

URBAN SPRAWL IN ROMANIA: THE CASE OF BUCHAREST

Georgios KAPRARAS

PhD Candidate, Ion Mincu University of Architecture and Urban Planning,
Doctoral School of Urban Planning, Bucharest, Romania, e-mail:
gkapraras@gmail.com

Abstract. In this paper, the notions of urban sprawl and suburbanisation are introduced and discussed in the context of American and European cases. The drivers of urban sprawl are discussed along with the main typologies analysed in the literature about the issue. The debate regarding urban sprawl is discussed in the particular context of Eastern Europe, and a timeline of suburbanisation is presented from the socialist years until today. Then, the specific case of Bucharest is examined through the case of Popesti Leordeni, where the particularities of the city development and the stages of urban sprawl are compared with the typologies observed in the Romanian context. The paper concludes with the need for further research to identify different or diverging planning practices within the metropolitan area.

Key words: suburbanization, built environment, development patterns

1. Defining Urban Sprawl

Urban Sprawl was first used as a term with its current usage, meaning uncontrolled suburbanisation and rapid geographic expansion of cities, by Earle Draper in 1937 (Black 1996 cited by Nechyba and Walsh, 2004). Since then, it has become a standard term and a phenomenon studied in the fields of Geography and Urban Planning, expanding to Sociology, Anthropology and Environmental Studies. However, as a scientific term, it does not have a particularly widely accepted standard definition since it has many forms and patterns. As Ewing (2008) mentions, urban sprawl “leaves us short of a working definition. Like obscenity, the experts may know sprawl when they see it [...]”.

The definition of urban sprawl remains elusive since as a term has been “*attached to patterns of residential and nonresidential land use, to the process of extending the reach of urbanised areas (UAs), to the causes of particular practices of land use, and to the consequences of those practices*” (Galster *et al.*, 2001). Galster *et al.* (2001) go further on categorising the definitions of urban sprawl in the wider planning literature as being defined, by an example (such as Los Angeles), as an aesthetic judgement of a development pattern, by the externality that causes it such as car-dependence, or segregation, as the consequence of an independent variable like fragmented local government or poor planning or zoning, as existing patterns of development (that are discussed below) or finally simply the process of

development that occurs in a certain period of time. All these categorisations of urban sprawl that the authors provided seem to cover a wide range of urban development drivers to planning definitions, but the concept seems to persist in the current academic literature, which can be explained by the globalisation of the phenomenon. While the term urban sprawl has been extensively used to describe the phenomenon of urban expansion in the North American context in the European literature, the phenomenon is described by the term of suburbanisation (Cocheci and Petrisor, 2023; Grigorescu *et al.*, 2021). Suburbanisation is the process of the population moving to the suburbs of an urban area, resulting to the formation urban sprawl.

The reasons contributing to the urban sprawl can be very different, depending on each city's geographical, societal, and development context. While North American cities witnessed an extended urban sprawl beginning in the middle of the previous century, cities in Europe followed the trend in the second half of the same century, and Mediterranean cities experienced an aggressive sprawl at the end of the turn of the century. However, urban sprawl is not observed only in the Western World; it is affecting the cities in the Majority World, from Africa to Asia and Latin America, and is a global phenomenon with extensive impact on environmental, economic, and social aspects.

The impact of urban sprawl is cumulative as the process is gradual and the effects are not grasped by the general public (EEA and EFON, 2016). While there is some literature that argues in favour of urban sprawl as a natural process, the majority of the academic literature is

focusing on the negative impact of urban sprawl as EEA and EFON (2016) argue in their report. Those who argue in favour tend to base their arguments on the fact that urban sprawl is a natural process that results from a city's growing population, and any state interventions can harm the economic growth (Richardson and Gordon, 2000). However, the majority of researchers argue on the negative environmental, economic, and social impact of urban sprawl. The environmental impacts are mainly based on the processes of land transformation, degradation and fragmentation which affects the ecosystems, raises the energy consumption on the low-density areas, and increases the risks of natural hazards (EEA and EFON, 2016). Economically Urban Sprawl is viewed as being beneficial, though the economic costs of new infrastructure and maintenance are omitted (EEA and EFON, 2016). Additionally, it raises the car-dependency especially in cases where the public transportation is weak, affecting the economy through lost time commuting in traffic jams but also by raising the health risks from car emissions (EEA and EFON, 2016). Furthermore, they antagonise economically the city centres since people prefer peripheral shopping malls, and when they commute, they are users of the city centres but not residents, and they "do not pay for the services they use" (EEA and EFON, 2016). The social impact is mainly summarised on the fact that it leads to segregation in cities especially by the "gated communities" (EEA and EFON, 2016).

While the particularities of each location contribute differently to the phenomenon, diverse case studies show a pattern of similar characteristics that are considered driving forces of urban

sprawl. The main factors, as Pagliarin (2018) mentions, are demographic growth, increasing car usage, and rising house incomes that can be explained through the renting model of the monocentric city model (Antrop, 2004; Brueckner, 2000; Brueckner and Fansler, 1983; Oueslati *et al.*, 2015). In addition, aspects like accessibility to the urban centre (Ewing, 1997; Weilenmann *et al.*, 2017) and the preference for bigger spaces and gardens over the lack of space in living conditions offered by the expensive city centres.

Pagliarin (2018) mentions that both critics and supporters of urban sprawl have accepted the need for public intervention to control urban sprawl, to "*correct market failures*" (Brueckner, 2000 cited by Pagliarin, 2018) either to prevent it through active spatial policies. Proposed and implemented policies that aim to control urban sprawl are the taxation of private transport and multifunctional land use (Dieleman and Wegener, 2004). Other measures like Green Belts have been proven partially inefficient in their context, and options to replace them or adapt them have been proposed (Mace *et al.*, 2016). Suburbanisation can take several forms: either pure residential sprawl with low-density residential developments, "*edge cities*" that are "*clusters of population and economic activity at the urban fringe*" (Nechyba and Walsh, 2004), or it can be "*a planned community that has a downtown or are aligned to a lake or park*" (Ibid.) or even "*individual houses that pop up across formerly rural landscapes*" (Ibid.). Ewing (1997) has classified the different typologies of Urban Sprawl as (1) Low-Density Development, (2) Strip Development, (3) Scattered Development, and (4) Leapfrog Development, calling them urban sprawl archetypes by reviewing urban sprawl academic

literature and the morphology it examines.

While these are the main groupings of Urban Sprawl, according to Ewing, it is still challenging to draw a line in urban development and classify it as sprawl or not (Ewing, 2008). For example, Ewing (2008), citing Gordon and Wong (1985) mentions that it is hard to differentiate scattered development and polycentric development. Similarly, Ewing says that the distinction between "*leapfrog development*" and "*discontinuous development*" is not very clear since it might be owed to "*variation in terrain*" (Harvey and Clark, 1965) or because of higher density or commercial uses that become needed in a more mature development (Ohls and Pines, 1975). Furthermore, Strip Development and other linear development patterns like Mainstreet or transit corridors depend more on a sense of scale than just a typology, same with the low-density development that might be or not efficient based on its scale (Ewing, 2008). Despite the typology, morphology, or scale of urban sprawl, it is evident that both the definition of what constitutes Urban Sprawl and what can be described as such is unclear. In addition, the typologies observed by Ewing (2008) were found during the research that aimed to regulate urban sprawl in the different states of the United States. Mainly, this kind of urban sprawl and its causes and particularities are specific to the context in the United States and can differ substantially from the European case. A more detailed analysis of urban sprawl that would be useful in the context of this research is the case of its appearance in Eastern Europe. In order to draw conclusions about its origins, characteristics, and morphology in Romania and specifically Bucharest, the

study of urban sprawl in the immediate geographical and socio-political context is imperative.

This paper aims to study the morphological patterns of urban sprawl witnessed in the area of Popești Leordeni in the outskirts of Bucharest. Having already analysed the definition impact and drivers of urban sprawl, the context of suburbanisation and urban sprawl in Eastern Europe and Romania will be discussed in the next chapters through literature review. Finally, the morphological patterns of sprawl in Bucharest will be studied through documentary analysis (satellite imagery) of Popești Leordeni proposing an analysis through diagrams. With these diagrams we draw some conclusions regarding the case study and its connection with the relevant literature raising some questions for further research.

2. Suburbanisation in Eastern Europe

Eastern Europe has similarly witnessed the phenomenon of suburbanisation. While some suburbanisation patterns can be observed before the transition to democracy, the urban sprawl gained traction in the last years of the 90s decade, and it can still be observed in cities that are receiving market and demographic pressures. This subchapter will discuss the history of urban sprawl in Eastern Europe, uncover its causes, and observe similar patterns between the different states of Europe that were not qualified as Western states or were under Western influence. These post-socialist countries share similar characteristics that are mainly based on the common socialist past, while they might have completely different cultural backgrounds. However, this common socio-political period that ranges from the 2nd World War until the

fall of the Iron Curtain has produced several common patterns that can be observed in their planning policy and urbanism.

Suburbanisation in the post-socialist countries started well before the transition to a market-based society. Some early forms of suburbanisation took place before the 2nd world war. This suburbanisation could be noted, according to Sykora and Stanilov (2014a), as the expansion of towns and villages around them mainly because of the population searching for work moving to the urban centres. Additionally, according to the same authors, two more types of suburban development existed at the time: a small number of suburbs of upper-middle classes and, particularly in Eastern Europe, "*clusters of garden plots with modest cottages (also known as dachas)*" (Stanilov and Sýkora, 2014a). In the pre-war era, suburbanisation in Central Eastern Europe was less intensive compared to the Western industrialised countries. It cannot be compared directly since the degree of industrialisation and urbanisation was significantly lower. However, even the degree of urban growth of cities in CEE had substantial differences between them.

With the end of World War II, the states under the Soviet Sphere of influence were imposed a communist rule; suburbanisation continued through the construction of massive socialist housing estates and industrial zones (Gentile and Sjöberg, 2006; Stanilov and Sýkora, 2014a). The socialist governments accentuated the industrialisation of Central and Eastern Europe, especially around big cities, raising the labour demand and attracting the population from the rural areas. This was also accentuated by the fact that the

agricultural production was collectivised, and agricultural machinery was introduced, pushing the rural residents towards the cities (Stanilov and Sýkora, 2014a). These new urban housing estates that hosted workers for the industries of the cities were usually collective housing buildings in newly built "*dormitory neighbourhoods*" at the edge of the cities, contrasting the rural landscape (Stanilov and Sýkora, 2014a).

In the later years of suburbanisation in socialist countries, there were several variations in the way the state-controlled or encouraged urban growth. The socialist regime was not identical in all Central and Eastern European countries, influencing how the urban tissue extended and housing stock grew. First of all, the property regime differed in the various countries (Stanilov and Sýkora, 2014a). While in the Soviet Union, private property was abolished by the Bolshevik government of 1917, other countries maintained a more flexible land ownership regime. In Bulgaria, residential property owners kept their titles, while in Yugoslavia, the state control was even less strict and small private enterprises survived (Stanilov and Sýkora, 2014a). As Stanilov and Sýkora (2014a) mention, the Central European Countries had some strategies of "*urban decentralisation*" either through Satellite Towns in the Soviet Union in the periphery of Moscow or through subsidies for single-family dwellings in the suburban periphery of Ljubljana or the dispersal of jobs offered from Warsaw to the rest of the regions. Furthermore, they argue that this decentralisation was not uniform and present in all countries of the Iron Curtain, but they showed a slight trend that followed the international patterns of suburbanisation.

With the transition to democracy, the socialist countries of Eastern Europe went through a period where the state started to collapse gradually at a slow or quicker pace. The state's capacity to provide housing was no longer an option in the free-market economics that was supported after the 1990s. In this context, urban development and suburbanisation had the following three trends according to Stanilov and Sýkora (2014): (1) Most of the Eastern European Cities experienced a strong and rapid growth of the Suburbs than their urban cores, shifting the attention and growth size in the fringes of the city. As stated by the authors, the main reason for this was the weakening or even elimination of the factors that discouraged suburbanisation during the socialist era, aligning the urban growth trend of the post-socialist city with the rest of the world. (2) Secondly, the forces that shaped suburbanisation and urban growth changed completely and shifted from rural to urban migration towards "*decentralisation*" of upper and middle-income residents from the urban centres towards the suburbs, again aligning the cities with the Western capitalist city trend (Stanilov and Sýkora, 2014a). (3) Finally, the suburbs presented a "*fragmented and dispersed spatial pattern*" (Stanilov and Sýkora, 2014a) that included, apart from single-family homes, row housing or apartments, as well as even retail and offices. These developments did not follow coherent planning but resulted in explosive growth driven by globalisation-induced private investments in the country (Stanilov, 2007).

A very interesting point is the barriers that were prohibiting suburbanisation during the socialist era that shifted the urban development dynamics towards the periphery of the cities. The most

impactful reason for this was the *“decentralisation of power which passed from the state to local authorities, and by the radical transformation of governance structures and public policies that followed”* (Stanilov and Sýkora, 2014b). A common phenomenon across the Eastern European countries was the transfer of land planning powers to local institutions. While the degree varied between the different states (Nowak *et al.*, 2022), the abandonment of the national economic and spatial plans from the central governments in combination with the *“fragmented geography of local governments and the unwillingness of national and regional authorities to intervene in local affairs”* (Stanilov and Sýkora, 2014b) led a fragmented urban sprawl metropolitan growth. As Stanilov and Sýkora (2014b) further argue, his decentralisation and lack of control or the *“indifference”* of the regional authorities to intervene within the context of the economic recovery of the post socialist economies in the last part of the 90s that fostered urban growth, landowners, investors, and developers created what Logan and Molotch (1987) described as *“Urban Growth Machines”*. Generally, cities maintained a kind of control within their city limits and discouraged invasive urban development; the urban growth found fertile ground in the surrounding municipalities, profiting from their thirst for investments and the taxes that were resulting (Stanilov and Sýkora, 2014b).

Suburbanisation in Eastern Europe has also some key characteristics that can be identified in the decades following the transition to democracy as Coheci and Petrișor (2023) argue. The socialist past of central planning and rigid urban plans has been replaced by a *“postsocialist planning system, characterised by uncontrolled suburbanisation”* (Coheci and

Petrișor, 2023; Dumitrache *et al.*, 2016) in the context of market liberalisation and privatisation. This transition which was characterised by privatisation and deregulation, prioritised private interests that facilitated urban sprawl developments that lack basic infrastructure and services (Coheci and Petrișor, 2022), which were made possible by a lack of control from weak governments and state agencies (Coheci and Petrișor, 2023). Finally, a strong characteristic of suburbanisation in Eastern Europe is the urban expansion on surrounding agricultural land that is based on the land restitution policies of the countries and the preference for selling them instead of using them for agricultural activities (Coheci and Petrișor, 2023; Petrișor *et al.*, 2020).

3. Suburbanisation and Urban Sprawl in Bucharest

Romania was no exception in the suburbanisation trend that swept the post-socialist countries in Eastern Europe. Several studies have been undertaken to discuss the extent and the reasons for suburbanisation and urban sprawl in the Romanian territory, the capital, Bucharest or the main cities of the country (Grădinaru *et al.*, 2015, 2017, 2020; Grigorescu *et al.*, 2012, 2015, 2022; Ianoș *et al.*, 2013; Stoica *et al.*, 2021; Suditu *et al.*, 2010, 2014a, 2014b). The extent of urban sprawl follows patterns of economic development that started in the last years of the 90s and continued during the EU pre-accession years, with a short pause following the years after the economic crisis of 2007-08. After the harsh reforms following the crisis, the stabilisation of the Romanian economy and the attraction of Foreign Direct Investments, which Romania championed for several years, suburbanisation continued at a growing pace (Tosa *et al.*, 2018).

During the socialist years, especially in the last years of communist rule, the settlements surrounding Bucharest witnessed a quasi-suburbanisation, which was based mainly on the settling of people who were incoming in the capital and housed in these suburban settlements. This was based on the restrictive mobility of individuals during the communist regime and the prohibition of internal migration according to Decree 68/1976, which allowed an “*acceptable distance for daily commuting of 30 kilometres*” (Dumitrache *et al.*, 2016). This “atypical suburbanisation” was a result of the rural migration towards settlements within the 30km radius from Bucharest that allowed the commute to the city centre within the restrictive mobility and commuting limits imposed by the state within the context of the closed planned economy (Dumitrache *et al.*, 2016).

The main periods of suburbanisation in Romania have been identified by Suditu (2010), who has categorised them into three main periods that span from the 90s until 2009-2010. In the first two years following the revolution, the abrogation of the national planning system through the 1st Decree issues in the country by the Provisional Government and the elimination of barriers regarding property ownership, the appearance of the real estate market and the retrocession of agricultural lands. Following the first two transitional years, the period until 2000, the main development can be noted along main traffic routes and the cities ring roads where mainly new industrial and commercial activities appeared, changing the economic structure of the surrounding settlements of the cities and preparing the ground for the residential

suburbanisation that followed in the next decade (Stan, 2015). The approval of Law 350/2001, which allowed zoning changes, favoured urban sprawl that was further reinforced by the economic instruments of mortgage and construction loans which exponentially increased the pressure in the suburbs (Suditu *et al.*, 2010).

In the gap that was witnessed in the following period until 2014 following the financial crisis, the real estate pressures diminished, and the city went through a time where the new Urban Plan was kickstarted in 2011, and the private planning Zonal Urban Plans and Detailed Urban Plans witnessed a rapid decline (Stan, 2015). However, during this period, where pressure in the periphery and the centre of the cities was lower from speculative real estate interests, the political will was not enough to promote a retrospective about urban planning or to create a vision of the city about its future targets that would lead to a comprehensive spatial development. The only Urban Planning study that was finalised during these years about Bucharest was the Strategic Concept Bucharest 2035 prepared by the Ion Mincu University of Architecture and Urban Planning of Bucharest, which did not manage to become a binding document that would influence planning within the capital through an urban planning act. The period that followed after the stabilisation of the country's economy after 2014 until today continued an increasing pace of the phenomenon of extensive urban sprawl that was witnessed mainly in the surrounding administrative units of big and medium Romanian cities, like Bucharest (Stoica *et al.*, 2021), Cluj (Drăghia *et al.*, 2023), Iasi and Oradea (Grigorescu *et al.*, 2015).

Although the first suburbanisation patterns have been studied by researchers even before during the socialist era (Dumitrache *et al.*, 2016), the urban sprawl and exit to the suburbs started gaining speed after the transition to democracy (Ianoș *et al.*, 2017; Ioja *et al.*, 2014; Suditu *et al.*, 2014a). The main reasons for this have been summarised by Dumitrache *et al.* (2016) mainly being:

Legislative and Institutional changes: the new political system, based on a free market economy and private investments meant the end of the state housing supply and state planning. This meant that each Territorial unity and local authority (UAT) could set their own priorities and change the character of their settlement by approving their General Urban according to Law 350/2001. The fluid political system of the early post-socialist years, with constant changes in the political leadership, produced continuous changes in the legal system regarding urbanism and construction, notably Law 50/1991, Law 350/2001, Law 10/1995 (Dumitrache and Nae, 2013; Munteanu and Servillo, 2014). Additionally, the transition to a market economy made the industrial and agricultural activities non-competitive, forcing companies to close and agricultural activities to be abandoned. This economic transformation resulted in these lands being abandoned and converted into residential or commercial developments. As Dumitrache *et al.* argue, the agrarian reforms that gave property rights to landowners within the uncertain economic environment forced them to sell the land to developers (Dumitrache *et al.*, 2016). There have been legislative changes, though, attempting to introduce mechanisms that would be able to control suburbanisation at least theoretically with the establishment of metropolitan areas

with the law of 2022 (Cocheci and Petrișor, 2023). However, this law still has not been implemented, failing to resolve the “*inefficient collaboration between different administrative unit*” (Cocheci and Petrișor, 2023) that directly impacts the state control of suburbanisation. The Metropolitan Area of Bucharest, in this law, has been defined as the counties of Bucharest and Ilfov.

Socio-economic Factors: the economic liberalisation rendered the industrial activities that were the locomotive of the economy in the socialist era obsolete, leading to deindustrialisation and the shifting of the economy in the services sector. The industries were privatised and slowly degraded in the competitive market. The growth of banking within the new capitalist system strengthened the mortgage loans that boosted the private construction sector in the context of the absence of a national housing policy and the growing need for new living conditions by the population. In the new post-socialist era, the degrading communist housing stock pushed the middle and upper strata of the society to a changing their housing preferences into western induced lifestyles where life becomes car-centric and people commute to their work daily and live in the suburbs (Borén and Gentile, 2007; Dumitrache *et al.*, 2016).

Psychological factors: The housing cultural model that changed into a preference for private dwellings was supported by a general collective mentality of ownership of dwellings instead of renting, as is the case in other Western countries (Dumitrache *et al.*, 2016). The socialist interdiction of ownership can partially explain this longing for ownership. Still, it was manifested not only by the

suburbanisation trend but also by the morphological element of it with fences, garden plots and gated communities, which were not a Romanian particularity but were a general post-socialist occurrence (Hirt, 2012; Dumitrache *et al.*, 2016).

These three reasons, however, cannot be read autonomously but in combination with each other. They did not have separate effects, but the new legislative frameworks, the new socio-economic reality and the psychological factors together set the trend for suburbanisation in the city of Bucharest (Suditu *et al.*, 2010, 2014b). In this context, the main trends of suburbanisation of the capital were both commercial and residential. The commercial suburbanisation was mainly located in the north side of the capital, where the proximity to the airports and the main road that leads to the rest of the country (DN1 - Ploiesti) switched the agricultural character of the area into a services centre with office buildings and large retail centres with malls. The highway to the productive hubs of the west (Pitesti - Craiova) attracted industrial and logistics parks. The residential suburbanisation can be noted on all sides of the capital, either at the fringes of the existing urban fabric or in the surrounding settlements.

In order to locate the main areas of the city's expansion and suburbanisation that took place post-1989, satellite and aerial photography imagery was extracted from free databases (Google Earth). The comparison of the city's expansion can be observed in the city's periphery, and the main areas where heavy sprawling can be detected between 2000 and today are the areas of Chiajna and Sector 6, Bragadiru and Sector 5, Popesti-Leordeni and Sector 4 and the Voluntari-Pipera area and in a

lesser extent Otopeni, Mogosoia (Simion, 2012) and Pantelimon (Suditu, 2009).

Thus, urban sprawl can be noted within the administrative boundary of Bucharest but also outside its borders within the surrounding Ilfov County. Within this context, the planning governance gets further complicated by Bucharest's unique administrative structure in the regional organisation of Romania. Bucharest is a municipality considered a capital entity with the status of a county (judet). Further on, it is split into six administrative units -districts (sectoare) with special status in the country (Florescu and Coheci, 2023). However, their duties regarding planning do not follow the traditional duties of the rest of the local units have compared to their county. This means that the possibility that each local unit has, in relation to the county, to be responsible for the planning processes from the General Urban Plan to the Zonal and Detailed Urban Plans is not valid in Bucharest. The General Urban Plan is common for all sectors across the municipality's jurisdiction, and it is the municipality and mayor's responsibility to initiate, approve, or update it. Similarly, the Zonal Urban Plans are overseen and approved at the municipality level. However, the Detailed Urban Plans remain a duty of the six districts, and they are initiated, prepared, and approved in the local district without any interference from the central city hall. They are overseen by the local district chief architect and approved by the city council. In addition, the district chief architect is responsible for approving and issuing the building construction permit (Autorizatia de Construire) except for the protected areas, which are the responsibility of the Municipality City Hall. Furthermore, Bucharest is

surrounded by Ilfov which is split into several local units and their planning, the local Zonal Urban Plans or Detailed Urban Plans that get approved in their city hall are overseen by the Planning Department of Ilfov and while it has a certain say in the process, the local unit council and the local planning department are the final decisionmakers. This nebula of planning processes that are partially overseen and mainly regulated locally creates myopic interest in planning without having a common way of addressing suburbanisation (Florescu and Coheci, 2023). This argument is solidified by the fact that the majority of Urban Growth Boundaries have been expanded in Romanian cities as research by Gradinaru *et al.* (2023) has shown. Additionally, this independent approach to planning is further supported by the research of Ianoș and Jones (2019) who claim that the local units surrounding Bucharest have a different degree of change and development within the metropolitan area.

The suburbanisation morphology in Bucharest does not follow a singular or unique typology; instead, it varies depending on the location and the particularities that can be noted within each area (Ianoș *et al.*, 2016). However, similarities with the global types of urban sprawl can be noted (Ewing, 2008). The

morphological typologies of the Romanian urban sprawl have been presented by Stan (2013) and grouped into four main “families” that resulted gradually in the post-socialist suburbanisation of Bucharest:

The tentacle is the basic form of urban sprawl that chronologically appeared in the capital. The typology is based on the thickening of the urban development of the main roads leading towards the settlements around the city (Stan, 2013). The zipper is the sprawl typology that can be noted around Berceni, Sisesti and Pipera, where the land subdivisions are extremely fragmented, usually around tentacular developments (Stan, 2013). The patch is based on isolated developments and land subdivisions that are surrounded by agricultural land that lack streets and wide accesses, and utility services (Stan, 2013). Another type of sprawl morphology is the cluster that is based on developments close to main roads that extend with a street pattern towards many directions following the agricultural land subdivision (Stan, 2013). The last type is the fringes which are developments hanging on main roads, penetrating agricultural land.

By attempting to decode the morphology and patterns of suburbanisation and urban sprawl in Bucharest, Popesti-Leordeni’s area has been studied.



Fig. 1. Satellite Imagery of Popesti-Leordeni Sprawl (2002 – 2012 - 2024 -from left to right) source: Google Earth.

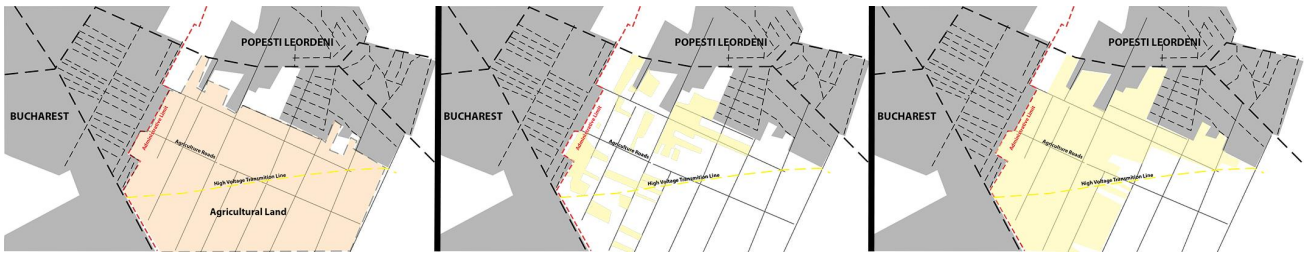


Fig. 2. Diagrammatic Analysis of Urban Sprawl of Popesti Leordeni (2002 – 2012 - 2024 -from left to right).
Source: Author.

Popesti-Leordeni is a city, that lies in the south-east of Bucharest, is part of Ilfov county and borders the administrative limit of Sector 4. As the satellite pictures can tell (Fig. 1), in the period of the booming economic growth of 2002-2007, Popesti-Leordeni did not attract significant attention of the real estate sector. Since 2009, which coincides with the launch of the Prima Casa program that funded government-backed mortgages for first homebuyers, the area attracted real estate interest. The city was mainly an agricultural settlement until the revolution of 89, and the agricultural activities started to be abandoned gradually in the next years.

The morphological development of Popesti Leordeni follows a pattern of urban sprawl that aligns with the descriptions of Ewing (1998) and Stan (2013), who witnessed the morphological sprawl patterns in the context of Bucharest. Initially, it followed a scattered development of some clusters (Stan, 2013) of small residential building blocks that were connected between them by a network of old agricultural roads (drum de exploatare) as the analysis of the satellite imagery shows. Within the following years the cluster was transformed through density into patches (Stan, 2013) of development with narrow streets and non-existing infrastructure as roads, green spaces,

parks or educational facilities were not provided. The patches follow the old grid of agricultural roads and the shape of the lands that preceded the residential neighbourhood. A particularity affecting the morphology of urban development, in this case, is the high voltage transmission lines that interrupt linearly the rectangular grid. Finally, the morphological evolution of urban sprawl got attached to the existing urban area limits, concluding the sprawl, which is visible only towards the south east side, which expands gradually towards the free greenfield lands. At the same time, on the other side of the administrative border, in Sector 4 we can note a similar “densification” of the urban fabric, with less intensity though (Fig. 2).

The urban sprawl of Popesti Leordeni follows the pattern of urban sprawl that has been studied in the literature for Eastern European suburbanization processes. The Popesti Leordeni sprawl does not have the characteristics of a low-rise and low-density development typical of the American definition of sprawl, since it is mainly based on dense apartment buildings of medium rise height. The sprawl is visible in the post-socialist context of agricultural land transformation, on the border of administrative city limits and poor coordination of local administration, with poor public infrastructure. Additionally, it follows the

morphological evolution of sprawl that researchers have noted in the international and local context. Popești-Leordeni is just one of the cases of urban sprawl that Bucharest experienced and can be noted in the last 15 years. Other areas surrounding Bucharest mentioned before, such as Chiajna, Bragadiru, Pantelimon, Chitila and the greenfield areas of Sector 3, present similar patterns of development that need to be studied through their morphological similarities and particularities to draw wider conclusions about the planning processes in the city and the surrounding region.

4. General Remarks for Further Research

In this paper, the origins of urban sprawl as a phenomenon in the fringe of cities were discussed. The American typologies of sprawl and their origins were debated along with the main drivers of urban expansion. The focus shifted to the Eastern European context, where the characteristics of the urban sprawl were presented along with the popularity of car usage, the change of living standards and preferences, and the change from a centrally planned to a market economy. Romania and Bucharest specifically follow the trend of the rest of the Eastern European countries regarding sprawl, and Bucharest, in recent years, experienced a tremendous amount of suburbanisation of different forms and typologies. More specifically the morphological patterns of urban sprawl in Popești Leordeni in the wider area of Bucharest-Ilfov has been studied, linking the morphological patterns with the current literature. Within this context, and the study of morphological patterns that have been noted and discussed by other researchers, it is

important to study the development and planning patterns and processes that shape urban planning in the city today. By connecting the planning processes to the morphological expressions of urban sprawl we can attempt to make a better connection between planning and the production of space in cities.

These processes tend to be omitted in the wider planning research, leaving a black hole of connection between theory and practice. These processes are connected to the legislative framework in which the local authorities operate and the actors that define and negotiate urban development. The planning legislative framework leaves extensive freedom to the local administrative units (UAT), further complicating the relationships between the special status of the capital and Ilfov County.

The significantly fragmented administrative units that shape the metropolitan area of Bucharest appear to lack collaboration in order to tackle the uncoordinated urban development and peripheral expansion of the city. This lack of collaboration and sharing of experience and knowledge between the sectors and the administrative units, in the political but also the planning level through the planning departments, can be argued that allows for the proliferation of different standards, rules and interpretations of the planning legislation. These different or diverging approaches need to be examined through practical “on the field” analysis but also critically analysed in the context of comparative planning, so that they can be compared against their legal regulating framework.

Through the comparison of the spatial effects of the practices which result in urban sprawl, a connection between the local practice and planning framework can be attempted in order to understand if and how the different planning practices impact morphologically or quantitatively the peripheral expansion and urban sprawl in the context of the metropolitan area. By understanding the distinct planning practices, we can control urban development in a coherent way on a metropolitan level, avoiding the extensive urban sprawl that puts pressure on cities because of the lack of coordinating policies for growth. Furthermore, we can target more accurate legislative changes that would aim to unify the planning approach between the different administrative units and reorganise the planning administration on the level of metropolitan areas, combating conflicting approaches to planning and controlling urban sprawl.

5. Acknowledgements

The presented paper is based on extracts of the author's PhD Thesis.

REFERENCES

- Antrop M. (2004), *Landscape change and the urbanization process in Europe*, *Landscape and Urban Planning* 67(1-4): 9-26, DOI:10.1016/S0169-2046(03)00026-4
- Borén T., Gentile M. (2007), *Metropolitan processes in post-communist states: An introduction*, *Geografiska Annaler: Series B, Human Geography* 89(2): 95-110, DOI:10.1111/j.1468-0467.2007.00242.x
- Brueckner J. K. (2000), *Urban Sprawl: Diagnosis and Remedies*, *International Regional Science Review* 23(2): 160-171, DOI:10.1177/016001700761012710
- Brueckner J. K., Fansler, D. A. (1983), *The Economics of Urban Sprawl: Theory and Evidence on the Spatial Sizes of Cities*, *The Review of Economics and Statistics* 65(3): 479, DOI:10.2307/1924193
- Cocheci R. M., Petrisor A.-I. (2022), *Challenges for sustainable suburban communities: Comparing suburbanization in Romanian and Italian metropolitan areas*, *Italian Journal of Planning Practice* 13(1): 44-75.
- Cocheci R. M., Petrisor A. I. (2023), *Assessing the Negative Effects of Suburbanization: The Urban Sprawl Restrictiveness Index in Romania's Metropolitan Areas*, *Land* 12(5): 966, DOI:10.3390/land12050966
- Cocheci R. M., Petrisor A.-I. (2023), *Extended suburbanisation and land cover dynamics in post-socialist metropolitan areas: Evidence from Romania*, *disP - The Planning Review* 59(2): 88-102, DOI:10.1080/02513625.2023.2257490
- Drăghia M., Cocheci R. M., Olariu B. (2023), *Housing dynamics around Romania's developing cities: The high demand for specific planning instruments in functional urban areas*, *European Planning Studies*: 1-25, DOI:10.1080/09654313.2023.2195886
- Dumitrache L., Nae M. (2013), *Urban Regeneration and Affective Connections to Place in Bucharest City Centre*, *University of Bucharest Annals - Geography* 62: 187-202.
- Dumitrache L., Zamfir D., Nae M. M., Simion G., Stoica V. (2016), *The Urban Nexus: Contradictions and Dilemmas of (Post)Communist (Sub)Urbanization in Romania*, *Human Geographies - Journal of Studies and Research in Human Geographies* 10(1): 38-50, DOI:10.5719/hgeo.2016.101.3
- EEA and EFON (2016), *Urban sprawl in Europe: Joint EEA FOEN report*, Report, Publications Office of the European Union, Luxembourg City, Luxembourg, DOI:10.2800/143470
- Ewing R. (1997), *Is Los Angeles-style sprawl desirable?*, *American Planning Association - Journal of the American Planning Association* 63(1): 107-126.
- Ewing R. H. (2008), *Characteristics, Causes, and Effects of Sprawl: A Literature Review*, in: Marzluff J. M., Shulenberger E., Endlicher W., Alberti M., Bradley G., Ryan C., Simon U., ZumBrunnen C. (Eds.), *Urban Ecology*, Springer, Boston, MA, US, pp. 519-535, DOI:10.1007/978-0-387-73412-5_34

- Florescu T., Coheci, R. M. (2023), *Bucharest – the role of spatial planning in a challenging urban environment*, *disP - The Planning Review* 59(3): 6–15, DOI:10.1080/02513625.2023.2288445
- Galster G., Hanson R., Ratcliffe M. R., Wolman H., Coleman S., Freihage, J. (2001), *Wrestling Sprawl to the Ground: Defining and measuring an elusive concept*, *Housing Policy Debate* 12(4): 681–717, DOI:10.1080/10511482.2001.9521426
- Gentile M., Sjöberg Ö. (2006), *Intra-urban landscapes of priority: The Soviet legacy*, *Europe-Asia Studies* 58(5): 701-729, DOI:10.1080/09668130600731268
- Gordon P., Wong H. L. (1985), *The Costs of Urban Sprawl: Some New Evidence*, *Environment and Planning A: Economy and Space* 17(5): 661-666, DOI:10.1068/a170661
- Grădinaru S., Iojă C., Pătru-Stupariu I., Hersperger A. (2017), *Are Spatial Planning Objectives Reflected in the Evolution of Urban Landscape Patterns? A Framework for the Evaluation of Spatial Planning Outcomes*, *Sustainability* 9(8): 1279, DOI:10.3390/su9081279
- Grădinaru S. R., Fan P., Iojă C. I., Niță M. R., Suditu B., Hersperger A. M. (2020), *Impact of national policies on patterns of built-up development: An assessment over three decades*, *Land Use Policy* 94: 104510, DOI:10.1016/j.landusepol.2020.104510
- Grădinaru S. R., Iojă C. I., Onose D. A., Gavrilidis A. A., Pătru-Stupariu I., Kienast F., Hersperger A. M. (2015), *Land abandonment as a precursor of built-up development at the sprawling periphery of former socialist cities*, *Ecological Indicators* 57: 305-313, DOI:10.1016/j.ecolind.2015.05.009
- Grădinaru S. R., Paraschiv M., Iojă C. I., Vliet J. V. (2023), *Conflicting interests between local governments and the European target of no net land take*, *Environmental Science & Policy* 142: 1–11, DOI:10.1016/j.envsci.2023.01.012
- Grigorescu I., Kucsicsa G., Mitrică B., Mocanu I., Dumitrașcu M. (2022), *Driving factors of urban sprawl in the Romanian plain. Regional and temporal modelling using logistic regression*, *Geocarto International* 37(24): 7220-7246, DOI:10.1080/10106049.2021.1967465
- Grigorescu I., Kucsicsa G., Popovici E.-A., Mitrică B., Mocanu I., Dumitrașcu M. (2021), *Modelling land use/cover change to assess future urban sprawl in Romania*, *Geocarto International* 36(7): 721–739, DOI:10.1080/10106049.2019.1624981
- Grigorescu I., Mitrică B., Mocanu I. (2015), *Assessing urban sprawl-related housing dynamics in the Romanian metropolitan areas*, *Studia Obszarów Wiejskich* 38: 145-164, DOI:10.7163/SOW.38.9
- Grigorescu I., Mitrică B., Mocanu I., Ticană N. (2012), *Urban Sprawl and Residential Development In the Romanian Metropolitan Areas*, *Romanian Journal of Geography* 56: 43-59.
- Harvey R. O., Clark W. A. V. (1965), *The Nature and Economics of Urban Sprawl*, *Land Economics* 41(1): 1, DOI:10.2307/3144884
- Hirt S. (2012), *Iron curtains: Gates, suburbs, and privatization of space in the post-socialist city*, Wiley & Sons, Oxford, UK.
- Ianoș I., Cercleux A. L., Pintilii R. D. (2010), *Remarks on Identity Building of Rural and Urban Communities In the Bucharest Metropolitan Area*, *Annals of the University of Oradea - Geography Series* 20(2): 173-183.
- Ianoș I., Jones R. (2019), *Local aspects of change in the rural-urban fringe of a metropolitan area: A study of Bucharest, Romania*, *Habitat International* 91: 102026, DOI:10.1016/j.habitatint.2019.102026
- Ianoș I., Sîrodoev I., Pascariu G., Henebry G. (2016), *Divergent patterns of built-up urban space growth following post-socialist changes*, *Urban Studies* 53(15): 3172-3188, DOI:10.1177/0042098015608568
- Ianoș I., Sorensen A., Merciu C. (2017), *Incoherence of urban planning policy in Bucharest: Its potential for land use conflict*, *Land Use Policy* 60: 101-112, DOI:10.1016/j.landusepol.2016.10.030
- Iojă C. I., Niță M. R., Vânău G. O., Onose D. A., Gavrilidis A. A. (2014), *Using multi-criteria analysis for the identification of spatial land-use conflicts in the Bucharest Metropolitan Area*, *Ecological Indicators* 42: 112-121, DOI:10.1016/j.ecolind.2013.09.029
- Logan J., Molotch H. (1987), *Urban Fortunes: The Political Economy of Place*, University of California Press, Berkeley, CA, US.

- Mace A., Blanc F., Gordon I., Scanlon K. (2016), *A 21st Century Metropolitan Green Belt*, Report, LSE - School of Economics and Political Science, London, UK.
- Munteanu M., Servillo L. (2014), *Romanian Spatial Planning System: Post-Communist Dynamics of Change and Europeanization Processes*, *European Planning Studies* 22(11): 2248-2267, DOI:10.1080/09654313.2013.830696
- Nechyba T., Walsh R. (2004), *Urban Sprawl*, *The Journal of Economic Perspectives* 18(4): 177-200.
- Nowak M., Petrisor A.-I., Mitrea A., Kovács K. F., Lukstina G., Jürgenson E., Ladzińska Z., Simeonova V., Lozynskyy R., Rezac V., Pantyley V., Praneviciene B., Fakeyeva L., Mickiewicz B., Blaszkę M. (2022), *The Role of Spatial Plans Adopted at the Local Level in the Spatial Planning Systems of Central and Eastern European Countries*, *Land* 11(9): 1599, DOI:10.3390/land11091599
- Ohls J. C., Pines D. (1975), *Discontinuous Urban Development and Economic Efficiency*, *Land Economics* 51(3): 224, DOI:10.2307/3145087
- Oueslati W., Alvanides S., Garrod G. (2015), *Determinants of urban sprawl in European cities*, *Urban Studies* 52(9): 1594-1614, DOI:10.1177/0042098015577773
- Pagliarin S. (2018), *Linking processes and patterns: Spatial planning, governance and urban sprawl in the Barcelona and Milan metropolitan regions*, *Urban Studies* 55(16): 3650-3668, DOI:10.1177/0042098017743668
- Petrisor A.-I., Sirodoev I., Ianoş I. (2020), *Trends in the National and Regional Transitional Dynamics of Land Cover and Use Changes in Romania*, *Remote Sensing* 12(2): 230, DOI:10.3390/rs12020230
- Richardson H. W., Gordon P. (2000), *Defending Urban Sprawl*, *Public Interest* 139: 65-71.
- Simion G. (2012), *Spatial structure changes inside post-communist capital city of Bucharest*, *Human Geographies - Journal of Studies and Research in Human Geography* 6(1): 79-89, DOI:10.5719/hgeo.2012.61.79
- Stan A. (2015), *Urban expansion in Bucharest, after 1990: Errors and benefits*, in: Doytchinov G., Đukić A., Ioniţă C. (Eds.), *Planning Capital Cities: Belgrade, Bucharest, Sofia*, Verlag der Technischen Universität Graz, Graz, Austria, pp. 224-233.
- Stan A. I. (2013), *Morphological patterns of urban sprawl territories*, *Urbanism Architecture Constructions* 4(4): 11-24.
- Stanilov K. (2007), *Political reform, economic development, and regional growth in post-socialist Europe*, in: K. Stanilov (Ed.), *The Post-Socialist City Urban Form and Space Transformations in Central and Eastern Europe after Socialism*, Springer, Dordrecht, The Netherlands, pp. 21-34.
- Stanilov K., Sýkora L. (Eds.), (2014a), *1 The Challenge of Postsocialist Suburbanization*, in: *Confronting suburbanization: Urban decentralization in postsocialist Central and Eastern Europe*, Wiley Blackwell, Hoboken, NJ, US, pp. 1-32.
- Stanilov K., Sýkora L. (Eds.), (2014b), *9 Postsocialist Suburbanization Patterns and Dynamics A Comparative Perspective*, in: *Confronting suburbanization: Urban decentralization in postsocialist Central and Eastern Europe*, Wiley Blackwell, Hoboken, NJ, US, pp. 256-296.
- Stoica I. V., Zamfir D., Vîrghileanu M. (2021), *Evaluating the Territorial Impact of Built-Up Area Expansion in the Surroundings of Bucharest (Romania) through a Multilevel Approach Based on Landsat Satellite Imagery*, *Remote Sensing* 13(19): 3969, DOI:10.3390/rs13193969
- Suditu B., Dumitrache L., Vîrdol D., Vâlceanu D. G. (2014), *New trajectories of post-socialist residential mobility in Bucharest*, *Human Geographies - Journal of Studies and Research in Human Geography* 8(1): 75-82, DOI:10.5719/hgeo.2014.81.75
- Suditu B., Ginavar A., Muică A., Iordăchescu C., Vârdol A., Ghinea B. (2010), *Urban Sprawl Characteristics and Typologies in Romania*, *Human Geographies - Journal of Studies and Research in Human Geography* 4(2): 79-87.
- Suditu B., Nae M., Neğuş S., Dumitrache L., Gheorghilaş A. (2014), *Suburban landscapes in Romania: From "Forting-Up" to "Informal-Up" and limits of public action*, *European Journal of Science and Theology* 10: 125-138.

Tosa C., Mitrea A., Sato H., Miwa T., Morikawa T. (2018), *Economic growth and urban metamorphosis: A quarter century of transformations within the metropolitan area of Bucharest*, *Journal of Transport and Land Use* 11(1): 273-295, DOI:10.5198/jtlu.2018.1242

Weilenmann B., Seidl I., Schulz T. (2017), *The socio-economic determinants of urban sprawl between 1980 and 2010 in Switzerland*, *Landscape and Urban Planning* 157: 468-482, DOI:10.1016/j.landurbplan.2016.08.002

Received: 14 February 2024 • Revised: 8 April 2024 • Accepted in final format: 9 April 2024

Article distributed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND)

