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Regional differences in the standard of living in Poland (based on selected indices)

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Abstract

The aim of the research was to analyze selected aspects of the standard of living in 66 geographic sub-regions in Poland. The research in this paper covers six aspects of the standard of living. Important needs include needs associated with individuals' place of residence (housing conditions, environmental issues, etc...), health, education, and cultural interests. Hence, a total of 12 measures (indices) were utilized for all the Polish sub-regions of interest for the period 2002-2008. Values of the six indices of the standard of living in Poland vary spatially. In most cases, however, a clear trend of lower values can be observed in sub-regions surrounding major cities. This is especially true of healthcare and cultural services. The comprehensive index bears this out and points to a lowering in the standard of living in sub-regions surrounding major cities in Poland.

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1. Introduction

The standard of living is a subject of interest in a number of different fields of inquiry: geography, economics, sociology, social policy, and statistics. The issue has been analyzed by geographers across the world since the 1970s. [1]. Polish geographers became interested in the subject in the 1980s. [2, 3, 4, 5, 6]. Polish research into standard of living issues gained momentum in the 1990s and remains a key research field today (in.ex. [7, 8, 9, 10, 11]). One of the key difficulties associated with this type of research is access to primary source data, which would make it possible to analyze the standard of living in more complex terms.

The research literature offers a number of terms that define what it means to satisfy human needs or more broadly the needs of society. These terms include standard of living, quality of life, living conditions, welfare, consumption, and lifestyle [10]. The above terms, especially standard of living and quality of life, are often used interchangeably. This is an error of a technical nature, which makes comparative analysis rather difficult. The aforesaid terms have been defined by A. Zborowski [10, 11]. The interchangeable use of standard of living and quality of life is particularly troubling [12].

In this paper, standard of living is understood to be “the degree to which human needs are met as a result of the consumption of goods and services” [13]. The standard of living is analyzed using objective-type measures such as statistical data. Quality of life, on the other hand, may be understood in two different ways: 1) in a broad sense, 2) in a narrow sense. Quality of life analyzed in a narrow sense is a subjective assessment of the standard of living. In a broad sense, however, it encompasses all living conditions, analyzed using both an objective-type approach and a subjective-type approach [10]. Hence, in both cases, quality of life must be analyzed using a subjective-type approach, which determines what types of sources of data will be utilized.

The aim of the research was to analyze selected aspects of the standard of living in 66 geographic sub-regions in

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Poland. The research literature covers a number of different types of needs that can be analyzed in order to determine the standard of living. The types of needs that have been identified in the literature are normally needs that remain important over time and have been analyzed since the beginning of research in this field, both in Poland [14, 15, 16] and abroad (in. ex. [17, 18, 19, 20, 21, 22, 23, 24]). Important needs include needs associated with individuals' place of residence (housing conditions, environmental issues, etc...), health, education, and cultural interests [12]. Such fundamental measures of the standard of living have been analyzed by Economics Nobel laureate Amartya Kumar Sen in 1998 based on research data provided by A.C. Pigou [25]. The research in this paper covers six aspects of the standard of living, with each aspect being described by two different partial measures (indices). Hence, a total of 12 measures (indices) were utilized for all the Polish sub-regions of interest for the period 2002-2008. The measures used in the research are shown in Table 1. Each measure was selected based on its potential research value as well as its degree of correlation with other potential measures. Measures that were excessively correlated to other measures were eliminated in order to avoid collinearity. Availability of data was another limiting factor. Large groups of data were selected in order to show the longest possible timeline.

Table. 1 Indices (group and partial) used in the research.

Environmental protection	the percentage of inhabitants served by wastewater treatment plants the amount of parkland and other green community spaces (m ² per inhabitant)
Living conditions	number of finished apartments per 10,000 inhabitants average number of square meters of living space per inhabitant
Technological infrastructure	the percentage of inhabitants with access to running water the percentage of inhabitants with access to sewage systems
Healthcare	number of inhabitants per non-hospital pharmacy number of physicians per 10,000 inhabitants number of children 3-6 years old per preschool desk
Education	number of elementary school students per classroom
Cultural services	the number of library books per 1,000 inhabitants the number of inhabitants per movie house seat

Source: compiled by the author.

The partial indices used for different sub-regions were standardized in order to produce a comprehensive index. In some cases, the inverse of an index had to be calculated, which allowed for the generation of a group of homogeneous characteristics. The six groups of indices used in the research were: 1) environmental protection, 2) living conditions (housing), 3) community infrastructure, 4) healthcare, 5) education, and 6) culture. An average was calculated for each group, which allowed for the generation of a comprehensive index. Figures 1 and 2 show the spatial distribution of group index values in 2008.

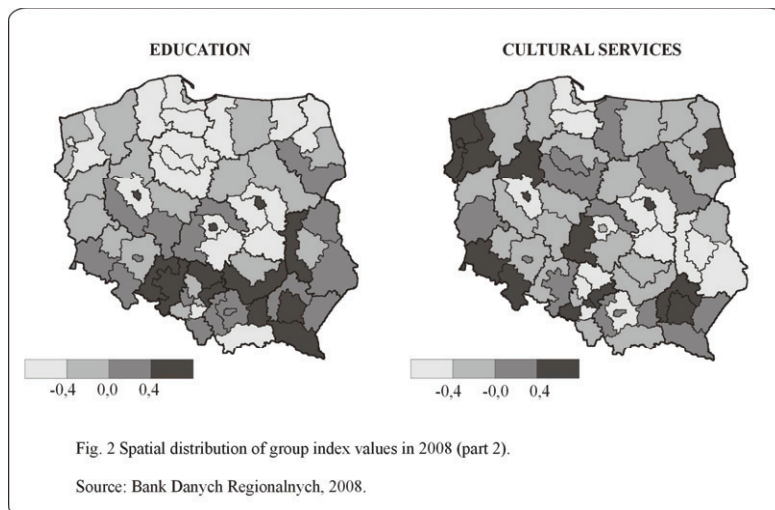
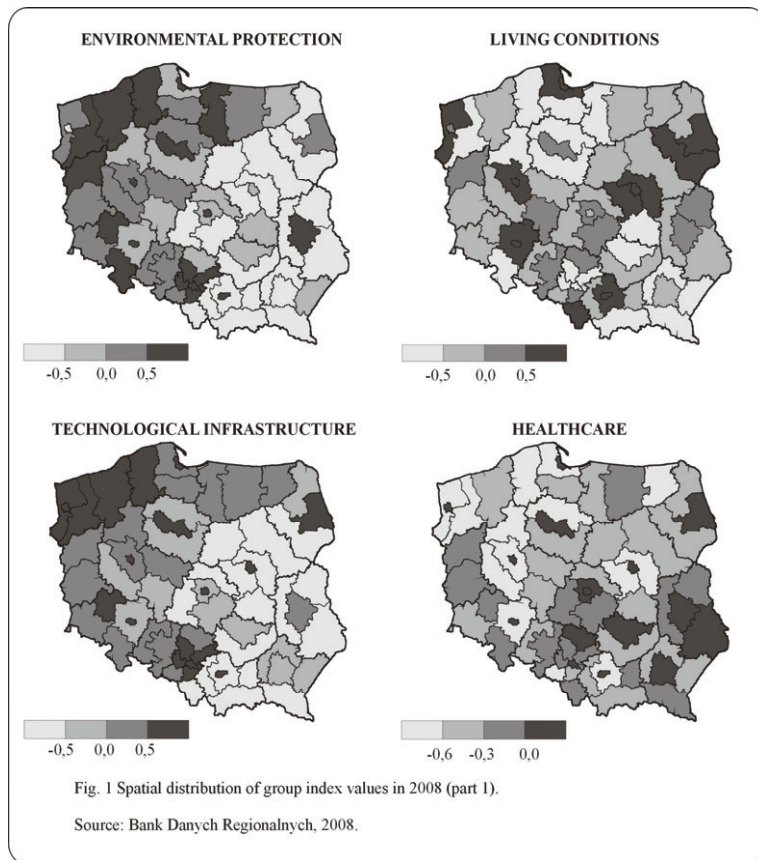
In the area of environmental protection, the percentage of inhabitants served by wastewater treatment plants was analyzed as was the amount of parkland and other green community spaces (m² per inhabitant). The lowest comprehensive index was calculated for the Szczecin sub-region, while the highest was calculated for the Elbląg sub-region. The lowest index values can be found in southeastern Poland, while high index values tend to be concentrated in Śląskie Province (Fig. 1).

Living conditions can be described using a variety of indices. Two indices were selected: 1) number of finished apartments per 10,000 inhabitants, 2) average number of square meters of living space per inhabitant. Maximum values of the living conditions index were calculated for Warsaw and its immediate vicinity (Warsaw-West and Warsaw-East sub-regions). The index usually reached its highest values in large cities and their metropolitan areas. The only exception was the City of Bielsko. In most cases, the lowest index values were calculated for northern sub-regions such as Stargard, Włocławek, Grudziądz, and Elbląg. The lowest value, however, was calculated for the southern sub-region of Gliwice (Fig. 1).

The standard of living is affected by the amount of living space and the number of rooms as well as by the amount of technology readily available in a given apartment. Today, all apartments are required to possess modern technological infrastructure. This is especially true in cities. The percentage of inhabitants in each sub-region with access to running water and sewage systems was calculated. The infrastructure index was at its lowest in southeastern Poland, especially the sub-regions of Nowy Sącz and Krosno. Very low values were also calculated for the east-central part of Poland – the Warsaw-East sub-region. The highest index values were calculated for large cities and northwestern Poland. The highest index value was calculated for the Tri-City (Gdynia-Sopot-Gdańsk). Other high values were calculated for Kraków and Poznań. In addition to large cities, high infrastructure index values were calculated for the Gliwice sub-region and the Legnica-Głogów sub-region (Fig. 1).

The paper looks at the standard of living also in terms of services. Access to healthcare was considered in terms of two indices: 1) number of physicians per 10,000 inhabitants, 2) number of inhabitants per non-hospital pharmacy. The healthcare index in Poland was the least favorable among all the indices calculated. The lowest values were calculated for the sub-regions of Kraków, Grudziądz, Poznań, Gdańsk, and Warsaw. A well-defined healthcare shadow zone was identified around most major cities. By analogy, the highest healthcare index values were calculated for major cities, with Poznań taking first place. The Łódź sub-region gained the top spot in terms of healthcare among urban sub-regions

and sub-regions featuring large cities (Fig. 1.)



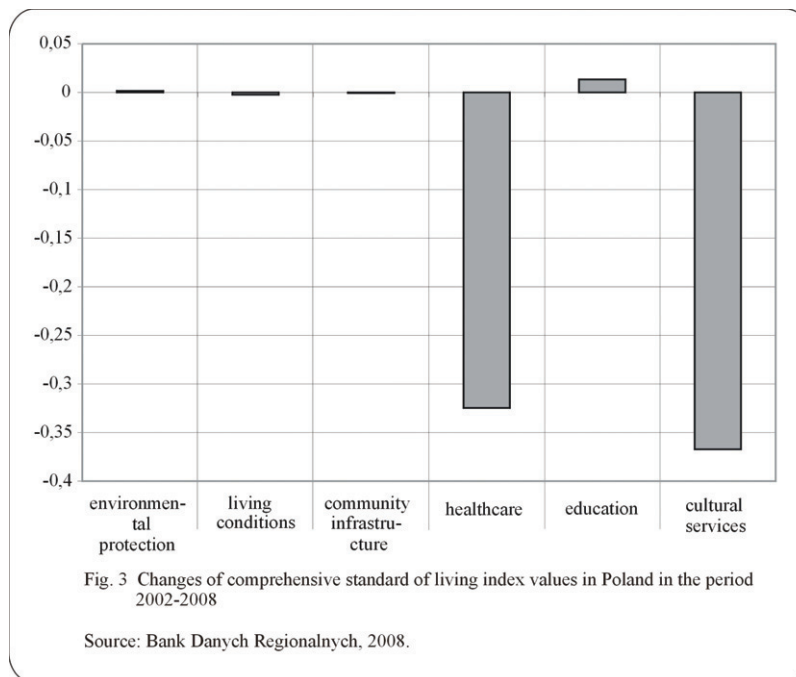
Education is becoming an ever more important factor shaping households' standard of living in Poland. Two indices were used to evaluate access to preschool and elementary education and the functionality of the educational system: 1) number of children 3-6 years old per preschool desk, 2) number of elementary school students per classroom. The highest education index values were calculated for the sub-regions of Opole, Częstochowa, and Nysa in southern Poland, while the lowest values were calculated for the Tri-City area in northern Poland (sub-regions of Gdańsk,

Stargard, and Elbląg; Fig. 2).

The last group of measures analyzed was issues associated with access to cultural services. The number of library books per 1,000 inhabitants was calculated as was the number of inhabitants per movie house seat. The spatial distribution of this group of measures was not uniform. The highest culture index values were calculated for three urban sub-regions: Katowice, Poznań, and Warsaw. Lower values were calculated for other large cities in Poland. In addition to the three aforesaid urban sub-regions, high culture index values were calculated for sub-regions in southern Poland: Sosnowiec, Jelenia Góra, Wałbrzych. The lowest index values were calculated for sub-regions surrounding or close to large cities including the sub-regions of Gdańsk, Warsaw-East, and Kraków (Fig. 2).

The standard of living indices presented herein have also been analyzed in terms of their dynamics. Comprehensive standard of living index values were compared for 2002 and 2008. It has been shown that only in two cases did index averages rise across Poland (Fig. 3). The environmental protection index rose minimally and the education index rose a little more than minimally. The other indices of interest fell during the six-year period of interest. The community infrastructure and living conditions (housing) indices fell minimally, while the healthcare and culture indices fell substantially during the same period of time. Figure 4 and 5 illustrate the aforesaid changes in spatial terms.

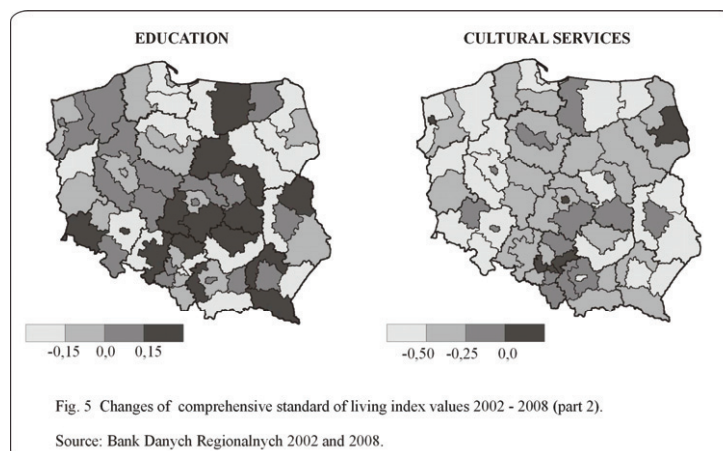
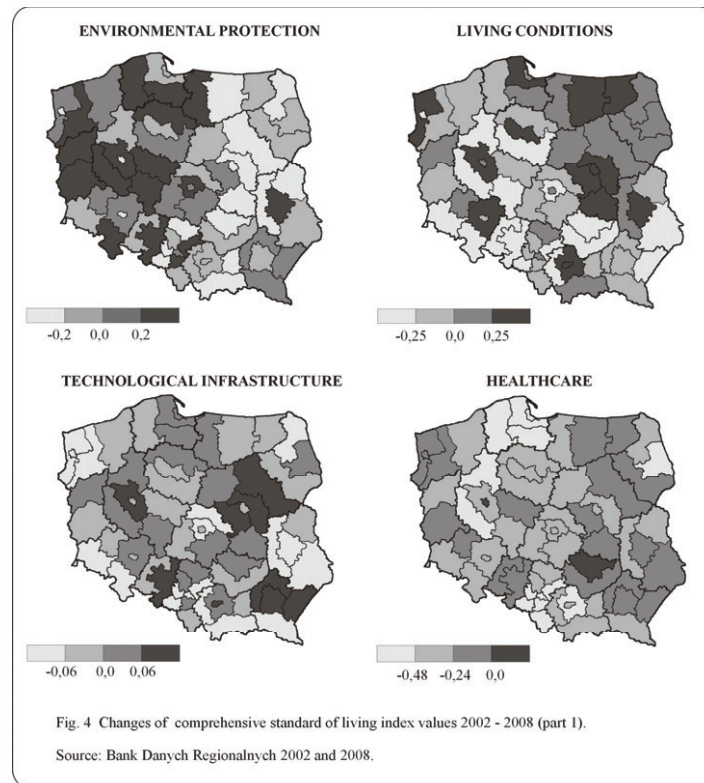
The environmental protection situation has significantly worsened in eastern Poland, although the largest decreases in the environmental protection index have been calculated for the sub-regions of large cities (e.g. Poznań, Szczecin, Warsaw). On the other hand, the index increased the most in the sub-region of Elbląg and in western Poland in general.



The living conditions index shows that many major metropolitan areas in Poland are not well equipped to an increasing number of inhabitants. Large decreases in the comprehensive index were calculated for sub-regions surrounding Łódź and for Śląskie Province. The largest increases in the index were calculated for the Kraków urban sub-region as well as for the sub-regions of Elk, Lublin, and Szczecin. Community infrastructure was also found to be lacking during the time period of interest. In this particular case, relatively large decreases were calculated for areas surrounding large cities such as Łódź, Szczecin, and Katowice (more broadly – Upper Silesia). In terms of healthcare, the shadow zone mentioned earlier deepens around major cities in Poland. This includes Kraków, Katowice, and the Tri-City. In general, the comprehensive index with respect to healthcare rose between 2002 and 2008 only in two sub-regions – the City of Poznań and the City of Kielce. The outlook is more optimistic in terms of education. The largest decreases in the education index were calculated for the northern part of Poland, while the index increased somewhat in central Poland. This was especially true of the sub-regions of Tarnobrzeg, Radom, and Sieradz. The outlook in terms of the culture index does not appear to be favorable. The situation with access to cultural services resembles that of access to healthcare – the comprehensive index decreased almost everywhere in Poland. Only six sub-regions, including Białystok, Sosnowiec, and Katowice, fared better. The largest decrease in the cultural services index was calculated for the Jelenia Góra sub-region.

Values of the six indices of the standard of living in Poland vary spatially. In most cases, however, a clear trend of

lower values can be observed in sub-regions surrounding major cities. This is especially true of healthcare and cultural services. This indicates that suburban areas are not well equipped to handle rising numbers of inhabitants. Constant increases in the population of suburban areas does not translate into a growing service sector. Moreover, not all metropolitan areas are well equipped to handle rising populations in terms of community infrastructure. The comprehensive index bears this out and points to a lowering in the standard of living in sub-regions surrounding major cities in Poland.



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