

IDENTIFICATION OF SPECIFIC AREAS WITHIN PROVINCIAL CAPITAL CITIES AND THEIR FUNCTIONAL AREAS IN TERMS OF THE DEMOGRAPHIC AND ECONOMIC SITUATION OF THEIR INHABITANTS USING GIS-BASED SPATIAL ANALYSIS

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Abstract

Over the last few years Polish cities have witnessed rapid changes in their demographic structure, particularly as regards aging and suburban migrations. Until now there has been no data on a sufficient level to analyze those process within the city boundaries. Fortunately, the latest census in Poland (2011) has produced detailed information, including geographic coordinates, which can be used to perform more in-depth spatial analysis and to identify specific areas in terms of the demographic and economic situation of the population. We have selected and calculated indicators necessary to analyze socio-economic variation within selected cities. On this basis we have been able to distinguish specific, homogenous areas. This work has been prepared as a part of the project funded from the European Union funds from “Technical Assistance” Operational Programme 2014-2020: “Identification of specific areas within provincial capital cities and their functional areas in terms of the demographic and economic situation of their inhabitants using GIS-based spatial analysis”.

The study was conducted based on administrative data collected during census from 2011, which characterize the population’s socio-economic structure. The geographical scope of the study was limited to provincial capitals. All of the indicators were aggregated to a grid of 500m x 500m squares. One advantage of the grid approach over administrative boundaries is its stability over time, making it possible to monitor changes and analyze their dynamics.

The target indicators include 12 demographic and 7 economic indices. In addition, Local Indicators of Spatial Association were computed for five demographic indexes to determine the presence of elderly people and identify specific areas of advanced age.

The outcome of the study is a grid of squares in a shapefile format and two datasets in the form of Excel databases and maps. Excel file includes all of the indices and unique identification

numbers, which can be used to perform a spatial join with the grid shapefile. The maps contain 25 cartograms illustrating spatial variation of all the indices for each city.

All the results are now publicly available and can be used for further analysis to enhance decision making processes at different administrative levels. The paper will present the methodology and results within a selected city - Poznań.