EUROPEAN CONFERENCE ON QUALITY IN OFFICIAL STATISTICS
2024 ESTORIL - PORTUGAL

Enhancing the Quality of Mobile Network Operator Data - Using Traditional Surveys to Address Biases

Alexander Kowarik, Statistics Austria

Tiziana Tuoto[2], Loredana di Consiglio[2], Gloria Deetjen[3], Maurice Brandt[3], Remy Kamali[4], Kira Gylling[4] , Cristina Faricelli[2], Sara Piombo[2] and Tiziana Pichiorri[2]

[2]ISTAT, [3]Destatis, [4]Statistics Sweden

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Introduction

- Mobile Network Operator (MNO) Data
  - Increasingly popular for producing statistics on individual mobility and position.
  - High frequency and coverage, valuable for policy making and market analysis.
- Challenges with MNO Data
  - Multiple sources of bias compromise data quality and reliability.
  - Need for improved methodologies to address these biases.

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Current Challenges with MNO Data

- Device-User Mismatch
  - Contract holder not always the primary user.
  - Issues with family plans and business contracts.
- Multiple Devices/SIM Cards
  - Duplication in records, skewed usage statistics.
- Different User Behaviours
- Variations due to age, employment status, lifestyle.

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Need for a Dedicated Survey

- Purpose of the Survey
  - Systematically collect data on device usage, user profiles.
  - Identify and correct biases in MNO data.
- Survey Objectives
  - Determine the number of devices/SIM cards per individual.
  - Quantify discrepancies between contract holders and users.
  - Analyse usage patterns across demographics.
  - Collect comprehensive socio-demographic data.

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Survey Design and Implementation

- Questionnaire Design
  - Core module with potential extensions for specific domains.
  - Sections:
    - Device and SIM Card Usage
    - Contractual Relationships
    - User Demographics and Lifestyle
  - Sample Design
    - Target individuals of legal age (e.g., 16+ in Austria).
    - Random sampling, with stratification for representativeness.
    - Oversampling to address response behaviour differences.

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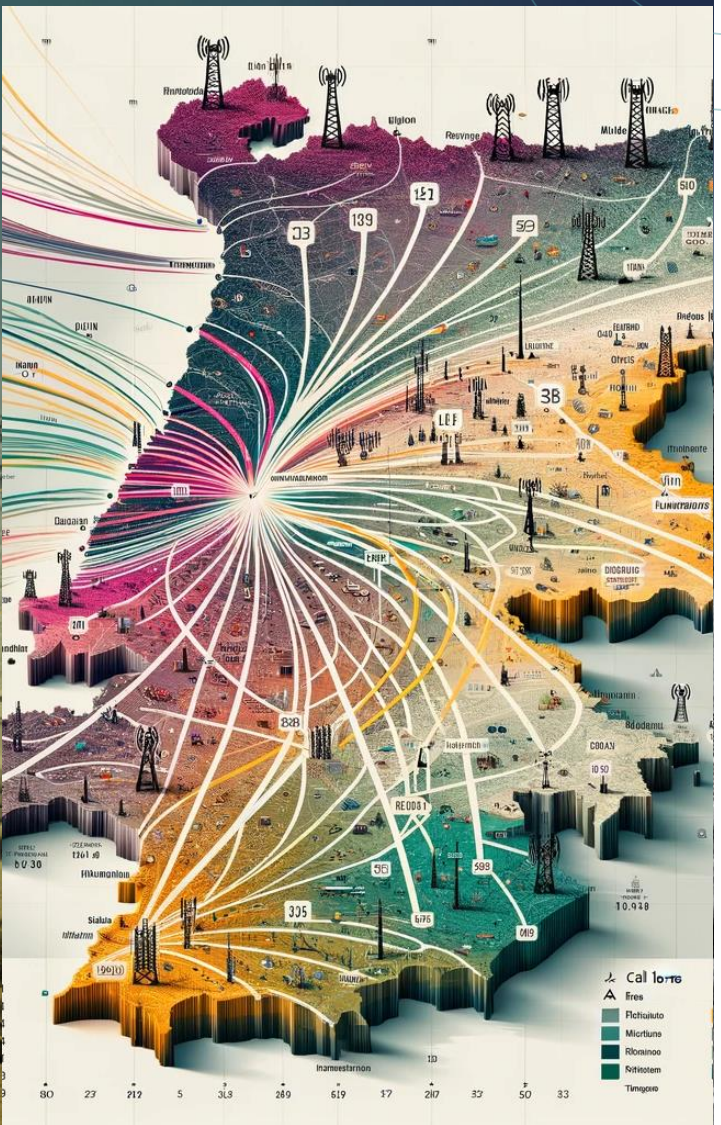

Expected Outcomes and Implications

- Improved Data Quality
  - Enhanced representativity of MNO data.
  - Accurate assessments of user behaviours and demographics.
- Policy and Decision Making
  - Reliable data for informed policy decisions.
  - Benefits for mobile operators and statistical practices.

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Alternative Approaches

- Area Sample Surveys
  - Sampling based on geographical areas (antennae).
  - Consideration of technical and legal challenges.
- Quasi-Randomization
  - General selection model for representativity.
  - Overcomes sample survey limitations (cost, response burden).

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Conclusion

- Survey Necessity
  - Quantifying and reducing biases in MNO data.
  - Aligning user behaviours with statistical models.
- Implementation Across ESS Countries
  - Advocating for widespread adoption.
  - Collaborative effort for improved data quality and reliability.

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Thank you. Just three more things.

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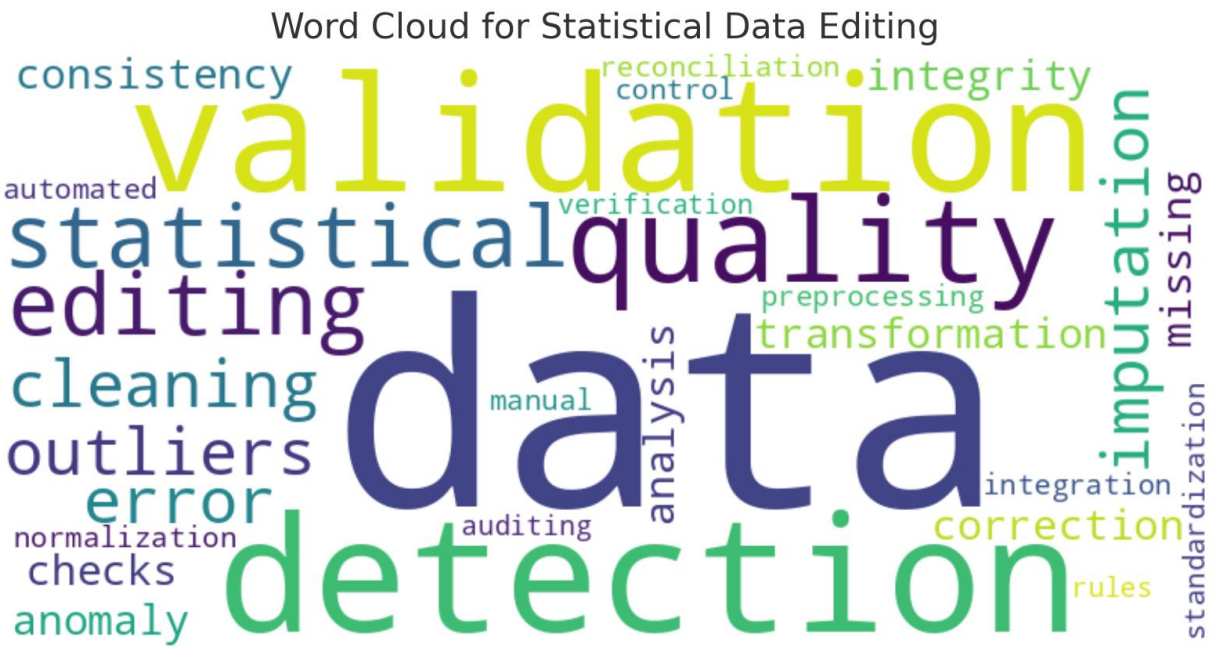
- The 2024 UNECE Expert meeting on Statistical Data Editing will occur in person in Vienna, Austria.
- It will go from

7 to 9 October 2024.



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