Official Statistics and Survey Statistics I

117 Using Big Data in Official Statistics

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Using Big Data for official statistics comes with many challenges. A considerable number of these challenges are of a methodological nature. This presentation will focus on these topics and discusses them with real-world examples. Topics touched upon are: ways to include Big Data in official statistics, working in a data-driven way, the (un)importance of a paradigm shift, the need to deal with new types of data, the role of populations, the importance of quality checks, the need for a continuous critical research attitude, and the link with Data Science. This provides an overview of the current state of the art in the area of Big Data methodology, resulting in a 10-step approach for the production of beta-products based on Big Data. In the presentation a considerable number of Big Data based application are shown. These results were obtained at the Center for Big Data Statistics of Statistics Netherlands and during the ESSnet on Big Data; a European project lead by Statistics Netherlands.

118 Smart Business Cycle Statistics

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Business cycles are important economic phenomena. These cycles have an enormous influence on society's welfare and well-being. Therefor the economic parameters that are responsible for the cycles are of core interest to politicians who need high quality and up-to-date information about the state of the business cycle. Reporting different indicators can help to detect the state of the economic activity. Eurostat and Destatis report these indicators via a dashboard, which contains the business cycle clock. However, the reporting process is complex and introduces a time lag of several weeks to publication. The goal of the project 'Smart Business Cycle Statistics' is to reduce this time lag by deriving indicators from economic activities, which are visible in satellite images. Satellite images are available with a short delay of only a few hours. The processing of the data and the detection of economic activities can also be done comparatively fast and thus allows a publication of economic indicators with a delay of only a few days. The economic activities need to be detectable from space, which means that they have to take place outdoors or leave traces outside, such as containers or ships at harbours. The satellites which are used, need to have a resolution high enough to detect these objects and observe them frequently enough to estimate reliable indicators based on a time series. The freely available Sentinel-2 images have a spatial resolution of 10 m and can be used to detect certain objects. Several suitable commercial satellites exist which can be used to get images with a higher spatial and temporal resolution, but this is very expensive at the moment. However, this field is developing fast and it can be expected that inexpensive data with the required spatial and temporal resolution will be available in the future and therefore, the smart business cycle statistics should become more accurate, affordable and reliable in the near future.