Mobile phone data for displacement and disaster statistics

Series of webinars on "Mobile Phone Data for Official Statistics"

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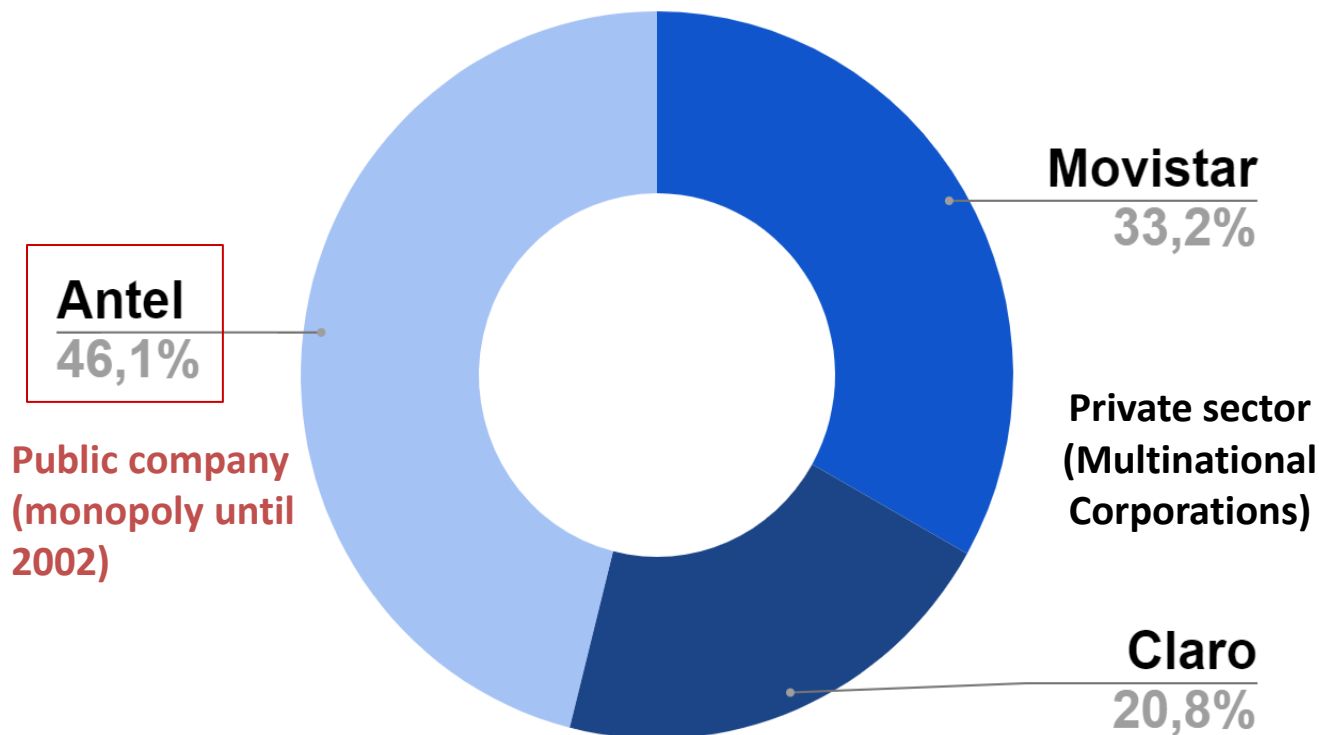
OBJETIVES:

- Start the <u>experimental production of statistics</u> from Administrative Records (CDR) provided by MNOs.

- Provide <u>updated and high-frequency information </u>to the National Emergencies System (SINAE) during de <u>Covid-19 pandemic and other disasters (floods, fires)</u>.

<u>First experience of the NSI of Uruguay </u>in working with this type of information (also one of the first in the region).

RATIONALE:

- Analyze population mobility during disasters (Covid-19 pandemic).

- Generate more frequent mobility statistics and at a lower cost.

- Make estimates in small areas (neighborhoods, towns).

- Strengthen capacities for planning sustainable urban mobility.

- Immigration and tourism statistics.

- Basic population statistics (planning of the population census; monitoring of population fluctuations and urban planning).

Market share of mobile phone subscribers by operator (December 2020)

Movistar
33,2%

Private sector
(Multinational
Corporations)

Claro
20,8%

Antel
46,1%

Public company
(monopoly until
2002)

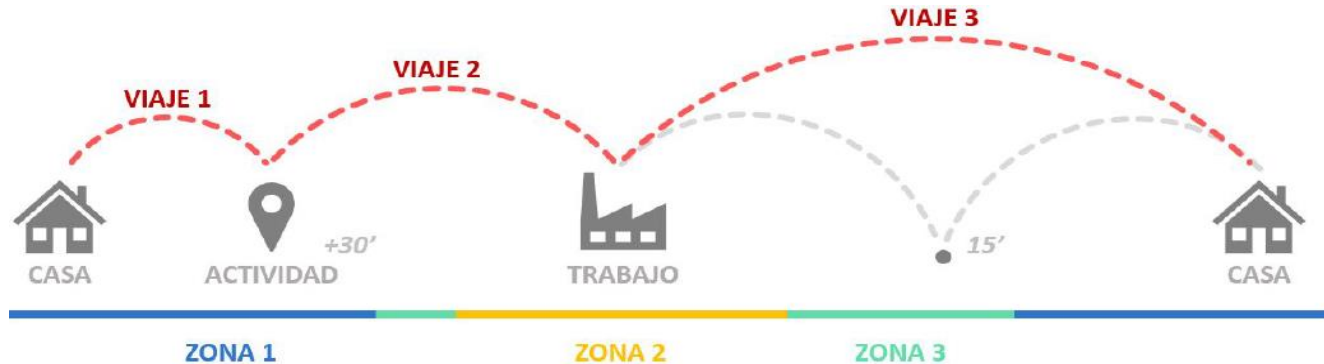# Data obtained by the NSI so far:

- Origin-Destination of Overnight-Activity Matrix (source: ANTEL)

- Information could not yet be obtained from Telefonica-Movistar and Claro.

  Overnight-Activity Matrix per day:

Día	Departamento donde pernoctó	Localidad pernocte	Departamento donde realiza la actividad primaria	Localidad actividad primaria	Cantidad celulares
02/12/2020	Artigas	Artigas	Artigas	Cerro San Eugenio	79
03/12/2020	Cerro Largo	Melo	Cerro Largo	Melo	4587
06/12/2020	Montevideo	Manga	Montevideo	Piedras Blancas	254
04/12/2020	Montevideo	Brazo Oriental	Montevideo	Centro	254
02/12/2020	Montevideo	Maroñas	Montevideo	Maroñas	3847

Definitions & methodolgy:

- Overnight stay: when the cell phone stayed for at least 4 hours between 10:00 p.m. and 7:00 a.m. during the night before the reference day.

- Primary activity: when the cell phone was in use for at least 3 hours between 8:00 a.m. and 7:00 p.m. on the reference day.

- Periodicity: reference days: Wednesday and Sunday of each week, monthly delivery.

DATA VISUALIZATIONS

Source: Elaborated by INE from mobile data (simulated)

DATA VISUALIZATIONS

Area of origin or "Overnight" (town or neighborhood aprox.)
(where the mobile phone remained for at least 4 hours between 10:00 p.m. and 7:00 a.m.)

Origen: **Lezica, Melilla (Montevideo)**
Población que pernoctó en el área (promedio diario de celulares):   personas
Población que se mantiene en su área (promedio diario de celulares):   personas (50,16%)
Población que sale de su área (promedio diario de celulares):   **personas (49,84%)**

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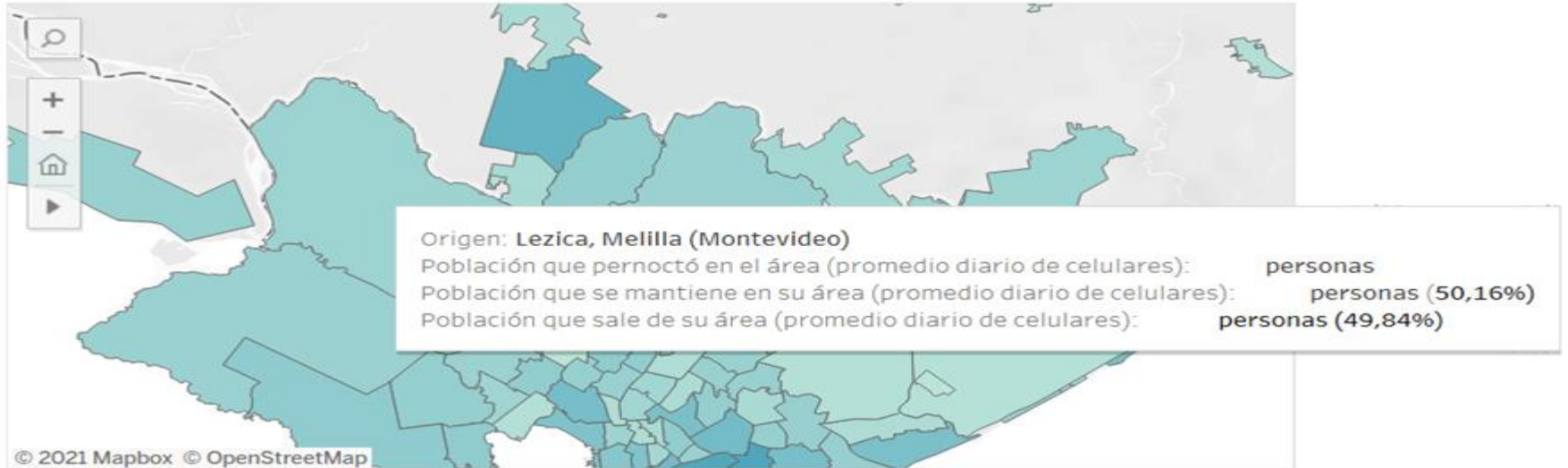
Source: Elaborated by INE from mobile data (simulated)

DATA VISUALIZATIONS

Origin-Destination matrix
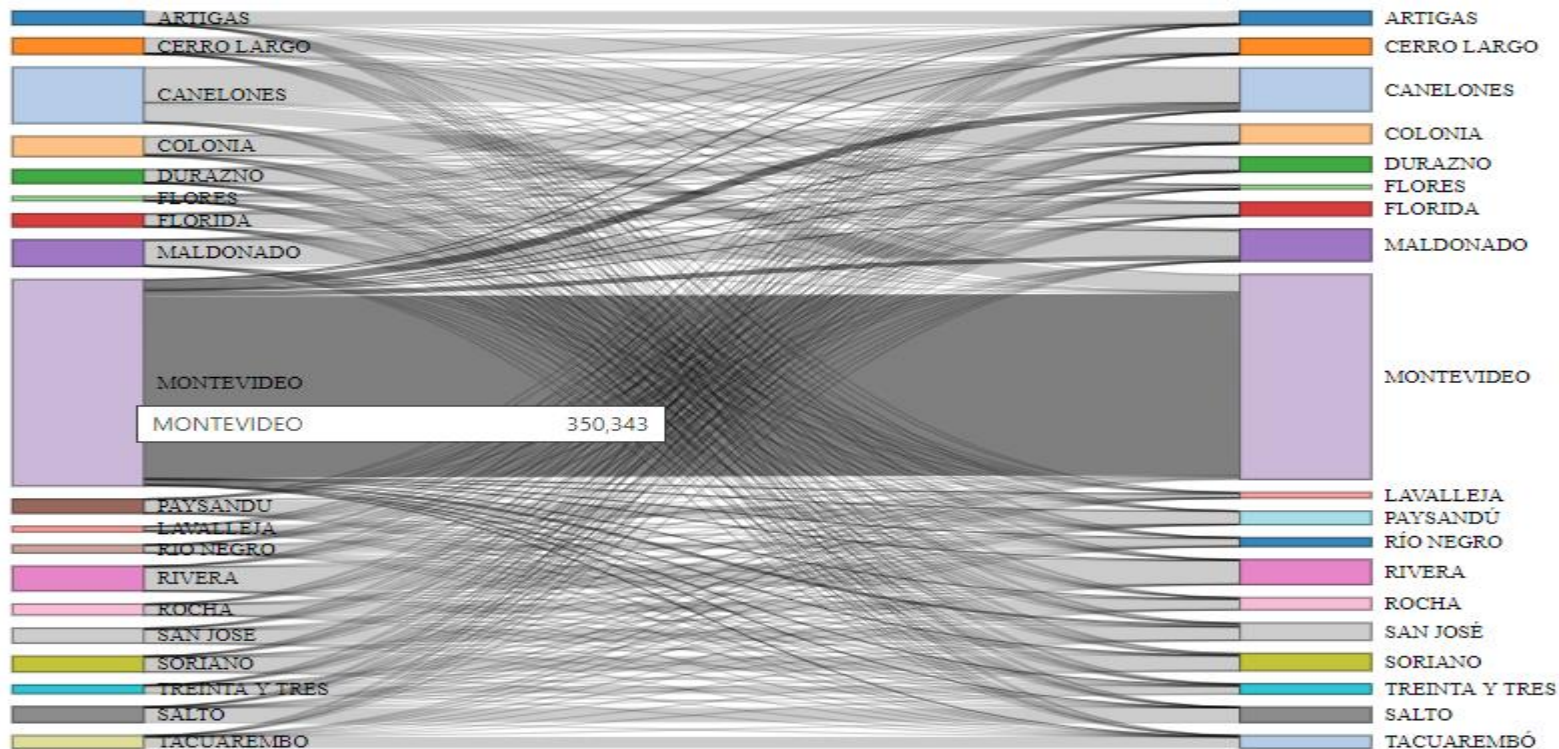
Learned lessons & Challenges:

- **Involve the Telco regulatory authority (URSEC).**
- **How to create incentives for MNOs?**
  - Pay for data (not in our plans for now).
  - Generate market share information with high frequency and timeliness.
  - Integrate information from MNOs with the Continuous Household Survey (ECH).
  - Integrate information from MNOs with business surveys.
  - Generate georeferenced maps / data.
  - Technical assistance for the generation of statistics / data analysis.
  - NSI as the only channel of the government agencies to request information for statistical purposes.

Strategy:

- **To achieve sustainable agreements / partnerships:**
- Take advantage of the particular case of Uruguay: ANTEL is a state-owned company.

  - It facilitated access to data within the framework of the National Statistical System.

  - It made it possible to carry out pilot tests and to define more clearly the information requirements.

- Approach to private MNOs through the Communications Regulatory Authority: URSEC.
- Make data requests for statistical purposes from public institutions through the NSI.

Thank you!!