International Journal of Innovative Technologies in Social Science

e-ISSN: 2544-9435

Scholarly Publisher
RS Global Sp. z O.O.
ISNI: 0000 0004 8495 2390

Dolna 17, Warsaw,
Poland 00-773
+48 226 0 227 03
editorial_office@rsglobal.pl

ARTICLE TITLE	A REVIEW OF CITIES HIERARCHY IN ALGERIA USING THE RANK-SIZE RULE
ARTICLE INFO	Ahmed Bousmaha, Aibeche Roufeida, Bouleksa Leila, Bakiri Hadia. (2024) A Review of Cities Hierarchy in Algeria Using The Rank-Size Rule. *International Journal of Innovative Technologies in Social Science*. 4(44). doi: 10.31435/ijitss.4(44).2024.3084
DOI	https://doi.org/10.31435/ijitss.4(44).2024.3084
RECEIVED	30 November 2024
ACCEPTED	15 December 2024
PUBLISHED	18 December 2024
LICENSE	The article is licensed under a **Creative Commons Attribution 4.0 International License.**

A REVIEW OF CITIES HIERARCHY IN ALGERIA USING THE RANK-SIZE RULE

Ahmed Bousmaha
Dr., Professor, University of LARBI BEN M'HIDI OEB, Algeria
ORCID ID: 0000-0001-6604-0732

***Aibeche Roufeida** (Corresponding Author)*
Dr., Lecturer, City and Health Laboratory, University of LARBI BEN M'HIDI OEB, Algeria
ORCID ID: 0000-0002-8344-527X

Bouleksa Leila
Dr., Lecturer, University of LARBI BEN M'HIDI OEB, Algeria
ORCID ID: 0009-0003-9261-587X

Bakiri Hadia
Dr., Lecturer, City and Health Laboratory, University of LARBI BEN M'HIDI OEB, Algeria
ORCID ID: 0000-0002-3440-4260

ABSTRACT

Algeria's economic and social changes in recent decades have resulted in major shifts in the geographic distribution of its people. The phenomenon of urbanization in Algeria is relatively recent and is characterized by its very rapid growth and deep disparities in its spatial arrangement. Algeria, has an ancient urban tradition and is experiencing an accelerated urbanization process, with a scale unsurpassed for several decades.

The purpose of this article is to investigate urban expansion and the phenomenon of urbanization in Algeria. Between 1954 and 2008, two processes occurred: the extension of existing urban districts and the urbanization process. This was an era of tremendous economic, social, and political changes in Algerian society.

Our study was primarily based on the Algerian General Census of Population and Housing (ONS, 2008) and the use of the city-size criterion (city range-size distribution) in accordance with Zipf's hierarchical model.

In this study, we examine urban growth and the phenomena of urbanization, which is caused by the development of the strata of existing urban centers or by the transition from rural to urban between 1962 and 2008, a period of major economic, social, and political change.

KEYWORDS

Urban Growth, Urban Hierarchy, Urban System, Urbanization

CITATION

Ahmed Bousmaha, Aibeche Roufeida, Bouleksa Leila, Bakiri Hadia. (2024) A Review of Cities Hierarchy in Algeria Using The Rank-Size Rule. *International Journal of Innovative Technologies in Social Science*. 4(44). doi: 10.31435/ijitss.4(44).2024.3084

Introduction.

Algeria's population's geographic distribution has changed significantly as a result of the country's recent economic and social changes (references). The most notable fact is thought to be the population shift from a traditional rural to a modern urban civilization. Alongside administrative advancements and industrial settlements over the nation, the urbanization movement has become considerably stronger.

All things considered, the regional urban framework's contours, which have existed since independence, precisely correspond to the colonial spatial organization's structure. To make exports to the Metropolis easier,

the French depended on port cities. In terms of the composition and the order of importance of the urban centers, the coastline exhibits essentially different characteristics from those of other regions.

The growth of the largest city, Algiers, as well as other coastline major cities like Constantine (Inland Metropolis), Oran (Western Metropolis), and Annaba (Eastern Metropolis), dominate it. Although the urban structure was enhanced by a number of centers between 1966 and 2008, it still exhibits the same spatial disparities and puts organized and well-urbanized areas against those that are poorly urbanized and delayed.

Algeria's urbanization phenomena is relatively new and is distinguished by its extremely fast expansion and severe geographical inequalities. Algeria has a long history of urbanization and is currently going through a rapid urbanization process that hasn't been seen in decades.

According to Marc Côte (1993), "Although very old by its roots, urbanization in Algeria appears to be very recent in its magnitude." He also notes that for a number of decades, this process has taken the form of an urban boom that has disrupted mentalities, landscapes, and society as a whole. Every period, the process of urbanization depended on the economic environment, was frequently brought on by historical or economic occurrences, and occurred on various spatial-temporal sequences. Raham (2001).

Rahmani (1982) mentioned that Algeria's history of urbanization is thus composed of a sequence of successions and ruptures that correspond to the various activities of the nation from antiquity to the present.

The remarkable rise of micro-urbanization, or little towns, is the primary characteristic of the urbanization pattern today. As noted by Bastié (1991), the city that once served as the primary hub for trade has evolved into a hub for production and consumption. It is also increasingly becoming the location of political, financial, intellectual, and religious leaders, as well as the center from which paradigm shifts and development have spread throughout the countryside.

This study examines urban growth and the phenomenon of urbanization, which are caused by the stratification of existing urban centers or the transition from rural to urban areas between 1962 and 2008, a time of profound political, social, and economic transformation.

Our study is mostly based on Algeria's general population and housing census, as well as the use of Zipf's low city rang-size distribution criterion. In modern regional planning, the study of urban hierarchies and their development holds a significant position.

The aim of this study is to examine the demographic changes in Algerian cities over a period of time sufficient to characterize the features of the country's city system and the development of urban hierarchies. Lastly, we will provide an overview of the outcomes and discuss the lessons that land use regulations can obtain.

1.1. Urban growth and transition from rural to urban in Algeria

During the colonial era (1886–1954), the rate of urbanization ascended slightly, from 13.9% to 25% in 1954 (an increase of 11.1 percent in 68 years). The rate rose by 34.5 percent in 42 years, from 31.4% in 1966 to 65.94% in 2008, following independence.

To put it differently, Algeria underwent a demographic shift, progressively becoming a largely urban culture with an urbanization rate of 65.9% in 2008, after being a 75% rural society in 1954 (Figure 1). With 11.5 million people living in each, 1987 is highlighted in this figure as the year when the populations of rural and urban areas balanced.

The sprawling of the current metropolitan metropolis or the urbanization process itself are what make modern urbanization unique. The remarkable expansion of small cities is the primary characteristic of this urbanization drive. Small and medium-sized cities in the inner country have primarily benefited from the nation's modernization efforts, which include a vigorous industrialization process, an expansion of the state's role, a densification of the administrative framework, regional planning policy, and actions. These efforts aim to establish socio-spatial justice and lessen the extreme polarization along the coastline. Since then, the accumulation of capital, services, and industry has caused these agglomerations to grow quickly. Despite claims of desertion, Figure 1 illustrates how the rural population is still increasing.

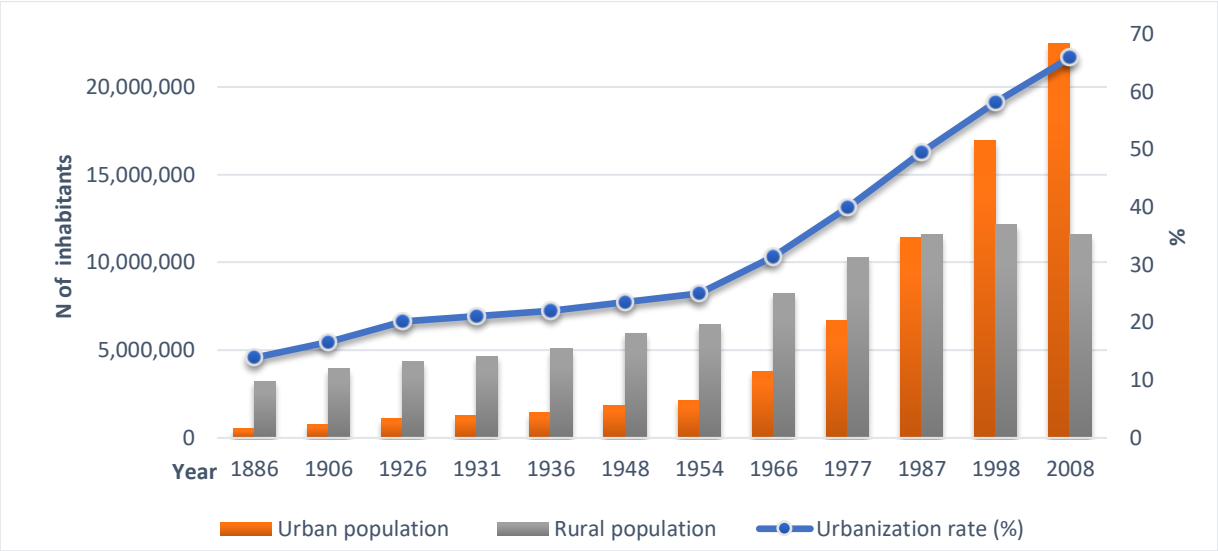

Fig. 1. Evolution of urban and rural population in Algeria from 1886 to 2008 and the progression of its urbanization rates

1.2. The unequal distribution of urban reality in urban reality

Algeria's urban structure frequently exhibits territorial disparities, which are caused by the country's varied physical settings, the effects of French colonization, and the development policies put in place since independence. In fact, Algeria's urbanization is by no means a uniform process; rather, its history is composed of interruptions and successions that correspond to the different activities of the nation from antiquity to the present.

The emergence of the highly accentuated littoralization profile (also known as the coastal overdevelopment effect, which is the process of population and activities being concentrated on the coasts) was caused by colonial urbanization, which was entirely focused on the city and supported by the road network and completely extroverted activities.

Indeed, the data in Table 2 clearly illustrate the unequal distribution of populations and confirm the phenomenon of littoralization in Algeria.

Table 1. Changes in population and density across the three major sets of Algerian physical space

Physical space	Surface area (km^2)	Population (thousands)			Density inhabitants/km^2		
		1987	1998	2008	1987	1998	2008
Coastal strip	45000 (1.9%)	8904 (38.6%)	11000 (37.8%)	12342 (36.2%)	197.8	244.4	274
Tell and steppe	255000 (10.7%)	12145 (52.7%)	15300 (52.6%)	18010 (52.9%)	47.6	60	70.6
Sahara	2081000 (87.3%)	2002 (8.7%)	2801 (9.6%)	3728 (10.9%)	0.96	1.35	1.8
Whole country	2 381 741	23 051	29 113	34 080	9.7	12.2	14.3

Following independence, the concentration of people and activity on the coastal edge strengthened the littoralization phenomena, particularly in the 1970s as a result of the "industrial industry" program put in place by the government at the time. This phenomenon of littoralization can be explained by a number of factors, such as the devaluation of agriculture, which has led to a large-scale rural population exodus to the coastal zone, and the development of the coastal zone, which has promoted urban sprawl concentration on small areas, thereby establishing the conditions for the emergence of cities with a linear corridor on the coastal strip.

It has caused the North and the rest of the country to be out of balance regionally. To support this, Rahmani (1982) noted that in the Maghreb, the most destitute areas are viewed as having regional variations and inequities, which are fundamentally what are becoming pathological. Under these circumstances, there are actual lifestyle antinomies in a diverse and disarticulated Maghreb environment. The land-use planning policy at the time was primarily concerned with these geographical distortions. A rebalance in favor of small and medium-sized cities in the inner nation has followed the dominance of large coastal cities. The complexity of urban structure can be explained by the variety of regional circumstances and geographic limitations.

1.3. Algeria's urban structure's evolution

At this level, the scope of threshold research is shortened. The study of urban structure is still a good medium of empirical analysis and permits the distribution of places in a region or country within preset demographic thresholds. The shift from one structure to another is characterized by a threshold, which is a breach between two systems. However, this threshold is subject to alter based on how space develops. At this stage, we must orient oneself by identifying or searching for the borders between the various layers utilizing logical methods.

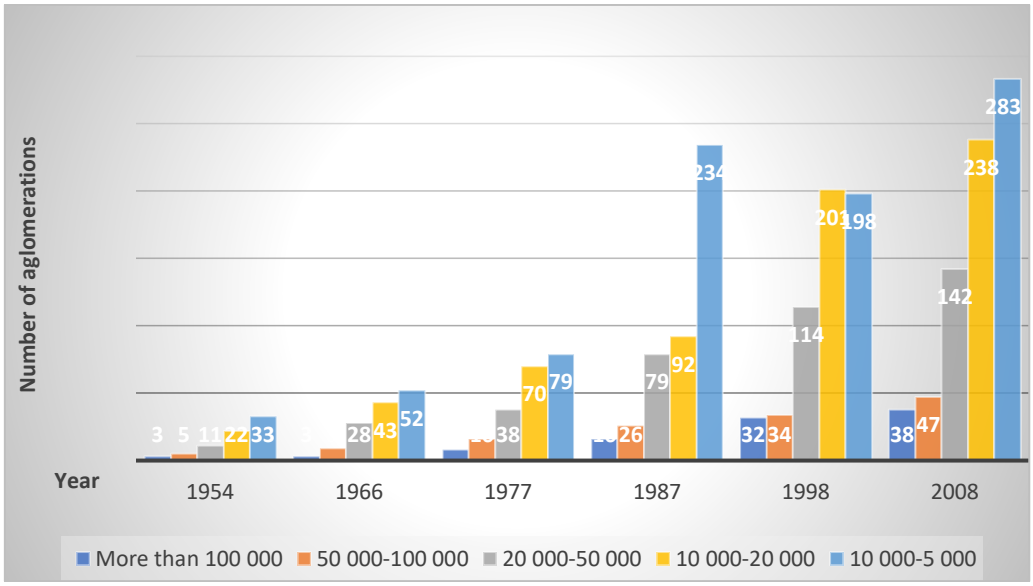

Fig. 2. Evolution of the number of agglomerations by size classes in Algeria from 1954 to 2008

Figure 2 shows that the evolution of urban units has been gradual since 1954 but the most significant fact is the overwhelming weight of the number of small towns with 88% of the total, while large and medium-sized cities, they represented consecutively 5.08 % and 6.28% in 2008.

1.4. The intensification of the urban frame through the transition from rural to urban

Our analysis of a sufficiently long period shows that significant changes have occurred in the urban population in Algeria (Figure 2). Among the 748 urban cities registered in 2008, 674 were rural settlements in 1954 which represent more than 90% of the total. In detail, the transition from rural to urban has been done in the following way (Figure 3): (1) Algeria had 74 urban settlements in 1954, (2) 62 rural settlements in 1954 became urban in 1966, (3) 75 rural settlements in 1966 became urban in 1977, (4) 236 rural settlements in 1977 became urban in1987, (5) 132 rural settlements in 1987 became urban in 1998, and (6)169 rural settlements in 1998 became urban in 2008.

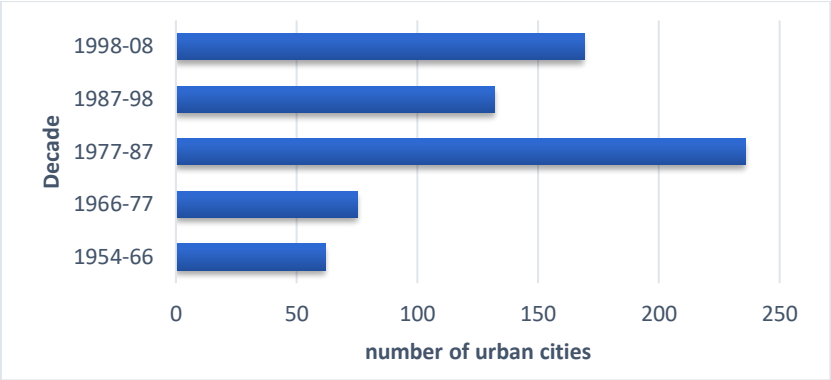

Fig. 3. The number of rural settlements switched to urban cities in each decade during the period 1954-2008 in Algeria

The Algerian urban structure has been enriched by 35 large cities (≥100 thousand inhabitants), 42 medium-sized towns (between 50,000 and 100,000 inhabitants), 121 small towns (between 20,000 and 50,000 inhabitants) and 464 urban settlements (between 5,000 and 50,000 inhabitants).

These data confirm that the originality of the Algerian urban network lies in the predominant place occupied by small towns. In 2008, small towns accounted for more than 80% of the urban frame compared with 72.93% in 1987 and 70.61% in 1977. Thus, the emergence of small towns (by transition from rural to urban) is an important component of urban growth in Algeria.

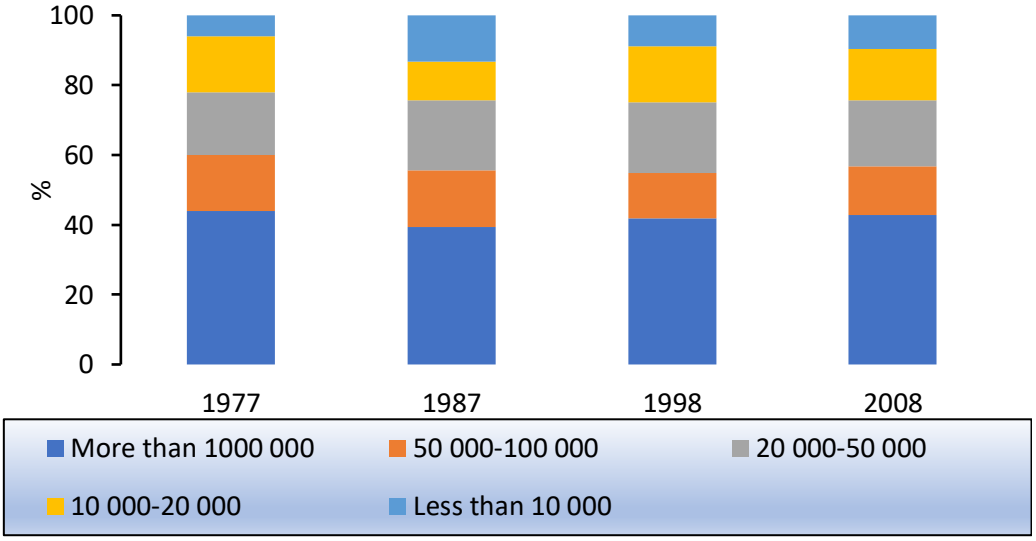

Fig. 4. Repartition of the total population by category of urban cities (urban cities were classified based on their size)

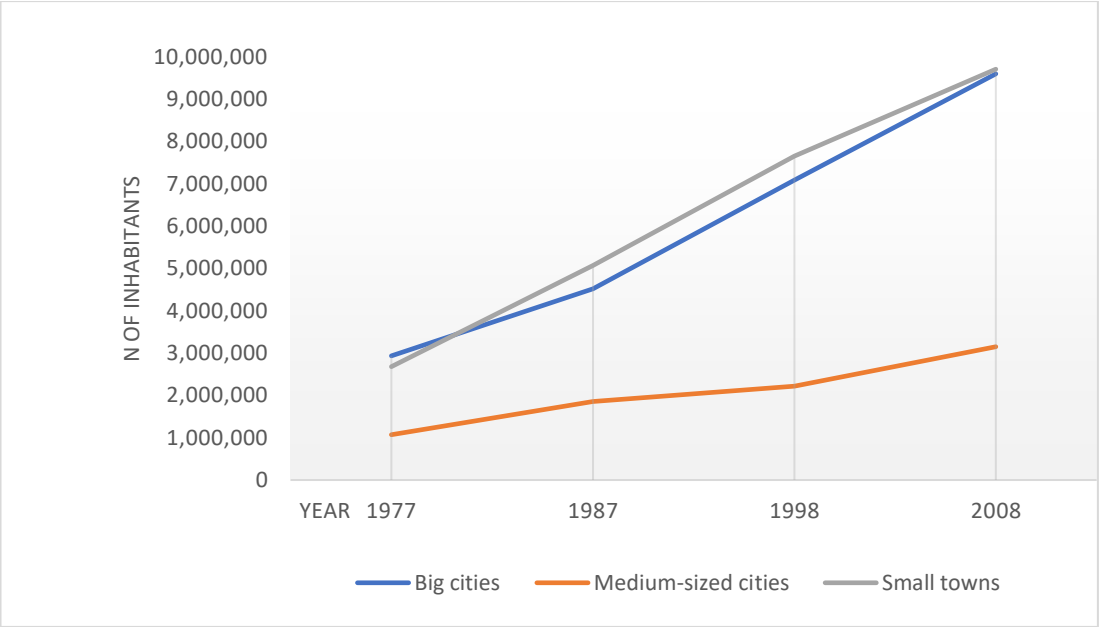

Fig. 5. Evolution of the urban population by category of cities from 1977 to 2008

According to Figure 4, the contribution of large cities to the total population has gradually decreased from 44% in 1977 to 41.8% in 1998, then it started to rise slightly (42.74%) again in the last census of 2008. However, the number of inhabitants that live in large cities boosted sharply, it increased from 2,935,461 in 1977 to 9,604,736 in 2008 which means a gain of 6,669,275.

The weight of medium-sized cities has sat around 16%. Nevertheless, the number of inhabitants that live in this city-class raised from 1,071,270 inhabitants in 1977 to 3,151,727 inhabitants in 2008 (a gain of 2,080,457 inhabitants). The weight of small towns increased sharply from 40% in 1977 to 47.6 in 1998 and then declined slightly to 43.23% in 2008. The number of inhabitants living in small towns rose from 2,680,054 in 1977 to 9,714,716 in 2008, a gain of 7,034,662. Thus, small cities, by their number and demographic weight, constitute an important component of urban growth in Algeria.

All intercensal periods have shown a rise in the urban population, particularly due to the migration of people from rural to urban areas. Despite the long-standing urban phenomenon, which is characterized by the elevation of numerous rural settlements to the status of urban areas and the elevation of multiple urban centers to a higher rank over the course of the census, the results in this context confirm that rapid urbanization is a relatively recent phenomenon. This urbanization trend has both endogenous and exogenous causes.

When a secondary urban center becomes a municipality, it gains administrative and political authority that frequently has positive economic effects.

The transition of many rural settlements into urban agglomerations, as well as the change in the administrative rank and qualifications of certain localities as a result of the industrialization process and the administrative reforms of 1974 and 1984, are the main indicators of this urbanization. As André Prenant has noted, the uniqueness of this urbanization therefore resides in the process of urbanization or in the growth of the strata of the current urban centers. The establishment and validation of these cities have been significantly influenced by the state.

In Algeria, the development of the urban network is mostly associated with urban growth. Between 1954 and 2008, the number of urban centers expanded tenfold, from 74 in 1954 to 136 in 1966, 211 in 1977, 447 in 1987, 579 cities in 1998, and 748 towns in 2008. However, one of the most notable aspects of Algeria's urbanization is the emergence of a small town seedling. One significant factor contributing to Algeria's urban expansion is the rise of small towns (due to the country's transition from rural to urban areas). The configuration, hierarchy, and spatial distribution of the urban system's components are heavily influenced by the context in which urbanization and expansion have occurred.

2. The Algerian urban system

2.1. The urban hierarchy: Rank-size distribution according to Zipf's law

Cities or population centers in a geographic area are studied using the rang-size distribution of cities, which is shown by a Cartesian diagram with sizes on the y-axis and rankings on the x-axis. In general, the units under consideration are placed in accordance with a curve that is somewhat stretched or concave. Cities' population size is a measure of their significance, but when comparing them to cities in nations with different levels of economic development, other metrics must be included. Due to the challenges of defining urban entities, which grow spatially as their population grows, determining a city's population can be challenging.

While administrative, industrial, commercial and service functions are highly representative of the attractive powers of cities, the urban population remains one of the most synthetic parameters of the measurement of urban fact.

The urban population is still one of the most artificial metrics used to quantify urban reality, even though administrative, industrial, economic, and service functions are excellent indicators of cities' allure.

In the great majority of nations, the GEOPOLIS global database's harmonized statistics also provide a very high primacy index. A closer look at statistics suggests that the demographic size of a capital city is frequently extremely near to that of a country with a similar urban population.

A synthesis of the distribution of cities based on their demographic sizes is made possible by Zipf's law, also referred to as the rank-size law. One of the most remarkable truths in the social sciences generally is this law.

Urban hierarchy has often been analyzed on the basis of the Rang-Size low, often known by Zipf's Law (1949), which has shown that the forces of spatial organization of concentration-dispersal act in such a way that the size of cities (P) is distributed regularly according to their rank (r) according to the relationship [25]:

$$P = b \times ra$$

where a and b are parameters that vary depending on spaces and periods.

For Thouez [26] when the angular coefficient of the linear fit is equal to 1, it leads to a very simple expression of Zipf's law.

$$Pn = P1/Rn$$

Where *P* and *R* area population size and rank, respectively.

According to the latter formula, it is enough to know the population of the first city to immediately deduce the size of all other cities and the total urban population. The population of *n* cities with more than 1000 inhabitants is by definition:

$$PT = P_1 + P_2 + P_3 + ... + P_n$$

$$Or: PT = P_1 + P_{1/2} + P_{1/3} + ... + P_{1/n}$$

$$Or\ even: PT = P_1 (1+1/2+ 1/3 + ... + 1/n)$$

To visualize Zipf's law, cities are ranked by population number and a graph of the logarithm of the ranks on the x-axis and the logarithm of the populations on the y-axis which generates a straight line whose slope is close to (-1). The rank one city will have a population (size) twice that of the rank two city. The observation is first empirical and the interpretation of the observed regularity has been proposed in hindsight, intuitively as emanating from a balance between agglomeration and dispersal forces. The city is a node in a hierarchical network of relationships, it is then defined by its relative position in a complex hierarchy of productive, social and territorial functions operating at regional or national levels.

Numerous indices can be used to measure primacy, ranging from the ratio to the second city (Jefferson index), to the next three cities (Stewart index), or even several other cities, In this context and to assess the degree of urban concentration in Algeria, Kedjar and Oukaci used the following indicators: the part of the largest city of the frame in the urban population (Prim), the share of the first city in the total population or the ratio of the largest city to the second city (Jefferson index), or to the next three cities (Stewart index), or to several other cities (Rosen and Resnick index).

The first city is often taken as the basic reference for analyzing the theoretical distribution of city size or for plotting the theoretical straight line. According to Belhedi, all other cities are determined according to this primatial city, while the straight line originates from P1. It turns out that the first city is, itself, the product of the urban system and the central paradigm of the Zipf's law is this distribution of cities within the urban system and the hierarchical relationship that connects the different urban centers.

He adds that often the gap between the first city and the other cities is so large and tenacious that it contributes to completely distorting the entire urban system. This gap is not only demographic, it is also economic, political, social, cultural and spatial. The share of the first city in the urban population is a good indicator of primacy. This simple indicator has the merit of expressing the weight of the primatial city in relation to the entire urban system:

p1= P1/ΣP.

- The ratio between the real population (P1) and the theoretical population (b) of the first city:

p2 = P1/b

This ratio is all the morehigh since primacy is pronounced. The unit means regularity while values greater and lower than 1 indicate primacy and compacting summit, respectively.

- The ratio of the difference between the observed (P1) and theoretical (b) sizes to the theoretical size of the first city:

p3 = (P1 - b)/b

or p3 = P1/b - 1 = p2 - 1.

This index is null when the theoretical size is equal to the real size. It is negative when the real size is smaller than the theoretical size. The extreme value is reached when all cities are equal. It is positive when all cities are equal, and the maximum value is reached when most of the urban population is concentrated in the first city. The primacy index is the ratio between the two largest cities. This primacy index can be equal to the macrocephaly index when the highest ratio between two successive cities in the hierarchy is between the 1st and 2nd city. In this case, the higher the value of the index, the more it corresponds to that of hierarchical organizations of polarized systems of cities. A low primacy index, lower than the macrocephaly index, may indicate bipolar, multipolar or even homogeneous organizations.

Table 2. Evolution of Primacy indices (calculated for Algeria) from 1954 to 2008

Indicator	1954	1966	1977	1987	1998	2008
Urban population ΣPU	2 157 938	3 778 482	6 686 785	11 444 249	16 966 937	22 471 179
Total population ΣPT	8 614 704	12 022 000	16 948 000	23 038 942	29 100 863	34 080 030
Prim (%) p1= P1/ΣPU	27.6	24.97	20.25	13.17	9.25	10.61
Algiers' share of the total population (%) P1/ ΣPTx100	6.91	7.85	7.99	6.54	5.39	6.53
The weight of the 4 largest cities in relation to the total urban population (%) Prim 4 = P1+P2+P3+P4/ ΣP	51.45	44.44	36.55	25.18	21.4	17.61
Jefferson Index (Ij) j = P1/P2	2.1	2.88	2.73	2.4	2.23	2.94
Stewart Index (Is) s = P1/(P2 + P3 + P4)	1.16	1.28	1.24	1.1	1.03	1.48

Between 1998 and 2008, the Jefferson Index rose from 2.23 to 2.94. In 2008, the population of Oran was just 803329, but that of Algiers was 2364230, about three times the population of the second-largest city in the urban system. Regarding the Stewart index, it shows a distinct decline in the urban structure of the cities immediately after Algiers (Annaba, Constantine, and Oran). The type of entities observed, the set taken into consideration, and the method used to estimate the entities' sizes all have an impact on the empirical findings of a rank-size study.

In Algeria, the portion of the first city in the urban population is a good index to measure primacy. This simple indicator expresses the weight of the primatial city in relation to the entire urban system: $p1 = P1/\Sigma P$. It is equal to 0.10 for Algiers, i.e., 10.61% of the urban population resided in Algiers in 2008.

According to the data in Table 2, the primacy indicators tend to increase, indicating a widening gap between the capital and other cities, which can be explained by the following factors: The expansion of the agglomeration of Algiers has extended to include a certain number of adjoining agglomerations, the second city, Oran, has continued to grow at a low average annual rate and the third and fourth cities (Constantine and Annaba) have recorded negative or low growth rates respectively, with in particular the transfer of population surpluses to other agglomerations or even to new cities such as Ali Mendjelli in the case of Constantine.

Furthermore, primatiality is an issue not just for the first city but also for those whose sizes diverge too much from those of its successors, as is the case with the regional metropolises of Oran, Constantine, and Annaba. This is particularly true when examining regional urban systems, as certain cities enjoy undeniable advantages that frequently outweigh those of other cities in the area. Replicating the national model of the capital, the majority of the major towns in the wilayas (provinces) assume charge of the whole wilaya's command and territory control apparatus.

The analysis of the Algerian urban system since independence on the basis of the Zipf's law allowed us to measure its various parameters. The results show that the capital Algiers has been a primatial city since 1954, despite the emergence of medium-sized cities and a proliferation of small towns. The Capital Algiers stands out from the rest of the cities and presents itself as a primatial city whose weight is predominant in the whole urban system. This situation can be explained by the strong polarization of the Algerian space

Furthermore, primatiality is an issue not just for the first city but also for those whose sizes diverge too much from those of its successors, as is the case with the regional metropolises of Oran, Constantine, and Annaba. This is particularly true when examining regional urban systems, as certain cities enjoy undeniable advantages that frequently outweigh those of other cities in the area. Replicating the national model of the capital, the majority of the major towns in the wilayas (provinces) assume charge of the whole wilaya's command and territory control apparatus.

The gaps between cities in this stratum and the fitted line are increasing, their observed population is lower than the theoretical population required by the model. Thus, the large cities with a population of over 150000 inhabitants, and comprising 21 agglomerations (from the 2nd to the 22nd rank) are under-represented in relation to the overall distribution.

However, the actual population of cities with tens of thousands to one hundred and fifty thousand residents is greater than the theoretical population. Convexity is also evident in small urban agglomerations with populations between 5000 and 10,000, as these agglomerations fall below the fitted line. This indicates that small and medium-sized cities are strengthening the urban system. Small and medium-sized towns (10000–15000 residents) are also a vital component of Algeria's urban structure; they are regarded as critical gears in the wheel and are crucial to maintaining regional equilibrium.

The hierarchical curve of Algerian cities shows a convexity at the level of small towns. This convexity expresses the inflammation of the small towns whose number is relatively high compared to the whole urban system, as we have shown previously. The importance of small towns is linked to a process of urban growth that is largely achieved from the bottom. It is the small cities that are experiencing the highest rates of growth.

The situation can be altered by the variety of urban loosening in the urban peripheries. Nonetheless, the two basic concepts of hierarchical organization—the administrative hierarchy principle and the so-called "market principle"—are used to study the city system. They identify city networks that are hierarchical. According to L. Kaddouri, the "a-spatial" hierarchical organization models are always spatialized by the incorporation of proximity or neighborhood limitations (spatial constraints).

2.2. A macro cephalic urban system

Given the stark contrast between the first city (Algiers) and the immediately lower hierarchical levels, the Algerian urban system is equivalent to a macrocephalic system. The execution of initiatives pertaining to

the nation's rehabilitation and the meeting of the people's basic necessities in terms of infrastructure, housing, and equipment have defined urban development activities for a number of decades.

The proliferation of urban units, in particular, has been encouraged by these activities. The reclassification procedure, which takes a long time to reach the upper ranks of the hierarchy, determines the change in the number of urban units. Using this novel distribution method, it is clear that the Algerian urban system has a wide range of small urban units that could contain, in the long run, more populations than large urban units.

Despite legislation promoting the protection and preservation of agricultural land, urban and peri-urban agriculture seems to be little taken into account in the implementation of urban planning tools in our case study. Even though the development policies are struggling to influence the consumption of peri-urban agricultural spaces, coastal agricultural land is the most affected, as it is the site of multiple socio-spatial transformations.

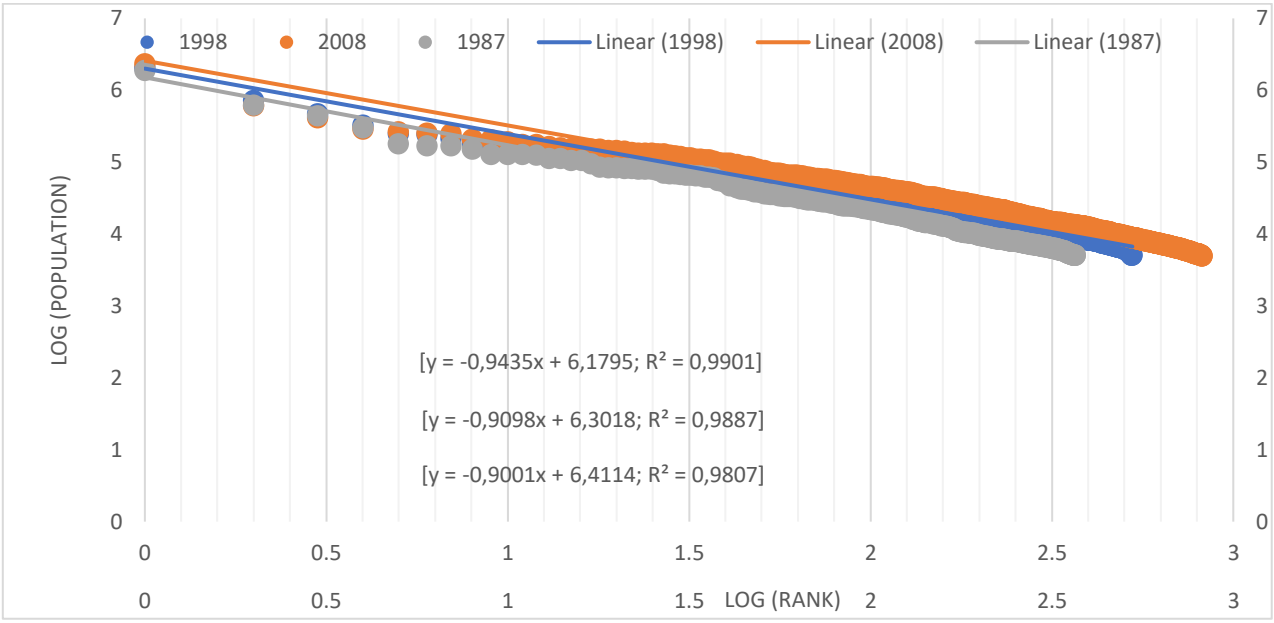

Fig. 6. Hierarchical distribution of cities with more than 5000 inhabitants in Algeria during 1987, 1989 and 2008

Conclusions

According to the study's findings, Algeria's urban primacy rate—that is, the proportion of the population in the country's largest city to that of other cities—rose until the 1990s before systematically declining, indicating that other cities are benefiting from Algiers' waning demographic dynamism. For Algeria's international trade, Algiers continues to be a major hub. It should be emphasized, however, that the concept of permanence is the first thing that emerges: the permanence of the hypertrophy of the Algiers agglomeration and the permanence of imbalances between regions where urban reality remains marginal, with historical (i.e., colonization legacies), natural (i.e., physical environment diversity and spatial duality plains/mountains), or political (i.e., unequal distribution of public investments) triggering factors.

The Algerian urban system's imbalance was demonstrated by the use of Zipf's law. In the country it controls as a capital, the primatial city of Algeria is without a doubt hegemonic. Algeria's urban growth model resembles a stochastic process that relies primarily on exogenous elements that are dispersed at random. According to this model, in a stationary condition, city sizes tend to follow Zipf's law, which is a Pareto distribution with a hierarchical coefficient of 1.

The expansion of small cities and the bolstering of the coastal urban axis's dominating and draining powers delineate the boundaries of regional integration policy, which encompasses the social and spatial imbalances of national formation.

We are encouraged to question this overly rigid perspective of urban dynamics and to move the "cursor" to the priorities for improved urban planning in light of Algerian city demographics and a more thorough

examination of the changes in urban hierarchies over the past three decades. The selected territory planning policy will determine Algeria's urban structure in the future.

REFERENCES

1. Belhedi. (2001). About the rang-size law: The impasses of a misinterpretation. Revue Tunisienne de Géographie. Tunis
2. Abed Bendjelid (1986). Planning and organization of space in Algeria. OPU. Algiers.
3. Abed Bendjelid (2001). "Armature urbaine et population en Algérie". Insaniyat / إنسانيات [Online]. 13 | 2001. put online on February 28. 2013. consulted on July 17. 2020. URL: http://journals.openedition.org/insaniyat/11253
4. André Prenant (1977). Aspects of urban growth in small urban centers in Algeria. E.R.A. 706 of the CNRS. University of Tours and C.I.EM.. University of Poitiers. fasc.3. pp.123-146.
5. André Prenant (1977). Aspects of urban growth in small urban centers in Algeria. E.R.A. 706 of the CNRS. University of Tours and C.I.EM.. University of Poitiers. fasc.3. pp.123-146.
6. Belhedi Amor (1992). "Le système urbain tunisien. Croissance urbaine et système hiérarchique". Revue Tunisienne de Géographie (RTG). 21/22. 1992. pp.177-191.
7. Belhedi Amor (2004). "Le système urbain tunisien. Analyse hiérarchique démo- fonctionnelle sur la base de la loi Rang-taille." Cybergeo: European Journal of Geography [Online]. Space. Society.Territory. document 258. Online since 09 February 2004. connection on 31 December 2020. URL: http://journals.openedition.org/cybergeo/3877; DOI: https://doi.org/10.4000/cybergeo.3877
8. Bousmaha Ahmed (2014). The role of small towns in the urbanization movement in Algeria: the case of the central region of the Algerian eastern tell. Revue Sciences et technologie Université Mentouri de Constantine. n°39 June 2014. pp 29-44. http://revue.umc.edu.dz/index.php/d/article/view/1723
9. Côte Marc (1983). L'espace algérien. les prémices d'un aménagement". O.P.U.. Alger. 1983.
10. Côte Marc. (1993): L'urbanisation en Algérie : idées reçues et réalités. Travaux de l'Institut de Géographie de Reims. n°85-86. 1993. pp. 59-72.
11. Denise Pumain (2003). L'invention permanente: la hiérarchie urbaine. 2003. HAL Id: halshs-00000476. https://halshs.archives-ouvertes.fr/halshs-00000476
12. Denise Pumain (2003). L'invention permanente: la hiérarchie urbaine. 2003. HAL Id: halshs-00000476. https://halshs.archives-ouvertes.fr/halshs-00000476
13. G. Zipf (1949). Human behavior and the principles of least effort. Cambridge. Mass. Addinson Wesley Press. Cambridge
14. Gabaix et Ioannides (2004). The evolution of city sizes' distribution in Henderson J.V et Thisse J-F. (eds) Handbook of regional and urban economics. vol.4. Elsevier Science B.B. Amsterdam. 2341-2376.
15. Gabaix Xavier (1999). Zipf's Law for Cities: An Explanation. The Quarterly Journal of Economics. Volume 114. Issue 3. August 1999. Pages 739-767. https://doi.org/10.1162/003355399556133
16. Guérin-Pace (1995). Rank-size distribution and the process of urban growth. Urban Studies. 32. p551-562 https://gallica.bnf.fr/ark:/12148/bpt6k3328718f/f12.item.texteImage
17. Kedjar M and Oukaci K. (2014). Évolution de la hiérarchie urbaine en Algérie: une analyse par la loi de Zipf.
18. Kedjar M. and Oukaci K.. (2014). Évolution de la hiérarchie urbaine en Algérie: une analyse par la loi de Zipf.
19. Lahouari KADDOURI (2004). Structures spatiales et mises en réseaux de villes pour la régionalisation des territoires. PhD thesis in geography. University Paul Valéry Montpellier 3. 2004.
20. Marc Côte (1993): L'urbanisation en Algérie : idées reçues et réalités. Travaux de l'Institut de Géographie de Reims. n°85-86. 1993. pp. 59-72.
21. Moriconi-Ebrard François (1993). The urbanization of the world since 1950. Anthropos. Collection Villes. Paris. 372 p.
22. Moriconi-Ebrard François (1993). The urbanization of the world since 1950. Anthropos. Collection Villes. Paris. 372 p.
23. Moriconi-Ébrard François (1994). Geopolis. To compare the cities of the World. Economica-Anthropos. Coll. Villes. Paris. 246 p.
24. Moriconi-Ébrard François (1998). Un modèle pour la croissance des systèmes urbains. la loi de la métropolisation. Géocarrefour. No. 73-1. pp. 55-70 https://www.persee.fr/doc/geoca_0035-113x_1998_num_73_1_4803
25. Najet Kasdallah (2013). Dynamics of urbanization of intermediate cities in the Maghreb (Algeria. Morocco and Tunisia): Chief town effect and development prospects. PhD thesis in geography. University of Cergy-Pontoise. 351 p.
26. Pumain D.. Sanders L. and Saint-Julien Th. (1989). Cities and self-organization. Paris. Economica.
27. Pumain Denise (1982). La dynamique des villes. Economica. Paris
28. Pumain Denise (2006). City systems and levels of organization. P. Bourgine. A. Lesne. Morphogenesis. L'origine des formes. Belin. pp.239-263. 2006. Echelles. halshs-00145939

29. Raham Djamel (2001). Les Structures Spatiales de l'Est Algérien. Territorial. urban and road networks... Geography. University of Constantine. https://tel.archives-ouvertes.fr/tel- 00288867/document
30. Raham Djamel. (2001): Les Structures Spatiales de l'Est Algérien. Territorial. urban and road networks... Geography. University of Constantine. https://tel.archives-ouvertes.fr/tel- 00288867/document
31. Rahmani Chérif. (1982): La Croissance urbaine en Algérie: Coût de l'Urbanisation et Politique Foncière. Office des Publications Universitaires 1982 318p.
32. Rahmani Chérif. (1982): La Croissance urbaine en Algérie: Coût de l'Urbanisation et Politique Foncière. Office des Publications Universitaires 1982 318p.
33. Rahmani Chérif. (1982): La Croissance urbaine en Algérie: Coût de l'Urbanisation et Politique Foncière. Office des Publications Universitaires 1982 318p.
34. Sanders Lena (2012). Regards scientifiques croisés sur la hiérarchie des systèmes de peuplement : de l'empirie aux systèmes complexes. Région et Développement. L'Harmattan. 2012. pp.127-146. ffhal-01416929e
35. Schaffar A. (2009). La loi de Zipf dans la science régionale: entre anciennes controversies et nouvelles perspectives. Cybergeo. paper 450
36. Taking A. (1977). Aspects of urban growth in small urban centers in Algeria. E.R.A. 706 of the CNRS. University of Tours and C.I.EM.. University of Poitiers. fasc.3. pp.123-146.
37. Thouez. J.-P. (1972). Study of the hierarchy of Quebec cities according to their population according to the Zipf model. L'Actualité économique. 48 (3). 519-525. https://doi.org/10.7202/1003786ar