

Data Anonymization for Open Science

useR! 2024

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About Speakers

Jiří Novák

- ▶ Ph.D. in Statistics with topic Simulation of Synthetic Microdata
- ▶ Statistical confidentiality of Czech Census 2021

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Statistical Disclosure Control (SDC) or Statistical Disclosure Limitation (SDL) seeks to protect statistical data in such a way that they can be released without giving away confidential information that can be linked to specific individuals or entities.

- ▶ Legal frameworks regulate what is allowed and what is not allowed with regard to publication of private information.
- ▶ Before sensitive statistical databases can be made available to universities for research, confidentiality must be guaranteed.
- ▶ Users of statistical outputs should be aware of the reasoning and methodology behind statistical disclosure control.

Different outputs require different approaches to SDC and different mixtures of tools.

- ▶ Macrodata (Tabular data)
- ▶ Microdata
- ▶ Dynamic databases
- ▶ Statistical analyses

A disclosure occurs when a person or an organisation recognises or learns something that they did not know already about another person or organisation, via released data.

Types of disclosure risk:

- (1) identity disclosure and
- (2) attribute disclosure.

SDC seeks to optimise the trade-off between the disclosure risk and the utility of the protected released data.

- ▶ Risk: the probability of a disclosure event occurring.
- ▶ Utility: the usefulness of the data for the intended purpose.
- ▶ The goal is to find a balance between risk and utility.

Variables

1. Identifiers
2. Quasi-identifiers or key variables
3. Confidential outcome variables
4. Non-confidential outcome variables