StatTalks

Beyond Big Data: Modernizing administrative data for statistical purposes

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30 January 2024
Overview

• Background and brief history of register-based statistics in Norway
• The data eco-system
• Best practices in coordination with data producers
• Data quality
• Examples of use of registers to produce statistics (migration and census)
• Some challenges of the use of registers for statistics
• Improving the use of administrative data for statistics in Africa
• The way forward
1876
Statistics Norway founded as a separate institution

1907
First Statistics Act

1905
Norwegian independence

1964
National ID number, population register and archive statistics established

1989
Second Statistics Act

1995
Enhetsregisteret?

2011
First register based population census

2019
Third Statistics Act

1769
The first population census
Data ecosystem for official statistics and beyond

Data sources and holders

- Administrative data systems
- Other data

Producers

- SSB
- Others

Products

- Official statistics
- Other data and statistics

Users

Data managed by SSB or data for official statistics

Data and other statistics

Statistisk sentralbyrå
Statistics Norway
Best practice in European Statistics

- Peer Review(s): Example of best practice in European Statistics (formal agreement at top level, quality in source, trust and cooperation)
- Based on European framework for administrative data sources
Formal, written agreements

- All follow the same templates for agreement and annexes
- Originally initiated and always signed at top management level
- Define data owner’s obligations and SN’s obligations
- Define players (contact persons) and addresses
- Define points and rules of contact
- Today: Around 30 agreements between SN & governmental data owners
Linking of data on individuals in Statistics Norway

- Crime
- Labour Market
- Education
- Income and Wealth
- National Insurance
- Economic Assistance
- Surveys (SILC/LFS)
- Child Welfare

Same pin code used in all registers

+ many more
Data quality

• Formal, written agreements with data owners – all follow same template.

• Quality reports on regular intervals

• Data deliveries with different frequencies – from daily streaming of transaction data to delivery once a year – from different systems.
Dialog with data owner

• Formalised agreements with data owners since 2012
• Annual high-level meeting with key data owners
• Quarterly/annual quality meetings
• Annual quality reporting to data owners =>
• Joint working groups established as needed
  ◦ Continuous improvements and development of IT-solutions
Annual Quality Report

Feedback on:

- ✔ Technical checks
- ✔ Accuracy
- ✔ Completeness
- ✔ Integrability
- ✔ Time

Registers
Evaluation and revision of quality reports

• About 100 reports linked to agreements with 29 owners of registers
• Dedicated register-group in SSB
• Focus group with internal and external users
• Revised quality report
• Win-win

Quality reports

• Feedback on data transfer
• Feedback on data quality
• Suggestion to improve quality
• Quality indicators (numerical)
Administrative data for production of statistics

- A centralised statistical system. SSB is responsible for 85 percent of official statistics in Norway.

- The Norwegian Statistics Act (2019) gives SSB a clear legal basis for access to administrative data.

- SSB shall, free of charge, get access to and be informed when administrative registers are established, changed or discontinued.
Population Register data sources

- Person
  - Name, relation, marital status, etc.
- Emigration
- Immigration blocked adr. etc
- Nordic registration
- Addresses
- The Norwegian mapping authority
- Marital status, deaths
- Foreign service missions
- Immigration, emigration, citizenship
- Marriage
- Births, deaths
- Population Register
- Religious community
- Directorate of immigration
- Directorate of Public Health
- Police

Source: Norwegian Tax Administration (revised ver.)
(Long term) migrants to Norway. Registration of immigration and emigration

- Nordic migrant
- EU-migrant
- Non-EU migrant
- Immigration Authorities / Directorate of Immigration
- Central Population Register
- Emigrants to Non-Nordic countries
- Nordic reg. system
- Nordic migrant

Diagram: Central Population Register connecting to Nordic migrant, EU-migrant, Non-EU migrant, Immigration Authorities / Directorate of Immigration, Emigrants to Non-Nordic countries, Nordic reg. system.
Migration statistics in Norway

Central Population Register

- Daily transfer of events from the CPR including:
  - Country of Birth
  - Citizenship
  - Date of Arrival/immigration
  - Country of birth of parents
  - (Internal migration)

Statistics Norway

- Data linked between different registers using the 11-digit personal pin code

Immigration Authorities / Directorate of Immigration

- Annual data on detailed reason for migration; labour/family/education/convention refugees, granted asylum, humanitarian grounds

Official population/migration statistics on stocks and flows
Reason for immigration

Immigrants by reason for immigration

1 Nordic citizens are not included in the statistics.

Source: Immigrants by reason for immigration, Statistics Norway
2010-round of censuses. UNECE region

- Traditional census (full field enumeration without using data from registers; includes the rolling census)
- Combined census (data from registers + field data collection)
- Register-based census (data from registers only)
The Nordic approach

• Nordic countries have been working with register-based statistics for almost fifty years

• [Nordic report on best practices published by UNECE in 2007](#)

• Aim: Collect main experiences from Nordic countries in one report

• Target group: Statisticians and decision makers in countries that are developing or planning for register-based statistics
Historical background – population censuses in Norway

• 1769: First (numeric) census
• 1801: First (nominative) census
• 1960: Last traditional census
  ▪ 1964: Central Population Register (CPR) established
    ▪ CPR based on the 1960 census
    ▪ ID number introduced for all residents of Norway
• 1970: Mainly traditional census (enumerators with paper questionnaires).
  ◦ Check and update CPR (ID-number used)
  ◦ Established a statistical register of education
  ◦ Last census with enumerators in the field
Historical background (continued)

• 1980 Census:
  ◦ Questionnaire shortened and sent by mail (no enumerators)
  ◦ Main demographic variables based on CPR

• 1990 Census:
  ◦ Administrative data on demography, education, income and geography
  ◦ Census questions on labour, households, and housing
  ◦ Only a sample enumerated

• 2001 Census
  ◦ All data on persons taken from registers, questionnaires for households and housing
  ◦ Census used to extend Cadastre to comprise dwellings, not only buildings
  ◦ Persons and dwellings linked (almost)

• 2011 Census
  ◦ 100% based on administrative registers
  ◦ (maintained tradition of a census date in November)
Census organization and costs

2001

• Staff: 10-15 permanent and 35-40 for data collection
• Costs (total): 14.6 mill Euro = 3.2 Euro per person

2011:

• Staff: 2-3 persons
• Costs (additional): 1.5 mill Euro = 0.3 Euro per person
Registers/register systems used in 2011 Census

- Population register (B)
  - Place of residence, demography, migration, families, households
- Cadastre, register of addresses, buildings and dwellings (B)
  - Housing, geographical characteristics
- Business register (B)
  - Self-employment, place of work, industry
- Labour market register (S)
  - Current activity status (employment, unemployment), occupation, status in employment
- Register of education (S)
  - Educational attainment, current activity status (students)
- Registers on national insurance (S)
  - Current activity status (pensions)
- Income register (S)
  - Income, current activity status (self-employed, capital income)
- Register of vehicles (S)
  - Private cars in household
Some challenges of population registration in Norway

- Late registration
- No registration
- “Dead souls” among residents (Signs of life method)
- “Administrative” emigration implies that ‘country of next residence’ will be missing
- This problem reduced by the Nordic agreement on population registration since a third of migrations go to other Nordic countries
- Residency requirement
- Students can choose where they want to be registered as living: parental home or place of study
Improving the use of administrative data for statistical purposes in Africa

• Data sources in Africa still remain predominantly from surveys and censuses with very high costs

• Some statistics are currently from administrative sources and there are global, regional and national efforts to increase the use of administrative sources of data

• With the introduction with big data and increasing problems of funding there is the need to speed up these efforts
The way forward

• Continuous dialogue on administrative data sources
• Assessing tools and legal frameworks to access to administrative data improve and improve data sharing
• Guidance on quality assessment of administrative data sources
• Integration of administrative data and surveys where possible
• Capacity building sharing of best practices in the use of administrative data for statistical purposes
Thank you