

The Statistical Geoportal of the Czech Statistical Office Has Been Expanded with Interesting (and Not Just) Demographic Data

Since June 2023 the Czech Statistical Office (CZSO) has been offering anyone interested a new way of presenting, visualising, and analysing selected statistical data using its **Statistical Geoportal**¹⁾. The Statistical Geoportal offers several web-based user applications that can be employed to display selected, geographically oriented statistical indicators or topics relating to a specific territory in the form of clear interactive maps. This gives users new information and a more visual, intelligible, and attractive picture of statistical data than what traditional tables or graphs are able to provide. Since it was publicly launched, the Statistical Geoportal has undergone dynamic development in terms of its content and functions. It has won several prestigious awards²⁾ and it has become a highly accessible, easy to understand, and widely used platform for presenting statistical data in a map format.

The most popular application of the Statistical Geoportal in terms of the number of visits is the **Statistical Atlas**, which presents indicators that are available in sufficient spatial detail in the form of cartograms (choropleth maps), cartodiagrams and kilometre grids³⁾. The application offers thematic maps of various administrative and statistical territorial units, ranging from the level of municipalities and the urban districts of statutory cities to 'cohesion regions' (NUTS 2) and senate electoral districts.

The application already contains 1,783 maps for 311 indicators, which is more than three times the number of maps that were available after it first launched. The largest share are thematic maps based on the *2021 Population and Housing Census* that depict a wide range of indicators on the population, houses, dwellings, and now also on households. A total of 157 thematic maps have been prepared for 27 indicators analysing households by type, household size, and the number of dependent children. By early 2025 users of the Statistical Atlas will also be able to find cartograms and cartodiagrams depicting the spatial distribution, intensity, and volume of residents who commute to work and school in reference to various territorial levels based on the recent census.

Over the course of this year, data have been added to the Statistical Atlas and maps have been created from other sectoral statistics. The first source other than census to be presented in the atlas was that of *electoral statistics*, using which a series of maps were successively published on the election of the President of the Republic in 2023, the elections to the European Parliament in 2019 and 2024, and, most recently, the elections to the regional councils in 2020 and 2024 and the elections to the Senate in 2022 and 2024. Next year, maps will be added showing the results of the most recent and the upcoming elections to the Chamber

1) <https://geodata.statistika.cz>

2) In 2023 the Czech Statistical Office won the prestigious IT Project of the Year Award, which is announced each year by the Czech Association of Chief Information Officers (Česká asociace manažerů informačních technologií – CACIO). It was also successful in the *Egovernment The Best 2023*, which is a showcase of the most interesting projects devoted to the digital transformation on public administration, where it finished second place in the central authorities category.

3) These are square cells 1 x 1 km in size, which represent an alternative to the varying sizes and spaces of the administrative units.

of Deputies of the Parliament of the Czech Republic and the results of the elections to the municipal councils.

Positive news for demographers in particular was the publication in May of 62 maps for 14 indicators from *demographic statistics* for 2022. These maps can be used to analyse, for example, territorial differences in life expectancy at birth by sex for the administrative districts of municipalities with extended powers (SO ORPs) or population changes in municipalities and regions of Czechia from the perspective of natural change or migration. There are plans to add by the end of this year maps produced with the latest data for 2023 on almost all indicators already published. Users of the Statistical Atlas will be able to move between different time frames for the presented indicators along a timeline or will be able to play the timeline automatically using a time slider tool, which will allow them to observe the spatial distribution of a given indicator over time.

In October, a set of maps from another statistical source – *the Business Register* – were added to the content of the Statistical Atlas. This provides users with a clear spatial picture of the distribution of registered economic subjects with identified activity, along with a breakdown of active registered businesses by selected legal forms, size categories, or principal economic activity.

A second user application, **Mobility**, has also undergone a significant transformation over the last year in terms of its content and functions. The application was originally called ‘*Commuting*’ and in the form of linear vectors it displayed the directions and intensity of public *commuting both to and from work and school* and the commuting balance between selected administrative and statistical territorial units. In May, however, the application’s data content was enriched with the addition of matrices of *internal migration flows* for the year 2022, providing users with a unique opportunity to easily view on a map where people who had moved into their municipality, district, or region had come from or where their fellow citizens had moved to most in a given year. Users can also ask the app to display the number and share of in-migrants and out-migrants for the total population and according to sex or to three basic age groups (0–14, 15–64, 65+) at territorial levels ranging from

municipalities to regions. In the 2021 Population and Housing Census data on commuting to and from work and school are generally available right down even to basic settlement units (and parts of settlements) and can be broken down into subpopulations according to age, sex, education, commute frequency, main mode of transport, and sector of economic activity. This means that it is possible for municipalities, cities, regions, and other interested parties to analyse, for example, the age and education structure of non-resident and resident commuters or find out where students at the secondary or post-secondary level are commuting to and from most frequently. In addition to commuting to and from work and school and internal migration, the application can also be used to visualise *international commuting for work* from Czechia abroad using data from the 2021 Population and Housing Census. There are five maps that can be selected to display the number and share of people commuting for work from Czechia to selected other countries around the world, from Czech regions to all the countries of Europe, and from districts, SO ORPs, and municipalities to four neighbouring countries. If users select a foreign country on the map instead of a territorial unit in Czechia, they will be presented with a unique picture of which areas of Czechia people commute from most to work in the selected country. There is no map depicting cross-border labour mobility balance, however, as the census does not measure the number of people who commute from abroad to work in Czechia. The Mobility app currently offers users the possibility to generate almost 600 maps with different content. Although the possibilities for further expanding the application’s data content are much more limited than in the case of the Statistical Atlas because the content depends on the specific format of the input data (data matrices of the flows between the source and destination territorial units), the range of topics and maps that users will be able to choose from should continue to grow in the future. Internal migration flows for other calendar years will be added next year, and there are also plans to add attractive maps displaying arrival flows based on tourism statistics.

The third user application is **Statistical Georeports**, which offers experts and the general public the ability

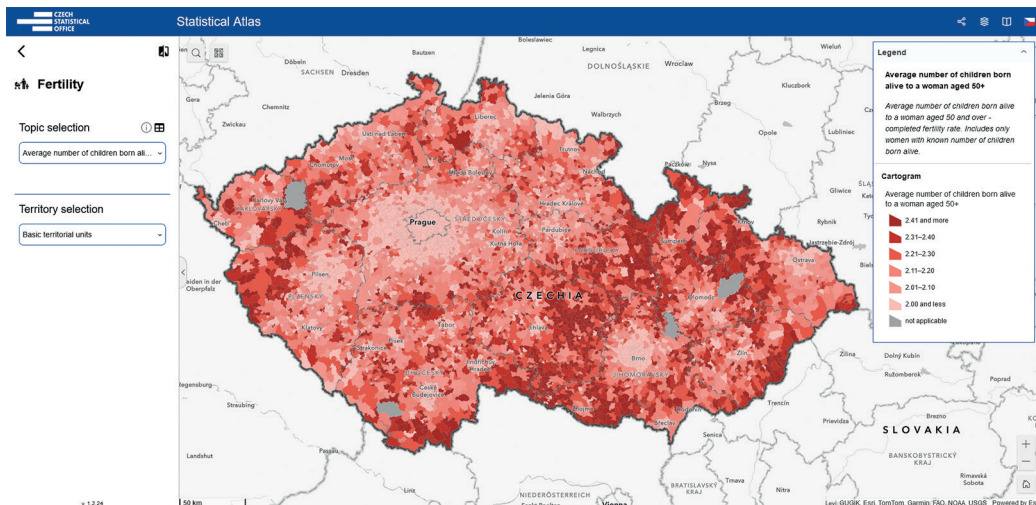
to generate outputs that clearly visualise aggregated statistical data on selected topics for a user-defined area (flooded areas, vehicular traffic accessibility zones, areas serviced by public infrastructure, or areas for potential customer acquisition, etc.). Statistical data are provided in the smallest possible territorial detail – 1 x 1 km cells (grids) – provided that the conditions of statistical confidentiality are fulfilled. The Statistical Georeports application currently offers a wide range of indicators from the 2021 Population and Housing Census. In addition to the indicators on *population* and *housing* originally available from the census, indicators for *households* will be added in the near future as well. Users will thus be able to discover the number and composition of households in the area they are interested in by household type and size, by the number of dependent children in the household, or by housing arrangements. Further gradual enhancements of the application's data content are planned but are largely limited by the need for input data to be available at the level of the kilometre grids or at the level of individual address points. Among official Czech statistics only the population census and some statistical registers (Business Register, Register of Census Districts and Buildings, and Register of Collective Accommodation Establishments) meet this condition. There is a goal to use the 2021 Population and Housing Census to add to the georeports high-demand data in various breakdowns of interest to users on *commuting to work and school*. Discussions are also taking place to expand accessible subjects to include *economic subjects* from the Business Register and *collective accommodation establishments*

from the Register of Collective Accommodation Establishments.

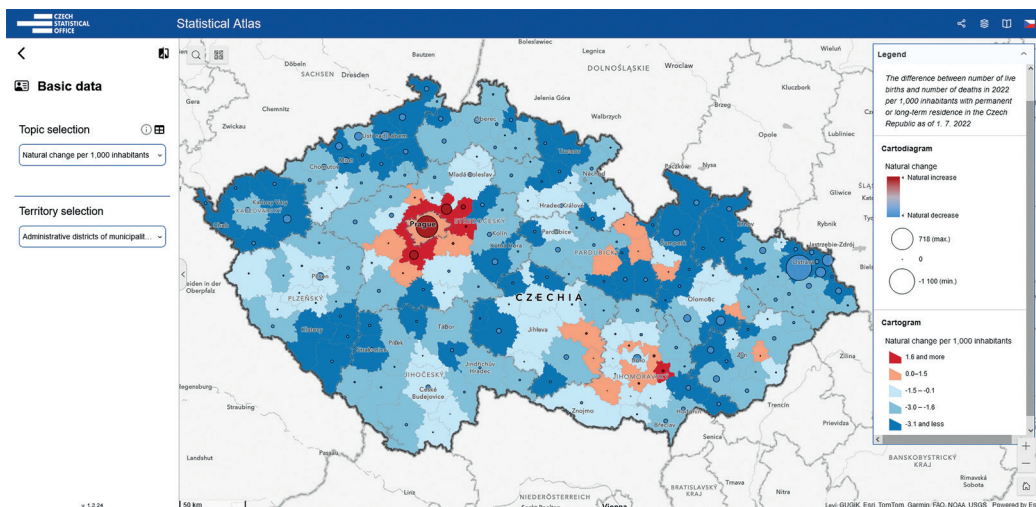
Alongside the many changes in the data content of user applications described above, visitors to the geoportal will also notice several innovations to the applications' user interfaces and functions that have been made in the past year. The most visible and biggest change has been the creation of an English version of the geoportal's content. Since the end of last year, English-speaking visitors to the website have been able to make full use of the Statistical Geoportal and its content is maximally intelligible to them. This past spring, a multilevel selection of sources, data sets, and topics similar to the Statistical Atlas was added to the panel on the left side of the Mobility application's user interface. For users who want to view their particular territorial unit in the Statistical Atlas through the lens of different topics and indicators, the way the application functions has been modified so that the last territorial level selected by the user is automatically displayed even when the selected indicator within a given topic is changed. During the summer, the basic GIS component of the geoportal, *ArcGIS Enterprise*, underwent an almost imperceptible upgrade to the latest version and the homepages of the geoportal and all user application pages migrated to the new CZSO subdomain *csu.gov.cz*. Over the next year there are plans to enhance the Statistical Geoportal with the addition of interactive thematic *story maps* and attractive *dashboards* combining visualisations of statistical data in interactive maps, graphs, tables, and more.

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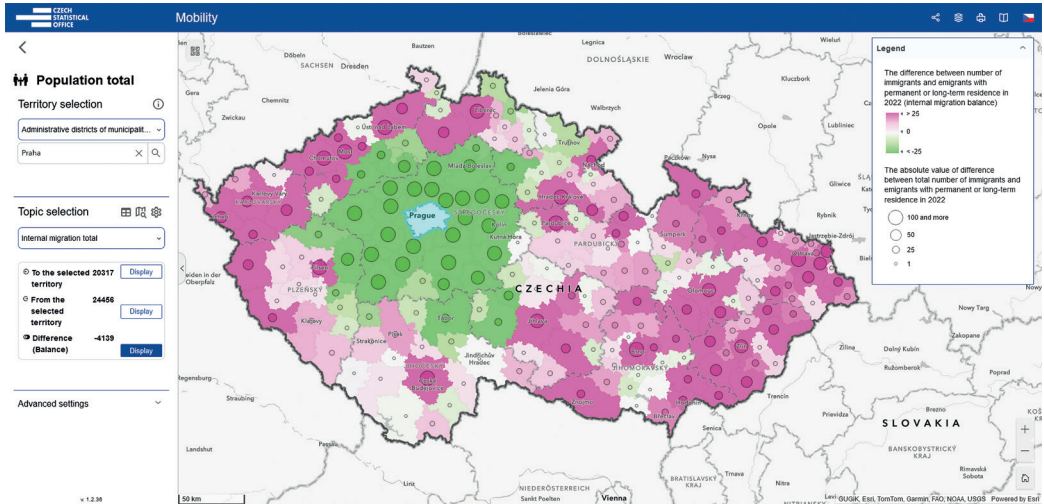
Map 1 Average number of children born alive to a woman aged 50+ for basic territorial units



Map 2 Natural change per 1,000 inhabitants in 2022 for administrative districts of municipalities with extended powers (SO ORP)



Map 3 Internal migration balance in 2022 for Prague at the level of administrative districts of municipalities with extended powers (SO ORP)



Map 4 Number of outgoing commuters to school aged 19 years or over from Prague at the level of administrative districts of municipalities with extended powers (SO ORP)

