

Non-Agricultural Economic Functions of Rural Areas in the Łódzkie Voivodship (1999–2009)

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Abstract

This article addresses the issue of functional development of rural areas in the Łódzkie Voivodship. Empirical research was preceded by a description of directions in the functional research of rural areas. There are two methods of functional research in geographical studies of rural areas. The first tradition has developed on the basis of settlement geography, while the second lies within the area of agricultural geography where the efforts were concentrated on identification of the functional structure of rural areas. Functional research operating within the concept of a rural area as a multifunctional space differs considerably from the concepts based on the theory of a settlement network or a system concept. In the concept of multifunctional areas, a function is a certain quality of this area, whereas in the theory of a settlement network a function is understood as an activity which describes the rank of a settlement and its relation to other settlements. The article attempts to identify functions of rural areas within the framework of a system concept. In settlement geography functional studies include primarily a description of the settlement structure by the means of depicting a place and explaining the meaning of certain elements within the whole (i.e., in the settlement system). In the research, functions of rural areas are identified within the scope of the functional whole, which in turn is a commune's settlement network. Indirect methods of dividing the functions of this entity into those endogenous and those exogenous simultaneously describe their local (endogenous) and specialised (exogenous) meanings. The results of the research, and the conclusions drawn, prove that the methods of direct measurement of economic base complements, within the concept of multifunctional space, rural studies very well. The division of employment into exogenous and endogenous and identification of its areas of concentration provides a way to illustrate the rate of a commune's economic openness, and therefore, the connection with other settlement systems. Among the most important conclusions emerging from the results of the research the following should be noted. There is a systematic growth of the importance of non-agricultural functions in the rural areas of the Łódzkie Voivodship (1999–2009). The most important system-forming element among non-agricultural functions is manufacturing, trade and transportation. Non-agricultural functions are characterised by relatively high spatial concentration, especially in the Łódź Agglomeration and in the suburban zones of medium towns.

Introduction

Functional research is one of the most popular ways to identify and interpret transformation of socio-economic structures. The methods for determining the functional structure of territories (regions, cities, or villages), are considered to be a relatively simple and convenient way to present their economic base (see Suliborski 2010; Wójcik 2010). Functional analysis, regardless of its theoretical concept, has many advantages. These are connected primarily with the possibilities of determining the overall, comprehensive economic characteristics of the area. In the social sciences, including socio-economic geography, there has never been a model of functional research. In geographical studies of the spatial structure of rural areas there are substantial differences in defining function and its interpretation in terms of economic development.

The concept of functional research in the geography of rural settlement often referred to the models developed in urban geography. The functions were determined mostly on the basis of

* [Voivodship—Polish administration region on the NUTS 2 level—Ed.]

economic activity of inhabitants or available facilities and institutions. However, functional methods developed in urban geography have not found wider application in the concepts developed by agricultural geographers (cf. Stola 1987; Bański and Stola 2002). In agricultural geography, and later (from mid-1970s) in the geography of multifunctional rural areas, the functions were identified with certain properties of those areas (see Kostrowicki 1980). Properties of rural areas inform us about their purpose or use. A classic example of such a study is to identify land use as well as types of agriculture and multifunctional structure. Functional relationships are thus identified in terms of coexistence and the covariance of specific features.

1 Economic functions of rural areas in the system concept

In functional analysis it is crucial to determine the role of economic activity, namely its economic importance in the larger wholes, i.e. settlement systems (mostly regional and national). The functions of the settlement units include all socio-economic activities, regardless of their economic and spatial importance.¹ Socio-economic activities, usually combined into statistical groups—sections, groups, subgroups, etc., and performed in settlements are its functions. Functions describe its economic role in the settlement system.

In the concept of economic base economic functions are divided into two sectors—exogenous and endogenous. The size of the exogenous sector indicates the strength of links of a settlement unit with other areas. Exogenous function is identified with over-normative employment (over the assumed level) in specific activities. The endogenous sector meets the needs of residents of settlements. Exogenous activities (functions) are, therefore, important as system-forming and determine the status of a settlement unit in the settlement system (Suliborski 2001, 2010).

Determining the level of non-agricultural economic functions is a complex issue. An important obstacle in getting the overall insight into the structure of non-agricultural functions is a lack of precise estimates of employment in small businesses (0–9 employees). Statistics on small business, based on the REGON data system, also include businesses which have not been removed from the register and thus represents only an approximation (cf. Śleszyński 2003; Kamińska 2006; Wójcik 2008).

Determining the significance of the exogenous sector requires using a suitable average employment rate in the individual branches of economic activity and, on this basis, estimating its size. This method gives only an approximation of the employment size in a given type of activity, and may increase the total number of employees due to the fact that some employees hold more than one job (work in the sector of micro, medium and large enterprise). For larger companies (employing more than 9 people) one can use the annual reports of the Central Statistical Office of Poland (GUS—Główny Urząd Statystyczny) on employment aggregated down to the level of rural gminas, rural parts of urban-rural gminas and towns (based on the Z-06 form). This statistic is usually used in studies of the economic base of towns and rural areas (see e.g., Wójcik 2010; Suliborski 2002).

The data on the number and structure of employees by sectors of national economy, identified from the workplace position, is often used as a measure of the development of functions. The measures based on employment statistics are not perfect and evoke controversy, but according to A. Suliborski (2001), nothing better has been developed so far for the macro-scale and comparative research. The main concerns relate to the fact that employment is not directly proportional to the function size (see Suliborski 2001, 13–14).

When the methodological basis of the research on rural areas as multifunctional space was being established, the assumptions of system theory and concepts of the economic base were not included in the study of the functional structure of rural areas. The concept of economic base has been developed in urban geography, and its interpretations and empirical verifications were carried out in the analysis of urban settlement systems. Some of its assumptions were used only in the research work on the concept of settlement complexes (Zagożdżon 1966). Due to the marginal nature of agriculture in urban areas, this activity was often overlooked in research. The theory of the economic base (developed in mature form in the 1940s) related to a large extent to the specific

1. More on this issue see Suliborski (2002, 2010).

social and territorial division of labour of the industrial era, and thus the classification of settlements according to the functional criterion (agricultural functions in villages and non-agricultural functions in towns and cities.) Not much attention was paid to the countryside as a component of the economic base resulting from a number of reasons, both ideological and technical-organisational issues. Among the most important are:

- the primacy of the ideology of industrialisation and social development programs based on industrialisation, especially in urban areas (urbanisation)
- the growing importance of manufacturing and services in GDP, thereby marginalisation of the economic function of agriculture
- specificity of agricultural activities (especially in underdeveloped or developing countries), which in many regions is non-profit (self-sustaining) and is not guided by principles of economic accounting (profit)
- identification of the function of the rural areas with agriculture and underestimation of rural areas as a business location (or potential location) for non-agricultural activities
- the economic and cultural discrimination against the countryside as areas lagging behind, and thus not seen as an essential partner in economic exchange (see Wójcik 2011)

Functional transformation of rural areas, especially the growing importance of service functions, drew attention of some researchers to the possibility of using other methods of measurement and methodological interpretation of multifunctional development. An attempt to adapt the concept of the economic base to rural areas was undertaken, among others, by M. Wójcik (e.g., Wójcik 2004, 2008, 2010).² In the system concept a settlement unit is identified with an area of the city, to which the data on activity of the population refers. In the case of rural areas, identification of these functions, from a formal point of view, requires treating a spatial reference unit as the sum of its constituent settlements. In this approach the function of the rural area is the sum of the activities carried out in all the settlements (i.e., villages) (Wójcik 2010).

The identification procedure of non-agricultural economic functions is based on statistical data on companies and organisations employing more than nine employees. This study on the level of micro-business development in rural areas of the Łódzkie Voivodship revealed that only some of them show a high saturation with small firms, i.e. above the national average (Wójcik 2012). These were mainly rural areas of the Łódź Agglomeration (i.e., those which show high levels of development of both medium and large enterprises). Non-agricultural functional differentiation of rural areas was thus identified with the use of the information relating to companies employing over nine people.

The most important component of the methodological procedure is to separate the share of employment in socio-economic activities which has an exogenous source. Determining the size of exogenous and endogenous sectors requires a suitable indirect study of the economic base (see Jerczyński 1973; Suliborski 2002). In such considerations the most commonly used indicator is the indicator of surplus workers (Hoyt indicator), which is a modified Florenc location coefficient. It has the following form:

$$(1) \quad Z_{nad_{iw}} = Z_{iw} - \frac{Z_w Z_{ik}}{Z_k}$$

where:

$Z_{nad_{iw}}$ — surplus employment in the business „i” in the area „w”,

Z_{iw} — employment in the business „i” in the area „w”,

Z_w — total employment in the area „w”,

Z_{ik} — employment in business „i” in the country,

Z_k — total employment in the country.

2. An attempt to use the concept of economic base was also undertaken by M. Dacko (2007). This analysis, however, was restricted to non-agricultural activities, broken down to only three sectors (manufacturing, market services and non-market services).

2 Characteristics of non-agricultural employment in rural areas of the Łódzkie Voivodship

In 2009, in rural areas of the Łódzkie Voivodship about 105 000 people were employed in the non-agricultural sector of medium and large firms, which constituted 18,7% of all employed outside agriculture in the region (see fig. 1).³ In the years 1999–2009 the number of employees in rural areas increased by 16 500 people. Also the role of rural areas in the concentration of jobs outside agriculture in the medium and large firms increased (from 15,6% to 18,7%).

The rapidly developing economic sectors include manufacturing (an increase of about 11 000 people), trade (an increase of around 3 600 people) and transportation and storage (an increase of approximately 2 800 people). A significant increase was also observed in the hotel, catering and education branches (fig. 2).

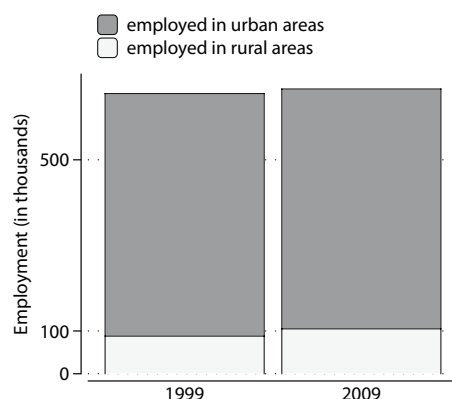


Fig. 1. Employment in the Łódzkie Voivodship in the medium and large enterprises in 1999 and 2009

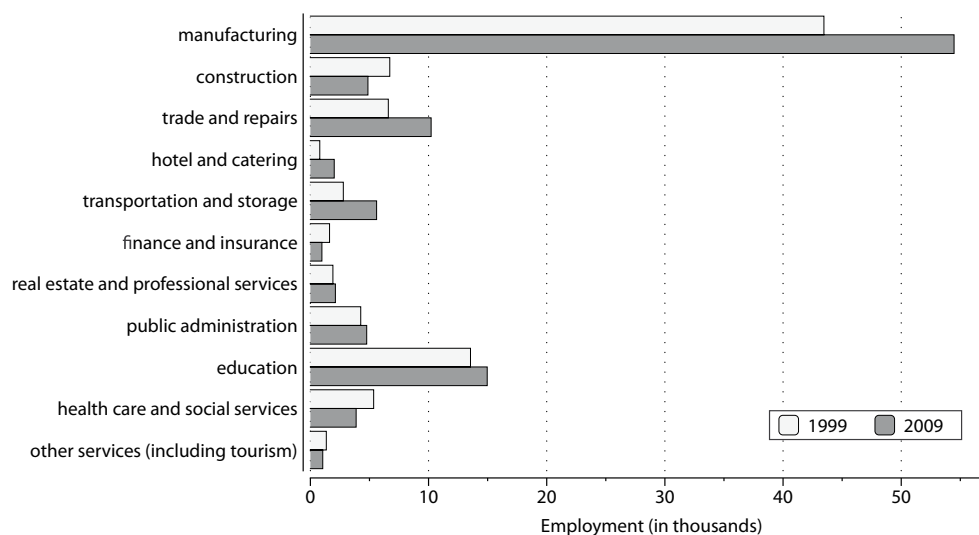


Fig. 2. Employment in rural areas of the Łódzkie Voivodship in the medium and large enterprises in 1999 and 2009 by the Polish Classification of Activities (PKD) sections (2004)

3. Source materials were derived from the Regional Statistical Office in Łódź and provide statistical information for 1999 and 2009 on the number of employed by sections of the Polish Classification of Activities (PKD 2004) in businesses which employ more than nine people. Statistical information refers to 159 rural areas (rural gminas or rural parts of urban-rural gminas).

[In the journal (in both Polish and English texts) European practice of number notation is followed — for example, 36 333,33 (European style) = 36 333.33 (Canadian style) = 36,333.33 (US and British style). Furthermore in the International System of Units (SI units), fixed spaces rather than commas are used to mark off groups of three digits, both to the left and to the right of the decimal point. — Ed.]

The largest share in the employment structure of medium and large enterprises was connected with manufacturing (approx. 51%), education (14%), trade and repairs (9%), transport and storage (5%), construction (5%) and public administration (5%). A preliminary analysis based on the identification of absolute and relative values characteristic of rural employment of the Łódzkie Voivodship indicates a steady increase in the importance of these sources of non-agricultural jobs in the sector of medium and large enterprises. Expansive in those terms, however, are only selected branches, particularly manufacturing, transport and trade and repairs.

3 Non-agricultural functions of rural areas of the Łódzkie Voivodship

In 2009, the exogenous employment was about 52 000 people, which constituted about 50% of the total employment in rural areas of the region (fig. 3). In the period of 1999–2009 exogenous employment increased by 18 000 people, and the share of this sector grew by about 12%. The absolute increase in exogenous employment was greater than the overall increase in employment in rural areas of the Łódzkie Voivodship (by about 2 000 people). Employment growth in rural areas of the region supplies the exogenous sector, which is decisive for the external links (export, trans-local). At the same time, the importance of the endogenous sector decreased.

The most important system-forming branches in terms of size of employment in 2009 included manufacturing (34 000), education (8 500) and transport and storage (2 100). The growing importance of exogenous activity in the years 1999–2009 was recorded only in the case of manufacturing and transport. The system-forming role of other economic activity decreased (fig. 4).

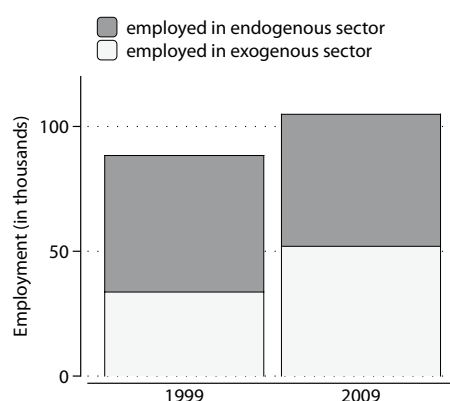


Fig. 3. Exogenous and endogenous employment in rural areas in the Łódzkie Voivodship in the medium and large enterprises in 1999 and 2009

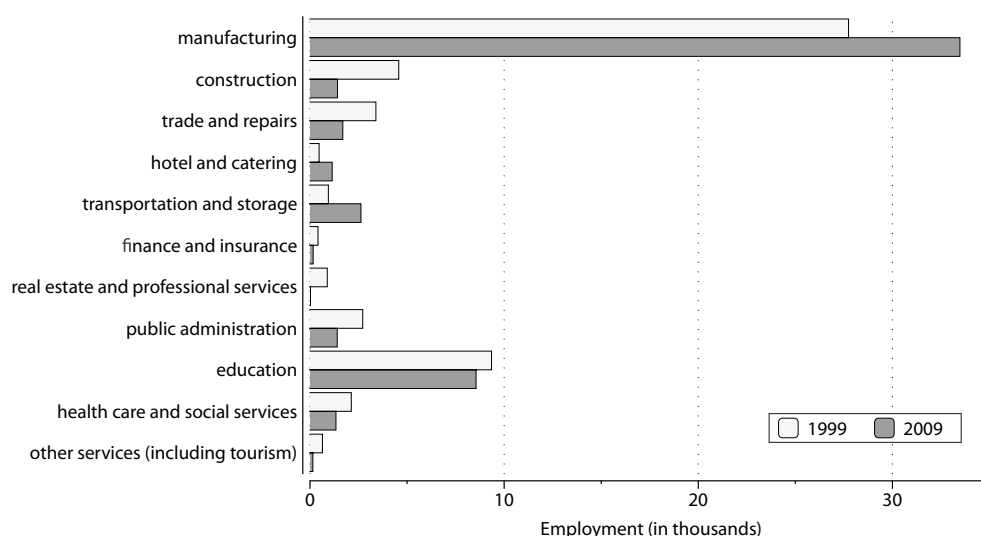


Fig. 4. Exogenous employment in rural areas in the Łódzkie Voivodship in the medium and large enterprises in 1999 and 2009 by the NACE (PKD) sections (2004)

The dominant role in the structure of the exogenous function of rural areas is played by manufacturing. In 2009 its share was about 64% (fig. 5). The other significant functions (share above 5%) included education and transport and storage. In 1999–2007, the role of manufacturing and transport in the functional structure of rural areas grew most (fig. 5).

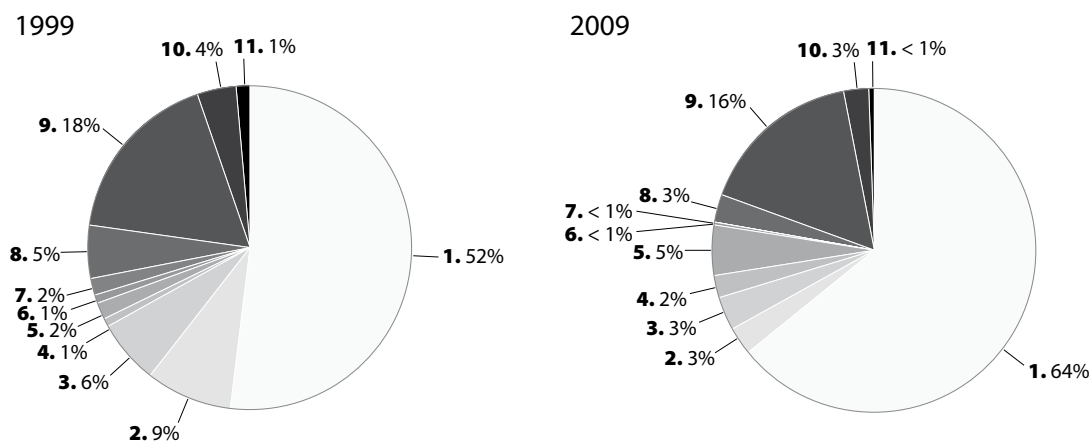


Fig. 5. Structure of exogenous functions of the rural areas of the Łódzkie Voivodship in 1999 and 2009. Key: 1. manufacturing, 2. construction, 3. trade and repairs, 4. hotel and catering, 5. transportation and storage, 6. finance and insurance, 7. real estate and professional services, 8. public administration, 9. education, 10. health care and social services, 11. other services, including tourism

In such fields as manufacturing, trade or transport it is relatively easy to explain their system-forming importance in rural areas. However, it is more difficult to explain a large share of exogenous employment in educational activities. Studies on the diversity of functions of different types of metropolitan areas indicate that recently the concentration of metropolitan functions and other specialised services in the urban center has grown. At the same time a shift of exogenous functions of manufacturing, construction and transport to rural areas has been observed (Suliborski, Wójcik, and Walkiewicz 2010; Wójcik 2008).

Preliminary analysis of diversity of exogenous functions for the entire area of the Łódzkie Voivodship confirms the above trend. The importance of the exogenous educational function is large, although decreasing in recent years. It seems that its role is not the result of the implementation of external educational needs, but the specificity of rural education (mainly primary and lower secondary), which is characterised by relatively high employment in relation to the number of students. The structure of the endogenous function is relatively stable, which means that their diversification meets the needs of residents and has reached a state of balance, and the economic development is linked mainly with the development of export activity in rural areas.

4 Spatial concentration of non-agricultural exogenous functions

An important element of the analysis is the spatial arrangement of gminas with the highest values of exogenous employment in 1999 and 2009. A significant potential of the exogenous non-agricultural function of a given gmina was the level of a minimum of 300 employees. Diversification of employment in rural gminas is quite large. In rural gminas of the Łódź Agglomeration and in rural areas within the suburban zone of some cities the number of employees in exogenous activities was more than 500 people. The largest number of people in this sector work in the gmina of Kleszczów, i.e. more than 12 000 employees, representing 23% of total exogenous employment in rural areas of the Łódzkie Voivodship. Such a large economic potential is related to the location of a lignite open-cast mine and the power plant „Bełchatów”.

In 2009, in 42 rural gminas exogenous employment exceeded the level of 300 people. Compared to 1999 this number decreased by 8 gminas. Therefore the concentration of exogenous non-agricultural functions in rural regions increased. In 1999, about 30% of rural areas concentrated 67%

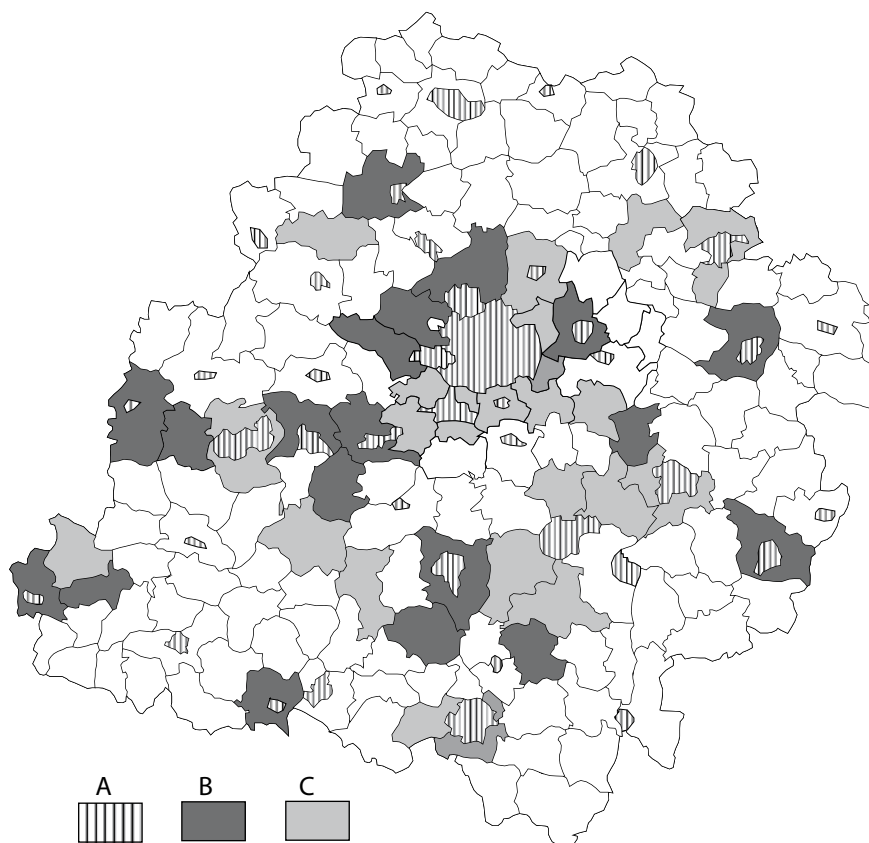


Fig. 6. Rural areas of significant potential for exogenous non-agricultural functions in 2009. Key: *A*—towns and cities, *B*—rural areas with exogenous employment of more than 300 people and the share in exogenous employment above 50%, *C*—rural areas of exogenous employment of over 300 people and the share of exogenous employment below 50%

of the exogenous non-agricultural employment. After over 10 years (2009) about 25% of the rural areas concentrated almost 85% of employment in this sector.

Summary

The analysis of the development of non-agricultural economic functions of rural areas of the Łódzkie Voivodship has shown that high levels of economic development and a simultaneous significant diversification of economic activity has occurred only in a few rural gminas in the region. A systematic increase in the importance of non-agricultural functions in rural areas of the Łódzkie Voivodship (1999–2009) was noted. The most important system-forming activities among the non-agricultural functions is manufacturing, trade and repairs, as well as transport and storage. Professional service functions are not meaningful in a functional structure. Non-agricultural functions show relatively high spatial concentration. These are mainly rural areas of the Łódź Agglomeration, suburban areas of cities as well as the Bełchatów-Piotrków industrial area.

The results of the research and conclusions derived from them confirm that the method of indirect measurement of the economic base well complements a series of studies based on the concept of a rural area as a multifunctional space. Breakdown of employment into the exogenous and endogenous groups, and the identification of concentration areas helps determine the degree of openness of the gmina's economy, and thus the relationship with the other settlement subsystems.

Further research should aim to integrate various research concepts. Within the very concept of the economic base of rural areas researchers should try to identify the companies and institutions that are active exogenously in the suburban area and apply direct methods to study the function (query, interview, etc.). Relating the study results to the entire territory of the gmina can often be confusing if a given function is concentrated in just a few such companies or institutions.

An institutional research method can determine real relationships in the settlement system (the range and intensity of socio-economic impacts).

It is also important to undertake research into the role of firms with nine or more employees in local development and the formation of networks in the local settlement systems (gmina, powiat). The main goal should be to answer the question as to whether medium and large companies have a direct impact on socio-economic transformation of the rural areas in which they operate, or rather do they benefit from the location, facilities and infrastructure, in the absence of links with the local social and economic environment.

References

- BAŃSKI, J., and W. STOLA. 2002. *Przemiany struktury przestrzennej i funkcjonalnej obszarów wiejskich w Polsce, Studia Obszarów Wiejskich*. Warszawa: Polskie Towarzystwo Geograficzne, Instytut Geografii i Przestrzennego Zagospodarowania PAN.
- DACKO, M. 2007. "Baza ekonomiczna i struktura funkcjonalna gmin woj. Małopolskiego." *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu* no. 9 (2): 57–62.
- JERCZYŃSKI, M. 1973. "Zagadnienia specjalizacji bazy ekonomicznej większych miast w Polsce." In *Studia nad strukturą funkcjonalną miast*, edited by K. Dziewoński, 11–138. Wrocław-Warszawa-Kraków-Gdańsk: Zakład Narodowy im. Ossolińskich, Wydawnictwo PAN.
- KAMIŃSKA, W. 2006. *Pozarolnicza działalność gospodarcza w Polsce w latach 1988–2003*. Edited by G. Węclawowicz, *Prace Geograficzne*. Warszawa: IGiPZ PAN.
- KOSTROWICKI, J. 1980. "Układ hierarchiczny typów rolnictwa świata." *Przegląd Geograficzny* no. 52 (2): 271–302.
- STOLA, W. 1987. *Klasyfikacja funkcjonalna obszarów wiejskich Polski. Próba metodyczna, Prace Habilitacyjne/Polska Akademia Nauk. Instytut Geografii i Przestrzennego Zagospodarowania*. Wrocław: Zakład Narodowy im. Ossolińskich.
- SULIBORSKI, A. 2001. *Funkcje i struktura funkcjonalna miast. Studia empiryczno-teoretyczne. Komentarz do zbioru monotematycznych publikacji stanowiących rozprawę habilitacyjną, Rozprawy Habilitacyjne Uniwersytetu Łódzkiego*. Łódź: Wydawnictwo UŁ.
- . 2002. "Funkcjonalne przemiany i integracja systemu miast w regionie łódzkim." In *Struktury i procesy kształtujące łódzki region społeczno-gospodarczy*, edited by A. Jewtuchowicz and A. Suliborski, 168–210. Łódź: ZERiOŚ. UŁ. Fundacja Inkubator.
- . 2010. *Funkcjonalizm w polskiej geografii miast. Studia nad genezą i pojęciem funkcji*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
- SULIBORSKI, A., M. WÓJCIK, and D. WALKIEWICZ. 2010. "Funkcje i struktura funkcjonalna Łódzkiego Obszaru Metropolitalnego." In *Łódzka metropolia. Problemy integracji gospodarczej*, edited by A. Jewtuchowicz and M. Wójcik, 21–39. Łódź: Wydawnictwo Biblioteka.
- ŚLESZYŃSKI, P. 2003. "Rozkład przestrzenny działalności gospodarczej w aglomeracji warszawskiej." *Przegląd Geograficzny* no. 75 (3): 403–432.
- WÓJCIK, M. 2004. "Rozwój pozarolniczej działalności gospodarczej w wybranych gminach wiejskich aglomeracji łódzkiej." In *Pozarolnicza działalność gospodarcza na obszarach wiejskich*, edited by E. Pałka, 123–136. Warszawa: Polskie Towarzystwo Geograficzne.
- . 2008. *Przemiany społeczno-gospodarcze wsi aglomeracji łódzkiej w okresie transformacji ustrojowej*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.
- . 2010. "Zmiany funkcji obszarów wiejskich w województwie łódzkim w ujęciu koncepcji bazy ekonomicznej (1999–2007)." In *Studia nad bazą ekonomiczną miast i rynkiem pracy w województwie łódzkim*, edited by M. Wójcik, 57–69. Nowy Sącz: Karpacki Instytut Rozwoju Regionalnego.
- . 2011. "Wiejski obszar peryferyjny w koncepcjach geograficznych." In *Wiejskie obszary peryferyjne — uwarunkowania i czynniki aktywizacji*, edited by M. Wesołowska, 19–34. Warszawa: Polskie Towarzystwo Geograficzne. IGiPZ PAN.
- . 2012. "Funkcje gospodarcze jako wyraz rozwoju lokalnych rynków pracy. Próba metodyczna na przykładzie obszarów wiejskich województwa łódzkiego." In *Wiejskie rynki pracy — zasoby, aktywacja, nowe struktury*, edited by W. Kamińska and K. Heffner. Warszawa: KPZK PAN.
- ZAGOŹDŻON, A. 1966. "Zespoły osadnicze o funkcjach nierolniczych jako forma urbanizacji wsi." In *Problemy ewolucji układów osadniczych na tle procesów urbanizacyjnych w Polsce*, edited by K. Hryniewicka, 103–128. Warszawa: Państwowe Wydawnictwo Naukowe.