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ASSESSING THE VIABILITY OF ROMANIA'S NEWLY ESTABLISHED METROPOLITAN AREAS

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Abstract: The legislation of new metropolitan areas in Romania follows the complicated and confusing experience of previous metropolitan areas, instilling a sense of excessive caution among both public authorities and researchers. A review of the literature demonstrates the prevalence of theoretical, methodological, and sectoral approaches when dealing with this functional frame of territorial delineation. Our research proposes an exploratory analysis of the major metropolitan areas developed around county seats, in order to understand the medium and long-term dynamics affecting the development of these territorial structures that are contingent on the local governance. By using a methodology based on the harmonisation of statistical series according to the current administrative structure, as well as on the cartographic analysis of demographic trends between 1992 and 2021, the study demonstrates the uneven development trends of major metropolitan areas, increasing the risk of widening territorial gaps.

Keywords:
metropolitan area;
metropolitan ring;
territorial dynamics;
uneven development;
Romania

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Introduction

Originally rooted in the United States, where it was established as a system of statistical/fiscal units as far back as the 1950s, the metropolitan level has proven its importance in the functioning of the modern world (OECD 2015, da Cruz et al. 2020). Its importance has been formalised through global or macro-regional policy documents, such as those of the United Nations (2017) and the European Union (European Commission 2016), both supported by sophisticated manuals and methodologies (OECD 2012, European Commission et al. 2021). The metropolitan phenomenon, with all its implications, has become an essential dimension of policies promoted by the European Parliament (Margaras 2019), and implemented by the European Commission, instituting research bodies and territorial monitoring mechanisms for cohesion policy, such as ESPON (Simeonova 2019). The EU's cohesion policy described the phenomenon in the early 2000s, first through research projects focused on polycentric development (ESPON 2005), and then through other dedicated projects (ESPON 2018, ESPON 2021). The importance of EU metropolitan areas and regions is also emphasised by the emergence of associative bodies (METREX 2024) and lobbying groups as the European Metropolitan Authorities (LobbyFacts 2024).

In the context of pre-accession and the harmonisation of national legislation with that of the European Union, the first metropolitan areas in Romania were established following Law 351/2001, concerning the national territorial planning (Romanian Parliament 2001). However, progress continued at a slow pace with few tangible results. It was only after the adoption of Law 315/2004 on regional development (Romanian Parliament 2004) that the government issued a regulatory act regarding the designation of national growth poles (Government of Romania 2008), which much rather imposed than supported the establishment of new metropolitan areas. Established under the threat of being unable to access EU funds (the "mandatory" cooperation, which generated resistance from local authorities, Hintea et al. 2018), these metropolitan areas were not significantly linked with the territorial administration and spatial planning of Romania (Hințea and Neamțu 2015).

The failure of the metropolitan system implementation in Romania was extensively analysed in the literature (Danielewicz 2020, Cocheci 2023), followed then by the recent creation of a specific law for metropolitan areas (MAs), namely Law no. 246/2022 (Romanian Parliament 2022). Among the three main possible criteria for delimiting MAs (administrative, functional, or morphological), the law endorsed the administrative one. The disillusionment from the initial metropolitan attempts and the methodological fragility of the new law currently fail to mobilise both researchers and public authorities. Nearly two years after the law came into effect, only 6 out of the 100 new potential metropolitan areas are listed in the national register of metropolitan areas: Bacău, Iași, Sibiu, Târgu Jiu, Târgu Mureș, and Zalău (Ministry of Development, Public Works and Administration 2024).

Despite this somewhat daunting scenario, the success of a few former metropolitan areas (such as Cluj-Napoca, Timișoara, Iași, Oradea) fosters hope for the widespread adoption of best practices and it stimulates reflection on the relationship between central policy guidelines and local executive actions. Our research aims to explore the viability of the new Romanian metropolitan level and to outline a medium to long-term analysis model of this territorial reality, which is compelled to evolve in a field fraught with relationships that combine global, European, and national interests (Lang and Török 2017).

Methodology

Conceptual clarifications

The official administrative system in Romania operates on the basis of 41 counties and it is hierarchically structured: (1) starting from the urban units, namely the capital city (with 6 administrative sectors); followed by the county seat cities with status of municipalities; the other municipalities that are not county seats; and the rest of cities and towns (all of which may have urban and/or rural component settlements); (2) down to the rural units, namely the communes with their incorporated villages. In addition to these constitutional administrative units, the system also encompasses semi-official territorial units, in alignment with the European cohesion policy. The main territorial units involved in the national territorial policies are the development regions, metropolitan areas, intercommunity development associations, and local action groups, all of them working only on an associative basis and without having an administrative status.

Throughout this study, the terms Local Area Unit 1 and 2 (LAU1 and LAU2) are solely used for the sake of convenience and not in accordance with the Eurostat (2024) definition, which, since 2017, maintains only one LAU level. LAU1 refers to the basic and official administrative units (communes, towns/cities, municipalities, and county seat municipalities), while LAU2 contains the elementary settlement units, namely the component localities of towns/cities and municipalities (including the urban centres), and the villages forming the communes. Also, for the sake of convenience, we use the term "major metropolitan areas" (MMAs) for what the Law no. 246/2022 refers to metropolitan areas of county seat municipalities, and the term "other metropolitan areas" for what the same law refers to as metropolitan areas of non-county seat municipalities.

Data and administrative geometry

In Romania, the newly established metropolitan areas, as outlined by the Law no. 246/2022, operate as voluntary-based associative entities with local governance. This framework suggests that their configuration may fluctuate over time and space. Such potential for periodic restructuring presents challenges similar to those induced by the

ongoing redefinitions of metropolitan areas in the USA, and, consequently, tracking trends in territorial evolution becomes increasingly challenging (Clark and Roche 1984, Puderer 2008, Porter and Howell 2009). To tackle this issue, a pragmatic approach involves devising a spatial recomposition system for the statistical data series. Such a system facilitates the examination of medium- and long-term territorial dynamics (Fuguitt et al. 1988) and it can even aid in delineating new metropolitan areas more efficiently (Moreno-Monroy et al. 2021, Salazar et al. 2021).

Based on this, the primary, and intentionally analytical, and methodological dimensions of our research pursue two objectives: (1) detecting the main long-term demographic trends within the major metropolitan areas; and (2) revealing the interest presented by these trends for scientific research and, especially, for calibrating the Romanian public policies on territorial cohesion.

The first objective requires a harmonised database, which is a challenging task due to the active administrative tectonics, particularly pronounced after the fall of the communist regime. This activity has been manifested across various fronts, from the alteration of place names following orthographic reforms and territorial symbolisms, to the rapid proliferation of administrative units. In addition to multiple name changes, a total of 344 LAU1s were affected by direct administrative alterations, such as: division (by establishing new LAU1s); dissolution (by incorporation into another LAU1 – the cases of Cernele to Craiova in Dolj County, and Goranu to Râmnicu Vâlcea in Vâlcea county); promotion or demotion to another administrative category (such as Băneasa in Constanța county, changing its status from commune to town, and then back to commune). The most significant impact on the continuity of statistical data series resulted from the divisions, affecting 462 LAU1s in Romania, encompassing 225 initial units, from which 237 new LAU1s emerged. As a consequence of this process, Romania's administrative system evolved from 2,946 LAU1s in 1996 to 3,181 LAU1s in 2010, a number that fortunately remains consistent to the present day.

Given these circumstances, conducting long and medium-term research on territorial trends becomes nearly impossible. This is because inter-censal statistical information from public databases (such as Tempo of the National Institute of Statistics) is available at the LAU1 level, allowing only a retrograde reconstruction of statistical series (transitioning from the current 3,181 LAU1s to the 2,946 LAU1s of the 1990s), with evident consequences for building an accurate picture of present situations. Regarding metropolitan areas, a total of 182 units (91 old and 91 new LAU1s) are affected by discontinuities in statistical series, meaning that 14.5% of the total of 1,254 metropolitan LAU1s could not be analysed.

The only approach to ensure the reliability of a long and medium-term analysis relies on the statistical data provided by the Population and Housing Censuses (1992, 2002, 2011, and 2021), which provide demographic information at the level of settlement

units (National Institute of Statistics 2024a). But using this information is challenging, primarily due to the fact that the first three censuses did not indicate the official code for the surveyed settlement units; instead, the data were identified by toponyms. The use of toponyms was challenging in the process of harmonising statistical information because of the existence of numerous identical toponyms, and the absence of diacritical marks (such as "ș" and "ț," replaced in tables with "s" and "t"), and especially because of the gradual and unarticulated adoption of new orthographic norms (primarily replacing "î" with "â"). For example, in some censuses, the same LAU2 appears as "Fintinele," while in others as "Fantanele" or even "Fantinele," with the correct spelling being "Fântânele". The creation of comparable statistical series at the four census moments was completed by using the official 13,755 LAU2s structure, according to the SIRUTA coding (National Institute of Statistics 2024b).

After harmonising the data series, the information was aggregated into the current 3,181 LAU1s, considered a stable administrative system for all four census moments. Subsequently, we utilised a particular information coding system (Table 1) to enable the further analysis at various spatial levels (major metropolitan areas; other metropolitan areas; first ring; second ring).

Table 1. Spatial structure of MAs

		LAU2 (no.)	*% of total*	LAU1 (no.)	*% of total*
County seat metropolitan areas	Metropolitan centre	128*	*0.9*	41	*1.3*
	First ring	1376	*10.0*	339	*10.7*
	Second ring	2230	*16.2*	512	*16.1*
	Total	**3734**	***27.2***	**892**	***28.0***
Other metropolitan areas	Metropolitan centre	180	*1.3*	59	*1.9*
	First ring	1156	*8.4*	303	*9.5*
	Total	**1336**	**9.7**	**362**	***11.4***
All metropolitan areas	Metropolitan centre	309	*2.2*	100	*3.1*
	First ring	2532	*18.4*	642	*20.2*
	Second ring	2230	*16.2*	512	*16.1*
	Total	**5070**	***36.9***	**1254**	***39.4***
The rest of Romania		8685	*63.1*	1927	*60.6*
Romania		**13755**	***100.0***	**3181**	***100.0***

**Including the 6 sectors of Bucharest and excluding Bucharest as single LAU2*

In order to generate cartographic representations on a metropolitan scale, a basemap was created (Figure 1), based on the official administrative geometry of Romania (National Agency for Cadastre and Land Registration 2024).

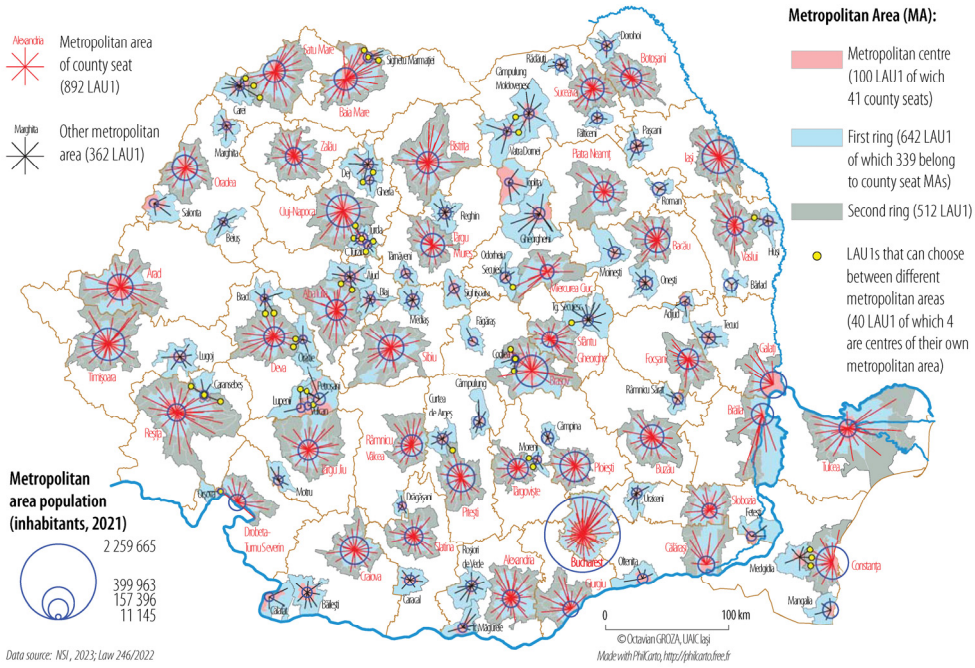

Figure 1. The new metropolitan areas in Romania

To tackle the potential statistical ambiguities brought about by the Law 246/2022, LAU1 areas, which had the choice between a county seat metropolitan area and another metropolitan area, were placed in the former category if they shared a border with it. Meanwhile, the four non-county seat metropolitan centres (Caransebeș, Codlea, Oravița, and Sighetu Marmației), which had the option to be integrated into the upper metropolitan area level, were regarded as standalone metropolitan areas, but without LAU1 areas that could opt and shared a border with the upper metropolitan area.

Testing territorial trends

In order to validate the long-term analysis results, a probabilistic spatial interaction model was employed, namely the Huff (1963) model, integrated within the PhilCarto cartographic software (Waniez 2024). This software was also utilised for creating all cartographic representations for this study.

Given its simplicity and adaptability to multiple spatial and territorial contexts, the Huff (1963) model still remains one of the most powerful tools of analysis and visualisation for urban polarisation. Defined first as a model in business geography (Huff 1963), it quickly gained in utility outside geomarketing, as it began to be applied for the assessment of the cities' areas of spatial attraction. Since the early phases of the model inception in geography, progresses were made in passing from the initial formalisation to more sophisticated forms of parameter integration in the model,

aiming to define the market areas as discrete objects instead of continuous probability surfaces (Huff and Batsell 1977), or to validate the Huff model output using empirical data (Huff and Rust 1984).

In French quantitative geography, during its golden '80s and early '90s, attempts were made to popularise the use of the Huff approach, with mixed results (Cliquet 1990, Waniez 1992). Recently, there is a renewed interest in the use of this model, mainly for the evaluation of public services' areas of attraction, but this trend lacks in providing results at national or regional scales, focusing more on local case studies (Bai et al. 2023, Wang et al. 2024).

In its basic form, the Huff model will provide isolines of equal probability of interaction between the consumers and the services' providers and, when applied to urban systems, it will depict the potential interactions between the rural communities and urban centres, usually within the conceptual frames derived from the central-places theory. The user of this model should be aware that the probability assigned to its results is reliant on the concept of statistical frequency (Equation 1), and not as derived from a distribution. Given Huff's background in economics, the model is an extension of the Cobb-Douglas utility functions in a spatial context, if one considers that the trade-off between accessibility and the services' size is similarly treated (Grigg 1984).

$$P_{ij} = \frac{\frac{A_j^{\alpha}}{D_{ij}^{\beta}}}{\Sigma_{j=1}^{n} \frac{A_j^{\alpha}}{D_{ij}^{\beta}}} \quad (1)$$

In equation 1, *Pij* is the probability that a resident originating from a certain point *i* will interact with a certain metropolitan area *j*, *Aj* is a measure of the attractiveness of the metropolitan area *j*, *Dij* is the distance between an inhabitant *i* and the metropolitan area *j*, α is an attractiveness parameter (in this case the number of inhabitants), β is the distance decay parameter, while *n* is the total number of metropolitan areas, including metropolitan area *j*. The formalisation is sometimes misleading, as the *Pij* in the equation needs mathematical adjustments, usually based on the extraction of the maximum value of the probability obtained for *i*.

In terms of spatial analysis, the way in which one deals with the treatment of distances in the Huff model is the most difficult challenge. A common assumption is that the β distance decay parameter is typically -2, at least in the initial forms of the model and in a conceptual linkage with Reilly's law, creating an inverse distance squared weighting function that received a battery of unavoidable critics. And there is little theoretical and empirical support for this fixed parameter and no relevant progress in exploring other types of distance decay functions, such as the logarithmic, exponential, negative-exponential or quadratic ones.

Results

Long-term evolution of demographic dynamics in MAs

The cartographic analysis of demographic evolution at LAU2 level – settlement population between 1992 and 2021 (Figure 2) – demonstrates a widespread, pronounced, and accelerated decline: over the entire period, Romania has lost 3.3 million people, with an additional unclear number of individuals (between 2 and 5 million) integrated into the circular migratory movement to and from EU states. The demographic reflux affects both urban and rural areas, with the exception of small areas in the northeast and the far west of the country. The map allows for the identification of the first ring of metropolitan areas centred on county seats as, almost without exception, they are the only spaces with positive dynamics, thus justifying the focus of our research on these spatial structures, rightfully deserving the designation of major metropolitan areas.

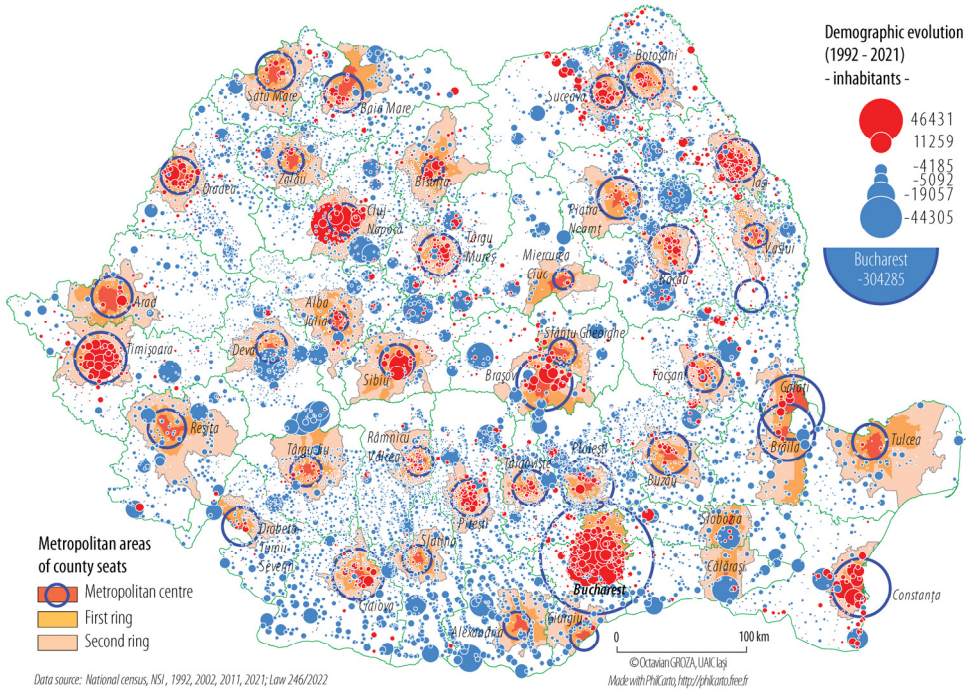

Figure 2. Demographic evolution of Romania (LAU2)

The spatially differentiated intensity of these new population concentrations largely stems from the interplay of two processes, essentially describing the strength of the metropolitan centre. The first one is driven by the attractiveness of the urban centre, characterised by its comparative advantages (socio-economic position in the urban system during the communist period), and especially by its competitive ones, developed (or not) depending on the exploitation of opportunities generated by the

interurban competition in the era of globalisation, and particularly by the European cohesion policy. The above-mentioned comparative advantages have either been the source of what has been termed "good resilience" or of what has been defined as "bad resilience" (Rufat 2012, Bănică and Muntele 2017). They underpinned the population redistribution in the early years after the fall of communism when the former migrants working in the processing or extractive industry areas returned to their usual areas of residence, which may explain the negative dynamics of metropolitan areas (Figure 3), such as Baia Mare, Reșița, Deva, Târgu Jiu, Ploiești, or of major metropolitan centres (Brașov, Galați, Timișoara).

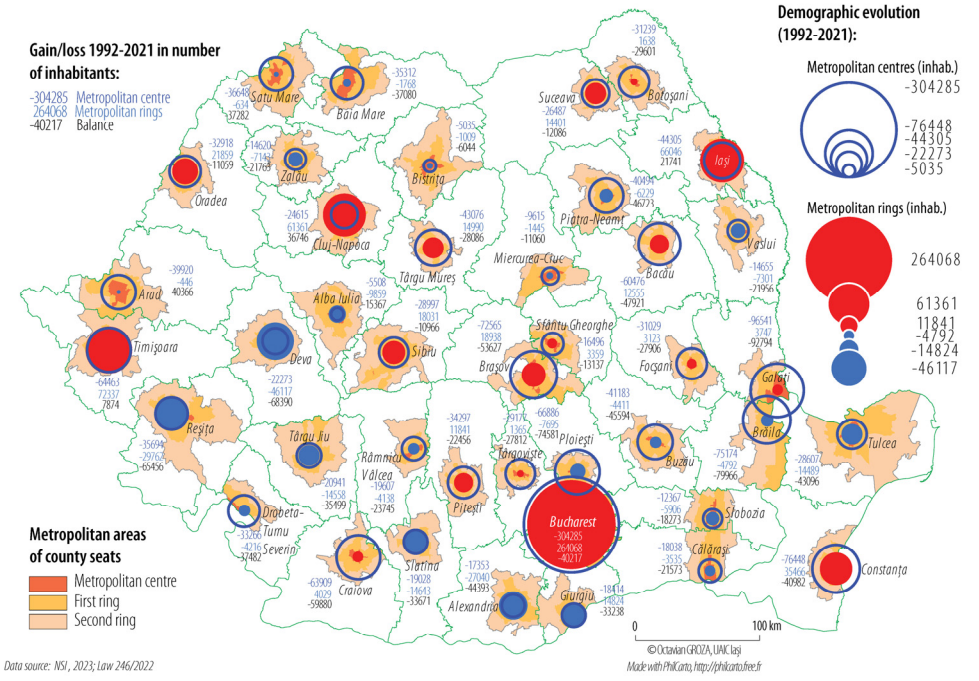

Figure 3. Spatial differences in the relationship between the demographic evolution of metropolitan centres and of metropolitan rings

At county level, the population redistribution has particularly affected the urban centres equipped with low-technology industries during the communist period (Alexandria, Brăila, Călărași, Giurgiu, Piatra Neamț, Slatina, Slobozia, Tulcea, Vaslui, Zalău). Competitive advantages have emerged against the backdrop of comparative advantages that formed the basis of the "good resilience" (higher administrative status, more present tertiary sector, integration into the air transport network, medium-technology industries etc.) and they have only been developed by cities benefiting from innovative and determined public authorities (Cluj-Napoca, Oradea, Sibiu, Timișoara). These advantages underpin the economic momentum that attracts skilled labour, preferring the municipalities in the first metropolitan ring as a place of residence.

The second process delineates the internal economic strength of the metropolitan centre, which explains the false dimension of its own demographic decline. The internal prosperity of the population translates into suburbanisation and peri-urbanisation through urban sprawl, involving the residents from the metropolitan centre who have the necessary economic resources for relocating their residence to the municipalities and communes in the first ring. Thus, the first ring offsets the decline of the centre, adjusting, to a greater (Bucharest, Cluj-Napoca, Constanța, Iași, Oradea, Pitești, Sibiu, Suceava, Timișoara etc.) or lesser extent (Brașov, Târgu Mureș, Bacău etc.), the total metropolitan demographic balance.

According to Eurostat, 60% of the EU population lived in metropolitan areas (Margaras 2019), placing Romania well below this figure (27.9% cumulated by 9 metropolitan areas considered by Eurostat, namely: Brașov, Bucharest, Cluj-Napoca, Constanța, Craiova, Galați, Iași, Ploiești, and Timișoara). But Romania's new metropolitan areas surpass the European level, and they demonstrate structural stability over time, as they encompassed 67.5% of Romania's population in 1992, and 68.4% in 2021.

Table 2 demonstrates that the stability of the proportion is possible partly due to the generalised demographic decline in the country, and partly due to the dynamism of the first ring of major metropolitan areas, which, however, is highly spatially differentiated. The absolute losses of population recorded by many metropolitan areas (Alba Iulia, Alexandria, Deva, Giurgiu, Ploiești, Reșița, Tulcea, Vaslui, Zalău etc.) are scarcely moderated or compensated by a small number of metropolitan areas (Bucharest, Cluj-Napoca, Constanța, Iași, Oradea, Pitești, Sibiu, Suceava etc.). So, the issue of the viability of the new metropolitan areas is raised, given that the metropolitan centres as a whole have growth rates below the national average and even below the averages of non-metropolitan areas, while the second ring of major metropolitan areas and the first ring of other metropolitan areas barely exceed these averages.

The evident need for coherent public policies to balance the current territorial demographic trends arises. In the absence of such policies, the inter-metropolitan competition is likely to exacerbate the disconnection of dynamic areas from the rest of the territorial ensemble, at a speed and intensity that are difficult to control, even in the long term. Furthermore, even metropolitan territorial structures will suffer the consequences of structural demographic changes over medium and long terms. Over the past three decades, major metropolitan centres have lost over 8% of the population aged 0-14, 7.2% of the population aged 15-59, and they have "gained" 15.3% of the population aged over 60 (Table 3). For the centres of other metropolitan areas, the situation is even more concerning (-10.8% for the 0-14 years population, -7.5% for the group aged 15-59, and a gain of +18.3% for the 60+ years category).

Thus, different arising issues are highlighted, such as the difficult access to educational facilities and job opportunities due to the multiplication and elongation of daily routes

Table 2. Demographic evolution of MAs
Source: National Institute of Statistics (2024a)

			1992	**2002**	**2011**	**2021**	***1992***	***2002***	***2011***	***2021***
		Number of LAUs	thousand inhabitants				*1992 = 100%*			
County seat metropolitan areas	Metropolitan centre	41	8099	7720	7111	6387	*100*	*95.3*	*87.8*	*78.9*
	First ring	339	1758	1819	1960	2363	*100*	*103.5*	*111.5*	*134.4*
	Second ring	512	2051	2042	1916	1843	*100*	*99.6*	*93.4*	*89.9*
	Total	**892**	**11908**	**11581**	**10987**	**10593**	***100***	***97.3***	***92.3***	***89.0***
Other metropolitan areas	Metropolitan centre	59	1978	1819	1561	1393	*100*	*91.9*	*78.9*	*70.4*
	First ring	303	1203	1192	1094	1044	*100*	*99.1*	*90.9*	*86.8*
	Total	**362**	**3181**	**3011**	**2655**	**2437**	***100***	***94.6***	***83.5***	***76.6***
All metropolitan areas	Metropolitan centre	100	10077	9539	8672	7780	*100*	*94.7*	*86.1*	*77.2*
	First ring	642	2961	3011	3055	3407	*100*	*101.7*	*103.1*	*115.0*
	Second ring	512	2051	2042	1916	1843	*100*	*99.6*	*93.4*	*89.9*
	Total	**1254**	**15089**	**14592**	**13643**	**13030**	***100***	***96.7***	***90.4***	***86.4***
The rest of Romania		1927	7269	7087	6483	6025	*100*	*97.5*	*89.2*	*82.9*
Romania		**3181**	**22358**	**21679**	**20125**	**19055**	***100***	***97.0***	***90.0***	***85.2***

Table 3. Demographic evolution of MAs, by age categories
Source: National Institute of Statistics (2024a)

		0-14 years (%)			**15-59 years (%)**			**over 60 years (%)**		
		1992	**2002**	**2021**	**1992**	**2002**	**2021**	**1992**	**2002**	**2021**
County seat metropolitan areas	Metropolitan centre	23.5	14.7	15.4	64.8	70.7	57.6	11.7	14.6	27.0
	First ring	22.0	18.9	18.0	60.3	61.3	60.7	17.7	19.8	21.3
	Second ring	21.7	19.4	16.4	57.9	58.0	58.2	20.4	22.6	25.5
Other metropolitan areas	Metropolitan centre	25.9	17.8	15.1	63.3	67.6	55.8	10.8	14.6	29.1
	First ring	21.5	19.7	16.4	58.1	57.5	58.3	20.4	22.8	25.3
The rest of Romania		21.6	19.5	16.3	57.2	56.4	57.5	21.3	24.1	26.2
Romania		**22.7**	**17.6**	**16.1**	**60.9**	**63.0**	**57.9**	**16.4**	**19.3**	**26.0**

to and from the metropolitan peripheries, leading to traffic congestion and pollution; and the reduction of economic means allocated for housing maintenance, resulting in a decline in the quality of the housing stock in the metropolitan centre. It is highly likely that these problems will affect the quality of competitive advantages and they will ultimately lead to agglomeration diseconomies. Many studies, some very recent (Cocheci 2023), clearly indicate that reaching this situation is not far off. Although the

concept of urban sprawl may still be debated in terms of its direction and utility (Franz et al. 2006), it remains an effective descriptor of the complex relationships between the metropolitan centre and its surrounding rings, and especially between metropolitan structures and the rest of the territory (Figure 4).

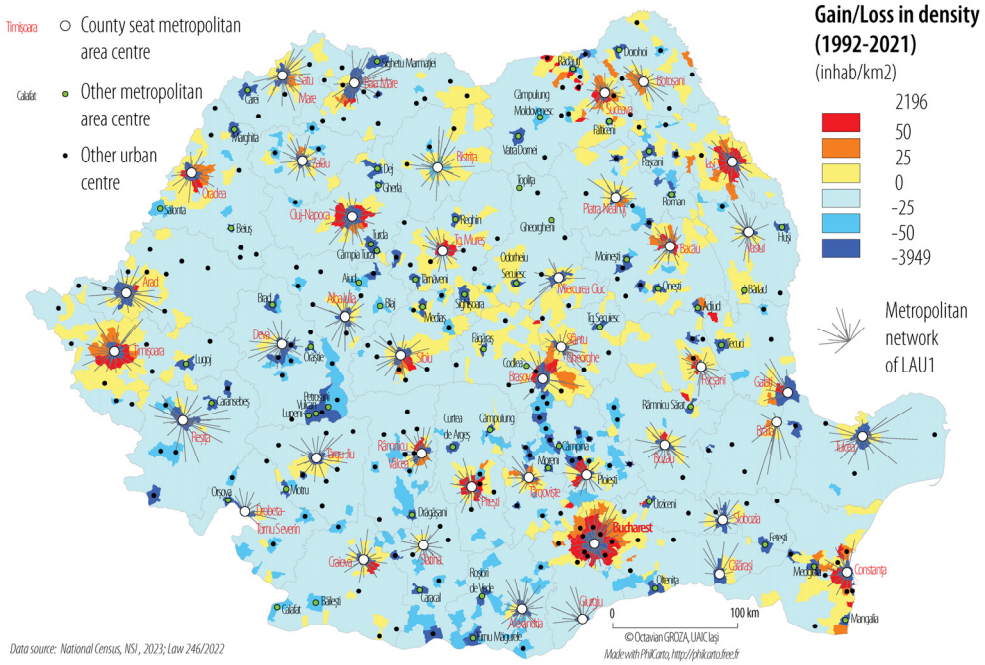

Figure 4. Evolution of population density between 1992 and 2021 (LAU1)

The demographic decline in itself diminishes the socio-economic vitality of various territories, yet the accompanying phenomenon, namely the reduction in population density, directly impacts the spatial interaction system, thereby diluting the very fabric of social relations and undermining the foundations of territorial structures. The reduction of areas of dynamism to just a few metropolitan oases in a demographic desert amplifies the negative dimensions of the aforementioned phenomena. Built around Romania's main territorial engines, namely the municipalities, the ensemble of metropolitan areas encompasses, on the 38.8% of the national territory allocated to them, 78 out of the 216 existing cities, accounting for 36.1% of the total, of which 31.5% are included in the major metropolitan areas themselves. This means that the remaining 61.2% of the territory, where 31.6% of Romania's population resides, is controlled by just 138 small cities, already facing difficulties.

In this context, the "bridges" connecting the major metropolitan areas, which have managed to gain up to 25 inh./sq.km between 1992 and 2021, could have a special significance and they should be further analysed. Arising from the synergy of multiple

processes and situations (high natural growth with local explanations, more complex rural economy, favourable position on transport axes, metropolitan urban sprawl beyond legally delimited rings), they could signify the delineation of genuine major metropolitan areas (Brașov – Sfântu Gheorghe, Constanța – Mangalia – Medgidia, Timișoara – Arad), while potentially softening old urban rivalries (Brăila – Galați or Botoșani – Suceava), and, why not, inviting the possible existence of genuine metropolitan regions, such as in central or northeastern Romania.

The densification of major metropolitan areas (Table 4), as a direct result of urban sprawl, should be considered more frequently as a national issue, not just a local one. With a few exceptions, some of which are notable (Cumpăna – nearby Constanța; Rediu and Miroslava – for Iași; or even Dumbrăvița – for Timișoara, in the initial phase), metropolitan suburbanisation tends to favour the urban extension along major transport axes (motorways, European and national roads, ring roads). Within the metropolitan area, these axes often accommodate additional traffic from the suburbanised LAU1 areas based on other factors (natural framework, land availability, local real estate policies). The resulting traffic congestion thus affects the entire national and European transport system.

Table 4. Evolution of population density in major metropolitan areas
Source: National Institute of Statistics (2024a)

	Population (thousand inhabitants)				**Area (Km²)**	Density (inhabitants/Km²)			
	1992	2002	2011	2021		1992	2002	2011	2021
Metropolitan centre	8098.8	7720.4	7110.8	6386.8	**4485.6**	1805.5	1721.1	1585.3	1423.8
First ring	1758.1	1818.8	1960.3	2362.6	**22553.0**	78.0	80.6	86.9	104.8
Second ring	2050.7	2041.6	1916.2	1843.4	**38488.9**	53.3	53.0	49.8	47.9
Bucharest	2021.2	1926.3	1883.4	1717.0	**240.6**	8401.5	8007.0	7828.6	7136.7
Chiajna	7.6	8.0	14.3	43.6	**16.4**	463.6	488.6	869.9	2659.1
Cluj-Napoca	311.2	318.0	324.6	286.6	**179.2**	1736.7	1774.3	1811.3	1599.4
Florești	6.1	7.5	22.8	52.7	**61.0**	99.9	122.5	374.2	865.0
Iași	316.0	320.9	290.4	271.7	**91.7**	3445.1	3498.4	3166.3	2962.1
V. Lupului	2.1	3.1	5.0	14.5	**10.6**	195.7	289.7	469.3	1366.8
Timișoara	315.3	317.7	319.3	250.8	**130.2**	2422.1	2440.1	2452.6	1926.9
Dumbrăvița	2.4	2.7	7.5	20.0	**18.7**	128.1	143.8	401.5	1068.3

It therefore becomes legitimate to question whether the proliferation of Romanian metropolitan areas is the right spatial planning strategy. With a surface area 2.3 times larger than Romania and a population 3.5 times higher, France has only 22 agglomerations with metropolitan status (Institut National de la Statistique et des Etudes

Economiques 2024), founded on the same principle of intercommunal collaboration. The question becomes all the more relevant considering that, at least from a demographic perspective, most metropolitan areas defined by the Law 246/2022 do not seem to be evolving towards a territorial role worthy of this status. Few of them manage to combine the internal strength of the centre with the overall attraction of the metropolitan structure (Figure 5).

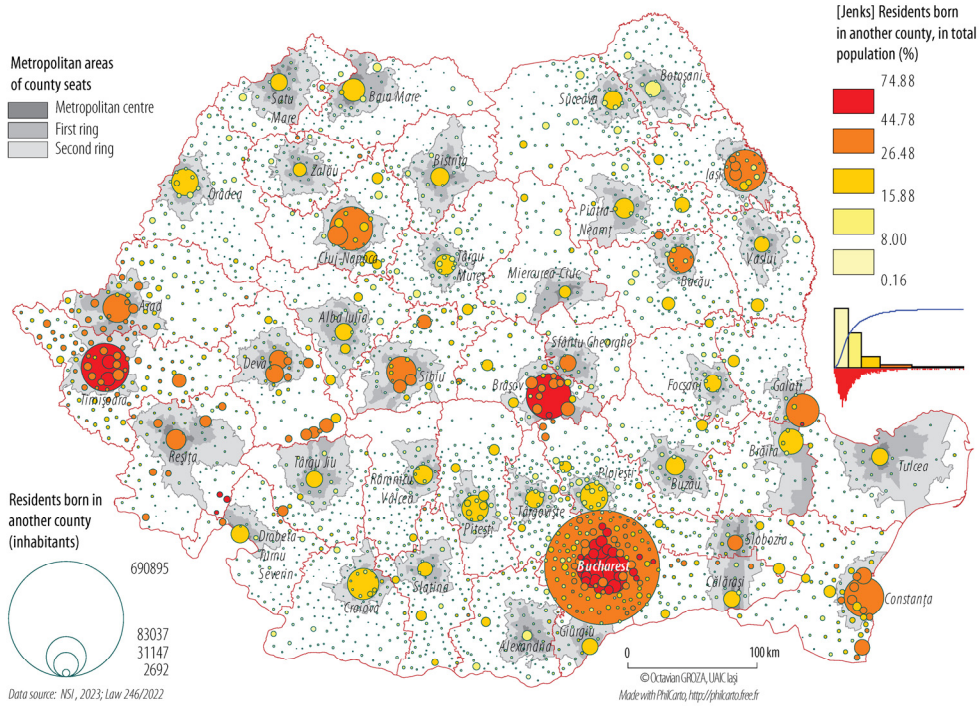

Figure 5. Attractiveness of county seat metropolitan areas – between historical heritage and current dynamics

Traces of the old attractiveness of the urban centres that are currently in a metropolitan area position can still be observed, due to the early phases of industrialisation and communist urbanisation, which favoured the internal migration towards the major industrial centres (Arad, Bucharest, Brașov, Cluj-Napoca, Constanța, Iași, Hunedoara, Reșița, Sibiu, Timișoara, and Bistrița later followed by Bacău, Galați, Mangalia, and Slobozia), and towards the regions of coal, oil, and natural gas extraction industries. The socio-economic system crisis following the collapse of the communist system prompted the redistribution of a large portion of these migrants back to their regions of origin. The phenomenon affected the proportion of those born in another county both in the departure cities (reduction, although sufficient remain to account for the share in MAs, such as Constanța, Deva, Reșița, Timișoara), and in the destination cities (increase, through the registration of the descendants of those who returned).

The newfound attractiveness of the metropolitan area as a whole can be estimated through the proportion of individuals born in another county within the demographic system of the communes in the first ring, which, for major metropolitan areas, presents an almost 1/1 ratio (50.7% versus 49.3%) between the locals and the non-locals (Table 5).

Table 5. Origin of the population in MAs (%, 2021)
Source: National Institute of Statistics (2024a)

		Born Inside LAU1	Born Outside LAU1	Other LAU1 of the county	*of which:*		Other LAU1 of other county	*of which:*	
					urban	*rural*		*urban*	*rural*
County seat metropolitan area	Metropolitan centre	55.3	44.7	11.6	*25.2*	*74.8*	31.0	*67.8*	*32.2*
	First ring	50.7	49.3	20.6	*71.1*	*28.9*	26.8	*74.7*	*25.3*
	Second ring	69.8	30.2	17.8	*61.5*	*38.5*	10.5	*59.3*	*40.7*
Other metropolitan area	Metropolitan centre	59.9	40.1	17.5	*28.1*	*71.9*	20.7	*60.5*	*39.5*
	First ring	72.8	27.2	16.5	*64.0*	*36.0*	8.7	*57.5*	*42.5*
The rest of Romania		73.5	26.5	14.5	*57.0*	*43.0*	9.9	*63.1*	*36.9*
Romania		63.2	36.8	14.9	*49.6*	*50.4*	19.8	*67.0*	*33.0*

But this ratio is deceptive, as the attractiveness of major metropolitan areas varies greatly in terms of spatial distribution. The total number of individuals born in another county residing in the municipalities within the first ring of the 41 major metropolitan areas amounts to 457,858 people. This number exceeds the population of Romania's largest MA (namely Iași), with the exception of the capital city, Bucharest. An analysis of the spatial distribution of this category of residents shows that almost three-quarters (72.4%) belong to the first rings of just six MMAs: Bucharest (301,029 people), Timișoara (40,545 people), Brașov (32,331 people), Cluj-Napoca (30,469 people), Constanța (29,010 people), and Iași (24,474 people). Excluding Bucharest, the first 10 MMAs account for 70.1%.

The new metropolitan area law has come under heavy criticism due to the adoption of administrative delimitation criteria. It is highly likely that the critical attitudes would have been just as virulent if any of the other criteria had been considered. Two comprehensive studies (Dadashpoor and Malekzadeh 2020, Dadashpoor et al. 2023) analyse metropolitan structures and their structuring forces based on the scientific literature covering relatively long periods, namely 1999-2019, and 1980-2019. According to these studies, different forces and contexts lead to four main types of spatial structures: convergent, divergent, homogeneous, and heterogeneous, from which no fewer than 23 secondary types derive. It is evident that such an approach would support

the functional criterion for delimiting metropolitan areas. The problem is that any classification ultimately focuses on each analysed object, and it ignores its relationship with the others. The example of individuals born in another county and located in the first ring of major MAs demonstrates the consequences of this fact and the relativity that it can induce in the functional analyses. Since the majority (74.7%) come from the urban environment of other counties, their polarisation accentuates the convergent nature of the local ring, but it induces a divergent character in the origin rings and centres. Considering other categories of residents and the multiscalarity of involved processes, the local rings emerge as structures resulting from both divergence (from the metropolitan centre to the ring), and convergence (from the exterior to the MA).

Testing the territorial consequences of demographic concentration in MMAs

The vast spatial differences in attractiveness among MMAs, with evident impacts on the territorial (im)balances at the local, regional, or national level, are challenging to capture through analytical methods. Therefore, the use of spatial models, such as the Huff model, becomes a necessary method for exploring the new territorial realities. Despite the methodological problems underlying the Huff formalisation, it still retains an interesting potential as a tool of investigation of the viability of new metropolitan areas in Romania. When applied at national scale, using a canonical -2 β distance decay parameter, for 41 metropolitan administrative centres and their metropolitan rings, the cartographic output of the model shows that the high levels of theoretical polarisation follow an extremely concentrated pattern (Figure 6a).

The areas depicted by *Pij* values larger than 0.5 occupy a considerable portion of surfaces across multiple counties, with variations induced by the demographic masses of metropolitan areas in 2021. By its size, only Bucharest is able to develop an area of intense polarisation, overlapping multiple counties. The distribution of *Pij* values smaller than 0.5, mainly the lowest ones, creates areas of regional spatial discontinuities, separating some potential sub-national urban systems – the North-East Region of Romania or the multi-county system of Brasov, Covasna and Harghita. Less visible on the map, as the intensity of the discontinuity is more reduced, a potential sub-national urban system might also be identified on the Western border (Bihor, Arad, Timiș and Caraș-Severin).

This tension between the concentration of high-level polarisation and the shape of spatial discontinuities presents a double interest, both scientifically and for the policy design. It emphasises that the emergence of metropolitan areas in Romania is a clear indication that the intermediate regional scale of decision taking (NUTS2) is not overlapping the shape of the sub-national urban systems. For example, the area of interactions of indifference (*Pij*< 0.2) that intersects the counties of Mureș, Harghita and Brașov suggests that the metropolitan areas acting in the central NUTS2 region are eventually disconnected.

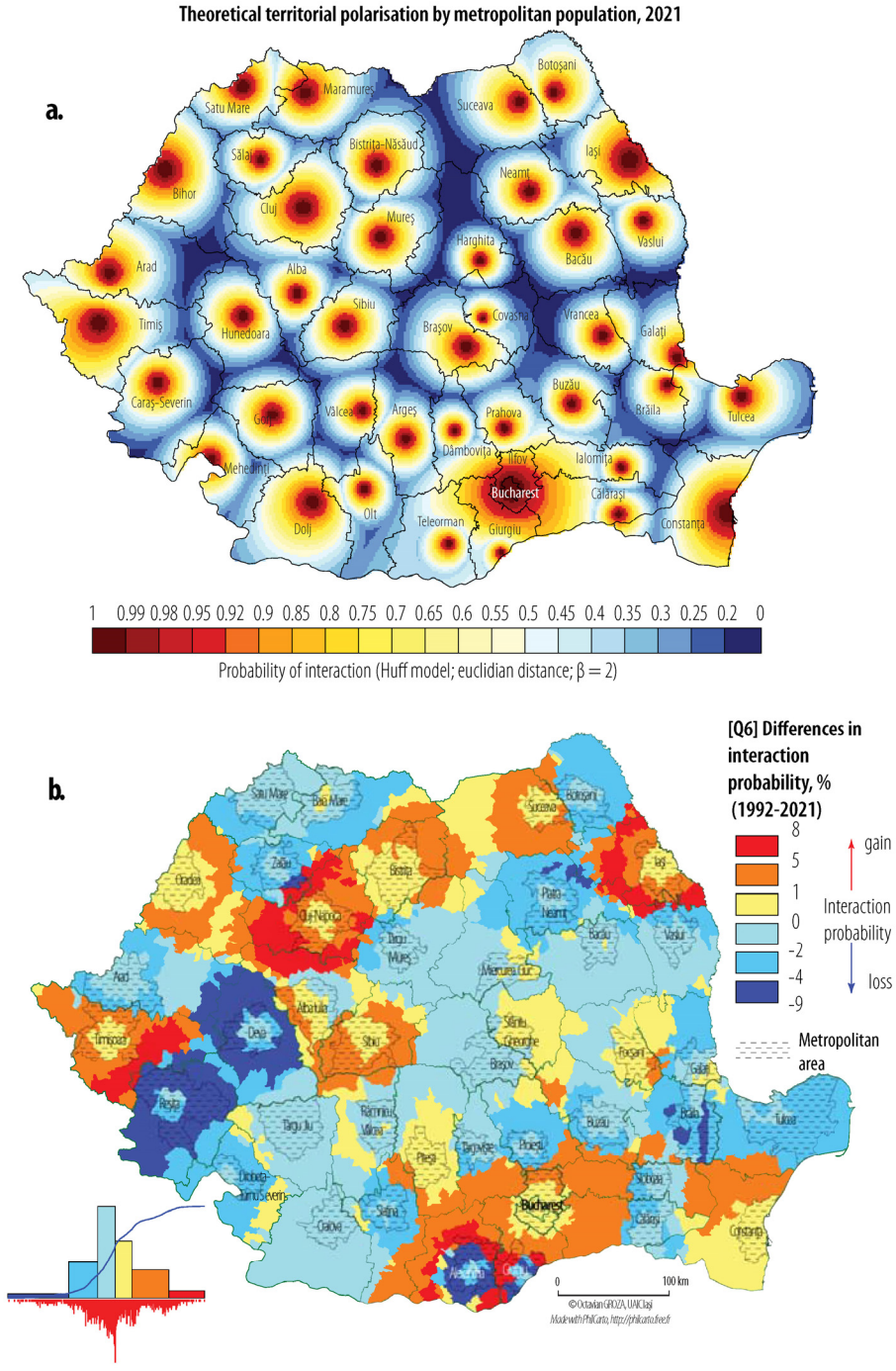

Figure 6. The emergence of new territorial imbalances as a result of differentiated demographic trends

The dynamics in time of the potential of interaction (Figure 6b), calculated for long periods (1992-2021), are associated with the demographic trends of the metropolitan areas. The spatial distribution of this indicator reveals territorial imbalances that need to be framed by a set of sectoral policies aimed to better develop the territorial connectivity and to better drive the demographic, services, and economic concentration in the metropolitan areas, together with their contiguous ring. The target should be the counties endowed with medium sized administrative centres or with a declined industrial specialisation.

Table 6. The economic activity of major companies (2021)
Source: Ministry of Public Finance (2023)

	Turnover (million euros)	Profit (million euros)	Number of employees	Number of companies
County seat metropolitan areas	300190.4	20582.1291	2637345	69488
% of total	*87.7*	*83.6*	*83.1*	*75.0*
of which Bucharest	151758.1	10428.1	1019802	18581
%	*50.6*	*50.7*	*38.7*	*26.7*
Other metropolitan areas	19785.2	2017.5	262062	9841
% of total	*5.8*	*8.2*	*8.3*	*10.6*
The rest of Romania	22275.3	2011.4	273450	13368
% of total	*6.5*	*8.2*	*8.6*	*14.4*
Romania	342250.9	24611.0	3172857	92697

The absence of these policies will deepen the territorial imbalances, as economic concentration will enhance demographic concentration, and vice versa, in a spiral that is far from virtuous for the overall territory. The detailed analysis in Table 6, excluding Bucharest, demonstrates that the top 20 out of the remaining 40 MMAs cumulate 83.3% of turnover, 81.4% of profit, 78.5% of employees, and 74.6% of the number of companies. Furthermore, their geographic distribution is extremely imbalanced: 11 are in central and western Romania (Cluj-Napoca, Brașov, Oradea, Târgu Mureș, Arad, Alba Iulia, Sibiu, Timișoara, Baia Mare, Satu Mare), 6 in the south (Constanța, Craiova, Ploiești, Pitești, Buzău, Slatina), and 3 in the east of the country (Galați, Bacău, Iași).

Discussion

In summary, the analysis revealed the diverse local situations within major metropolitan areas in Romania, as a simultaneous result of territorial legacies and the unequal exploitation of opportunities arising after the fall of the communist regime.

Against the backdrop of the administrative criterion favoured by all relevant legislation (2001-2022), which led to the establishment of metropolitan areas as structures devoid of any content, this diversity has manifested inertially, and somewhat chaotically, leading to the exacerbation of territorial imbalances. Most national research focused on the metropolitan phenomenon highlighted its negative dimensions and it sought administrative "culprits" that are hard to demonstrate or, rather, difficult to support with irrefutable arguments.

But it is now the time to explore the positive dimensions of the evolution of metropolitan concepts and realities over the past three decades. The Spatial Planning Law of 2001 was not a spontaneous occurrence. Romania began modernising its relevant legislation even before 1995, when the negotiations for accession to the European Union began. Harmonising the national legislation with that of the EU, itself in continuous evolution, faced a major challenge from the outset – the gap between the form and the spirit of normative acts and the targeted territorial reality, marked by the massive inertia of structures established during the communist era. European reservations about the integration of Romania and Bulgaria, manifested in the failure of the first wave of accession in 2004, further delayed the reduction of this handicap, while increasing the pressure to adopt the EU acquis.

In this context, choosing the administrative criterion in delineating new forms of governance (development regions, functional urban areas, inter-municipal development associations, metropolitan areas, etc.) seems more than natural, being readily accessible and easy to implement. The short intervals allocated both for the elaboration and for the public debate of the legislative proposals did not allow the consideration of other criteria, while the process was burdened by various contexts that are difficult to frame in the short term (explosive urban sprawl, lack of coherent and easily usable statistical and spatial information, cadastral deficiencies etc.). This was also the case with the new law regarding metropolitan areas. Proposed for public debate in the second half of March 2022 (Ministry of Development, Public Works and Administration 2022), the draft was adopted and promulgated in June, with effect from July, so various proposals for amendment (Romanian Professional Association of Urban Planners 2022) had little chance of being considered.

The fact that the new law has overcome several obvious shortcomings in the previous legislation (e.g. fiscal measures proposing additional incentives to metropolitan areas, Cocheci 2023) is a direct result of the partial integration of ideas from studies supported by the World Bank, the European Commission, and the Government of Romania, whether related to the delimitation and functionality of metropolitan areas (Cristea et al. 2017, Ionescu-Heroiu et al. 2019), or their governance (European Commission et al. 2019). This demonstrates the openness and, why not, the competence of the involved ministries (especially the Ministry of Development, Public Works and Administration),

dimensions that can be supported along with their position regarding the promotion of other decentralised forms of governance, such as functional rural areas or administrative consortia – to mention just the most recent ones.

The role of local authorities has been often viewed through a negative lens, associated with issues like corruption, incompetence, indifference to public interests and partisan favouritism. While acknowledging these perspectives, both widely known public successes and those highlighted by our research, demonstrating positive dynamics at the local or regional level, serve as examples supporting the hypothesis that the entire context of the past three decades represents a learning ground for the local administrations. The unusually rapid pace at which the new legislation had to be implemented, coupled with the urgency to capitalise on the economic opportunities, favoured the most prepared and determined entities (such as Bucharest, Cluj-Napoca, Timișoara, Oradea, and Iași). However, it also compelled progress from others, who now have access to concrete examples of best practices.

Establishing metropolitan governance, seen as a crucial dimension of metropolitan territorial structures, is not an easy task, not only within the European Union (Ayuso and Coll 2016) but also in the most advanced democracies of Europe (Vinci 2019, Demazière 2021). No single policy can effectively encompass all stakeholders, especially when diversity reigns as the norm in urban systems in Romania and across Eastern Europe (Bănică and Muntele 2017, Cocheci and Petrișor 2023, Sandu 2024).

This study has highlighted the inequalities caused over the medium and long term by the divergent demographic evolution of major metropolitan areas. While perhaps a mundane outcome, it serves as a robust foundation for a deeper reflection on the relationship between local government structures (which naturally seek to maximise their competitive advantages, inadvertently widening the territorial disparities) and regional and central governance structures, tasked with envisioning and implementing new policies to mitigate these disparities. In other words, it fuels the discussion on achieving a balanced alignment of the national, European, and neoliberal agendas mentioned by Lang and Török (2017) and, consequently, on the efficient territorial differentiation of general policies (Zhukovsky 2020).

In terms of validity and reliability, it is fundamental to address any limitations pertaining to our work from a methodological standpoint. The utilisation of secondary data sources, which might incorporate biases, or even mistakes, into our study, is one such constraint. Subsequent studies may include primary data gathering techniques, including surveys or interviews with relevant stakeholders, to offer a more thorough comprehension of metropolitan dynamics.

Despite the fact that our study dives into the challenges of metropolitan governance in Romania and it provides insights that could prove valuable in the very near future,

there is still potential for improvement and further investigation. An interesting prospect for future research is to extend the comparison of metropolitan governance models among European countries, looking at how well different strategies work to alleviate the territorial imbalances and to advance sustainable development. While our study already offers peripheral insights on the matter, more targeted research is required. Policymakers looking to improve urban governance frameworks should benefit from such insightful analysis of best practices.

Conclusions

Our research doesn't seek to criticise the territorial design of the new metropolitan areas, nor does it advocate for the pursuit of a superior alternative, as such efforts would likely prove equally futile. But the methodology developed in this study could prove valuable in the very near future, particularly as the long-overdue administrative reform, postponed for decades, is now deemed critically necessary.

Our findings serve as a compelling argument for the establishment of a geolocated statistical information system, meticulously gathered at finely detailed spatial scales. Such a system should be readily accessible and seamlessly mobilised to support the crafting and the ongoing monitoring of strategic policies at various local geographic tiers. By doing so, it would transcend the constraints of administrative boundaries, rendering obsolete the sole or combined utilisation of the three primary criteria for demarcating metropolitan areas. This approach fulfils also the aspiration of governance proponents — an aspiration centred on effective governance, untethered from the confines of a hierarchical system of administrative delineations.

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