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Settlement Population Size in Romania. Dynamics and Reranking

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ABSTRACT

Population size and dynamics within settlements at any given moment are relevant for the evaluation of viability, functionality, and complexity of both urban and rural settlements. This topic is particularly significant not only for contemporary Romania but also for societies worldwide, where the political, economic, demographic, and social transformations are continuously reshaping settlements. The aim of this study was to provide an updated 15-level hierarchical classification of rural and urban settlements in Romania by population size. Population dynamics in the last 30 years were examined at the local level based on the values recorded at the last four national censuses (1992, 2002, 2011, 2021) determining changes in settlement population size. Results showed significant shifts in the national settlement network, with a decline in the number of large and medium-sized rural localities and an increase in the number of small and very small ones. Either leading to depopulation particularly in rural areas, or to the concentration of population in metropolitan areas, the overall population decline affects the functionality of settlements, their socioeconomic development and infrastructure sustainability. Conclusions highlight the need for redefining urban and rural settlement categories to align with Romania's evolving territorial reality and current imbalances in the settlement network. Also, a reconfiguration of the settlement system is needed and targeted measures to address specific local issues should be implemented, with implications for administrative-territorial organization, transport networks, and socioeconomic development strategies.

1. INTRODUCTION

Population size is one of the basic parameters in assessing the viability, functionality and complexity of settlements. This size is given by the number of individuals living at any given time within the settlement. The analysis of this parameter depends on the value classes acknowledged and used in classifying

settlements, but also on the specific purposes of various investigations conducted for regional and urban planning, including strategic decision-making regarding constructions, technical infrastructure of the territory and other socioeconomic facilities aimed at supporting creation of sustainable settlements communities. This is a current topic both internationally, and especially in Romania, where

extensive demographic transformations have taken place, implicitly affecting settlement population size. However, the old hierarchies based on population size have substantially changed in time, today settlements in Romania having new dimensions and patterns of spatial distribution.

Settlement population size and implications on the settlement hierarchical classification has not particularly been the main subject of research in Romania recently, but rather subject integrated in larger studies in which some relevant related aspects were investigated. Most of the studies on settlement population size have been approaches on a zonal or regional scale, specialists employing their own classifications; therefore a somewhat exact and updated situation is not currently being known, especially at the local level. Then again, studies on population dynamics as drivers for various processes or their effects in rural or urban areas, or even at regional or national level are more frequent. Therefore, phenomena such as population decline and growth, depopulation, demographic shrinkage, urbanisation, urban sprawl, metropolisation and sustainability of urban and rural settlements are under the focus of numerous researchers both nationally and worldwide (O'Regan et al., 2009; Wolff and Wiechmann, 2017; Ortman et al., 2020; Ehrlich et al., 2020; Yanbo et al., 2021; Duranton, 2021; Bosker et al., 2021; Li et al., 2022; Gómez-Valenzuela and Holl, 2023).

Romania is one of the Eastern European states where urbanisation and territorial development followed a particular pattern, mostly influenced or directed by the former soviet-period policies. During communist period, state-controlled industrialisation has led to the forced urbanisation of rural settlements, setting up towns that usually lacked adequate infrastructure and were vulnerable to economic decline when industries failed (Săgeată, 2010). Urbanisation has started rather slowly in Romania before the year 2000, after which the economic growth was noted to act as a catalyst for urban sprawl despite the existence of negative inhibiting factors such as poor road infrastructure, pricy land, chaotic and expensive real-estate development, or increased traffic and pollution.

The progression of urban sprawl in Romania was concluded to be chaotic, many times unplanned and fostered by factors that were closely imbedded into the local and national context (Neamţu, 2005). After 2000, in the context of a shift to market economy, Romania experienced a rush in the urbanisation process, a wave of new towns being established, often based on specialized industries, and most often by changing the status of settlements from rural to urban, regardless of the limited potential of those towns for actual urban development due to inadequate infrastructure and the lack of high-quality urban characteristics (Săgeată, 2010). Urban planning, urban

development strategy and urbanisation post-1990 and especially after 2000 were mainly driven by the national political shift from communism to democracy, economic globalisation, internal rural-urban migration, which led to an overall urban population decline at the national level and imbalances in the national settlement system and urban hierarchy. The policies and strategies for territorial development in this transition period were meant to create equilibrium in the national settlement system and create a polycentric and balanced urban system, by reducing the capital city's dominance, and strengthening smaller cities and second-tier urban centres (Benedek, 2006).

Population dynamics along with many other triggering factors that have shaped the further evolution of urban and rural settlements in Romania have been debated in the scientific national literature. The distinctive and trajectories of new and old towns and cities of various ranks in the last 30 years showed: challenges in the urban system and urban policy (Stănuș et al., 2021), concerns regarding their viability and resilience on the long term against population decline and/or ageing (Bănică et al., 2013; Bănică et al., 2017; Zamfir and Stoica, 2023; Vîlcea et al., 2024), concerns regarding their development up to stronger polarization urban centres for the rural areas they are located within based on population dynamics and economic functions (Zamfir et al., 2009; Stoica et al., 2010).

As population dynamics have proportional effects on the viability and functionality of rural settlements, as well, their resilience is proved first to depend on the stability of local communities in terms of natural dynamics and net migration, along with the ability to adapt to restrictive contexts in a supported or unsupported manner. Rural settlements recording average or severe demographic decline may be at risk of future depopulation, even disappearance, fact proved by investigations on extensive reference periods on the rural areas in Romania (Staşac et al., 2010; Zotic et al., 2016; Muntele et al., 2021), or by studies on smallersize areas across the national territory: Moldova historical region (Mardale, 2014), Moldova River valley (Vasilcu, 2008), Bârgău area (Darlaczi, 2014), Amlasului area (Pavel and Barta, 2011), Silvania Hills (Nicoară and Dombay, 2001). The effects of demographic imbalances bring out functional and structural transformations in the rural areas (Şoşea, 2021) and urban-rural discrepancies (Popescu et al., 2022; Săgeată et al., 2024).

Consequently, as simple and clear as this subject seems to be, it is insufficiently unknown, and a step forward towards clarifications regarding the suitability of maintaining the actual hierarchical classification of settlements in Romania should be taken. If we consider the spatial implications of settlements in the economic valorisation of the territory, their areas of influence, needs of consumption

and connectivity etc., which are all generated by the settlement population size, we can easily highlight the significance of this approach. Based on this, the present study aims to investigate settlement population size in Romania, focusing on the spatio-temporal dynamics of this parameter and propose a new classification of urban and rural localities in Romania that incorporates the previous ones, found in the specialist literature, public strategic documents, regulations in force, and minutely illustrate the objective territorial reality of urban and rural settlements at the local level as revealed by the loss and growth of residents as recorded at the last four national censuses.

The structure of this study is based on several research objectives, namely: to identify classifications that are commonly used in the analysis of settlement population size at national and international level for the elaboration of studies, policies and programmes for the coherent functioning and economic development of urban and rural areas (e.g.: National Institute of Statistics (NIS), EUROSTAT, OECD, The World Bank, UN); to identify classifications that are currently used in the analysis of settlement population size at national and international level for various research purposes; to describe the shortcomings of using classifications and identify the key thresholds by which they are differentiated, whilst individualizing the possible effects that may occur by selecting and using certain classifications against others; to propose a new set of population size classes adapted to the current national context, considering the value thresholds imposed by legislation and the ones resulted from the quantitative data analysis; to analyse the current situation of settlement population size in Romania and the allocation of localities into classes of values. This analysis, at the scale of individual settlements (villages and cities of all sizes, hereinafter referred to as localities), represents a first attempt at the national level considering the limited access to data. This investigation aims to illustrate the state of settlements at the last four national censuses (1992, 2002, 2011 and 2021) based on a single parameter - the number of inhabitants-, and reveal the quantitative changes that occurred during this reference period (1992-2021); and to analyse the spatial distribution of settlements by population size classes and identify the potential causes and effects generated by the current situation (territorially, economically and socially).

Results are expected to highlight a particular geographical reality of the national territory, which will lead to the explanation of some issues that should be further addressed for debate such as depopulation, emigration, the configuration of the national settlement system.

The relevance of the study lays in the approach of investigation of this indicator at the local level, which gives the opportunity to reflect and explain a series of current and future geographical phenomena, demographic phenomena such as depopulation, position of localities in the national system of settlements, migration, connectivity of localities, or the economic development level. By this approach at the local level, of a village or city, as components of the basic national defined territorial administrative unit (TAU in Romania/ LAU - the European equivalent), the authors highlight and demonstrate that there are situations in which quantitative changes that cannot be perceived at another scale. Therefore, only by analysing a phenomenon at the most basic scalar level, in the most detail, will make it possible to demonstrate the direct or indirect effects of other phenomena on some indicators or associated structures.

2. THEORY AND METHODOLOGY

Population size, represented by the total number of population with stable residence within the locality at a given time, is a general parameter employed illustrate the quantitative and qualitative characteristics of settlements. The total number of population is permanently fluctuating, fact generated by the natural dynamics and net migration. To be able to properly and correctly perceive this parameter, it is necessary to compare the absolute values of the resident population within settlements using predefined classes of population size. This way, a new perception of the settlement population size is obtained, which has multiple implications in the explanation of some spatial phenomena, but especially in that of territorial planning. In this case, several aspects depend on the category of settlement population size, such as: the need for housing facilities; water, energy, resources and food consumption; the degree of connectivity of settlements; the intensity of traffic; the institutional capacity of public services; local budgets; the need to introduce public transport for people; the capacity of public transport; the spatial hierarchy of settlements; the administrative function; the territorial dimension and many others. Settlement population size also determines their economic, political and decisionmaking power. It also represents one of the relevant criteria considered when making the decision to establish a new city or town in Romania (Law 351/2001, Ministry for Development, Public Works and Administration, 2021). Along this parameter, settlements are usually classified as rural or urban, and investigated by concomitantly using another simple parameter - population density.

Settlement classification into a hierarchy and the spatial distribution of all types of size-based settlements within a network is meant to create socioeconomic balance across a larger territory, decentralisation of administrative and economic decision-making power and development of functional medium-sized areas or regions in which well-adjusted polarisation of the rural areas by urban centres is achieved. Policies, strategies and programmes for local and regional development in Romania, in the European Union and worldwide aim to diminish disparities within the territory and need to be substantiated on the most accurate local reality so as specific measures could be implemented.

For this purpose, and since the national administrative spatial organisation differs from one state to another, researchers and international organisations have developed spatial concepts and territorial definitions and typologies for the local and regional scales, and statistical tools and methods to better measure the features and capabilities of the territory, at certain scales, in a unitary manner across countries. We refer to these concepts as they are in fact spatial units for which statistical data are recorded regularly and which are meant to be adopted by most of the countries in terms of data collection and strategic planning and rural and urban governance. These spatial units and territories are mostly described based on population number, density and flow.

The correspondence and statistical data integration between the Local Administrative Units (LAUs) of each country and the territorial typologies for the local level is continuously made by EUROSTAT, on a yearly basis. The LAU-based territorial typologies are the functional urban areas (FUA), the degree of urbanisation (DEGURBA) and the coastal/no-coastal areas (European Commission-EUROSTAT, 2019). Functional urban area (FUA) was defined and methodologically described by OECD in collaboration with the European Commission for the purpose of implementation/ application consistently countries, since the national definitions of cities are often inconsistent between countries and they are usually based on administrative or legal boundaries that may not accurately represent the functional and economic extent of cities, for instance in terms of size of the local territorial units. The four-step methodology allows to identify the urban centre, the city and the commuting zone, regardless of administrative boundaries but considering population number, population density and mobility, which together form the functional urban area based on their socioeconomic functionality (Dijkstra et al., 2019). Later on, the degree of urbanisation (DEGURBA), another measurement tool was developed by the European Commission-EUROSTAT (2019) which uses the same people-based definition of the city, but classifies the remaining local units into towns and suburbs/semi-dense areas, and rural areas (Dijkstra et al., 2019; Dijkstra et al., 2021; European Commission and UN-Habitat, 2016; UN-Habitat, 2022). Furthermore, at the regional level, corresponding to NUTS 3 level developed by the European Commission - EUROSTAT we find the ruralurban territorial typologies, the metropolitan typology 158

and the coastal typology (European Commission-EUROSTAT, 2019).

These continuous preoccupations establishing distinct land categories proves once again the relevance of accurate knowledge on the settlement system structure, quality and functionality of rural and urban areas for policy effective implementation aiming to urban and regional development.

Although limited by the use of a single parameter since "applying a single absolute population size or density threshold to administrative units tends not to produce a plausible and comparable classification", as evidenced by Dijkstra et al. (2021), this proposed people-based classification of urban and rural settlements should be considered as a foundation for the following investigations, in which population density will also be considered. And this is because our proposed classification considered the absolute population size of the component localities of the national administratively defined urban and rural LAUs exactly with the purpose of clarifying some of the aspects intended to be revealed by the definition of cities implied by the degree of urbanisation. Countries use various population and density thresholds for defining the city, urban centre sizes ranging from 50,000 inhabitants (small city) to more than 5 mil. inhabitants (global city), while the small and mediumsized cities with populations between 5,000 and 50,000 people not being commonly defined (Dijkstra and Poelman, 2012). Small- and medium-sized cities with less than 10,000 inhabitants are dominating in Europe, facing population loss which position them on a shrinkage trajectory (Wolff and Wiechmann, 2017), with few cities over one million and only two over 10 million inhabitants (UN-Habitat, 2016). Romania fits this context, with about 36.7% of the cities/towns recording less than 10,000 inhabitants, and about 35.1% of them registering populations between 10,000 and 25,000 (Ministry for Development, Public Works and Administration, 2021).

In this study, we aim to illustrate the urban or rural character of localities (city - as the equivalent of municipiu in RO; town - as the equivalent of oraș in RO; locality with urban status - as the equivalent of sat apartinător/localitate cu statut urban in RO; and rural localities - commonly known as villages- contained by the commune – as the equivalent of comună in RO). Thus, the generally referred to as localities will be assigned to a rural or urban settlement category based on absolute number of inhabitants, regardless of their current national classification and location within the borders of a urban LAU (city/town) or rural LAU (commune), just as to reflect their demographic features and dynamics, suitability of being currently considered rural or urban, and highlight particular situations of demographic decline, depopulation or even complete population loss, which should imply territorial restructuring and reclassification.

Consequently, population size represents the primary factor influencing most of the quantitative and qualitative characteristics of settlements as well as the driving force for the socio-economic activities and processes, which in turn generate other effects, triggering and maintaining various processes in the territory. In this context, an objective knowledge of this parameter is required, and especially its dynamics.

The development and future prospects of human settlement system in Romania, focusing on different settlement growth models, guided by planned economic policies, was debated even in the 1980s (Enache and Holtier, 1982; Ronnås, 1984). Alternatives for settlement network development were compared, including the one that proposed varying city sizes and population spatial distributions across regions and implicitly the transformation of some 300-350 rural settlements into semi-urban areas of over 5,000 inhabitants in the following 15-20 years, with a focus on mixed industrial-agrarian activities to serve as service centres for nearby villages (Enache and Holtier, 1982). Recent studies highlight the dynamics of human settlements due to population dynamics and economic growth among others, and bring out the challenges of measuring and understanding human settlements, starting from data availability and collection to models of analysis so as to accurately describe settlement patterns and their spatial distribution (Ehrlich et al., 2020).

To be able to conduct a pertinent and correct analysis of this parameter that illustrates the state of settlements, it is first necessary to define and break down the population into size classes. In this sense, a great diversity of criteria and size classes are defined in the specialist literature, either equal or not, marked by a certain degree of national specificity. Most studies investigate rural and urban settlements separately (Hugo et al., 2001; Vasilcu, 2008; O'Regan et al., 2009; Pavel and Barta, 2011, Abou-Korin, 2014; Mardale, 2014; European Commission and UN-Habitat, 2016; Gómez-Valenzuela and Holl, 2023; Muntele et al., 2023; Karácsonyi and Taylor, 2024) and use differentiated size classes, each one bringing valuable conclusions. This has led over time to a diversity of opinions regarding settlement population size and most of the times, contextually adapted.

In Romania, the knowledge on settlement population size is still inconclusive, because until now, there is no current integrative study to provide an investigation of each locality separately, by using a unitary classification for the entire national territory, based on one, two or more parameters. The existing studies on this subject are varying, both spatially and temporally (Ronnas, 1984; Vasilcu, 2008; Pavel and Barta, 2011; Grigorescu et al., 2012; Mardale, 2014, Darlaczi, 2014). The same issue arises regarding the value classes established to categorise settlements by

population size. Authors used their own classifications, which led to quite different results. Some authors addressed only urban settlements (Ronnås, 1984; Benedek, 2006, Pavel and Barta, 2011), others only rural settlements (Vasilcu, 2008; Darlaczi, 2014; Mardale, 2014) while some others analysed all types of settlements, eventually proposing unitary classifications (Hugo et al., 2001; Abou-Korin, 2014). The value ranges of the size classes are also different, some authors using equal intervals and others unequal. Therefore, in all this mixture of classifications used in establishing settlement population size, the existing results are different, partial and inconclusive at the national level. In order to obtain a certain and updated picture of this feature of geographical reality at the national level, we propose a new 15 level - settlement hierarchy based on population size classes, which is the subject of this study (Table 1).

This classification covers the entire range of settlements in Romania, both rural and urban, and it is based on the natural tendency of settlement population sizing caused by natural and socio-economic factors. Certain value thresholds of population size (10,000 and 40,000 inhabitants) have to be considered since they part of the minimal criteria used in the case of changing the administrative status of a settlement, namely when urban settlements of various establishing new categories (Law 351/2001, with subsequent amendments), whilst others are a logical result of the recorded data (e.g. the case of settlements with o inhabitants that fall into the category of depopulated rural localities). Thus, the proposed hierarchy consists of 15 size classes (7 classes for rural settlements and 8 classes for urban settlements), of unequal sizes, where the lowest threshold is o and the highest is 1,000,000 inhabitants. Along with the quantitative value thresholds, the table also contains the qualitative expression of the population size, which is proposed to be used in territorial analyses, as well as the state of population dynamics within these settlements.

Based on the population size classes presented in Table 1, a comparative analysis of the population size of all settlements in Romania was conducted, using data from the last four censuses (1992, 2002, 2011 and 2021). First, each of the settlements was assigned to a certain size class based on the number of residents recorded at the time of each of the four censuses, and second, the spatial and temporal changes were analysed for the reference period, based on absolute and relative variation between reference years.

3. RESULTS AND DISCUSSION

3.1. Current features of settlements in Romania, by administrative status

In Romania, the process of establishing localities is millennial, archaeological excavations

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revealing evidence of organized habitation as settlements since prehistoric times (6000-3500 BC), the Cucuteni-Tripoli culture being a clear proof of this (Brigand and Weller, 2013). Since then, numerous settlements have appeared and disappeared in the continuous process of habitation and economic exploitation of the territory. Currently (2024), according to the Registry of Territorial - Administrative Units (RO: SIRUTA) there are 13,747 localities recorded in Romania, of which 103 are urban localities ranked as cities, 216 are towns, 937 are localities with urban status (individual localities located within the administrative borders of the city and belonging to the city), 2,859 are rural localities holding administrative functions for the communes, and 9,632 are rural localities contained by the communes. In the last three decades (1992-2021), the administrative structure of settlements in Romania has statistically changed, these changes being observed in the case of all settlement categories and subcategories (cities, towns, localities with urban status, communes and their containing rural localities). There is primarily an overall increase of 15 new settlements, from 13,732 localities in 1992 to 13,747 in 2021. However, changes are observed in the number of settlements of various administrative type, namely cities, towns, localities with urban status and communes, these increases reflecting local actions aimed to adjust and improve the administrative capacity and territorial organization of the national territory. All these changes are minutely recorded in the Law 2/1968 on the administrative-territorial structure at the national level, and synthetically presented in Table 2.

Table 1. Proposed settlement hierarchy in Romania, by population size.

No.	Population size classes	Type of settlement	Type of urban and rural localities	Type of localities by demographic status
1	> 1,000,000	urban	Metropolis*	Urban localities recording extraordinary population growth and metropolisation
2	500,001 - 1,000,000	urban	Very large cities*	Urban localities with high population growth and tendency of metropolisation
3	250,001 - 500,000	urban	Large cities*	Urban localities with optimum population
4	100,001 - 250,000	urban	Upper-middle cities*	Urban localities with increasing population
5	40,001 - 100,000	urban	Middle cities*	Urban localities with vigorous population dynamics
6	20,001 - 40,000	urban	Lower-middle cities (towns)	Urban localities with stable population
7	10,001 - 20,000	urban	Small cities (towns)	Urban localities with stable population
8	< 10,000	urban	Very small cities (towns)	Urban localities affected by population decrease
9	6,001 - 10,000	rural	Very large villages	Rural localities with high population growth
10	3,001 - 6,000	rural	Large villages	Rural localities with vigorous population dynamics
11	1,501 - 3,000	rural	Middle villages	Rural localities with stable population
12	501 - 1,500	rural	Small villages	Rural localities with stable population
13	101 - 500	rural	Very small villages	Rural localities with low population dynamics
14	1 - 100	rural	Hamlet-type villages	Rural localities affected by depopulation
15	0	rural	Depopulated villages	Depopulated rural localities

^{*} are administratively ranked as cities (RO: municipiu), based on several qualitative features.

Table 2. Total number of localities in Romania, categorized by administrative status, and their dynamics in the period 1992-2021.

					Absolute increase						
Type of locality	1992	2002	2011	2021	1992-	2002-	2011-	1992-			
					2002	2011	2021	2021			
Cities	56	97	103	103	+41	+6	0	+47			
Towns	204	168	217	216	-36	+49	-1	+12			
Localities with urban status	684	701	0.40	007	1.07	+221	_	1.050			
(contained by cities)	004	721	942	937	+37	+221	-5	+253			
Rural localities with administrative	2,690	2,694	2,853	2,859	+4	+159	+6	+169			
function for the communes	2,090	2,094	2,055	2,039	'4	1109	10	1109			
Rural localities contained by the	10,098	10,052	9,634	9,632	-46	-418	-2	-466			
communes	10,000	10,00=	9,004	<i>y</i> ,° 3 -	40	710		400			
Total number of localities	13,732	13,732	13,749	13,747	0	+17	-2	+15			

More details are provided in Apendix 1, where changes can be observed at the county level, and particular values are reflecting a greater intensity of population dynamics with effects on the territorial-administrative organisation (e.g. counties of Bihor, Cluj,

Constanța, Suceava etc). The highest number of localities in Romania is recorded in Alba county (716) and the lowest in Ilfov county (104). Suceava county has the highest number of urban settlements (16) whilst in Giurgiu county only three towns are recorded. Similar

situation is recorded in the case of localities with urban status and rural localities, in which case Alba County holds the greatest number, with 88 localities with urban status and 617 rural localities.

3.2. Current features of localities in Romania, by population size

Based on the dynamics in the number of localities recorded between the censuses of 1992, 2002, 2011 and 2021, several important changes can be observed, as follows:

- between the censuses of 2002 and 2011, some 17 new settlements are established in Romania, mainly due to the reorganization (division) of already existing TAUs or the re-establishment of formerly dissoluted settlements, which made their total number increase from 13,732 in 2002 to 13,749 in 2011. Such situations were recorded in the counties of Botoşani (7), Mureş (4), Bacău (1), Bihor (1), Buzău (1), Giurgiu (1) and Maramureş (1), Constanța (1). However, no other changes in the total number of settlements were recorded between the years 1992 and 2002, or between 2011 and 2021;
- the number of cities in Romania almost doubles during the reference period; therefore, from a number of 56 urban settlements ranked as cities in 1992, the value increases up to 97 in 2002 and to 103 in 2011 and 2021. Among the counties with the most intense process of urbanization we mention Alba (1 4 4 4), Suceava (1 5 5 5) or Hunedoara (4 6 7 7);
- the number of towns has been fluctuating, due to the fact that some of them were re-ranked higher in the settlements hierarchy; thus, the number of towns decreases from 204 to 168 in the period 1992-2002, after which it increases again to 217, in the period 2002-2011. This was possible due to the change in the administrative status of several well-developed and well-positioned rural settlements in Romania, being designated as towns; in 2021, only 216 towns are recorded, because of the change in the administrative status of Băneasa (Constanța county) from town to commune;
- in this context, a continuous increase in the number of localities with urban status is also observed, from 684 in 1992 to 721 in 2002, and to 942 in 2011, followed by a slight decrease to 937 in 2021. This sustained growth in the number of localities with urban status is mostly determined by the administrative transformation of communes (containing several villages) to towns; in this process, usually the most representative village holding all administrative functions (formerly called the commune administrative centre) now becomes the new town and the rest of the containing villages of the former rural settlement are becoming localities with urban status. In time, these localities can be assimilated as residential districts of

the urban TAU, or can further evolve as administratively independent rural or urban municipalities. Currently, each urban TAU in Romania has an average of three more localities with urban status, which, most of the time, resemble rural settlements;

- still, the greatest changes can be observed in the number of rural settlements; overall, between 1992-2021, a number of 466 rural localities were transferred to the urban category (cities and localities with urban status), many of these in a somewhat forced manner, usually without meeting all the conditions and criteria required by the law (Law 351 of 2001, with subsequent amendments and updates) but rather because of circumstantial factors the local authorities considered as to take rapid steps towards urbanization and development; if, in the period of 1992-2002, the decrease was of only 46 rural localities, in the period 2002-2011, the decrease intensified (adding other 418), afterwards (2011-2021) the decrease being insignificant, of only 2 rural localities.

Considering the population size of each locality, recorded at the four censuses (1992, 2002, 2011 and 2021) and comparing it with the value thresholds of the proposed classification, without making any difference between urban and rural settlements, the following statistical situation of the general settlement population size in Romania is obtained (see Table 3, Table 4):

- the very small localities (101-500 inhabitants) are dominant, their number fluctuating in the reference period (1992-2021); first, there was a slight decrease in their number from 5,242 (38.12%) to 5,215 (37.93%) in the period 1992-2002, followed by a slight increase from 5,388 (39.19%) in 2011 to 5,461 (39.72%) in 2021. This evolution is explained by the intensification of the depopulation phenomenon in the whole country, caused by migration and demographic ageing, processes that have intensified in the period after the collapse of the totalitarian political regime in Romania in 1989, and by the subsequent geopolitical and socioeconomic changes. Thus, it can be observed that political changes, the prolonged transition from communism to democracy and the integration into the European Union have affected all categories of rural and urban settlements, being most visibly reflected in this category of localities. The increase in the number of localities assigned to this category of population size was most often achieved by the decrease in the population size of the upper class localities (500-1500 inhabitants), which were downranked to this category, and less often by the increase in the population number of the lower class category of localities (1-100 inhabitants); in fact, the number of the smallest population size settlements constantly grew in number and weight;

- attention should be given to the continuous increase in the number of localities that recorded a

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number of population below the threshold of 100 inhabitants. These settlements are in profound demographic disequilibrium and are affected by depopulation, which may eventually result in the complete loss of the population. During the reference interval (1992-2021), at the national level, the number of localities included in this population size-based category increased from 1,318 to 2,031 (by 54.10%);

- attention should be given to the continuous increase in the number of localities that recorded a number of population below the threshold of 100 inhabitants. These settlements are in profound demographic disequilibrium and are affected by depopulation, which may eventually result in the complete loss of the population. During the reference interval (1992-2021), at the national level, the number of localities included in this population size-based category increased from 1,318 to 2,031 (by 54.10%);

- another vulnerable population size-based category is represented by the localities that have definitively lost their population (depopulated) and which are continuously increasing numerically, although the national strategies foresee measures to combat the depopulation process and in many official statistics either national or European this situation is not even visible. This happens especially in the statistics presented at the level of TAUs (communes and cities) at the national level, or LAUs, which is equivalent to the European LAU, a local administrative unit for which data are uniformly recorded for all European Union's member states (EUROSTAT, n.d.), in which case individual situations are assimilated into centralized values or statistical averages and do not appear as existing in reality. Overall, there is a tendency for the growth of depopulated localities at the national level, a slow but certain trend, with definite chances of intensification in the future. The forecasts indicate an increasing trend, since in 1992 there were 115 localities with 0 population, in 2011 they reached the value of 138, and in 2021 their number got up to 157;

- an interesting phenomenon is observed in the case of settlements that fall into the class of 6,000-10,000 inhabitants, whose number had an increasing trend in the analysed period, from 84 to 123, which can create favorable premises for the urbanization process of Romania, if we consider the fact that the first criterion for the establishment of an urban settlement in the Romanian legislation is precisely the number of inhabitants, the threshold being of 10,000 inhabitants (Law 351/2001);

- a general decrease tendency is recorded in the number of settlements included in all of the upper classes of population size (over 10,000 and up to 500,000 inhabitants), which proves that, at these upper size levels, these settlements do no longer have the necessary demographic force to support the urbanization process, as a result of several similar causes (declining birth rate, external migration, population ageing, the economic inability to create well-paid jobs that would sufficiently motivate the population not to migrate, as well as to attract other categories of population);

- in the near future, there are no chances for an urban centre to be included in the population size class of 500,000-1,000,000 inhabitants and therefore bring balance in the national system of settlements in Romania; however, in the medium term (5-10 years) the cities of Iaşi, Constanţa, Timişoara and Cluj-Napoca have the demographic growth potential and could occupy this position;

- the capital city of Bucharest remains the highest ranked in the national settlement hierarchy and will maintain the status of metropolis in the future.

Table 3.	Classification and	quantification of se	ttlements in Romania,	by population s	size (1002-2021).

					Ye	ar			
No.	Population size class	19	92	20	02	20	11	20	21
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	1	0.01	1	0.01	1	0.01	1	0.01
2	500,001 - 1,000,000	0	0.00	О	0.00	О	0.00	0	0.00
3	250,001 - 500,000	8	0.06	7	0.05	6	0.04	4	0.03
4	100,001 - 250,000	16	0.12	14	0.10	13	0.09	13	0.09
5	40,001 - 100,000	31	0.23	30	0.22	26	0.19	29	0.21
6	20,001 - 40,000	49	0.36	43	0.31	45	0.33	38	0.28
7	10,001 - 20,000	75	0.55	70	0.51	67	0.49	75	0.55
8	6,001 - 10,000	84	0.61	94	0.68	103	0.75	123	0.89
9	3,001 - 6,000	487	3.55	495	3.60	460	3.35	436	3.17
10	1,501 - 3,000	1401	10.20	1384	10.08	1260	9.16	1172	8.53
11	501 - 1,500	4905	35.72	4773	34.76	4520	32.88	4207	30.60
12	101 - 500	5242	38.17	5215	37.98	5388	39.19	5461	39.73
13	1 - 100	1318	9.60	1490	10.85	1722	12.52	2031	14.77
14	0	115	0.84	116	0.84	138	1.00	157	1.14
15	Total number of settlements	13,732	100.00	13,732 100.00		13,749 100.00		13,747	100.00

				Abso	olute and r	elative incr	ease		
No.	Population size class	1992-	2002	2002	-2011	2011-	2021	1992-	2021
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
2	500,001 - 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
3	250,001 - 500,000	-1	-12.50	-1	-14.29	-2	-33.33	-4	-50.00
4	100,001 - 250,000	-2	-12.50	-1	-7.14	0	0.00	-3	-18.75
5	40,001 - 100,000	-1	-3.23	-4	-13.33	+3	+11.54	-2	-6.45
6	20,001 - 40,000	-6	-12.24	+2	+4.65	-7	-15.56	-11	-22.45
7	10,001 - 20,000	-5	-6.67	-3	-4.29	+8	+11.94	0	0.00
8	6,001 - 10,000	+10	+11.90	+9	+9.57	+20	+19.42	+39	46.43
9	3,001 - 6,000	+8	+1.64	-35	-7.07	-24	-5.22	-51	-10.47
10	1,501 - 3,000	-17	-1.21	-124	-8.96	-88	-6.98	-229	-16.35
11	501 - 1,500	-132	-2.69	-253	-5.30	-313	-6.92	-698	-14.23
12	101 - 500	-27	-0.52	+173	+3.32	+73	+1.35	+219	+4.18

+232

+22

+17

+15.57

+18.97

+0.12

+309

+19

-2

+13.05

+0.87

0.00

+172

0

Table 4. Absolute and relative increase in the number of settlements in Romania, by population size (1992-2021).

3.3. Features of rural settlements in Romania based on population size

1 - 100

Total number of

settlements

13

14

15

To more accurately capture the characteristics of settlements by population size, settlements were analysed separately based on the two main basic categories, rural and urban. This breakdown is especially necessary to observe the situation in which settlements of different categories fall into the same size class.

For the entire period, a constant decrease in the total number of rural settlements is observed, from 12,788 localities (93.12%) in 1992, to 12,746 (92.82%) in 2002, to 12,487 (90.82%) in 2011, and down to 12,491 (90.85%) in 2021. This decrease is mainly caused by the process of urbanization, in which more and more rural settlements are caught and subject to reclassification into towns, with or without meeting all the legal criteria and without naturally going through all the stages of development. Starting with the period 2011-2021, the decrease in the number of rural settlements stops, even resulting in a slight increase up to 12,491, which represents 90.85% of the total number of localities in Romania. The positive variation in the number of rural settlements is also due, to a small extent, to the process of re-establishment of some rural localities that were abusively dissoluted before 1989, by the communist regime, under the rural systematization program, which aimed to merge settlements and population in order to increase agricultural areas. During that period, a multitude of localities were dissoluted or merged, while the displaced population was forced or determined to migrate. The reestablishment process takes place especially after 2002, when 17 new rural settlements are officially reestablished.

The impressive number of rural settlements in Romania, representing over 90% of the total number of settlements at national level, still indicates a high degree of ruralisation of the country, even if the official statistics reveal a relative balance, based on the fact that more than 50% of population resides in urban settlements or in localities with urban status. The allocation of rural settlements into population size classes in Romania in the analysed period is presented in Table 5 and Table 6.

+17.94

+13.77

0.01

+713

+42

+15

+54.10

+36.52

+0.11

Rural settlements have the following characteristics:

- the very small villages (101-500 inhabitants) are dominant, with the highest shares in the total number of rural settlements (38.99% in 1992, 38.81% in 2002, 40.16% in 2011 and 40.61% in 2021);
- these are followed by the small villages (501-1500 inhabitants) with 36.14% in 1992, 35.23% in 2002, 33.25% in 2011, 30.98% in 2021 of the total number of rural settlements; in this case, there is a gradual decrease in weight, by approx. 6%, due to depopulation and their downranking to the lower class of population size;
- these two categories of villages (very small and small) held together about 75.13% in 1992, 74.04% in 2002, 73.41% in 2011 and 71.59% in 2021, which demonstrates the high degree of habitat fragmentation in Romania; the number of localities included in these two size classes show a tendency of numerical decrease, which is subsequently reflected in the third population size class hamlet-type settlements;
- hamlet-type settlements (1-100 inhabitants) represent the most vulnerable category, because they record the lowest number of inhabitants and the greatest risk of losing population; during the reference period, they recorded growth rates of over 12% (from 1,262 settlements in 1992 to 1,911 settlements in 2021);

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- the last stage of involution of localities in terms of population size is the total loss of the population; when reaching this state, settlements begin their physical destructuring, which in a short time (10-20 years) will turn into the destruction of buildings and infrastructure. In the analysed interval, there was an increase in the number of rural localities with 0 population, from 98 in 1992 to 138 in 2021;

- rural localities included in the mid-size class (1,501-3,000 inhabitants) are also decreasing in number, from 1,334 (10.43%) in 1992 to 1,081 (8.65%) in 2021. This trend demonstrates once again that the small and medium class rural localities have exhausted their internal resources of population growth and are in the process of population loss;

Table 5. Classification and quantification of rural localities in Romania, by population size (1992-2021).

	Table 9. Classification and					ar			
No.	Population size class	19	92	20	02	20	11	20	21
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	0	0.00	0	0.00	0	0,00	0	0,00
2	500,001 - 1,000,000	О	0.00	0	0.00	0	0,00	О	0,00
3	250,001 - 500,000	О	0.00	0	0.00	0	0,00	0	0,00
4	100,001 - 250,000	0	0.00	0	0.00	0	0,00	0	0,00
5	40,001 - 100,000	0	0.00	0	0.00	0	0,00	1	0.01
6	20,001 - 40,000	1	0.01	1	0.01	1	0.01	1	0.01
7	10,001 - 20,000	13	0.10	13	0.10	6	0.05	16	0.13
8	6,001 - 10,000	38	0.30	37	0.29	39	0.31	56	0.45
9	3,001 - 6,000	434	3.39	431	3.38	366	2.93	344	2.75
10	1,501 - 3,000	1334	10.43	1311	10.29	1168	9.35	1081	8.65
11	501 - 1,500	4622	36.14	4491	35.23	4152	33.25	3870	30.98
12	101 - 500	4986	38.99	4947	38.81	5015	40.16	5073	40.61
13	1 - 100	1262	9.87	1413	11.09	1616	12.94	1911	15.30
14	0	98	0.77	102	0.80	124	0.99	138	1.10
15	Total number of settlements	12,788	100.00	12,746	100.00	12,487	100.00	12,491	100.00

Table 6. Absolute and relative increase in the number of rural localities in Romania, by population size (1992-2021).

	Table 6. Absolute and rea					elative incr	•	,,,	
No.	Population size class	1992-	2002	2002	-2011	2011-	2021	1992-	2021
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
2	500,001 - 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
3	250,001 - 500,000	0	0.00	0	0.00	0	0.00	0	0.00
4	100,001 - 250,000	0	0.00	0	0.00	0	0.00	0	0.00
5	40,001 - 100,000	0	0.00	0	0.00	+1	+100,00	+1	+100,00
6	20,001 - 40,000	0	0.00	0	0.00	0	0.00	0	0.00
7	10,001 - 20,000	0	0.00	-7	-53.85	+10	166.67	+3	+23.08
8	6,001 - 10,000	-1	-2.63	+2	+5.41	+17	43.59	+18	+47.37
9	3,001 - 6,000	-3	-0.69	-65	-15.08	-22	-6.01	-90	-20.74
10	1,501 - 3,000	-23	-1.72	-143	-10.91	-87	-7.45	-253	-18.97
11	501 - 1,500	-131	-2.83	-339	-7.55	-282	-6.79	-752	-16.27
12	101 - 500	-39	-0.78	+68	+1.37	+58	1.16	+87	+1.74
13	1 - 100	+151	+11.97	+203	+14.37	+295	18.25	+649	+51.43
14	0	+4	+4.08	+22	+21.57	+14	11.29	+40	+40.82
15	Total number of settlements	-42	-0.33	-259	-2.03	+4	0.03	-297	-2.32

- the large (3,001-6,000 inhabitants) and very large (6,001-10,000 inhabitants) rural localities remained statistically stable in the period 1992-2002, when together they represented more than 3.5% of the total number of rural settlements, subsequently a

completely opposite trend being recorded in the period 2002-2011. Thus, while the number of large localities decreased to 366 (2.93%) in 2011 and 344 (2.75%) in 2021, the number of very large localities increased to 39 (0.31%) in 2011 and to 56 (0.45%) in 2021, benefiting

particularly from location advantages; in the end, the existence of these localities ensures the conditions for the emergence of new urban settlements in Romania:

- there are also a few unusual cases of rural settlements at the national level, whose population size make them fall into the urban category. These 16 rural localities in 2021, recorded a population of over 10,000 inhabitants (one was in the class of 20,000 - 40,000 inhabitants - Dumbrăvița, Timiș county; and one another one was in the class of 40,000 - 100,000 inhabitants - Florești, Cluj county); These rural settlements have developed and attracted a high number of inhabitants in the context of very high real estate prices in the large cities and the real estate development of rural settlements located in the suburban or metropolitan areas. The most well-known example is represented by Florești commune in Cluj county, whose population was of 50,307 inhabitants in 2021;
- if we analyse rural localities holding the administrative function of communes (commune administrative centres) in comparison with other rural localities that are contained by a rural TAU, an interesting situation is also found. The majority of these localities fall into the small-size class (501-1500 inhabitants), and the mid-size class (1501-3000 inhabitants). Nevertheless, there are also localities assigned to the very small size class, fact that expresses their weak administrative and economic reliability to manage a territory. Much more, there are also some cases of rural localities that hold the administrative function although they are included in the hamlet-type category (1-100 inhabitants) and therefore their functionality is becoming questionable (7 in 1992, 9 in 2002, 13 in 2011 and 15 in 2021). More particularly, in 1992 the following seven rural localities with administrative function (commune centres) were part of this category: Ceru-Băcăinți, Râmeți and Vidra from Alba county, Odăile (Buzău county), Brebu Nou (Caraș-Severin county), Bulzeștii de Sus (Hunedoara county) and Bogda (Timiş county). In 2021, their number increased to 15: Avram Iancu, Ceru-Băcăinți, Întregalde, Mogoș Râmeț and Vidra from Alba county, Brazii (Arad county), Răduțești (Arges county), Odăile (Buzău county), Brebu Nou (Caraș-Severin county), Bătrâna, Bulzești de Sus, Bunila and Cerbăl from Hunedoara county and Bogda (Timis county).

3.4. Features of urban settlements in Romania based on population size

Urban settlements (organized in: urban localities - cities or towns - and localities with urban status) which represent the upper level of human habitation, are also controlled and influenced by this parameter (population size). From this perspective, the fundamental difference between these two large

- categories of settlements (urban and rural) is that, in most cases, the urban localities record population increase while the rural ones register a decline. And this condition reveals a series of particular features of urban localities from the perspective of population size (Table 7, Table 8):
- the urbanization process in Romania was rather slow in the period 1992-2002, the number of cities increasing from 260 to 265, after which it accelerated in the period (2002-2011) so that other 55 new cities were established, the total number reaching 320 in 2011. This value maintained until 2021, except for one modification the city of Băneasa (Constanța county), reverted to the status of commune and thus the total number of urban settlements stabilized at 319;
- the share of urban settlements with population under the threshold of 10,000 inhabitants, which is considered the reference criterion in the establishment of a new city, is severely increasing. Thus, if in 1992 there were 97 cities included in this category (37.30%), in 2021 the number increases to 178 which represents over half of the current number of urban settlements (55.79%). This condition brings out significant demographic weakness of this category of urban settlements within the national network of settlements, making them often unable to exercise their urban functions within the network;
- much more, many of the urban settlements are demographically similar to the mid-size rural settlements (1500-3000 inhabitants), their number increasing from 11 in 1992 to 31 in 2021;
- and, against the general background of population decline, starting from 2011, some 5 urban localities for the first time registered a population size specific to small rural settlements (500-1500 inhabitants) whilst, in 2021, they were 6. This dynamic amply demonstrates that more and more cities in Romania are becoming smaller and non-functional, with multiple effects at the territorial level, especially regarding the polarization of the territory with urban functions;
- during the analysed period, a reduction in the number of cities and towns can be seen in all classes of population size, the highest decreases being recorded in the case of cities included in the class of 250,000 -500,000 inhabitants. Out of eight cities included in this class in 1992 (Braşov, Cluj, Constanța, Craiova, Galați, Iași, Ploiești, and Timișoara), there were only 4 cities left in 2021 (Cluj, Constanța, Iași and Timișoara). This once again shows how intense and extensive is population decrease in Romania, affecting, on a large scale, not only the rural settlements, but also the most demographically strong cities in the country, those cities with the potential to become metropolises. On the contrary, these cities are shrinking in terms of population and therefore reduce their prospects of population increase in the coming decades and further

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develop as very large urban centres with a tendency to

become metropolises;

Table 7. Classification and quantification of urban localities in Romania, by population size (1992-2021).

		•			Ye				
No.	Population size class	19	92	20	02	20	11	20	21
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	1	0.38	1	0.38	1	0.31	1	0.31
2	500,001 - 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
3	250,001 - 500,000	8	3.08	7	2.64	6	1.88	4	1.25
4	100,001 - 250,000	16	6.15	14	5.28	13	4.06	13	4.08
5	40,001 - 100,000	31	11.92	30	11.32	26	8.13	28	8.78
6	20,001 - 40,000	47	18.08	41	15.47	44	13.75	37	11.60
7	10,001 - 20,000	60	23.08	55	20.75	60	18.75	58	18.18
8	6,001 - 10,000	46	17.69	55	20.75	62	19.38	66	20.69
9	3,001 - 6,000	40	15.38	48	18.11	72	22.50	75	23.51
10	1,501 - 3,000	11	4.23	14	5.28	31	9.69	31	9.72
11	501 - 1,500	0	0.00	0	0.00	5	1.56	6	1.88
12	101 - 500	0	0.00	0	0.00	0	0.00	0	0.00
13	1 - 100	0	0.00	0	0.00	0	0.00	0	0.00
14	0	0	0.00	0	0.00	0	0.00	0	0.00
15	Total number of settlements	260	100.00	265	100.00	320	100.00	319	100.00

Table 8. Absolute and relative increase in the number of urban localities in Romania, by population size (1992-2021).

				Abs	olute and r	elative incr	ease		
No.	Population size class	1992-	2002	2002	-2011	2011	-2021	1992-	2021
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	0	0.00	O	0.00	О	0.00	0	0.00
2	500,001 - 1,000,000	0	0.00	O	0.00	О	0.00	О	0.00
3	250,001 - 500,000	-1	-12.50	-1	-14.29	-2	-33.33	-4	-50.00
4	100,001 - 250,000	-2	-12.50	-1	-7.14	0	0.00	-3	-18.75
5	40,001 - 100,000	-1	-3.23	-4	-13.33	+2	+7.69	-3	-9.68
6	20,001 - 40,000	-6	-12.77	+3	+7.32	-7	-15.91	-10	-21.28
7	10,001 - 20,000	-5	-8.33	+5	+9.09	-2	-3.33	-2	-3.33
8	6,001 - 10,000	+9	+19.57	+7	+12.73	+4	+6.45	+20	+43.48
9	3,001 - 6,000	+8	+20.00	+24	+50.00	+3	+4.17	+35	+87.50
10	1,501 - 3,000	+3	+27.27	+17	+121.43	0	0.00	+20	+181.82
11	501 - 1,500	0	0.00	+5	+500,00	+1	+20.00	+6	+600,00
12	101 - 500	0	0.00	0	0.00	0	0.00	0	0.00
13	1 - 100	0	0.00	0	0.00	0	0.00	0	0.00
14	0	0	0.00	0	0.00	0	0.00	0	0.00
15	Total number of settlements	+5	+1.92	+55	+20.75	-1	-0.31	+59	+22.69

- presently, as well as in the past, there is no city in Romania that could fit into the population size class of very large cities (500,000 - 1,000,000 inhabitants) fact that is reflected in the functionality of the settlements system and the territorial development efficiency. The existence of several such urban settlements would create a much more stable balance within the system of settlements and would reduce the influence of the capital city in the territory. The possible candidate cities to be included in this category are all in the process of population decline, therefore the prospects for this to happen are postponed for the next decades and generations;

- most of the cities in Romania contain several other localities in their administrative structure. These are usually inherited from their previous administrative status (villages of the former commune) and have not yet been assimilated as residential districts or in any other form through the process of spatial development. Thus, the total number of this type of localities varied from 684 in 1992 to 937 in 2021, with a maximum number of 942 recorded in 2011. The variation in the number of contained localities (titled: *localities with urban status*) is caused by the urbanization process in Romania, which, in the last three decades, consisted in the transformation of communes into cities. Thus, the

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the village holding the administrative function of the commune was established as new city, whilst the the rest of the villages contained by the former commune were added as belonging localities. This fact has led to a great increase in their number in the period 1992-2011 (of over 250). The small decrease recorded the period 2011-2021 is either due to the inclusion of some localities in the category of residential districts (e.g.

Mureșeni becomes a residential district of the city of Târgu Mureș), or to the return to the status of commune (rural TAU) (e.g. the city of Băneasa - declared by Law no. 83 of April 5, 2004, reverts to the commune status by Law no. 37/2019, together with the belonging localities: Făurei, Negureni, Tudor Vladimirescu) (Table 9, Table 10);

Table 9. Classification and quantification of localities with urban status in Romania, by population size (1992-2021).

					Ye	ar			
No.	Population size class	19	92	20	02	20	11	20	21
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
2	500,001 - 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
3	250,001 - 500,000	0	0.00	0	0.00	0	0.00	0	0.00
4	100,001 - 250,000	0	0.00	0	0.00	0	0.00	0	0.00
5	40,001 - 100,000	0	0.00	0	0.00	0	0.00	0	0.00
6	20,001 - 40,000	1	0.15	1	0.14	0	0.00	0	0.00
7	10,001 - 20,000	2	0.29	2	0.28	1	0.11	1	0.11
8	6,001 - 10,000	0	0.00	2	0.28	2	0.21	1	0.11
9	3,001 - 6,000	13	1.90	16	2.22	22	2.34	17	1.81
10	1,501 - 3,000	56	8.19	59	8.18	61	6.48	60	6.40
11	501 - 1,500	283	41.37	282	39.11	363	38.54	331	35.33
12	101 - 500	256	37.43	268	37.17	373	39.60	388	41.41
13	1 - 100	56	8.19	77	10.68	106	11.25	121	12.91
14	0	17	2.49	14	1.94	14	1.49	18	1.92
15	Total number of settlements	684	100.00	721	100.00	942	100.00	937	100.00

Table 10. Absolute and relative increase in the number of localities with urban status in Romania, by population size (1992-2021).

				Abse	olute and r	elative incr	ease		
No.	Population size class	1992-	2002	2002	-2011	2011-	2021	1992-	2021
		no.	(%)	no.	(%)	no.	(%)	no.	(%)
1	> 1,000,000	0	0.00	0	0.00	0	0.00	0	0.00
2	500,001 - 1,000,000	0	0.00	0	0.00	0	0.00	О	0.00
3	250,001 – 500,000	0	0.00	0	0.00	0	0.00	0	0.00
4	100,001 – 250,000	0	0.00	0	0.00	0	0.00	0	0.00
5	40,001 – 100,000	0	0.00	0	0.00	0	0.00	0	0.00
6	20,001 – 40,000	0	0.00	-1	-100.00	0	0.00	-1	-100.00
7	10,001 – 20,000	0	0.00	-1	-50.00	0	0.00	-1	-50.00
8	6,001 – 10,000	+2	+200.00	0	0.00	-1	-50.00	+1	+100.00
9	3,001 – 6,000	+3	+23.08	+6	+37.50	-5	-22.73	+4	+30.77
10	1,501 – 3,000	+3	+5.36	+2	+3.39	-1	-1.64	+4	+7.14
11	501 – 1,500	-1	-0.35	+81	+28.72	-32	-8.82	+48	+16.96
12	101 – 500	+12	+4.69	+105	+39.18	+15	+4.02	+132	+51.56
13	1 – 100	+21	+37.50	+29	+37.66	+15	+14.15	+65	+116.07
14	0	-3	-17.65	0	0.00	+4	+28.57	+1	+5.88
15	Total number of settlements	+37	+5.41	+221	+30.65	-5	-0.53	+253	+36.99

- most of these localities are included in the small and very small size classes, as well as in the category of hamlet-type settlements with less than 100 inhabitants. In this sense, changes are observed in the

dominant number of localities by population size classes, when considering the data recorded at the four reference years. Thus, if in 1992 and 2002, the small and very small localities were dominating in number, in 2011 and 2021 the very small localities dominated, followed by the small ones, this change in hierarchy demonstrating that both the urban and the migrant population have not been interested in setting residence in these localities. Thus, they were affected by population decrease and a change of position in the national hierarchy;

- significant increases are also found in the number of localities with less than 100 inhabitants (hamlet-type). This demonstrates that, while affected by depopulation instead of demographic increase, they will either disappear or be assimilated over time as new districts of large cities that have an intense pace of economic development and spatial expansion;
- the number of localities with urban status, included in the mid-size class, records a slight numerical increase, from 56 localities in 1992 to 60 localities in 2021, which proves that the general trend of population migration is directed towards the urban centre and less towards these localities, where still, in many cases, the living conditions are more specific to the countryside and less to the urban;
- the number of large and very large localities also registers a slight numerical increase, an aspect that facilitates their transformation into residential districts, thus contributing to urban expansion;
- a particular situation is revealed by the depopulated localities with urban status. Their number maintained between 14 and 18 localities, with a tendency to stabilize. This may be the result of the fact that cities still have the economic and demographic strength to keep its containing localities active, if not for current needs, at least for future development needs.

4. CONCLUSIONS

Population size remains one of the key parameters in assessing the viability, functionality, and complexity of both urban and rural settlements. Analysing this parameter is essential in territorial planning and urbanism at local and regional levels, for making strategic decisions regarding investments for development in construction, technical socioeconomic infrastructure. The topic is relevant both for contemporary Romania and for other international societies, where significant demographic changes are continuously occurring due to various political, economic, demographic, and social transformations that implicitly affect the population size of settlements. This study fills the gap in the current literature by investigating 13,750 localities in Romania as urban and rural territorial units based on the number of population as a single dynamic parameter illustrating the vitality and viability of settlements. Other classification criteria, such as administrative area, economic profile, population density or other factors, were not considered. The proposed hierarchical classification divides settlements into 15 value classes

based on population size, also considering thresholds like 10,000 and 40,000 inhabitants that currently mark the distinction between cities and towns. This type of hierarchical classification helped us to illustrate the evolution of Romania's settlements, and identify various trajectories marked mostly by instability. This investigation over a 30-year period allowed us for a better documentation and identification of localities at risk of depopulation or already depopulated, located both in rural and urban areas. Population values recorded at four reference years (national censuses of 1992, 2002, 2011 and 2021) showed variation, also reflecting changes in the spatial distribution (concentration or dissipation) across local territorial units. Population decline triggers the inability of localities to develop and subsequently their incapacity to provide and maintain balance within the settlement network. The constant demographic decline threatens many of the localities. For instance, medium- and largesized localities belonging to the rural category are downranked to the categories of very small settlements or even to the under-100-inhabitant class, thus increasing the number of socioeconomically ineffective territorial units, which heightens challenges related to the maintenance and development of infrastructure, public services, and economic development. The same phenomenon is found in the case of urban areas where urban localities affected by demographic shrinkage cause associated shifts of position in the national hierarchy. The decline in population significantly alters the spatial dynamics of settlements, affecting territorial balance in terms of network stability and cohesion, polarization and influence on the nearby settlements. Shifts in ranking causing increase in the number of localities in the classes positioned at the extreme ends of the hierarchy brings out disparities that will deepen in the following years, which further suggest the need for strategic intervention to address imbalances in the settlement system, particularly regarding the weakening of regional and local centres. In conclusion, the national settlement network has gone through significant demographic shifts due to population decline and related effects, and this calls for customized measures and programmes to alleviate the negative impact at present and ensure future settlement sustainability by rethinking settlement hierarchy with focus on redefining settlements classes, strategic development of urban and rural local centres supported by coherent and updated spatial development policy.

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Appendix 1. Classification and quantification of localities, by administrative status and by county (1992-2021).

No.	County		Cit	ies			Tov	vns		Locali	ities witl	n urban :	status		ıral loca nistrativ the com	e functio			localities the com		ned by
		1992	2002	2011	2021	1992	2002	2011	2021	1992	2002	2011	2021	1992	2002	2011	2021	1992	2002	2011	2021
1	Alba	1	4	4	4	8	7	7	7	79	88	88	88	67	65	67	67	561	552	550	550
2	Arad	1	1	1	1	7	7	9	9	8	8	12	12	67	67	68	68	200	200	193	193
3	Argeș	1	3	3	3	5	3	4	4	16	16	23	23	93	93	95	95	470	470	460	460
4	Bacău	1	3	3	3	7	5	5	5	16	16	16	14	79	79	85	85	406	406	401	401
5	Bihor	1	2	4	4	8	7	6	6	13	13	18	18	86	86	91	91	349	349	339	339
6	Bistrița-Năsăud	1	1	1	1	3	3	3	3	13	13	13	13	53	55	58	58	179	177	174	174
7	Botoșani	1	2	2	2	3	2	5	5	11	11	21	21	68	68	71	71	260	260	251	251
8	Brăila	1	1	1	1	3	3	3	3	9	9	9	9	39	39	40	40	92	92	91	91
9	Brașov	2	4	4	4	7	5	6	6	6	6	6	6	43	45	48	48	107	105	101	101
10	Buzău	1	2	2	2	3	2	3	3	10	10	24	24	80	80	81	81	393	393	378	378
11	Caraș-Severin	1	2	2	2	7	6	6	6	20	20	20	20	69	69	69	69	212	212	212	212
12	Călărași	1	2	2	2	4	3	3	3	8	8	8	8	48	48	50	50	104	104	102	102
13	Cluj	3	5	5	5	3	1	1	1	8	8	8	8	74	75	75	75	346	345	345	345
14	Constanța	1	3	3	3	10	8	9	8	18	18	22	19	54	55	58	59	130	129	122	125
15	Covasna	1	2	2	2	4	3	3	3	12	12	12	12	33	34	40	40	78	77	71	71
16	Dâmboviţa	1	1	2	2	5	5	5	5	14	14	21	21	77	78	82	82	277	276	264	264
17	Dolj	1	3	3	3	4	2	4	4	14	18	19	19	95	94	104	104	276	273	260	260
18	Galați	2	2	2	2	2	2	2	2	2	2	2	2	56	56	61	61	122	122	117	117
19	Giurgiu	1	1	1	1	2	2	2	2	6	6	6	6	46	46	51	51	114	114	110	110
20	Gorj	1	2	2	2	6	5	7	7	35	35	50	50	63	63	61	61	330	330	315	315
21	Harghita	2	2	4	4	7	7	5	5	19	19	20	20	50	52	58	58	186	184	177	177
22	Hunedoara	4	6	7	7	9	8	7	7	48	58	58	58	56	55	55	55	370	360	360	360
23	Ialomiţa	1	3	3	3	3	1	4	4	5	5	9	9	49	49	59	59	81	81	64	64
24	Iași	1	2	2	2	3	2	3	3	6	6	10	10	85	85	93	93	334	334	321	321
25	Ilfov	0	0	0	0	1	2	8	8	1	2	7	7	38	37	32	32	64	63	57	57
26	Maramureș	2	2	2	2	6	6	11	11	28	28	48	48	61	62	63	63	149	148	123	123
27	Mehedinți	1	2	2	2	4	3	3	3	24	24	24	24	59	59	61	61	270	270	268	268
28	Mureș	2	4	4	4	5	3	7	7	31	31	53	53	89	89	90	90	386	386	363	363
29	Neamţ	2	2	2	2	2	2	3	3	12	12	14	14	69	69	77	77	275	275	264	264

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30	Olt	1	2	2	2	6	5	6	6	25	25	29	29	94	94	104	104	263	263	248	248
31	Prahova	1	2	2	2	13	12	12	12	39	39	39	39	86	86	90	90	319	319	315	315
32	Satu Mare	1	2	2	2	3	2	4	4	9	9	17	17	56	56	59	59	165	165	152	152
33	Sălaj	1	1	1	1	3	3	3	3	12	12	12	12	54	55	57	57	219	218	216	216
34	Sibiu	2	2	2	2	7	7	9	9	14	14	25	25	53	53	53	53	112	112	99	99
35	Suceava	1	5	5	5	7	3	11	11	8	8	41	41	90	90	98	98	306	306	257	257
36	Teleorman	2	3	3	3	3	2	2	2	1	1	1	1	83	83	90	92	147	147	140	138
37	Timiş	2	2	2	2	4	5	8	8	5	15	30	30	76	75	88	89	238	228	197	196
38	Tulcea	1	1	1	1	4	4	4	4	3	3	3	3	43	43	46	46	90	90	87	87
39	Vaslui	2	3	3	3	2	1	2	2	11	11	17	17	71	71	79	81	379	379	364	362
40	Vâlcea	1	2	2	2	7	6	9	9	48	51	70	70	79	77	78	78	474	473	450	450
41	Vrancea	1	2	2	2	4	3	3	3	17	17	17	17	59	59	68	68	265	265	256	256
42	București	1	1	1	1	0	0	0	0	0	О	0	0	0	0	0	0	0	0	0	0
43	National level	56	97	103	103	204	168	217	216	684	721	942	937	2690	2694	2853	2859	10098	10052	9634	9632