*sustainability*

MDPI

*Article*

# Demographic Aspects of Urban Shrinkage in Serbia: Trajectory, Variety, and Drivers of Shrinking Cities

**Danica Djurkin [1,*], Marija Antić [1] and Dejan Ž. Djordjević [2]**

[1] Faculty of Geography, University of Belgrade, 11000 Belgrade, Serbia; marija.antic@gef.bg.ac.rs
[2] Faculty of Economics, University of Nis, 18105 Nis, Serbia; ekngeo@gmail.com
* Correspondence: danica.djurkin@gef.bg.ac.rs

**Abstract:** Many European countries have faced the process of urban shrinkage in recent decades. Due to the various theoretical aspects of urban shrinkage, there are numerous approaches to the interpretation of this process. The most widely accepted of these refers to the demographic component as the starting point for defining this phenomenon, with the decline of the total population as the main indicator. The demographic shrinkage of cities in Serbia is a process that has been in place since the 1960s, with the dynamics of spatial-demographic and socioeconomic transformation during the post-socialist transition having exacerbated urban shrinkage. As a result, over 80% of urban settlements are affected by it. This paper identifies the trajectory and spatio-temporal patterns of the intensity and dynamics of urban shrinkage for the period from 1961 to 2022. The aim of this work is to show the diversity of shrinking cities and to explore the driving forces behind this process in Serbia. In this study, we conducted an analysis of population trends in 167 urban settlements in Serbia. Further analysis included the identification of contrasting spatio-temporal and demographic dynamic patterns characterized by either natural losses or out-migration. Due to the complex urban trajectories, a typology was created that distinguishes four different types of shrinking cities: continuously shrinking cities, episodically shrinking cities, recently shrinking cities, and resurgent cities. The results are important to achieving a better understanding of how patterns of local population trends change over time and space. The result will thus be a step towards explaining the main demographic factors causing population change and inter- and intra-regional differences between shrinking cities in Serbia, as well as towards examining urban renewal opportunities in the future.

**Keywords:** urban trajectories; demographic urban shrinkage; shrinking cities types; Serbia



**Citation:** Djurkin, D.; Antić, M.; Djordjević, D.Ž. Demographic Aspects of Urban Shrinkage in Serbia: Trajectory, Variety, and Drivers of Shrinking Cities. *Sustainability* **2023**, *15*, 15961. https://doi.org/10.3390/su152215961

Academic Editors: Annegret Haase, Emmanuèle C. Cunningham Sabot and Maja Ročak

Received: 10 August 2023
Revised: 3 October 2023
Accepted: 10 October 2023
Published: 15 November 2023



## 1. Introduction

Since the middle of the 20th century, urban shrinkage has been observed in many cities [1–3]. Therefore, urban shrinkage is now considered a global phenomenon rather than an exception [4]. Nevertheless, examples of urban regrowth, i.e., the resurgence of cities, show that urban shrinkage need not be considered a disaster [5,6]. Observation of population development trajectories is carried out to identify the spatio-temporal dimensions of urban shrinkage that determine the differences in the trajectory path, intensity, dynamics, and distribution of shrinking cities.

Complex population dynamics in the second half of the 20th century, caused by compound socio-economic changes, determined the demographic development of urban settlements in Serbia. Despite the overall growth of the urban population in Serbia, which started in the 1960s and continued until the end of the 1980s, there were rare cases of cities affected by urban shrinkage. Until the 1990s, cities affected by this process were a rare phenomenon, and urban shrinkage was usually not continuous but was part of alternating periods of demographic decline and growth. However, the socioeconomic changes of the 1990s had a particular impact on urban demographic trends, when stagnation of

the total urban population occurred and shrinking cities became more common. At the beginning of the 21st century, there was a slight increase in the total urban population in Serbia, but disproportions in population development between urban settlements deepened simultaneously with this. Empirical studies of this phenomenon are poorly represented and relatively new in Serbia. Numerous researchers have previously analyzed the dynamics and degree of demographic development of cities in Serbia; however, without relating phenomena observed directly to the concept of urban shrinkage [7–13]. Recent studies indicate that urban shrinkage is becoming a pronounced problem [14–18], which became evident after the most recent census in 2022, although it is still not acknowledged by the public. However, the urban development of Serbia in the 21st century is characterized by ever-increasing shrinkage, with the results of the last census in 2022 showing that over 80% of urban settlements are affected by this process.

The aim of this research is to determine different types of cities according to the intensity and dynamics of shrinkage and to study the spatio-temporal patterns of urban shrinkage as a result of different population dynamic components—natural losses, i.e., out-migration and its regional differentiation. Identifying different types of shrinking cities (cities with continuous, episodic, recently affected, and cities with previous urban shrinkage, the so-called "resurgent" cities) and the main factors causing shrinkage, as well as inter- and intra-regional differences, allows for a more accurate overview of the intensity and dynamics of urban shrinkage both in the past and in the present, which also provides a basis for understanding the future development possibilities of shrinking cities.

The paper is structured as follows: In the first part, the theoretical framework is presented, followed by the research methodology. In the second part, the paper focuses on the identification of different city types according to the trajectory of urban shrinkage, followed by their complex analysis, as well as the identification of the main demographic drivers of urban shrinkage and their regional differentiation. The conclusion summarizes the main characteristics of the types of shrinking cities identified and addresses the future directions, possibilities, and requirements of managing the shrinking process.

## 2. Theoretical Background and Literature Review

Considering the complexity of the phenomenon of urban shrinkage and the various theoretical approaches to its interpretation, its complex nature can be studied and observed from a wide range of perspectives: demographic, economic, spatial, social, environmental, etc. [19,20]. Recent research has identified five main factors that influence urban shrinkage [20–22]: demographic change, economic change, structural upheaval (e.g., changes in the political system followed by unrest and migration), suburbanization, and environmental degradation.

The demographic component is most widely accepted as the starting point for identifying and defining shrinking cities [19,20,23]. Because there are different approaches to understanding urban shrinkage, no single definition has yet been established. However, a "shrinking city" is usually defined as an urban area that experiences a decline in total population [19,23–33]. While the decline in total population does not provide a complete, nuanced picture of the phenomenon, it is a good indicator of urban change because it indirectly affects other aspects of urban shrinkage (economic, social, environmental, etc.).

With the aim of defining the phenomenon more precisely, some authors emphasize that it is necessary to take into account the dynamics, intensity, and timing of its occurrence, as well as the duration of the decline in the total population [1]. For this reason, it is emphasized that the decline in population must be significant [26,27,34], dynamic, and occur within a short period of time [35], of at least five [29,36] or ten [26,37] years. Based on the analysis of previous works, a shrinking city should have a decrease in total population of more than 3% in a 15-year period [38], of more than 10% in a ten-year period [39], or of more than 25% of the population within 40 years [40].

In accordance with the aforementioned approaches to defining the phenomenon, two methodological proposals are widely used: the binary method and the threshold method.

In the first method, the shrinking city is determined based on the absolute changes in the total number of inhabitants during a given period, without taking into account the intensity of the change. The threshold method, on the other hand, uses a predetermined threshold for the decline in total population. Although the binary method is easier to use, it does not distinguish between short-term and long-term decline or take into account the fact that a minor decline in total population does not necessarily imply the existence of urban shrinkage. The lack of a single threshold value for total population decline complicates the application of this method [41,42]. In order to arrive at a more comprehensive definition, the Shrinking Cities International Research Network (SciRN) defined a shrinking city as an urbanized area with at least 5000 inhabitants that has experienced a decline in total population at an average annual rate of at least 0.15% over a period of at least five years, with this definition being established within the scope of the 'Cities Regrowing Smaller' project from COST [43]. Such a definition encompasses both the temporal aspect of the decline and its intensity, while determining the generally accepted threshold of decline in total population that more clearly explains the process of urban shrinkage, making the above definition increasingly common.

To explain the demographic aspect of urban shrinkage, it is important to take into account the changes in the natural and migratory components that occur as a consequence of socio-economic, cultural, social-psychological, etc. The negative natural balance is, to the greatest extent, a consequence of the decline in the fertility rate due to changes in the reproductive behavior of the population. Population changes are explained by the theory of the second demographic transition: While the first demographic transition, which took place in the 19th and first half of the 20th centuries, was characterized by a high marriage rate, a low divorce rate, and low age levels at the time of first marriage, the characteristics of the second demographic transition are a reflection of changes in social norms and values. Due to less frequent and later marriages, the reduced number of live births per woman, as well as the later birth of the first child, there was a decrease in the fertility rate and a decline below the sub-replacement fertility level (an average of 2.1 live births per woman). Changes in household size and structure, a decrease in average household size, and an increase in single households and families without children are also some of the characteristics of the transition in social forms of behavior [44]. Traditionally, low-fertility areas are visible through the population of highly educated and employed women. Fertility rates have been declining since the end of the 1960s; however, the trend and intensity of the decline are regionally differentiated. Countries in the areas of Western and Northern Europe were the first to enter this process, which intensified during the 1980s. For example, Sweden was the first to witness a fertility rate value below the sub-replacement fertility level in 1968 (2.07 children per woman), with this falling to 1.61 children per woman by 1983 [45]. On the other hand, in the countries of Central, Eastern, and Southeastern Europe, the lowering of fertility rates started later but accelerated over time, with it being significantly more intense in the later years of the transition (the fertility rate of the countries of Eastern Europe was 2.02 children per woman in 1989, while in 1999 it dropped to 1.22 children per woman) [45]. The most dramatic decline in fertility rates has been noted in Romania, Poland, Ukraine, Russia, etc., where more cities have shrunk than grown [27]. For this reason, the sharp decline in the total population of these regions is seen as a "demographic shock" [44,46]. In this part of Europe, polarization is reflected in the form of an increased concentration of people in larger cities (especially capital cities), with the remainder of the national urban system facing urban shrinkage [46–52]. The increase in the number of shrinking cities as a result of declining fertility rates is also observed in highly developed countries outside the European continent, such as Japan and Australia [53].

Conversely, an aging population and an increase in mortality rates lead to urban shrinkage. An increase in life expectancy increases the share of the elderly among the total population. Europe is, and is predicted to remain, the continent most affected by the aging process. The share of the population over 65 years old in the European Union in 2021 was 19%, while the population of Central, Eastern, and Southeastern Europe is among the

oldest in Europe, with the elderly making up about 20% of the total population [54]. This is extremely significant because in a number of countries (for example, Italy, Germany, Poland, and Japan), it has been proven that cities with a higher proportion of elderly residents are also cities affected by the process of shrinkage [46,49,53,55,56].

Migration of the urban population is another component of urban shrinkage [23,27]. It may take the form of intra-urban relocation or out-of-town migration, resulting in shrinkage in some parts of a city or an entire urban area. Emigration most often occurs under the influence of mutually opposing factors: the "push" factors (for example, unemployment, low income, environmental pollution, and lack of educational institutions) and the "pull" factors (work force demand, higher income, wider opportunities for education, better quality of life, etc.) [23,27]. Certainly, the migration of people from less developed to more developed urban regions is the dominant pattern. During the 1990s, the more developed regions, especially cities, received 82 million migrants, and their number increased to 157 million by 2020 [57], which is extremely significant since this is the primary mechanism by which population compensation occurs in conditions of insufficient birth rates.

In 2020, the largest number of international migrants was recorded on the European continent—87 million [57]—which clearly shows the importance of the migration component for the emergence and process of urban shrinkage. Migration patterns within the European continent went in the opposite direction. With the fall of socialism, the emigration of the population from the countries of Central, Eastern, and Southeastern Europe began, which intensified the decline in the fertility rate. In contrast, the countries of Western Europe were the countries receiving these migrants, which mitigated their negative trends of declining fertility rates. The opening of Western European labor markets to labor from Central, Eastern, and Southeastern Europe further encouraged east-west migration. According to the latest results from the United Nations, 70% of all migrants in Europe came from another European country, which confirms the strong intraregional character of migration [57]. Migration flows directed in this way led to the emergence of shrinking cities in the countries of origin. For this reason, some authors view Western European cities as poles of growth and Eastern European cities as poles of shrinkage [58]. In the disrupted living conditions of shrinking cities, the selectivity of migration is clearly expressed, since most migrants are young, reproductively capable, and participate in the labor market. The selective nature of emigration is often accompanied by unwanted effects, such as the accelerated aging of the population, which further deepens the process of shrinkage. Another unwanted effect is the emigration of the highly educated population (brain drain). These processes represent a significant determinant for the direction of future development in shrinking cities [20].

It is important to emphasize that shrinking cities do not follow a universal pattern [20]; therefore, the typological classification of shrinking cities has great practical importance. In scientific literature, the first typologies of shrinking cities were based on observing the trajectory of urban shrinkage during a certain period [23,25,26,29,31,51,59–63]. Bearing in mind that urban shrinkage in Serbia is still an unexplored territory characterized by significant spatial and temporal heterogeneity, the determination of different types of shrinking cities according to their trajectory has been carried out with the aim of a more comprehensive understanding of this phenomenon.

Urban shrinkage can be observed as either a linear or a circular process. The linear character of the phenomenon appears as a result of the transformation of urban spaces that can take place due to demographic changes, economic transformation, structural upheavals (such as political upheavals or instability), suburbanization, or environmental degradation. The circular character of the process can be observed based on the trajectory of urban population development, which has a different temporal and spatial frame [64]. The explanation is based on the theory of cumulative causation, according to which population decline occurs based on the principle of a vicious circle, because it is both the cause and the consequence of urban shrinkage. Although empirical evidence is scarce, this point of view

sees urban shrinkage as a complex circular process, which means that it is possible to stop or slow down its negative phase [64].

Differences in the trajectory of urban shrinkage at the regional and local level arise from differences in regional specificities (old industrial regions, peripheral regions, mountain regions, etc.) and local specificities of cities, as well as their mutual influence. Martinez-Fernandez & Wu [65] state that the factors underlying the growth of one city can simultaneously cause shrinkage in another city. For this reason, the existence of differences in the trajectory of urban shrinkage is expected, both between regions (inter-regional differentiation) and between cities within the same region (intra-regional differentiation) [20].

Given the complexity of the studied trajectories, several types of shrinking cities have been distinguished to date, such as those with continuous shrinking, cities that have recently been affected by this process, cities with episodic urban shrinkage, i.e., alternating phases of shrinkage and growth, and those that, after a phase of shrinkage, found themselves in the phase of stabilization and even re-growth of the population, the so-called "resurgent cities" [23,51,66,67]. In addition, by looking at the trajectory of the urban population, it is possible to identify different trends and phases of urban shrinkage that cities go through, as well as to observe patterns and irregularities in their trajectory. By taking a more detailed look at the moment of entry into the phase of urban shrinkage and the duration of certain phases, it is possible to distinguish subtypes, such as cities with short-, medium-, and long-term shrinkage. In this regard, cities with continuous and multi-year population decline are characterized by a high intensity and dynamic of urban shrinkage, while cities with fluctuating and episodic population decline have a lower intensity of urban shrinkage (gradual vs. "shock therapy").

The economic aspect is a highly important dimension of urban shrinkage since it is essentially determined by post-industrial transformation and shifts in production scale, structure, and sectors [35]. The most radical economic and structural changes occurred in cities reliant on "traditional" industries such as metallurgy, engineering, shipbuilding, textiles, and chemicals, where deindustrialization was intense. Industrial centers that based their economies almost exclusively on manufacturing or even on a single large industrial enterprise were hit particularly hard by the new changes [4], leading to economic decline and, subsequently, out-migration, further fueling urban shrinkage. In analyzing the economic influence on out-migration flows and urban shrinkage, indicators such as gross domestic product [33,68,69], employment and unemployment rates [70–72], changes in the structure of the labor force in manufacturing and services [69,73,74], and changes in the structure of industrial production [2] are usually used.

Studying the demographic aspect of urban shrinkage in this way is significant for several reasons. First, the typology includes all cities that have experienced the phase of urban shrinkage at a certain point in this study period or are still in it. Second, a more detailed insight into the trajectories of the urban population is obtained, which contributes to the understanding of the intensity and dynamics of urban shrinkage. Third, the identification of periodic phases of shrinkage and growth and the observation of "resurgent" cities indicate that the process of urban shrinkage does not necessarily have to be seen as negative. Forth, the obtained results can be an important step in the formulation of a development policy for shrinking cities in Serbia.

In Serbia, unlike many European countries, the issue of urban shrinkage remains largely unrecognized by the public, and the concept of urban shrinkage is not well understood. This phenomenon is notably absent from the most significant planning documents and national-level development strategies. The Spatial Planning Plan of the Republic of Serbia 2021–2035 [75] fails to recognize the existence of the phenomenon of urban shrinkage, with population decline only being mentioned in the context of weakening the functional development of cities.

Moreover, the Strategy for Sustainable and Integrated Urban Development of the Republic of Serbia until 2030 [76] defines five strategic directions of urban development (sustainable economic development, urban settlement design, social well-being, environ-

mental quality, and urban development management). Here, depopulation and the aging of cities are merely mentioned without a detailed explanation of causes and consequences or any offering of solutions in terms of sustainable urban development.

Other official national documents on demographic development mention issues and related negative demographic changes within the total population (rural exodus, aging, emigration, sustained low birth rates, etc.). The most frequently addressed population problem in Serbia has traditionally been the low fertility rate, and this problem remains high on Serbia's political agenda. The Strategy for the Promotion of the Fertility Rate in Serbia [77,78] lists numerous measures to improve the general socioeconomic conditions (easing the economic costs of raising children, harmonizing work and parenthood, lowering the psychological price of parenthood, improving reproductive health, solving the problem of infertility, etc.). However, these policies generally take too long to achieve results. In more recent documents, migration has been considered equally important. For example, the Strategy on Economic Migration for the period 2021–2027 mentions the importance of measures for polycentric and balanced regional development, especially of small- and medium-sized cities, as a general measure that would contribute to solving migration problems, among others. However, it is important to emphasize that none of the documents mentioned refer to urban shrinkage and demographic problems in cities but instead take the country as a whole into consideration.

In a very recent study that covers 24 cities along with their suburban areas [17], the first measures for managing shrinking cities were proposed, with urban shrinkage being directly addressed. Based on the analysis of a series of factors, five types of urban areas were identified (border cities; mono-structural cities; cities in the shadow of major cities; cities in development axes; cities with significant growth), and measures to stabilize the shrinkage of cities were recommended. The management measures, divided into three groups, take into account the relationships between the city and its surrounding area, as well as within the urban area:

- Broader area surrounding the city (strengthening district centers; cross-sectoral development centers; theming cities; building expressways; permeability of borders; and flagship projects).
- Immediate area surrounding the city (alliances and networks of cities; cross-connections; enterprise interconnection; mega work zones; and public transportation).
- Within the urban area itself (creative incubators for businesses; zones for new uses; functional renovation of city cores and residential centers).

The fact that the problem of urban shrinkage in Serbia is not institutionally recognized in planning and normative documents triggers numerous problems in urban development. Contrary to the practice in most developed countries [79–81], the Serbian state has never fully developed professional and independent national and local institutions due to the persistently unstable political and economic environment [82,83]. After a brief strengthening of urbanism in the 1970s, urban institutions began to erode in the 1980s, along with the crisis in the socialist country. During the period of international isolation and sanctions in the 1990s, almost all public institutions had fallen into considerable disrepute, while post-socialist urbanization was corrupted. Corruption and a highly politically dependent economic elite meant that there were no long-term plans for urban development. As a result, the urbanization of Serbian cities was characterized by ad hoc and fragmentary measures. In this context, fragmented urbanization, the "give away" privatization of the housing stock, construction without legal permits, and the associated informality in the 1990s, etc. have deeply shaped today's urban reality. In parallel with the intensification of urban shrinkage, the share of vacant and abandoned buildings in Serbian cities has increased from 3.0% in the 1990s to 15.4% of the total public and private housing stock in 2022 [84,85]. The lack of institutional recognition of urban shrinkage is accompanied by the absence of a comprehensive housing policy. Accordingly, the sale, conversion, reuse, etc. of vacant and abandoned buildings, which are firmly rooted in developed countries [80], are carried out spontaneously and often informally in Serbia.

## 3. Materials and Methods

The first methodological step is to measure the degree of urban shrinkage to determine which cities are shrinking. The most commonly used indicator of urban shrinkage is the change in the number of inhabitants over a given period. The determination of whether or not a city was "shrinking" was based on the threshold method, which requires the use of a predefined threshold value for the decline of the total population (average annual rate of population decline of 0.15% during at least one inter-census period).

In order to understand the process and change in the trajectories of urban space in Serbia, the time frame of this study covers the period between 1961 and 2022, while the next step is to observe the average annual rates of urban population change during this period (Figure 1). The main data source is the results of the Population, Household, and Dwellings Census and Vital Statistics of the Republic of Serbia [86–88]. There are two limitations to the census data: The first is the absence of data for certain municipalities and thus cities in the survey (Bujanovac), while the second involves the change in the definition of the permanent population that occurred in 2002. The census data are missing due to the boycott of the census by the Albanian community in Bujanovac, Preševo, Kosovo, and Metohija. While in the times of Yugoslavia the permanent population included persons who worked or stayed abroad, regardless of the length of stay, this was changed in the 2002 census so that those among the population staying abroad for a period greater than one year are no longer counted. Lastly, a major shortcoming at all territorial levels is the inadequacy of migration statistics, which only cover resettlement within national borders, and based on these data, the overall migration balance is not reliable. For this reason, and because of the lack of population registers, this work used a vital statistics method to obtain this component.

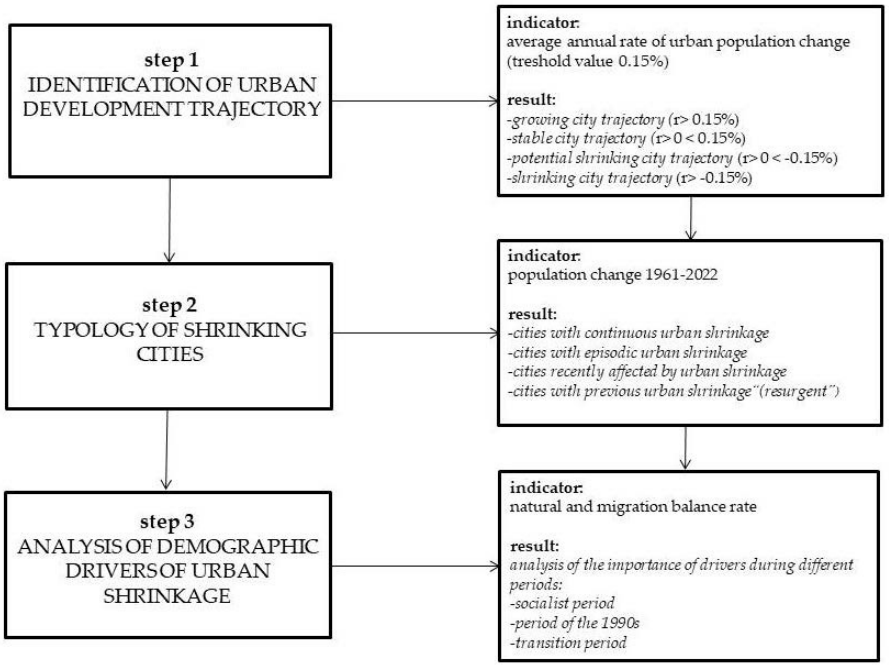


**Figure 1.** Methodology of research.

The average annual change rates of the total population were calculated according to the specified form:

$$r = \frac{R}{P} \times 100 \quad \rightarrow \quad [[R = \frac{P_2 - P_1}{t}]; [P = \frac{P_2 + P_1}{2}]]$$

where $r$—average annual rates of population change, in %; $R$—average annual population growth in the inter-census period; $P$—population in the middle of the period; ($P_2$—number

of inhabitants in the last census; $P_1$—the number of inhabitants in the previous census; $t$—the time period between censuses).

Observing the average annual rate of population change of the city's population determines the type of development as well as the different trends and durations of the phases of shrinkage and growth of cities. With this in mind, we can distinguish four directions of urban population trajectory:

- Growing city trajectory—with a positive average annual rate of population change (r > 0.15%).
- Stable city trajectory—with a positive average annual rate of population change lower than 0.15% (r > 0 < 0.15%).
- Potential shrinking city trajectory—with a negative average annual rate of population change of less than −0.15% (r > 0 < −0.15%).
- Shrinking city trajectory—with a negative average annual rate of population change greater than −0.15% (r > −0.15%).

The next and most important methodological step refers to the differentiation of urban shrinkage at the regional and local levels. By identifying the differences in the direction of change in the average annual rates of total city population between different points in time, a typological classification of shrinking cities has been made according to the trajectory of urban shrinkage. Determining these isolated types enables a more precise understanding of the intensity and dynamics of urban shrinkage—both past and current—and also provides a basis for understanding the future development of shrinking cities.

Based on this, and for the area studied, in addition to cities for which only periods of growth are noted (cities with continuous growth and cities with potential urban shrinkage), four types of shrinking cities have been distinguished, with different trajectories of population decline:

- Cities with continuous urban shrinkage (marked by continuous population loss in all inter-census periods since the beginning of the research).
- Cities with episodic urban shrinkage (marked by alternating periods of shrinkage and growth of the urban population and being in the phase of shrinkage in the last inter-census period).
- Cities recently affected by urban shrinkage (marked by population loss in the last inter-census period only).
- Cities with previous urban shrinkage, the so-called "resurgent" cities (previously marked by periods of shrinkage while stagnating or growing in the last inter-census period).

In order to clarify the drivers of urban shrinkage from a demographic point of view, the next methodological step was to analyze the relationship between the components of population dynamics: natural balance and migration. First, the rates of natural balance were determined. Thus, based on census and vital statistics data, migration balance rates were calculated using the vital statistics method. The data were derived from vital statistics for the period 1961–2022 [88]:

$$j = \frac{N - M}{P} \times 100$$

$$s = \frac{S}{P} \times 100$$

$$\rightarrow \ [[s = P_2 - P_1 - (N - M)]; [P = \frac{P_2 + P_1}{2}]]$$

where $j$—natural balance rate, in %; $s$—migration balance rate, in %; $N$—number of births; $M$—number of deaths; $P$—population in the middle of the period; $P_2$—number of inhabitants in the last census; $P_1$—the number of inhabitants in the previous census.

## 4. Results

The network of urban settlements in Serbia in the second half of the 20th century was characterized by a significant spatial-demographic transformation. The transformation was initiated by the process of urbanization, which increased migration flows from villages to towns. The strongest growth in urban population took place in the 1960s, when the average annual change rate was 3.06%. The decline in urban population continued until the end of the 1980s (r = 2.24%), when, in addition to large cities, small and medium-sized towns were also growing. After dynamic growth (1961–1981), when the number of inhabitants almost tripled in the cities of Central Serbia and Vojvodina, the process stabilized in the 1980s. The average annual change rate in the period 1981–1991 recorded a negative value (−0.41%). Even during the demographic transition, this process did not lose intensity but slowed down with emigration from rural areas in the early 1990s [11]. The socioeconomic changes of the 1990s, accompanied by political crises and wars, had a particular impact on the demographic development of cities. While the total urban population stagnated (r = 0.01%), migration flows from smaller cities to the leading regional centers (Belgrade, Novi Sad, Niš, and Kragujevac) intensified, and cities in Vojvodina experienced an increase due to the immigration of refugees from the former SFRY (especially in Srem and Bačka). Taken together, this led to a more profound polarization between the large and small urban centers. The process of demographic polarization of cities led to the creation of zones of demographic concentration in the areas of the main development axes (Corridor X—Danube-Moravian and West-Moravian directions) on the one hand and zones of urban depopulation (peripheral, border, isolated cities) with the associated negative effects of demographic development on the other [12,89].

At the beginning of the 21st century, a slight increase in the total urban population was recorded (average annual growth rate: 0.13%). In the last census in 2022, a negative average annual change rate of the urban population in Serbia was recorded for the first time (−0.34%) (Figure 2). It is important to emphasize that there are significant differences in the trajectory of population in urban settlements of different population sizes [15,16], and that the hierarchy of urban settlements in Serbia is of great importance [18].

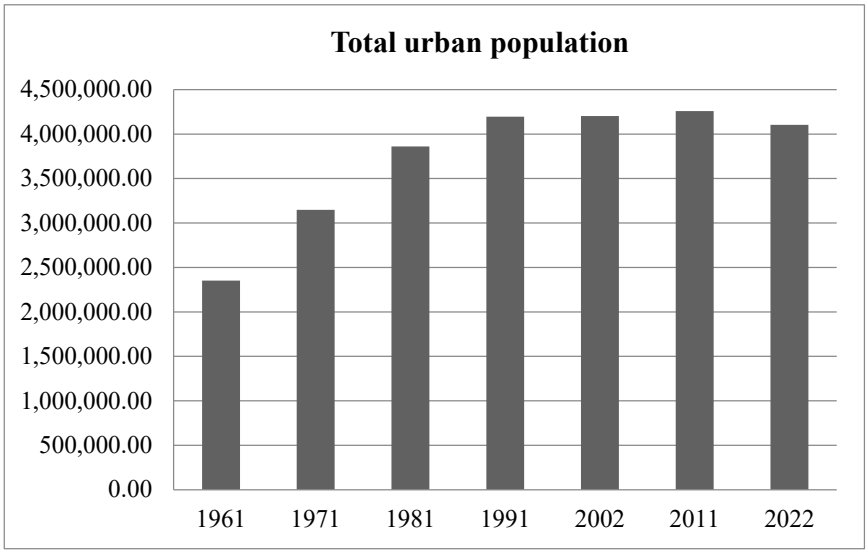


**Figure 2.** Total urban population in Serbia for the period 1961–2022.

In determining the trajectories of urban shrinkage, a nonlinear pattern of population trajectory was found. Based on the different trends and durations of phases through which cities pass, four directions of urban population trajectory can be identified:

- Growing city trajectory with a positive average annual rate of population change (greater than 0.15%).

- Stable city trajectory, with slight population growth, on the verge of urban growth (average annual rate of population change is lower than 0.15%).
- Potential shrinking city trajectory, with slight population decline, on the verge of urban shrinkage (average annual rate of population change is lower than −0.15%).
- Shrinking city trajectory with a negative average annual rate of population change (average annual rate of population change is greater than −0.15%).

The first cities affected by shrinkage appeared after the Second World War; however, they were very rare and regionally limited to a narrow area of Vojvodina and the outskirts of Belgrade. However, in line with the demographic development of the total population of the cities, the same cities recorded growth in the subsequent inter-census period.

In the studied period (1961–2022), the evolution of urban trajectories shows a general trend of a decrease in cities with an urban growth trajectory. On the other hand, a tenfold increase in the share of cities with a shrinking trajectory was recorded. The almost unchanged number of cities with a stable and potential shrinking trajectory indicates a profound polarization of cities.

In accordance with the trend of urban population growth throughout Serbia in the period 1961–1981, the majority of cities (about 85%) were characterized by a growing city trajectory (Table 1). Due to the stagnation of the urban population and a slight negative trend in the 1980s, their number began to decrease (1981–1991—68.3%). At the same time, the number of cities characterized by a shrinking city trajectory doubled (1981–1991—21.6%), and, from the appearance of the first shrinking cities until today, this was the most intense period of increase. The unfavorable demographic conditions in certain parts of Serbia began in the 1920s and became more pronounced after the Second World War.

**Table 1.** Number and percentage of cities according to urban population trajectory.

| | 1961–1971 | | 1971–1981 | | 1981–1991 | | 1991–2002 | | 2002–2011 | | 2011–2022 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| Growing city trajectory | 150 | 89.8 | 142 | 85.0 | 114 | 68.3 | 80 | 47.9 | 38 | 22.9 | 16 | 9.6 |
| Stable city trajectory | 1 | 0.6 | 5 | 3.0 | 11 | 6.6 | 15 | 9.0 | 6 | 3.6 | 3 | 1.9 |
| Potential shrinking city trajectory | 4 | 2.4 | 5 | 3.0 | 6 | 3.5 | 10 | 6.0 | 16 | 9.6 | 4 | 2.4 |
| Shrinking city trajectory | 12 | 7.2 | 15 | 9.0 | 36 | 21.6 | 62 | 37.1 | 106 | 63.9 | 143 | 86.1 |

Source: Authors, based on [69,70].

In the 1990s, the process intensified. The number of shrinking cities (1991–2002—37.1%) and potential shrinking cities (1991–2002—6%) increased rapidly. Despite the renewed growth of the total urban population in Serbia at the beginning of the 21st century, the tendency toward spatial-demographic polarization continued, and the number of shrinking cities increased to 106 (63.9%). The above-mentioned negative trend has resulted in the highest number of shrinking cities to date. The results of the last census in 2022 show that more than 80% of urban settlements are characterized by this trend (86.1%), and with them, the number of potentially shrinking cities is also growing (Table 1).

### *4.1. Typology of Urban Population Development in Serbia*

Given the complexity of urban shrinking trajectories, cities were classified according to the trajectory of population change over the six observed periods between censuses, that is, according to the phases of urban development. By measuring the average annual rate of change in urban population (the main indicator for defining and distinguishing shrinking cities), several types of cities were defined, with different intensities, dynamics, timing of onset or number, and duration of phases of shrinkage.

The typology of urban development trajectory identified, on the one hand, cities that never recorded a decrease in the total number of inhabitants in the studied period, i.e., never had a period of urban shrinkage: cities with continuous growth (type 1) and potentially shrinking cities (type 2). In contrast with these, 94% of cities are affected by

different variants of urban shrinkage: cities with continuous urban shrinkage (type 3), cities with episodic urban shrinkage (type 4), cities recently affected by urban shrinkage (type 5), and cities with previous urban shrinkage, the so-called "resurgent" cities (type 6) (Figure 3).

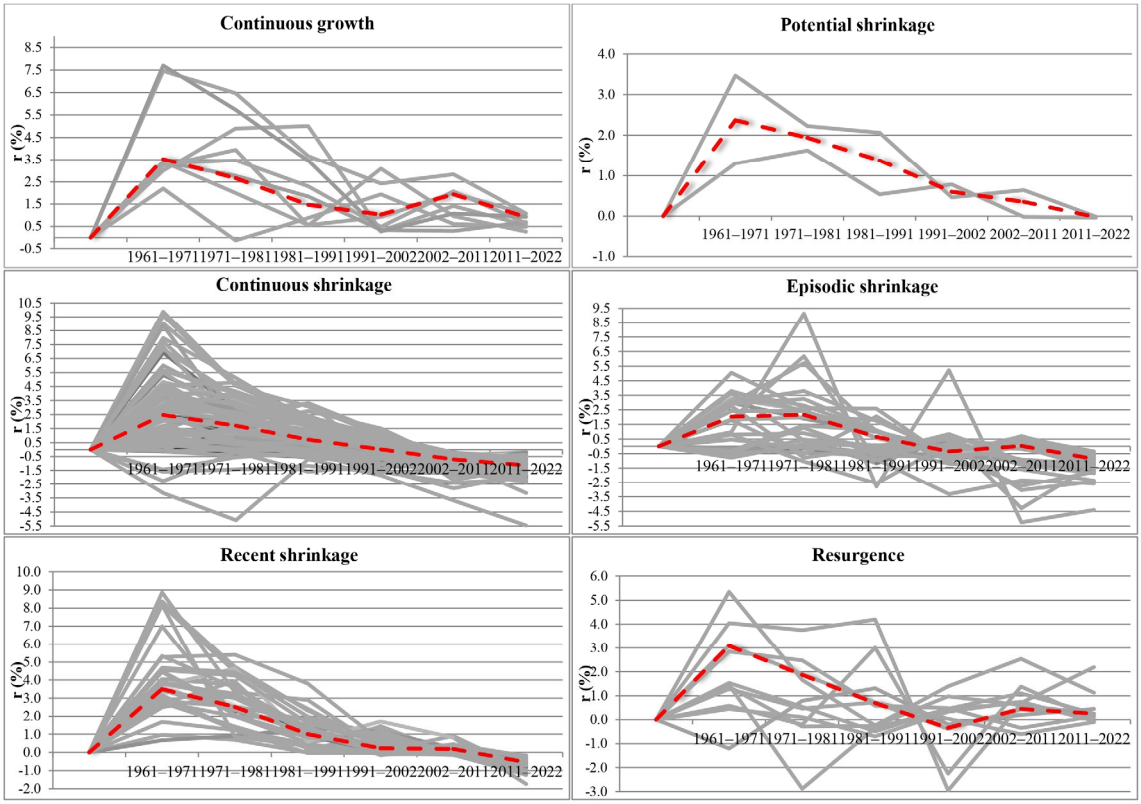


**Figure 3.** Divergence of urban development trajectories in Serbia (1961–2022). The *Y*-axis represents the values of the average annual rate of change of urban population (r %); the gray lines represent the trajectory of each city, while the red dashed line indicates the average value of the average annual rate of change of urban population of a given type. Source: Authors, based on [86,87].

Figure 3 shows the urban development trajectories of specific city types, with the average development path of each type from 1961 to 2022 highlighted. Cities of the first type (continuous growth) experienced population growth throughout the entire period observed. The positive development of the urban population was highlighted in the 1960s. Since the 1960s, the intensity of urban population growth gradually decreased until the 1990s, with some cities stagnating. At the beginning of the 21st century, a renewed increase in the intensity of the average annual growth rate was recorded, with a slowdown in the last inter-census period.

The potential shrinkage is characterized by slightly lower values of the average annual growth rate of the urban population compared to the previous group of cities. The decline in the intensity of average annual growth rates has been milder, with a more pronounced period of stagnation since the 1980s. In the last inter-census period, a slightly negative average annual rate of change in urban population was recorded, more pronounced in cities that had already shown stagnant development in the previous period. This indicates a potential process of urban shrinkage.

Cities with continuous shrinkage are characterized by more than one phase of population decline and represent a group with decades of long-term shrinkage. The main characteristic of such cities is a gradual but continuous population decline, which, in sum, represents a high degree of urban shrinkage. In the 1960s, there were only a few continuously shrinking cities, while the average annual rate of change in urban population was positive throughout the group. From period to period, the number of continuously

shrinking cities doubled and has peaked since the beginning of the 21st century (with 90 such cities identified), with the negative development phase continuing and intensifying in the following period. It is important to point out that the shrinking phase was usually preceded by a period of stagnation, which indicated the possibility of the subsequent shrinking of cities.

The trajectory of the average annual rate of change in episodically shrinking cities is extremely heterogeneous. The peculiarity of this type is reflected in the alternating phases of growth and decline of the urban population. Despite the trend toward a low and relatively balanced average annual rate of change, variation between cities is pronounced. In the case of fluctuating and episodic population development, the phase of decline was essentially a form of "shock therapy"—rapid; with a lower intensity of urban shrinkage.

In the 1960s and 1970s, and even in the 1980s, cities more recently affected by urban shrinkage (2011–2022) experienced intense population growth. Since the 1990s, urban population growth has slowed slightly, with a tendency to stagnate until the 2000s and a sharp decline occurring in the last inter-census period. In contrast to the previous types, the decline of the urban population has a strong character, as shown by the average annual rate of change across the whole group (Figure 3).

The most specific course of urban shrinkage was observed in cities with previous urban shrinkage. In fact, each of these cities went through one or more phases of population decline. Urban shrinkage mostly occurred in the 1980s and 1990s, less frequently in earlier periods, with a steady trend of "revival" after this. Often, the period of sharp decline was preceded by a period of growth with the same intensity. In the last inter-census period, all cities in this group overcame the negative population trend, which earned them the epithet of "resurgent" cities. However, most show a tendency toward stagnation, and some even to potentially shrink again.

### *4.2. Regional Differentiation of Shrinking Cities*

Based on the observed differences in the occurrence, intensity, and duration of the phase, as well as the patterns and irregularities of the urban shrinkage process since the mid-20th century, the interregional differentiation of the phenomenon is striking. Different patterns of urban demographic development prevail in Vojvodina and Central Serbia. The process of urban shrinkage in Vojvodina began earlier, and the first cities that recorded a continuous shrinkage in total population emerged in the 1970s and 1980s, with most of these belonging to the group of smaller towns (Bač, Žitište, Novi Bečej, Alibunar, Mol, Senta, etc.). On the other hand, cities in Central Serbia, with some exceptions being small spa and mining settlements, have been shrinking only since the 1990s. The process of urban shrinkage in Central Serbia significantly intensified at the beginning of the 21st century, especially in the western and southeastern parts of the country.

As a result of different development trends (demographic, economic, social, etc.) at the regional level, local idiosyncrasies of cities, and their mutual influence and role in the urban settlement network, an interregional differentiation of urban shrinkage in Serbia is observed.

Cities with continuous growth include a very small number of cities (6% of the total number of urban settlements) that have constant growth.

Cities with potential shrinkage include only two urban settlements (Obrenovac and Stara Pazova). At the beginning of the 21st century, their growth slowed down, with stagnation in the urban population being recorded. Considering the slightly negative values of the average annual rate of change (below −0.15%), the mentioned cities are considered to be potentially at risk in the future.

Cities with continuous shrinkage include most cities (54.2% of the total number of urban settlements) that experienced a negative average annual rate of change in the urban population for more than one consecutive census period. At the beginning of the observation period, i.e., in 1961, there were only four such cities, but in the following

decades, their number increased steadily. In each subsequent phase of urban development, the number of cities has doubled, remaining constant since the beginning of the 21st century.

Cities with episodic shrinkage include 26 cities (15.7% of the total number of urban settlements) that experience fluctuations in urban population development. Episodes of urban population decline are followed by episodes of stagnation, or, less frequently, growth. However, it is important to note that all thus-classified cities are currently in a phase of urban shrinkage.

Cities recently affected by urban shrinkage include 27 cities (16.3% of the total number of urban settlements) that experienced the process of urban shrinkage in the most recent period studied (2011–2022).

Cities with previous shrinkage, the so-called "resurgent" cities, include 11 cities (6.6% of the total number of urban settlements) that once had one or more periods of shrinkage but managed to overcome the negative phase and today have a positive population trend.

## 5. Discussion

The differences in the course of urban shrinkage were identified by determining the direction of population change from 1961 to 2022, and, following previous studies [23,25,29,51,63], a typological classification of shrinking cities was established. According to Wiechmann and Wolff [29], a certain type of shrinking city has been found in almost all European countries since 1990. Countries are affected differently by this process, with the majority having cities best classified as "temporarily shrinking cities" (or resurgent) (60%), with the number of continuously shrinking and episodically shrinking cities being smaller (continuously 14% and episodically 26%) [29]. In Serbia specifically, four types of shrinking cities have been distinguished: cities with continuous shrinkage, cities with episodic shrinkage, cities recently affected by urban shrinkage, and cities with previous shrinkage. In contrast to the European level, most shrinking cities in Serbia are continuously shrinking cities (54.2%), while resurgent cities are rare (6.6%) (Table 2).

**Table 2.** Shrinking cities trajectory types (number, %).

| Type | Countinuous Growth | Potential Shrinkage | Countinuous Shrinkage | Episodic Shrinkage | Recent Shrinkage | Resurgence | Total |
|---|---|---|---|---|---|---|---|
| **number** | 10 | 2 | 90 | 26 | 27 | 11 | 166 |
| **%** | 6.0 | 1.2 | 54.2 | 15.7 | 16.3 | 6.6 | 100 |

Source: Authors, based on [86,87].

In the most recent European study, the share of shrinking cities due to natural population loss has been continuously increasing since 2012, reaching a peak of 36% of urban settlements in total in 2020. On the other hand, migration loss has remained almost the same during this period (the primary cause behind 30% of shrinking cities' status as such). In Serbia, on the other hand, the dominance of both components is evident in the same period (2011–2022). The lower level of employment in cities is most likely the reason for such results, both at present and in previous periods, especially in the 1990s and 2000s. A similar view is taken by Turok and Mykhnenko [23], who find strong evidence that a correlation exists between shrinking cities and deindustrialization, deconcentration, and relocation of economic activity in some Eastern European countries.

The spatial distribution of cities with continuous urban shrinkage is broad but does not show major interregional differentiation, with such cities existing throughout the entire country. The largest concentration of cities with continuous shrinkage is located in the region of Vojvodina (38% of cities in this group), followed by the region of Eastern and Southern Serbia (32% of cities in this group), and the region of Western Serbia and Šumadija (30% of cities in this group).

Moreover, the interregional differentiation of this type of city is expressed within the mentioned regions themselves. Thus, in the Vojvodina region, most of the towns

are concentrated in the northern and eastern part: Banat, and less in Bačka (Bela Crkva, Kikinda, Zrenjanin, Kovačica, Novi Kneževac, Senta, Ada, Kanjiža, Bečej, Crvenka, etc.), while in the region of Eastern and Southern Serbia they are located in the very east (Bor, Majdanpek, Knjaževac, Pirot, Dimitrovgrad, Leskovac). Less pronounced interregional differentiation is observed in the region of Western Serbia and Šumadija, where they are relatively widespread (e.g., Priboj, Prijepolje, Nova Varoš, Trstenik, Ćuprija) (Figure 4).

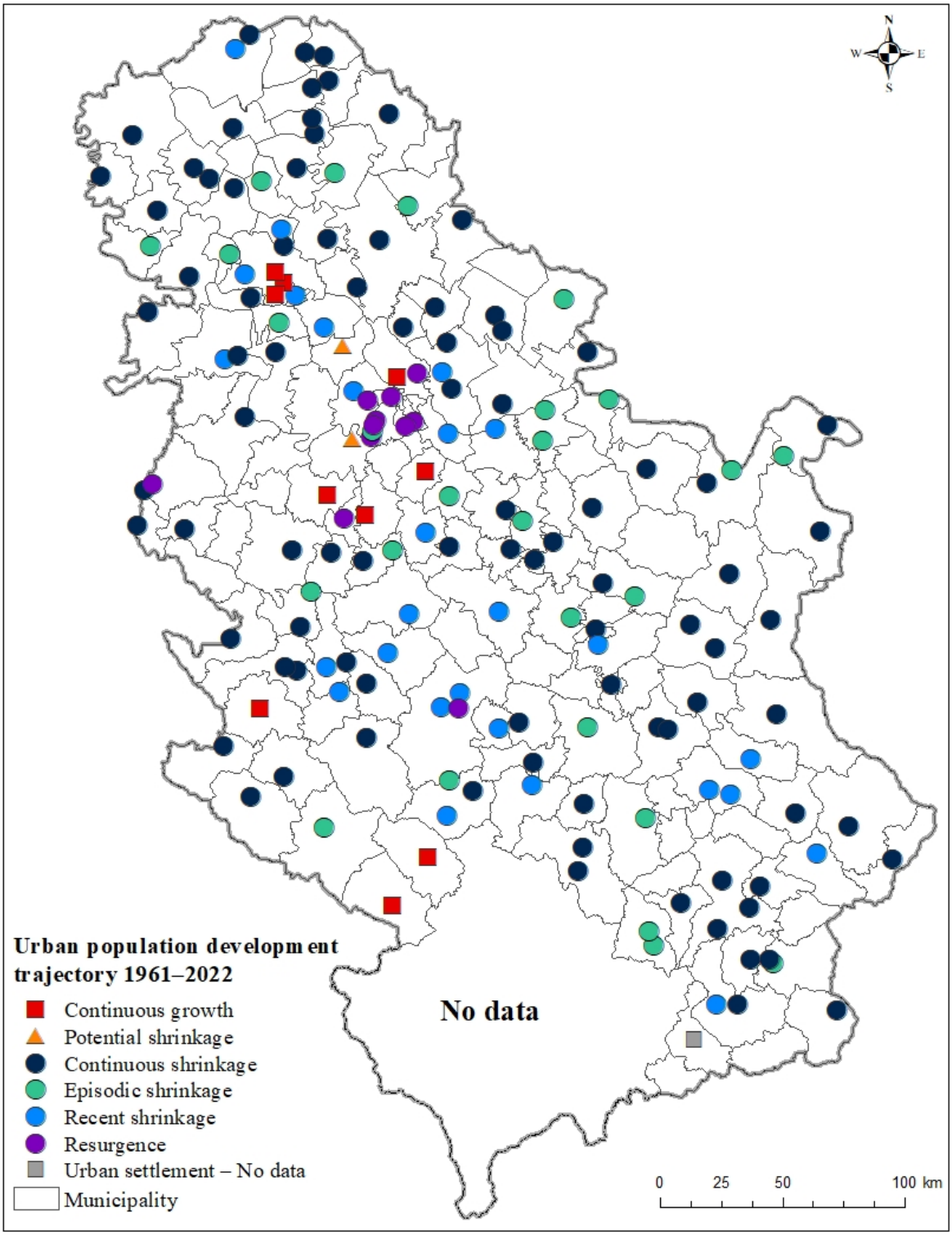


**Figure 4.** Typology of urban population development trajectory in Serbia 1961–2022. Source: Authors, based on [86,87].

Since the onset of the shrinking phase varies between cities, several subtypes can be distinguished: (1) cities with continuous shrinkage since the 1960s; (2) cities with continuous shrinkage since the 1970s; (3) cities with continuous shrinkage since the 1980s; (4) cities with continuous shrinkage since the 1990s; and (5) cities with continuous shrinkage since the 2000s. By determining the aforementioned subtypes, a trend and spatial expansion direction of the phenomenon could be identified.

Cities with episodic shrinkage are characterized by an uneven spatial distribution and significant dispersion. They are widespread in the region of Southern and Eastern Serbia (e.g., Požarevac, Kostolac, Prokuplje, Medveđa), in the region of Vojvodina (e.g., Vršac, Novi Bečej, Srbobran), and in the region of Western Serbia and Šumadija (Jagodina, Kruševac), but differ according to the duration of the phase(s) of shrinkage (Figure 4).

There are varieties of cities with episodic shrinkage based on the different phases of urban development and the duration of these. Taking into account the duration of the phases of urban shrinkage, four subtypes are distinguished: (1) cities with two, (2) cities with three, (3) cities with four, and (4) cities with five decades of urban shrinkage.

Periods of sharp decline occurred in the 1980s and 1990s. The temporary recovery was usually brief and had the character of stagnation, as improving economic conditions temporarily halted the negative demographic flows. Most cities were simultaneously in a period of shrinkage during the 1990s, only to go through a positive phase in the following period, lasting until the current period of shrinkage today. Most towns, such as Irig, Baljevac, Srbobran, Vršac, Umka, Mladenovac, and Medveđa, went through such episodes.

Most cities have undergone two decades of shrinkage—in the 1990s and at present—with even regional centers (Jagodina, Kruševac, and Požarevac) being included among these. Smaller urban settlements recorded a longer decline: three decades (Bač, Žitište, Irig, Medveđa) or four decades (e.g., Srbobran, Donji Milanovac, Baljevac), mostly during the 1960s or 1980s, 2000s, and today. A five-decade decline was recorded in some cities (Novi Bečej, Bački Petrovac, Brza Palanka), whose continuous shrinkage was interrupted only during the 1970s.

Cities recently affected by urban shrinkage are located mainly in the region of Western Serbia and Šumadija (44% of cities in this group), less in the region of Vojvodina (26% of cities in this group), and in the region of Eastern and Southern Serbia (22% of cities in this group) (Figure 4). Despite the numerical differences between the regions, certain similarities in terms of spatial distribution can be observed. Regional centers along the development corridors—Corridor X, i.e., the Danubian direction (Subotica, Inđija, Paraćin, Vranje), as well as the West Moravian direction (Čačak, Kraljevo, Gornji Milanovac), but also the regional centers of Šumadija (Kragujevac) and South and East Serbia (Niš) belong to this group.

Other cities of this type border the largest and most developed regional centers of Serbia: Belgrade (Grocka, Dobanovci, Pančevo, Smederevo, Aranđelovac, etc.), Novi Sad (Futog, Temerin, Sremski Karlovci, Inđija, etc.), and Niš (Niška Banja, Svrljig, etc.). This indicates an inseparable connection between them.

At the beginning of the 21st century, the average annual rates of change in most of these cities indicated a stagnation process. These were cities that experienced greater population decline (e.g., Paraćin, Brus, Niška Banja, Sremski Karlovci, Subotica, Vranje, Babušnica), while the intensity of urban shrinkage was slightly lower in cities with previously significant growth (the regional centers of Niš and Kragujevac). Apart from that, exceptions also exist where urban shrinkage occurred suddenly (e.g., Dobanovci, Vrnjačka Banja, Kraljevo, Svrljig, Smederevo), with it being possible to consider such towns as "new shrinkage losers".

Almost all cities with previous shrinkage that have overcome this phase of urban shrinkage are located in the Belgrade region. Cities of this type in the region of Western Serbia and Šumadija are rare (Figure 4). The period of "resurgence" took place at a time of different urban development. It is important to note that after the decline of the 1990s, the inner-city core of the capital, Belgrade, experienced a revival at the beginning of the

21st century, while the recovery of the suburban settlements occurred a decade earlier (in the 1990s).

Belgrade and its accompanying peri-urban zone (Surčin, Pinosava, Pećani, Ovča, etc.) are the only areas whose "revival", i.e., growth, was sudden, with this resulting from the process of suburbanization. Thus, the cooperation and influence of the capital, as the strongest pole of development, in relation to the cities of the suburban zone is evidence of the pronounced intraregional character of the phenomenon of urban shrinkage. The other cities in this group (Loznica, Lajkovac, and Ribnica) have pronounced local characteristics in terms of their location and functions and have managed to emerge from the phase of decline, with the renewed growth of the urban population taking place at a lower intensity and having the character of stagnation. Considering the short-term trend of urban population growth, cities with previous urban shrinkage can be considered "winning cities".

Population decline, defined here as the key indicator of shrinkage, also has a variety of facets. It varies according to the specific combination of natural population change and out-migration [31]. Based on the values of these two components, it is possible, on the one hand, to distinguish cities whose growth is due to a positive natural balance, a positive migration balance, or both components. On the other hand, one can distinguish shrinking cities that result from a negative natural balance, a negative migration balance, or, in most cases, the negative effect of both components. As Haase et al. have stated [1], this observation is significant in the more precise formulation of policies for the development of shrinking cities.

Until the 1990s, cities were characterized mainly by population growth, which was a consequence of the positive effects of both components of population dynamics (Figure 5). In the 1960s, only 10% of cities experienced population decline, which was primarily due to a negative natural balance. Subsequently, their share remained the same; however, the importance of the natural component as a factor decreased at the expense of migration, which was particularly evident in the 1980s. In the 1990s, the shares of cities with positive and negative average annual rates of change were even.

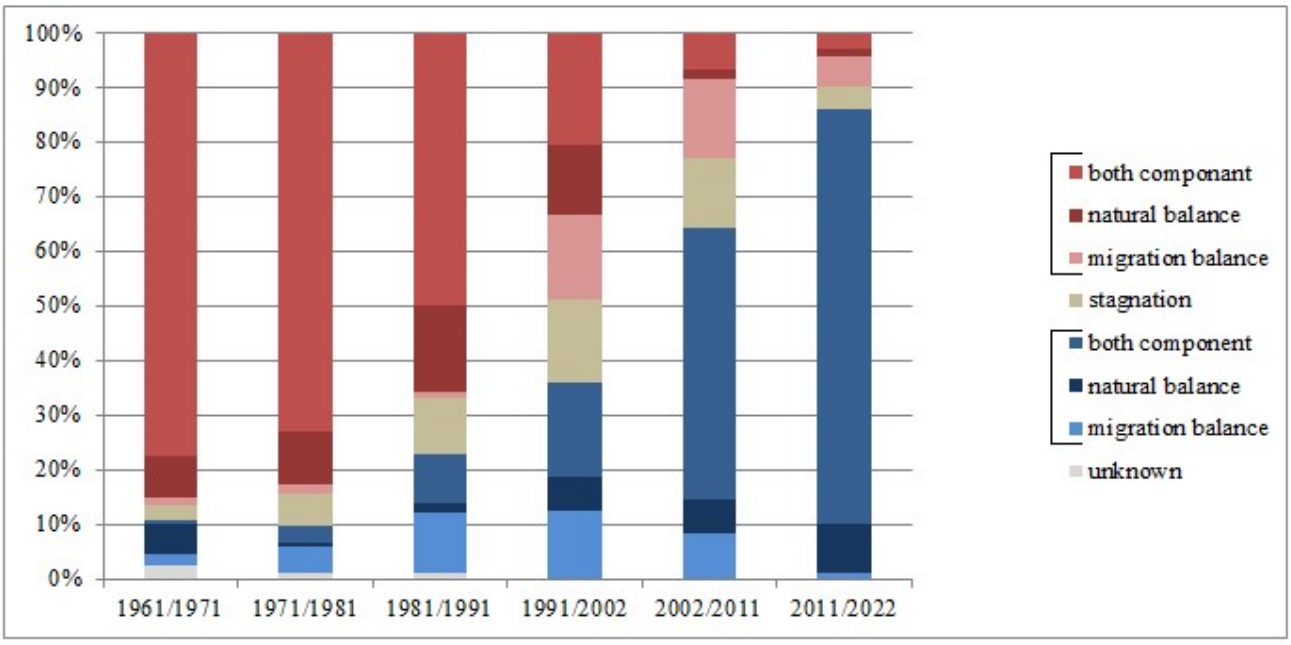


**Figure 5.** Frequency of the different components of population dynamics as drivers of urban population development, 1961–2022. (% of cities). Source: Authors, based on [88].

The growth of cities in this period was still, in most cases, the result of both components of population dynamics, with the influence of the migration component increasing. With the fall of socialism, emigration from the eastern parts of Serbia began, with these migrations

largely being job-related. International emigration on a larger scale reinforced the decline in the fertility rate, with the 21st century being characterized by an increasing number of shrinking cities, a result of a combination of negative natural growth and negative net migration. Although negative net migration was the most common factor in shrinking cities at the beginning of the 21st century, it had almost ceased to be significant by the end of the observed period. Indeed, positive net migration remains crucial for the growth of cities in Serbia. However, decades of out-migration depleted population potential and initiated a process of population aging, which made the natural component the dominant form of population decline in shrinking cities. Some authors argue for regional differentiation of the demographic causes of urban shrinkage. For example, one study [16] found that natural loss is the most important factor contributing to urban shrinkage in Vojvodina, while migration patterns dominate in Central Serbia.

To shed light on the demographic drivers of urban shrinkage, the relationship between the dynamic components of urban population in the period 1961–2022 was examined, and a dominant factor of urban shrinkage was identified (Figure 6).

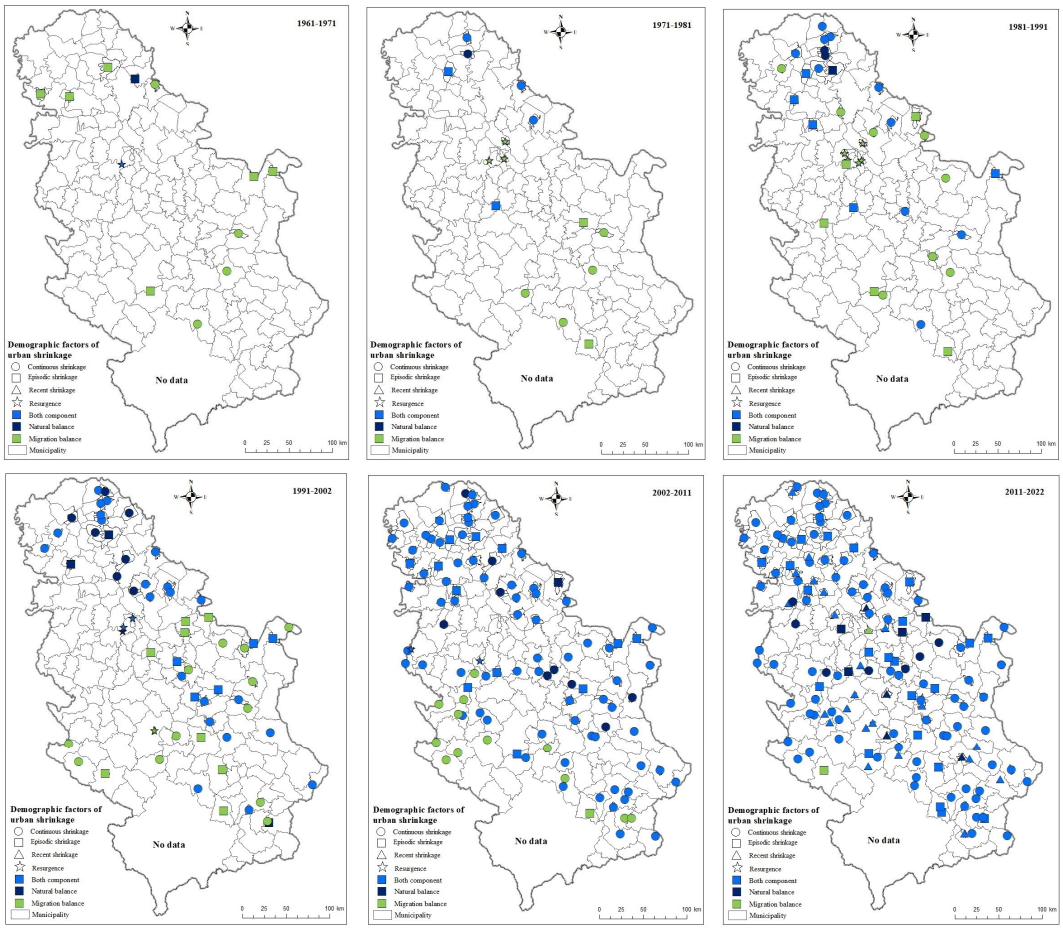


**Figure 6.** Demographic drivers of urban shrinkage by shrinking city type 1961–2022. Source: Authors, based on [88].

During 1961–1971, there were rare cases of urban shrinkage (several cities with continuous, episodic urban shrinkage and one resurgent one) due to negative net migration. Former mining centers (Aleksinački Rudnici, Bogovina), spa towns (Kuršumlijska Banja, Jošanička Banja), and smaller urban settlements (Jaša Tomić, Mol, Alibunar, etc.) have been shrinking the longest, with continuous decline since the 1960s and 1970s. Exceptions are Rucka, on the territory of the City of Belgrade, and Žitište in Vojvodina, which both have a negative value of natural increase.

The next decade (1971–1981) was characterized by marked differences in the frequency of urban shrinkage drivers. Cities in Serbia were clearly polarized into towns that shrank due to negative natural increase (cities in Vojvodina) and towns where this occurred due to out-migration (cities in Serbia and the Belgrade region). The Vojvodina region was the first to record negative values for natural growth as early as the 1970s and is considered one of the European regions where the process of demographic transition began earliest, while outward migration started from the eastern, i.e., peripheral, part of the country.

A similar trend continued in the 1981–1991 period. Cities that are continuously shrinking are joined by smaller urban settlements, especially in the northern and eastern border areas (Bela Crkva, Čoka, Kanjiža, Bečej, Titel, Brza Palanka, Kučevo). Their decline is the result of both components of population dynamics. The selectivity of the factors is expressed in the examples of cities populated predominantly by ethnic minorities (Mol, Ada, Kanjiža, Čoka, Senta, Bačka Topola), whose population declined due to low birth rates.

In the 1990s, with the influx of refugees directed towards Vojvodina (especially to Bačka and Srem), the spread of shrinking cities in the area slowed. Rarer cases of shrinkage were recorded due to negative natural growth, with these predominantly located in towns in Banat (Zrenjanin, Kikinda, and Novi Bečej). On the other hand, new shrinking towns appeared all over Serbia, especially in the border areas (from Priboj and Prijepolje in the southwest to Bor, Majdanpek, Kladovo, Knjaževac, and Dimitrovgrad in the east). It should be noted that the new shrinking towns were mostly the result of emigration. The cities defined as resurgent still experienced extremely minor shrinkage; however, unlike the previous period, this was not solely the result of net migration but rather combined with emigration to result in a negative natural increase.

At the beginning of the 21st century, the number of shrinking cities rapidly increased (only the number of cities defined as continuously shrinking doubled). Their spread was largely the result of the negative effects of the two components of population dynamics. A certain differentiation can be observed in the cities that experienced shrinkage for the first time during this period. These are the cities in southwestern and southern Serbia (Bajina Bašta, Kosjerić, Nova Varoš, Užice, Ivanjica, Kruševac, Aleksandrovac), where the main factor in urban shrinkage was emigration, and rare cities in eastern Serbia (Zaječar, Sokobanja, Despotovac), which shrank due to negative natural growth.

The intensification of urban shrinkage is reflected not only in the increased spread but also in the dynamics and synthesis of the two factors of the population dynamic component. Thus, the cities previously affected by this process (cities with continuous and episodic shrinkage) continued the negative phase of development due to the negative population dynamic component, mainly as a consequence of negative birth rates and accelerated aging. Exceptions to this were cities where the migration factor was not recorded and which shrank only due to negative natural growth (Sremska Mitrovica, Šabac, Svilajnac, Požarevac, Umka). The opposite can be seen in Sjenica, where out-migration was undoubtedly the reason for the decline, as natural growth was positive. Cities that have been affected by shrinkage in recent times (2011–2022) are, with some exceptions, mostly the result of the interaction of both components of population dynamics. It is important to emphasize that, until recently, cities such as Niš, Kragujevac, Pančevo, Smederevo, Subotica, and Čačak grew due to immigration. However, due to the lower intensity of migration flows and the simultaneous effect of negative natural growth, the mentioned cities became shrinking cities. In contrast, Grocka, a suburban settlement of the City of Belgrade, experienced urban shrinkage due to increased emigration.

Usually, urban shrinkage is not an outcome of a singular trigger, but rather of the interplay of multiple triggers. Similar to what has been observed in previous studies [19,23,31], population decrease occurred parallel to economic decline, especially job-related out-migration. Out-migration further intensified the post-transition decline in fertility rate [58,90,91].

The socialist period that ended at the beginning of the 1990s was marked by the relatively stable socio-economic development of urban areas. Economic expansion was closely connected with favored industrialization, which resulted in the employment of the

majority of the working population. Until the 1990s, the employment rate in cities constantly increased. This led to further demographic development in towns due to migration from rural areas to urban centers [15]. Thus, shrinking cities were very rare, and the largest number of cities (about 85%) were characterized by a trajectory of growth. Shrinking was imperceptible; only a few mining centers, spa towns, and smaller towns, which shrank due to negative net migration, represented the cohort of continuously shrinking cities (Figure 5).

The post-socialist period, initially marked by civil wars, the disintegration of SFR Yugoslavia, and institutional corruption, accompanied by changes in economic regimes directed at a liberal economy and a parliamentary democracy, caused a series of negative transformations. In these conditions, external migrations intensified almost immediately after 1990. Turok and Mykhnenko [23] suggest that the late 1990s were the worst period for European cities as a whole, with the most widespread decline. There was a slight improvement in the first few years of the new millennium, although there were still more cities in relative decline than growing. Although refugee flows from former Yugoslavia, directed towards cities in Vojvodina, and internally displaced persons from Kosovo and Metohija, directed towards Central Serbia, slowed down the shrinking process temporarily, this was insufficient to halt the decline, and the number of shrinking cities (without this refugee boost) rapidly increased.

After 2000, a slow and impeded post-socialist transition [72] significantly affected the intensity and dynamics of urban shrinkage. As Serbia joined the global economic flows and entered the transition toward a democratic and free-market society, the transition led to a structural transformation of the economic system [82]. Large production systems that were the carriers of employment and economic development largely went bankrupt. Large mining centers and centers of traditional industries that employed the majority of the working population were especially affected by the negative effects of the transition [92]. Primarily economically monofunctional urban areas reacted more slowly to changes [93]. A sudden and drastic fall in employment rates due to the collapse of industrial enterprises, factory closures, and failed privatization increased economic migration, primarily to other countries, as was seen in other Central, Eastern, and Southeastern European countries during this period [49,58]. Thus, shrinking cities grew in number, and their decline hastened, with the number of continuously shrinking cities increasing twofold. Cities with a pronounced dependence on ore mining, such as Bor and Majdanpek, also experienced intense urban shrinkage due to mono-functionality (between 2002 and 2011, the employment rate decreased by 37% in Majdanpek and 29% in Bor). Thus, the rapid increase in the number of shrinking cities was mostly the result of job-related out-migration. The trend of decades-long and long-term decline in urban population led to these being cities with high intensities of urban shrinkage, thus representing the so-called "loser cities" [15].

The constant decline in secondary sector employment (by 27.2% from 2002 to 2011) was thus followed by an increase in employment in the service (tertiary) sector (of 14.5% from 2002 to 2011). Cities with a more diversified economy had more economic success and were more easily compensated for the loss of jobs in the manufacturing sector. They reacted to changes that were associated with the growth in employment in service activities. However, the process of tertiaryization was regionally differentiated, and overall unemployment rose [15], leading to more profound spatial-demographic polarization. Until recently, regional centers such as Niš, Kragujevac, Pančevo, Smederevo, Subotica, Čačak, etc., grew due to immigration. They managed to recover faster during the previous period (2002–2011), recorded a smaller decline in the employment rate (3% in Niš, 6% in Pančevo, Čačak, and Kragujevac), and simultaneously developed the service industry (an increase of 12% in Kragujevac and 19% in Niš and Pančevo from 2002 to 2011) [15]. Previous migrations driven by economic change led to accelerated aging, and negative birth rates became an important driver of population decline. Recently shrinking cities (2011–2022) are mostly the result of the interaction of both components of population dynamics.

In terms of urban resilience and sustainability, it is important to highlight the factors that halt or slow down urban shrinkage over the study period. For this reason, cities

with episodic and previous urban shrinkage, i.e., resurgent cities, are of particular interest. According to previous findings [16,17], the slowdown of the shrinkage process is almost always due to positive net migration. This was confirmed by the example of cities in Vojvodina in the 1990s, but also later in large-sized and functionally more-developed cities. Thus, until the last decade, Niš, Kragujevac, Pančevo, Smederevo, etc., also recorded growth, while today only the largest cities in Serbia (Belgrade, Novi Sad), their suburban areas, and the cities under their direct gravitational influence continue to grow.

Demographic revival was very rarely a consequence of growth due to increased birth rates and is characteristic of areas with traditionally high fertility (Sjenica). In the so-called resurgent cities of the 1970s and 1980s, recovery periods were mainly due to positive natural growth or both components of population dynamics. Since the 1990s, the revival of Belgrade's peri-urban or suburban belt (Ovča, Surčin, Pinosava, Ostružnica, Beli Potok) is the result of uncontrolled urban growth due to immigration and urban expansion. Since the beginning of the 21st century, urban revitalization has been exclusively attributable to positive migration trends, with the exception of Surčin, a new and more attractive suburban settlement of Belgrade, which attracts a predominantly younger and reproductively capable population.

## 6. Conclusions

The second half of the 20th century was characterized by dynamic spatial-demographic changes and significant disparities in urban population development, resulting at the beginning of the 21st century in the highest recorded number of shrinking cities in Serbia (over 80% of the total number of urban settlements). The dynamics and intensity of changes in the total population of cities indicate a pronounced regional differentiation of urban shrinkage. The typology of urban development trajectory identified, on the one hand, cities that never experienced a decrease in the total number of inhabitants (cities with continuous growth and potentially shrinking cities). In contrast, 94% of cities are affected by different variants of urban shrinkage: continuously shrinking cities, episodically shrinking cities, recently affected shrinking cities, and previously shrinking so-called "resurgent" cities.

The largest cohort is that of cities with continuous shrinkage, declining over several decades. Continuous shrinkage has occurred since the 1960s. The gradual decline in population from decade to decade has led to high intensity and long-term shrinkage. The distinctive feature of cities with episodic shrinkage is that they have alternating periods of urban population growth and decline. In episodic population development, the phase of decline was essentially a form of "shock therapy," rapid but with a lower intensity of urban shrinkage. Cities that have recently experienced urban shrinkage are characterized by sharp population declines in the most recent inter-census period (2011–2022). Considering their role in the urban settlement network of Serbia, they can be considered "new shrinkage losers." In contrast to them, the cities with previous shrinkage, or "resurgent" cities, have left behind previous negative phases of urban shrinkage. However, most of them are showing a tendency toward stagnation, and some even potentially toward shrinkage. Nevertheless, they confirm the opinion that the process of urban shrinkage can be halted, or at the very least slowed.

In order to explain the causes of population decline, the relationships between the components of population dynamics—natural growth and migration—were studied. The results show that negative natural growth has been driving urban shrinkage since the beginning of the observed period, while emigration gained importance during the period of war and economic crisis in the 1990s and in the subsequent transition period. The slowdown and persistence of urban shrinkage are always due to positive net migration. This is particularly evident in previously shrinking cities, resurgent cities, and episodically shrinking cities.

Given the fact that the process of urban shrinkage in Serbia gained momentum during the transition period, new scientific research is still relatively scarce. While some authors have studied the importance of certain factors, they have not considered the longer-term

perspective, the differentiation of types of shrinking cities, or all urban settlements in Serbia [14–18].

The official strategic and spatial planning documents do not recognize urban shrinkage as a phenomenon present in Serbia. It is important to emphasize that the main problem is the lack of an urban planning policy that recognizes urban shrinkage as a public problem. It seems that the government and institutions are "in denial" about this issue. Adoption of the recommended measures at the national level is a prerequisite for further implementation at lower levels (regional and local) [17]. A "one size fits all" approach to shrinking cities is neither appropriate nor desirable [31]. The near-ubiquitous shrinking of cities shows the importance of coping strategies at the local level, from both demographic and non-demographic perspectives [94]. As population decline puts economic pressure on municipalities, the question arises as to the possibility of implementing urban planning measures in municipalities with lower levels of development [95].

Given the national population decline, long-standing low birth rates, emigration patterns, and the number of shrinking cities, the coping strategy should be to adapt to these circumstances at the local level. Of central importance to the future of shrinking cities in Serbia will be the design of their long-term development under these conditions. This article aims to contribute to the creation of such a basis through the proposed typology of shrinking cities in Serbia based on demographic characteristics. Follow-up research will aim to comprehensively determine the factors of differentiation of shrinking cities and features of each type (modeling economic, social, functional, and other factors) as well as questioning institutional changes with the aim of achieving a better understanding. The development of an adequate typology of shrinking cities should be the starting point for the formulation of appropriate policies for the management of the various types of shrinking cities identified.

**Author Contributions:** Conceptualization, D.D. and M.A.; Methodology, D.D.; Data curation, D.D., M.A. and D.Ž.D.; Writing—original draft, D.D., M.A. and D.Ž.D.; Writing—review & editing, D.D., M.A. and D.Ž.D.; Visualization, D.D.; Supervision, M.A. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by [University of Nis, Faculty of Economics] grant number [101059994].

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Data are contained within the article.

**Acknowledgments:** This work was supported by the [European Union's Horizon Europe research and innovation program] under Grant [number 101059994] and by the Ministry of Education, Science and Technological Development of the Republic of Serbia [Contract number 451-03-68/2022-14/200091].

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Haase, A.; Nelle, A.; Mallach, A. Representing urban shrinkage—The importance of discourse as a frame for understanding conditions and policy. *Cities* **2017**, *69*, 95–101. [CrossRef]
2. Wang, J.; Yang, Z.; Qian, X. Driving factors of urban shrinkage—Examining the role of local industrial diversity. *Cities* **2020**, *99*, 102646. [CrossRef]
3. Vinci, S.; Vardopoulos, I.; Salvati, L. A tale of a shrinking City? Exploring the complex interplay of socio-demographic dynamics in the recent development of Attica, Greece. *Cities* **2023**, *132*, 104089. [CrossRef]
4. Fol, S.; Cunningham-Sabot, E.C. Urban Decline and Shrinking Cities: A Critical Assessment of Approaches to Urban Degrowth. *Ann. Géogr.* **2010**, *674*, 359–383. [CrossRef]
5. Kabisch, N.; Haase, D.; Haase, A. Evolving Reurbanisation? Spatio-temporal Dynamics as Exemplified by the East German City of Leipzig. *Urban Stud.* **2010**, *47*, 967–990. [CrossRef]

6. Bontje, M. Creative cities and shrinking cities: False opposites? In *Urban Europe: Fifty Tales of the City*; Mamadouh, V., van Wageningen, A., Eds.; AUP: Amsterdam, The Netherlands, 2016; pp. 153–159.
7. Ilić, J. *Growth and Characteristics of the Urban Population, Population and Households of Serbia according to the 1981 Census*; Republički Zavod za Statistiku: Belgrade, Serbia, 1984.
8. Đurđev, B. Demographic development of towns and villages. *Stanovništvo* **1993–1994**, *3–4*, 83–94.
9. Stevanović, R. The contribution of migration to the population growth of Serbian cities in the period. *Stanovništvo* **1994**, *32*, 87–102.
10. Veljković, A.; Jovanović, R.; Tošić, B. Towns of Serbia: The centres of development in the network of settlements. In *Special Issues: No. 44*; Radovanovic, M., Ed.; Geografski Institut "Jovan Cvijić" SANU: Belgrade, Serbia, 1995; pp. 1–136.
11. Stojanović, B.; Vojković, G. Urban agglomerations on main development areas as poles of demographic revitalization of Serbia. *Stanovništvo* **2005**, *43*, 61–80. [CrossRef]
12. Spasovski, M.; Šantić, D. Trends in the distribution and concentration of the population of Serbia—A first-class demographic challenge at the beginning of the 21st century. In *The International Scientific Meeting Problems and Challenges of Contemporary Geographic Science and Teaching*; Grčić, M., Ed.; Univerzitet u Beogradu—Geografski Fakultet: Belgrade, Serbia, 2012.
13. Đurđev, B.; Arsenović, D. Urban population and network of cities. In *The Population of Serbia at the Beginning of the 21st Century*; Nikitović, V., Ed.; Republički Zavod za Statistiku: Belgrade, Serbia, 2015; pp. 64–70.
14. Djukić, A.; Antonić, B.; Vujičić, T.M. Urban shrinkage in a 'shrinking' Serbia—The approach to a global phenomenon in a local context. *Geod. Vestn.* **2017**, *61*, 614–629. [CrossRef]
15. Djurkin, D.; Antić, M.; Budović, A. Demographic and economic aspects of urban shrinkage in Serbia—Typology and regional differentiation. *Bull. Serbian Geogr. Soc.* **2021**, *101*, 43–78. [CrossRef]
16. Živanović, Z.; Tošić, B.; Nikolić, T.; Samardžić, I.; Dabović, T.; Jeftić, M. Urban Shrinkage in Serbia: The Domination of Economic Over Environmental Causes. *Fresenius Environ. Bull.* **2021**, *30*, 13437–13452.
17. Antonić, B. Chapter 8: Urban and Spatial Aspects of Depopulation in Serbia. In *National Human Development Report—Serbia 2022—Human Development in Response to Demographic Change*; Vuković, D., Ed.; UNDP: Belgrade, Serbia, 2022; pp. 179–204.
18. Miljanović, D.; Vuksanović-Macura, Z.; Doljak, D. Rethinking the spatial transformation of postsocialist cities: Shrinking, sprawling or densifying. *Cities* **2023**, *140*, 104443. [CrossRef]
19. Bradbury, K.L.; Downs, A.; Small, K.A. *Urban Decline and the Future of American Cities*; The Brookings Institution: Chicago, IL, USA, 1982; pp. 1–309.
20. Haase, A.; Rink, D.; Grossmann, K.; Bernt, M.; Mykhnenko, V. Conceptualizing urban shrinkage. *Environ. Plan. A* **2014**, *46*, 1519–1534. [CrossRef]
21. Rink, D.; Couch, C.; Haase, A.; Krzysztofik, R.; Nadolu, B.; Rumpe, P. The governance of urban shrinkage in cities of post-socialist Europe: Policies, strategies and actors. *Urban Res. Pract.* **2014**, *7*, 258–277. [CrossRef]
22. Yang, Z.; Dunford, M. City shrinkage in China: Scalar processes of urban and hukou population losses. *Reg. Stud.* **2017**, *52*, 1111–1121. [CrossRef]
23. Turok, I.; Mykhnenko, V. The trajectories of European cities, 1960–2005. *Cities* **2007**, *24*, 165–182. [CrossRef]
24. Oswalt, P. *Shrinking Cities: Volume 1: International Research*; Hatje Kantz Verlag: Berlin, Germany, 2005.
25. Mykhnenko, V.; Turok, I. East European cities- patterns of growth and decline, 1960–2005. *Int. Plan. Stud.* **2008**, *13*, 311–342. [CrossRef]
26. Beauregard, R.A. Urban population loss in historical perspective: United States, 1820–2000. *Environ. Plan. A* **2009**, *41*, 514–528. [CrossRef]
27. Rieniets, T. Shrinking Cities: Causes and Effects of Urban Population Losses in the Twentieth Century. *Nat. Cult.* **2009**, *4*, 231–254. [CrossRef]
28. Martinez-Fernandez, C.; Audirac, I.; Fol, S.; Cunningham-Sabot, E. Shrinking cities: Urban challenges of globalization. *Int. J. Urban Reg. Res.* **2012**, *36*, 213–225. [CrossRef]
29. Wiechmann, T.; Wolff, M. Urban shrinkage in a spatial perspective–operationalization of shrinking cities in Europe 1990–2010. In Proceedings of the AESOP-ACSP 5th Joint Congress 2013: Planning for Resilient Cities and Regions, Dublin, Ireland, 15–19 July 2013; p. 932.
30. Wiechmann, T.; Bontje, M. Responding to Tough Times: Policy and Planning Strategies in Shrinking Cities. *Eur. Plan. Stud.* **2015**, *23*, 1–11. [CrossRef]
31. Haase, A.; Bernt, M.; Großmann, K.; Mykhnenko, V.; Rink, D. Varieties of shrinkage in European cities. *Eur. Urban Reg. Stud.* **2016**, *23*, 86–102. [CrossRef]
32. Hartt, M. The diversity of North American shrinking cities. *Urban Stud.* **2017**, *55*, 2946–2959. [CrossRef]
33. Chen, T.; Hui, E.; Tu, Y.; Lang, W. Growth or Shrinkage: Discovering the development pattern and planning strategies for cross-border areas in China. *J. Urban Plan. Dev.* **2021**, *147*, 05021046. [CrossRef]
34. Hattori, K.; Kaido, K.; Matsuyuki, M. The development of urban shrinkage discourse and policy response in Japan. *Cities* **2017**, *69*, 124–132. [CrossRef]

35. Pallagst, K. Shrinking cities in the United States of America: Three cases, three planning stories. In *The Future of Shrinking Cities: Problems, Patterns and Strategies of Urban Transformation in a Global Context*; Pallagst, K., Aber, J., Audirac, I., Cunningham-Sabot, E., Fol, S., Martinez-Fernandez, C., Moraes, S., Mulligan, H., Vargas-Hernandez, J., Weichmann, T., et al., Eds.; University of California: Berkeley, CA, USA, 2009; pp. 81–89.
36. Musterd, S. A Conceptual Framework for Shrinking Cities Research. In Proceedings of the Shrinking Cities in Europe—Final Conference of the COST Action "Cities Regrowing Smaller" (CIRES), Zeche Zollverein, Essen, Germany, 12–13 September 2013.
37. Hollander, J.B. Can a city successfully shrink? Evidence from survey data on neighborhood quality. *Urban Aff. Rev.* **2011**, *47*, 129–141. [CrossRef]
38. Delken, E. Happiness in shrinking cities in Germany. *J. Happiness Stud.* **2008**, *9*, 213–218. [CrossRef]
39. Oswalt, P.; Rieniets, T. *Global Context. Shrinking Cities*; Hatje Kantz Verlag: Berlin, Germany, 2006.
40. Schilling, J.; Logan, J. Greening the Rust Belt: A green infrastructure model for right sizing America's shrinking cities. *J. Am. Plan. Assoc.* **2008**, *74*, 451–466. [CrossRef]
41. Weaver, R.; Bagchi-Sen, S.; Knight, J.; Frazier, A.E. *Shrinking Cities: Understanding Urban Decline in the United States*; Routledge: New York, NY, USA, 2017; p. 232.
42. Hartt, M. The Prevalence of Prosperous Shrinking Cities. *Ann. Am. Assoc. Geogr.* **2019**, *109*, 1651–1670. [CrossRef]
43. COST Action. *COST Action Cities Regrowing Smaller—Fostering Knowledge on Regeneration Strategies in Shrinking Cities Across Europe 2009–2013*; Project No. TU0803; COST Action: Saint-Josse-ten-Noode, Belgium, 2013.
44. Van de Kaa, D. Second demographic transition. In *Encyclopaedia of Population*; Demeny, P., McNicoll, G., Eds.; MacMillan Reference: New York, NY, USA, 2003; pp. 555–557.
45. United Nations Department of Economic and Social Affairs, Population Division. *World Population Prospects 2022: Summary of Results*; UN DESA/POP/2022/TR/NO; United Nations: New York, NY, USA, 2022.
46. Steinführer, A.; Haase, A. Demographic Change as a Future Challenge for Cities in East Central Europe. *Geogr. Ann. B* **2007**, *89*, 183–195. [CrossRef]
47. Nuissl, H.; Rink, D. The 'production' of urban sprawl in eastern Germany as a phenomenon of postsocialist transformation. *Cities* **2005**, *22*, 123–134. [CrossRef]
48. Sýkora, L.; Ouředníček, M. Sprawling post-communist metropolis: Commercial and residential suburbanization in Prague and Brno, the Czech Republic. In *Employment Deconcentration in European Metropolitan Areas*; Razin, E., Dijst, M., Vazquez, C., Eds.; Springer: Dordrecht, The Netherlands, 2007; pp. 209–233.
49. Stryjakiewicz, T.; Ciesiolka, P.; Jaroszewska, E. Urban shrinkage and the post-socialist transformation: The case of Poland. *Built Environ.* **2012**, *38*, 196–213. [CrossRef]
50. Rumpel, P.; Slach, O. Shrinking cities in Central Europe. In *Transitions in Regional Science—Regions in Transitions: Regional Research in Central Europe*; Herrschel, T., Dostál, P., Raška, P., Koutský, J., Eds.; Wolters Kluwer: Alphen aan den Rijn, The Netherlands, 2014; pp. 142–155.
51. Heider, B. What drives urban population growth and shrinkage in postsocialist East Germany? *Growth Change* **2019**, *50*, 1460–1486. [CrossRef]
52. Eva, M.; Cehan, A.; Lazar, A. Patterns of Urban Shrinkage: A Systematic Analysis of Romanian Cities (1992–2020). *Sustainability* **2021**, *13*, 7514. [CrossRef]
53. Martinez-Fernandez, C.; Weyman, T.; Fol, S.; Audirac, I.; Cunningham-Sabot, E.; Wiechmann, T.; Yahagi, H. Shrinking cities in Australia, Japan, Europe and the USA: From a global process to local policy responses. *Prog. Plan.* **2016**, *105*, 1–48. [CrossRef]
54. Eurostat. *Eurostat Regional Yearbook 2022*; Publications Office of the European Union: Luxembourg, 2023.
55. Hospers, G. Coping with shrinkage in Europe's cities and towns. *Urban Des. Int.* **2013**, *18*, 78–89. [CrossRef]
56. Salone, C.; Besana, A. Urban shrinkage. Theoretical reflections and empirical evidence from a Southern European perspective. In Proceedings of the AESOP-ACSP 5th Joint Congress 2013: Planning for Resilient Cities and Regions, Dublin, Ireland, 15–19 July 2013; pp. 1–14.
57. United Nations Department of Economic and Social Affairs, Population Division. *International Migration 2020 Highlights (ST/ESA/SER.A/452)*; United Nations: New York, NY, USA, 2020.
58. Bontje, M.; Musterd, S. Understanding shrinkage in European cities. *Built Environ.* **2012**, *38*, 153–161. [CrossRef]
59. Großmann, K.; Haase, A.; Rink, D.; Steinführer, A. *Urban Shrinkage in East Central Europe? Benefits and Limits of a Cross-National Transfer of Research Approaches*; Instytut Zachodni: Poznań, Poland, 2008.
60. Sousa, S. Planning for Shrinking Cities in Portugal. Ph.D. Thesis, Faculty of Engineering of the University of Oporto, Oporto, Portugal, 2010.
61. Alves, D.; Barreira, A.P.; Guimarães, M.H.; Panagopoulos, T. Historical trajectories of currently shrinking Portuguese cities: A typology of urban shrinkage. *Cities* **2016**, *52*, 20–29. [CrossRef]
62. Barreira, A.P.; Agapito, D.; Panagopoulos, T.; Guimarães, M.H. Exploring residential satisfaction in shrinking cities: A decision-tree approach. *Urban Res. Pract.* **2017**, *10*, 156–177. [CrossRef]
63. Wolff, M.; Wiechmann, T. Urban growth and decline: Europe's shrinking cities in a comparative perspective 1990–2010. *Eur. Urban Reg. Stud.* **2018**, *25*, 122–139. [CrossRef]
64. Hoekveld, J.J. Time-space relations and the differences between shrinking regions. *Built Environ.* **2012**, *38*, 179–195. [CrossRef]

65. Martinez-Fernandez, C.; Wu, C. Shrinking Cities: A global overview and concerns about Australian mining cities cases. In *The Future of Shrinking Cities: Problems, Patterns and Strategies of Urban Transformation in a Global Context*; Pallagst, K., Ed.; Centre for Global Metropolitan Studies—Institute of Urban and Regional Development: Berkeley, CA, USA, 2009; pp. 29–36.
66. Chen, W.; Yan, C.; Li, W.; Yang, Y. Coupling system-based spatiotemporal variation and influence factors analysis of city shrinkage in Henan. *Pol. J. Environ. Stud.* **2021**, *30*, 3497–3510. [CrossRef]
67. Barasheva, E.; Leng, H.; Barashev, A.; Bukhtoyarov, V. Typology of urban shrinkage in Russia: Trajectories of Russian cities. *J. Urban Plan. Dev.* **2021**, *147*, 05021035. [CrossRef]
68. Wiechmann, T.; Pallagst, K. Urban shrinkage in Germany and the USA: A comparison of transformation patterns and local strategies. *Int. J. Urban Reg. Res.* **2012**, *36*, 261–280. [CrossRef] [PubMed]
69. Siljanoska, J.; Korobar, V.; Stefanovska, J. Causes, Consequences and Challenges of Shrinkage: The Case of Small Cities in a Transition Society. *Built Environ.* **2012**, *38*, 244–258. [CrossRef]
70. Feldhoff, T. Shrinking communities in Japan: Community ownership of assets as a development potential for rural Japan? *Urban Des. Int.* **2013**, *18*, 99–109. [CrossRef]
71. Wolff, M.; Fol, S.; Helene, R.; Cunningham-Sabot, E.C. Is planning needed? Shrinking cities in the French urban system. *Town Plan. Rev.* **2017**, *88*, 131–145. [CrossRef]
72. Backović, V. European Cities in Postsocialist Transformation. *Sociologija* **2005**, *47*, 27–44. [CrossRef]
73. Grčić, M.; Ratkaj, I. Structural changes and regional differentiation of industry in Serbia during the period of transition (1988–2005). *Bull. Serbian Geogr. Soc.* **2006**, *86*, 97–112. [CrossRef]
74. Rink, D.; Haase, A.; Grossmann, C.C.; Cocks, M. From long term shrinkage to re-growth? The urban development trajectories of Liverpool and Leipzig. *Built Environ.* **2012**, *38*, 162–178. [CrossRef]
75. Ministry of Environment, Mining and Spatial Planning RS; Republic Agency for Spatial Planning. *Spatial Plan of the Republic of Serbia (2010–2020)*; Ministry of Environment: Belgrade, Serbia, 2010.
76. Ministry of Construction, Transport and Infrastructure RS. *Strategy for Sustainable and Integrated Urban Development of the Republic of Serbia until 2030*; Ministry of Construction: Belgrade, Serbia, 2018.
77. Ministry of Family Welfare and Demography RS. *Strategy for the Promotion of the Fertility Rate in Serbia*; Ministry of Family Welfare and Demography RS: Belgrade, Serbia, 2018.
78. Ministry of Labour, Employment, Veterans and Social Affairs RS. *Strategy on Economic Migration for the Period 2021–2027*; Ministry of Labour, Employment, Veterans and Social Affairs RS: Belgrade, Serbia, 2020.
79. Buitelaar, E.; Moroni, S.; De Franco, A. Building obsolescence in the evolving city. Reframing property vacancy and abandonment in the light of urban dynamics and complexity. *Cities* **2021**, *108*, 102964. [CrossRef]
80. Moroni, S.; De Franco, A.; Maria Bellè, M.B. Unused private and public buildings: Re-discussing merely empty and truly abandoned situations, with particular reference to the case of Italy and the city of Milan. *J. Urban Aff.* **2020**, *42*, 1299–1320. [CrossRef]
81. Couch, C.; Cocks, M. Housing Vacancy and the Shrinking City: Trends and Policies in the UK and the City of Liverpool. *Hous. Stud.* **2013**, *28*, 499–519. [CrossRef]
82. Ratkaj, I.; Budović, A.; Jocić, N. Patterns of small-scale residential segregation in the centre of Belgrade. In *Vertical Cities: Micro-Segregation, Social Mix and Urban Housing Markets*; Malutas, T., Karadimitriou, N., Eds.; Edward Elgar Publishing: Cheltenham, UK, 2022; pp. 204–218. [CrossRef]
83. Ratkaj, I.; Jocić, N.; Budović, A. Residential segregation in a radically changing urban context experiences from Belgrade. *Geogr. Ann. Ser. B Hum. Geogr.* **2023**, 1–22. [CrossRef]
84. Statistical Office of the Republic of Serbia. *Census of Population, Households and Dwellings in the Republic of Serbia 1991, Number and Floor Space of Housing Units, Data by Settlements*; SORS: Belgrade, Serbia, 1991.
85. Statistical Office of the Republic of Serbia. *Census of Population, Households and Dwellings in the Republic of Serbia 2022, Number and Floor Space of Housing Units, Book C1, Data by Settlements*; SORS: Belgrade, Serbia, 2023.
86. Statistical Office of the Republic of Serbia. *Census of Population, Households and Dwellings in the Republic of Serbia, Book 20: Comparative Overview of the Number of Population in 1948, 1953, 1961, 1971, 1981, 1991, 2002 and 2011, Data by Settlements*; SORS: Belgrade, Serbia, 2014.
87. Statistical Office of the Republic of Serbia. *Census of Population, Households and Dwellings in the Republic of Serbia 2022, Age and Sex, Book 2, Data by Settlements*; SORS: Belgrade, Serbia, 2023.
88. Statistical Office of the Republic of Serbia. *Natural Changes of Population, Data by Settlements—Unpublished Data*; SORS: Belgrade, Serbia, 2022.
89. Manić, E.; Mitrović, Đ. Unbalanced development—Regional disparity analysis in Serbia. *Econ. Themes* **2021**, *59*, 45–60. [CrossRef]
90. Wolff, M.; Mykhnenko, V. COVID-19 as a game-changer? The impact of the pandemic on urban trajectories. *Cities* **2023**, *134*, 104162. [CrossRef] [PubMed]
91. Kabisch, N.; Haase, D.; Haase, A. Urban population development in Europe 1991–2008—The examples of Poland and the UK. *Int. J. Urban Reg. Res.* **2012**, *36*, 1326–1348. [CrossRef]
92. Stryjakiewicz, T.; Jaroszewska, E. The process of shrinkage as a challenge to urban governance. *Quaest. Geogr.* **2016**, *35*, 27–37. [CrossRef]

93. Petrović, J.; Radukić, S.; Radović, M. A multicriteria analysis of regional disparity of economic and demographic development in the Republic of Serbia. *Econ. Themes* **2020**, *58*, 327–342. [CrossRef]
94. Sackmann, R. Chapter 3: How do societies cope with complex demographic challenges? A model. In *Coping with Demographic Change: A Comparative View on Education and Local Government in Germany and Poland*; Sackmann, R., Bartl, W., Jonda, B., Kopycka, K., Rademacher, C., Eds.; Springer International Publishing: Cham, Switzerland, 2015; pp. 25–57.
95. Bartl, W. Chapter 6: Coping with Demographic Decline in German and Polish Municipalities. In *Coping with Demographic Change: A Comparative View on Education and Local Government in Germany and Poland*; Sackmann, R., Bartl, W., Jonda, B., Kopycka, K., Rademacher, C., Eds.; Springer International Publishing: Cham, Switzerland, 2015; pp. 95–130.