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Changes in the services of general interest in mountainous areas in Poland over the period 1988–2020: Their types, dynamics and driving forces

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Abstract

Changes in the services of general interest (SGI) of peripheral locations in the depopulating mountainous areas in Poland, in the context of their socio-economic transformation over the period 1988–2020, are discussed in this contribution. A total of 13 SGI of different importance, scope and purpose, both social and economic, were analysed in the study (e.g. basic health centres, libraries, pharmacies, post offices, primary schools). The institutions were categorised according to the target groups of beneficiaries: residents and tourists. The research was mainly based on the analysis of statistical data using basic statistical methods. This research revealed that the SGI has been declining in quantitative terms, particularly in rural areas, and the service facilities have become concentrated mainly in towns and in some villages with tourist infrastructure. In general, access to SGI in rural areas has become more difficult with exceptions for settlements with developed tourist functions. The number of and access to SGI is largely related to the number of inhabitants of a given settlement, its location, and the development of the tourist functions there.

Keywords: services of general interest (SGI), mountainous areas, depopulation, tourism, Kłodzko region, Poland

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1. Introduction

Contemporary man-made space is constantly transforming, with different courses, directions, and effects (Berkel & Verburg, 2011). The specificity of these processes depends on many different factors, and the course of changes varies on a national, regional, and even local scale. Different dynamics of demographic, socio-economic, functional, and spatial changes occur in the countries of Western Europe (O'Rourke, 2006), in the Mediterranean countries (Collantes & Pinilla, 2011; Di Figlia, 2016) or in Central and Eastern Europe (Kučera & Chromý, 2012; Bezák & Mitchley, 2014; Skokanová et al., 2016). The diversification of these processes is related to both environmental factors and the various political and economic histories of individual areas.

In recent years, a particularly strong polarisation of socio-economic changes at the interface between the city and the countryside and, more broadly, between the centre and the periphery has been observed worldwide (Schmidt, 2007; Péntzes, 2013; McDonagh et al., 2016). One of the effects of the observed changes is a transformation of types, number and access to the services of general interest (SGI) of individual areas. These changes are particularly visible in depopulating and peripheral areas (Christiaanse, 2020; Merino & Prats, 2020).

The aim of this article is to analyse changes in the SGI in peripheral locations of the depopulating mountainous area in Poland in the context of socio-economic transformations over the period 1988–2020. The Kłodzko region was selected as the case study because it represents a so-called 'problem area' (Eberhardt, 1989; Ciok, 1991; Bański, 2008), due to its peripheral location, mountainous topography, and a long-lasting depopulation process. The time scope of this study captures changes in the SGI and access to facilities across two different political and economic systems: during the period of communism and a centrally controlled economy (1988) and in the times of democracy and free market economy (2020).

This study analysed the SGI and access to facilities at the level of individual settlements according to two target groups (for residents and visitors), who are the main beneficiaries of the analysed services.

The specific research questions were formulated as follows:

1. What kind of changes in the SGI have occurred in the Kłodzko region over the period 1988–2020 and how was the access to facilities impacted?
2. What was the spatial distribution of the changes in the SGI?

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3. Are there any specific trends in the SGI and access to facilities in the two target groups (residents and visitors)?
4. What are the driving forces and effects of the changes in SGI?

2. Theoretical background

The conducted study is a part of a broader international discussion on services of general interest (SGI). The concept of SGI is defined in the literature in a variety of ways. For example, in the Green Paper on Services of General Interest, the European Commission points out that different historical, economic, cultural, and political developments can lead to diverse terms and definitions across the Member States. Thus, the definition of SGI can vary from country to country and from region to region (Marques da Costa et al., 2013). The European Commission has defined SGI as "market and non-market services which public authorities class as being of general interest and subject to specific public service obligations" (CEC, 2003).

The definition proposed by the EC underlines a distinctive characteristic of SGI, namely the obligation to provide such services even in places where the level of demand is not sufficient to ensure that such services are efficient and cost-effective. Thus, public authorities are obliged to provide SGI within certain parameters of quality, availability, accessibility and affordability, in order to ensure that such services are fully accessible to everyone (Marques da Costa et al., 2013).

There are many different approaches and concepts in SGI research. Attention is paid, among others, to the impact of SGI on territorial cohesion (Stepniak & Rosik, 2013; Malý, 2016; Gruber, et al., 2017), regional development (Shorn & Humer, 2021), demographics (Gruber et al., 2013), or socio-economic development (Malý, 2016).

The SGI and access to facilities in each area are one of the basic measures to explore and describe the quality of life in the contemporary world (Brereton et al., 2011; Farmer et al., 2012; Neumeier, 2016). Access to institutions and facilities providing various types of services is of particular importance for the residents of peripheral rural areas situated far from the main communication routes or regional growth centres, in which various barriers of development persist (such as physiographical barriers typical for mountainous areas). In the international debate on rural depopulation, attention is drawn to the problem of providing services in such areas and their impact on the quality of life of the residents. This type of research has been undertaken: inter alia, in Ireland, with a focus on the role of access to health care and public transport facilities in determining the quality of life of residents of rural areas (Brereton et al., 2011); in Scotland, where the lack of access to health care in rural areas was found to contribute to and fuel numerous social protests (Farmer et al., 2012); in Germany, where special attention was paid to the general tendency to concentrate the basic services (including petrol stations) in larger towns at the expense of small settlements and its impact on the deterioration of the quality of life of the local residents (Neumeier, 2016); and in the Netherlands, where the analyses of the reduction of SGI in depopulating areas focused particularly on people with low mobility, whose quality of life was most affected by the shrinking SGI in rural areas (Christiaanse, 2020).

It is usually assumed that the decline in population goes hand in hand with a decline in the infrastructure and services available in each location. The shrinking SGI in rural areas and its concentration in towns/cities is a common phenomenon not just in depopulating areas (Christiaanse, 2020). This trend can be attributed to the desire to combine the economies of scale and the advantages of agglomeration with the depopulation process, accompanied by a decreasing number of people who use the facilities (most often in small villages) (Elshof et al., 2014; Christiaanse, 2020). This may

also be related to the rapid increase in the mobility of European citizens made possible by the development of individual and public transport (Hine & Kamruzzaman, 2012). The available research data revealed, for example, that in the Netherlands, a decrease in the number of institutions can have an even bigger impact on mobility and the economies of scale than a decrease in the number of residents (Steenbekkers & Vermeij, 2013; van Dam et al., 2006). In this context, it is particularly important to explore changes in the SGI and the access to institutions in peripheral depopulating areas.

The changes in SGI should also be related to their impact on local and regional development. The general transformation trends and development paths are determined mainly by exogenous factors operating on a global and regional scale, such as the EU programs, global market, and national spatial development policies (Strijker, 2005; Berkel & Verburg, 2011; Sánchez-Zamora et al., 2014). However, the final effects and scale of changes are strongly influenced by local conditions, which results in a large spatial differentiation in the development/regression of individual settlements (Gellrich et al., 2007; Berkel & Verburg, 2011; McLeman, 2011; Sørensen, 2018). Polarisation in the level of development within regions is often the consequence of the complexity and diversity of economic processes and their driving forces (Batzing et al. 1996; Sánchez-Zamora et al., 2014).

Economic theories referring to contemporary endogenous growth factors argue that the differences in the level of development in individual countries (regions or municipalities) can be attributed to differences in the institutional facilities, and that the SGI is one of the drivers of economic development (Merino & Prats, 2020). The development of a region is influenced both by the number of institutions, and, primarily, by the type and quality of SGI, along with transport availability. The reduction in access to SGI together with the progressive transport-related exclusion of people using these services affect not only the quality of life of the residents, but also the growth potential of the municipality/village. The areas particularly at risk are mainly peripheral areas in developing countries, where the mobility of the population is still low (Guzik & Koloś, 2021).

Transport-related social exclusion and the resulting SGI exclusion of residents with low levels of personal mobility, such as the elderly, children, or people with low incomes, is often discussed in the literature, especially if the reduction in SGI increases the distance to the basic services (Woods, 2005; Smoyer-Tomic et al., 2006; Christiaanse, 2020). The main facilities providing services to these vulnerable social groups include shops, preschools, primary schools, health centres, or pharmacies. For example, the threshold distance in the USA is 10 miles (ca. 16 km) (Morton & Blanchard, 2007), in Germany – 15 minutes by car (Neumeier, 2016), and 5 km in the Netherlands (Christiaanse, 2020).

There are numerous discussions in the literature about the causes of changes in the SGI in a given area (Fassmann et al., 2015). The numerous and diverse contemporary processes and factors impact the changes in SGI, as identified by Humer et al., 2015. They include, among others, demography (Gruber et al., 2015), the economic crisis (Velasco, 2015) or territorial challenges (Jóhannesson, 2015). Although many of these problems are similar across EU member states, the individual states respond to these problems differently according to their social model (Marques da Costa et al., 2015). The changes to the SGI themselves are also assessed in various ways (see Littke and Rauhaut, 2013). Due to the complexity of the subject, in our article we focus on the investigation of the quantitative and spatial characteristics of SGI changes, their relation to various factors (diverse target groups, location of the settlement, number of inhabitants, level of tourism development), as well we try to identify their main driving forces related to changes in the socio-economic context during the analysed period. The assessment of

the impact of the SGI changes on the life quality of the residents is only briefly addressed, as it was outside of the main scope of the conducted research. Additional social, qualitative studies are needed to fully address these issues and they would form a separate research topic.

3. Data and methods

3.1 Study area

The Kłodzko region is equivalent to the administrative unit of the Kłodzko Powiat (County), which is in south-western Poland, in the Sudetes (Fig. 1), with a total area of 1,643 square km and a population of almost 150,000 people. There are 188 settlements in this area, of which 11 have the status of a town, and 177 are villages. The region was subject to long term depopulation (from the end of the 19th century), which intensified in the post-World War II period and continues nowadays (Szymanowski & Latocha, 2021). Because of this strong depopulation and its peripheral location in a borderland, many authors have classified this region as a 'problem area' (Eberhardt, 1989; Ciok, 1991; Bański, 2008). Recently, an intensified development of tourism has been observed in this region, however, which can be perceived as a potential remedy to overcome the previous socio-economic crisis. The number of tourists visiting this region has been steadily increasing. According to the Central Statistical Office (CSO) in Poland, the number of tourists in this area was 1.053 million in 2003, and in 2020 it increased to 1.996 million visitors (CSO, 2022). The development of tourism in the Kłodzko region contributed to the limitation of negative socioeconomic processes in the area and, in the case of some villages, even to the reversal of these trends, which might testify to rural revival (Szymytkie et al., 2022).

3.2 Methodology

The analysis uses data on changes in the population and SGI in the individual settlements of the Kłodzko region over the period 1988–2020. The data for baseline values is based on the National Census of 1988. Data for the final timepoint was obtained from

the PESEL database (Universal Electronic System for Population Registration) and from a review of various internet resources (e.g. official websites of individual towns and communes from which information about the availability of individual facilities and services was collected). The presented data show whether a given institution is in each city, and not how many facilities of the same institution are in the city. Additionally, field surveys helped to compile an inventory of SGI facilities in the study area.

This analysis included a total of 13 different services of global interest (SGI), which were divided into two groups: services for residents and for both visitors and residents (Tab. 1). This division was based on the authors' long-term research experience and observations in the studied region. The SGI were divided according to their target groups to identify the possible relationship between the development of tourism and the change in the SGI and access to facilities in settlements where tourist movement has significantly increased in recent years. In legal-normative terms, the selected facilities are a mixture of "Services of General Economic Interest" and "Social Service of General Interest" (Fassman, 2015).

The choice of SGI for this research was largely driven by the availability of databases, in addition to internet queries and field research. Obviously, the importance of individual service facilities and their impact on the quality of life of the residents of rural areas is not uniform across countries. Facilities that are essential for the residents, especially in rural areas, usually include: grocery stores, primary schools, and primary care physicians

For residents	For visitors and residents
basic health centres	accommodation
financial institutions	cultural centres
fire brigades	grocery stores
libraries	pharmacies
preschools	post offices
primary schools	restaurants and bars
rural housewives' clubs	

Tab. 1: List of SGI facilities selected for analysis
Sources: authors' elaboration

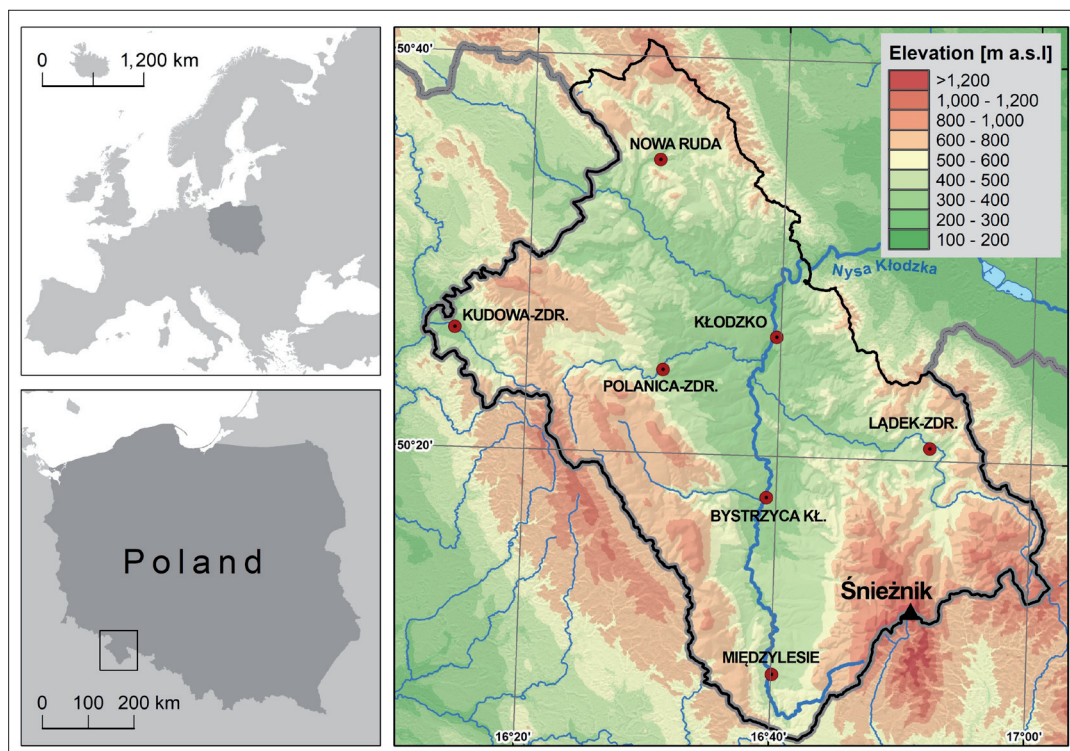


Fig. 1: Research area: general location, topography, and most important cities
Sources: authors' elaboration

(Paddison & Calderwood, 2007). As noted by Christiaan (2020), the importance of other types of facilities is controversial and is largely related to the cultural conditions prevailing in each region. For example, post offices in Great Britain, libraries and banks in Sweden, and a town hall and ATMs in the Netherlands are considered essential facilities in their respective countries.

We are aware, that comparing SGI facilities at different time intervals may arouse controversy. The same facilities in 1988 may have played a completely different role in terms of the need for services they provide and their quality in 2020. For example, the present role of internet access to various services or the role of delivery men instead of personal visits to the post office should not be omitted. In the mountainous peripheral areas, however, both the role of delivery men and the coverage of internet or cell phones is hindered by the natural conditions, mainly by the topography. Moreover, there are no official data on the internet/cell phones coverage in the individual villages; however, during the field surveys the residents have often complained about the problems related to that issue. Being aware of the above-mentioned constraints, the observed changes in SGI were interpreted mainly in terms of their quantity.

To get a better insight into the analysed trends, this article also explores the potential relationship between SGI and selected factors, such as population size, elevation, and the development of tourist functions as measured by the number of bed places (a settlement with at least 100 bed places is considered a tourist resort).

Nearest neighbour analysis was used to estimate the access to facilities. It assumes that, if there is no service facility of a given type (such as a post office) in a particular settlement, the residents usually travel to the nearest settlement, i.e. a village/town located at the shortest distance using a public road, to get access to services. Based on this assumption, the average, minimum and maximum distance to a given SGI facility from each village was calculated, along with changes in these distances over the period 1988–2020. The analyses were performed using the ArcGIS Pro computer software.

4. Results

4.1 Demographic changes

The population of the Kłodzko region decreased from 183,106 to 149,781 residents (18.2%) over the period 1988–2020. The urban population decreased from 118,226 to 94,081 residents (20.4%), while the rural population decreased from 64,880 to 55,700 residents (14.1%). In the study period, the available data indicates that the depopulation process of the Kłodzko region has deepened and has become more dynamic (Tab. 2). The local population decreased in 139 out of 188 settlements of the study area (73.9%), including all towns; the population did not change in two settlements; statistical data were missing for 16 settlements (for 1988 and/or 2020), and an increase in the population was recorded in only 31 (16.5%) settlements.

Area	Population change [%]						Demographic trends according to the number of settlements (1988–2020)				
	1988–2000		2000–2020		1988–2020		increase	decrease	no change	no data	total
	in general	per year	in general	per year	in general	per year					
urban area	– 2.0	– 0.17	– 18.8	– 0.94	– 20.4	– 0.64	0	11	0	0	11
rural area	– 7.2	– 0.60	– 7.5	– 0.38	– 14.1	– 0.44	31	128	2	16	177
Kłodzko region	– 3.8	– 0.32	– 15.0	– 0.75	– 18.2	– 0.57	31	139	2	16	188

Tab. 2: The dynamics of population changes in the Kłodzko region between 1988 and 2020

Source: authors' elaboration according to the National Census (1988) and the PESEL database (2020)

The spatial distribution of population in the Kłodzko region was relatively highly diversified in 2020. The population of the study area was concentrated mainly in towns (62.8% of the total), around the two largest towns: Kłodzko – the administrative capital of the region (24,574 residents) and Nowa Ruda (20,896 residents) (Fig. 2A).

On the one hand, the largest population losses over the period 1988–2020 were recorded mainly in the largest towns of the study area: Nowa Ruda (– 6,644) and Kłodzko (– 5,537). On the other hand, the highest population growth was recorded in rural settlements in the vicinity of these towns. Depopulation was most notable in settlements located in the southern part of the region, in mountainous and foothill areas (Fig. 2B).

4.2 Changes in the SGI

The number of SGI facilities in the Kłodzko region decreased from 762 to 672 (11.8%) between 1988 and 2020 (Tab. 3). SGI has shrunk mainly in rural areas, where the number of facilities decreased by 17.8%. In urban areas, the number of SGI facilities increased by 25.5%. Tourist resorts also recorded an increase of SGI facilities (6.6%). Interestingly, the number of SGI facilities for residents decreased (28.1%) and for visitors and residents increased (11.0%). Similar trends were recorded in changes in the number of SGI facilities per 1,000 inhabitants (Tab. 3).

Despite the general tendency to reduce the SGI in rural areas, 47 villages recorded an increase in the number of SGI facilities. Combined with the increase in SGI in all regional towns, there was a total of 58 settlements in the Kłodzko region (30.9%) where an

increase in the number of SGI facilities was recorded between 1988 and 2020. Still, their number decreased in 82 settlements (43.6%), and it did not change in 48 settlements (Tab. 3).

The SGI of individual settlements varied over time and was largely determined by the type of facilities, the type of settlements (urban/rural), and the target group of beneficiaries.

In 2020, SGI facilities such as accommodation and grocery stores were the most common in the Kłodzko region. The least common SGI facilities were cultural centres, post offices, pharmacies, and health care centres (Tab. 4).

In 2020, each town had all the analysed SGI facilities except for rural housewives' clubs (except for Międzyzylesie), which is quite understandable as regards the specific nature of these organisations. In rural areas, facilities such as accommodation and grocery stores are the most common. SGI facilities such as cultural centres, post offices, pharmacies, and health centres were the least common in rural areas (Tab. 4).

Between 1988 and 2020 a significant increase was noticed in the share of settlements with accommodation facilities (+ 45.7 pp), financial institutions (+ 16.0 pp), and restaurants and bars (+ 14.9 pp). A shrinking number of the SGI is the dominating trend, however. The largest decrease in the share of settlements with given SGI facilities was recorded for libraries (– 25.5 pp), grocery stores (– 25.0 pp), preschools (– 17.0 pp), and primary schools (– 16.0 pp). The changes in the SGI were particularly noticeable in the rural areas.

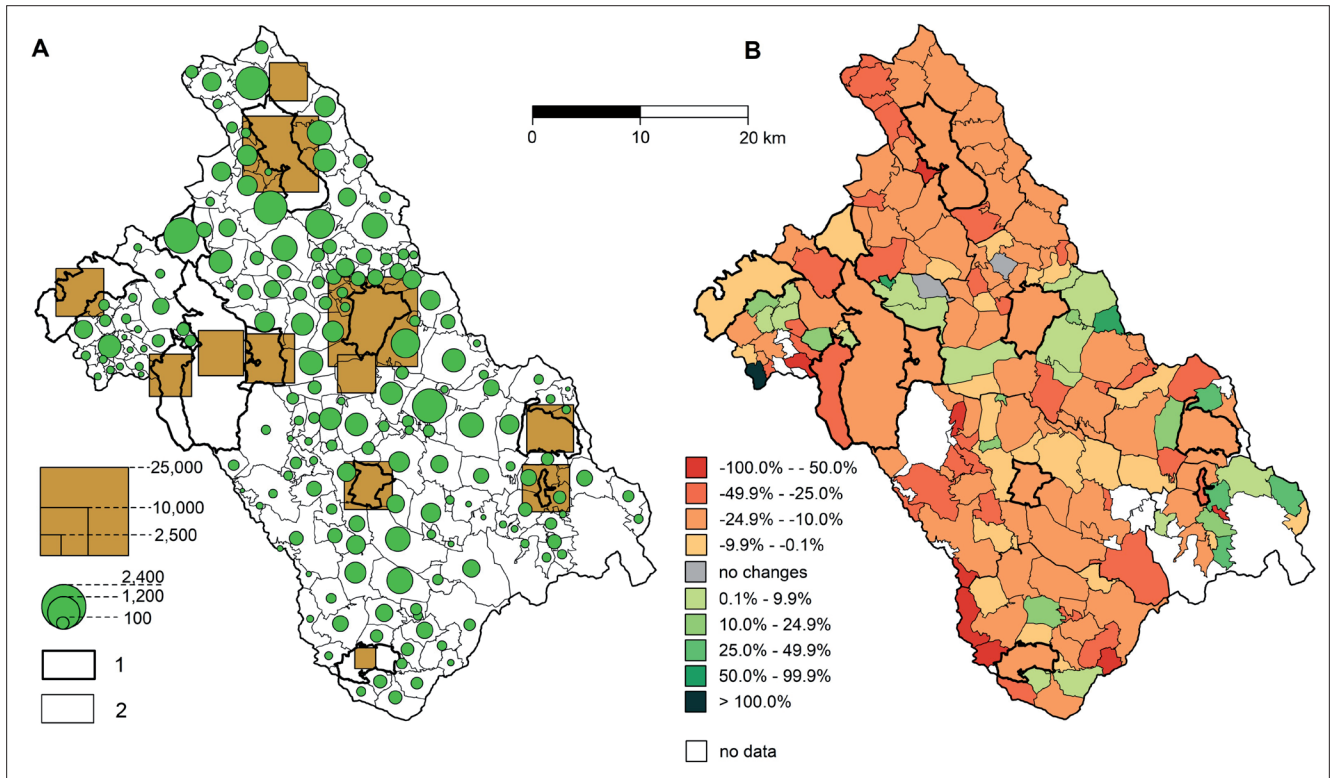


Fig. 2: Population in 2020 (A) and the dynamics of population changes over the period 1988–2020 (B) in individual settlements of the Kłodzko region (Notes: Types of districts: 1 – urban, 2 – rural). Sources: authors' elaboration

Areas/ type of SGI	SGI facilities			Average number of SGI facilities per type of location per 1,000 inhabitants			SGI provision / number of settlements (1988–2020)				
	1988	2020	1988–2020	1988	2020	1988–2020	increase	decrease	no change	no data	total
urban area	106	133	+ 25.5%	0.90	1.41	+ 56.7%	11	0	0	0	11
rural area	656	539	- 17.8%	10.11	9.68	- 4.3%	47	82	48	0	177
tourist resort	272	290	+ 6.6%	2.31	2.61	+ 13.3%	17	17	19	0	53
SGI for residents	445	320	- 28.1%	2.43	2.14	- 12.1%	27	88	73	0	188
SGI for visitors and residents	317	352	+ 11.0%	1.73	2.35	+ 35.7%	71	53	64	0	188
Kłodzko region	762	672	- 1.8%	4.16	4.49	- 7.8%	58	82	48	0	188

Tab. 3: The dynamics of SGI facilities in the Kłodzko region per 1,000 inhabitants between 1988 and 2020 Source: authors' research, according to the National Census (1988)

Area / SGI facilities / year	Urban area		Rural area		Kłodzko region	
	2020	1988–2020	2020	1988–2020	2020	1988–2020
basic health centres (1)	100.0%	–	8.5%	- 2.3 p.p.	13.8%	- 2.1 p.p.
financial institutions (1)	100.0%	–	25.4%	+ 16.9 p.p.	29.8%	+ 16.0 p.p.
fire brigades (1)	100.0%	–	28.2%	- 15.3 p.p.	32.4%	- 8.5 p.p.
library (1)	100.0%	–	16.9%	- 27.1 p.p.	21.8%	- 25.5 p.p.
preschools (1)	100.0%	–	11.9%	- 18.1 p.p.	17.0%	- 17.0 p.p.
primary schools (1)	100.0%	–	13.6%	- 16.9 p.p.	18.6%	- 16.0 p.p.
rural housewives' club (1)	9.1%	+ 9.1 p.p.	38.4%	- 14.7 p.p.	36.7%	- 13.3 p.p.
accommodation (2)	100.0%	–	74.6%	+ 48.6 p.p.	76.1%	+ 45.7 p.p.
cultural centres (2)	100.0%	–	1.7%	- 5.1 p.p.	7.4%	- 2.7 p.p.
grocery (2)	100.0%	–	40.1%	- 26.6 p.p.	43.6%	- 25.0 p.p.
pharmacies (2)	100.0%	–	6.2%	- 0.6 p.p.	11.7%	- 0.5 p.p.
post office (2)	100.0%	–	5.6%	- 14.7 p.p.	11.2%	- 13.8 p.p.
restaurants and bars (2)	100.0%	–	33.3%	+ 15.8 p.p.	37.2%	+ 14.9 p.p.
for residents (1)	100.0%	–	54.8%	- 9.6 p.p.	57.5%	- 9.0 p.p.
for visitors and residents (2)	100.0%	–	81.9%	+ 9.6 p.p.	83.0%	+ 9.0 p.p.

Tab. 4: Change in the percentage of settlements with given SGI facilities in the Kłodzko region between 1988 and 2020 (Notes: 1 – residents, 2 – visitors and residents). Sources: authors' elaboration

As far as the target groups served by the given SGI are concerned, there are more facilities intended to serve both visitors and residents in all the settlements (83.0% of settlements have at least one such facility) rather than SGI facilities intended for local residents only (53.5% adequately). Moreover, between 1988 and 2020, the number of SGI facilities intended for residents dwindled (a decrease by 9.0 pp). It was particularly noticeable in rural settlements. There was however a general increase in the number of SGI facilities intended for visitors and residents (Tab. 4).

In terms of the number of SGI facilities per settlement in 2020, settlements with either 1 or 2 types of facilities prevailed (74 villages; 39.4% of the total number of settlements). Settlements with 3 to 5 SGI facilities were also relatively common (48; 25.5%). There were 66 settlements (35.1%) which, due to the large number of facilities, can be classified as local centres (with more than 6 SGI facilities), of which 18 had 6 to 8 facilities, 9 had 9 to 11 facilities, and 14 localities (including all towns) had 12 or 13 facilities. 25 settlements (13.3%) had no SGI facilities (Fig. 3A).

Over the period 1988–2020, the highest increase in SGI was observed in towns and in some villages located within their impact zone, especially in the vicinity of the spa-towns and other tourist centres. A significant loss of SGI can be seen especially in the central and southern parts of the study region (Fig. 3B).

4.3 The relationship between the SGI and selected factors referring to settlements

4.3.1 Number of residents

The number of residents and the number of SGI facilities per settlement are clearly correlated. The fewer residents, the fewer SGI facilities located in a settlement. Settlements with up to 500 residents were particularly disfavored in terms of SGI, with an average of 1.96 facilities per settlement in 2020. These institutions included: accommodation facilities (in 73.4% of settlements with up to 500 residents), rural housewives' clubs (28.8%), and grocery

stores (27.3%). Out of 139 settlements with a population of up to 500 residents, there was no post office in any one settlement, and there was a single settlement with: a cultural centre, a healthcare centre, two settlements with a pharmacy, and three with a preschool, a primary school, and a library.

This negative situation has deepened between 1988 and 2020. The smallest settlements with up to 100 residents were most disadvantaged in terms of the SGI – the average number of SGI facilities per settlement decreased by 20.2% in the period 1988–2000. Contrarily, in the largest settlements, with more than 3,000 residents, the number of SGI facilities per settlement increased by 4.6% (Tab. 5).

Among the smallest settlements with up to 100 residents, the following SGI facilities became less numerous: libraries (from 11 settlements in 1988 to none in 2020); voluntary fire brigades (from 7 to 1); shops (from 20 to 5); post offices (from 2 to 0); and health centres (from 1 to 0). The only facilities that were newly established in the smallest settlements were restaurants and bars (from 3 in 1988 to 10 in 2020), accommodation facilities (from 15 to 44), and rural housewives' clubs (from 7 to 9).

4.3.2 Elevation above sea level

The same correlation was identified between the location of the settlement (its average height above sea level) and the number of SGI facilities per settlement. In general, the higher the altitude, the lower the level of SGI. This correlation was particularly evident for settlements located over 600 m a.s.l. (Tab. 6).

Between 1988 and 2020, the SGI decreased, particularly in settlements located at an altitude of 400–500 m (decrease by 21.1%), 300–400 m (by 13.3%) and 700–800 m (by 12.6%) a.s.l. Interestingly, there was an increase in SGI in settlements located at an altitude of 600–700 m (increase by 10.8%) and 800–900 m a.s.l., which was mainly attributed to the development of tourist functions. The most spectacular examples include Bolesławów (644.5 m a.s.l.) or the Sienna ski-resort (839 m a.s.l.).

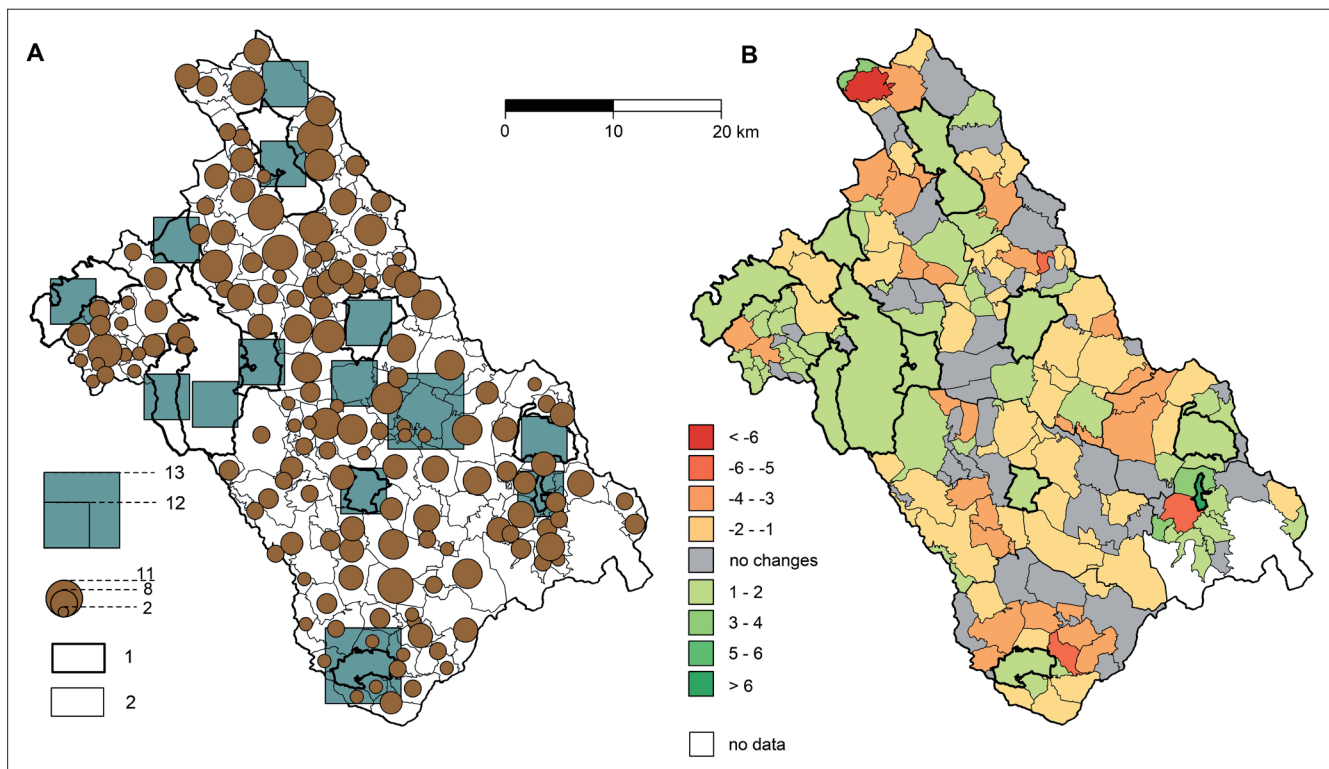


Fig. 3: Number of SGI facilities in 2020 (A) and its change over the period 1988–2020 (B) in individual settlements of the Kłodzko region

Note: Types of districts: 1 – urban, 2 – rural

Sources: authors' elaboration

Year/residents	1988			2020			1998–2020		
	locations	SGI facilities	average	locations	SGI facilities	average	locations	SGI facilities	average
< 100	52	67	1.29	70	72	1.03	+ 34.6%	+ 7.5%	– 20.2%
100–200	31	77	2.48	33	73	2.21	+ 6.5%	+ 5.2%	– 10.9%
200–500	39	167	4.28	36	134	3.72	– 7.7%	– 19.8%	– 13.1%
500–1,000	22	159	7.23	24	157	6.54	+ 9.1%	– 1.3%	– 9.5%
1,000–3,000	17	172	10.12	13	135	10.38	– 23.5%	– 21.5%	+ 2.6%
> 3,000	11	118	10.73	9	101	11.22	– 18.2%	– 14.4%	+ 4.6%
no data	16	2	0.13	3	0	0.00	– 81.3%	– 100%	– 100%

Tab. 5: The dynamics of SGI facilities according to the size of settlements in the Kłodzko region between 1988 and 2020
Source: authors' research, according to the National Census (1988)

m a.s.l.	Number of locations	Number of SGI facilities		Average number of facilities per location		Change (1988–2020)
		1988	2020	1988	2020	
300–400 m	40	216	187	5.40	4.68	– 13.3%
400–500 m	50	284	224	5.68	4.48	– 21.1%
500–600 m	37	150	143	4.05	3.86	– 4.7%
600–700 m	39	65	72	1.67	1.85	+ 10.8%
700–800 m	18	47	41	2.61	2.28	– 12.6%
800–900 m	4	0	5	0.00	1.25	–
525.5 m (avg.)	188	762	672	4.05	3.57	– 8.1%

Tab. 6: The dynamics of SGI facilities according to elevation in the Kłodzko region between 1988 and 2020
Source: authors' research, according to the National Census (1988)

4.3.3 Number of bed places

There is also an apparent correlation between the number of SGI facilities and the development of tourism in each settlement, as evidenced by the number of bed places. Settlements with 100 or more bed places were characterised with a better SGI access than an average settlement across the study area (Tab. 7).

There were 32 tourist resorts (a settlement with at least 100 bed places) in the Kłodzko region in 1988 and 53 in 2020. The SGI in tourist resorts decreased significantly between 1988 and 2020 (especially in settlements with a population of up to 1,000). Interestingly, the reduction in SGI in tourist resorts was greater than in an average settlement of the region. Nevertheless, the number of SGI facilities in tourist resorts was still higher than in other non-tourist settlements (see Tab. 7).

In 2020, the following SGI facilities were found most often in tourist resorts: accommodation facilities (100.0% of tourist resorts); restaurants and bars (60.4%); and grocery stores (58.5%). The least common types of institutions operating in tourist resorts included cultural centres (22.6%), pharmacies and post offices (26.4%). Between 1988 and 2020, in tourist resorts the following types of service facilities decreased: post office (from 18 to 14), library (from 24 to 20), preschool (from 20 to 17), and primary school (21 to 18).

4.3.4 Access to institutions

The average distance to be travelled to a SGI facility was 3.72 km in 2020 and – compared to 1988 – it increased by nearly 0.28 km. The access to SGI has substantially improved in the towns and worsened in rural areas (Tab. 8). The average distance to an individual SGI facility varied over time and correlated with the type of locality. Cultural centres, post offices, pharmacies, health centres, preschools, and primary schools were the least available facilities in the Kłodzko region in 2020 (Tab. 9). The shortest route was to accommodation facilities and tourism service providers. Between 1988 and 2020, the main improvements were identified in the access to accommodation facilities, financial institutions, and restaurants and bars. In contrast the access to post offices, libraries, preschools, primary schools, and grocery stores deteriorated.

Between 1988 and 2020 the following SGI facilities became less available in rural areas: post offices, libraries, preschools, primary schools, and grocery stores. Conversely, the access to accommodation facilities, financial institutions, and restaurants and bars has significantly improved (Tab. 9).

When analysing the availability of individual SGI facilities in towns/villages, extreme cases should also be considered. For examples, the residents of Spalona village must travel

Year/people	1988		2020		Change (1988–2020)	
	Kłodzko region	tourist resort*	Kłodzko region	tourist resort	Kłodzko region	tourist resort
< 100	1.29	3.40	1.03	1.57	– 20.2%	– 53.8%
100–200	2.48	3.67	2.21	2.83	– 10.9%	– 22.9%
200–500	4.28	5.00	3.72	4.00	– 13.1%	– 20.0%
500–1,000	7.23	8.00	6.54	6.38	– 9.5%	– 20.3%
1,000–3,000	10.12	10.67	10.38	11.75	+ 2.6%	+ 10.1%
> 3,000	10.73	10.88	11.22	12.00	+ 4.6%	+ 10.3%
average	4.05	7.71	3.57	5.53	– 11.9%	– 28.3%

Tab. 7: The change in average number of SGI facilities in all settlements and in tourist resorts according to population size over the period 1988–2020 (Note: * locations with 100 and more bed places). Source: authors' research study according to the National Census (1988)

more than 20 km to a preschool or pharmacy, the residents of Wójtowice village have to travel over 18 km to a primary school and a health centre, and Piaskowice village is located over 16 km from a financial institution, a grocery store, a community centre, or a fire brigade (Tab. 9). The access to the basic service facilities was highly homogenous throughout the region in terms of the type of services provided. Facilities serving only the residents were less available than facilities dedicated to both visitors and residents, but these differences were insignificant.

The availability of both types of SGI facilities generally decreased between 1988 and 2020. The availability of SGI facilities intended for residents, however, decreased two or three times more than the access to facilities intended for both visitors and residents. The towns are the only areas where access to both these types of facilities improved (Tab. 10).

5. Discussion

As in other areas of Europe (Christiaanse, 2020), changes in the SGI in the Kłodzko region between 1988 and 2020 involved mainly its shrinking in rural areas in favour of more concentrated service facilities in the towns. These pan-European processes result in

Areas	Average distance			
	1988	2020	1988–2020	
urban area	1,195.2 m	371.5 m	– 823.7 m	– 68.9%
rural area	3,574.4 m	3,928.6 m	+ 354.2 m	+ 9.9%
Kłodzko region	3,435.2 m	3,720.5 m	+ 285.3 m	+ 8.3%

Tab. 8: The average distance to SGI facilities in the Kłodzko region in 1988 and 2020. Sources: authors' elaboration

a very low level of SGI in villages, particularly in villages with small population numbers (Neumeier, 2016; Westlund & Pichler, 2012). The Kłodzko region is no different. In 2020, there were 70 villages with up to 100 residents in the study area, each with only 1.03 out of 13 analysed SGI. As a result, the residents had insufficient access to SGI facilities, including basic services.

Many SGI facilities were closed in villages and relocated to towns, which raises legitimate concerns about access to services for rural residents (Paddison & Calderwood, 2007). The availability of SGI facilities in rural areas of the Kłodzko region decreased by 9.9% over the period 1988–2020, and residents must travel 3.72 km on average to get to a facility which is absent in their place

Area/SGI facilities/year	Urban area [m]		Rural area [m]		Kłodzko region [m]		
	2020	1988–2020	2020	1988–2020	2020	1988–2020	
basic health centres (1)	min.	0.0	–	0.0	–	0.0	
	average	0.0	–	4,993.0	+ 270.5	4,700.9	+ 254.7
	max.	0.0	–	18,024.5	– 2,560.6	18,024.5	– 2,560.6
financial institutions (1)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	3,682.9	– 1,670.8	3,467.4	– 1,573.0
	max.	0.0	–	16,424.7	– 11,543.9	16,424.7	– 11,543.9
fire brigades (1)	min.	0.0	– 3,048.3	0.0	–	0.0	–
	average	0.0	– 4,614.7	3,241.0	+ 661.4	3,051.3	+ 352.6
	max.	0.0	– 5,909.6	16,424.7	+ 1,789.5	16,424.7	+ 1,789.5
library (1)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	3,951.0	+ 1,475.0	3,719.8	+ 1,388.7
	max.	0.0	–	16,424.7	+ 3,485.6	16,424.7	+ 3,485.6
preschools (1)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	4,642.1	+ 1,450.2	4,370.5	+ 1,365.4
	max.	0.0	–	20,585.1	+ 4,160.4	20,585.1	+ 4,160.4
primary schools (1)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	4,511.4	+ 1,431.7	4,247.4	+ 1,347.9
	max.	0.0	–	18,024.5	– 1,599.8	18,024.5	– 1,599.8
accommodation (2)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	936.2	– 2,511.1	881.5	– 2,364.9
	max.	0.0	–	6,843.2	– 7,600.0	6,843.2	– 7,600.0
cultural centres (2)	min.	0.0	0.0	0.0	–	0.0	–
	average	0.0	– 4,981.0	5,927.8	+ 417.0	5,581.0	+ 101.1
	max.	0.0	– 21,068.7	16,424.7	– 1,774.2	16,424.7	– 1,774.2
grocery (2)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	2,455.9	+ 1,195.4	2,312.2	+ 1,125.4
	max.	0.0	–	16,424.7	+ 4,112.4	16,424.7	+ 4,112.4
pharmacies (2)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	5,703.8	+ 361.2	5,370.1	+ 340.1
	max.	0.0	–	20,585.1	–	20,585.1	–
post office (2)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	5,643.2	+ 2,186.5	5,313.0	+ 2,058.6
	max.	0.0	–	15,340.2	+ 419.0	15,759.2	+ 419.0
restaurants and bars (2)	min.	0.0	–	0.0	–	0.0	–
	average	0.0	–	2,837.1	– 1,101.6	2,671.1	– 1,037.1
	max.	0.0	–	13,845.8	– 12,239.7	13,845.8	– 12,239.7
rural housewives' club (1)	min.	0.0	– 2,178.3	0.0	–	0.0	–
	average	5,942.0	– 1,112.8	2,546.3	+ 440.2	2,679.8	+ 349.4
	max.	12,384.0	– 2,185.3	14,285.7	– 349.5	14,285.7	– 349.5

Tab. 9: Average, minimum and maximum distance to SGI facilities in the Kłodzko region in 1988 and 2020 (Notes: 1 – residents, 2 – visitors and residents). Sources: authors' elaboration

Areas	Average distance to the SGI facilities for:							
	Residents				Visitors and residents			
	1988	2020	1988–2020		1988	2020	1988–2020	
urban area	1,508.1 m	689.9 m	– 818.8 m	– 54.3%	841.8 m	0.0 m	– 841.8 m	– 100.0%
rural area	3,358.5 m	3,938.2 m	+ 579.7 m	+ 17.3%	3,600.9 m	3,917.3 m	+ 316.4 m	+ 8.8%
Kłodzko region	3,250.2 m	3,748.2 m	+ 497.0 m	+ 15.3%	3,483.3 m	3,688.1 m	+ 204.9 m	+ 5.9%

Tab. 10: Average distance to SGI facilities dedicated to residents and both visitors and residents in the Kłodzko region in 1988 and 2020
Sources: authors' elaboration

of residence. In this context, the SGI appears satisfactory in the study area, however, an average value is provided and, additionally, the area is mountainous, which makes travelling more difficult. In extreme cases, some residents must travel more than 15–20 km to get to services important for residents, such as a pharmacy, preschool, primary school, or health centre. Although there are school buses operating in the area, they are dedicated to school children only and they do not solve the problem of access to SGI for other inhabitants.

As demonstrated in the analysis, the availability of the SGI in rural areas of the Kłodzko region has decreased, and the distance to these facilities has often increased from several hundred metres to almost 2 km on average but reaching more than 20 km in extreme cases.

The number and access to the SGI in Poland is relatively low (Bański, 2015; Kamińska, 2015; Heffner, 2017), and after 1989 it deteriorated even further, especially in rural areas (Petryszyn, 2006; Herczyński & Sobotka, 2014). The analysis covering the period 1988–2020, however, revealed that there were no large-scale changes in the number of the analysed SGI facilities (Tabs. 3 and 8). What mattered is the type of facilities that disappeared, as they mainly provided basic services intended especially for the residents (preschools, primary schools, libraries, and health centres).

It proved impossible to indicate a clear correlation between depopulation and changes in SGI, as these processes mutually drive one another. On the one hand, the decline in population correlates with a decline in the infrastructure and services in rural areas (Haartsen et al., 2014; Christiaanse, 2020). On the other hand, a regression in infrastructure and services may contribute to population decline. Caution should be exercised in assessing this correlation because the causes of depopulation in many European regions are highly complex and ambiguous (Merino & Prats, 2020; Szymanowski & Latocha, 2021), and may involve various demographic (Westhoek et al., 2006; Coleman & Rowthorn, 2011; Wiest et al., 2011), psychosocial (Paniagua, 2002a; Stockdale, 2002), environmental (Willian & Jobes, 1990; Gare & Arran, 1995), and economic factors (Commins, 1978; Pezzini, 2001; Paniagua, 2002b). One should agree with the statement by E. Gruber et al. (2015), however, that changing population sizes as well as changing population structures have produced new patterns of SGI demands and needs with different regional characteristics which are a challenge for public institutions.

The same applies to the impact of political and economic changes on the SGI in the Kłodzko region. In terms of their numbers, little has changed, but there are significant differences in the types of SGI provided in 1988 and nowadays. In the communist system with a centrally controlled economy, the social services dedicated to residents (grocery stores, post offices, libraries, health centres, preschools, schools) were much more available than in the democratic system with a free market economy. Currently, SGI facilities that serve mainly visitors, such as accommodation facilities, restaurants, and bars, etc. are more available than in 1988. This can be attributed to, inter alia, the ownership

structure of individual facilities; for example, the State Treasury attempted to cut the operating costs of the state-run facilities dedicated to residents, which became less available. In turn, the number of SGI facilities intended for both visitors and residents increased as these services operate mainly in the private sector, which can respond better to changes taking place in the market, including the declining number of consumers.

The development of tourism, particularly in rural areas, was another factor that has fuelled the gradual change in the type of SGI facilities in the Kłodzko region over the past 30 years. It entailed the development of facilities focused on the target group – visitors (and residents) at the expense of facilities focused on providing services only for residents (Tabs. 4 and 9).

The location of the settlement (elevation a.s.l.) and the development of tourism (as measured by the number of bed places) were also found to have a possible impact on changes in the SGI. Settlements situated over 600 m above sea level have much scarcer SGI than other settlements in the study area. This correlation did not apply to high-altitude villages focused on tourism, however, in which a recent increase in service facilities was noted. This confirms that the development of tourism may contribute to the socio-economic recovery of problem and peripheral areas (Frederick, 1993; Gannon, 1994; Briedenhann & Wickens, 2004; Hummelbrunner & Miglbauer, 1994; Salvatore et al., 2018). It can be concluded that the tourist resorts are characterised by a better SGI than non-tourist localities with a similar number of residents. Tourist resorts with 100 or more bed places, depending on the population size, generally had a dozen or several dozen percentage points more SGI facilities than the average for the region. The development of tourism goes hand in hand with the development of the SGI and is one of the few factors that may slow down the reduction of the SGI facilities' accessibility. Nevertheless, the research by J. Malý (2015) suggests that the association of SGI access with the level of development should not be overestimated. Therefore, one should be careful with an unequivocal assessment of the impact of the studied phenomenon on socio-economic development in the Kłodzko region.

6. Conclusion

The study of the SGI in the Kłodzko region over the period 1988–2020 provides data mainly on the quantitative and – indirectly – qualitative nature of this phenomenon. The following factors have been identified as having impact on the changes in the SGI: the settlement type and status; population number; scale of depopulation; elevation; development of tourism; and political and economic changes. The conclusions drawn from this type of research are of practical use and can be helpful in the development of policies and strategies for preventing the depopulation of mountain rural areas, and more broadly – for managing and supporting the development of peripheral regions. The study of changes in the SGI provides a diagnosis of the local conditions and offers useful tool for management and planning, which is advocated by many authors, in particular as regards peripheral rural areas (e.g. Berkel & Verburg, 2011; Sørensen, 2018; Li et al., 2019).

The results might be interpreted as the progressing deterioration of life quality of the residents in the study area, especially in the smallest and remote villages, which is in line with findings in other peripheral regions (e. g. Cheshire, 2006; Christiaanse, 2020). The changes in SGI facilities dedicated to providing services to visitors, however, allow for a conclusion that tourism development might support the increase in access to SGI or at least its stabilisation. Although the services in tourist resorts are dedicated mainly to visitors, the residents can indirectly benefit from their impact as the economic situation is generally improved in such settlements (new jobs, business potential, etc.). To better understand the identified processes and their actual role in improving or deteriorating the life quality of residents and visitors in the analysed settlements, further studies on social perceptions of the SGI changes are recommended.

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