THE GERMAN MICRO-CENSUS-ROUTING PROJECT


Accompanied by: Information und Technik Nordrhein-Westfalen

Helsinki, 18th October 2018
Goal

Integrating geo-referenced information in official statistics allows:

» provision of structural information which do not necessarily have to have a small-area reference.

» generation of additional statistical information by creating "additional survey variables" that can be grossed like "normal survey variables".

» performance of additional analyses without placing additional burden on respondents, or reducing the burden on respondents, because no surveys are required.

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Geo-referencing provides more opportunities than just cartographic representations...

... for analysis and dissemination

- analyses regarding distances / concerns, e.g.
  - flood risk in river regions
  - aircraft noise
- structural aggregate information through data record extension using spatial statistics - also on a sample basis

... for methodology and survey conduct

- sample design
- survey control (e.g. planning the use of interviewers)
- improved quality of results compared with direct interviews

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Approach 1

» geo-coding of microcensus households in Hesse and aggregation to grid cells

» geo-coding of the 1,271 primary school addresses in Hesse

» calculating accessibility areas of primary schools in Hesse (km and minutes)
Approach 2

- linking microcensus data and external special data (accessibility areas) established through the spatial reference using grid cell ID
- grossing of generated variables like survey variables
- result: representative information on larger spatial aggregates

Source: visualisation based on results of the routing service of the Federal Agency for Cartography and Geodesy

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Results

To get to the nearest primary school, families in Hesse with at least one child of compulsory primary school age of 6 to 10 years have to...

» cover a distance of not more than 2 km (90%),
» cover a distance of not more than 5 km (10%),
» travel for not more than 5 minutes (97%).
Results - urban / rural regions

The proportion of families in Hesse with at least one child of compulsory primary school age of 6 to 10 years that have to cover a distance of not more than 2 km to get to the nearest primary school is...

- about 99% in urban municipalities,
- about 55% in rural municipalities.
Conclusions

» extension of existing data sets by variables generated using geospatial information

» reduction of the burden on citizens, businesses, and the budget

» the routing services of the Federal Agency for Cartography and Geodesy is very well suited

» thematically varying spatial information can be combined with each other by grid cell ID
Outlook

» further developing the "OpenRouteService" (routing service)
» assuring the (address) quality
» using data from the same reference year (microcensus, primary school and routing service)
» small-area evaluations: more information on the location of households is needed, e.g. through residents' registers
» settling the legal framework conditions
THANK YOU VERY MUCH!

Kathrin Gebers
+49 (0) 611 / 75 2215; Kathrin.Gebers@destatis.de

Philip Graze
Land Statistical Office of Hesse
+49 (0) 611 / 72802810; Philip.Graze@statistik.Hessen.de