



*Socio-economic variables as an approach to study the spatial dynamics of the population in the Algerian steppe region
The Province of El Bayadh as a Model*

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Abstract

This article aims to give a reading about the phenomenon of spatial dynamics of the population by tracking this phenomenon in Algeria, focusing on the steppe region within the province of El Bayadh to track the phenomenon according to several economic, demographic, urban dimensions, to determine the extent of the phenomenon and the mechanisms used to regulate the distribution of the population within the urban and rural space.

We conducted an exploratory study that included statistical monitoring of population centers, whether they exist physically or as a result of the movement and migration of populations internally or externally. We distribute a research questionnaire that contains several axes which include personal data of the population, an axis on attractions and another on expulsion factors. After collecting data on the phenomenon, it was treated by the SPSS program. We read the socio-economic statistical tables to compare them with the statistical data of the population of the Bogtob area during the time period 1998-2008, which helped us to draw conclusions about the movement of the population according to a theoretical approach to the existence of the phenomenon and a field study of the reality of the phenomenon according to an evolutionary perspective. The study

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concluded that there are prominent effects of the role of public service institutions in the socio-economic dimension in attracting the workforce, and this explains the state's approach in raising the pace in the tertiary sector (administration, trade) at the expense of other sectors.

Keywords: spatial dynamics, urbanization, attractions and expulsions, population distribution, public service institutions.

1. INTRODUCTION

The regional development policy in Algeria went through several stages, starting with the construction of the structure of the independent Algerian state in the mid-sixties through the organization of local institutions and the preparation of national and municipal plans until the emergence of regional planning and sustainable development at the beginning of the millennium, this period was punctuated by a number of economic changes and administrative promotions, most notably are the three administrative divisions (1963, 1975, 1985) (LANSARI & BELLAL, 2020, p. 741). These successive promotions consolidated urbanization process in the steppe thanks to planning and development projects in the region despite the deteriorating economic conditions of Algeria during that period. After the recovery of the public treasury with oil revenues at the beginning of the millennium, the state rushed to develop long-term plans through regional planning and sustainable development in order to consecrate the equilibrium of the national space through the strategy of the National Development Plan.

One of the most prominent features of the administrative division of 1985 was its focus on the creation of a network of small and medium-sized cities that would absorb rural migration which was directed towards the major urban centers on the coast, through the development of public service institutions as socio-economic incentives in line with the objectives of the central authorities who seeks to reorganize the distribution of population and economic activities across the steppe space. Where the steppe region witnessed profound administrative changes represented in the establishment of new provinces (including the province of Al-Bayadh, the subject of our study), this later was upgraded to the level of a province capital which include administratively (08 departments and 22 municipalities) distributed across the territory of the province. Due to the imbalance in the urban spatial distribution of the population, especially in the south of the state of El Bayadh, the institutional actors resorted to create a parallel urban pole in the north of the province of El Bayadh represented in the city of Bougtob with the rank of a district comprising 03 municipalities. In light

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of what this promotion requires to establish administrative service and socio-economic institutions to provide services (YOUSFI, 2014, p. 2) , temporary and permanent jobs for the local population which had a profound impact on attracting the population from Bedouins or villagers to this urban pole (the city of Bougtob), which doubled its population in a short period of time.

Problem focus

The city of Bougtob benefited from the promotion to the rank of constituency, thus becoming a center of administrative and service attraction for at least three municipalities. Through this promotion, in addition to its important communicative situation, it has attracted many qualitative administrative institutions that have resulted in attracting important economic institutions (CHADLI & HADJIEDJ, 2003, p. 5), which has had the impact of attracting capital leading to the creation of economic dynamism in the region.

To what extent is the city of Bougtob affected by the dynamic spatial movements of the population under the factors of attraction and repulsion?

2. The city of Bougtob: statistical and spatial reading of population periods (1966/1977/1987/1998/2008)

The population in 1966 was estimated at 2067 people to rise to 4234 in the 1977 census. as a reading of this population growth, we note that population have been more than doubled.

In the statistics of 1987, the number was estimated at 7715 people, which means that the population growth rate maintained its height with the same pace.

the third census of 1998 confirmed that urban population growth increased with 4,336 inhabitants which represents more than half of the original population in 1987, bringing the total population to 12,051 in 1998.

For the last census in 2008, the population was estimated at 16,412 people where a population increase of 4,361 people was recorded, which is similar to the population increase in the previous statistical period.

Table 1: Population statistics within statistical periods

Statistical periods	1966	1977		1987		1998		2008	
	Population	Population	Population urban growth rate	Population	Population urban growth rate	Population	Population urban growth rate	Population	Population urban growth rate
Bougtoob city	2067	4234	6.30	7715	5.30	12051	3.93	16412	3.13

Source: National Office of Statistics (ONS) + Directorate of Programming and Budget Follow-up

• **Statistical reading of the table data :**

From the figures of the table there is a variation in the population increase in Bougtob city, this is shown by the population data for each statistical period.

The development of the population was firstly, the year 1966 estimated at: 2067 people to be raised at the size of : 4234 people during the first statistical period (1966-1977) with a growth rate of 6.3%, which indicates that this stage represents the post-independence period, which reflects the behavior of the influx to cities and searching for stability.

In the second statistical period (1977-1987): the size of population was estimated at: 7715 people registering an urban growth rate of 5.3%, this clears that this stage knew a continuation of the phenomenon of nomadic exodus towards the city of Bougtob.

But in the third statistical period (1987-1998): the size of the population was estimated at: 12,051 people, which indicates an urban growth rate estimated at: 3.93%, which is a reflection of the security conditions which imposed the emigration towards urban agglomerations.

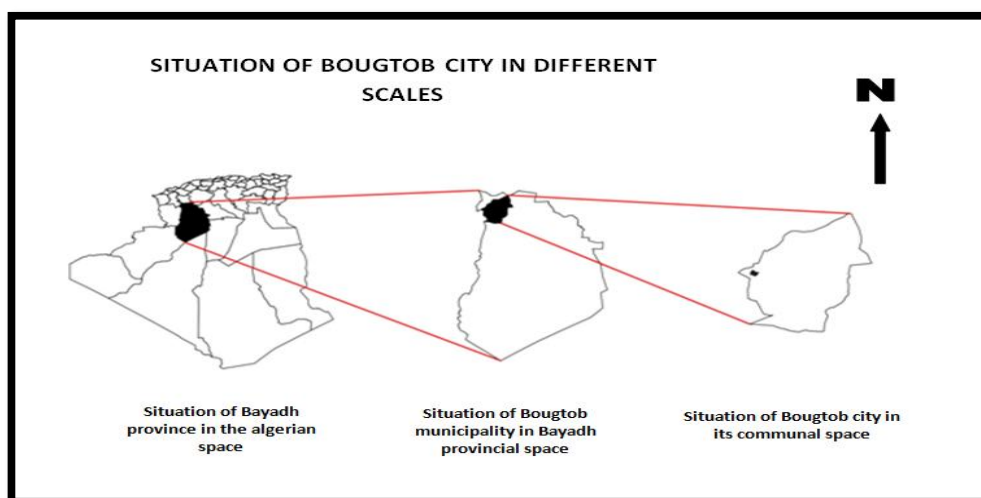
In the fourth statistical period (1998-2008): it appears that the size of the population was estimated at 16,412 people, with an urban growth rate estimated at 3.13%. This dynamism reflects the aim of nomads to integrate themselves in urban system relations in order to improve their living conditions and take part from housing programs and work opportunities.

3. An exploratory study of the phenomenon of rural migration in the city of Bougtob:

The exploratory study is one of the types of scientific research that the researcher uses in order to work on the implementation of the field study; it is usually used when the searcher has not full knowledge of the subject, so it helps him to improve his knowledge and makes him more in-depth in his study subject. the exploratory study can be considered as the starting point for scientific research in all its theoretical and applied (practical) parts, which works to enhance the researcher's confidence and continuity in his study subject. So, in this article we will discuss the exploratory study that we have done on the research topic.

Fields of study:

✓ **Spatial area** : Urban agglomeration of the municipality of Bougtob (main population center ACL).



✓ **Time period** : The study was during April 2022 until May 2022.

✓ **Human field** :

- Original society : 20,000 inhabitants
- Statistical society : 10% of the original community , equivalent of 2000 inhabitants
- Statistical target sample: 10% of the population , equivalent of 200 inhabitants

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Scientific research instruments used :

The used study instruments have been chosen according to the nature of the studied subject and the used method to collect data through the questionnaire form as a principal source. The interview instrument, the study of some statistics and documents as secondary sources according to the following:

- **Main sources:** questionnaire form, where it is a document containing a certain number of questions posed by the researcher to obtain answers from the researcher. The questionnaire form adopted in our study was organized in three research axis :

1- *Personal data questions:* age group, educational level, marital status, number of family members, nature of activity, year of arrival, tribal affiliation, original region.

2- *Questions related to repulsion factors:* geographical factors, demographic factors, agricultural factors, socio-cultural factors.

3- *Questions related to attraction factors:* social welfare factors, urbanization factors, service and administrative public institutions, economic factors.

- **Field Inspection Methods:** 200 forms were distributed randomly to the selected sample (simple random sample), where 163 forms were retrieved, due to the difficulty of communicating with the respondents, as well as the failure of 37 forms to meet all the answers, meaning that the percentage of data collection was estimated at: 81.5% of the total distributed forms.

- **Simple descriptive tables:**

➤ *Table 2: Distribution of study sample according to gender variable*

Gender	Frequency	Percentage %
Man	153	93.86
Woman	10	6.14
Total	163	100

Source: Outputs of the SPSS program

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Statistical reading:

It is clear from the table that the studied population is distributed by: 163 items of the male sex by 94.22% of the sample and repeatedly: 10 female sex items by 5.78%. As a translation of the table data, we note that most of the respondents are male, which reflects the nature of the population and the specificity of Bougtob city .

➤ **Table 3:** Distribution of the study sample according to the variable of the population influx area

Geographical location	Frequency	Percentage %
Tousmouline area	65	39.87
Kaf lahmar area	45	27.60
Kheither area	53	32.52
Total	163	100

Source: From the outputs of the SPSS program and adapted by authors

Statistical Reading

It is clear from the table and according to the variable of entrant migration that the city of Bougtob received an influx of people from several areas, distributed as follows:

- Tousmouline area represented by 65 units as a frequency from entrant migrants, which is equivalent to 39.87% of the total study sample.
- Kaf Lahmar area represented by 45 units as a frequency from entrant migrants, which is equivalent to 27.60 % of the total study sample.
- Kheither area represented by 32.52% which is about 53 units of the study sample.

This refers into the fact that the influx of inhabitants of the Tousmouline and Kheither areas was the result of the administrative subordination to Bougtob city.

As for the influx of residents of the Kef Lahmar area, this is due to the fluid communication to Bougtob city via the national road No. 06-A.

➤ **Table 4 :** *Distribution of the study sample according to the answers of the repulsion factors axis*

	Geographic factors		Demographic and social factors		Agricultural factors		Total	
	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %
Tousmouline area	25	43.85	17	41.46	23	35.38	65	39.87
Kaf Lahmar area	15	26.31	11	26.82	19	29.23	45	27.60
Kheither area	17	29.82	13	31.70	23	35.38	53	32.53
Total	57	100	41	100	65	100	163	100

Source: From the outputs of the SPSS program and adapted by authors

Statistical reading:

The study of the relationship between expulsion factors and geographical location according to the statistical ratios of the respondents' answers as shown by the table data tends towards the following:

✓ 39.87% of the answers among the respondents of the Tousmouline area according to the migration variable (repulsion indicators) were due to the geographical factors by 43.85%, secondly 41.46% by demographic and social factors, and finally by 35.38% for the agricultural factors.

✓ 32.53% of the answers among the respondents of Al Kheither area according to the migration variable (repulsion indicators) were due to agricultural factors by 35.38% , secondly 31.70% by demographic and social factors, , and finally by 29.82% for the geographical factors.

✓ 27.60% of the respondents' answers of Kef Lahmar area according to the migration variable (repulsion indicators) were due to agricultural factors by 29.23% , secondly 26.82% by the demographic and social factors and finally by 26.31% for the geographical factors.

- We note that the repulsion factors (migration tendency) were caused principally in the Tousmouline area, by the geographical factors due to its farness from the main road axes of the region. Thus, the weakness of its commercial structure. This is exacerbated by the weakness of administrative functions because it is the chef-lieu of an isolated municipality, and then comes the

socio-demographic factors represented in the migrant population's aim to establish new social relations that may be the key of new job opportunities. To end with the agricultural factor, represented in the lack of agricultural means, as well as the exacerbation of desertification (Haddouche, Toutain, Saidi, & Mederbal, 2008, p. 28).

- Al Kheither area came in second place with 32.53%, but agricultural factors emerged as the most influential factors in the migration of residents towards the city of Bougtob. This can be explained by the spread of agricultural activities in Bougtob. Thus migrants increase their search for agricultural land situated within agricultural development plans. With regard to demographic, geographical and social factors, they reflect the need of the residents of Al Kheither area to search for stability and lifestyles comparable to the conditions of urbanization.

In the end, the Kef Lahmar area came by 27.6% as it is located on the national road No. 06 crossing it towards the Bougtob city. Location who made its residents in direct communication with the city of Bougtob on different levels to benefit from all development programs and easiness of commercial and social exchanges.

➤ **Table 5:** Distribution of the study sample according to the answers of the axis of attraction

<i>repulsion factors</i> ↑ ↓ <i>Geographical location</i>	Economic Factors		Health and cultural factors		Social welfare factors		total	
	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %
<i>Tousmouline area</i>	23	%41.82	15	%39.47	27	%38.57	65	39.87 %
<i>Kaf Lahmar area</i>	16	%29.09	09	%23.68	20	%28.57	45	27.60 %
<i>Kheither area</i>	16	%29.09	14	%36.84	23	%32.86	53	32.53 %
<i>Total</i>	55	%100	38	%100	70	%100	163	%100

Source: Outputs of SPSS program + authors' adaptations

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Statistical reading:

The study of the relationship between attractions and geographical place according to the statistical ratios of the respondents' answers as shown by the table data tends towards the following:

-39.87% of the answers among the respondents of the Tousmouline area according to the attraction variable (attraction indicator) were due to economic factors by 41.82% .secondly, 39.47% by health and cultural factors and finally 35.38% by social welfare factors.

32.53% of the answers among the respondents of Al Kheither area according to the attraction variable (attraction indicator) were due by 36.84% to health and cultural factors with a percentage of 32.86% for the social welfare factors, followed by a percentage: 29.09% for the economic factors.

Finally, 29.09% of the respondents' answers in the Kaf Lahmar area came according to the variable of attraction (attraction indicator) due to economic factors by 29.23% and by 28.57% to social welfare factors, followed by 23.86% for health and cultural factors.

We note that the attractions were in the Tousmouline area, mainly due to economic factors, because it is one of the most affected areas by desertification which reduce significantly the job opportunities in the agricultural sector without retrieving work in secondary and tertiary sector. Migrants adapt their pastoral activity by settling on the outskirts of Bougtob, practicing the activity of fattening sheep and marketing their produce in the weekly Bougtob market of livestock (Kanoun, et al., 2015, p. 28). Health and cultural factors, as well as social welfare factors, also came in close proportions, due to the aim of migrants to improve their living conditions by using the infrastructure of the city such as electricity, water and gas, as well as health, school and administrative institutions in the hope of a better future for them and their children (Guemmaz, 2018, p. 12).

It came in second place in terms of attractions towards the city of Bougtob Al-Kheither area, where the health and cultural factors and the factors of social welfare came first because the municipality of Al-Kheither suffer the lack of many services because it is the center of a modern municipality. Also its border location in the province of Al Bayadh, thus its farness from the consideration of the provincial authority and its direct interest. Economic factors resulted from the fact that the Kheither area has a communicative situation and its natural and agricultural conditions are suitable for the

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economic activities of the local population.

About the area of Kef Lahmar, it is ranked last in terms of the percentage of migrant people because it is administratively affiliated to the circumscription of Rogassa. It also occupies a central location on the national road No. 06, thus the dispersion of the potential migrants to three destinations, firstly the headquarters of the province of Al-Bayadh and the headquarters of the circumscription of Rogassa and then the headquarters of the circumscription of Bougtob, as well as the residents of this area tend to migrate daily instead of permanent migration due to the easy transportation in the center of the municipality of Kaf Lahmar. Economic factors came first in the attractive reasons of the inhabitants of Kaf Lahmar area towards Bougtob because their original area is a commercial hotbed for raw materials (fodder, medicines and equipments) related to pastoral activity, thus the region's merchants seek to expand their area of influence to the Bougtob area known for its weekly livestock market with the regional weight. Health, cultural and social welfare factors are of little importance to them because most of them can take benefit from the near towns as Rogassa and Al Bayadh.

4. RESULTS AND DISCUSSION :

4-1 Analysis and interpretation of the spatial dynamics towards the city of Bougtob:

The city of Bougtob is unique in many features that made it a center of attraction for the majority of the residents of rural centers and Bedouins living in the surrounding countryside. These features are natural from its site of communication between the tell region of neighbor provinces of Saida and Bel Abbas and the steppe and Atlantic region of provinces of Al-Bayadh and Naama. Then the artificial features represented in the national road No. 06, which branches off in the center of Bougtob city into two large axes, namely the axis 06-A leading to the city of Mecheria and all Algerian southwest. And the axis 06-B leading to the capital of the province of El Bayadh crossing through the village of El Kef Lahmar.

In the following, we dress the main attractions and strategies used by migrants to reach their goals within the framework of our survey through the field interview instrument with the concerned population and then interviews with officials to clarify some of the mechanisms through which an important part of migrants has been integrated physically and functionally into the urban system of

Bougtoob city.

4-1-1 - Public service institutions : Bougtoob city occupies the third rank within the urban hierarchy of the province of Al-Bayadh and the first within its northern steppe region. Which qualified it to contain a large number of public service institutions and caused an imbalance in the polarization of urban centers in its favor.

- **Educational public institutions:** Administrative and service achievements are programmed and accomplished across the Algerian country by reference to technical organizational documents; these plans are based on statistical data of population increasing. However, these technical documents may not be respected due to the intervention of informal actors who are mainly divided into economic pressure groups to address projects to specific areas to increase rents or tribal pressure groups represented by familiar frames located in local authorities such as the municipal and provincial administration and various sectorial directorates in order to settle projects where their native social incubator is located.

Table 6 : Distribution of primary schools in the steppe region of the province of Bayadh

	2003			2010			2018		
	Number of institutions	Number of pupils	classroom occupancy rate	Number of institutions	Number of pupils	classroom occupancy rate	Number of institutions	Number of pupils	classroom occupancy rate
<i>Bougtoob</i>	2	1340	38.29	8	2535	32.50	11	3550	38.17
<i>Rogassa</i>	1	423	32.54	5	999	29.38	5	1565	33.30
<i>Kaf Lahmar</i>	1	314	31.40	5	990	33.00	6	1564	40.10
<i>Kheither</i>	1	360	30.00	5	767	26.45	5	1137	34.45
<i>Tousmouline</i>	1	171	24.43	3	646	43.00	3	943	44.90
<i>Cheguig</i>	1	81	27.00	2	420	28.00	2	609	38.06
Total	7	2689	33.61	28	6357	31.01	32	9368	37.62

Source: Outputs of SPSS program + authors' adaptations

educational public institutions have not been distributed fairly across the urban centers of the steppe region, when Bougtoob city polarize more than a third of the new schools by 36%, despite the presence of overcrowding in many neighboring rural centers such as Tousmouline, Kaf Lahmar and

Cheguig, but this preferential practice finds its realistic causes as the city of Bougtob is the most attractive for temporary and permanent migrants. The concentration of educational public institutions would strengthen the attraction intensity of Bougtob to compete with large centers in the province of Al-Bayadh, Make the phenomenon of polarization more balanced across urban centers in the steppe field according to the recommendations of national and regional plans (SNAT and SRAT).

- **Medical public institutions:** they have been achieved at a slow pace compared to the completion of educational institutions. What is really striking is the existence of only one hospital in all the north steppe area of Bayadh province. What has been added are only multi-service clinics in the circumscriptions headquarters? In addition to the treatment rooms achieved in the centers of Al-Kheither and Kaf Lahmar because they are located on the axis of the national road No. 6 which brings permanent and temporary dynamics.

Table 7: Distribution of Medical public institutions across the steppe zone of the province of Bayadh

	2003			2010			2018		
	Hospital	Multiservice clinic	Treatment room	Hospital	Multiservice clinic	Treatment room	Hospital	Multiservice clinic	Treatment room
<i>Bougtob</i>	1	//	//	1	1	3	1	1	3
<i>Rogassa</i>	//	1	//	//	1	//	//	1	//
<i>Kaf Lahmar</i>	//	//	1	//	1	1	//	1	1
<i>Kheither</i>	//	//	4	//	1	4	//	1	4
<i>Tousmouline</i>	//	//	1	//	//	1	//	//	1
<i>Cheguig</i>	//	//	1	//	//	1	//	//	1
<i>Total</i>	1	1	5	1	4	9	1	4	9

Source: Monographs of Bayadh province 2003/2010/2018, Directorate of Programming and Budget Follow up

4-1-2- Housing: The residential area in Algeria and in the steppe region in particular is known for its significant shortcomings due to the widening gap between demographic growth and the

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completion of urban housing projects due to their high cost and the administrative and technical complexities that permeate their implementation in a regular smooth way.

- **Social housing:** Among the programs adopted by the Algerian state to treat the housing crisis is the social housing program directed to vulnerable low-income groups, through the establishment of the National Office of Real Estate Management (O. P.G.I) 1983. (Bakhti, 2022, p. 672) .

The social housing program has witnessed an important demand by the targeted vulnerable groups as well as by other social groups through the manipulation of documents and the use of tribal ties to bypass the conditions for obtaining it due to the lack of alternatives to housing programs, their efficiency and their high economic cost for all social groups of Algerian society.

Looking at the amount of social housing units granted to the municipality of Bougtob, we find it representing 37.32% of the total housing area, with the number of 2027 units out of the total residential area of 5431 units.

Based on these figures, we can see that the opportunity to obtain social housing is high in Bougtob city compared to other cities, where those, seeking to benefit, resort to create urban chaos by building huts and installing tents that distort the urban landscape in the immediate vicinity of the city in order to pressure the local authorities as a strategy to be adopted whenever the time of distribution of social housing quotas approaches. (Ben Amara and Drissi, 2017, p. 236).

4-1-3- Employment : The latest localization directed to most of the housing and public institutions programs in Bougtob city, in accordance with the directives of the regional planners for the development of the region (S.R.A.T) and the national plan (S.N.A.T) in order to create an urban pole that competes and relieves pressure on Bayadh city, as well as achieving the objectives of the urban economy for the effective transition of the socio-professional structure from a basic dependence on the agricultural sector to the emergence and strengthening of urban economic sectors such as industry and services, which resulted in important quantitative and qualitative transformations in the categorical composition of the socio-professional classes and the consequent social and economic behavioral changes towards urban model, which depends mainly on the tertiary sector service function predominance .

- **The primary sector :** The region is characterized by the spread of pastoral activity and livestock

breeding, which requires nomadism in search of new pastures needing a limited labor force, it is not commensurate with the new social and economic trends of the steppe community wishing to settle in order not to deprive children of the right in education and employment for the largest number of individuals, because the urban economy based on the individual not the family as it exists in the rural economy.

Rural families adopted a gradual strategy for a cautious and effective transition towards the city, which was represented in dividing the family into two parts, the first continuing to graze and develop the herd and the second settling on the outskirts of the city, practicing a commercial agricultural hybrid activity represented in fattening sheep and selling them in the weekly Bougtob market of livestock.

- **Secondary sector :** The Bougtob city has witnessed the establishment of many industrial units since its affiliation to the province of Bayadh in the last administrative division (1984). The attempt of industrialization continues to the present time in earnest. The most important manifestation is the establishment of a modern regional altar in Bougtob city (2019).

However, the majority of workers in this sector are mainly employed in construction workshops which knew accelerated pace during the past two decades especially through social and rural housing programs.

- **The tertiary sector:** It is divided into two main parts; the first is the public service with a wage basis, which occupies a significant percentage of one-third of the workers in the tertiary sector, due to the large number of equipment in this complex. The second part is represented by the commercial and service activities, which are characterized by a fragile and scattered character due to recent character of the local urbanization and its density (Addoun & Hadeid, 2019, p. 16).

Table 8 : Sectoral chronology of activities in Bougtob city

	2003		2010		2018	
	Number	Percentage %	Number	Percentage %	Number	Percentage %
primary sector	2601	52.84	3698	46.69	3636	39.70
Secondary sector	803	16.31	1135	14.33	1640	17.90
tertiary sector	1518	30.84	3056	38.59	3881	42.38

Source: Monographs of Bayadh province 2003/2010/2018, Directorate of Programming and Budget Follow up

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4-2 Conclusion of the exploratory study and research recommendations :

The results of the study showed that the factors of attraction and repulsion according to the concept of spatial dynamics of the population within the city of Bougtob are subject to several data and indicators represented as follows:

- **Economic indicators** : reflected the impact of public service institution polarization and planning programs adopted within the Bougtob city, in which the focus was on raising the pace of activity in the tertiary sector (administration, trade) at the expense of other sectors.

-**Urban indicators** : the development of housing programs in the form of social districts and the locating of rural housing in the vicinity of the Bougtob city, which made the migrants benefit from public institutions as a necessity for their integration into the urban system.

- **Demographic and social indicators** : the exodus of non-local tribes towards the Bougtob city which led to a demographic shift in the distribution of the population and the emergence of the need for stability by increasing the rate of demand on the social housing and the need to benefit from educational and health institutions .

As recommendations for the study : It is possible to expand the study of the phenomenon of spatial dynamics of the population in the steppe regions in Algeria by tracking this problem according to a research pattern that gives sociological analysis with the adoption of demographic and geographical approaches within the domain of urban management and town planning .

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