# The Relationship between Fertility and Urbanization through the 1987–1998–2008 Censuses in Algeria

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**Abstract**

This study seeks to address the issue of fertility in Algeria. To achieve this objective, the results of the censuses of 1987, 1998, and 2008 were presented, as they addressed the distribution of fertility across the Algerian territory, highlighting fertility trends temporally and geographically. Algeria suffered greatly from high fertility during the 1970s and 1980s, and despite the decline of this rate in some interior regions, the population has continued to grow steadily, which has played an important role in shaping state strategies and policies. As for the methodology adopted in this study, the descriptive approach is used to describe the features of fertility in Algeria in its various aspects, in addition to the comparative approach, which appears through comparing the demographic data of the three censuses, with the assistance of the analytical approach that contributes to analyzing and interpreting the data in order to reach results. Among the most important findings reached: fertility is affected by several factors, including social, economic, and demographic factors such as (infant mortality rate, health coverage, rate of illiterate women, average age at first marriage, average household size, etc.). All these factors contribute to differences in fertility levels from one region to another. Most Algerian provinces did not maintain their fertility rates from one census to another.

## Introduction

The issue of population problems continues to attract the attention of researchers specialized in this field. Among the researchers who raised the issue of rapid population growth was Malthus, through studying the relationship between population growth and economic development, warning of the risks resulting from population increase during the eighteenth century. However, in Algerian society, the rise in women's educational level contributed to reducing fertility, as the female schooling rate for ages [06–14] reached 71.56% in the 1987 census, rising to 80.73% in the 1998 census, and continuing to increase to 91.7% in the 2008 census. Consequently, women entered the labor market, where the proportion of female labor force participation reached 1.8% in 1966 and increased to 19.5% in 2014 (ONS, 1962–2011). This social phenomenon contributed to reducing fertility, contrary to what Malthus suggested.

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The beginning of the 1970s was characterized by a high birth rate estimated at about 50.16‰, with a decline in the crude death rate to 16.45‰, corresponding to a growth rate of 33.7‰. This made Algeria rank at the top of countries with high fertility, at about 7 children per woman. These rates continued to decline, reaching 42.70‰, 10.90‰, and 32.1‰ respectively (ONS, 1962–2011). Fertility declined as a result of the national program to control demographic growth, which contributed to lowering fertility rates by providing birth-spacing services and spreading the use of contraceptives, along with improvements in women's education level (extension of women's years of education) and their entry into the labor market, especially during the period of economic crisis (high unemployment rates, leading to youth reluctance to marry), which resulted in delayed age at marriage.

The information available from current surveys is used in many applications by the Algerian government in economic, social, health, and educational planning, etc., in addition to information on population size and characteristics, while clarifying fertility levels by region. Based on the above, the following question arises: How are fertility rates distributed by region in Algeria according to the last three censuses?

## Research Questions:

- What are the factors controlling the distribution of fertility?
- Which provinces maintained fertility levels during the last three censuses?
- Which provinces maintained levels of urbanization during the last three censuses?
- What is the relationship between fertility and urbanization during the last three censuses?

## 1- Previous Studies

Previous studies constitute the backbone of the topic, as they contain the initial principles and the proper starting point for a study, by focusing their content on the demographic aspect in order to benefit from them and avoid repetition.

### 1-1- Population and Housing Census of 1987

This study relied on the results of the 1987 Population and Housing Census, which was supervised by the National Statistics Authority. It was the third census since Algeria's independence, conducted from March 20 to April 4, 1987. The census was carried out through interviews conducted by legally appointed census agents with all members of Algerian households. Households received notifications to wait for the agent, and the state guaranteed that individual information provided would not be used for any purpose other than statistical ones. The population size in the 1987 census was about 22,715,633 inhabitants (11,704 males compared to 11,435 females). The total fertility rate (ISF) was estimated at 5.6 children per woman, while the crude birth rate (TBN) was about 34.60‰.

### 1-2- Population and Housing Census of 1998 (ONS, 1998)

The 1998 census provided better fertility indicators than the 1987 census, through social and demographic characteristics (place of residence, level of education, economic activity, type of disability, occupational status, type of building, etc.). This census was conducted from June 25 to July 9, 1998.

The population size in the 1998 census was about 29,100,867 inhabitants (14,912 males compared to 14,595 females). The total fertility rate (ISF) was estimated at 2.75 children per woman, the crude birth rate (TBN) at about 20.2‰, and the general fertility rate (TGFG) at 87.4%.

### 1-3- Population and Housing Census of 2008 (ONS) (Executive Decree No. 08-95, 2008)

This study relied on the results of the 2008 Population and Housing Census, which was supervised by the National Office of Statistics with the participation of relevant administrations, institutions, and local communities, in accordance with the applicable legal and regulatory provisions. It was the fifth census since Algeria's independence. The reference date was the night of April 15–16, 2008, and the census was conducted from April 16 to April 30, 2008. According to Executive Decree No. 08-95 (2008), the census included:

- Natural persons residing on the reference date, excluding foreign persons enjoying diplomatic or consular immunity.
- All buildings except those enjoying diplomatic or consular status.
- Natural persons counted at their main place of residence, whether present or temporarily absent for less than six months.
- Households residing in hotels or similar establishments, institutions whose primary function is not residence, and nomadic households.

Persons belonging to the category known as "separately counted population" were counted in the municipality where the institution was located (prisoners in re-education and rehabilitation centers, persons sheltered by social assistance institutions such as homes for the elderly, and persons without a stable place of residence in the municipality where they were present on census day).

The population size in the 2008 census was about 34,080,030 inhabitants (17,232,747 males compared to 16,847,283 females). The total fertility rate (ISF) was estimated at 2.74 children per woman, the crude birth rate (TBN) at about 23.2‰, and the general fertility rate (TGFG) at 81.5%.

### Table (1): Distribution of fertility by age for the 1998–2008 censuses

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| Age groups | RGPH 1998 | RGPH 2008 |
|------------|-----------|-----------|
| 15–19 | 9.9 | 9.3 |
| 20–24 | 78.2 | 75.1 |
| 25–29 | 136.4 | 139.0 |
| 30–34 | 144.5 | 148.5 |
| 35–39 | 114.3 | 117.7 |
| 40–44 | 54.4 | 51.2 |
| 45–49 | 12.6 | 8.0 |

Source: ONS, *Natality, Fertility and Reproduction in Algeria through the Results of the 2008 RGPH*, Results by Wilaya, Series S: Social Statistics, Statistical Collections No. 156/2011, p. 14.

## 2- Keywords

### 2-1- Fertility

It refers to the phenomenon of reproduction in any population society and is expressed by the number of live births. It should be distinguished from the concept of fecundity, which refers to the physiological ability to reproduce or the natural capacity to bear children (Aiyana, 1985, p. 69).

### 2-2- General Population and Housing Census

It is a comprehensive enumeration carried out on a specific date, determining the number of population and housing and their social and economic characteristics. It consists of collecting the necessary statistical information to define and prepare national development plans (Law No. 86-09, 1986).

## 3- Factors Controlling Fertility

### 3-1- Age at First Marriage in Algeria

The average age at first marriage is considered a key indicator for measuring fertility rates. This indicator is closely related to the reproductive period, as an increase in the age at marriage leads to a decline in fertility rates. The average age at first marriage reached 29.3 years for women and 33.0 years for men in 2008. It increased by about two years for both sexes between the 1998 and 2008 censuses, about four years between the 1987 and 1998 censuses, and about six years between the 1987 and 2008 censuses.

Table (2): Evolution of age at first marriage by sex through the three censuses

| Sex | 1987 | 1998 | 2008 | Difference (1987–1998) | Difference (1998–2008) |
|-----|------|------|------|------------------------|------------------------|
| Females | 23.7 | 27.6 | 29.3 | 14 | 6 |
| Males | 27.7 | 31.3 | 33.0 | 12 | 5 |

Source: National Office of Statistics, General Population and Housing Censuses 1987–1998–2008.

From Table (2), it can be observed that the age at first marriage in Algeria by sex has experienced a continuous increase, due to transformations in Algeria's social and economic conditions, the rise in educational levels among females, and women's entry into the labor market, etc.

Table (3): Average age at marriage for both sexes by place of residence through surveys

| Place of residence | 1992 EASME (M) | 1992 EASME (F) | 2002 EASF (M) | 2002 EASF (F) | 2006 MICS3 (M) | 2006 MICS3 (F) |
|--------------------|----------------|----------------|---------------|---------------|----------------|----------------|
| Urban | 31.2 | 26.9 | 33.7 | 30.0 | 34.2 | 30.0 |
| Rural | 28.8 | 24.5 | 31.9 | 29.1 | 32.6 | 29.7 |

Source: Based on EASME, EASF, and MICS3 data.

From Table (3), the average age at marriage is higher in urban areas than in rural areas.

### 3-2- Women's Educational Level

Educational level is the main measure for regulating births, as it has been observed that fertility rates are lowest among women who have attained a certain level of education.

Table (4): Relationship between educational level and total fertility rate (ISF)

| Educational level | 1992 | 2002 | 2008 |
|-------------------|------|------|------|
| Illiterate | 5.7 | 5.0 | 3.13 |
| Primary | 3.1 | 2.8 | 2.74 |
| Middle | 2.6 | 2.3 | 2.82 |
| Secondary or higher | 1.9 | 1.8 | 2.88 |
| Total | 4.7 | 3.9 | — |

Source: Based on EASME, RGPH 2008, and EASF data.

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From Table (4), it can be stated that the higher the educational level, the lower the total fertility rate.

### 3-3- Urbanization

Since independence, Algeria has experienced transformations on several levels—social, economic, and cultural—that have led to a change in lifestyle from rural to urban. Several areas, cities, and residential agglomerations have emerged and become classified as urban.

able (5): Number of registered urban residents for the years 2007–2008–2009

| Year | 2007 | 2008 | 2009 |
|---|---|---|---|
| Number of registered persons | 1,262,723 | 885,425 | 982,312 |

Source: ONS.

### 3-4- Women's entry into the labor market

Table (6): Number of women in the labor market

| Labor market | 1977 | 1987 | 1991 | 2001 | 2008 | 2014 |
|---|---|---|---|---|---|---|
| Economically active women | 159,500 | 430,300 | 624,000 | 1,288,000 | 1,730,000 | 2,288,000 |
| Percentage of active women / total active population | 5.2 | 8.1 | 10.5 | 15.0 | 16.8 | 19.5 |

Source: National Office of Statistics, Employment Survey 2013 and February 2014.
From Table (6), it can be observed that the proportion of economically active women has increased continuously. In 1977 it reached 5.2%, rising to 19.5% in 2014, i.e., an increase of 14.3 percentage points over thirty-seven years.

### 3-5- Contraceptive methods

Table (7): Percentage of contraceptive use among women in urban and rural areas

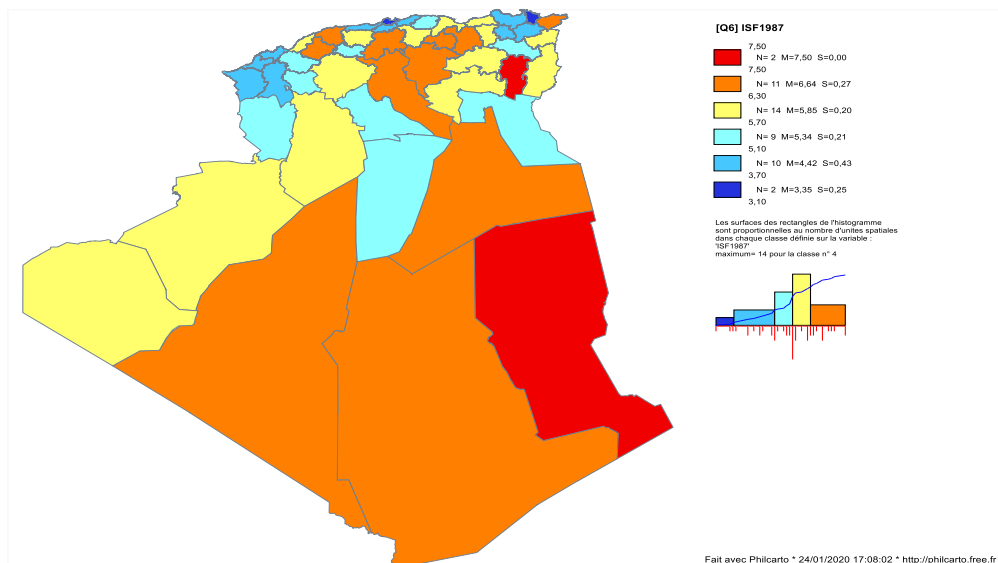| Survey | Area / Method | Breast-feeding | Safe period | Withdra-wal | Pills | IUD | Other method |
|---|---|---|---|---|---|---|---|
| National survey on maternal and child health 2002 | Urban | 0.9 | 3.0 | 1.9 | 46.6 | 4.0 | 0.1 |
| | Rural | 1.0 | 1.1 | 1.5 | 47.1 | 1.9 | 0.2 |
| Multiple Indicator Cluster Survey 2006 | Urban | 1.6 | 5.0 | 3.8 | 44.6 | 2.9 | 0.1 |
| | Rural | 2.3 | 2.0 | 2.7 | 47.5 | 1.6 | 0.1 |
| Multiple Indicator Survey 2012–2013 | Urban | 1.60 | 3.90 | 3.8 | 41.9 | 2.9 | 0.0 |
| | Rural | — | — | 3.5 | 44.9 | 1.1 | 0.1 |

Source: MICS2 – MICS3 – MICS4.
From Table (7), it can be noted that the proportion of contraceptive users in Algeria has increased, with a higher use of modern methods compared to traditional ones. The most commonly used method is the hormonal method known as pills, both in urban and rural areas. This indicates convergence in attitudes toward family planning, with higher usage rates among women with higher educational levels.

### 4- Distribution of fertility by place for the 1987–1998–2008 censuses

The distribution of fertility varies from one region to another due to the interaction of different factors, whether cultural, economic, or social.

### 4-1- 1987 Census

### Map (1): Distribution of the total fertility rate by Algerian provinces according to the 1987 census

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**[Q6] ISF1987**

| | |
|---|---|
| 7,50 | N= 2  M=7,50  S=0,00 |
| 7,50 | N= 11  M=6,64  S=0,27 |
| 6,30 | N= 14  M=5,85  S=0,20 |
| 5,70 | N= 9  M=5,34  S=0,21 |
| 5,10 | N= 10  M=4,42  S=0,43 |
| 3,70 | N= 2  M=3,35  S=0,25 |
| 3,10 | |

Les surfaces des rectangles de l'histogramme sont proportionnelles au nombre d'unites spatiales dans chaque classe définie sur la variable : 'ISF1987' maximum= 14 pour la classe n° 4

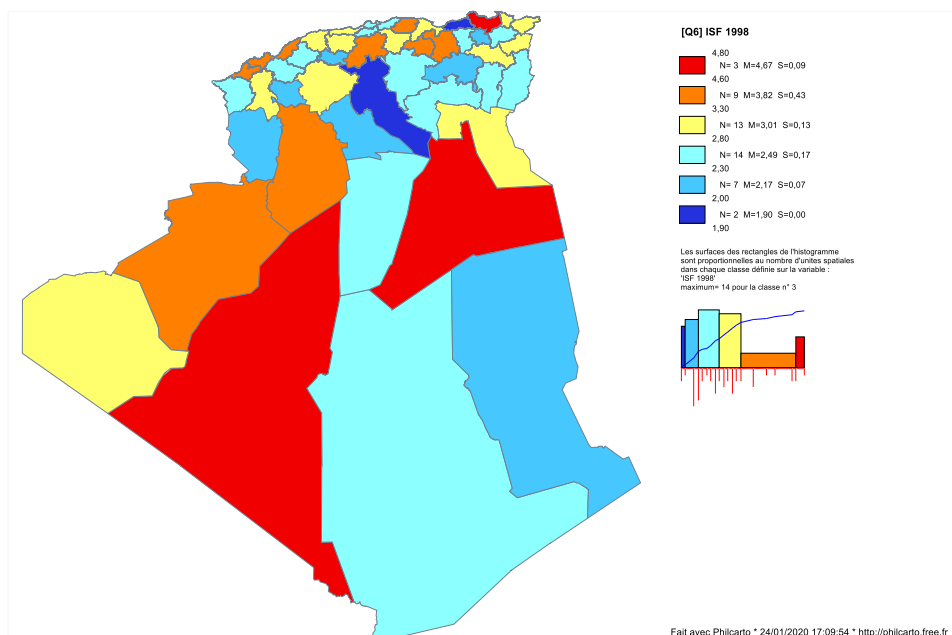Fait avec Philcarto * 24/01/2020 17:08:02 * http://philcarto.free.fr

**Source:** Prepared by the researcher based on the data of Appendix No. (01).

From Map (1), we note a clear spatial variation in the distribution of the total fertility rate, whereby six regions can be distinguished:

- **Regions with very high fertility:** include the two provinces of (Illizi, Khenchela).
- **Regions with high fertility:** include eleven provinces, namely (Relizane, Bordj Bou Arreridj, Ouargla, M'sila, Médéa, Sétif, Djelfa, Tamanrasset, Chlef, Adrar, Tebessa).
- **Regions with above-average fertility:** include fourteen provinces, namely (Tindouf, Béchar, El Bayadh, Tiaret, Mostaganem, Aïn Defla, Bouira, Béjaïa, Jijel, Mila, Batna, Biskra, Tissemsilt, Souk Ahras).
- **Regions with medium fertility:** include nine provinces, namely (Oum El Bouaghi, Ghardaïa, Mascara, Saïda, Tissemsilt, El Oued, Naâma, Laghouat, Tizi Ouzou).
- **Regions with below-average fertility:** include ten provinces, namely (Tlemcen, Sidi Bel Abbès, Blida, Skikda, Constantine, Guelma, Oran, Aïn Témouchent, Blida, Boumerdès).
- **Regions with low fertility:** include the two provinces of (Annaba, Algiers).

**4-2- 1998 Census**

**Map (2): Distribution of the total fertility rate by Algerian provinces according to the 1998 census**

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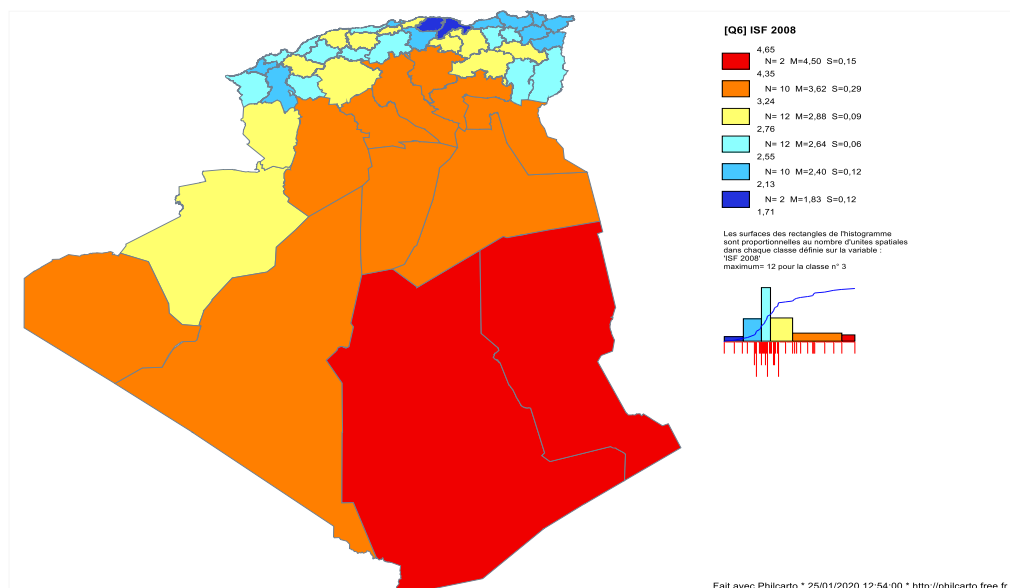Guernane Kamilia

Source: Prepared by the researcher based on the data of Appendix No. (01).

From Map (2), we note a clear spatial variation in the distribution of the total fertility rate, whereby six regions can be distinguished:

- **Regions with very high fertility:** include three provinces (Ouargla, Adrar, Skikda).
- **Regions with high fertility:** include nine provinces, namely (Béchar, El Bayadh, Aïn Témouchent, Oran, Mostaganem, Tizi Ouzou, Médéa, Bordj Bou Arreridj, Sétif).
- **Regions with above-average fertility:** include thirteen provinces, namely (Tindouf, El Oued, Sidi Bel Abbès, Tiaret, Chlef, Aïn Defla, Tipaza, Bouira, Béjaïa, El Tarf, Annaba, Souk Ahras, Oum El Bouaghi).
- **Regions with medium fertility:** include fourteen provinces, namely (Tamanrasset, Ghardaïa, Tebessa, Khenchela, Biskra, M'sila, Guelma, Mila, Boumerdès, Algiers, Blida, Relizane, Mascara, Tlemcen).
- **Regions with below-average fertility:** include seven provinces, namely (Illizi, Naâma, Laghouat, Batna, Constantine, Saïda, Tissemsilt).
- **Regions with low fertility:** include the two provinces of (Jijel, Djelfa).

### 4-3- 2008 Census
### Map (3): Distribution of the total fertility rate by Algerian provinces according to the 2008 census

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**Source:** Prepared by the researcher based on the data of Appendix No. (01).

From Map (3), we note a clear spatial variation in the distribution of the total fertility rate, whereby six regions can be distinguished:

- **Regions with very high fertility:** include the two provinces of (Illizi, Tamanrasset).
- **Regions with high fertility:** include ten provinces, namely (Adrar, Tindouf, Ouargla, Ghardaïa, El Bayadh, Laghouat, Djelfa, El Oued, Biskra, M'sila).
- **Regions with above-average fertility:** include twelve provinces, namely (Béchar, Naâma, Tiaret, Mascara, Chlef, Aïn Defla, Blida, Boumerdès, Batna, Oum El Bouaghi, Sétif, Bordj Bou Arreridj).
- **Regions with medium fertility:** include twelve provinces, namely (Tlemcen, Oran, Saïda, Mostaganem, Relizane, Tissemsilt, Médéa, Tipaza, Tebessa, Khenchela, Mila, Constantine).
- **Regions with below-average fertility:** include ten provinces, namely (Sidi Bel Abbès, Aïn Témouchent, El Tarf, Souk Ahras, Guelma, Annaba, Skikda, Jijel, Algiers, Bouira).
- **Regions with low fertility:** include the two provinces of (Béjaïa, Tizi Ouzou).
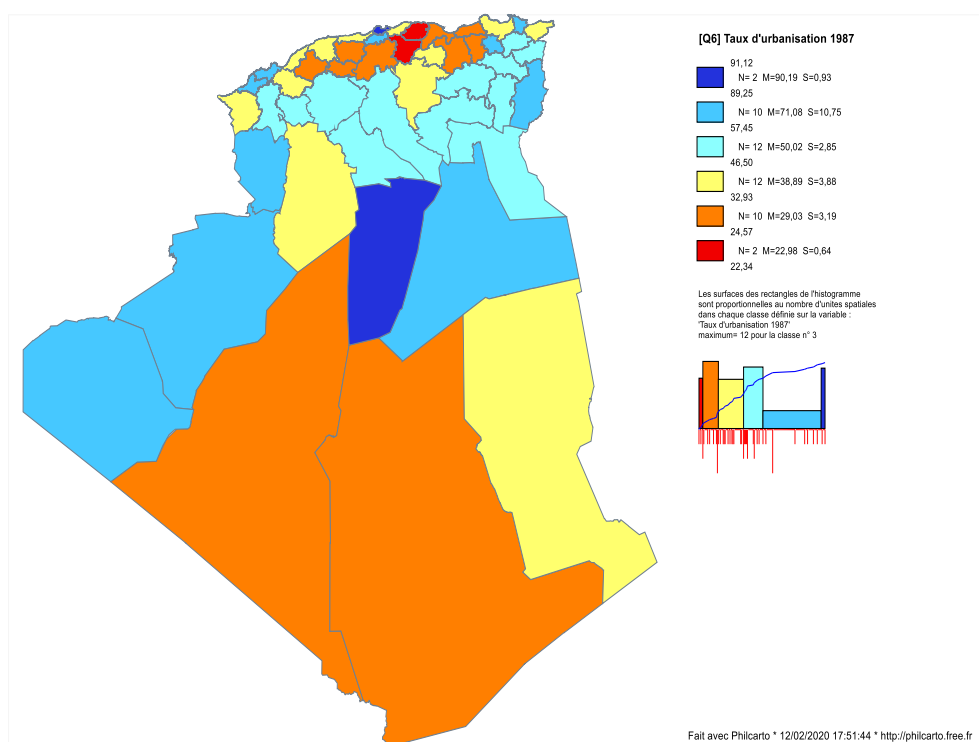
From the above, we can identify the provinces that maintained their fertility levels across the three censuses:

**Provinces with above-average fertility:** Tiaret – Aïn Defla.

## 5- Distribution of urbanization by place for the 1987–1998–2008 censuses

### 5-1- 1987 Census

**Map (4): Distribution of urbanization by Algerian provinces according to the 1987 census**



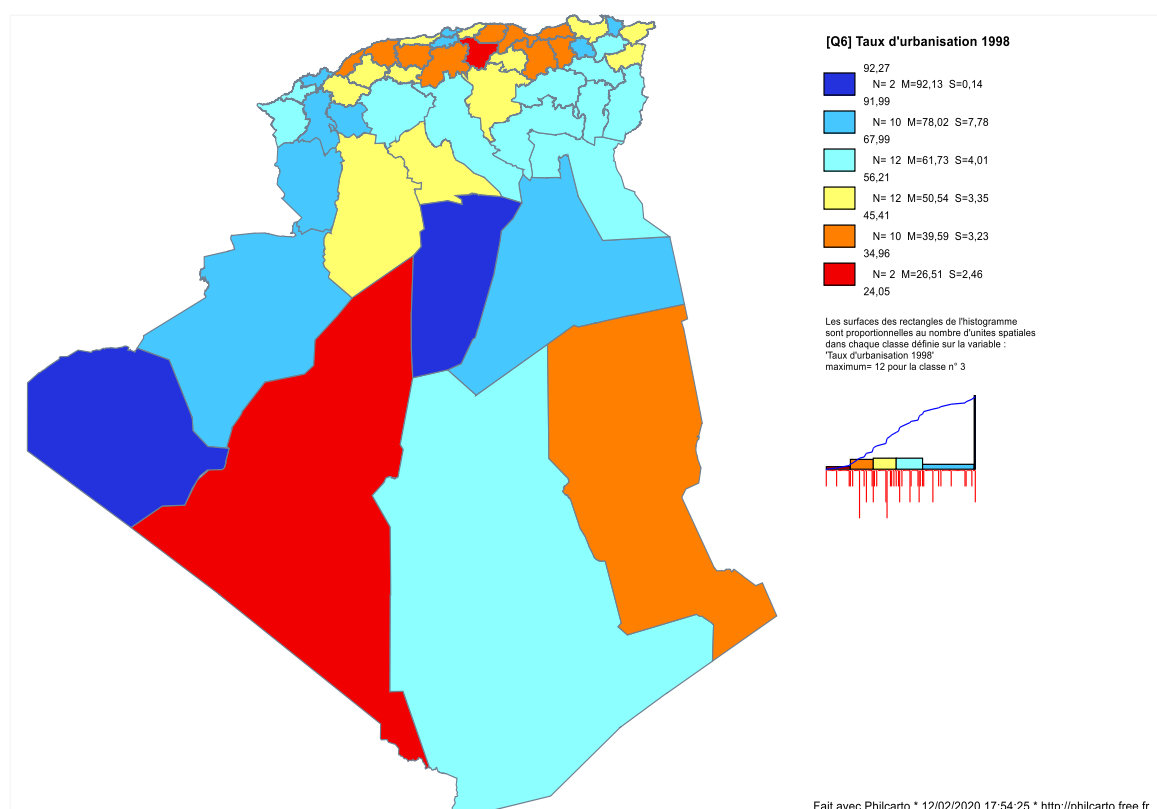**Source:** Prepared by the researcher based on the data of Appendix No. (01).

From Map (4), we observe a clear spatial variation in the distribution of urbanization, allowing us to distinguish six regions:

- **Regions with very high urbanization:** include the two provinces of (Algiers, Ghardaïa).
- **Regions with high urbanization:** include ten provinces, namely (Annaba, Constantine, Tebessa, Blida, Aïn Témouchent, Oran, Tindouf, Béchar, Naâma, Ouargla).
- **Regions with above-average urbanization:** include twelve provinces, namely (Souk Ahras, Guelma, Oum El Bouaghi, Khenchela, Batna, Biskra, El Oued, Djelfa, Laghouat, Tiaret, Saïda, Sidi Bel Abbès).

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- • **Regions with medium urbanization:** include twelve provinces, namely (El Tarf, Skikda, Boumerdès, Tipaza, Chlef, Mostaganem, Mascara, Tlemcen, El Bayadh, Illizi, M'sila, Bordj Bou Arreridj).
- • **Regions with below-average urbanization:** include ten provinces, namely (Tamanrasset, Adrar, Jijel, Mila, Béjaïa, Sétif, Relizane, Tissemsilt, Médéa, Aïn Defla).
- • **Regions with low urbanization:** include the two provinces of (Tizi Ouzou, Bouira).

## 5-2- 1998 Census

**Map (5): Distribution of urbanization by Algerian provinces according to the 1998 census**



**Source:** Prepared by the researcher based on the data of Appendix No. (01).

From Map (5), we observe a clear spatial variation in the distribution of urbanization, allowing us to distinguish six regions:

- • **Regions with very high urbanization:** include the two provinces of (Tindouf, Ghardaïa).
- • **Regions with high urbanization:** include ten provinces, namely (Annaba, Constantine, Algiers, Blida, Oran, Sidi Bel Abbès, Saïda, Naâma, Béchar, Ouargla).
- • **Regions with above-average urbanization:** include twelve provinces, namely (Tamanrasset, El Oued, Tebessa, Khenchela, Biskra, Batna, Oum El Bouaghi, Guelma, Djelfa, Tiaret, Tlemcen, Aïn Témouchent).
- • **Regions with medium urbanization:** include twelve provinces, namely (El Tarf, Souk Ahras, Skikda, Boumerdès, Tipaza, Mascara, Tlemcen, Relizane, M'sila, Bordj Bou Arreridj, El Bayadh, Laghouat).
- • **Regions with below-average urbanization:** include ten provinces, namely (Illizi, Jijel, Mila, Sétif, Béjaïa, Tizi Ouzou, Médéa, Aïn Defla, Chlef, Mostaganem).
- • **Regions with low urbanization:** include the two provinces of (Adrar, Bouira).

## 5-3- 2008 Census

**Map (6): Distribution of urbanization by Algerian provinces according to the 2008 census**

**Source:** Prepared by the researcher based on the data of Appendix No. (01).

From Map (6), we observe a clear spatial variation in the distribution of urbanization, distinguishing six regions:

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- **Regions with very high urbanization:** include two provinces (Algiers, Ghardaïa).
- **Regions with high urbanization:** include ten provinces, namely (Annaba, Tebessa, Oum El Bouaghi, Constantine, Blida, Oran, Naâma, Béchar, Tindouf, Ouargla).
- **Regions with above-average urbanization:** include twelve provinces, namely (Tamanrasset, El Oued, Khenchela, Biskra, M'sila, Djelfa, Laghouat, Tiaret, El Bayadh, Sidi Bel Abbès, Saïda, Aïn Témouchent).
- **Regions with medium urbanization:** include twelve provinces, namely (El Tarf, Souk Ahras, Guelma, Skikda, Jijel, Mila, Batna, Bordj Bou Arreridj, Boumerdès, Tipaza, Tissemsilt, Tlemcen).
- **Regions with below-average urbanization:** include ten provinces, namely (Illizi, Mascara, Relizane, Chlef, Aïn Defla, Médéa, Bouira, Tizi Ouzou, Béjaïa, Sétif).
- **Regions with low urbanization:** include two provinces (Adrar, Mostaganem).

The provinces that maintained their urbanization levels across the last three censuses are: (Ghardaïa, Annaba, Constantine, Blida, Oran, Béchar, Naâma, Ouargla, Khenchela, Biskra, El Oued, Djelfa, Tiaret, El Tarf, Skikda, Boumerdès, Tipaza, Tlemcen, Bordj Bou Arreridj, Béjaïa, Sétif, Médéa, Aïn Defla).

## 6- Relationship Between Fertility and Urbanization

**Table 8: Relationship between Fertility and Urbanization for the 1987 Census**

| Correlations | ISF1987 | Urbanization Rate 1987 |
|---|---|---|
| ISF1987 | Pearson Correlation | 1 |
|  | Sig. (2-tailed) |  |
|  | N | 48 |
| Urbanization Rate 1987 | Pearson Correlation | -,493** |
|  | Sig. (2-tailed) | ,000 |
|  | N | 48 |

**Note: Correlation is significant at the 0.01 level (2-tailed).**
From Table 8, the Pearson correlation for 1987 is -0.49, indicating a moderate inverse relationship between the two variables; meaning that as the urbanization rate increases, fertility decreases at a moderate rate, statistically significant at the 0.01 error level.
**Source:** Prepared by the researcher using SPSS.

**Table 9: Relationship between Fertility and Urbanization for the 1998 Census**

| Correlations | ISF1998 | Urbanization Rate 1998 |
|---|---|---|
| ISF1998 | Pearson Correlation | 1 |
|  | Sig. (2-tailed) |  |
|  | N | 48 |
| Urbanization Rate 1998 | Pearson Correlation | -,172 |
|  | Sig. (2-tailed) | ,242 |
|  | N | 48 |

From Table 9, the Pearson correlation for 1998 is -0.17, indicating a weak inverse relationship between the two variables; meaning that as the urbanization rate increases, fertility decreases at a weak rate.
**Source:** Prepared by the researcher using SPSS.

**Table 10: Relationship between Fertility and Urbanization for the 2008 Census**

| Correlations | ISF2008 | Urbanization Rate 2008 |
|---|---|---|
| ISF2008 | Pearson Correlation | 1 |
|  | Sig. (2-tailed) |  |
|  | N | 48 |
| Urbanization Rate 2008 | Pearson Correlation | ,180 |

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| Correlations | ISF2008 | Urbanization Rate 2008 |
|---|---|---|
|  | Sig. (2-tailed) | ,221 |
|  | N | 48 |

From Table 10, the Pearson correlation for 2008 is 0.18, indicating a weak direct relationship between the two variables; meaning that as the urbanization rate increases, fertility increases slightly.

**Statistically significant at the 0.01 error level**

**Source:** Prepared by the researcher using SPSS.

## 7- Conclusion:

- Fertility is influenced by several factors, including social, economic, and demographic factors such as: (infant mortality rate, health coverage, female illiteracy rate, average age at first marriage, average family size, etc.). All these factors contribute to the variation in fertility levels from one region to another.
- Most Algerian provinces did not maintain their fertility rates from one census to another, except for the provinces of Tiaret and Aïn Defla.
- The regions that maintained their urbanization levels across the last three censuses are: (Ghardaïa, Annaba, Constantine, Blida, Oran, Béchar, Naâma, Ouargla, Khenchela, Biskra, El Oued, Djelfa, Tiaret, El Tarf, Skikda, Boumerdès, Tipaza, Tlemcen, Bordj Bou Arreridj, Béjaïa, Sétif, Médéa, Aïn Defla).
- The relationship between urbanization and fertility was characterized by an inverse relationship in the 1987 and 1998 censuses, while in the 2008 census the relationship became a very weak direct one.

## Appendices:

**Appendix 1:** Distribution of fertility and urbanization rates according to the last three censuses.

| N_WILAYA | ISF1987* | ISF 1998* | ISF 2008* | Percentage of urbanisa-tion 1987** | Percentage of urbanisa-tion 1998** | Percentage of urbanisa-tion 2008** |
|---|---|---|---|---|---|---|
| ADRAR | 7 | 4,6 | 3,75 | 27,11 | 24,05 | 36,49 |
| CHLEF | 6,5 | 3,1 | 2,77 | 33,91 | 41,27 | 49,75 |
| LAGHOUAT | 5,6 | 2,2 | 3,43 | 52,64 | 54,21 | 68,97 |
| O.E BOUAGHI | 5,5 | 3 | 2,91 | 52,36 | 66,75 | 73,15 |
| BATNA | 5,7 | 2,2 | 2,93 | 48,63 | 56,21 | 61,17 |
| BEJAIA | 5,7 | 2,9 | 1,95 | 31,84 | 39,31 | 50,71 |
| BISKRA | 5,7 | 2,3 | 3,29 | 54,94 | 57,86 | 67,84 |
| BECHAR | 5,7 | 3,6 | 2,94 | 74,36 | 76,45 | 78,55 |
| BLIDA | 4,4 | 2,4 | 2,81 | 62,72 | 72,8 | 76,94 |
| BOUIRA | 6 | 3,1 | 2,4 | 23,61 | 28,97 | 41,04 |
| TAMANRAS-SET | 6,7 | 2,4 | 4,35 | 24,75 | 66,97 | 68,63 |
| TEBESSA | 5,8 | 2,3 | 2,68 | 62,57 | 66,49 | 75,01 |
| TLEMCEN | 4,2 | 2,7 | 2,55 | 45,7 | 58,43 | 61,67 |
| TIARET | 5,7 | 3 | 2,94 | 47,8 | 65,82 | 68,63 |
| TIZI_OUZOU | 5,1 | 3,3 | 1,71 | 22,34 | 35,16 | 45,15 |
| ALGER | 3,1 | 2,7 | 2,54 | 89,25 | 90,66 | 94,3 |
| DJELFA | 6,7 | 1,9 | 3,97 | 54,04 | 62,33 | 69,67 |
| JIJEL | 6,2 | 1,9 | 2,45 | 25,49 | 45,19 | 61,13 |
| SETIF | 6,3 | 3,9 | 2,82 | 32,58 | 39,27 | 52,91 |

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| SAIDA | 5,4 | 2,2 | 2,58 | 49,1 | 68,48 | 67,24 |
|---|---|---|---|---|---|---|
| SKIKDA | 5 | 4,6 | 2,41 | 41,45 | 52,14 | 57,49 |
| SIDI BEL ABBES | 4,7 | 3,2 | 2,45 | 51,82 | 67,99 | 69,07 |
| ANNABA | 3,6 | 3,1 | 2,13 | 81,44 | 80,87 | 84,07 |
| GUELMA | 4,6 | 2,6 | 2,4 | 46,89 | 56,86 | 62,33 |
| CONSTAN-TINE | 4,2 | 2 | 2,56 | 84,46 | 87,13 | 89,18 |
| MEDEA | 6,4 | 3,6 | 2,63 | 28,46 | 39,66 | 51,42 |
| MOSTAGA-NEM | 5,8 | 4,1 | 2,66 | 32,93 | 34,96 | 38,11 |
| M'SILA | 7,1 | 2,5 | 3,33 | 38,32 | 51,39 | 62,42 |
| MASCARA | 5,2 | 2,7 | 2,85 | 36,86 | 52,16 | 56,61 |
| OUARGLA | 6,9 | 4,8 | 3,72 | 62,71 | 75,09 | 82,42 |
| ORAN | 3,7 | 3,6 | 2,59 | 86,56 | 87,89 | 92,42 |
| EL BAYADH | 5,7 | 4,5 | 3,24 | 40,48 | 54,99 | 63,27 |
| ILLIZI | 7,5 | 2,2 | 4,65 | 39,25 | 36,09 | 55,29 |
| B.B AR-RERRIDJ | 6,7 | 4,5 | 2,87 | 36,35 | 45,41 | 61,94 |
| BOUMERDES | 5 | 2,3 | 2,76 | 35,49 | 47,03 | 58,04 |
| EL TAREF | 6,4 | 2,8 | 2,24 | 40,76 | 51,64 | 58,93 |
| TINDOUF | 6,2 | 2,9 | 3,69 | 79,64 | 92,27 | 92,8 |
| TISSEMSILT | 5,1 | 2,2 | 2,65 | 24,57 | 45,55 | 56,82 |
| EL OUED | 5,1 | 3,1 | 4,16 | 48,44 | 62,53 | 68,76 |
| KHENCHLA | 7,5 | 2,3 | 2,69 | 47,02 | 57,45 | 68,08 |
| SOUK AHRAS | 5,7 | 3,2 | 2,44 | 46,5 | 52,07 | 58,65 |
| TIPAZA | 4,6 | 2,9 | 2,64 | 45,13 | 53,69 | 57,82 |
| MILA | 5,8 | 2,6 | 2,74 | 32,69 | 42,44 | 58,28 |
| AIN DEFLA | 6,2 | 2,8 | 2,85 | 30,36 | 42,55 | 48,07 |
| NAAMA | 5,5 | 2,2 | 3,08 | 57,45 | 72,85 | 72,44 |
| AIN TEMOU-CHENT | 3,8 | 3,3 | 2,51 | 58,93 | 63 | 67 |
| GHARDAIA | 5,6 | 2,7 | 3,59 | 91,12 | 91,99 | 96,2 |
| RELIZANE | 6,3 | 2,3 | 2,68 | 32,43 | 46,24 | 54,12 |
| Moyenne | نع | 2,75 | 2,74 | 49,54 | 58,27 | 65,94 |

SOURCE : *ONS
          ** ons,armature urbaine-RGPH2008,n°163,p92,2011

## Ethical Considerations

This study is based exclusively on secondary data derived from official population censuses conducted in Algeria in 1987, 1998, and 2008. These data are publicly available, aggregated, and anonymized, ensuring that no individual-level information is identifiable. Consequently, the research does not involve direct interaction with human participants, nor does it require informed consent or ethical approval from an institutional review board. The study adheres to internationally recognized principles of research integrity, transparency, and responsible data use, and all analyses were conducted in a manner that respects confidentiality and data protection standards.

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**Conflict of Interest**
The author declares no conflict of interest related to the publication of this article. The research was conducted independently, and no financial or personal relationships influenced the study's design, analysis, interpretation, or reporting of results.

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