

STAGNACIJA URBANIH OBMOČIJ V 'STAGNIRANI' SRBIJI – PRISTOP H GLOBALNEMU POJAVU V LOKALNEM KONTEKSTU

URBAN SHRINKAGE IN A 'SHRINKING' SERBIA – THE APPROACH TO A GLOBAL PHENOMENON IN A LOCAL CONTEXT

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IZVLEČEK

Glavni namen predstavljene raziskave je razumevanje osnovnih vzorcev stagnacije urbanih območij v Srbiji. Stagnacija mest, na katero pogosto naletimo v postsocialističnih državah, je v današnji Srbiji nov, a zelo razširjen pojav. Čeprav je stagnacija mest velik izziv za prihodnost države, še na nobeni ravni ni bila dovolj raziskana. Za razumevanje stagnacije urbanih območij bi bila prva »naloga« zagotovo določitev, katera mesta v Srbiji lahko uvrstimo med stagnirajoča urbana območja v lokalnem kontekstu. Raziskava se na to vprašanje osredotoča z razvojem štirih modelov za proučevanje procesov stagnacije urbanih območij v Srbiji glede na globalne dejavnike, ki vplivajo na te procese. Namen prispevka je pojasniti možnosti za uporabo posameznega modela in raziskati, kateri lokalno utemeljeni dejavniki lahko vplivajo na stagnacijo urbanih območij.

ABSTRACT

The initial purpose of this research was to understand the basic patterns of urban shrinkage in Serbia. Urban shrinkage, a common phenomenon in post-socialist countries, is a novelty, albeit very present in Serbia today. Despite presenting a huge challenge for the future of the country, it has not been studied sufficiently at any level. To understand this situation, the first "task" would certainly be to identify which cities in Serbia can be considered as shrinking in a local context. The research will focus on this issue through the development of four models of shrinking cities in Serbia according to globally based factors of urban shrinkage. The aim of the paper is to clarify the potential of their use and to explore the possible locally-based factors of urban shrinkage.

KLJUČNE BESEDE

načrtovanje urbanega razvoja, stagnacija urbanih območij, postsocialistična mesta, globalno-lokalno, Srbija

KEY WORDS

Urban planning, urban shrinkage, post-socialist city, global-local, Serbia

1 INTRODUCTION

The phenomenon of urban shrinkage is not something new, it has been occurring since the beginning of civilisation (Oswalt and Rieniets, 2006). However, the massive scale of urban shrinkage in the late 20th and early 21st century has led to a new overview of this issue, which is becoming a global one (Bontje and Muster, 2012; Pallagst et al., 2014). The process of urban shrinkage is especially noticeable in the cities of developed countries with demographic decline. Thus, instead of the widely accepted view of urban shrinkage as something accidental and exceptional, civilisation should observe it as a normal process in future urbanisation (Oswalt, 2008; Haase et al., 2014).

The importance and spread of urban shrinkage have also attracted the attention of scientific circles, especially in Europe (Stryjakiewicz, 2013; Rink et al., 2014). Research into the phenomenon, as well as the multiple approaches dealing with it, have formed the concept of shrinking cities and have made it internationally significant (Haase et al., 2016). One of the main influences on the formation of this concept has certainly been the extreme nature of urban shrinkage in cities and urban regions in Central and Eastern Europe during the post-socialist transition (Stryjakiewicz, 2014). “Yet it is the former socialist transformation regions in Central and Eastern Europe that have been hit hardest by population decrease and industrial regression since the political changes in 1990” (Wiechmann, 2009, 5). The phenomenon is widespread here with the majority of bigger cities in this part of Europe in demographic decline (Turok and Mykhnenko, 2007; Haase et al, 2016b). Moreover, medium-sized cities in post-socialist Europe are especially afflicted (Wiechmann and Pallagst, 2012). Consequently, the seriousness of urban shrinkage has caused vibrant discussions on all spatial levels among European experts in the new millennium (Pallagst, 2010).

This evident contribution of European research and practice seems to have had little influence on the Serbian context, despite major figures proving that urban shrinkage has become a new “normality”. The strong majority of listed urban settlements in Serbia reported population decline in the last census (SORS, 2011). However, planning practice in Serbia seems to be silent on these signals. The general urban plans of Serbian cities are a good example, because they present some actions which directly conflict with urban shrinkage, such as the widening of city built areas. On the other hand, general urban plans are internationally recognised as very important policy documents for laying out possible solutions to this issue (Domhardt and Troeger-Weiß, 2009; Pallagst, 2010). Additionally, they can provide the innovative planning actions that are necessary to cope with urban shrinkage (Jessen, 2006).

In this unenviable situation, the first task would certainly involve understanding the scale of the problem of urban shrinkage in this country. In other words, the main problem is how to identify which urban areas can be considered as shrinking ones at a national level.

Knowing that the concept of shrinking cities has a global dimension, any action against urban shrinkage in Serbia needs adequate adaptations to local conditions. However, measuring shrinkage in a transitional post-socialist country such as Serbia, which itself is shrinking by many indicators, is challenging regarding the measurement criteria, limits/“thresholds” and research units. The latter includes the rather unclear official definition of a city and its relationship to a “real” urban area.

Given these objectives, this research is to examine this problem with consideration to the local distin-

ness of the research process and unit. Initially, it revises internationally recognised factors of urban shrinkage but, through their customisation and the creation of identification models, the research results into a typology of shrinking urban areas in Serbia. Four types, identified by acquired shrinkage models, can be a starting point for relevant urban development, such as to define their vulnerability and accompanying actions or to propose which level in the country should be responsible to implement them. Furthermore, the spatial distribution of identified shrinking urban areas across Serbia is used to understand the advantages and disadvantages of implying internationally recognised factors in the case of Serbia. Their implications on the models enables the introduction and use of additional, locally revealed factors of urban shrinkage in Serbia, such as the proximity to borders and or the distance from national and regional capitals, as decision-making cores in centralised countries such as Serbia.

2 METHODS

The methodology in the research is tailored according to three steps. The critical analysis of the main international theoretical sources is used in the first tier. The definition of urban shrinkage is linked with this issue. The complexity and diversity of shrinking cities is complicated by their definition (Haase et al., 2016b). It is also connected with the general lack of a definition of “urban” (Bernt, 2015). In other words, because there is no “simple path” to define urban shrinkage (Avila de Sousa et al., 2011), this approach is functional in order to determine which of the factors of urban shrinkage are crucial.

The second step was the customisation of the obtained findings to the data available in Serbian conditions. Thus, reliable official statistical data with a history of stable and regular interval collecting is used; from the Statistical Office of the Republic of Serbia for the definition of (urban) settlement and demographic data and from the National Agency for Regional Development for economic data.

The third step is urban modelling. It refers to a qualitative transformation from an adequate urbanism-related theory into a formal urban model, as a scientifically simplified construct of the urban spatial structure (Batty, 2009). For the proposed research of urban shrinking as a relatively new phenomenon, urban models are more suitable because urban modelling is more focused on balancing the current state of things rather than on traditional urban dynamics (Simmonds et al., 2013). Furthermore, urban modelling allows the formation of several solution models, i.e. several models for identifying which urban areas should be named as shrinking ones in a Serbian context.

Urban modelling in all conducted analyses in this research is based on two approaches - maximal and minimal approach. They are settled according research aim, to make a distinction between globally-known and locally adjusted limits/”thresholds” and all analyses by derived criteria. Therefore, maximal approach is always related to a globally-confirmed limit and consequently identifies the maximal number of affected cities by a criterion. Conversely, minimal approach is with locally adjusted limit, focused on more vulnerable cases and it correlates to the minimal number of identified cities by a criterion thereof.

2.1 Theoretical Framework as a Baseline of Criteria

Shrinkage at an urban and regional level is a complex phenomenon because of its multi-dimensional, multi-scalar and multi-temporal character (Bontje and Musterd, 2012). Generally, urban shrinkage is

the “reflection” of a process caused by numerous factors, especially those from the economic and demographic sphere (Haase et al., 2014). Nowadays, all of these factors are very common and interconnected (Pallagst, 2009). To clarify previous factors, the existing interpretations of urban shrinkage are given as the theoretical fundamentals for the preliminary criteria in Table 1.

Table 1: Theoretical fundamentals of urban shrinkage/shrinking city.

Fundamentals	Authors
importance of deindustrialisation as a major cause of economic decline	Bontje, 2005
decline of urban population and economic activity	Oswalt, 2006
decreasing population, deindustrialisation, suburbanisation	Rink et al., 2009
economic transformation, population loss	Pallagst, 2010; Pallagst, 2010
decreasing population, deindustrialisation, suburbanisation	Rink et al. 2009
emigration, decrease in birth rate, industrial regression and (sudden) political changes	Wiechmann and Pallagst, 2012
weak economic issues, population flight, capital and human loss	Martinez-Fernandez et al., 2012
demographic decline	Avila de Sousa et al., 2011
economic decline, suburbanisation/urban sprawl and natural demographic change	Bernt et al., 2014
declining local economies, demographic change, suburbanization and population loss	Haase et al., 2014
demographic decline, deindustrialisation, suburbanisation and urban sprawl	Panagopoulos et al., 2015

All the presented interpretations can generally be organised around three main “pillars”, which are given by their frequency: negative demographic changes (especially population decline), economic decline (especially deindustrialisation), and suburbanisation/urban sprawl.

All three criteria have a clear reflection in urban space, but with untraditional patterns of distribution of population and the economy. Florentin (2010), Vujičić and Đukić (2015) point out that a shrinking city significantly deviates from the traditional concept of a compact city. Similarly, Lutke-Daldrup (2001) depicts the spatial manifestation of this phenomenon as a “perforated city”, where spatial holes of abandoned land – so called brownfields – dramatically degrade the urban fabric. Nevertheless, a significant decline in the population leads to property and land vacancy (van Dalen and Henkens, 2011), causing pressure for the better use of existing building stock (housing in particular) and urban land, as well as to prevent further urban sprawl. Economic decline is related to the loss of jobs in a certain area; this loss more pertains to industry than to the tertiary sector (Fol and Cunningham-Sabot, 2010). This means that those parts of urban areas that are more dependent on industry are traditionally more affected by general economic decline than others where the tertiary sector is a major employer. Therefore, economic decline can be amortised by brownfield regeneration – the successful transformation of old industrial areas into new service, trade and technology hubs (Panagopoulos, 2009).

2.2 Research Unit

Defining the research unit is complex and requires more explanation because the official meaning of a

city in Serbia (Serb. *grad/zpad*) has strictly an administrative character (GRS, 2007) and, therefore, differs from the meaning of a major urban area. In fact, the officially named cities in Serbia were previously municipalities, with bigger urban settlements as their seats and a huge dependent rural area around them. Serbian administrative “cities” are also among the biggest units of local self-government in Europe by both area and population (Vasiljević 2008). This is in stark contrast to the essence of a city. Thus, these “cities” are inconvenient for this kind of research.

The second official term in Serbia is the statistical term of urban settlement (Serb. *gradsko naselje / zpadsko naselje*). There are 167 statistically-registered urban settlements in Central Serbia and Vojvodina, according to the last census (SORS, 2014). Since the census of 1981, all urban settlements have been statistically listed in this manner by just one, administrative-legal criterion. Before that, the combination of three criteria was used – settlement size (number of inhabitants > 2,000), the percentage of non-agricultural population (> 90%) and the possession of urban characteristics (by physical aspect) (Stevanović 2004). Although most of them correspond to the traditional meaning of a physically separated urban settlement, they vary greatly by many important indicators, such as size and structure. For example, Divčibare (mountain resort) has less than 200 inhabitants and a sparse settlement structure. This feature is a deficiency for the presented research.

Thus, a new approach related to the national nomenclature of territorial units (aka NUTS) will be used. First, level 3 of the NUTS system in Serbia fully corresponds to the official districts in Serbia, which have been official territorial units since 1991-1992 (Milosavljević, 2009), i.e. during the years of post-socialist transition when urban shrinkage occurred. Second, the NUTS system is based on international/European standards. Third, this system had a strong influence on the organisation of functional urban areas in the operative Spatial Plan of the Republic of Serbia (Živanović et al., 2015). Furthermore, the seats of 25 NUTS3 units in present day Vojvodina and Central Serbia (GRS, 2009-10) are the cores of major urban areas and they have historically been seen as economic, administrative and cultural centres of a wider surrounding (Figure 1).

Considering the size of the selected urban areas, all of them have a main (urban) settlement with more than 30,000 inhabitants. This is also linked with the stance on the importance of a general urban plan for the main topic. According to Law on Planning and Construction, “the General Urban Plan is drawn up for a populated settlement which is the seat of a unit of local administration, and has a population of over 30,000 inhabitants” (MCTI, 2009-2014, Art. 23). Nevertheless, this type of a plan always includes suburban settlements aside from the main settlement. Continuously built-up areas have also proved to be very suitable to delineate urban settlements (Drobne et al., 2014). Therefore, the intention for this approach is very rational; it covers the entire urban area, both functionally and physically, and the urban area defined by a general urban plan is chosen as a research unit thereof.

Finally, the mentioned approach enables the simplification of the preliminary criteria, because suburbanisation as a criterion has already been covered by the definition of an urban area as a research unit. Accordingly, the entire research is based on an analysis by two criteria: population decline and economic decline.

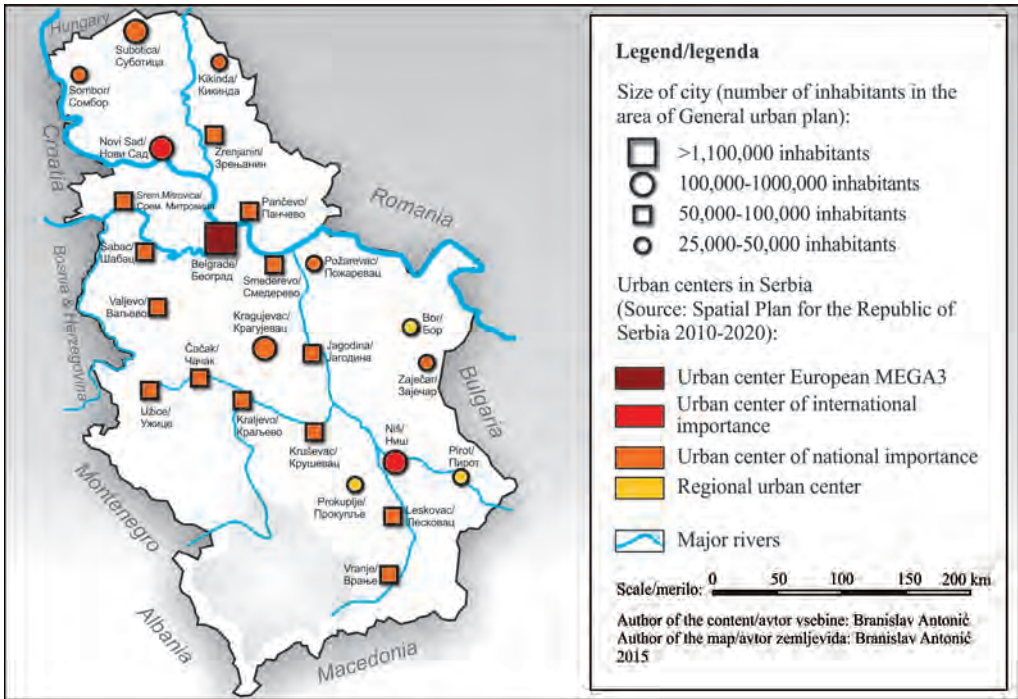


Figure 1: Basic data about the selected urban areas as research units.

2.3 Demographic criterion

The demographic analysis is based on statistical data from the last two official censuses, conducted in 2002 and 2011. The analysis of demographic trends in the previous inter-census interval (1991-2002) is difficult, because of the strong influence of the mass immigration of refugees and internally displaced persons in Serbia during the Yugoslav wars of the 1990s. Similar demographic patterns have also been visible in the other former Yugoslav countries affected by the wars (Vujičić and Đukić, 2015; Lončar and Braičić, 2016). However, urban shrinkage has also occurred in those parts of South-eastern Europe where there has not been war or it was not intensive and long-lasting. The presence of urban shrinkage in Romania and Macedonia is a good illustration of this (Constantinescu, 2012; Siljanoska et al., 2012). This acknowledgement points to the fact that the phenomenon is in line with ongoing global and regional trends.

A negative demographic trend in Serbian urban areas is one of the main consequences of the general demographic decline at a national and regional level. There have been cases of both negative population growth and intensive emigration. For example, more than 4 million people (7% of the population) emigrated from the Balkans in the 1990s (Dimou and Schaffar, 2008). In Serbia, the first factor is certainly an insufficient fertility rate, which has been ongoing since the middle of the 20th century (Tucović and Stevanović, 2007), but its negative consequences have been particularly noticeable in the post-socialist transitional period. The official data from the National Statistics Office shows that the national mortality

rate was more than 50% higher than the birth rate in 2015 (Radivojša, 2016). This huge demographic gap has also been strongly influenced by very negative emigration rates in the last decades. More than 300,000 people have emigrated from Serbia since the first emigration wave in the 1960s. They account for almost 5% of the total population in present-day Serbia (Stanković, 2014). Considering the above-mentioned demographic trends, the influx of refugees in the 1990s can even be perceived as a “gain” for the country (Nikitović and Lukić, 2009; Stanković, 2014).

K. Pallagast briefly defines urban shrinkage as the process of dramatic population decline over a short interval (Pallagast 2009). The measurement of the “dramatic loss of population” should be understood in a local context. Therefore, the “minimal” approach is connected with the overall decline of the urban population at a national level as a limit between two last national censuses (2002 and 2011). The quotient between the population values (2011/2002) is 0.958 (Figure 4). The “maximal” approach deals with simple “population growth/decline” limit - $k > 1.0$ growth, $k < 1$ decline (Figure 2).



Figure 2: Demographic growth/decline of urban areas in Serbia.

2.4 Economic criterion

The most relevant indicator for economic analysis is certainly the comparison of the economic parameters per city before the post-socialist transition with the current ones. This is still a very problematic threshold in the case of Serbia. For example, the gross domestic product in Serbia in 2012 was only 60% of the level in 1989 (Kovačević, 2013). Then, the performance of various economic sectors was very different. Industry, developed as the key economic sector in socialist countries, was especially affected by the transition (Cercloux et al, 2015). Thus, many thriving industrial plants from the socialist period are abandoned today (Figure 3). Serbian industry in 1998 was almost 1/3 of the industry in 1990 (Zeković, 2000). In fact, only three urban areas in Serbia have reached the economic level of 1989: Novi Sad, Belgrade, and Niš (Kostić, 2007). All of them have inherited a well-developed service sector and a concentration of administration, which have proven to be more adaptive to the new market economy (Hamilton et al., 2005).

The “minimal” approach refers to local conditions, which have changed appreciably in the last 15 years (Miljanović et al, 2010). The previous statement about the different performances of economic sectors in Serbia proves that the minimal economic approach should be related to a multi-sector indicator. Furthermore, it should be easy to compare with the national level. Therefore, the minimal approach is based on the most recent official multi-criteria indicator - the level of local development. This indicator includes indicative socio-economic parameters, such as income per capita, level of employment, retail

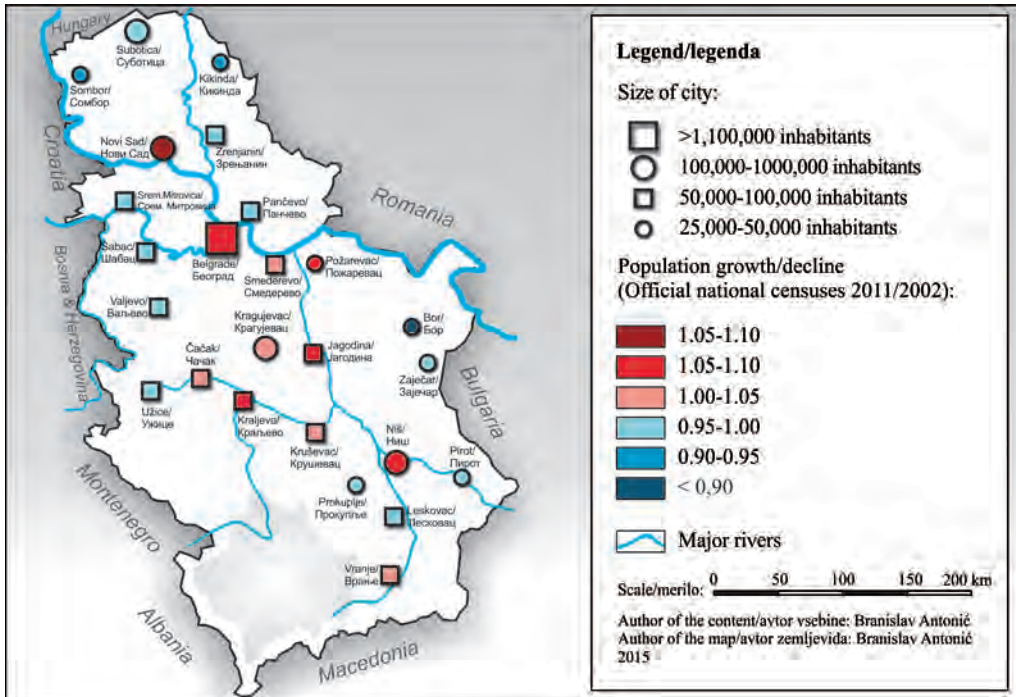


Figure 3: Abandoned and dilapidated buildings of old industrial zones; Sremska Mitrovica (Serbia) - well-known symbols of urban shrinking (Author: Antić Branislav).

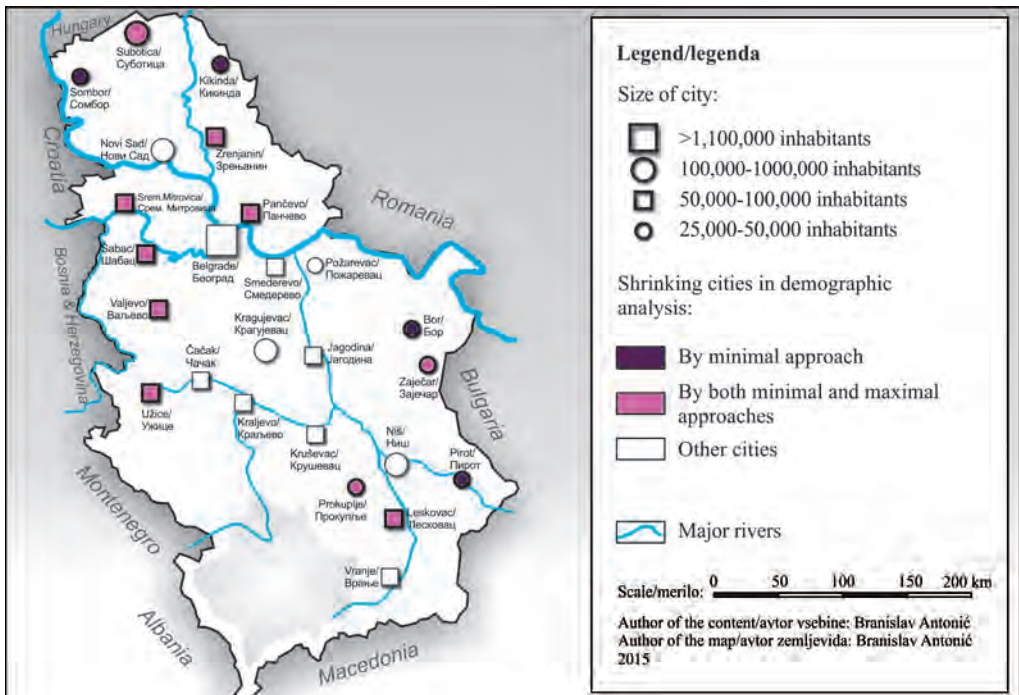


Figure 4: Economic growth/decline of urban areas in Serbia.

trade per capita, and the number of telephone subscribers per 100 inhabitants (Miljanović et al, 2010). All units of local government (municipalities and cities) are divided into four groups by level of local development (GRS, 2009-10). The units with a development above the national average are listed in the first group. The remaining units are sorted into three other groups, where local development is 80-100%, 50-100% and <50% of the national average, respectively (RR, 2014). Given that cities are generally better developed than other units of local government in Serbia, the limit in the “minimal” approach is based on the “above/below national level” dichotomy (Figure 4).

3 RESULTS

Demographic analysis:

Table 2: Shrinking urban areas by demographic criteria - two proposed approaches.

Approach	Limit	Urban areas - number and percentage
Minimal	< 0.958	4 (16%)
Maximal	< 1.000	14 (56%)

The setting of two demographic limits in Table 2 produces two very different results. With the minimal approach, based on a locally-based limit, only 4 urban areas in Serbia are affected by a shrinking population; in contrast, the use of the maximal approach leads to 14 targeted urban areas, which is more than half of all the selected research units. This is also observable in Figure 5, where the difference between the affected cities by the two approaches is highlighted.

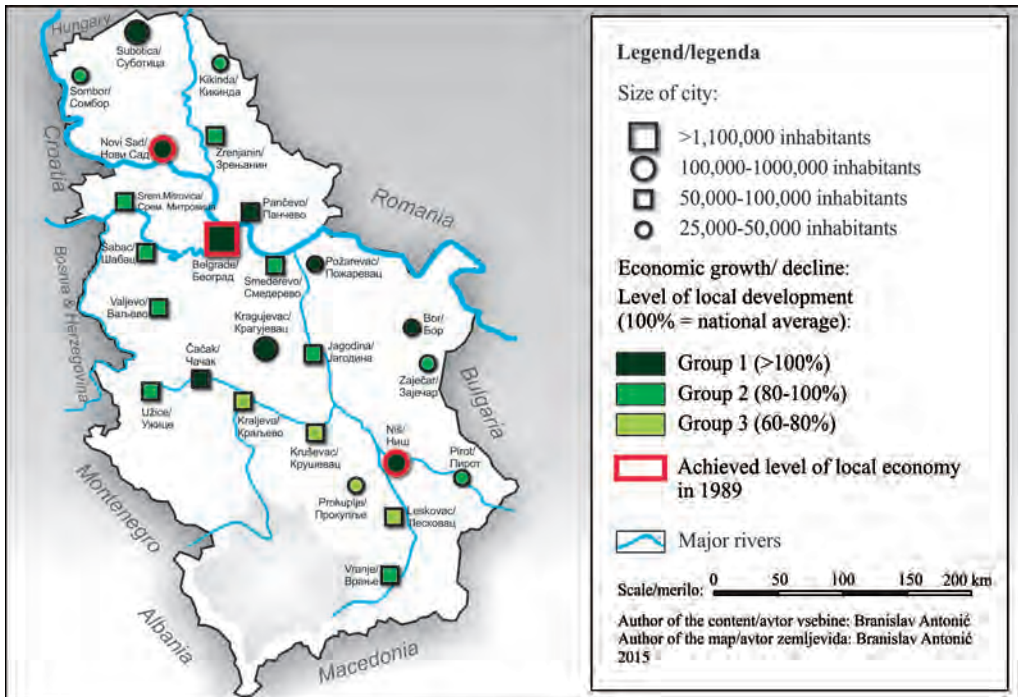


Figure 5: Urban shrinkage by demographic decline – two approaches.

Economic analysis:

Table 3: Shrinking urban areas by economic criterion - two proposed approaches.

Approach	Limit	Urban areas - number and percentage
Minimal	< national average of local development	16 (64%)
Maximal	Non-achieved level of economy in 1989	22 (88%)

The obtained figures in Table 3 clarify that the gap between the minimal and maximal approach is smaller than in the demographic analysis. However, economic performance is more negative than in the previous analysis – an absolute majority of Serbian urban areas presents shrinking patterns with both approaches in the economic analysis. Figure 6 illustratively reveals this observation – only three major cities are not marked as shrinking ones.

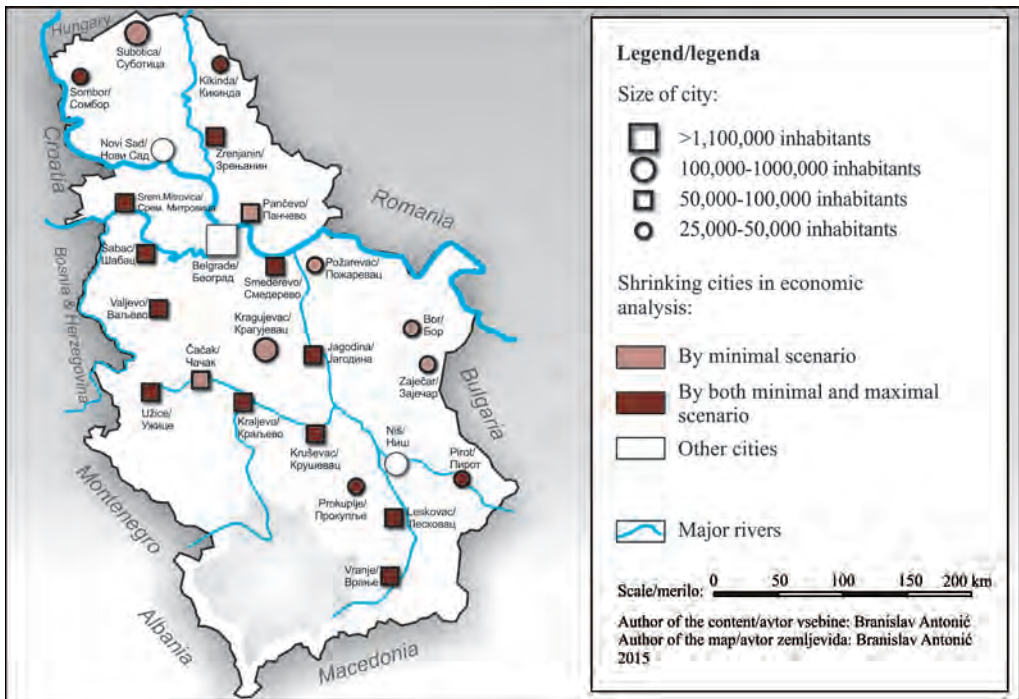


Figure 6: Urban shrinkage by economic decline – two approaches.

The formation of the four proposed models is founded on all the presented approaches of both analyses. Concretely, every model is constructed as an intersection of the identified shrinking urban areas by two approaches: one from the demographic analysis and one from the economic analysis (Table 4). In other words, the identified shrinking urban areas in a model need to be shrinking ones according to both approaches, which is illustrated in Figure 7.

Table 4: Four models for identifying shrinking urban areas in Serbia.

Model No	Explanation of combined demographic (D) and economic (E) approaches	Number/percentage of urban areas
1.	Maximal D + maximal E	14 (56%)
2.	Maximal D + minimal E	11 (44%)
3.	Minimal D + maximal E	4 (16%)
4.	Minimal D + minimal E	3 (12%)

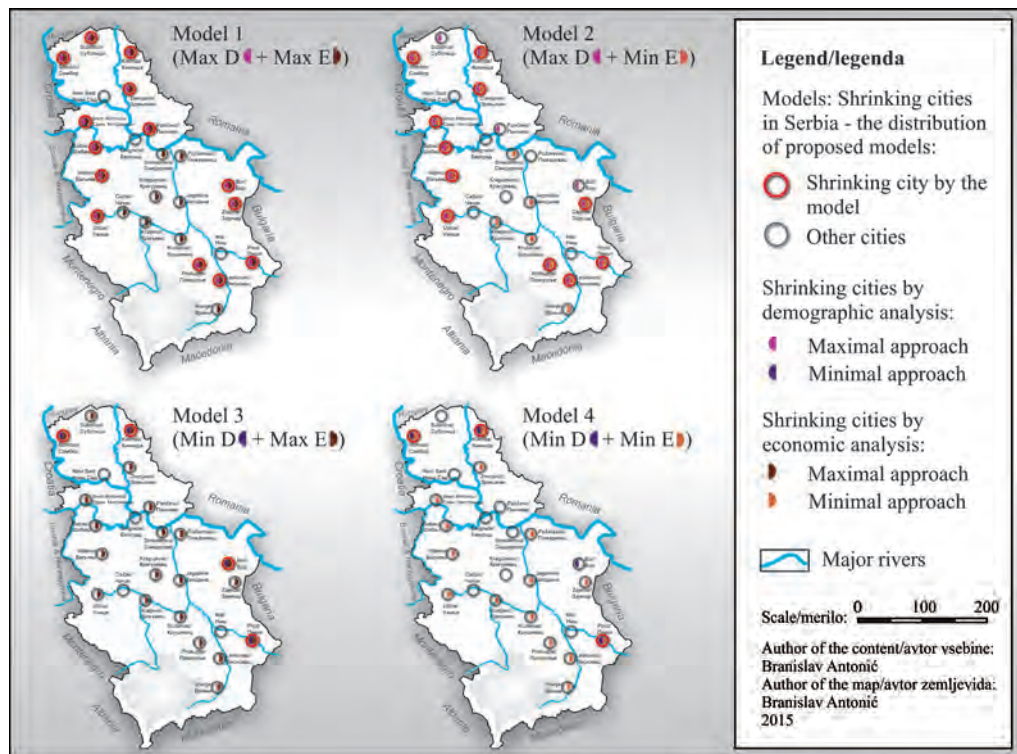


Figure 7: Spatial distribution based on the four models of shrinking urban areas in Serbia.

The four created models of identified urban shrinkage in Serbia differ greatly by the number of included urban areas. The first model shows clearly that the use of globally-based factors as criteria (“simple” growth/decline patterns) leads to an “extreme” in the number - thereby the majority of analysed urban areas are listed as shrinking ones (56%). This would simply prevent a qualitative focus on the more vulnerable cases in the country in any future policy or strategy. The fourth model, as an opposite example, can also raise some doubt. It is developed by minimal approaches, where only three urban areas are identified due to the use of local limits in both analyses. If it repeats that Serbia is generally a “shrinking” post-socialist country by many indicators, the overview that only 12% of the analysed cases are listed as shrinking urban areas can be observed as very narrow and incompatible with the national level.

Two models with a mix of minimal and maximal approaches present the “middle” in the instance of the identified cases. The gap between the included urban areas by those models is wide (44% vs.16%). The reason is certainly related to the fact that the results by economic analysis are more severe. Actually, the number of identified urban areas by the minimal economic approach (64%) is higher than the number identified by the maximal demographic approach (56%). This can be explained as a postponed demographic consequence of the Yugoslav wars and the related resettlement. The difference between the values obtained by the maximal and minimal approaches is very noticeable in the case of the demographic analysis (56% and 16%, respectively). Thus, it is doubtful that demographic indicators, which are the most usual “markers” for urban shrinkage globally, are crucial for the evaluation of the phenomenon in Serbia. Hence, the introduction of locally-based criteria and limits has proven not only to be reliable, but also necessary.

4 Discussion – proposed typology

The presented figures and their mappings imply a grouping of the identified shrinking urban areas in Serbia. The four elaborated models enable the possible formation of three types of shrinking urban areas in Serbia (Figure 8).

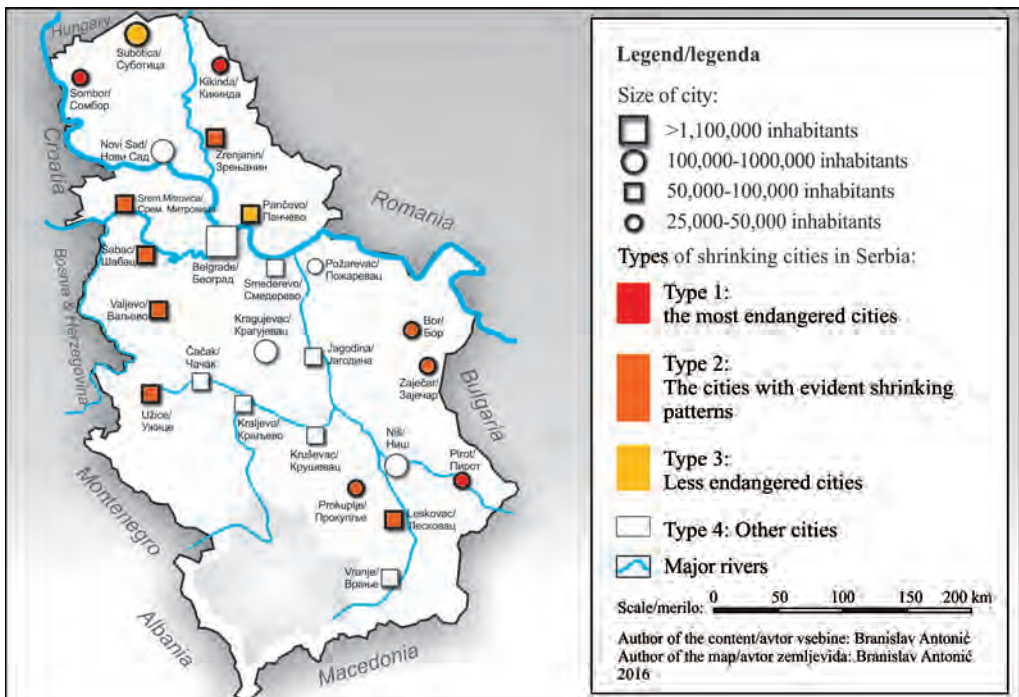


Figure 8: The possible typology of shrinking urban areas in Serbia, developed from the proposed four models.

This can become an appropriate foundation for further actions and policies, as well as for the involved actors (Table 5). The creation of actions is placed on the previously interpreted link between demographic and economic decline and their reflection in an urban space.

Table 5: Three types of shrinking urban areas in Serbia with relevant actions and actors.

Type	Cities / areas	Urban	Major problems	Relevant actions	Relevant actors - levels
1.	Kikinda, Pirot, Sombor, Bor		Severe economic and demographic decline	strict prevention of urban sprawl brownfield projects, direct support to the tertiary sector revitalisation of urban land and housing	Key actors at a national and regional level
2.	Leskovac, Prokuplje, Sremska Mitrovica, Šabac, Užice, Valjevo, Zaječar, Zrenjanin		Severe economic and noticeable demographic decline	prevention of urban sprawl brownfield projects indirect support to the tertiary sector revitalisation of urban land	The distribution of competence between different levels (national, regional, and local)
3.	Pančevo, Subotica		Noticeable economic and small demographic decline	minimisation of urban sprawl indirect support to brownfield projects indirect support to the tertiary sector	Key actors at a local level

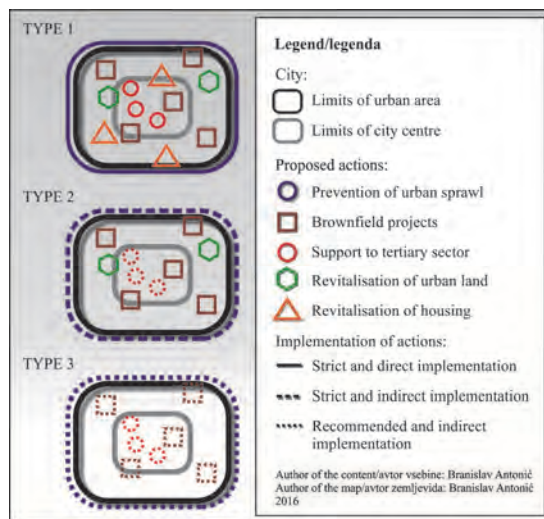


Figure 9: Spatial organisation of the urban development of three types of shrinking cities in Serbia.

6 CONCLUSION

Many urban areas in Serbia are shrinking today. This is to be expected, considering the well-known long-term negative trends in the Serbian population and the immense problems in the post-socialist transformation of the Serbian economy. Nevertheless, the proposed modelling and, thereby, the extracted types of shrinking cities in Serbia confirm that the number and structure of the identified shrinking urban areas in the country can vary greatly depending on which scientifically selected methodology is used. This means that the future of shrinking cities in Serbia can be differently shaped depending on the selected policy and relevant actors. Introducing actors from different levels (state, regional, local) in this process, the proposed typology can even reaffirm the role of urban planning in Serbia, which can prosper as a result of better ties between cities and the state (Stupar, 2015).

Aside from the proposed typology, the graphical distribution of the urban areas affected by the criteria of urban shrinkage on the presented maps facilitates the finding of some “covert” and locally-specific

factors of urban shrinking. For instance, it can be observed that the proximity to national borders can significantly deteriorate the perspectives of Serbian urban areas and lead to urban shrinkage. The mentioned observation is not stressed enough in current academic observations, and it is less noticeable in the cases of Europe, the USA, and Russia. Serbian centralised governance and lengthy isolation during the Yugoslavian crisis have probably influenced the presence of both the mentioned spatial patterns. Moreover, the presented mapping and the spatial distribution of the proposed types also reveal that there are no patterns of regional concentration of urban shrinkage in Serbia, which can commonly be noticed in academic literature (Bontje and Musterd, 2012).

Therefore, the presented paper should only be considered as an initial step and as pilot-research into an apparently much greater and very complex theme. For further research, it is very important to expand the list of indicators of urban shrinkage, such as the proximity to borders or the proximity to capital cities, etc. The research should also include a geographic representation of urban shrinkage in a wider area (especially national) to achieve new scientific inputs related to the position of the urban areas and urban network.

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