General information

- **EU [Regulation 763/2008](#)**
- **Mandatory census characteristics collected in all EU member states**
- **Self-reported data collected for domestic needs regulated by the Official Statistics Act**
- **Census moment 31.12.2021**

Set of databases/registries used for census 2021

- RR – Population Register;
- EHR – National Register of Buildings
- RAKS – Register of Granting International Protection
- RETS – Estonian Medical Prescription Centre
- SAP – State Personnel and Payroll Database
- SKAIS – Social Security Information System
- SPR – Causes of Death Register
- STAR – Social Services and Benefits Registry
- TETRIS – Database of Work Ability Assessment and Work Ability Allowance
- Traffic Register
- TÖR – Employment Register
- Data warehouse of Elering
- KVKR – National Defence Obligation Register

- ADS – address data system of the Land Board
- ARIREG – Commercial Register
- EHIS – Estonian Education Information System
- EMPIS – Estonian Unemployment Information System
- EMSR – Estonian Medical Birth Register
- e-toimik – e-File system
- ETR – Register of Residence and Work Permits
- KIR – Prisoners' Register
- KIRST – Health Insurance Information System
- KMAIS – Identity Documents Database
- KOPIS – Mandatory Funded Pension Register
- KR – Land Register
- MKR – Register of Taxable Persons

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Census characteristics

- Usual place of residence
- Sex and Age
- Legal marital status
- Country/place of birth
- Country of citizenship
- Educational attainment
- Locality

- Place of usual residence one year prior to the census
- Ever resided abroad and year of arrival in the country (from 1980)
- Location of place of work
- Current activity status
- Occupation
- Branch of economic activity
- Status in employment

- Household status
- Family status
- Type of family nucleus
- Size of family nucleus
- Type of private households
- Size of private households

- Housing arrangements
- Type of living quarters
- Occupancy status of conventional dwellings
- Useful floor space and/or number of rooms of housing units
- Type of ownership
- Tenure status of households
- Dwellings by type of building
- Number of occupants
- Water supply system
- Toilet facilities
- Bathing facilities
- Type of heating
- Dwellings by type of building
- Dwellings by periood of construction
- Area of dwelling per inhabitant
- Number of rooms per inhabitant

For domestic need:
- Religious affiliation
- Knowledge of foreign language
- Knowledge of estonian dialects
- Assessment of Health condition
- Presence of limitations due health

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Road to census 2021

- **Clear plan**
- **Cooperation**
- **Action**

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Methodology project, introduction

- Statistics Estonia partnered with the Estonian Institute for Population Studies of Tallinn University and the consulting firm Ernst&Young Baltic AS

- The project covered the obligatory topics presented in the Regulation No 763/2008 of the European Parliament and of the Council and in the Commission Regulation No 1201/2009

- A total of 20 databases and the data collected in them were analysed
  - meta-analysis for each census characteristic
    - definitions and availability
  - detailed analysis
    - construction of census variables (if feasible)
    - data quality assessment (record-linkage to various statistical surveys and 2011 census)

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Roadmap to a register-based census (1)

- Changes in mentality
- Adding missing characteristics to the registers
- Improving the accuracy of data on permanent residence
- Entering archival data into registers
- Recording relationships between household members in the Population Register
- Improvements in recording data on persons arriving from abroad
- Refining register data on earlier arrivals in the country

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Roadmap to a register-based census (2)

- Improvements related to data on dwellings

- Improving the compatibility of registers, more systematic data quality checks, refining classifications and better documentation of register data

- Comparison of register-based characteristics with the respective characteristics of the 2011 census

- Switching from census to register-based statistics: corresponding development works in Statistics Estonia

- Statistics Estonia co-operating with registers, research institutions and experts

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Main actions during recent years

- For register-based census
  - Two pilot censuses (in 2016 and 2019) were carried out. Both pilot censuses confirmed that all the characteristics formed on the basis of registers comply with international quality requirements.

  - Development of a index methodology for correcting inaccuracies in registers (main focus on correcting the place of residence)

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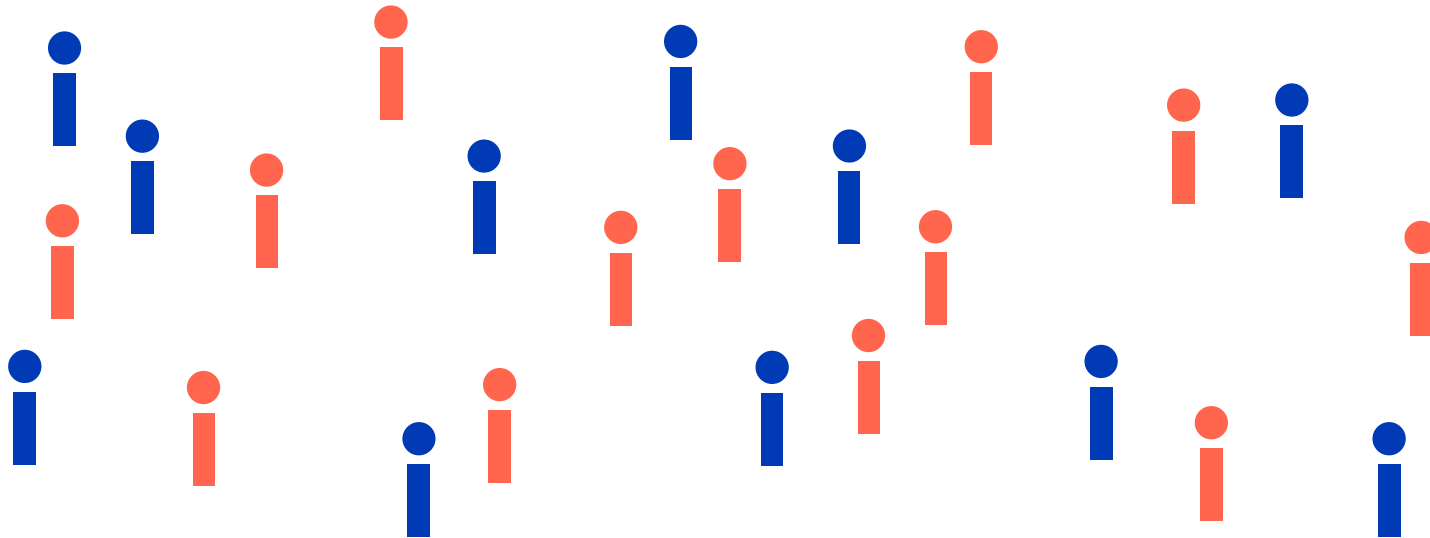
Premises of usage administrative data-sets in census

Before the decision has been made to use administrative data-sets in census, a thorough revision of all useable data-sets should be done, checking the following points:

1. Which census variables are theoretically available from existing data-sets?

2. Are the records in data-sets correctly and uniquely identified?

3. Does the data-set cover the whole population?

4. Which is the frequency of updating of data in data-set?

5. Are the definitions of variables used in data-sets the same as in census?

6. The correctness of data-sets must be assessed to check the existence of random and systematic errors.

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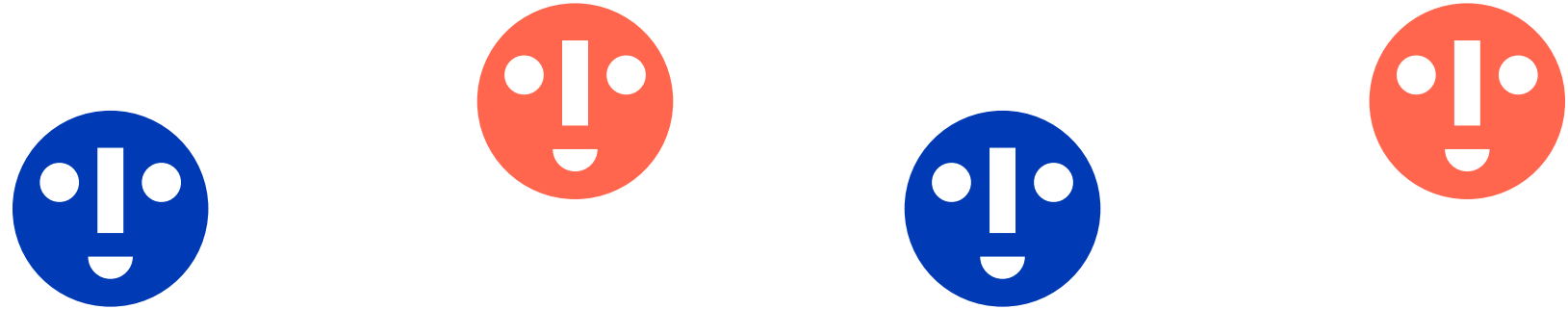# Quality indicators (grades) of census variables

For comparisons the following data were used:

- Earlier census data (from 2011);

- Estonian Labor Force Survey;

- Estonia Social Survey;

- Data of the 1st Census Pilot (2016)

Lessons learned

- Need to determine obstacles and set a step-by-step plan

- Commitment to the aim

- Continuing assessment of quality

- Financial resources

- Cooperation

- Focus on solutions not obstacles

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Estonian Population and Housing Census 2021

Activities for register-based census

- Data from registers and databases is collected with almost 200 different datasets according to agreed structures, channel and deadlines.

- Data was collected between January and mid-August 2022.

- Transmission of larger and most important data sets take place via a secure channel (x-road)

- Due to the security of personal data, data is pseudonymized upon receipt, and analysts use pseudonymized non-personalized data

- Despite the long preparation period, there are still problems in data transfers that need to be solved every day to provide analysts with correct register data and enable timely data analysis

- Based on the register data, 46 international indicators and 7 domestic indicators are calculated

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Cooperation with registries

Continous cooperation before and during the census

- reminder to not make any changes in registers during the collection time;
- to notify us immediately/timely if they plan any changes;
- request to maintain the dataset they sent to us in order to identify any mistakes quickly

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Index methodology

Problem: all data in the registers do not correspond to reality.

Solution: based on data from other registers, it is possible to correct inconsistencies in register data.

3 indices are used:

- Residency index – indicates the probability of a person being a resident of Estonia. Residency is calculated on 33 signs of life in 17 registers. Residency index has been used in population statistics since 2016;

- Placement index – answers to a question where does a person live;

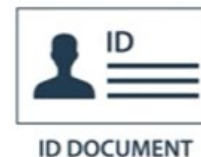- Partnership index – answers to a question with whom does a person live.

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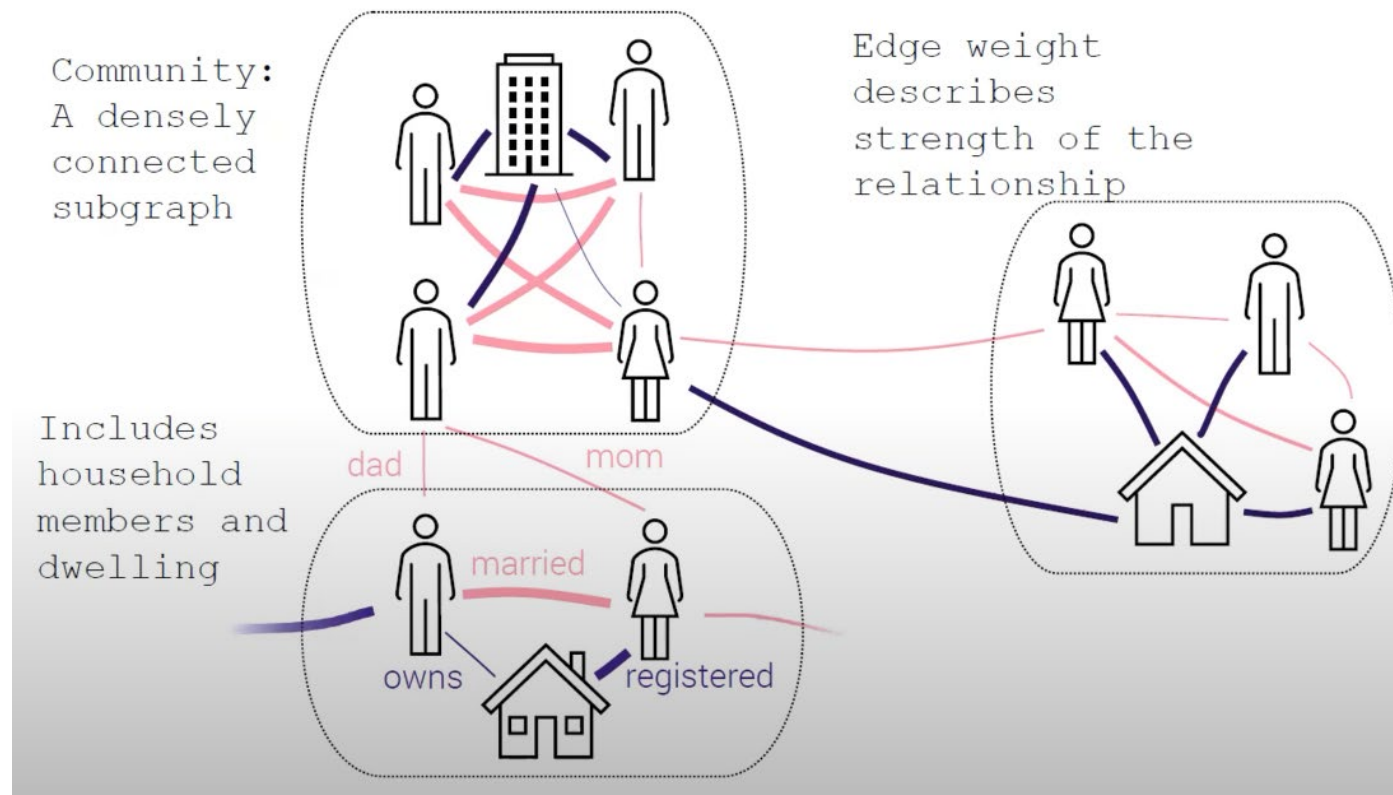Population and Housing E-census 2021

Residency index

General idea: It can be assumed that the people who actually live in Estonia are represented in other administrative registers because they are using services and receive payments

https://www.youtube.com/watch?v=oBdyq7-XKUs

Place of usual residence

Community:
A densely
connected
subgraph

Edge weight
describes
strength of the
relationship

Includes
household
members and
dwelling

dad   mom

married

owns   registered

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Methodology

https://www.stat.ee/en/find-statistics/methodology-and-quality

Methodology documents:

- Implementation of the residency index in demographic statistics

- Households and residences in registers. Methodology

- Description of the 2021 register-based Census methodology

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Financial resources

- The preparatory work for the 2021 census has been carried out at Statistics Estonia over a decade (2010–2019).
- The total cost is almost 16 million euros, half of which has been used in ministries to develop registers and improve data quality.
- The census work will continue in 2020–2023 and will end in 2024 when all census results have been published.

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Future developments

- Potential in using big data (electricity use to check if a dwelling is inhabited; mobile phone data to analyze mobility)

- Use of new data sources/registers and automatisation of the data transportation (x-road)

- Automatization of data transportation and process can lead to opportunities to publish data/results faster.

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References and more information

- Beltadze, D. (2020) Developing methodology for the register-based census in Estonia. Statistical Journal of the IAOS 36(1):159-164

- Population and housing census web-page (available also in English and Russian www.rahvaloendus.ee/

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Publication of the data

Compared to 2011 census, the data is released much earlier (previously within 2 year period)

All data will be published within 7 months from 01 June to 15 December 2022.

Data is published in

- Statistics database
- News (press releases, press conferences)
- Articles
- CensusHub
- Microdata available in a secure workplace
- Grid maps

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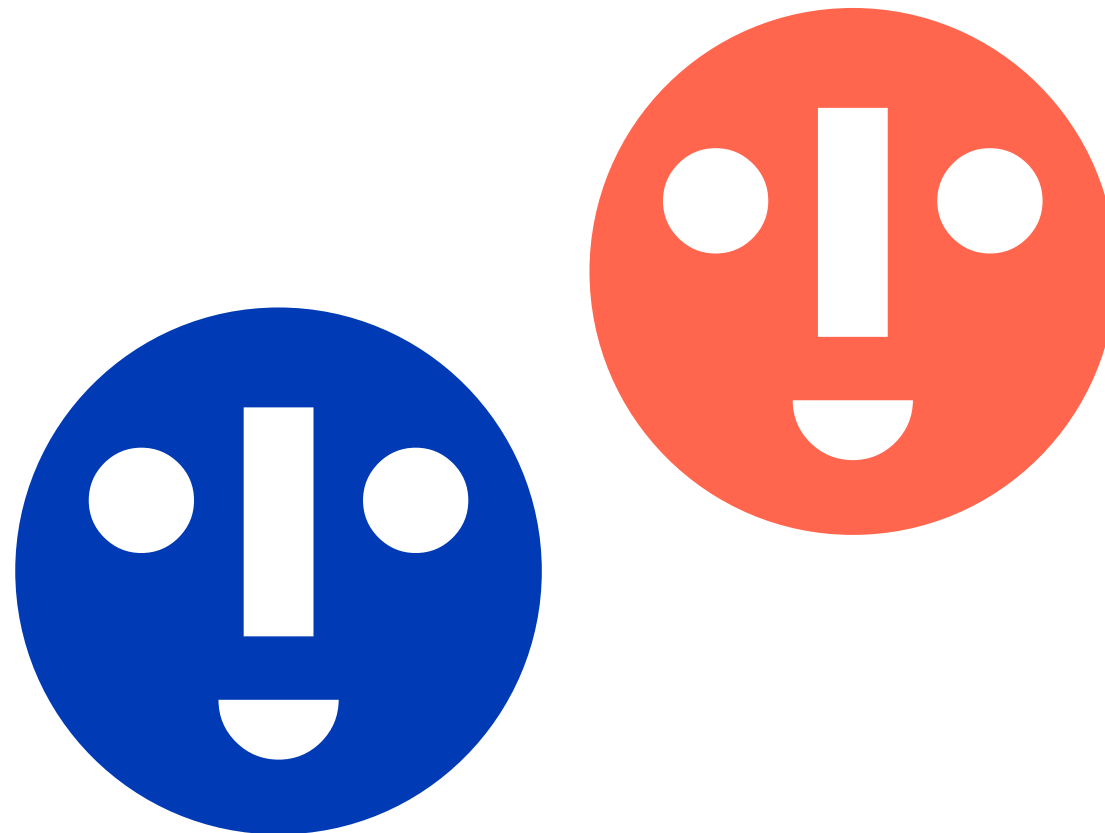# rahvaloendus.ee/en

Thank you!

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