

Register-Based Censuses in Norway

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Census types

- Traditional census: Data collected by enumerators in the *field*
- Combined census: Data from registers *combined* with data collected in a traditional census or a sample survey
- Register-based census: *All* data collected from registers. No field work

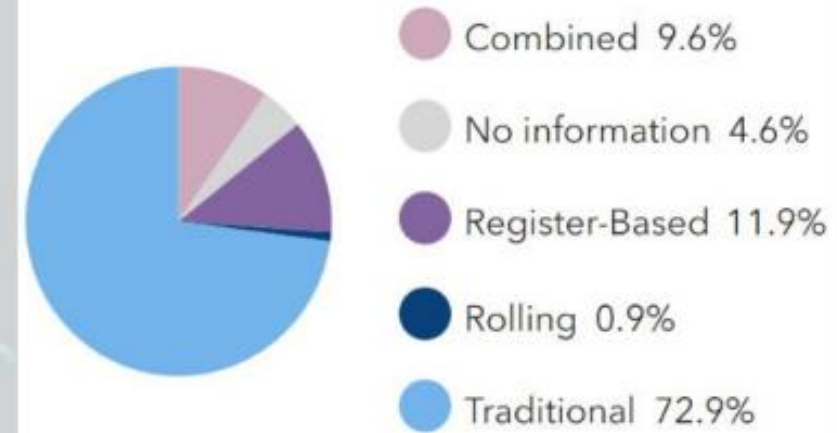
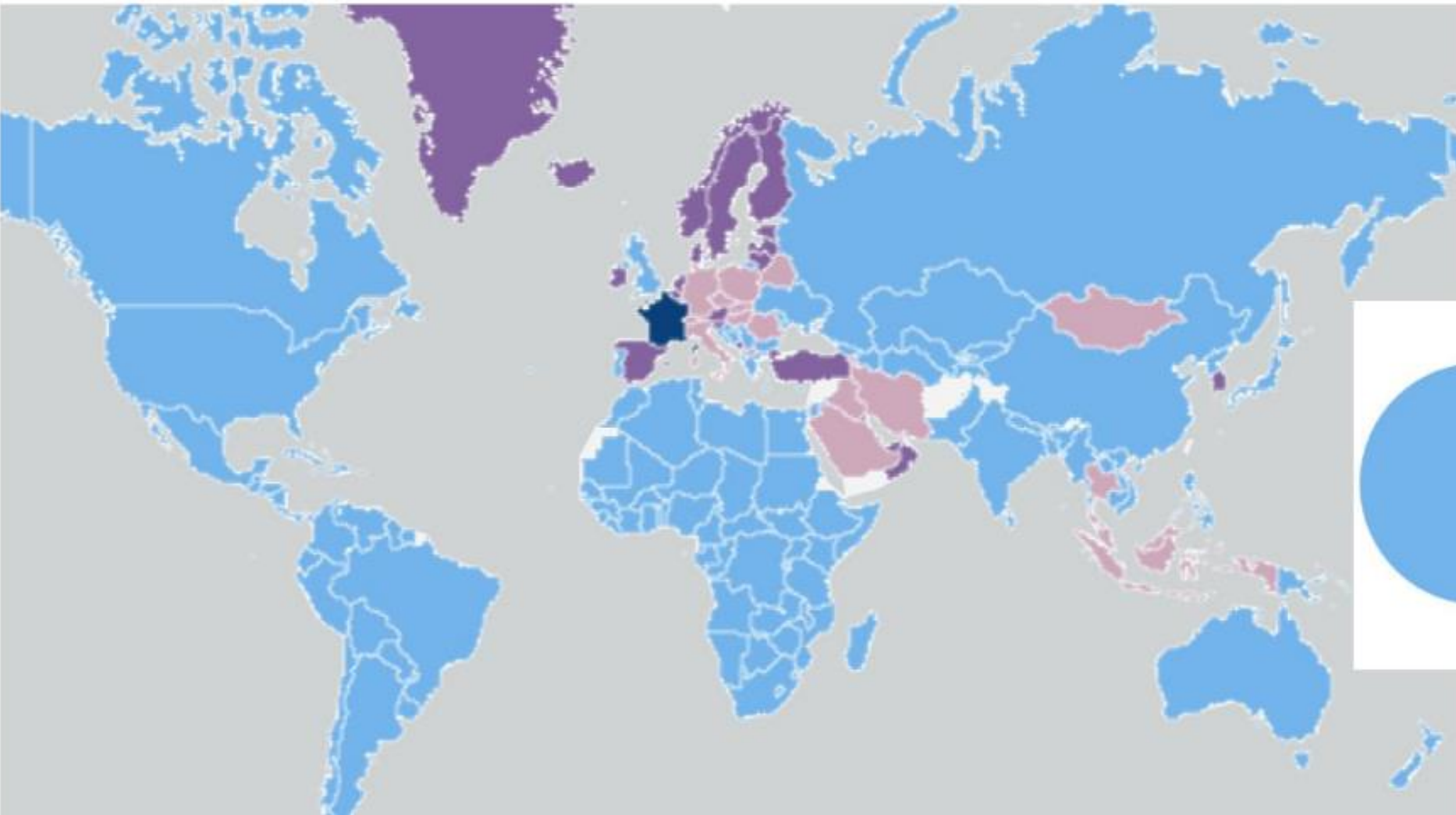


Why register-based census?

- Save costs
- More timely release of census statistics
- Use administrative data already collected
- Resources better spent on improving existing data
- Total population covered - with many variables
- More frequent publication of census statistics
- Reduce response burden
- No sampling errors



Type of census, 2020 round



Nordic report on best practices published by UNECE in 2007:
http://www.unece.org/fileadmin/DAM/stats/publications/Register_based_statistics_in_Nordic_countries.pdf



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Prerequisites for a register-based census

- Existence of
 - Reliable population register
 - Good civil registration system
- Existence of other relevant and reliable registers
- Unified identification system for linking registers and data
- Access to registers for statistical purposes
 - Legally
 - Practical solutions (institutional cooperation, IT, protection of confidentiality ...)



Types of administrative registers

- **Base registers:** Basic information on the stock of the entire set of units that are being counted in the census
 - **Population:** Place of living, demography, migration, families, households
 - **Addresses, buildings and dwellings:** Housing, geographical characteristics (Cadastre)
 - **Businesses:** Self-employment, place of work, industry



Types of administrative registers, continued

- **Supplementary (or subject-matter) registers:**
 - Records for each unit, such as educational attainment, occupation, and income. May not cover the whole population:
- Labour market
 - Current activity (employed, unemployed), occupation, status in employment
- Education
 - Educational attainment, current activity status (students)
- National insurance
 - Current activity status (pensions)
- Income
 - Income, current activity status (self-employed, capital income)



Norwegian Censuses

- 1769 -1960: Traditional censuses
- 1960: Last fully traditional census
- 1964: Central Population Register (CPR) established
 - Based on Census 1960
 - Unique ID numbers introduced (UIN)
- 1970 Census: Mainly traditional. Used to
 - Check and update CPR
 - Establish a statistical register of education
 - Last census with enumerators
- 1980 Census
 - Questionnaires pre-printed with name and date of birth etc and sent by mail
 - Demographic variables collected from 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 on households and housing
 - Census used to establish dwelling register
 - Persons and dwellings linked
- 2011 Census
 - Wholly based on administrative data
- Future Censuses?

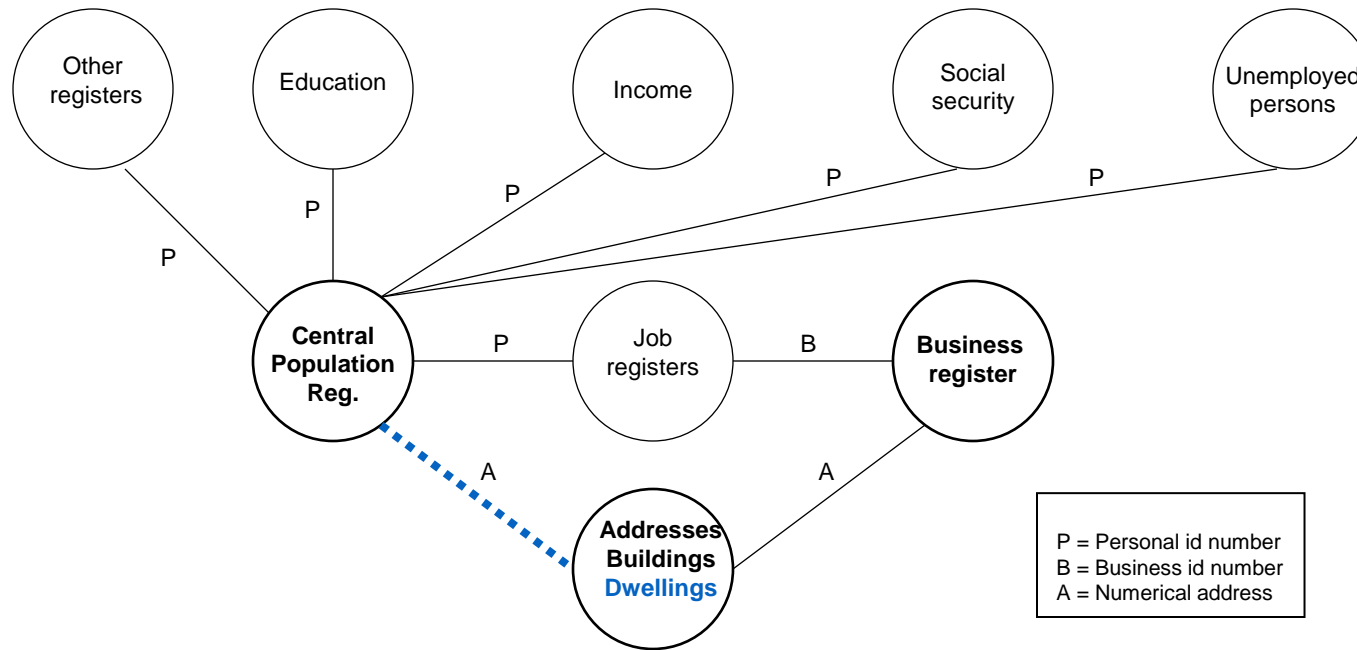


Gradual development of censuses based on administrative data

- Subject matter statistics tested and published annually
- Administrative data introduced in censuses when quality is sufficiently good
- Census an integrated part of a register-based statistical system



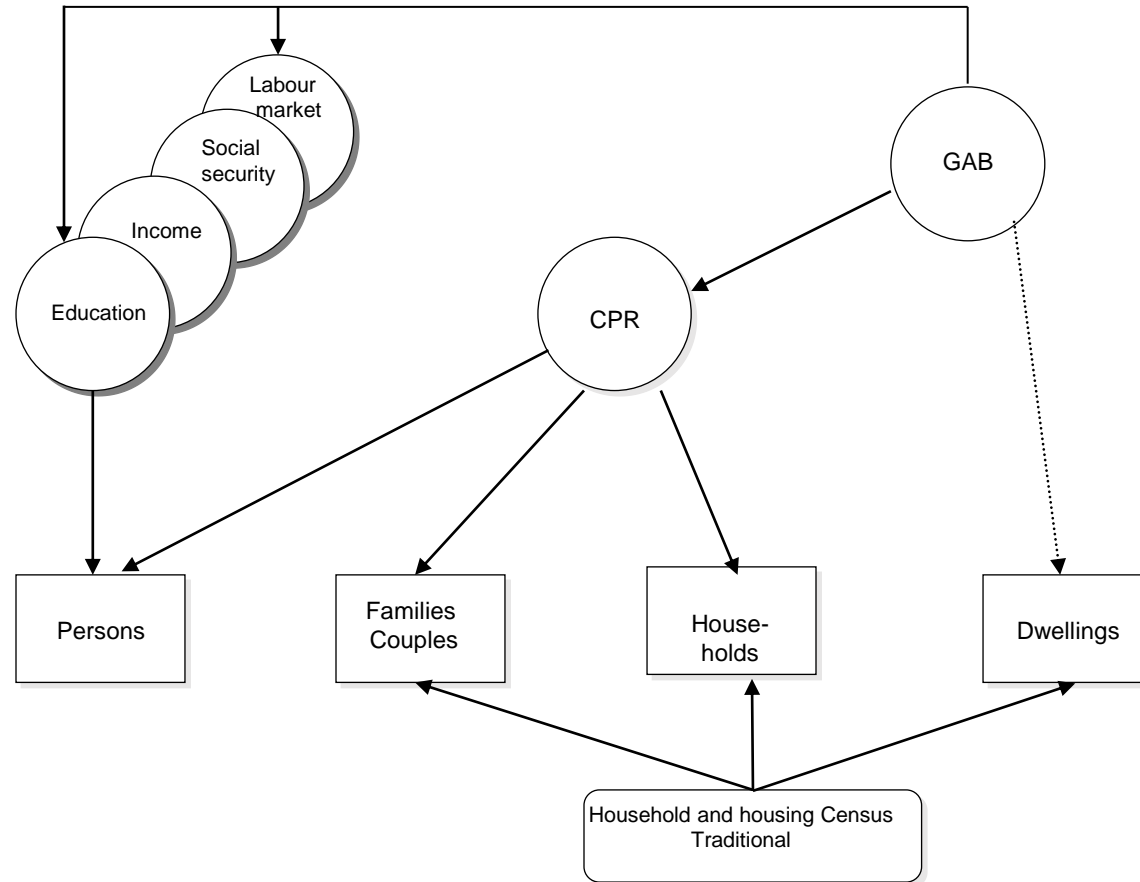
Census data system 2001



Goals for 2001 Census:

- Establish register on dwellings
- Establish link between persons and dwellings to produce household statistics

Census 2001 Data collection



Persons:
Registers

Families and households:
Registers *and* forms

Housing and dwellings:
Census forms

Organization of 2001 Census

- Organized as a separate unit in Statistics Norway
- Total costs 14,6 mill euro
- Staff: 10-15 permanent, 35-40 extra for data collection



Dwelling Address Project

- Problem: Multi-dwelling buildings
- Major goals
 - Extend the Cadastre to comprise dwellings, not only buildings
 - Establish a link between dwellings and resident persons (in CPR)
 - Update dwelling information in Cadastre
- Participants
 - Statistics Norway (Census 2001)
 - Tax authorities (Central Population Register, CPR)
 - Norwegian Mapping Authorities (Cadastre)
 - Municipalities (local authorities)
- Use “census data” for administrative purposes
 - Multiple legal base for Census 2001
 - Statistics Act, CPR, Cadastre



Multi-dwelling buildings after Census 2001

55 % of persons in multi-dwelling houses linked to a unique dwelling address

Following up the Dwelling Address Project

- Improving administrative routines
- Produce quality indicators
 - Per cent residents in multi-dwelling houses with a dwelling number:
 - 2006: 82 per cent
 - 2010: 94 per cent
 - 2011: 95 per cent (goal)
- Statistics Norway was active by
 - Taking initiatives to improve quality
 - Monitoring quality
 - Encourage use of dwelling numbers

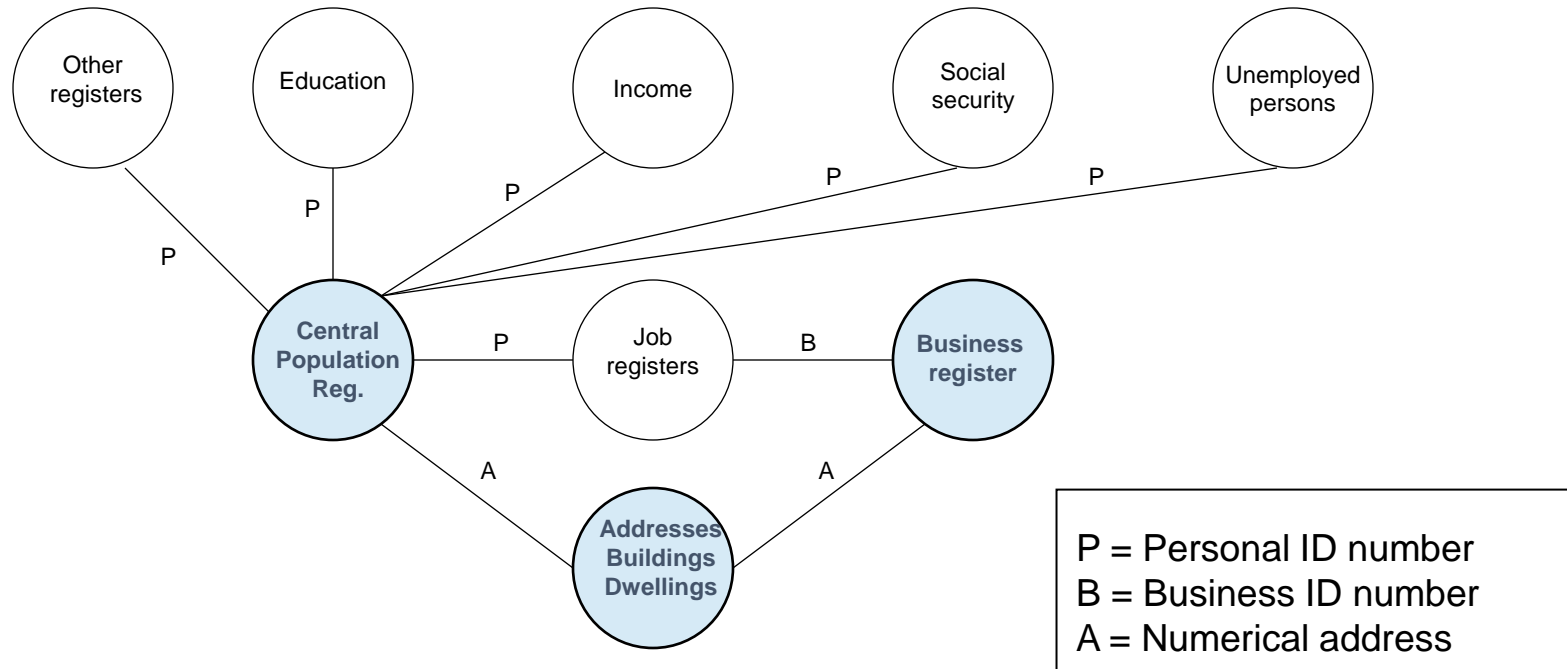


2011 Census

- Totally register-based
- Complies with EU Regulations



Register-based population and housing census system 2011



- Statistical base register
- Statistical specialized register

Registers/register systems used in Census 2011

- Population register (Base)
 - Place of living, demography, migration, families, households
- Cadastre, register of addresses, buildings and dwellings (Base)
 - Housing, geographical characteristics
- Business register (Base)
 - Self-employment, place of work, industry
- Labour market register (Supplementary)
 - 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)



Quality issues

- Input quality – quality of registers
- Output quality – quality of statistics



Quality of registers

Assessments when establishing the register-based census:

- Step by step development in Norway – long period
- Comparison with data from most recent census
- Comparison with data from sample surveys
- Internal consistency

Assessments in annual statistics production

- Task for each statistical register system
- Comparison with sample surveys
- Quality of statistical registers usually better than quality of adm. registers
 - Combining data from several registers



Main challenges in establishing the register-based census

- Data on education
 - SN had to establish a register on education
 - Problem: Education taken abroad - separate surveys
- Labour market data
 - Combining data from several registers
 - Took a long time to create a complete system
- Data on households and housing
 - Establish a dwelling register
 - Establish link between persons and dwellings



Population Registers in Statistics Norway

1. A **copy of the *administrative* population register**. This was established as a *copy* of the administrative CPR in 1999 and has later been updated. Current differences very small.
2. A separate ***statistical* population register** in the form of a *collection of data files and programmes*, in which internal adjustments and amendments are made and saved. Used to produce statistics.

Statistics Norway receives information about changes (transactions) from the CPR every day. These notifications are used to maintain the two versions of the population register.



Census organization and costs in Norway

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



Census data difficult to obtain from registers

- Recently established registers
 - Takes time to establish good data quality
- Variables of minor importance for administrative purposes
 - Example: Duration of employment
- Situation before the register was established
 - Example: Immigration before 1964
- Events abroad
 - Example: Foreign education
- Topics not relevant for administrative registration
 - Emotional relationships such as cohabitation
 - Behaviour and attitudes:
 - Housekeeping household units
 - Mode of transportation to work



Future censuses in Norway

Nationally

- Combine micro data from subject matter statistics
- Census fully integrated with annual statistics
- No specific census statistics published

Internationally

- Participate in census preparations
- Produce census statistics according to international recommendations
- Census statistics to be published



Summary

- Statistics Norway has a long history of using administrative data in statistics
- A Central Population Register and a unique PIN were introduced in 1964 based on the 1960 census
- Since 1970 the censuses have gradually used more administrative data
- Since 2011 the censuses are *wholly* based on register data
- We now have a statistical system based on administrative data and the census has lost its importance
- We receive many requests from organizations and countries to share our experiences, including Iran, Viet Nam and Uruguay and Chile



Oslo



Conclusions

- Register-based censuses require good registers that can be linked
- Developing a register-based *statistical system* is more important than conducting a register-based census
- Statistical use may improve the quality of administrative registers

