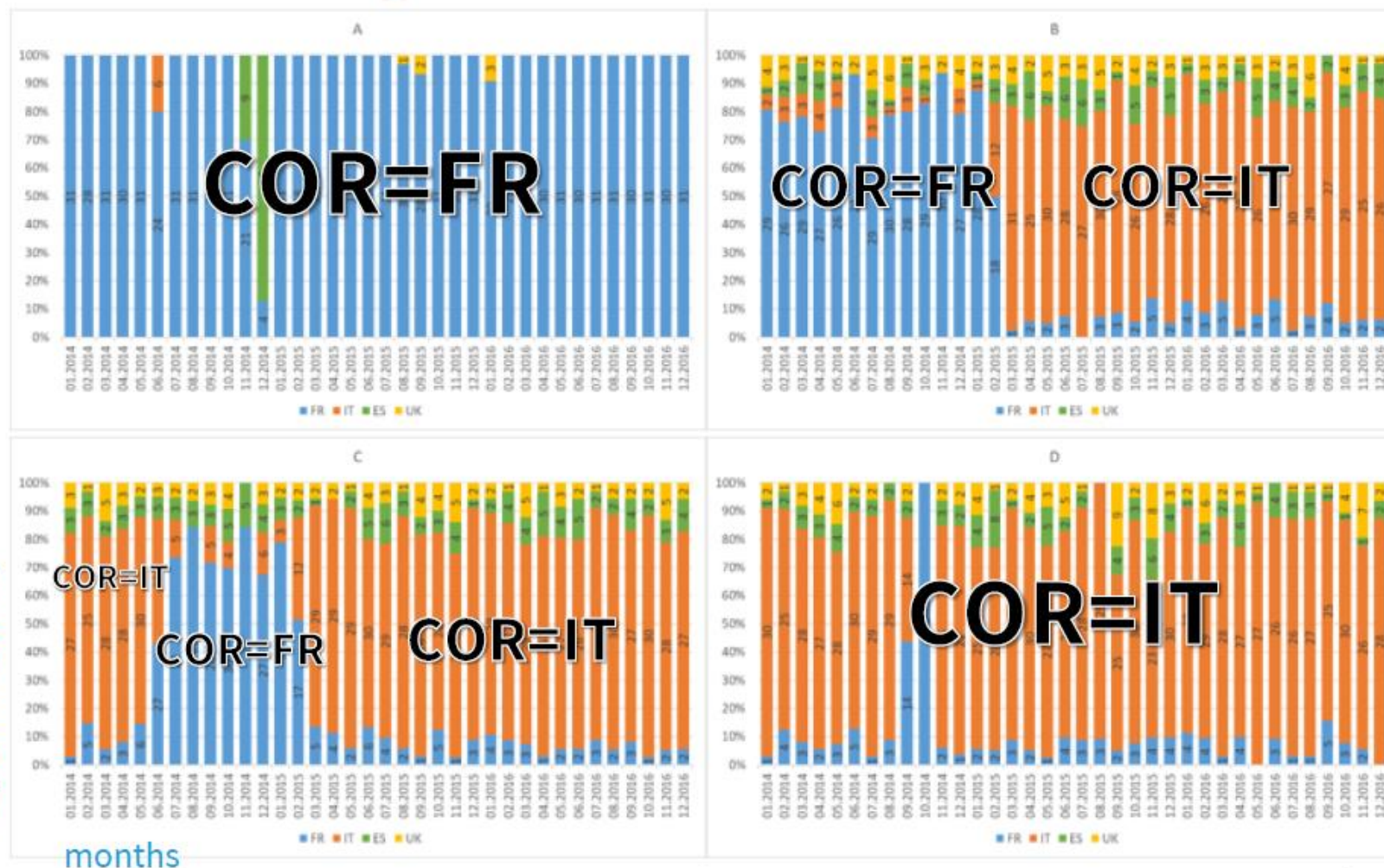- More frequent than CDR data

- Very high volume storage

DETERMINING PLACE OF RESIDENCE

According to official definition, Country of Residence (COR) is the country where the person spends most of their year.
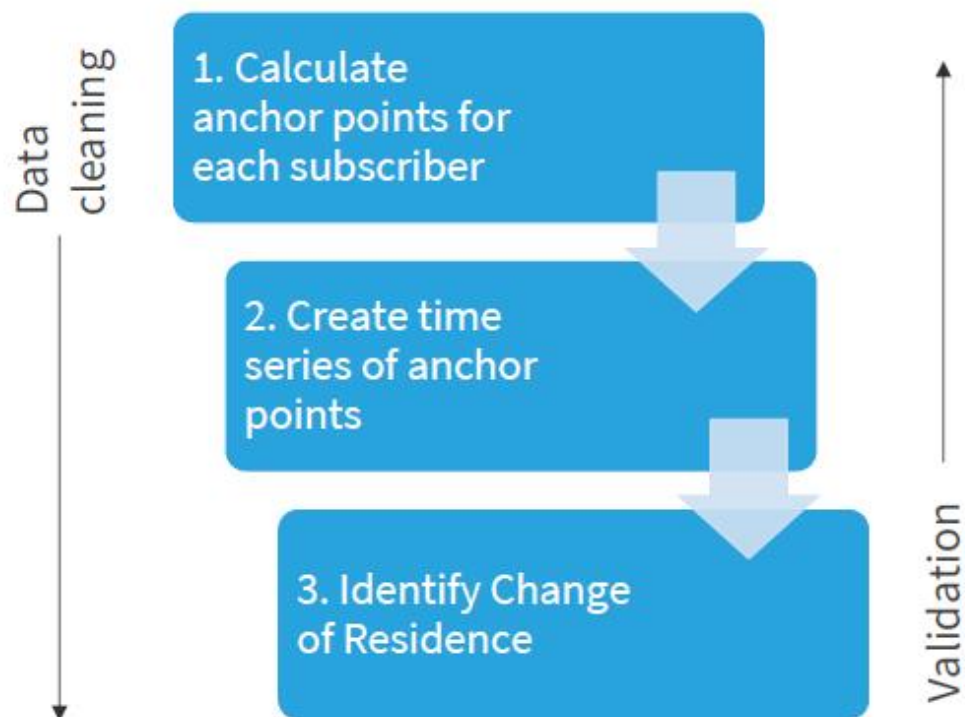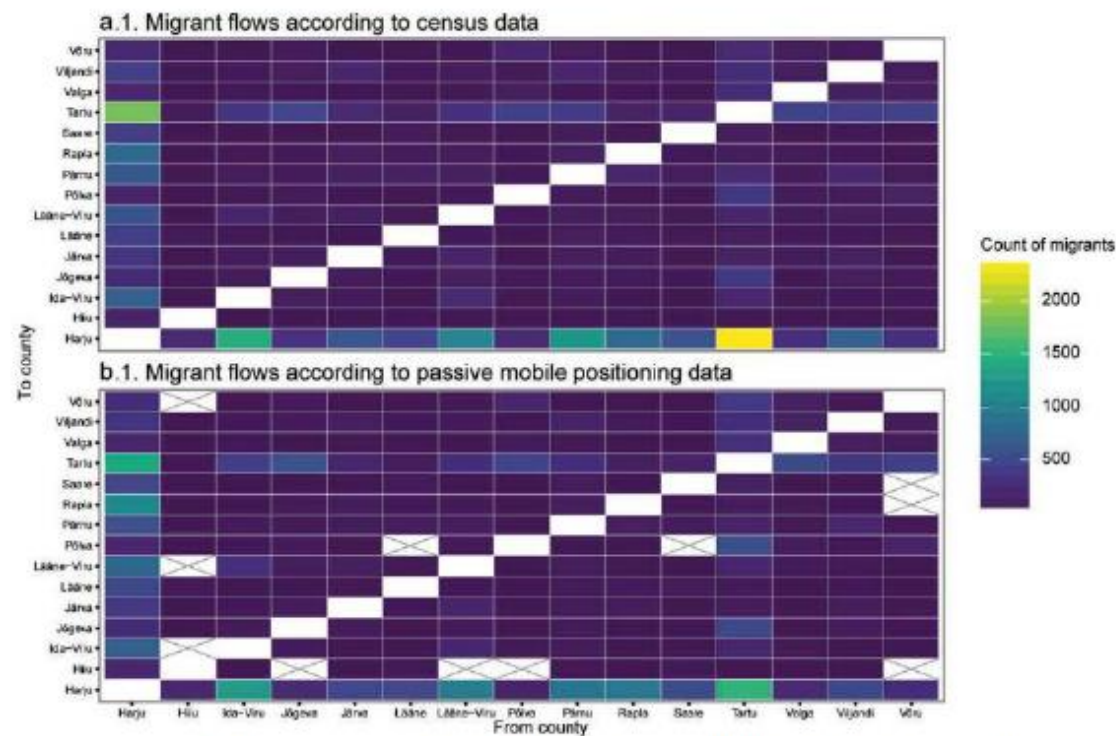
CASE STUDY: ESTONIA (INTERNAL MIGRATION)

Process

Data cleaning

1. Calculate anchor points for each subscriber

2. Create time series of anchor points

3. Identify Change of Residence

Validation

Kamenjuk et al. (2017) Mapping changes of residence with passive mobile positioning data: the case of Estonia https://doi.org/10.1080/13658816.2017.1295308

Results

positium

a.1. Migrant flows according to census data

b.1. Migrant flows according to passive mobile positioning data

To county

From county

Count of migrants
2000
1500
1000
500

Comparison of flows for internal migration between counties in Estonia according to census 2011 and MPD during the period 2010–2011. N= number of migrants between counties (LAU level 1).
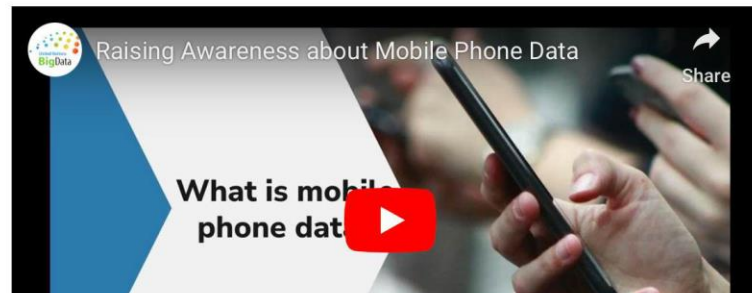
UN COMMITTEE OF EXPERTS ON BIG DATA AND DATA SCIENCE

GUIDANCE ON MOBILE PHONE DATA FOR MIGRATION STATISTICS

Also dynamic population mapping, tourism, transport

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GUIDANCE ON DATA INNOVATION FOR MIGRATION POLICY

Why and how non-traditional data sources can contribute to better understanding migration-related phenomena

(a) practical and technical aspects of using data innovations in migration statistics

(b) added value of using new data sources and innovative methodologies to analyze migration phenomena difficult to measure using traditional data sources

(c) good practices in addressing issues of data access and collaboration with multiple stakeholders, ethical standards, and security and data protection issues

HARNESSING DATA INNOVATION FOR MIGRATION POLICY
A HANDBOOK FOR PRACTITIONERS

IOM UN MIGRATION | GLOBAL DATA INSTITUTE

MOBILE PHONE DATA PROJECTS

https://cros.ec.europa.eu/landing-page/multi-mno-project

https://www.worldbank.org/en/programs/global-data-facility/brief/putting-mobile-phone-data-to-work-for-policy

EMBARKING ON MOBILE PHONE DATA USE FOR STATISTICS

DATA FOR NOW

- Data holder, IT expertise, knowledge of MPD data source, corporate responsibility, image, profits

- Balance between public interest and privacy preservation, evaluate data protection measures, enhance public trust

MPD project

- Statistical authorities
- MNOs
- Other parties
- Data protection authority
- Telecom regulator

- Mandate, statistical authority, confidentiality, expertise, access to other data sources for validation

- Users
- Research community
- International organizations
- Legislators

- May have mandate to collect records, development agenda, regular contact with MNOs

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SOCIAL MEDIA DATA

Data for Good Visualization
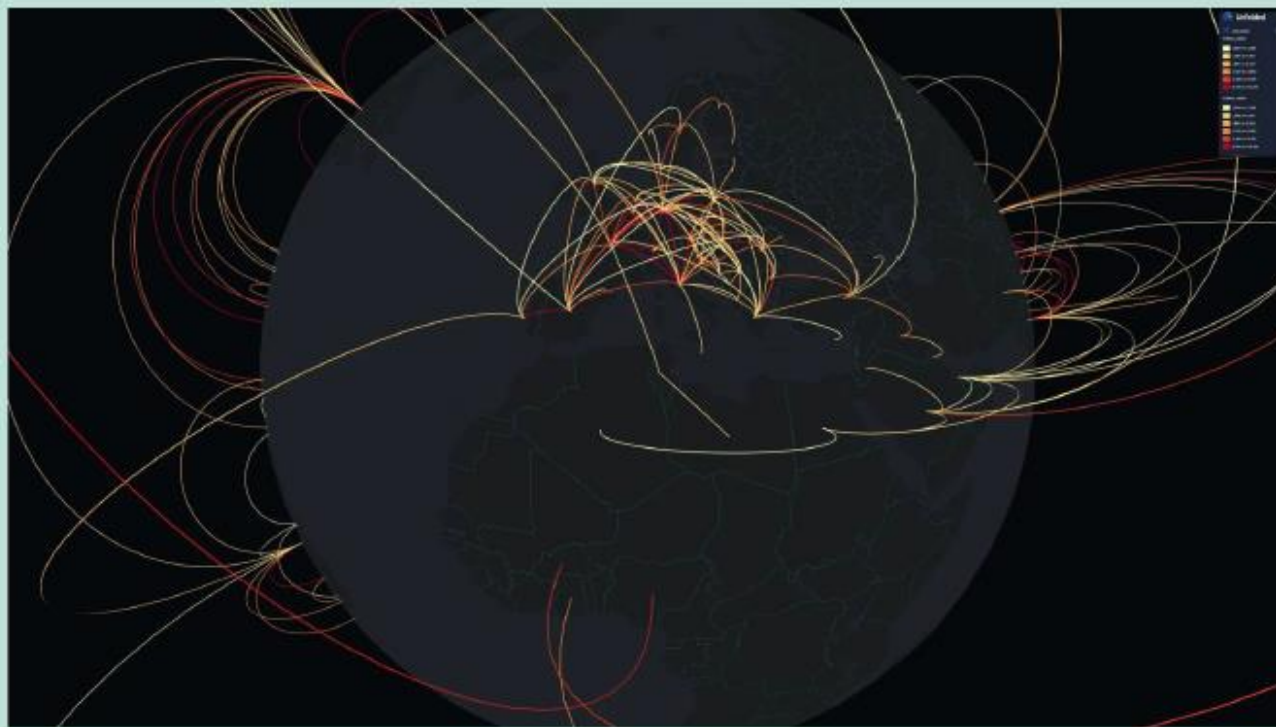
Travel Patterns show comparisons of the number of Facebook location history users moving across long distances, like cross-country air or train travel.

∞ Meta

Data for Good   About   Data   AI Models   Social Capital   Impact

We empower partners with privacy-preserving data that strengthens communities and advances social issues.

Data for Good is helping organizations respond to crises around the world and supporting research that advances economic opportunity.

Step 1: Pull location data

We use GPS location updates for Facebook mobile app users who have opted into sharing location data.

Step 2: Aggregate data to country level

We only look at the country in the location data.

Step 3: Count users who changed country

For each day, we count the number of Facebook users who moved from country A to country B and vice-versa.

THANK YOU!

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