Space justice, demographic resilience and sustainability. Revelations of the evolution of the population hierarchy of the regions of Romania from 1948 to 2011

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Abstract

The article studies the evolution of the population hierarchy of the NUTS3 regions of Romania from 1948 until 2011, to understand how this hierarchy, and related resilience and sustainability proposed indicators, changes due to the influence of historical events and related political and economic features. With the support of the instrumental Zipf's Curve - that relates regional hierarchy with their population weight – the analysis shows that there is a growing population concentration and that the capital region of Bucharest and its neighbours gain at the expense of depopulation of second rank and more remote regions. The integration in the socialist block and the recent integration in the European Union have created winners and losers, but did not decisively change the path of increasing concentration in the capital region and few other large agglomerations.

Keywords: population hierarchy, Romanian regions, Zipf's Curve, spatial justice, demographic resilience and sustainability

Introduction. Regional development, unequal concentration and spatial justice

Most conflicts are territorial (Kingsbury and Laoutides, 2015), fuelled by the dispute over property rights of spatialized natural resources or the control of strategic sites. Clashes on land, water and energy, conflicts for the control of routes, roads, ports and airports often underlie the dispute that media attributed almost exclusively to social inequalities, cultural differences, religious divisions or incompatible ideologies. Many of these territorial conflicts are internal to each country and region where, in addition to issues related to the distribution of natural resource rents or the

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control of strategic locations, there are spatial disagreements over the allocation of taxes and public spending that may lead to longer lasting distrust and less sustainable dynamics.

Development, measured by increased freedom (Sen, 1999), cannot be separated from the development of places and routes where people live (Castells 2012) and spatial justice cannot be disconnected from space (Williams, 2013). The two criteria to assess spatial justice proposed by Martins (2013) and implicitly by Paul Krugman's work (1991) involve accessibility and capacity within each spatial scale. The combination of these two criteria creates four possibilities for interaction: low accessibility and low capacity (poor regions); low accessibility and high capacity (emerging regions); high accessibility and low capacity (dependent regions); and high accessibility and high capacity (developed regions) (Dentinho, 2012; 2017).

From this perspective, regions are not just poor, developing and developed because, due to unilateral permanent transfers, it is possible to discern both emerging regions that send outside taxes and income from natural resources, and dependent regions that continually receive unilateral external transfers from natural resource rents, public spending and remittances from migrants. These unilateral and lasting transfers create persistent multiplier effects that accumulate in spatially unequal concentrations. There is production in one place and consumption in another. There are basic exporting jobs in one place and resident and dependent population elsewhere.

Indeed, regional development results from the accumulation of social, cultural, human, productive and natural capital in the regions and their relative accessibility to markets. However, the location of ownership of these various types of capital plays an important role in the spatial distribution of regional development, urban concentration and spatial justice.

Based on an analysis of the population distribution of the NUTS3 regions of Romania, the objective of this paper is to understand how public intervention – embedded in various socio-economic policies - influences the spatial profile of regional development and spatial justice. The paper assumes that:

- with freedom of movement of people, population distribution tends to track the distribution of development;
- the spatial distribution of land, water, energy and location influence the spatial pattern of population distribution observed in the regularities of the Zipf curve that relates the size and population hierarchy of sites;
- the Zipf curves for the population average of several decades represents a long-term equilibrium dictated by permanent characteristics of the territory; Zipf curve thus corresponds to a spatial justice profile;
- public intervention influences spatial justice, specifically through the spatial allocation of property rights over natural resources, as well as through the spatial distribution of public spending;

- regional conflicts are notably associated with places that, according to the Zipf Analytical Scheme, are below the long-term potential of the region.

The remainder of the paper is organized as follows: Point 1 presents the conceptual model of the approach and introduces the research methodology. In point 2, regional population data is used to estimate the Zipf curves for the regions of Romania from 1948 to 2011; at the same time, we discuss the results against historical facts that may explain the relative size of the regions of Romania along 20th and 21st century. The final part proposes some conclusions on the regional hierarchy and the implications for the sustainable regional development.

1. Research methodology

The hierarchy of city-regions seminally proposed by Gibrat (1931) and Zipf (1949) is quite resilient (Black and Henderson, 2003; Loannides and Overman, 2003; Nitsch, 2005; Newman, 2005; Anderson and Ying, 2005; Benguigui and Blumenfeld-Lieberthal, 2007; Bosker *et al*., 2008; Giesen *et al*., 2010; Gómez-Déniz *et al.*, 2014; 2015; Jiang *et al*., 2015; Shujuan, 2016; Morudu, 2016; Luckstead and Devadoss, 2017). However, the particular form of Zipf functions result from several factors, many of which are influential by governments. Ades and Glaeser (1995) found that political factors influence urban concentration. Paulo Krugman (1996) suggests that cities rooted in natural capital also have a strong hierarchy. Gilles Duranton (2002) associates city hierarchies with a set of indicators related to innovation. Bertinelli and Strobl (2007) show that there may be an optimal level of urban concentration that can be influenced by policy (Henderson, 2003; Brülhart and Sbergami, 2009), thus opening the connection between urban concentration and spatial justice. Recently (Dentinho, 2017) shows that there is a close relationship between urban concentration and the distribution of income from natural resources and public expenditure, namely in education.

In short, based on the Zipf's curves, it is possible to better understand how the human, productive and natural capital observed in different locations influence the spatial profile of regional development and spatial justice. However, these profiles change both by the location of property rights of these various types of capital and by unilateral transfers, private and public.

Based on this assumption, our paper studies the evolution of the population hierarchy of the Romanian NUTS3 regions (counties) from 1948 until 2011, to understand how the hierarchy and related resilience and sustainability proposed indicators, changed over time. The paper proposes the following concepts and related indicators:

- *"Winner" and "Loser" regions* are designated based on the change in their relative importance to the national population rank before and after the fall of Berlin wall (1992);

- *The "spatial justice" profile* or the long-term equilibrium is represented in the Zipf curves for the population average of several decades (1948-2011);
- *Demographic resilience*, which is frequently referred to as "the capacity of regions to be attractive, to retain population and to maintain a positive natural growth" (Banica and Muntele, 2017) is calculated as the standard deviation of the population weight by regional rank;
- *Demographic sustainability* is measured by the deviation of population weight from the long-term vocation of the place or the structural average by sic decades of population dynamics.

For all the proposed indicators and typologies, the role of public intervention embedded in different socio-economic and territorial policies is emphasized.

2. Research results

2.1. Evolution of the population of Romanian NUTS3 regions: winners and losers

Over the last decades, Romania has undergone substantial socio-economic transformations and has witnessed radical changes in its economic structure, the urban – rural patterns or the social composition of the population. By the end of the Second World War, the country was under the Soviet occupation and the communists came to power, laying the foundation of a totalitarian regime and of the rigid central planning model (Latham *et al.*, 2020). The country was under the communist rule from 1948 until 1989 and during this period it has witnessed some major transformations, with an unprecedented impact on Romania's development. Here are some of the most important political interventions impacting on the demographical situation in the analyzed period.

- *The communist nationalisation of enterprises and collectivisation of agriculture*. The Law no 119/1948 decreed subject to nationalisation "all the wealth of the soil not in the property of the State" at that time, plus the "individual enterprises, the companies of any kind and private industrial, banking, insurance, mining, transport and telecommunications associations". The nationalization of firms and industries was followed by the nationalization of a significant number of houses and buildings and has decisively contributed to the establishment of the state-owned or cooperative-based socialist economy. The collectivisation of agriculture was accomplished gradually, but often with violent means, thus seriously harming the Romanian village and "the very foundations of rural life" (Kligman and Verdery, 2011), thus contributing to the creation of a new spatial structure.
- *The forced industrialization*. Following the Soviet model, the ambition of the communist leaders in Romania was to reorder the economy and to transform it from a predominantly agricultural to an industrialized one. The policy of

industrial development has emphasized the domestic production of a wide range of industrial goods, the exploitation of all local resources (oil, coal, gas, metals and minerals etc.) and the promotion of the "self-sufficiency" principles (Tsantis and Pepper, 1979). As a result, industry's contribution to national income rose from about 35% in 1938 to more than 68% in 1986, with some branches becoming dominant, i.e. engineering and metalworking, electricity and fuels, chemicals, metallurgy etc. (Latham *et al.*, 2020). Meanwhile, the economy grew between 1950 and 1970s at one of the fastest rates in the world, but there were countless inefficiencies in the utilization of the capital (Tsantis and Pepper, 1979). The sectoral relocation of investments and employment has determined large internal migration flows from rural to urban areas and had a decisive influence on the spatial development patterns.

- *The communist top-down urbanisation model*. In close connection with the massive industrialization, urbanisation was one of the main goals of the Communist party and it was realized in a top-driven, centralized and fully-controlled manner; as a consequence, the proportion of urban population in total population has more than doubled, rising from 23,4% in 1948 to 53% in 1989 (Benedek, 2006). Antonescu and Popa (2012) identify different stages of urbanisation processes in the communist Romania: the first one (1950-1970) was triggered by the industrial revolution and resulted in the creation of specialized industrial urban centres; the second stage (1970-1980) corresponds to the forced industrialization of urban centres and some middle-sized cities; the third stage (1980-1990) is characterized by the forced industrialization of some small towns and rural areas designed as „agricultural-industrial centres". However, the communist model of urbanization was not similar to that of the western societies, as it was not accompanied by significant improvements in the quality of life of population lifestyle.
- *The communist spatial development model*. From 1948 to the present, Romania's administration model has changed repeatedly: for example, in 1950, Romania introduced a three-tiered administrative system of Soviet inspiration that included 28 regions, later 18 and 16 regions, districts and towns, while in 1968 the county system was reintroduced and then adjusted. These administrative changes had an important distributive role, as the resulting territorial units were, in fact, the main targets of state allocation (Benedek, 2006). Especially after 1970, the communist government attempted to ensure a balanced territorial development and this explains, to some extent, the upgrading of villages into small towns, the support given to the expansion of small and medium-sized cities or the settlement of the new industrial investments to those counties that have little industry (Tsantis and Pepper, 1979). However, the policies meant to balance the territorial development were only partially successful, as some sharp regional contrast still persist (Latham *et al.*, 2020).

- *The communist pro-natalist policies*. The accelerated economic growth after 1950 and the modernization processes came with some unwanted side effects, such as the decreasing number of births and the lowering of the fertility rates. To overcome these challenges, the Communist party issued the 1966 Anti-Abortion Decree that withdrew permission for legal abortion and instituted the prohibition of contraceptive means. The ambition was to increase the population to 30 million inhabitants by 2000. On the short-term, the birth rate doubled (Berelson, 1979) and the cohort born in 1968 was the largest in Romanian history. The birth rate has steadily dropped after the peak year and the proposed target was never reached. Nevertheless, the total population of the Romania in the 1992 Census was about 7 million inhabitants higher as compared to the beginning of the communist period (Figure no. 1, Annex 1)

After the fall of the Berlin Wall and the 1989 Revolution in Romania, the country began its transition towards a market economy. The post-communist transition was a very difficult one and it is often referred to as "the lost years of early 90s" (Latham *et al.*, 2020). A massive deindustrialization wave, coupled with the disintegration of the economic structure and industrial cities was observed soon after the fall of the communism (Popescu, 2014). Unemployment, industrial decline, inflation, recession and economic slowdown were the main characteristics of the Romanian economy in the first post-communist decade. The country joined the North Atlantic Treaty Organization in 2004 and the European Union in 2007 and this opened the way towards foreign direct investments, the internationalization of production and the globalization of the Romanian economy. Starting with the early 2000s, Romania has gradually embarked on a sustainable growth path and was very closed to be classified as a "high income" economy in most recent World Bank Atlas Country Classification (2019).

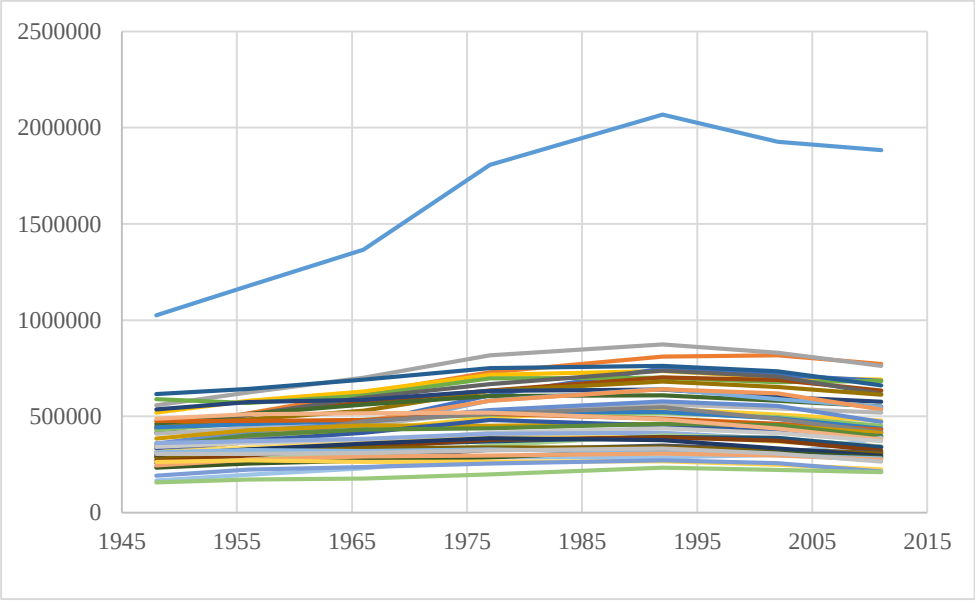
Despite these rather favourable circumstances, the total population of Romania has declined constantly after 1992, especially due to the decrease of the birth rates and the outward emigration - that is responsible for more than 75% of the population decline since the early 2000s. Between 1992 and 2011, Romania has officially lost more than 2,7 million inhabitants and this phenomenon came together with a very accentuated process of demographic ageing (INS, 2013). According to the OECD, the Romanian diaspora is the fifth largest in the world after China, India, Mexico and Poland, with the migration for employment being the main reason for emigration (OECD, 2019). Benedek and Lembcke (2017) also emphasize a strong suburbanization trend in Romanian, with rural areas in the vicinity of counties' urban centres showing important population growth between 2000 and 2015.

In line with the provision of the Romanian Constitution, a total of 41 counties and the municipality of Bucharest are the official administrative divisions of Romania corresponding to the European NUTS3 division; the country has also 103 municipalities and 217 cities (urban areas), plus 2861 communes (rural areas). In addition, to keep with the European regulations, the country has designated 8 NUTS2

development regions, but these do not have administrative status or legal personality. The vision of the Territorial Development Strategy of Romania for the 2035 time horizon is oriented to support the polycentric development, territorial cohesion and competitiveness, while addressing the increasing urban-rural territorial disparities in terms of demography, socio-economic development or the access to the public services[1].

Figure 1 shows the evolution of the population of the Romanian NUTS3 regions. The fifties and the sixties of the twentieth century marked the relative take-off of Bucharest (marked in blue) and the surrounding regions very connected to the establishment and reinforcement of the socialist regime in the country. The seventies and the eighties growth, assessed by demography, decelerated, but some NUTS3 regions revealed more resilience than others did. Finally, the fall of the Berlin Wall and the Romanian integration in the European Union led to a sharp decrease in the population in most of the regions, with the exception of the suburbs of Bucharest that increased sharply, showing the increasing concentration of the relative growth in the metropolitan area of the capital.

Figure 1. Evolution of the population of Romanian NUTS 3 regions 1948 – 2011



Source: Authors' representation.

[1] MDRAP (2017), Territorial Development Strategy of Romania: Polycentric Romania 2035, Territorial Cohesion and Competitiveness, Development and Equal Opportunities for People.

The Figure 2 and the Map of Figure 3 show the change, before and after 1992, of the relative importance of Romanian NUTS3 regions in the country, with the identification of four types of regions according to their relative importance before and after the fall of the Berlin Wall:

- *The winning regions that improved their rank in the country both before and after the fall of the Berlin Wall*. These include the capital-region of Bucharest and surrounding area of Ilfov, the second-region of Iasi, the sea-port region of Constanta and some of the Central NUTS3 regions (Arges and Covasna) and Northern regions (Maramures and Suceava). Most of the counties in this group have important locational advantages: Ilfov is, de facto, a suburb of Bucharest, Constanta is the largest port on the Black Sea and the fourth largest in Europe (Ionescu-Heroiu *et al.*, 2013), while Maramures, Suceava and Iasi are, in their turn, border regions. Arges is one of the most industrialized counties in Romania, whose positive demographic dynamic is highly influenced by the presence of a large automotive cluster created around Automobile Dacia, the main Romanian car manufacture founded in 1966 and bought by Renault Group in the early 2000s. Finally, Covasna - the least populated county in Romania, has maintained its position in the national ranking, while gathering together a large ethnic community: i.e. according to the 2011 Census, about two third of the population in Covasna is of Hungarian origin.

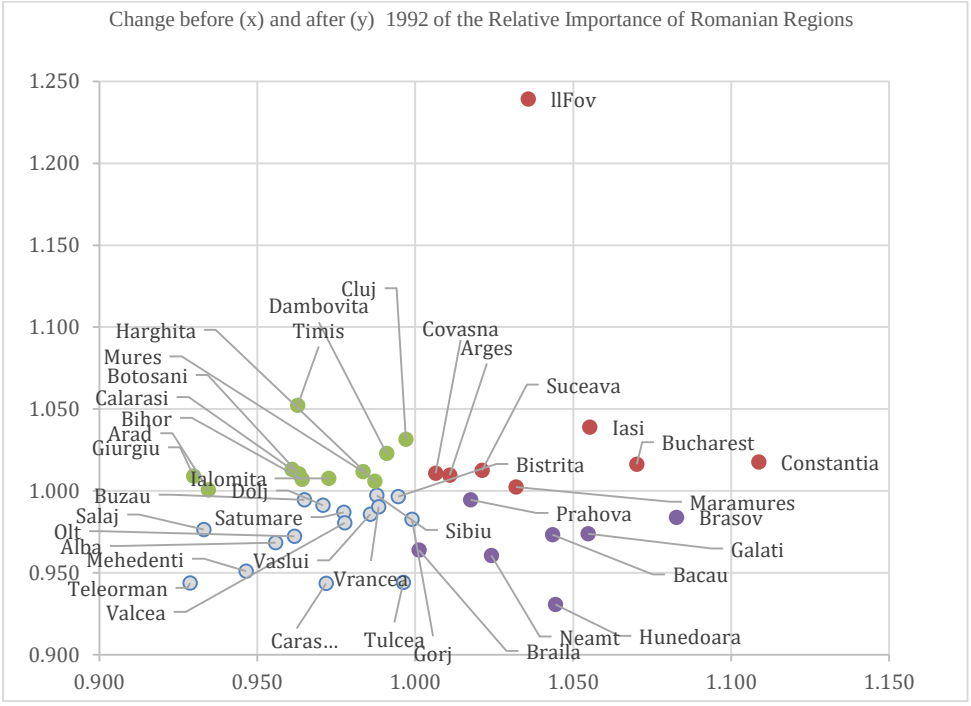
- *The looser regions that decrease their rank in the country for all the period.* Most of south-western NUTS3 regions of the country, far away from Europe and from Russia and having a strong specialization in agriculture (Teleorman, Dolj, Olt, Mehedinti etc.), belong to this group, but also counties nearby the major city-regions eventually subject to backwash effects from those poles (Tulcea, Vaslui, Botosani, Salaj, Bistrita Nasaud etc). Except for Dolj, which is a large-sized county, most of the regions belonging to this group are medium-sized or small territories without important local resources. As for the Dolj County, it ranked the second in the national hierarchy in 1948 and was earmarked for large investments during communism (e.g. in automotive and aerospace, energy sectors, electronics, chemicals etc.), but it has constantly lost its competitive position due to some strong structural weaknesses such as the low accessibility or the high rate of employment in (subsistence) agriculture.

- *The losers of transition, whose rank in the country deteriorated after the fall of the communism.* This group comprises seven NUTS3 regions spread throughout the Romanian territory (Brasov, Prahova, Bacau, Neamt, Hunedoara, Braila and Galati) that have been heavily industrialized during the communist period and suffered from important restructuring processes during the 1990s. Most of the „losers" had a strong specialization in mining (Hunedoara), oil extraction and refining (Prahova, Bacau), metallurgy (Hunedoara, Galati) and/or chemical industry (Prahova, Braila, Neamt, Bacau) and had difficulties in adjusting to the post-1989 economic realities. The fall of Hunedoara was particularly spectacular (Benedek, 2006), as in the 1990s a large number of mines were closed down and unemployment

rates have risen dramatically. The restructuring of the local industry (engine building and aircraft industry), coupled with the return of the workers to their home towns and the emigration of ethnic minorities also explain, to large extent, the high population loss in the case of Brasov (Schoenberg and Constantin, 2014), which is, nevertheless, one of the most prosperous regions in Romania.

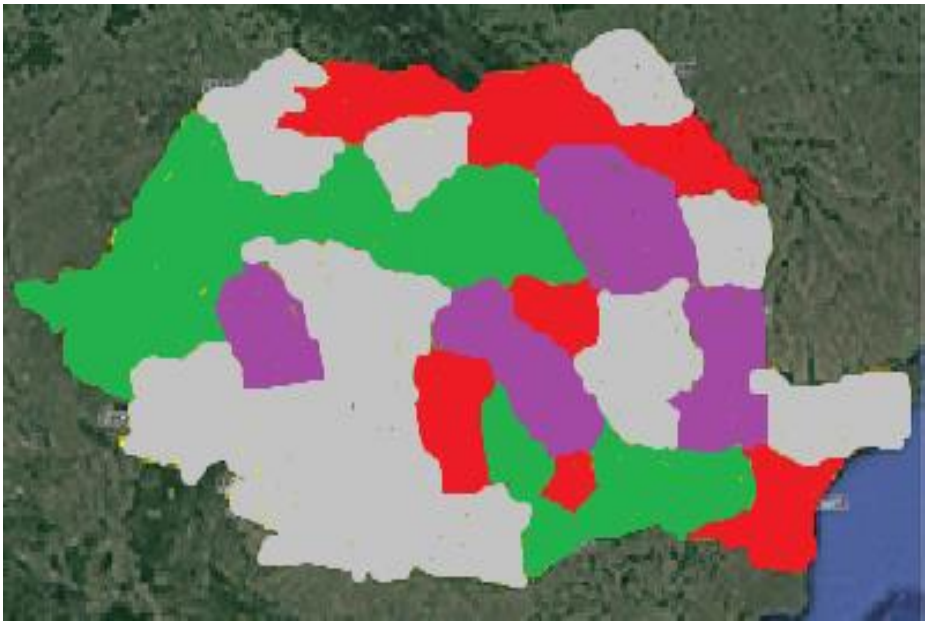
- *Finally, the winners from the European integration* are in the surroundings of the capital city-region (Giurgiu, Ialomita, Calarasi, Dambovita) and in the axe connecting this region with Europe. The western part of the country benefited the most from the opening of the economy and the geographic proximity to the European markets, which led to substantial foreign direct investments. Consequently, the counties of Cluj, Timis, Bihor, Arad, Mures have all managed to recover the competitiveness losses from the communist period and to embark on positive growth trajectories. Similar to Bucharest, the leading urban centres of Cluj (Cluj-Napoca) and Timis (Timisoara) have important economic gravitational pull effects on their surrounding areas and continue to be "people magnets" (Ionescu-Heroiu *et al.*, 2013).

Figure 2. Winner and loser Romanian NUTS3 regions from socialism and capitalism



Source: Authors' representation.

Figure 3. Winner and loser Romanian NUTS3 regions from socialism and capitalism



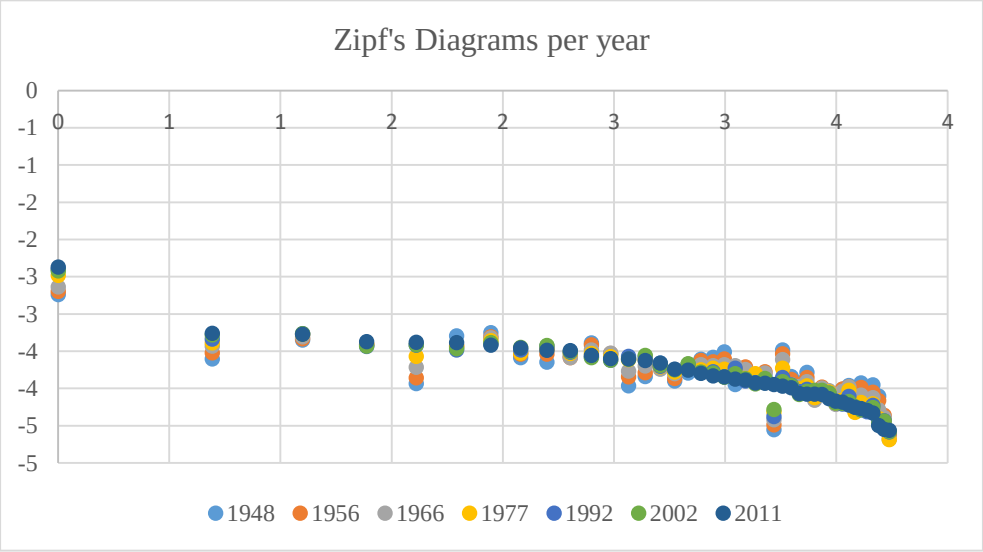
Source: Authors' representation; winners (red), winners from European Integration (green), losers from transition (violet), losers (grey).

2.2. Demographic resilience of Romanian NUTS3 regions

Figure 4 shows the Zipf diagrams that relate the Logarithm of the Regional Rank to the Logarithm of the Regional Population Weight in Romanian Total Population. It is interesting to note the demographic resilience of the middle size regions and the greater population variability of big city regions like Bucharest, Iasi and Constanta and the smaller NUTS3 regions of the periphery, a phenomenon that is also seen in other Zipf profiles (Dentinho, 2017).

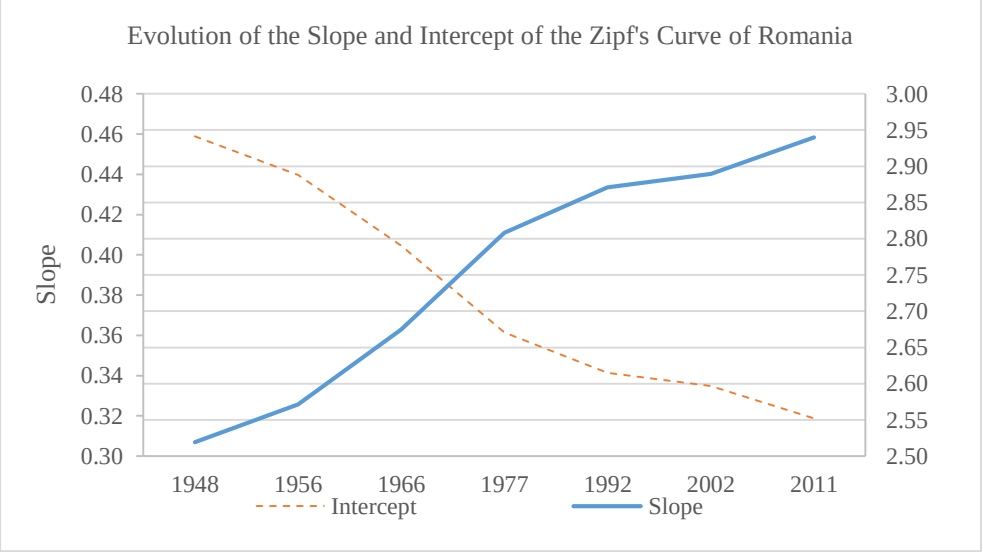
Figure 5 shows the evolution of Zipf Curve Coefficients, represented with positive signs to facilitate the perception of the concentration of the population. Since the regressions are linear, as the slope increases, the vertical axis the intersection decreases. The evolution of the slope of the Zipf's Curve confirms the increasing concentration of the population of Romania around the major city-regions. Moreover, the concentration process along the period of socialism is stronger than after the fall of the Berlin Wall. Nevertheless, the Romanian integration in the European Union increased again the concentration process. This shows that politics interferes with the hierarchy of the urban network as reported in the literature (Henderson, 2003; Brülhart and Sbergami, 2009; Dentinho, 2017).

Figure 4. Zipf's diagrams of Romania Regions per year



Source: Authors' representation.

Figure 5. Evolution of the Zipf's curve coefficients

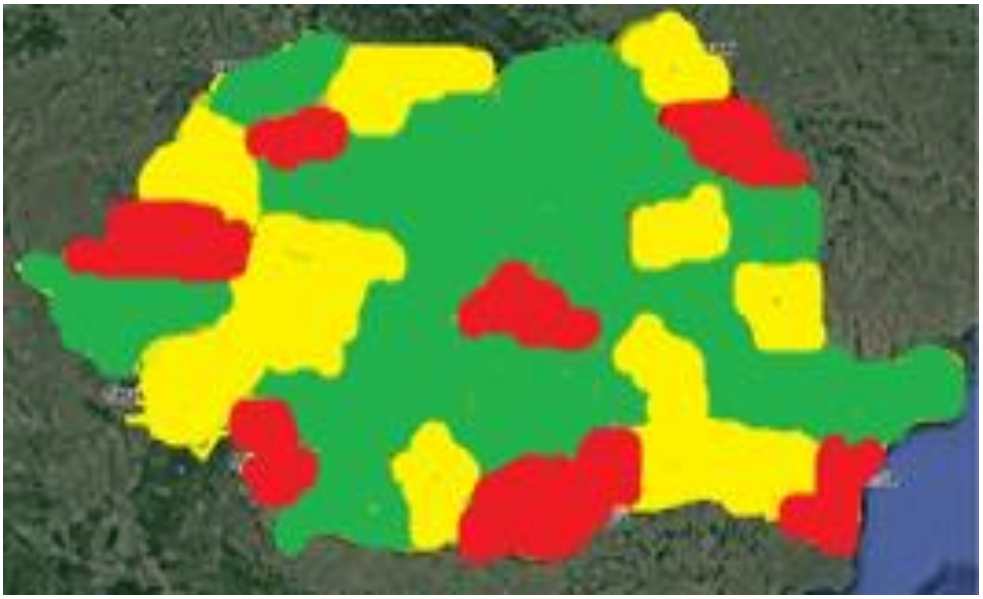


Source: Authors' representation.

Looking at Figure 5, it is clear that the standard deviation of the population weight by regional rank, that can be a measure of demographic resilience, is smaller for middle size cities and greater for smaller city regions and big city regions.

Figure 6 maps the results into three levels of demographic resilience: high resilience represented by the NUTS3 regions in green; low resilience represented in red; and medium resilience represented in yellow. As said before, low resilience is present in the large regions of Bucharest (and Ilfov, the "satellite" of Bucharest), Iasi and Constanta, but also in two medium-sized counties (Brasov and Arad) and a number of small and remote areas (Salaj, Mehedinti, Giurgiu, Teleorman).

Figure 6. Demographic resilience of Romanian NUTS3 regions



Source: Authors' representation; high resilience (green), low resilience (red), medium resilience (yellow).

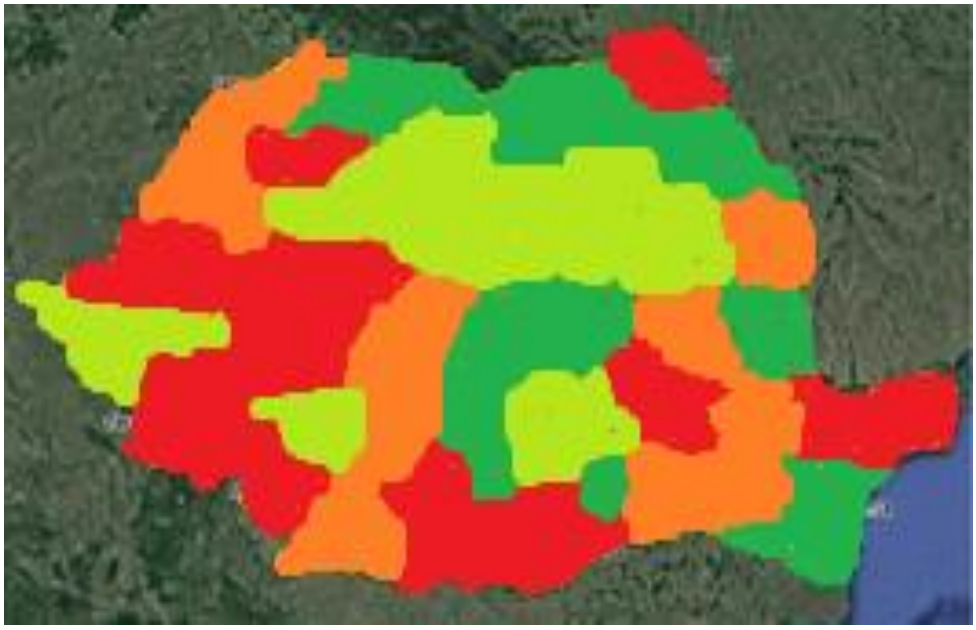
The population of Bucharest has more almost doubled in the analyzed period (from 1,02 million inhabitants in 1948 to 1,88 million inhabitants in 2011) and the capital city was inhabited by 9,36% of the country population in 2011 (vs. 6,46% in 1948), a fact which generates more than a quarter of the national GDP. Such a "hypertrophy" of the capital city is a phenomenon specific to different other Eastern European countries (Banica *et al.*, 2017) and signals the existence of continuous transformation processes ("low resilience"). In their turn, Constanta, Iasi, Ilfov and Brasov have spectacularly improved their position in the national rank, thus facing permanent adaptation challenges, i.e. Constanta has climbed 22 positions in the national rank between 1948 and 2011, Brasov has climbed 18 positions, Ilfov 16

positions, while Iasi become the second largest Romanian county in 2011, even if it was only on the 13th position in 1948. At the other end of the spectrum, the low resilient small counties mentioned before have lost important percentages in the population weight due to some territorial reorganisations or different competitiveness losses. By far, Teleorman was the most affected county – it has lost 19 positions in the national rank from 1948 to 2011, which may be attributed to the fact that in communism was "artificially inflated" (Benedek, 2006).

2.3. Demographic sustainability of Romanian NUTS3 regions

Taking into account that the Zipf Curves for the population average of several decades represents a long-term equilibrium dictated by permanent characteristics of the territory, it is interesting to explain if each city region is below or above this hierarchical reference, assuming that the Zipf curve corresponds to a spatial justice profile and that there may be deviations caused by unilateral transfer of rents, taxes, expenses and remittances. Figure 7 represents the profile of the deviations of each of the NUTS3 regions in 2011 compared to the structural average revealed by six decades of population dynamics.

Figure 7. Demographic sustainability of Romanian NUTS3 regions



Source: Authors' representation; high sustainability (dark green); medium-high sustainability (light green); low sustainability (red), medium-low sustainability (orange).

With only two exceptions (Dolj and Bihor), all the first 17 counties in the 2011 national rank by population size have high and medium-high sustainability, which prompts the conclusion that large agglomerations are more successful in attaining the long-term equilibrium. Generally, the Central and Northeast parts of the country and the capital have more weight than the long-term indication of sustainability, whereas the South, and especially the South-West part has less weight than the long-term reference of sustainable population. The identification of the sustainable weight based on environmental, technological, economic and institutional capabilities is an exercise that deserves further attention.

3. Discussions and conclusions

The objective of the reflection was to perceive phenomena of spatial justice by resorting to the analytical scheme of the Zipf Curve that analyses the hierarchy of NUTS3 regions in Romania. This was possible only with data on population evolution by regions and the identification of historical facts that help explain that evolution. The exercise developed allowed us to identify the demographic resilience in the population hierarchy and the historical evolution in the relative sustainability of the NUTS3 regions.

There are several conclusions that can be derived from our study. First, our analysis reveals that the various attempts made to enforce the growing potential of different city regions were not fully successful in counterbalancing the dominance of Bucharest, which is still gaining momentum in the national hierarchy. Second, the evolution of the slope of the Zipf's Curve confirmed the increasing concentration of the population of Romania around the major city-regions, both before and after the fall of the communism; urban concentration is evident above all by reducing the weight of smaller regions. Third, our study reveals that there is resilience in the population hierarchy of the medium sized city regions of Romania, but that the large agglomerations are more successful in attaining the long-term equilibrium. Finally, we found a general divide between the South (especially the South West) and the Central and North Eastern parts of the country. The South - which is predominantly agricultural - has more city-regions that lost weight during the socialist regime and during the capitalist regime. On the other hand, the South East is also less sustainable once assessed by the difference between their real population weight and the potential population weight. The major cities of Bucharest, Iasi and Constanta, but also the major winners from European Integration (Cluj and Timis) bring more sustainability to the area, although creating backwash and spill over effects in their neighbour regions.

The impact of public interventions on the population dynamics of sites is clear in the various phases of the post war period: recovery from war, socialistic rule, market rule and European integration. In other words, public intervention interferes with city-region hierarchy, demographic resilience and sustainability. In future

works it will be convenient to deepen the knowledge about the factors that mark the resilience of the Zipf Curves as well as to understand how policies can improve development, demographic resilience and sustainability.

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Annex 1. Evolution of the Population of the Romanian Regions

Population by Region and Census							
Regions	1948	1956	1966	1977	1992	2002	2011
ALBA	361062	370800	382786	409634	413919	382747	342376
ARAD	476207	475620	481248	512020	487617	461791	430629
ARGES	448964	483741	529833	631918	681206	652625	612431
BACAU	414996	507937	598321	667791	737512	706623	616168
BIHOR	536323	574488	586460	633094	638863	600246	575398
BISTRITA-NASAUD	233650	255789	269954	286628	326820	311657	286225
BOTOSANI	385236	428050	452406	451217	461305	452834	412626
BRASOV	300836	373941	442692	582863	643261	589028	549217
BRAILA	271251	297276	339954	377954	392031	373174	321212
BUZAU	430225	465829	480951	508424	516961	496214	451069
CARAS-SEVERIN	302254	327787	358726	385577	376347	333219	295579
CALARASI	287722	318573	337261	338807	338804	324617	306691
CLUJ	520073	580344	629746	715507	736301	702755	691106
CONSTANTA	311062	369940	465752	608817	748769	715151	684082
COVASNA	157166	172509	176858	199017	233256	222449	210177
DAMBOVITA	409272	438985	453241	527620	562041	541763	518745
DOLJ	615301	642028	691116	750328	762142	734231	660544
GALATI	341797	396138	474279	581561	641011	619556	536167
GIURGIU	313793	325045	320120	327494	313352	297859	281422
GORJ	280524	293031	298382	348521	401021	387308	341594
HARGHITA	258495	273964	282392	326310	348335	326222	310867
HUNEDOARA	306955	381902	474602	514436	547950	485712	418565
IALOMITA	244750	274655	291373	295965	306145	296572	274148
IASI	431586	516635	619027	729243	811342	816910	772348
ILFOV	167533	196265	229773	287738	286965	300123	388738
MARAMURES	321287	367114	427645	492860	540099	510110	478659
MEHEDINTI	304788	304091	310021	322371	332673	306732	265390
MURES	461403	513261	561598	605345	610053	580851	550846
NEAMT	357348	419949	470206	532096	578420	554516	470766
OLT	442442	458982	476513	518804	523291	489274	436400
PRAHOVA	557776	623817	701057	817168	874349	829945	762886
SATU MARE	312672	337351	359393	393840	400789	367281	344360
SALAJ	262580	271989	263103	264569	266797	248015	224384
SIBIU	335116	372687	414756	481645	452873	421724	397322
SUCEAVA	439751	507674	572781	633899	701830	688435	634810
TELEORMAN	487394	510488	516222	518943	483840	436025	380123
TIMIS	588936	568881	607596	696884	700033	677926	683540
TULCEA	192228	223719	236709	254531	270997	256492	213083
VASLUI	344917	401626	431555	437251	461374	455049	395499
VALCEA	341590	362356	368779	414241	438388	413247	371714
VRANCEA	290183	326532	351292	369740	393408	387632	340310
BUCURESTI	1025180	1177661	1366684	1807239	2067545	1926334	1883425

Source: INS (2011), available at recensamantromania.ro/rezultate-2/.