

# THEORETICAL APPROACHES OF METHODS TO DELIMITATE RURAL AND URBAN AREAS

Radim Perlín<sup>1</sup>

Received 5 May 2010; Accepted 29 October 2010

**Abstract:** The delimitation of rural and urban municipalities as well as the delimitation of contiguous rural areas has not been sufficiently resolved in either academic literature or legislative practice. In relation to the scale and size of their administrative units, different countries use very different methods for delimiting rural municipalities that are based on simple counts of the population, on a municipality's position in the system of public administration or on a combination of multiple socio-economic factors. For the delimitation of rural areas, the various EU member states utilize a method based on population density in relatively large NUTS III regions. This article discusses divergent approaches to the delimitation of rural municipalities, on the one hand, and the delimitation of contiguous rural areas, on the other. Concepts concerning the delimitation of rural municipalities, along with differing characteristics leading to the delimitation of rural municipalities for the statistical processing of large amounts of data or characteristics for subjective evaluations of a small group of units, are discussed using the example of Czechia's settlement structure. The article then focuses on the critical evaluation of methods used for the delimitation of rural areas and, on the basis of various tested variations, proposes a new method for delimiting rural areas in Czechia, using modified OECD criteria. Changes arising both from the significantly smaller units of observation, where instead of considering units at the NUTS III level – regions (kraj) in Czechia, we consider 384 administrative regions of Municipalities with Extended Powers (MEP), as well as from variable changes to the critical values of population density so as to better account for the Czech settlement structure. The article emphasizes the necessity of using different approaches in studying the delimitation of rural municipalities and rural areas, at various scale levels, and the inappropriateness of using the methods of delimitation for rural areas that are currently used for all EU member states, at the national scale.

**Key words:** settlement structure, administrative units, population density, economic structure

**Abstrakt:** Vymezení venkovské obce(sídla) a vymezení venkovského prostoru není v evropském nebo v českém kontextu stabilizované a v jednotlivých zemích Evropy existuje celá řada rozdílných přístupů k jejich vymezení. Možnosti vymezení venkovské obce a venkovského prostoru jsou rozděleny na objektivní ukazatele a subjektivní ukazatele a je vhodnost použití jednotlivých typů. Příspěvek je zaměřen především na vhodnost a rozdílné přístupy k ukazateli počtu obyvatel jako kritéria

<sup>1</sup> RNDr. Radim Perlín, PhD., Faculty of Science Charles University, Albertov 6, 128 43 Praha 2, e-mail: perlin@natur.cuni.cz

pro stanovení městských obcí v národních statistikách a jsou diskutovány velmi rozdílné hladiny počtu obyvatel obce v jednotlivých státech Evropy, aby mohla být označena jako městská obec. Kritika je také zaměřena na použití administrativně správních kritérií pro vymezení městských a tím i doplňkově městských obcí. Při vymezení venkova je důraz kladen na rozdílné přístupy pro stanovení venkovských obcí/sídel a venkovského prostoru. Ukazatele charakterizující venkovskou obce by měly být vztaženy pouze k sídlu a v venkovské obce jsou tedy v území nespojitě. Příkladem takových ukazatelů je například počet obyvatel nebo počet/podíl vyjíždějících či jiné ukazatele vztahující se k obyvatelstvu. Ukazatele, které vymezují venkovský prostor, by měly být vztaženy k ploše a tím umožňují spojitě kontinuální vymezení venkovského prostoru. Příkladem takových ukazatelů jsou různé modifikace hustoty zalidnění.

Na základě zvolených ukazatelů dále článek polemizuje se převážně používanými ukazateli pro vymezení venkovských obcí a sídel a pro vymezení venkovského prostoru, které používá například OECD. V příspěvku je také diskutována vhodnost převážně používaných kritérií pro vymezení obou kategorií a jsou navrženy úpravy těchto kritérií.

**Klíčová slova:** struktura osídlení, administrativní jednotky, hustota zalidnění, ekonomická struktura

---

## 1. Introduction

Subsequent to 2007, the activities of small rural municipalities in the Czech Republic have been on the rise, as a means of enforcing a number of requirements for increasing the quality of life in rural areas. One such activity is, for instance, a petition from the "Spolek pro obnovu venkova" (Association for the Renewal of Rural Areas) calling for the amendment of the Act on Budget Allocation of Revenue of Certain Taxes to increase the volume of finances available to rural municipalities and to put "rural areas" under the competence of a special ministry and, thereby, to define the extent of Czech rural areas. Similar aims are also sought by the recently established "Sdružení místních samospráv" (Association of Local Governments), formed as a protest against the manner of financing rural municipalities and against current rules governing the budget allocation of taxes.

The common denominator of such activities is an effort to more precisely delimit rural areas as a specific phenomenon in the settlement system, requiring specific forms of support.

This article discusses different possibilities for the delimitation of rural areas. Defining the territorial extent of rural areas and the extent, given by total rural population, is a key factor in ongoing, related discussions regarding types and forms of support and methods for financing rural areas as unique territories.

Existing approaches to delimitation of rural areas in the Czech Republic are very diverse and have not yet been codified. Moreover, there is an absolute lack of any generally perceived borderline between rural and urban areas.

The delimitation of a territory into urbanized and non urbanized rural area is closely related to its historical, political, cultural and administrative development and, therefore, the process of formulating a single definition has progressed slowly. Definitions of urbanized areas as opposed to rural areas not only differ in individual territories, but have also changed over time.

## 2. Aim of the paper

In 2007, the European Union introduced a new instrument for the financing of rural areas and municipalities, the European Agricultural Fund for Rural Development (EAFRD). Within this instrument, the individual EU member states prepare their national programmes of rural development, which become the basic documents for financing development programmes that are under preparation. A significant step in the implementation of these programmes is the delimitation of rural and non-rural activities which can be financed within this programme or the delimitation of territories, in which this backing can be used. One of the major EU

requirements for financing various operational programmes is the clear separation of target groups among the final beneficiaries. It is, therefore, not possible to finance the same group of beneficiaries from two different EU funds or programmes. These very problems – the delimitation of areas to be financed through EAFRD and the differentiation of groups of beneficiaries in comparison with other EU funds – were key concerns in determining both the material and territorial scope of the national Programme of Rural Development. The aim of this contribution is therefore to present, with specific examples, different methods of delimitation of rural areas and to draw attention to the possibilities and, at the same time, to the limitations of the various selected approaches. The paper will discuss institutional and statistical as well as material methods of delimitation of rural municipalities and rural areas.

Defining a rural or an urban municipality, i.e. making a clear distinction between village and town, is difficult when the settlement is continuous. In each settlement structure, independent of its historical evolution or present state of settlement, settlements will always exist that manifest characteristics along the provisional border between urban and rural settlement. In spite of this fact, the search for and the formalization of limits between urban and rural settlements is certainly worthwhile, inter alia as a means of enabling the clearer definition of beneficiaries of support, for instance from EU funds. The identification of clear boundaries between a rural municipality/region and a city/urban region is significant from a number of perspectives. With any attempts to internationally compare the settlement structure of various states or to delimit various types of regions, it is necessary to use relatively simple yet clear criteria, which can be utilised throughout the large territory in question. The OECD methodology for delimiting rural regions, for instance, is one example, as is the somewhat unclear distinction for rural and urban municipalities used for certain international comparisons (Demographic Yearbook). Another no-less-important reason for discerning between rural and municipal municipalities (and regions) is tied to the differing roles of public administration and the administration of territory. A whole series of subsidies target problematic or developmentally lagging areas or even rural regions, but their definitions or methods for distinguishing such areas are often quite different. For these and a number of other reasons the clearer delimitation of rural and urban regions and comparisons of such areas within a larger territory can be considered very important.

One example of a past definition of rural and urban settlements comes from Andrlé and Srb (1988), who called attention to the unclear demarcation of towns and to the need for a multi-factorial approach to the definition of urban settlements. Based on an analysis of results of the Czech Population and Housing Census 1980, they state that, during the late socialist period, even rural areas were losing their dominant agricultural function and were increasingly likely to manifest certain urban functions.

The key issue dividing various individual authors (Hurbánek 2008, Pezzini 2001, Woods 1998 and others) and their approaches to studying rural areas is the manner in which they define rural municipalities or rural areas. While Hurbánek (2008) tries to find key characteristics of various rural settlements, when defining rural areas, other authors (Pezzini 2001) discuss the delimitation of rural areas on the basis of an urban – rural dichotomy, without clearly defining individual categories. The same approach is utilized, for instance, by Woods (1998), who recognizes the new role of rural communities, without however defining a rural municipality.

The discussion on the delimitation of rural and urban space and municipalities, however, was well developed at an earlier date. At the end of the 1980s, Cloke and Edwards (1986) led the discussion with Hoggart (1988) assuming a counter position. Cloke and Edwards attempted to delimit urban and rural districts in England and Wales, on the basis of statistical variables from the 1981 Census according to an older Cloke (1977) study based on data from 1960 and 1970 census. They also explore changes in the classification of various areas in England and Wales on the basis of similar variables. The authors identify a total of five types of rural space:

- a) extreme rural
- b) intermediate rural
- c) intermediate non-rural
- d) extreme non rural

e) urban districts

Hoggart (1988) published an article in response to this research. He disputes the possibilities of an exact statistical delimitation of rural and urban space, emphasizing the continuity of settlement and disputing the strictly statistical approach to classifying rural areas. Hoggart draws attention to different approaches in the delimitation of rural areas and attempts to define rural space on the basis of the differing perceptions of various economic sectors in rural and urban areas.

Pezzini (2001) points out various differences in comparison with metropolitan or intermediary areas and gives three key factors that set rural areas apart.

First, he presents agriculture as an activity which regulates agricultural landscape development and as a source of job opportunities. According to Pezzini, in addition to jobs in agriculture, jobs in the public sector are also important. As the second differentiating factor he cites the emigration of primarily younger people from rural regions due to a general lack in jobs and the insufficient facilities of rural municipalities. The third reason given by Pezzini is the poor accessibility of basic services for inhabitants, due to the low population density of rural areas. However, in discussing the basic factors of rural population development, Pezzini neither defines the extent of rural areas nor specifies any criterion for the delimitation of rural areas.

Whereas the great majority of authors differentiate between rural and urban (settlement, municipalities, activities), the French statistical office INSEE differentiates, in addition to urban and rural areas, a “periurban” category, delimited around cities as settlement that is rural in nature, but which exhibits continuous population growth (Saraceno, 1994). However, the delimitation of suburban or growing regions in the hinterland of certain cities depends mainly on the duration of monitoring and on the selection of the administrative limits of monitored units. The key factor in the delimitation of this transitory zone is not merely population growth, but also, in harmony with the generally accepted definition of suburbanization, a shift of inhabitants, their activities and certain functions from the core area to its hinterland (Ouředníček 2008).

On the basis of changes in the key functions of rural settlement, Saraceno calls attention to the natural continuity of settlement ranging from peripheral regions and settlements to metropolitan areas and large settlement centres. For this reason, he adds two additional intermediary categories – semi-rural and semi-urban – to the two basic categories – urban and rural. Saraceno stresses that, due to changes in the rural socio-economic environment towards new social connections among inhabitants as well as towards modern technologies, it is not possible to study rural areas merely in dualistic categories, such as urban – rural or urbanized/metropolitan – peripheral.

Fáziková and Lacina (2001) draw attention to the gradual transition in perceptions of the term rural and, as a result, in the manner in which rural areas are delimited. They emphasize the transition from the sectional delimitation of rural areas as territory dominated by agricultural activities to a spatial delimitation of rural areas and distinguish between the delimitation of rural municipalities and rural regions. In their own evaluation of the settlement structure in Slovakia, however, they use standardized OECD criteria and define rural municipalities as those exhibiting population density lower than 150 people/km<sup>2</sup>.

The necessity of defining rural areas in the Czech context was stressed, for instance, by L. Kavala, president of the Association for the Renewal of Rural Areas<sup>2</sup>, who stated: “The lack of a definition for the term rural areas takes its revenge on people with permanent residence in rural areas, particularly during the period known as the European Seventh Framework Programme 2007 – 2013”.

When evaluating the territorial extent of rural areas, in general or in a specific region, we can proceed in two distinct ways. The first consists of defining a rural municipality; then the set of all rural municipalities can form rural areas. This method of delimitation is, nevertheless, limited by possible discontinuities in the delimitation of rural areas, as there may exist, in a relatively

---

<sup>2</sup>KAVALA, L: Veřejné projednání Petice proti diskriminaci venkova, Senát Parlamentu ČR, 26.3. 2008, records from the debate.

continuous rural territory, municipalities which, according to the selected criterion, do not manifest characteristics of rural municipalities. Another way to define rural areas is to assess characteristics of the entire territory (region) and then to assign the characteristic of rural or urban to the entire territory, regardless of its internal differentiation.

The subsequent text evaluates these possibilities of delimitation, both of a) rural municipalities as well as b) rural areas and stresses the possibilities and problems of using either of the two methods.

When evaluating rural municipalities (regions), we can utilize available statistical data and evaluate a larger set of municipalities/regions with the help of statistical criteria. For a very limited set of rural municipalities, in terms of overall territory, or for a limited number of regions, we can use, in addition to statistical (data) criteria, a whole series of subjective evaluation techniques and thereby specify perceptions of a municipality itself and distinguish various categories. Evaluation based on subjective statements from individual subjects is, however, only suitable for very small territories and should not be used for national and especially not for international comparison.

	<b>Rural municipality</b>	<b>Rural areas</b>
<b>Statistical</b>	Number of inhabitants, administrative structure, designation of municipality	Population density, share of primary economic actives
<b>Subjective</b>	Individual characteristics, architecture, urbanism, social links	Landscape, landscape character

*Tab 1. Categorization of instruments for delimitation of rural areas*

### **3. Approaches to the delimitation of rural municipalities/areas**

The statistical delimitation used, for instance, in the Demographic Yearbook (United Nations) determines urban municipalities, on the basis of national statistics, leaving other municipalities to be considered rural. The aggregate of all rural municipalities can then be used to construct rural areas.

Very different criteria are used in the various, individual European states for the designation of cities: these are determined by the historical development of local settlement structures as well as by traditions concerning public administration, in these countries. The limit for a town is fixed, either according to a set of criteria including demographic and other factors or according to the presence of public administration functions in the town in question. Some countries divide the settlement structure between towns and other municipalities on the basis of a multi-criteria evaluation. The statute of a town is regulated in this manner in ten post-Soviet countries. Other countries (Belgium, Bulgaria, Hungary and Turkey) define towns according to their position in public administration. Similarly, in Andorra, Denmark, Cyprus and Romania, individual urban municipalities are listed. This is not surprising in very small European countries, but in larger countries this approach is not common.

The majority of European countries characterize urban and rural municipalities according to municipality population. Such limits are very unequal depending on the specific settlement structure in a given country as well as on traditions in public administration. Population limits have been progressively changing. Whereas Nordic countries (e.g. Greenland, Iceland, Norway, Sweden) consider settlements with 200 inhabitants as urban, in Central Europe the customary limit is 2,000 (Austria, Czechia, France, Luxemburg) or 5,000 inhabitants (Germany, Slovakia). Countries of southern Europe (i.e. Greece, Italy, Portugal, Spain) but also Poland and Switzerland use a limit of 10,000 inhabitants for the delimitation of urban settlement. A very exceptional approach is used in Great Britain, in which all municipalities situated within a delimited urban territory are considered urban. Nevertheless, it should be stressed that

the smallest public administration units (districts) in Great-Britain are much larger than in other comparable countries<sup>3</sup>.

Similarly, the Dictionary of Human Geography (2000) does not clearly define the term village, but lists the term city, which is historically defined as the seat of bishop and cathedral. Now this term is understood as a large urbanized territory exhibiting specific public administration functions. The limits governing the delimitation of a city are different in various countries. According to the Dictionary of Human Geography, the definition of a town is even more vague: a town is a general term designating an urbanized place of a size larger than a village and smaller than a city.

### **3.1 The delimitation of rural municipalities or of rural areas**

Two basic types of delimitation often blend together, when delimiting rural municipalities and rural areas. On the one hand, it is possible for the needs of evaluating the settlement structure, for instance, to delimit urban and rural municipalities (settlements) as it is done by the Demographic Yearbook or some national statistical sources. The delimitation of rural municipalities leads to the delimitation of built-up areas and is related to urban structures, evaluated on the basis of the selected criteria.

On the other hand, it is also possible to delimit rural areas as a continuous space, including both rural municipalities/settlements and the landscape among these settlements. This method of evaluating rural areas is used, for instance, by OECD and Eurostat.

An approach for the delimitation of rural areas on the basis of their statistical characteristics has been discussed, for instance, by Perlín (2003). He demonstrates that, from all available indices, primarily population size should be used in the delimitation of rural municipalities and that, for monitoring rural areas, population density and additional related indices are the most effective.

### **3.2 Using statistical criteria**

Early attempts to define rural or non-urban settlement regions or individual municipalities are connected with discussions on the implementation of the nodal settlement structure in Czechoslovakia, during the second half of the 1980s. Based mainly on analysis of results from the Population and Housing Census, Andrlé and Srb (1988) tried to discuss these issues with an emphasis on the then exaggerated concept of removing differences between rural and urban settlements and the convergence of standards of living in urban and rural areas, without however discussing different factors governing the establishment of social and economic links in rural areas. This nodal structure concept was strictly rejected in the 1990s (Blažek, 2005).

Using population for the delimitation of urban or rural municipalities is, as documented above, different in different countries and based on local traditions, settlement structure and the organization of public administration (Compare the size of the smallest public administration units in Great Britain and France). Consequently, evaluation of the development and changes of rural settlement in two or more states solely on the basis of their respective national definitions and numbers of inhabitants cannot be implemented without a detailed discussion.

For this reason, primarily OECD<sup>4</sup> and later the EU's Eurostat use population density indices according to NUTS III units to delimit three basic categories:

- Predominantly rural regions – more than 50% of inhabitants live in rural municipalities (defined for this purpose as municipalities with less than 150 inhabitants.km<sup>-2</sup>),
- Significantly rural regions – with 15 to 50% of inhabitants living in rural municipalities,
- Predominantly urban regions – with less than 15% of inhabitants living in rural municipalities.

---

<sup>3</sup>Demographic Yearbook 2005. The United Nations Statistics Division, accessible at <http://unstats.un.org/unsd/demographic/products/dyb/dyb2005/notestab06.pdf>

<sup>4</sup> Creating rural indicators for shaping territorial policy, OECD, Paris, 1994.

This method was also used to define rural areas in Czechia as part of the Rural Development Programme<sup>5</sup>.

When delimiting rural areas according to population density in NUTS III units, the comparison of various European countries, in terms of municipality size, which differs substantially in European states, is problematic. On the one hand there are states with very large municipalities (measured by the number of inhabitants), such as Great Britain and Scandinavian countries, while on the other hand, there are countries with relatively small municipalities that are very numerous in certain regions. Such countries include the Czech Republic and France, among others. Another problem when using an index of population density is the difficulty of comparing rural and urban units, within individual NUTS III regions. The result is that all regions of the Czech Republic, with the exception of Prague, are classified as significantly rural regions. Even regional capital cities with more than 100,000 inhabitants are considered rural municipalities.

This discrepancy can be partially removed by using integrated OECD methods<sup>6</sup>. Based on a different perception of rural areas, a different scale of units and the very differentiated settlement structure of the individual countries, the OECD method employs a significant second step, which modifies the three types of regions defined above, according to the size of the largest city in the region:

- If a predominantly rural region includes an “urban centre” with more than 200,000 inhabitants, representing more than 25% of the region’s population, then this region is re-classified as significantly rural region.
- If, within a significantly rural region, there is an “urban centre” with more than 500 000 inhabitants, representing more than 25% of the region’s population, then this region is re-classified as predominantly urban region.

An urban centre is defined as a local administration unit with population density higher than 150 inhabitants.km<sup>-2</sup> and with more than 200,000 inhabitants.

### 3.3 Using subjective criteria

Another approach in the delimitation of rural municipalities/areas is to define them on the basis of local lifestyle or approaches in dealing with various situations. The delimitation of rural areas on the basis of subjective factors, however, requires in-depth knowledge of the monitored territory, making any international comparison or repeated use of selected methods in other regions with different traditions or territorial structure practically impossible. The delimitation of rural settlements or rural areas based on subjective characteristics is of particular use when studying certain social or socio-geographical phenomena within a given region.

Subjective characteristics delimit a rural way of life and can include inhabitants’ distinct lifestyle or alternative forms of building relations and community in a rural settlement. Among authors that have utilized such methods for defining rural areas, we mention, in particular, Blažek (2005), who uses a detailed study of three selected rural regions to document different approaches in dealing with the basic living situations. In this paper, Blažek is the first to stress differences among the various rural areas in Czechia.

In contrast to Blažek, who deals mainly with the existence and activities of the local community, Illner (2005) focuses on the position of personalities within rural areas and, by studying the positions of leading rural representatives, attempts to identify the basic character of rural areas. In response to the earlier investigations of Hampl (1998), Illner discusses the size structure of Czech municipalities and calls attention to the necessity of using diverse approaches to study rural areas. When studying the population of rural municipalities, he monitors four basic factors, i.e. economic and administrative effectiveness, local democracy, the distribution of justice and the development possibilities of rural municipalities. Similar to Hampl, Illner does not discuss individual regional differences among rural municipalities and the resulting different possibilities, in terms of their development.

---

<sup>5</sup> Program rozvoje venkova (2006): MZE ČR, Praha 2006

<sup>6</sup> Regions at the glance (2005): OECD, Paris

Among those factors marking the transition between objective and subjective indices, there is a group of criteria used to evaluate rural and urban settlements. Based on six different characteristics – criteria, it is possible to distinguish between a rural or an urban settlement. When using a larger set of criteria, however, problems with the quantification of such factors and the practical impossibility of using them to monitor a larger amount of municipalities or municipalities located within a larger region. The evaluation of such criteria largely depends on a researcher's personal knowledge of the environment.

Criterion	Principal character
Urban structure	Sparser density of buildings, farm houses, large public spaces, a low portion of built-up areas
Architectonic characters	Low-rise buildings, integration of residential and other functions, absence of rental housing, individual houses
Social characters	Conservatism, traditionalism, neighbourhood, participation, cooperation, sharing of a common history
Economic characters	Commuting to work, employment in agriculture, a higher portion of self-sufficiency, do-it-yourself attitude
Public administration	Definition of the municipality, position of the municipality in the public administration structure
Size characters	Number of inhabitants, population density, area, percentage of built-up area

Tab 2. Criteria for the delimitation of rural settlements  
Source: Perlín (2003)

## 4. The delimitation of rural municipalities

### 4.1 The population of rural municipalities in Czechia

When observing the Czech settlement structure in rural areas, several significant phenomena must be emphasized. In particular, the average population of rural municipalities varies significantly with their position. Whereas the average population of rural municipalities of less than 2000 inhabitants (within municipalities with extended powers) is largest in the Moravian-Silesian Region, followed by the South Moravian Region; the smallest municipalities (in terms of their average population) are in the Vysočina, South Bohemian and Plzeň Regions.

Assessing the number of inhabitants in Czechia's municipalities is complicated due to the fragmentation of the settlement system. In Czechia, as in France, there is a very large quantity of settlements – autonomous villages which are not territorially, or from an urbanistic point-of-view, interconnected and which are joined with other settlements to form an administrative unit – a municipality. Fragmented public administration and the necessity to provide basic functions in a large number of very small settlements (villages) represent additional burdens for municipalities situated in territories with a high density of small village units. Small village units do not have independent self-government institutions and belong under a bigger municipality.

As it is evident from the survey of rural municipalities with the highest number of village units, the most fragmented rural structure is found along the borders of the Central and South Bohemian Regions in an area known as Česká Sibiř (Bohemian Siberia).

The highest numbers of rural village units are concentrated in the town of Sedlec-Prčice (Benešov District) which consists of 36 villages that are home to a total of 2,885 inhabitants (2007).

On the contrary, the lowest numbers of village units are found in relatively large municipalities in the South Moravian, Zlín and, to a lesser degree, Moravian-Silesian Regions.



Municipality with extended power	Region	Average municipality population	Municipality with extended power	Region	Average municipality population
Rožnov pod Radhoštěm	ZL	1610	Telč	VY	176
Frenštát pod Radhoštěm	MS	1371	Pacov	VY	215
Nový Jičín	MS	1254	Stod	PL	239
Břeclav	JM	1238	Humpolec	VY	248
Hlučín	MS	1200	Světlá nad Sázavou	VY	251
Uničov	OL	1193	Moravské Budějovice	VY	268
Jablunkov	MS	994	Blovice	PL	273
Olomouc	OL	992	Strakonice	ČB	277
Ostrava	MS	976	Blatná	ČB	278
Třinec	MS	969	Vodňany	ČB	281
Varnsdorf	UL	963	Soběslav	ČB	281
Frýdek-Místek	MS	954	Vysoké Mýto	PA	284
Frýdlant nad Ostravicí	MS	910	Vlašim	StČ	284
Šlapanice	JM	903	Pelhřimov	VY	287
Opava	MS	897	Tábor	ČB	294
Otrokovice	MS	895	Jičín	HK	295
Vsetín	ZL	892	Přelouč	PA	299
Hustopeče	JM	890	Nepomuk	PL	300
Kuřim	JM	883	Nové Město na Moravě	VY	310
Kopřivnice	MS	879	Kralovice	PL	313

Key:

StČCentral Bohemian	LILiberec	OLOlomouc
ČBSouth Bohemian	HK Hradec Králové	ZLZlín
PLPízeň	PAPardubice	MSMoravian-Silesian
KV Karlovy Vary	VYVysočina	
ULÚstí nad Labem	JM South Moravian	

Tab 3. The highest and the lowest average municipality populations in the administrative districts of municipalities with extended powers in 2007

Source: Municipalities 2007, Czech Statistical Office, own calculations

Note: municipalities with extended powers – administrative districts of municipalities with extended powers – administrative regions

Municipality	Region	Number of municipality parts
Jistebnice	ČB	27
Horní Stropnice	ČB	21
Chyšky	ČB	20
Petrovice	StČ	18
Nadějkov	ČB	18
Petrovice u Sušice	PL	18
Kovářov	ČB	17
Postupice	StČ	16
Strážov	PL	16
Olbramovice	StČ	15
Struhařov	StČ	15
Kněžmost	StČ	15
Hlavňovice	PL	15
Liběšice	UL	15

Tab 4. Rural municipalities with the highest number of local village units

Source: Municipalities 2007, own calculations

Municipality with extended powers	Region	Number of municipality parts	Municipality with extended powers	Region	Number of municipality parts
Kuřim	JM	1.0	Votice	StČ	9.7
Mikulov	JM	1.0	Sedlčany	StČ	8.0
Slavkov u Brna	JM	1.0	Nová Paka	HK	6.8
Židlochovice	JM	1.0	Liberec	LI	6.1
Frenštát p. Radhoštěm	MS	1.0	Sušice	PL	5.9
Jablunkov	MS	1.0	Trhové Sviny	ČB	5.6
Hustopeče	JM	1.0	Podbořany	UL	5.6
Rosice	JM	1.0	Klatovy	PL	5.5
Hodonín	JM	1.1	Králíky	PA	5.4
Šlapanice	JM	1.1	Benešov	StČ	5.2
Otrokovice	ZL	1.1	Vimperk	ČB	5.2
Rožnov p. Radhoštěm	ZL	1.1	Kaplice	ČB	5.1
Vizovice	ZL	1.1	Tachov	PL	5.0
Kyjov	JM	1.1	Cheb	KV	5.0
			Kadaň	UL	5.0

Tab 5. The lowest and the highest average number of parts per municipalities (within municipalities with extended powers)

Source: Municipalities 2007, own calculations

Note: municipalities with extended powers – administrative districts of municipalities with extended powers  
– administrative regions

#### 4.2 The position of rural municipalities in public administration

When assessing the administrative structure as a starting point for distinguishing between urban and rural municipalities, we should stress the difficulty of finding a limit between urban and rural municipalities.

Historical town statutes related to the development of settlements and to the right to organize markets or to collect taxes have been granted since the Middle Ages. This distinction gradually decreased in significance, with the emancipation of public administration after 1848, and it continued to exist only as a historic appellation. After 1949, when a unified system of national committees was established, this historical appellation of municipalities disappeared altogether. In 1990, the statute of self-governing towns was restored and all municipalities, which possessed, previous to 1990, a Town National Committee of at least the third grade, as well as all municipalities, which requested the president of the Chamber of Deputies for this statute, have been named towns. Until 2000, there were no criteria for granting or refusing the appellation of town, so the number of towns has been progressively increasing, including even some of the smallest municipalities.

Town	Region	Number of inhabitants
Loučná pod Klínovcem	UL	93
Boží Dar	KV	175
Rožmberk nad Vltavou	ČB	353
Ledvice	UL	560
Pec pod Sněžkou	HK	653
Deštná	ČB	700
Janské Lázně	HK	825
Stráž nad Nežárkou	ČB	843
Miletín	HK	916
Blšany	UL	929
Bezručovice	PL	988
Bečov nad Teplou	KV	989

Tab 6. The smallest municipalities having the statute of a town

Source: Municipalities 2007, Czech Statistical Office, own calculations

After the new Act on Municipalities (Act No. 128/2000) entered into force, the president of the Chamber of Deputies can proclaim only municipalities with 3,000 or more inhabitants to be towns; however, the previously granted appellation of town for municipalities with a lower number of inhabitants has not been abolished. Therefore, the set of towns is quite varied.

In total, Czechia has 163 towns with less than 3,000 inhabitants (the current limit for granting the statue of town) with a total of 327,517 inhabitants living in these very small towns.

With the passage of Act No. 234/2006, which amended the Municipalities Act, the statute of městys (township) was officially re-established, as of 1 July 2006. The right to use this appellation was granted to municipalities which had previously been townships, until 1954, and also to those to which it was granted, at their own request, by the president of the Chamber of Deputies. At present, these are municipalities with less than 3,000 inhabitants (with bigger municipalities being towns). During the first two years after this act's entering into force, a total of 124 municipalities (with a total population of 141,302 inhabitants) requested the appellation of township.

<b>Township</b>	<b>Region</b>	<b>Number of inhabitants</b>
Levín	UL	113
Český Šternberk	StČ	151
Sovínky	StČ	340
Svojanov	PA	365
Panenský Týnec	UL	376
Nepomyšl	UL	377
Dub	ČB	414
Slavětín	UL	447
Holany	LI	487

*Tab 7. The smallest municipalities with the statute of township*

*Source: Municipalities 2007, own calculations*

*Key to tables 3-6 see key to Table 2*

In 2007, a total of nine municipalities that qualified as townships had less than 500 inhabitants and the number of such municipalities has been increasing, as criteria for granting this statute do not exist.

The statute of township or town does not, in any way, change the performance of public administration. It does not increase the extent of a municipality's competencies, nor does it have any impact on its financing.

Using an index of statute within public administration is, therefore, difficult. The greatest problem is, clearly, the high differentiation of municipalities classified as towns, due to the non-existence of clear rules for granting this statute as well as the non-existence of clearly formulated criteria for granting the statute of township. Also, because the town/township appellation has no direct connection with the performance of public administration, it is not suitable to use this classification in delimitation of urban and rural municipalities. Such an appellation does not allow, either under Czech conditions or those of international comparison, one to proceed to and make relevant assessments. For comparison, in Latvia, municipalities with more than 1000 inhabitants are classified as towns and have a different scope of competencies and a different way of financing than other rural municipalities (Bite, Rasnaca, Saulaja 2008).

## **5. The delimitation of rural regions**

### **5.1 Delimitation according to population density**

When delimiting rural regions according to a population density index, it is possible to use a simple population density index for a given region. Data on population density in a region are, however, significantly influenced by the number of inhabitants in the largest, or smallest, unit and in the event that the set is not normally distributed (and that this is not the case of population density in a delimited region), such an index can only be used to a limited extent. For

this reason, the OECD uses an index of the percentage of the population living in rural municipalities for the delimitation of rural regions. However, this index depends, among other factors, on the size of the territorial unit in question. For the EU's needs, such units have been delimited as administrative districts NUTS III (regions in Czechia) enabling international comparison. The disadvantage at this scale is the impossibility of further internal differentiation among these units and, from a national perspective, the propensity to make large generalizations.

Therefore, for the further delimitation of rural areas, the OECD method (the percentage of inhabitants living in rural areas with population density lower than 150 inhabitants/ km<sup>2</sup>) was used. This index was used, however, for lower order units – the administrative districts of municipalities with extended powers (MEP).



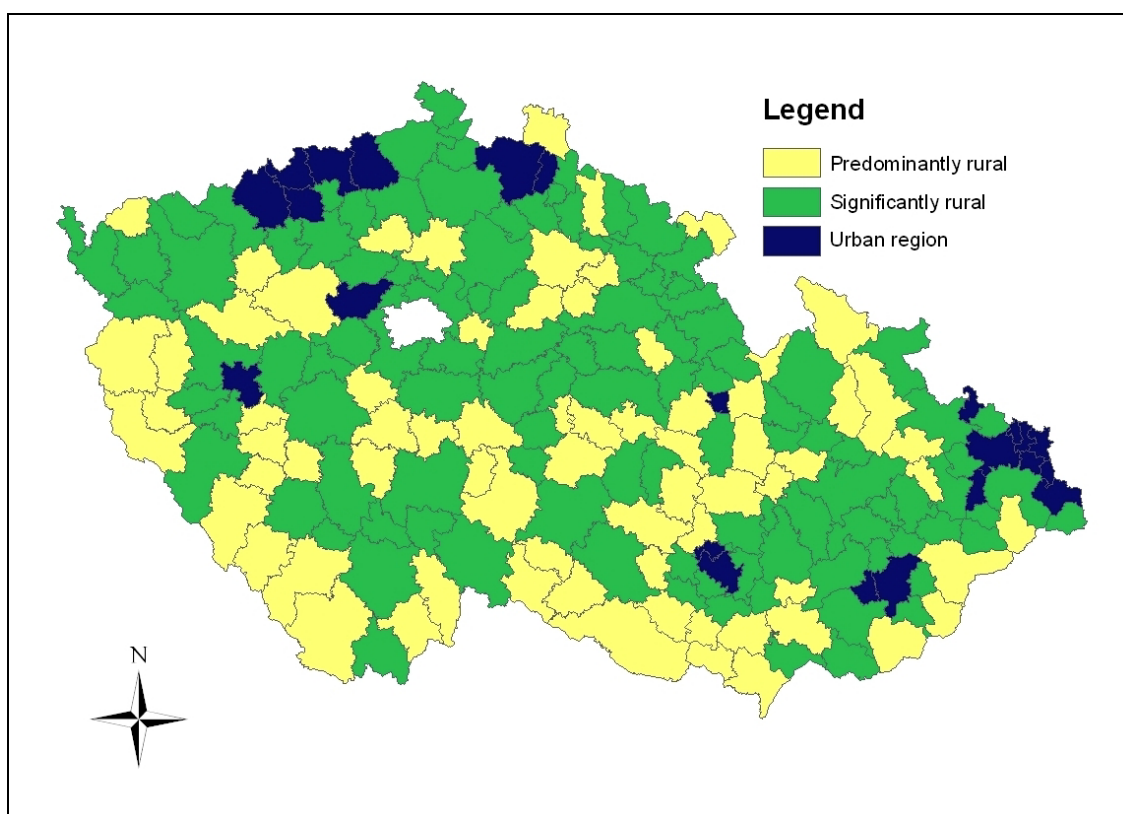
Fig 1. Administrative districts of municipalities with extended powers (MEP)

Municipalities with extended powers are units providing for the local administration of state government bodies. By law, the state has transferred a portion of its authorities for state administration to certain towns and has stipulated that these towns shall carry out state administration in limited areas of competence for additional municipalities in their hinterland, within a designated region. Municipalities distinguished in this manner, therefore, are responsible for their own self-government as well as for state administration for the entire region. These units represent the basic level of general state administration by territory.

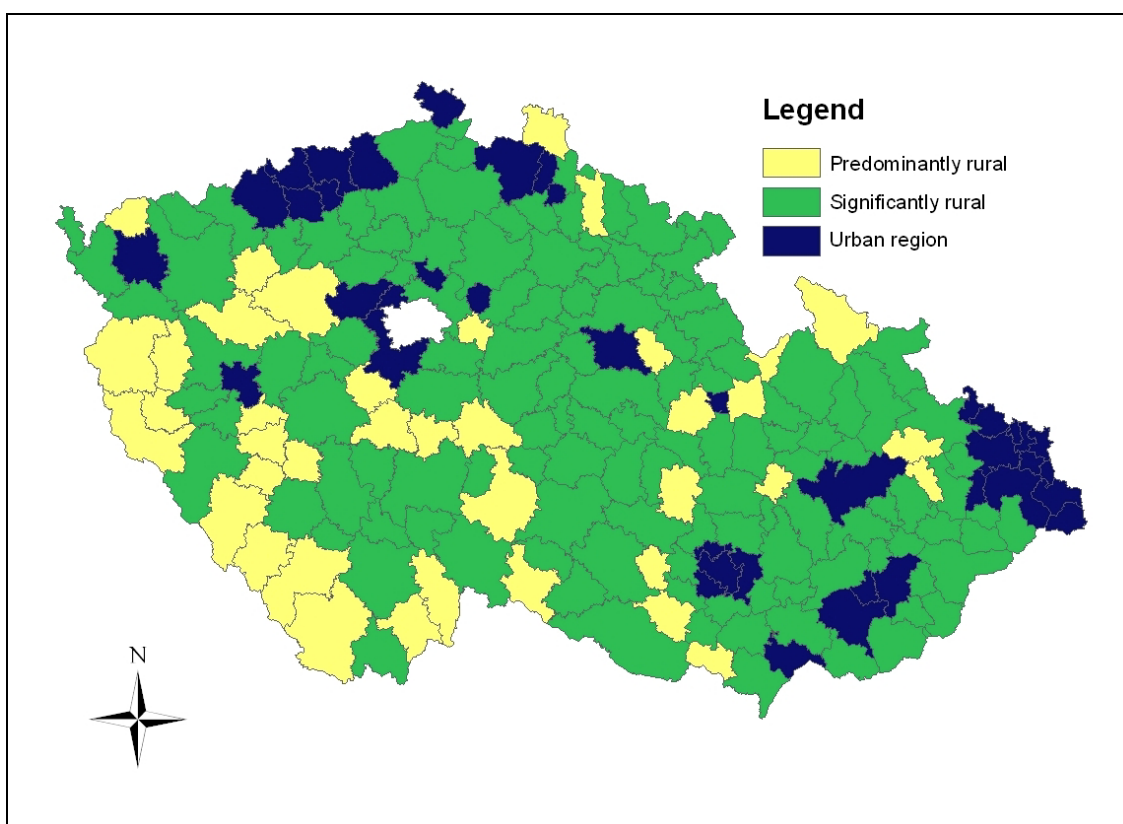
The territory of the Czech Republic appears much more differentiated, when delimiting rural regions by the MEP method. Not only is Prague designated an urban area (according to NUTS III), other units in Prague's hinterland as well as additional territories of large regional centres and their hinterlands, such as Brno – Kuřim, the entire Moravian Silesian metropolitan area Ostrava – Karviná – Bohumín – Havířov, and the Zlín – Otrokovice area are designated urban.

	Number of MEPs	Number of inhabitants
Urban	24	3,367,328
Significantly rural	111	5,020,874
Predominantly rural	71	1,898,987
Total	206	10,287,189

Tab 8. Delimitation of rural regions according to population density in MEPs (critical value 150 inhabitants.km<sup>-2</sup>)  
Source: Obce 2007 (Municipalities 2007); own calculations



*Fig 2. Delimitation of rural regions according to population density in MEPs (limit 150 inhabitants/km<sup>2</sup>)*  
*Source: Population and Housing Census 2001,*  
*Note : MEP - administrative district of a municipality with extended powers*



*Fig 3. Delimitation of rural regions according to population density in MEPs (limit 100 inhabitants/km<sup>2</sup>)*  
*Source: Population and Housing Census 2001,*  
*Note : MEP - administrative district of municipality with extended powers*

When the critical value of population density is reduced from the initial 150 inhabitants/km<sup>2</sup> to 100 inhabitants.km<sup>2</sup>, the diversity of various individual regions is reduced according to the various MEPs. The amount of MEPs defined as predominantly rural will be lower and, logically, the amount of predominantly urban regions will increase.

	Number of MEPs	Number of inhabitants
Urban	39	4,321,235
Significantly rural	128	5,103,459
Predominantly rural	39	862,495
Total	206	10,287,189

Tab 9. Delimitation of rural regions according to population density in MEPs (critical value 100 inhabitants/km<sup>2</sup>)  
Source: Obce 2007, Český statistický úřad, Praha, own calculations

If the aim of this text is to find criteria for the delimitation of rural regions, then it is undoubtedly more appropriate to use 150 inhabitants/km<sup>2</sup> as a critical value. Under the conditions of the Czech settlement system, this value will enable a much more varied assessment of rural areas.

## 5.2 Delimitation according to employment structure

One frequently used, defining characteristic for the delimitation of rural municipalities is a higher share of economically active inhabitants working in agriculture, forestry and fishery, i.e. in the so-called primary sector. This index shows the relationship of a rural population with the original activities typical for rural municipalities. As this index reaches higher levels, we are more definitely observing rural municipalities and rural regions. After general decreases in the economically active population working in the primary sector, during the first half of the 1990s, the share of economically active in the primary sector has stabilized at a level, comparable with other European countries, i. e. just below 5% of economically active inhabitants work in agriculture, forestry and fishery. Naturally, from a perspective of territorial differentiation, levels of this index are very diverse.

Evaluation focusing on individual municipalities is not possible, due to the disintegrated settlement structure. In very small municipalities, even a very small number of economically active people working in the primary sector could result in very low absolute values, but very high relative shares. Altogether 27 municipalities in Czechia display extreme values, i.e. higher than 50%, of economically active inhabitants working in the primary sector; however, all of these are municipalities with less than 100 economically active inhabitants.

Evaluations based on the administrative districts of municipalities with extended powers yield more significant results.

In compliance with OECD methods, regions with shares of inhabitants economically active in agriculture, forestry and fishery which are higher than the average plus one standard deviation of the whole set can be considered predominantly rural regions. In this case, the average value of economically active people working in the primary sector is 4.39, the standard deviation of the entire set is 3.59. Therefore, regions with a share of economically active people working in the primary sector that is higher than 7.98 can be classified as predominantly rural regions. Regions with a higher than average share, i.e. regions with a share of economically active people working in the primary sector that is between 4.39 and 7.97 can be labelled significantly rural regions. All other regions are not considered rural.

Attention must be focused, in particular, on the manner in which criteria for the delimitation of rural regions are determined. The selected criterion used above (average + standard deviation) enables the delimitation of rural regions in a normally distributed set of all MEPs. Should the distribution be extremely skewed or discontinuous, other indices for the delimitation of rural regions should be sought.



Total		Rural areas	
MEPs	% of economically active people working in the primary sector	MEPs	% of economically active people working in the primary sector
Pacov	18.92	Padov	29.61
Kralovice	15.28	Lysá nad Labem	22.67
Telč	15.27	Týn nad Vltavou	21.25
Nepomuk	14.96	Litomyšl	21.13
Litomyšl	14.54	Bosňany	20.91
Nové Město na Moravě	13.24	Blatná	20.71
Moravské Budějovice	12.99	Telč	20.68
Dačice	12.86	Moravské Budějovice	20.60
Horšovský Týn	12.78	Milevsko	20.58
Blatná	12.71	Vlašim	20.47
Bosňany	12.71	Nové Město na Moravě	20.37
Vitkov	12.41	Horšovský Týn	20.24
Sedlčany	12.41	Nepomuk	20.07
Moravský Krumlov	12.20		

Tab 10. Municipalities with extended powers ranked according to the share of economically active inhabitants working in the primary sector

Source: Population and Housing Census 2001; own calculations

Note: MEP - Administrative districts of municipalities with extended powers – administrative regions  
Rural areas – municipalities with less than 3,000 inhabitants within the given MEP

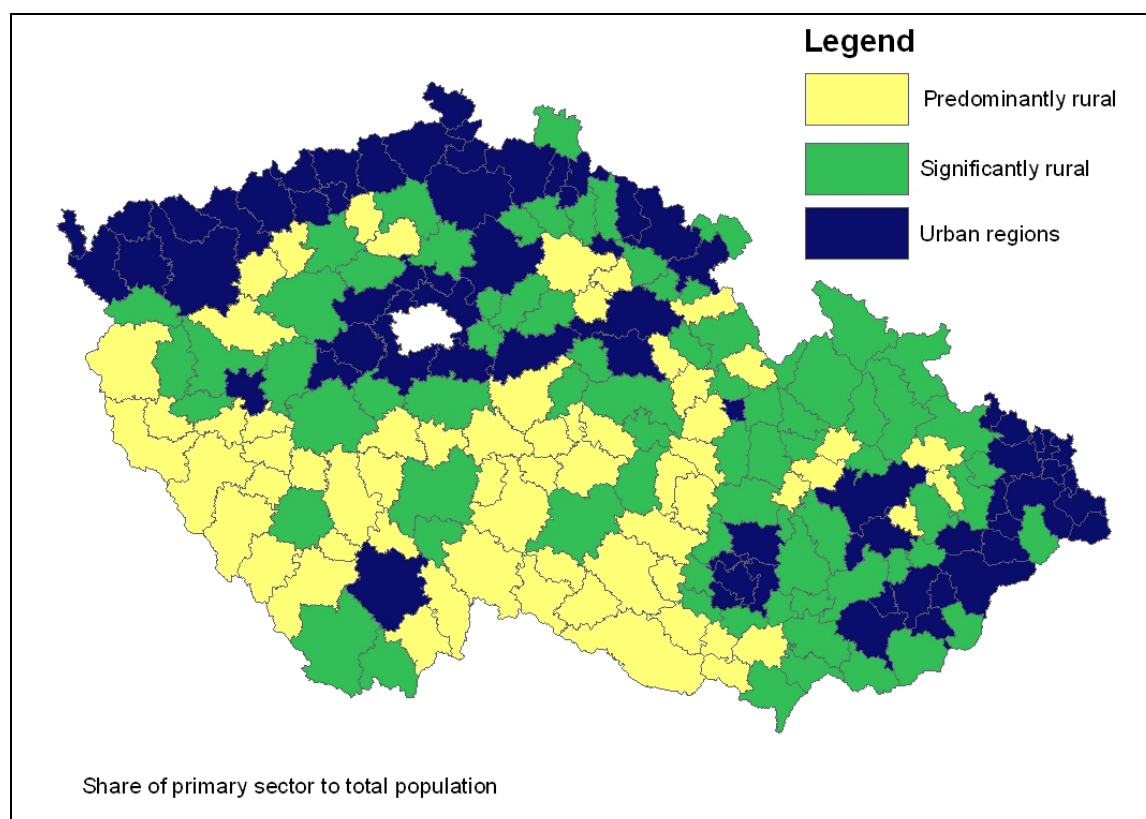


Fig 4. Delimitation of rural municipalities based on the share of economically active people working in the primary sector in relation to the total economically active population

Source: Population and Housing Census 2001,

Note : MEP - administrative district of municipality with extended powers

	Number of MEPs	Number of municipalities	Number of inhabitants
Urban	69	1,762	5,915,153
Significantly rural	75	2,464	2,771,280
Predominantly rural	62	2,023	1,600,756
Total	206	6,249	10,287,189

Tab 11. The structure of rural regions, based on economically active people working in the primary sector  
Source: Population and Housing Census 2001, Czech Statistical Office, Prague

When evaluating on the basis of MEPs' entire administrative districts, i.e. including their administrative centres and towns, the share of economically active inhabitants working in the primary sector fails to reach even 20%, at most, of the overall economically active population. As can be expected, the highest shares are found in administrative districts, in which the regional centre is a town of small population and which, at the same time, are relatively large. According to this method, regions situated south of the axis Plzeň – Praha – Hradec Králové in Bohemia are considered predominantly rural. In Moravia, on the other hand, only regions southwest of Brno and in the Vysočina Region are classified as predominantly rural. Central Bohemia regions and the majority of Moravian regions are delimited as intermediate regions. Urban regions are found primarily in urban or suburban territories.

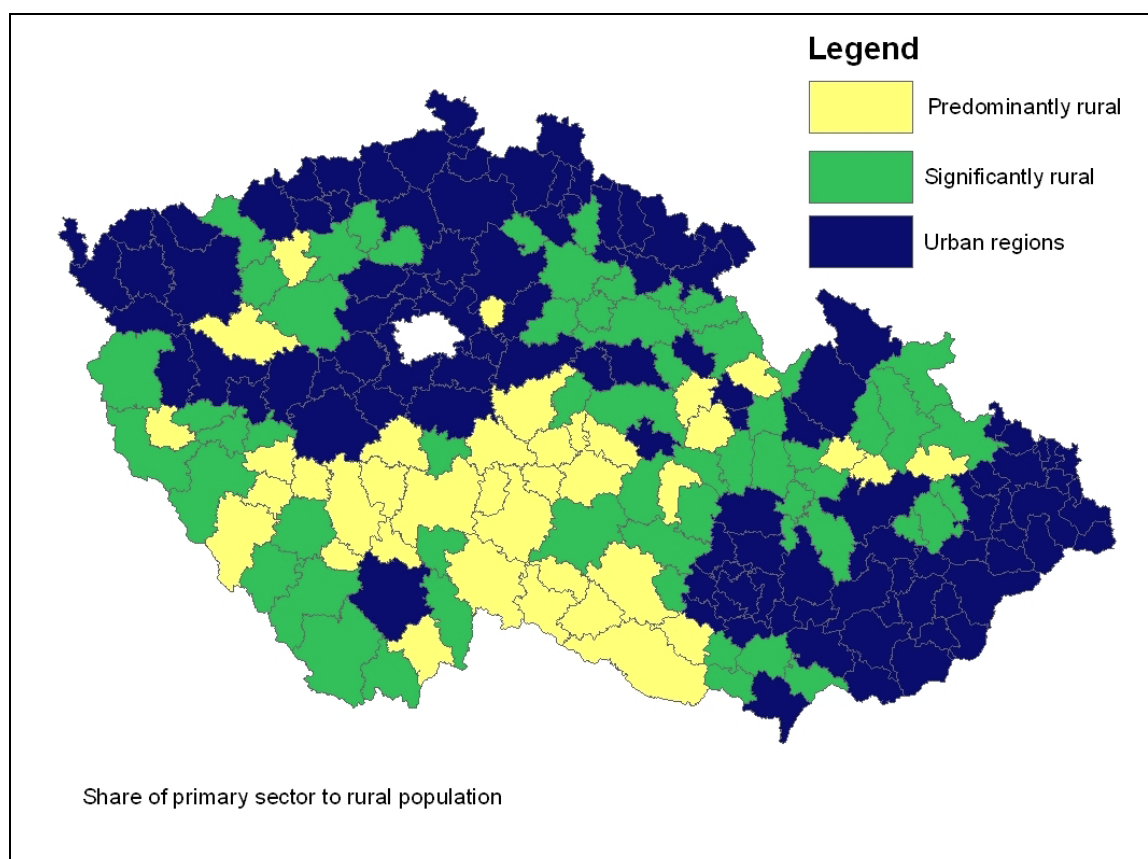


Fig 5. Delimitation of rural municipalities according to the share of economically active population working in the primary sector in relation to the total economically active population in rural municipalities  
Source: Population and Housing Census 2001,  
Note: MEP - administrative district of a municipality with extended powers

The use of this criterion is, with the exception of the possibility to use census results, i.e. with a ten-year interval, not very suitable due to the combination of multiple factors, reflected in the index. The impact of the largest centre of the MEP region as well as the progress of urbanization can both be observed in the index. Also, in relatively agricultural regions, which nonetheless include a larger city, the share of inhabitants economically active in the primary sector is relatively small, as there are no farmers in the city. This is quite apparent, for instance, in the evaluation of the Kolín, Hradec Králové, Pardubice or Mladá Boleslav MEPs.



When observations, concerning the share of economically active people working in the primary sector, are focused only on rural municipalities with less than 3,000 inhabitants within MEP regions; the index of the share of economically active people in the primary sector is higher. However, with the exception of an extreme level in Pacov, nowhere does it reach even one quarter of the economically active population. Thirteen regions exhibit a level in excess of 20%.

In practice, this index does not portray the actual level of rurality of the individual rural areas. Regions in south and southeast Moravia are, according to the index of economically active people working in the primary sector, classified as urban regions solely on the basis of the fact that, thanks to the high intensity of agricultural production and the high productivity of labour, the share of farmers is relatively low, in comparison with territories exhibiting extensive, i.e. less productive, agricultural production. A similar development can be observed in areas of intensive agriculture near Prague and in the Labe Lowland area. Therefore, it is not suitable to recommend this index of the share of economically active inhabitants working in the primary sector for the delimitation of rural areas.

## 6. Conclusions

The delimitation of rural regions and the associated delimitation of rural municipalities are not clearly defined in various individual countries. The majority of developed countries employ clear criteria, derived from the number of inhabitants in a municipality, for the delimitation of rural, or urban, municipalities. Some states supplement these indices with additional socio-economic indices or indices, describing the position of municipalities in the public administration system. These data are used primarily for statistical purposes, but international comparisons are not possible, because the individual countries use different indices.

OECD criteria, which, based on municipality population density, define predominantly rural and significantly rural regions, are generally used for delimiting rural regions. Nevertheless, this index is very strongly dependent on the structure of the general settlement system of a given country and, as a result, international comparisons are quite difficult. The use of relatively extensive territorial units (NUTS III), which do not enable detailed analysis within individual countries, are particularly problematic for the application of OECD criteria.

With the example of the Czech Republic, alternative methods for delimiting rural areas were explored. The least suitable is undoubtedly the index of the position of a municipality within the administrative structure. Due to historical evolution and rapid changes after 1990, the index of the statute of town cannot be used. Municipalities without urban characteristics have also been declared towns.

For general statistical processing of data, it is therefore suitable to use primarily data on the number of inhabitants in individual municipalities. In Czechia, we can consider the limit of 3,000 inhabitants as a critical value for the delimitation of rural municipalities, from a long-term perspective and in compliance with Act No. 128/2000<sup>7</sup>. The delimitation of rural municipalities in various European countries depends on the historic development of municipalities, the settlement structure and the significance of municipalities within the organisation of public administration. In comparing a larger number of units, any theoretical distinction between urban and rural municipalities must be based on very simple and widely available data. Consequently, population can be suggested as the primary criterion in finding a theoretical distinction between rural and urban municipalities. Additional indicators, based on the significance of a municipality in its settlement system, its urban structure or other morphological characteristics can be applied to a smaller dataset. It is very clear that it is not possible to recommend one size or even a basic size range (measured by population) that could, within EU states or the states of another world macro-region, be considered a critical dividing line for the delimitation of urban municipalities. This dividing line varies depending on the socio-economic development of a given municipality and a state, the population density, the nature of settlements and additional characteristics. In addition to the traditionally implemented OECD evaluations, we used the example of the Czech Republic to verify the possibility of using both population density and

---

<sup>7</sup> A municipality which has at least 3, 000 inhabitants is a town, if the President of the Chamber of Deputies approves the proposal of said municipality and after government approval. (Article 3, paragraph 1)

an index of economically active people working in the primary sector within smaller administrative units. By using smaller units, it is possible to better and more precisely define the extent of rural areas and to directly address issues of potential financial assistance from the European Agrarian Fund for Rural Development. We can recommend the simple index of population density, according to OECD methods, particularly because of its easy availability, the possibility of annual updating and its easy construction. As this index considers the number of inhabitants to be the integrating index for an area, it well expresses actual relations in space and enables the more precise definition of individual rural areas and the formulation of appropriate development strategies for such areas. It is evident that the use of smaller administrative units (MEPs) facilitates a more precise view on the territorial differentiation of the delimitation of rural regions in Czechia. The use of overly generalized instruments does not allow a detailed study of rural areas and often results in the classification of metropolitan regions, with a high degree of suburbanization, as well as regions with relatively large towns as rural areas.

## Acknowledgements

This paper is based on research undertaken within project no. WD-01-07-1 "The Regional Differentiation of Rural Space" sponsored by the Ministry for Regional Development and research project no. MSM 0021620831 "Geographical Systems and Risk Processes in Context of Global Changes and European Integration", sponsored by the Czech Ministry of Education, Youth and Sport.

## References

- [1] ANDRLE, A. & SRB, V. (1988). Nová koncepce pojmů město a venkov a její význam pro geografii. Sborník Československé geografické společnosti 93(2), 103-115.
- [2] BERČÍK, P. & LOVECKÝ, P. (2004). Územní změny obcí v SR, Bratislava: Ministerstvo vnútra SR.
- [3] BITE, D., RASNACA L. & SAULAJA I., (2008). Employers in Rural Towns. In Majerová, V. (Ed.), *Countryside - our world* (pp. 223-232), Praha: Czech university of Life and Science.
- [4] BLAŽEK, B. (2005). *Venkovy anamnéza, diagnóza, terapie*, Praha: ERA group.
- [5] CLOKE, P. (1977). An index of rurality for England and Wales. *Regional Studies* 11(1), 31-46. Doi: 10.1080/09595237700185041.
- [6] CLOKE, P. & EDWARDS, G. (1986). Rurality in England and Wales 1981: A Replication of the 1971 Index, *Regional Studies*, 20(4), 289-306. Doi: 10.1080/09595238600185271.
- [7] CZAPIEWSKI, K. L. (2008). Sustainability and Success – a case study of Mazowie region. *Europa XXI*, 17, 45-54.
- [8] HAMPL, M. & MÜLLER, J. (1998). Jsou obce v České republice příliš malé? *Geografie, Sborník České geografické společnosti*, 1998 (1), 1-12.
- [9] HOGGART, K. (1988). Not a definition of rural, *Area*, 20(1), 35-40.
- [10] HURBÁNEK, P. (2008). Recent developments in definitions of rurality/urbanity focus on spatial aspect and land cover composition and configuration. *Europa XXI*, 17, 9-27.
- [11] FÁZIKOVÁ, M. & LACINA, P. (2001). Teoretické a metodologické prístupy pre vymedzenie vidieckeho priestoru, *Acta oeconomica et informatica* 4(2), 34-38.
- [12] ILLNER M. (2006). Are Czech Rural Municipalities too Small? In Majerová, V. (Ed.), *Countryside - our world* (pp. 357-368), Praha: Czech University of Agriculture.
- [12] JOHNSTON, R. J. et.al. (2000). *The Dictionary of Human Geography*, 4<sup>th</sup> ed., Oxford: Blackwell.

- [13] OUŘEDNÍČEK, M. (2002). Suburbanizace v kontextu urbanizačního procesu. In Sýkora, L. (Ed.), *Suburbanizace a její sociální, ekonomické a ekologické důsledky* (pp. 39-54). Praha: Ústav pro ekopolitiku.
- [14] PILEČEK, J., & JANČÁK, V. (2010). Je možné měřit sociální kapitál? Analýza územního diferenciací okresů Česka. *Geografie*, 115(1), 78–95.
- [15] PIZZOLI, E., & GONG, X. (2007). How to Best Classify Rural and Urban? In Lenders, S., Lauwers, L. & Kerselaers, E. (Ed.), *Rural-Urban Delimitation. A Statistical Analysis*. Merelbeke: ILVA.
- [16] PERLÍN, R. (2003). Předpoklady rozvoje českého venkova. In Vávra V. (Ed.), *Funkce politiky v agrárním sektoru a rozvoji venkova v nejdůležitějších typech regionů v období před a po vstupu do EU*. Praha: Výzkumný ústav zemědělské ekonomiky.
- [17] PEZZINI, M. (2001). Rural policy lessons from OECD countries. *International Regional Science Review* 24(1), 134–145. Doi: 10.1177/016001701761013024.
- [18] PRYOR, R., J. (1968). Defining the Rural-Urban Fringe. *Social Forces*, 47(2), 202-215.
- [19] SEIDL, T. & CHROMÝ, P. (2010). Problémy integrace marginálního území do regionálního systému: příklad Vojenského újezdu Boletice. *Geografie*, 110(1), 44–63.
- [20] SARACENO, E. (1994). Recent Trends in Rural Development and their Conceptualisation, *Journal of Rural Studies*, 10(4), 321-330. Doi: 10.1016/0743-0167(94)90042-6.
- [21] WOODS, M. (1998). Advocating Rurality? The Repositioning of Rural Local Government, *Journal of Rural Studies*, 14(1), 13-26. Doi: 10.1016/S0743-0167(97)00044-2.