Functional changes in peripheral mountainous areas in east central Europe between 2004 and 2016 as an aspect of rural revival? Klodzko County case study

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ABSTRACT

The aim of the research was to identify functional changes of villages in peripheral area of Klodzko County in the Sudetes Mountains in southwestern Poland. The study area has for many decades been classified as a marginal and problem region, mainly due to a substantial trend of long-term depopulation. However, in recent years the signs of economic revival have been observed. The study innovatively uses the functional typology of the smallest administrative units (villages) to recognize the character and spatial differentiation of functional transformations of these localities in the last 15 years following Polish accession to the European Union. The analyses were based on the data from the National Official Business Register. The results show an increase in the number of villages with dominant service functions, especially in tourism, and decrease in numbers of villages with the dominant agricultural sector. These changes can be interpreted as an illustration of evolutionary multifunctional rural development in marginal areas, which also affects villages previously classified as declining. The findings allow for proposing a new category of “reviving village”. Significant spatial differentiation of functional changes in the problem region suggests that local conditions exert a considerable influence on the course and scale of transformation in rural areas. Effectively, “problem area” is a heterogeneous category. Therefore there is a vital need for in-depth analyses, including new typologies, of the smallest administrative units (villages), to capture current processes in rural areas and to adapt strategies, support, and development policies to local assets and site-specific needs.

1. Introduction

In recent decades, rural areas in many parts of the world have undergone massive demographic, socio-economic, spatial and functional transformations (e.g. Binski & Stola, 2002; Mottet, Ladet, Coqué, & Gibon, 2006; Musial, 2008; Miszczuk & Wesolowska, 2012; Bezak & Mitchley, 2014; Heffner, 2016; Kupková & Bičík, 2016; Pinto-Correia, Guimar, Guerra, & Carvalho-Ribeiro, 2016; Knickel et al., 2018; Li, Westlund, & Liu, 2019). General transformation trends are usually shaped by exogeneous factors of a global or local reach, such as suburbanization, EU funding programs, local policies for spatial development, and the global market (Berkel & Verburg 2011; Collantes & Pinilla, 2011; Dimara & Skuras, 2009; Paniagua, 2013; Sánchez-Zamora, Gallardo-Cobos, & Cena-Delgado, 2014; Strijker, 2005). However, it is the local conditions that heavily influence the actual course and scale of changes. As a result, we may observe great spatial differentiation of progression and regression processes in specific rural locations, even within the same region (Bansi & Mazur, 2016; Berkel & Verburg 2011; Bezak & Mitchley, 2014; Gelrich, Baur, Koch, & Zimmermann, 2007; Kerckhof, Spalevic, Van Eetvelde, & Nyssen, 2016; McLeman, 2011; Sørensen, 2018). Therefore, polarization in rural development is common (e.g. Batzing, Perlík, & Dekleva, 1996; Bansi & Wesolowska, 2010; Rosner, 2012; Sánchez-Zamora et al., 2014). On the one hand, there is growing urbanization and intensification of socio-economic processes in more privileged areas located in the vicinity of bigger towns and cities where anthropopressure is high. This is, on the other hand, countered by the increasing marginalization of peripheral areas which are highly depopulated and economically underdeveloped (Knickel et al., 2018; Li...
et al., 2019; Panigau, 2013; Strijker, 2005; Shrinking regions ... 2008). These areas are called problem or marginal regions (Eberhardt, 1989; Leimgruber, 2004; Pelc, 2017).

A dichotomous division of rural areas, based on the development level and current processes, is one of the most common yet most simplistic categorizations in the typology of rural areas. Growing internal diversification of rural areas, which is observed worldwide, contributes to the increased complexity of these regions, also in the marginal and peripheral areas. There are numerous studies dealing with the problem of marginality of rural areas (Bernt & Colini, 2013; Leimgruber, 2004; Pelc, 2017; Schmidt, 2007) and some aim at proposing solutions to difficulties these less privilege areas face (Berkel & Verbarg, 2011; Boesch, Remmer, & Siegrist, 2011; Gannon, 1994; Kutowska, 2012; Pinto-Correia et al., 2016; Romano, 1995; Serra, Vera, & Tulla, 2014). It is critically important in the context of the global processes resulting in the loss of primary function of rural areas as productive lands (i.e. Bogdanov & Vasiljevic, 2011; Ventura-Lucas, Marques, Martins, & Frasos, 2011). Currently, various aspects of marginalization are studied and many proposals of the prospective development paths for declining rural areas are on the table. All angles of this rural question are discussed with application of classic theories such as “the core – periphery” (Wight, 1983) as well as more novel concepts such as the “post-urban world” (Haas & Westlund, 2017), “multifunctional transition” (Holmes, 2006, 2012), “new rural paradigm” (OECD, 2006; Norgaard, 2011) or “tourism transition” (Brown & Hall, 2006; Jepson & Sharpley, 2015; Salvatore, Chiado, & Fantini, 2018). The latter ones are particularly important in addressing the issue of the recently changed perception of the peripheral rural areas: from a negative image of declining marginal productive lands into the one of valuable and desired touristic and recreational places. Therefore, tourism is perceived by many authors as the most adequate remedy for the transformation drawbacks for the rural economies. It is considered to positively affect other economic activities and to contribute significantly to the economic growth of the region (i.e. Greffe, 1994; Wilson, Fesenmaier, Fesenmaier, & Van Es, 2001; Ribeiro & Marques, 2002; Friedenhann & Wickers, 2004; Cawley, 2009; Kutowska, 2012; Carneiro, Lima, & Silva, 2015; Lun, Pechlaner, & Volger, 2016; Randelli & Martellozzo, 2019). However, there are also some voiced concerns about its negative effects or potential overexploitation of the peripheries (i.e. Gannon, 1994; Sharpley, 2002; Kauppila, Saarinen, & Leinonen, 2009; Chaperon & Bramwell, 2012; Salvatore et al., 2018). They touch upon a broader discussion on the relation between urban and rural areas and mutual interactions and impacts of their inhabitants (Almeida et al., 2016; Bijker, Haartsen, & Strijker, 2012; Westlund, 2017).

Nevertheless, recently, in some rural areas in Europe and around the world that have long been classified as problem/populated areas, some evidence for socio-economic revival has emerged (Almeida et al., 2016; Czarnecki, 2018; Heffner & Czarnecki 2011; Kucera & Chromy, 2012; Li et al., 2019). Such processes can also be observed in the Sudetes region in southwestern Poland, which, due to its peripheral location (mountains and the state border) and high depopulation level, has for many years been classified as a problem area by different authors and according to various typologies (Bański, 2008; Ciok, 1991; Konopińska, 2016; Zagóźdżon, 1988). Commonly used typologies of rural areas in Poland (presented in the Data and Methods section) cannot grasp the latest signs of socio-economic revival in such areas. It is because they are phenomena that happen on a local scale and can be observed in specific locations which are often dispersed typologies from administrative districts, which are much larger administrative units. However, the growing internal differentiation of development paths for specific rural locations in problem areas (Li et al., 2019) emphasizes the need for a new typology that would allow for capturing current micro-scale transformations. Such a typology would give a better insight into the process of socio-economic revival in peripheral areas, especially that the role of site-specific assets and constraints cannot be overestimated. The local responses to the globalisation processes are strongly dependent on the local social and territorial capital (Berkel & Verbarg, 2011; Greffe, 1994; Sánchez-Zamora et al., 2014; Ventura-Lucas et al., 2011). The new, village-based typology would also facilitate a tailored and context-specific management of these areas, something which many authors have suggested (e.g. Berkel & Verbarg, 2011; Ventura-Lucas et al., 2013; van Eupen et al., 2012; Sørensen, 2018; Li et al., 2019).

The latter argument is vital since many typologies are made not only for statistics, but more importantly, for practical purposes in political management and decision-making processes. Policies for local development and spatial planning, data collection procedures, and statistical analyses are often based on the existing typologies (Bański 2014, 2016; Haines-Young, Potschin, & Rienast, 2012; Hazeu et al., 2011; Mühler, Klijn, Wascher, & Schaminié, 2010; Ortega et al., 2012; Pinto-Correia et al., 2016; Sánchez-Zamora et al., 2014; Verbarg, Asselen, Zanden, & Stohl, 2013). For this reason, putting forward new typologies of rural areas is fully legitimized. These typologies, as theoretical proposals, attempt to follow some rapidly changing rural areas (Sleszyński & Komornicki, 2016; Bogdanov & Vasiljevic, 2011). These attempts become serious since typologies used on a nation-state or continental scale – vital for comparative analyses of regions and countries – have very limited potential for decision-making processes at the local level. Typologies usually look at areas (districts) and not particular locations (villages). Change of focus is key for problem/marginal areas which need closer and more detailed scrutiny (e.g. Strijker, 2005; Sleszyński & Komornicki, 2016). It requires approaching rural areas from the lowest level – the one which deals with particular locations. Since there have been very few similar attempts (Bański, 2016; Sørensen, 2018) it makes this study novel in the field.

To test a functional typology of rural areas and to examine the current transformations of peripheral/problem region, we chose the Kłodzko County in southwestern Poland, in the Sudetes (Fig. 1), with a total area of 1643 km$^2$ and population of 160,000. Kłodzko County is the most depopulated area in the post-war Lower Silesia region and one of the most depopulated areas in Poland (Miszewska, 1989; Wesołowska, 2018). The decrease of population between pre-war maximum and post-war minimum, based on the censuses from the mid-19th century until present, was 50% and more for 131 settlements (70% of all settlements in the Kłodzko county), and for one third of the settlements the depopulation was higher than 80% (Łatocha, Szymański, & Wieczorek, 2018). However, in recent years there have been some visible signs of socio-economic revival in the form of spatial, demographic, economic, functional or social changes (Łatocha, 2012, 2013, 2017; Szymytkie & Tomczak, 2015, 2017). The typology proposed in this article focuses on functional transformations defined as a change of business entities in number and in structure, and a change in employment in economic sectors. The authors are fully aware that the selected indicators depict only one of many facets of socio-economic and spatial processes taking place in the analyzed area. Nevertheless, functional changes are the key symptom of rural transformation. This approach is also reflected in typologies of rural districts in which administrative districts are divided according to their functions (Sleszyński & Komornicki, 2016).

Based on the premises mentioned above, the article focuses on three goals:

1) to identify functional changes of villages in peripheral/problem areas of Kłodzko County in order to verify whether the analysis yields enough reliability for starting a discussion on rural revival despite a long-term depopulation trend;

2) to innovatively use the functional typology at the level of villages in Kłodzko County in order to recognize the character and spatial differentiation of functional transformations;

3) to demonstrate that in studies which use functional typology for local policies there is a clear need to descend to a lower level of analysis (from districts to villages) in order to gain a better insight into the problem areas and focal points of revival.
2. Data and Methods

A vast majority of functional typologies of villages in Poland are, in fact, functional typologies of rural areas defined as districts, not villages (see: Bański & Stola, 2002; Heldak, 2008; Bański 2009, 2014; Stacherek & Heldak, 2013, 2019; Mazur, Bański, Czapiewski, & Sleszyński, 2015; Szymirkie & Tomczak, 2015; Sleszyński & Komornicki, 2016). Such an approach is conditioned mainly by limited access to detailed statistical data at a local scale. Effectively, the results are averaged. Additionally, the typologies put forward by many authors for different areas and in different periods are incomparable because of varied categories, indicators, and threshold values applied. What is more, there are severe formal limitations which stem from ever-changing methodologies for statistical data collection at administration offices and from changing administrative divisions (Bański, 2014).

Since there are no functional typologies pertaining to villages, in this research we used the methodology applied by Jerczyński (1977) to determine functional types of cities. His typology was widely used to identify functional changes in cities (Jaroszewska & Maik, 1994; Matczak, 1992; Suliborski, 2001; Szymańska & Grzelak-Kostulska 2005). Until now, it has never been used to identify functional types of villages. The reasons for this were: limited access to data at the level of villages and a common belief that villages have primarily agricultural functions. Neither of these reasons holds true today. Jerczyński’s typology is based on identification of the proportion of employment in 3 economic sectors (agriculture, industry, services), which then distinguishes 10 functional types of settlement units: agriculture [A], agriculture-industry [AI], agriculture-service [AS], industry [I], industry-agriculture [IA], industry-service [IS], service [S], service-agriculture [SA], service-industry [SI], and no dominant function [X] (Table 1).

Entry data comes from the National Official Business Register (REGON) run by the Central Statistical Office (GUS) in Poland. It contains information on every locality, including each business entity’s legal address, type of economic activity (according to sections in Polish Classification of Activities), and size (number of employees). The analysis for Kłodzko County covers the two years: 2004 and 2016. The choice of years for analysis is limited by the availability of consistent data.

| Percentage employed in agriculture | Percentage employed in industry | Percentage employed in services | Functional type of a locality |
|-----------------------------------|---------------------------------|--------------------------------|------------------------------|
| max | min | max | min | max | min | |                        |
| 100 | 60  | 40  | 0   | 40  | 0   | agriculture [A]       |
| 60  | 37.5| 50  | 25  | 25  | 0   | agriculture-industry [AI] |
| 50  | 25  | 25  | 0   | 50  | 25  | agriculture-service [AS] |
| 25  | 0   | 60  | 37.5| 25  | 0   | industry [I]           |
| 50  | 25  | 25  | 0   | 60  | 37.5| industry-agriculture [IA] |
| 25  | 0   | 50  | 25  | 50  | 25  | industry-service [IS] |
| 50  | 25  | 50  | 25  | 50  | 25  | service-agriculture [SA] |
| 50  | 25  | 50  | 25  | 50  | 25  | service-industry [SI] |
| 50  | 25  | 50  | 25  | 50  | 25  | no dominant function [X] |

Source: Jerczyński (1977).
However, the data itself is valid to depict a functional transformation of villages which took place after Poland’s EU membership in 2004.

The analysis includes all villages of Kłodzko County with business entities active in 2004 and/or 2016 (168 villages). Additionally, 95 declining villages, which presumably show the lowest potential for development, were chosen to scrutinize functional transformation in these most disadvantaged localities. A village is defined as declining if it has experienced the most severe depopulation (i.e. 50%, calculated by comparing the maximum size of the population, based on censuses from mid-19th century until pre-war times, with the minimum size of the population in post-war times (Latocha et al., 2018), and also is a small village (population up to 250 inhabitants). Villages with no registered businesses were excluded from the analysis. They were either completely depopulated like Karpno, Piaskowice, Rogóźka, Wrzosówka, Zimne Wody and Czerwony Strumił, or economically inactive (Poniątow and Szkłary) (Fig. 1).

Desk analysis of data from the National Official Business Register (REGON) was complemented by on-site study visits to determine the current situation in the villages.

3. Results

Between 2004 and 2016 the number of business entities in Kłodzko County went down by 7.2% (from 24,201 to 22,448). The decrease was more marked in rural (by 8%) than in urban areas (by 6.8%) of the County. The agriculture sector shrank most significantly, by 18.5% (from 6455 to 5260 business entities) (Table 2).

In the period 2004–2016 the number of the employed increased slightly (from 55.6 thousand in 2004 to 57.2 thousand in 2016, based on data from the National Statistical Office). Although the number of business entities in Kłodzko County changed, it didn’t significantly affect the number of the employed. It is the structure of employment in sectors of the economy that got modified (Table 3). In Kłodzko County, employment in the service sector increased from 56.5% to 60.1%. In agriculture, employment dropped by 1.7 pp (percentage points), and in the industrial sector it went down by 1.9 pp. Considerable change can be observed in rural areas where increased employment in services (by 6.2 pp) is accompanied by decreased employment in agriculture (by 6.2 pp). These numbers are very similar for declining villages and other rural areas.

Maps show a visible differentiation (in the form of a mosaic) of the scale of transformation. A substantial decrease in agriculture (in 126 villages in total) can be observed in the central part of the region, in some mountain villages, and near towns (Fig. 2). At the same time the spatial distribution of changes in functional types of villages (see Fig. 3).

Between 2004 and 2016, almost half of the villages under study (83) changed their functional type. 45% of declining villages did so, compared to 55% of other villages (Fig. 4). The number of villages with a dominant agriculture function (A, AI, AS) decreased from 126 to 110 (by 9.5 pp). The number of villages with dominant service function (S, SA, SI) increased from 23 to 43 (by 11.9 pp). In total, as many as 39 villages (23.2%) in Kłodzko County changed the dominant sector of their economy (Table 4, Table 5, Fig. 5). These changes were usually caused by an increase of employment in the services at the cost of employment in the agriculture.

Declining villages stand out visibly among villages with the dominant employment in the agriculture sector (A, AI, AS), as 77% of the disadvantaged locations belong to these three functional types. Among other villages, only 50% have a dominant agriculture function (Table 4, Table 5). On the level of the County, 66% of the villages belong to functional types related to agriculture. The dynamics of decline in the number of villages in this functional type is similar across the declining and other villages (a general drop of 8–9% in the number of agricultural villages). So agricultural functions, despite their diminishing importance, are still dominant functions of rural areas of the region.

What makes declining villages different from other villages though, is a less marked increase in the number of villages with a dominant employment in the service sector (types S, SA, SI). In the period 2004–2016 the number of declining villages with a dominant employment in the service sector increased only by 5 pp, while among other villages this category grew by 20 pp. Overall, in 2016 25% of the villages in the Kłodzko County had dominant service functions.

The most frequent functional changes in villages of Kłodzko County are transitions from agriculture to agriculture-service (17 changes), agriculture-service to service-agriculture (8), agriculture to agriculture-industry (5) and service-agriculture to service (5) (Table 6, Table 7, Fig. 5). However, there is a big differentiation of transitions between declining and other villages. In case of the former, 45% of villages maintained their agricultural function and among the latter – only 10%. The dynamics of changes in declining villages is thus lower than in the other villages, even though 17 declining villages (18%) changed their function from agriculture [A] to AS, AI and SA (Table 7, Fig. 5) and 10 declining villages (10.5%) changed their dominant economic sector.

The spatial distribution of changes in functional types of villages between 2004 and 2016 depicts more intense changes in villages located in the central parts of the region, and especially in the suburban zone of Kłodzko. Villages which did not experience a change of functional type are concentrated in the southern parts of the region, which was traditionally agriculture- and forestry-oriented. However, in general, villages which did change and others which did not change are dispersed across the areas where tourism-related functions have recently developed dynamically (villages in the Snieżnik Massif and Bialskie Mountains) (see Fig. 3).

Table 2
Change in number of business entities divided by sectors of the economy and types of areas in Kłodzko County from 2004 to 2016.

| Area / sector of the economy | Primary (Agriculture) | Secondary (Industry) | Tertiary (Services) | Total |
|-----------------------------|-----------------------|----------------------|--------------------|-------|
|                             | Year | change | Year | change | Year | change | Year | change |
| Kłodzko County              | 6455 | 5260   | -18.5% | 2913 | 2925 | 0.4% | 14833 | 14263 | -3.8% | 22401 | 22448 | -7.2% |
| Urban area                  | 1630 | 1368   | -16.1% | 2081 | 1869 | -10.2% | 12151 | 11539 | -5.0% | 15862 | 14776 | -6.8% |
| Rural area                  | 4825 | 3892   | -19.3% | 832 | 1056 | 26.9% | 2682 | 2724 | 1.6% | 8339 | 7672 | -8.0% |
| Declining villages          | 1239 | 991    | -20.0% | 111 | 150 | 35.1% | 391 | 481 | 23.0% | 1741 | 1622 | -6.8% |
| Other villages              | 3586 | 2901   | -19.1% | 721 | 906 | 25.7% | 2291 | 2243 | -2.1% | 6598 | 6050 | -8.3% |

Source: Authors’ own work based on National Official Business Register (REGON) database
the region, and their spatial distribution form a mosaic of localities (Figs. 4 and 5).

The service sector plays a vital role in functional changes in villages, so it was examined in detail (Table 8). The most important part of the service sector in all depopulated villages is tourism, especially accommodation and gastronomy. Domination of this function is even greater in declining villages, which noted a total increase of 55% in the number of business entities related to tourism between 2004 and 2016. It is a very high increase in the context of an average loss of 3% in tourism services in rural areas of Kłodzko County, and also, similarly, in urban areas. Also, the percentage of people employed in tourism was much higher in declining villages than it was in other areas.

4. Discussion

The data presented above should be interpreted in a broader context of the current socio-economic concepts referring to the opportunities and constraints of development of rural areas, and especially in marginal and peripheral regions. Marginalization can be defined in different ways, including: underdevelopment, lack of resources, distance, relation, oppression, closure, lack of cultural integration, lack of adaptation to norms and there are many diverse criteria, which can characterize the marginal areas (Bernt & Colini, 2013; Leimgruber, 2004; Pelc, 2017). In the spatial context marginality covers diverse aspects of insufficient integration, relatively low level of development, and economic, social, political and cultural disadvantage (Schmidt, 2007). There are numerous studies aiming to diagnose and produce solutions for future developments of these less privileged rural areas, especially that the role of traditional agriculture is declining in many parts of the world. The new development paths need to be invented for rural areas and one of the ideas is multifunctional development (multifunctional transition) (Gannon, 1994; Holmes, 2006, 2012). It is seen as a remedy against marginalization, regression and depopulation of monofunctional, agriculture-dependent rural areas (Berkel & Verburg, 2011; Bogdanov & Vasiljevic, 2011; Kutkowska, 2012; Pinto-Correia et al., 2016).

The results of our study show that marginal rural areas went through a multi-faceted transformation in the recent years. It is indicated by changes in the number and type of business entities, in the percentage of employees in specific sectors of the economy, and consequent transformations of functional types of villages. However, the decrease in the number of business entities observed in towns as well as in different categories of villages is open to interpretation. The data presented was affected by the world-wide economic crisis of 2008, which also worsened the micro- and macroeconomic situation of the region. At the same time, the National Official Business Register (REGON) was in the process of improving data quality by removing long-inactive business entities from the register. Consequently, the decrease in the number of business entities might not be as high as the data suggests. This assumption is supported by the observed increase in the number of the employed in Kłodzko County in the analyzed period. Regardless of the caution which should be taken when interpreting data from diverse statistical sources, which other authors advise (Pinto-Correia et al., 2016), it is clear that the agriculture sector has lost many business entities. It is a widely observed phenomena across many regions in the world and it is perceived as a typical process for rural areas under the globalisation processes, leading to inevitable transformations of rural economies (Bogdanov & Vasiljevic, 2011; Ventura-Lucas et al., 2011).

In the recent decades the impact of globalisation on socio-economic processes has been especially pronounced in the Central European countries. Firstly, this was due to their transition from state, centrally planned to the free market economies. Secondly, this was due to their accession to the European Union and increased synergies with the global market. Rural areas are especially affected by these transformations, facing both new challenges and opportunities (Amin, 2002; Gannon, 1994; Kairytė, 2015; Woods, 2007, 2013). These phenomena pertain to the two newly proposed categories of villages within the peripheral areas, which were identified, defined and analyzed in our study: declining villages and reviving villages. These two categories can be interpreted as diverse in form, local reactions to the global processes of socio-economic transformations, proving the importance of site-specific assets and constraints in the resulting responses to external, global driving forces of changes.

Since Poland has joined the European Union in 2004 there was a substantial qualitative and quantitative change in the structure of employment in the study area. The region has experienced an increase of employment in services and a decrease in agriculture and industry.

It is a positive sign of land consolidation by owners of larger and more cost-effective farms, and of liquidation or lease of small, economically inefficient farms. Both of these processes are desired for the future rural development in Poland (Dudzińska, Bacior, & Prus, 2018). In the relatively short period between 2004 and 2016, the transformation of functional types took place in half of the villages under study, and for a quarter of the villages it meant a complete change of the dominant sector of the economy. In localities which changed their functional profile, especially if they transformed from agriculture to service, industry or mixed sector, there should be examples of positive functional changes and of socio-economic revival. Although it is the agriculture sector that still dominates in villages of Kłodzko County (a third of the villages are still predominantly agricultural), there is a significant drop in the number of agriculture-oriented villages. This drop is compensated by development of multifunctional rural areas, with a special role of the service sector. As a result, there is much more diversity in functional types of villages today than there was a few years ago, which should be interpreted as a positive and desirable direction of transformation. Most functional changes are gradual – first there are mixed functional types (transition from A to AS, AI, SA – Table 7), and then there may be a complete change of the dominant function. It is also worth noticing that even if the village did not change its functional type,

| Area / sector of the economy | Primary (Agriculture) | Secondary (Industry) | Tertiary (Services) |
|-----------------------------|-----------------------|----------------------|---------------------|
|                             | Year 2004 | Year 2016 | change | Year 2004 | Year 2016 | change | Year 2004 | Year 2016 | change |
| Kłodzko County              | 16.6      | 14.9      | -1.7    | 26.9      | 25.0      | -1.9    | 56.5      | 60.1      | +3.6   |
| Urban area                  | 6.5       | 5.9       | -0.6    | 28.4      | 25.8      | -2.6    | 65.1      | 68.3      | +3.2   |
| Rural area                  | 44.3      | 38.1      | -6.2    | 23.0      | 23.0      | 0.0     | 32.7      | 38.9      | +6.2   |
| Declining villages          | 58.0      | 51.6      | -6.4    | 16.2      | 16.5      | +0.3    | 25.8      | 31.9      | +6.1   |
| Other villages              | 41.3      | 35.1      | -6.2    | 24.5      | 24.5      | 0.0     | 34.2      | 40.4      | +6.2   |

Source: Authors’ own work based on National Official Business Register (REGON) database
there may have been a qualitative change, e.g. from intensive to extensive, or ecological, food production.

The number of business entities dropped mainly in villages which did not change their functional type (in 64 out of 108 villages). An increase in the number of business entities was observed in villages where employment in the agriculture sector went down, and the functional type changed from [A] to other types (in 15 villages). It may suggest the development of non-agriculture functions, confirming the shift towards multifunctional rural areas. On the level of Kłodzko County between 2004 and 2016 there was an overall transition of rural areas from an agriculture-service to a service-agriculture profile.

Although the observed changes are of small size and of limited dynamics, their occurrence itself can be interpreted as a positive outcome of transformation process. Such a positive outlook is vital for problem areas which need careful management (Strijker, 2005; Sleszynski & Komornicki, 2016). Results obtained in Kłodzko County show that problem areas can experience economic revival and go through positive functional changes.

Evidence from declining villages substantiates claims on the process of revival of marginal rural areas. The dynamics of functional changes in declining villages was much lower than in other rural areas, and about 45% of villages are still agriculture-dominated. But at the same time, these villages show a much higher dynamics compared to other areas of the region when it comes to an increase in the number of service entities.

Fig. 2. Changes in the proportion (percentage points) employed in the agriculture sector in villages of Kłodzko County between 2004 and 2016.
Sources: Authors’ own elaboration.

| Type | Description |
|------|-------------|
| I    | –100.0 to –25.0 |
| II   | –24.9 to –10.0 |
| III  | –9.9 to 0.0   |
| IV   | 0.1 to 10.0   |
| V    | 10.1 to 25.0  |
| VI   | 25.1 to 100.0 |

Types of districts: 1 – urban, 2 – rural.
Types of villages: A – declining, B – other, C – with no business entities.
businesses, especially in the tourism sector, measured by the increase in the number of business entities and the percentage of employment in tourism services (food and accommodation). Data has clearly shown that these villages stand out in the region. However, there must be rather small businesses, with only a few employees, because the increase in the number of employees is smaller than the increase in the number of firms. We also observed that the number of industrial businesses grew in declining villages more than in other villages, and in contrast to the urban areas, where the industrial sector is shrinking. This may suggest that industrial activities have moved from urban to suburban areas, in a process of economic suburbanization (Hamilton, 1999; Kewani, Parsa, & McGreal, 2001; Kubes, 2013; Timár & Váradi, 2001). In general, about 18% of declining villages moved from mono- to multifunctional structure. The scale and speed of transformation may not be perceived to be spectacular. However, for many years it has been a heavily depopulated region with many obstacles to more dynamic development, characterized by economic regression and increasing marginalization (Ciok, 1991). Therefore the obtained data should be interpreted as positive signs of development for at least some of the villages under study and their return to the economic development path as discussed by Li et al.
(2019).

The spatial diversification of current transformations of rural areas is especially important for getting deeper insight into the processes and factors which are responsible either for further degradation of marginal areas or for their gradual revival. The common concept of “the core – periphery” (Wight, 1983) can only be partially applied to the observed diversification of functional changes in the analyzed villages. Although there are some “hot-spots” of main functional changes in rural areas around towns, which can be associated with suburbanization, the rather mosaic-type pattern of the observed changes indicates the explanatory insufficiency of that model. There are rather the local, site-specific assets and constraints, which are responsible for the spatial diversification of the development path of each village. They should be interpreted in the context of both the social (Courtney & Moseley, 2008; Eliasson, Westlund, & Fölster, 2013; Ventura-Lucas et al., 2011) and territorial capital, and especially the environmental resources (Greffe, 1994; Sánchez-Zamora et al., 2014; Berkel & Verburg, 2011) which allow for the development of tourism, which is perceived as one of the key factors in overcoming the negative effects of long-lasting marginalization as discussed below.
D. Sikorski et al.

Applied Geography 122 (2020) 102223

9

Table 4
Functional changes in villages with dominant employment in agriculture and services in Kłodzko County between 2004 and 2016 – a synthetic comparison.
Source: Authors’ own work based on National Official Business Register (REGON) database and Jerczyński (1977).

| Functional type | Rural area | Declining villages | Other villages |
|-----------------|------------|--------------------|---------------|
|                 | 2004       | 2016               | 2004          | 2016          | 2004          | 2016          |
| agriculture[A]  | 92         | 68                 | 66            | 50            | 26            | 18            |
| agriculture-industry[AI] | 8          | 13                 | 3             | 6             | 5             | 7             |
| agriculture-service [AS] | 26        | 29                 | 12            | 17            | 14            | 12            |
| industry[I]     | 6          | 3                  | 3             | 2             | 3             | 1             |
| industry-agriculture [IA] | 0          | 1                  | 0             | 1             | 0             | 0             |
| industry-service [IS] | 3          | 3                  | 0             | 1             | 3             | 2             |
| service[S]      | 10         | 19                 | 6             | 10            | 4             | 9             |
| service-agriculture [SA] | 11        | 19                 | 3             | 4             | 8             | 15            |
| service-industry [SI] | 2          | 5                  | 0             | 0             | 2             | 5             |
| without a dominant function | 8          | 7                  | 1             | 3             | 7             | 4             |
| no business entities | 2          | 1                  | 1             | 1             | 1             | 0             |

Source: Authors’ own work based on National Official Business Register (REGON) database and Jerczyński (1977).

Table 5
Functional types of villages in Kłodzko County in 2004 and 2016.

| Functional type | Rural area | Declining villages | Other villages |
|-----------------|------------|--------------------|---------------|
|                 | 2004       | 2016               | 2004          | 2016          | 2004          | 2016          |
| agriculture[A]  | 92         | 68                 | 66            | 50            | 26            | 18            |
| agriculture-industry[AI] | 8          | 13                 | 3             | 6             | 5             | 7             |
| agriculture-service [AS] | 26        | 29                 | 12            | 17            | 14            | 12            |
| industry[I]     | 6          | 3                  | 3             | 2             | 3             | 1             |
| industry-agriculture [IA] | 0          | 1                  | 0             | 1             | 0             | 0             |
| industry-service [IS] | 3          | 3                  | 0             | 1             | 3             | 2             |
| service[S]      | 10         | 19                 | 6             | 10            | 4             | 9             |
| service-agriculture [SA] | 11        | 19                 | 3             | 4             | 8             | 15            |
| service-industry [SI] | 2          | 5                  | 0             | 0             | 2             | 5             |
| without a dominant function | 8          | 7                  | 1             | 3             | 7             | 4             |
| no business entities | 2          | 1                  | 1             | 1             | 1             | 0             |

Source: Authors’ own work based on National Official Business Register (REGON) database and Jerczyński (1977).

Additionally, spatial analysis of the transformation processes shows that agriculture activities are in retreat from less favourable areas. The most significant drop in the employment level in the agriculture sector took place in mountainous areas and in small villages where acreage is limited. It was also observed during field surveys in areas predisposed to developing other functions: located in suburban zones of towns (including spa towns) and in localities attractive to sport amateurs and tourists. They can be interpreted as a “self-regulating” systems, which can also be linked with the collapse of the economic and social structures of the centrally planned economy under the communist regime (Ferrão & Lopes, 2004; Scholz, 2005). The new globalized trends might lead to the marginalization of some peripheral areas, however, they might also be an opportunity to better adapt the local economies both to the natural environmental conditions, and to the current social needs and expectations. The latter ones are in accordance with the concept of the tourism transition, which is related to the recent changes in perception of peripheral areas from marginalized agricultural production lands into the attractive tourist and recreation spots (Brown & Hall, 2000; Jepson & Sharples, 2015; Salvatore et al., 2018). These changes contribute much to the functional transformations of rural areas. This is also the case of the Kłodzko region, where paradoxically, it is the long-lasting depopulation, land abandonment, and, effectively, landscape re-naturalization which contribute to the increased popularity of the region. It attracts especially people who live in urbanized areas and seek contact with nature, which is typical tendency also in other countries (Almeida et al., 2016; Bijker et al., 2012). However, it is worth highlighting that there are not only short term visitors coming to the region but there is also a substantial amount of former urban dwellers who moved to the rural areas. In many cases these newcomers are responsible for creating new businesses (mainly in tourism sector) and social networks within local communities. In this context the common perception of the peripheries being exploited by the core areas due to the tourism development (i.e. Chapiron & Bramwell, 2012; Salvatore et al., 2018) is only partially applicable in our study area. The impact of the core should be perceive also as a positive impulse for an enrichment of the social capital of the local communities due to the newcomers.

The role of new tourist-related business entities in the functional transition of the study area is not surprising as the rural tourism is perceived as the best development strategy for the problem, marginal and peripheral rural areas, which has been discussed in numerous studies (i.e. Wilson et al., 2001; Briedenhann & Wickers, 2004; Cawley, 2009; Kutkowska, 2012; Carneiro et al., 2015; Lun et al., 2016; Randelli & Martellozzo, 2019). Although it is not an universal remedy for all declining rural areas and it may have negative side-effects as well (Gannon, 1994; Kauppila et al., 2009; Sharples, 2002), for many marginal lands it is the best if not the only solution for restructuration and enhancement of rural economies. The role of rural tourism is vital as it often triggers further positive changes in the local economy, bringing new investments and facilities, and influencing other activities, enterprises and economic growth of the region (Gannon, 1994; Greffe, 1994; Ribeiro & Marques, 2002). Also the paradigm of the post-urban world perceives the development of tourism as often the only solution for otherwise fading and declining peripheral countryside, especially if it is located far away from the core urban metropoles (Haas & Westlund, 2017).

From the methodological point of view, the study has also shown that the functional typology adopted for the research proved useful to analyze the smallest settlement units (villages). Such an approach is novel in the field. It shows that the analysis of socio-economic transformation made on the level of villages produces a functional typology that is very different to typologies made for districts or counties. Transformations of villages which have been taking place in recent years are more spatially inhomogeneous and demonstrate more functional differentiation than it is presented in more general studies (Bainski, 2014; Heldak, 2008; Sleszyński & Komornicki, 2016). Therefore the concept of polarization of rural areas proves itself on the nation-state level. However, it has limitations when applied to the analysis on the local scale, as shown by the dispersed, mosaic composition of change/lack of change in the study area. The general tendency of growing differentiation and complexity of peripheral areas world-wide forces implementation of new typologies and classification tools with better resolution for the site-specific analysis (Bogdanów & Vasiljevic, 2011; van Eupen et al., 2012; Paniagua, 2013). It is also in accordance with the concept of the “new rural paradigm”, where the local strengths and qualities should be the main base for the local developments (OECD, 2006; Norgaard, 2011).

Such a conclusion is important for management of marginal/peripheral rural areas (Leininger, 2004; Pelt, 2017). Understanding changes which take place on the local level allows for customization of local policies and entitlement programs, etc. (Berkel & Verburg, 2011; van Eupen et al., 2012; Sajewicz, 2018; Li et al., 2019). It is particularly important for problem areas where – as shown in the example of Kłodzko County – there might be local focal points of economic development which spill over to adjacent areas. Local symptoms of rural revival cannot be captured in analyses made for larger administrative units, although the mosaic character of space in Poland was presented in some earlier studies (Sleszyński & Komornicki, 2016). Effective local policies need to be based on accurate data, and even the slightest evidence for rural economic revival should be taken into account in functional
typologies aimed at strategic local planning. It is important, that local assets rooted in specific localities would be acknowledged (Bański, 2016; Ventura-Lucas et al., 2011). Specific problem areas and areas of growth can be identified only when analysis is made on a local scale. These both types of areas may be adjacent, yet require different strategies for development as EU programs and strategies postulate (Almeida et al., 2016; Bański & Mazur, 2016).

5. Summary and conclusions

The article presents functional changes in rural marginal and problem areas in the context of the discussion on rural revival in peripheral...
adopted for analysis. In a micro scale, it is possible to observe even the slightest signs of positive economic transformations in villages. These are disputable when a local, and especially a micro scale (village-specific), is taken into account (Bański, 2008; Konopińska, 2016). Especially, that the need for further research on revitalization, renewal and revival of rural areas has been suggested by many authors (Allison & Hobbs, 2004; Gleeson, 2008; Larsen & Barker-Reid, 2009).

Klodzko County has been for many years classified as a problem/ peripheral area (Ciok, 1991; Zagózdzioń, 1995). This classification remains true nowadays, but only if large administrative units are taken into account (Bański, 2008; Konopińska, 2016). However, it becomes disputable when a local, and especially a micro scale (village-specific), is adopted for analysis. In a micro scale, it is possible to observe even the slightest signs of positive economic transformations in villages. These signs may allow for identification of local factors and conditions for development (or stagnation/recession). It is especially important in the regions which are perceived as problem/peripheral regions.

Marginalization of rural areas affects many countries, and their revival can be observed only on a local level (Almeida et al., 2016; Heffner & Czarnecki 2011; Li et al., 2019). Peripheral and problem areas need directed systemic support addressed to specific locations and not to districts.

The region under study follows trends of functional transformation observed in other parts of the world where the paradigm of multifunctional rural development is a common answer to stagnation and regression in rural areas. However, it should be noted in particular that transformation also occurred in villages with the least favourable conditions for development – they are the smallest and most depopulated. This proves that even in marginal/problem regions there may be a breakthrough in negative trends and a return to a development path for at least some parts of such regions. The conditions affecting transformation which are responsible for a significant differentiation of adjacent villages remain an open question and will be analyzed in a separate study. Also there is still an uncertainty about the permanence and sustainability of the revival processes – will the positive socio-economic trends spread to the adjacent rural areas or are they only site-limited and there will be no further growth? The observation period for the new revival processes is at the moment too short to draw far-reaching conclusions about the future developments of the marginal areas. However, there is no doubt that they have already been substantially and visibly transformed within the last years.

The results of our study, which can be potentially adopted also to other peripheral rural areas, can be summarized as follows.

- Signs of socio-economic revival in the form of changes in functional types of villages are observed in areas which, for many years, have been classified as marginal and problem ones (including declining villages). These results allow to propose a new category of a “reviving village”.
- Evolutionary multifunctional rural development in marginal/peripheral/problem areas with increased differentiation of functional types of villages in the period 2004–2016. A decrease in the number of villages with a dominant agriculture function, and a simultaneous increase in the number of villages with service functions, especially tourism.
- Significant spatial differentiation of functional changes in the problem region, which suggests considerable influence of local conditions on the course and scale of transformation in rural areas, and which also implies that “problem area” is a heterogeneous category.
- The importance of the tourism potential for the economic revival in the region.
- Theoretical and empirical scope to apply a functional typology of villages (not only of cities) based on the employment structure in main sectors of the economy.
- The vital need for analyses, including typologies, of the smallest administrative units (villages) in order to capture current processes

Table 7
Main transitions of functional types of villages in Kłodzko County between 2004 and 2016.

| Main transitions of functional types | Declining villages | Other villages |
|-------------------------------------|--------------------|---------------|
| stable (A to A)                     | 43                 | stable (A to A) |
| from A to AS                        | 13                 | from A to AS   |
| stable (S to S)                     | 6                  | from SA to AS  |
| stable (AS to AS)                   | 3                  | from A to SA   |
| from A to AI                        | 3                  | from SA to S   |
| from AS to SA                       | 3                  | from X to SA   |
| from A to SA                        | 1                  | Source: Authors’ own work based on National Official Business Register (REGON).

Table 8
Business entities and employees in tourism divided by categories of areas in Kłodzko County in 2004 and 2016.

| Area characteristics of tourism | Number of tourism business entities | Percentage of employment in the tourism sector |
|---------------------------------|-------------------------------------|---------------------------------------------|
|                                  | 2004 | 2016 | change | 2004 | 2016 | change |
| Kłodzko County                  | 1035 | 1008 | -2,6%  | 3,3% | 3,6% | 0,3%   |
| Urban area                       | 771  | 752  | -2,5%  | 3,2% | 3,6% | 0,4%   |
| Rural area                       | 264  | 256  | -3,0%  | 3,4% | 3,6% | 0,2%   |
| Declining villages               | 63   | 98   | 55,6%  | 6,2% | 8,0% | 1,8%   |
| Other villages                   | 201  | 158  | -21,4% | 2,8% | 2,7% | -0,1%  |

Source: Authors’ own work based on National Official Business Register (REGON).
in rural areas and to adjust strategies, support, and development policies to local assets and local needs.

- The necessity of analyses based on functional typologies in a dynamic (focused on change) instead of a static approach (focused on fixed values in a given year).

**CReditT authorship contribution statement**

Dominik Sikorski: Methodology, Formal analysis, Writing - review & editing. Agnieszka Latocha: Conceptualization, Writing - original draft, Writing - review & editing, Supervision, Project administration, Visualization. Robert Szymtyk: Methodology, Writing - review & editing, Visualization. Katarzyna Kajdanek: Writing - original draft, Writing - review & editing. Paulina Miodonska: Writing - review & editing, Visualization. Przemysław Tomczak: Writing - review & editing.

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