

The impact of demographic changes on the labor market in Algeria prospects for 2050

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Abstract---The changes that population societies are witnessing due to the pressures caused by demographic growth and transformations in economic conditions, and the necessity to adapt to them, require a series of measures and actions aimed at solving the problems arising from this situation. These problems become impossible to address without the existence of data and statistics related to the population in general and the workforce in particular. Improving the quality of this data and providing it regularly is essential for policy planning and setting future strategies through demographic forecasts. Population projections are not limited to the demographic aspect only; every institution is obliged to take into account the various demographic changes that could affect its activities. Undoubtedly, the current situation in Algeria amidst global transformations compels it to take measures and actions that allow it to plan its policies, especially with the increase in first-time job seekers. Our research paper aims to monitor the impact of demographic changes on the labor market in Algeria.

Keywords---demographic changes, active population, work, unemployment.

Introduction

The interplay between population and development has been a topic of inquiry since ancient times. A number of scholars and thinkers have attempted to explain this interaction and have proposed several theories in this regard, striving to understand the nature of the relationship between population and development, as well as the available resources, and to explain the impact of population increase or decrease on societal conditions in various fields, particularly the labor market.

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A large part of the future demographic picture has indeed been determined, and it largely sets the boundaries for future labor market activity. The demographic structure plays a key role in determining overall activity rates, as the factors affecting workforce participation by age are more complex and more prone to change. Therefore, they should be based on informed assumptions about future trends in economic growth, institutional changes, and the labor market. We cannot ignore population growth and its impacts on society. The aim of our research paper is to determine the impact of demographic changes on the labor market in Algeria by the year 2050. We started from the following question:

What is the impact of demographic changes on the labor market in Algeria by the year 2050?

To achieve the objective of our study, we relied on the descriptive method and the Spectrum program, and we divided the axes of our study into the following axes:

First: Identify the concepts of the study:

A - Population changes:

Demographic changes refer to the shifts that occur in the demographic composition of a particular society over time. These changes include several aspects:

- Change in population size
- Dustiness in the age structure
- Change in qualitative composition
- Change in geographical distribution

Demographic change is also defined as the complex interaction between basic population variables (fertility, mortality, migration) with social, economic, cultural, geographical conditions and population policy. (Linz, and Stula, 2017, 02)

Population changes can be defined in their comprehensive sense as a continuous process that all human societies go through despite their different level of economic and social development. It should be noted that their period may be long or vice versa, depending on the degree of development of the economic and social structure of these societies. (Al-Shadidi, 2014, 06)

B- Labor market:

The International Labour Organization defined it as the field that matches workers with jobs or where work is exchanged for wages or bartered in kind, with the workforce being the vital resource that supplies the market with workers. (International Labour Organization 2009) In the context of defining the spatial scope, the labor market is a virtual space that organizes the supply and demand for jobs and trades in a manner that aligns with the graduate's specialization and does not conflict with the community's conditions and public policy, (Hussein Abu Al-Qasim 2015, 49) The labor market is manifested in the phenomenon of supply and demand for labor, which is reflected in various forms of assistance provided to individuals seeking employment. In other words, it is the field where the supply of labor (job seekers among the unemployed) and the demand for labor (job offers from institutions and employers) interact through the exchange of work skills for wages. The labor market consists of two sides:

- Supply refers to the labor force represented by the actual or willing effort to work among the economically active population segment over a specific period.
- Demand: It refers to the demand for labor, which represents the other side of the market, and it aims to provide the required numbers and types of labor to perform specific tasks at designated times and at an appropriate labor cost. (Nimat Allah 2002, 17)

Secondly: The development of the population and fertility levels in Algeria:

A- The development of Algeria's population:

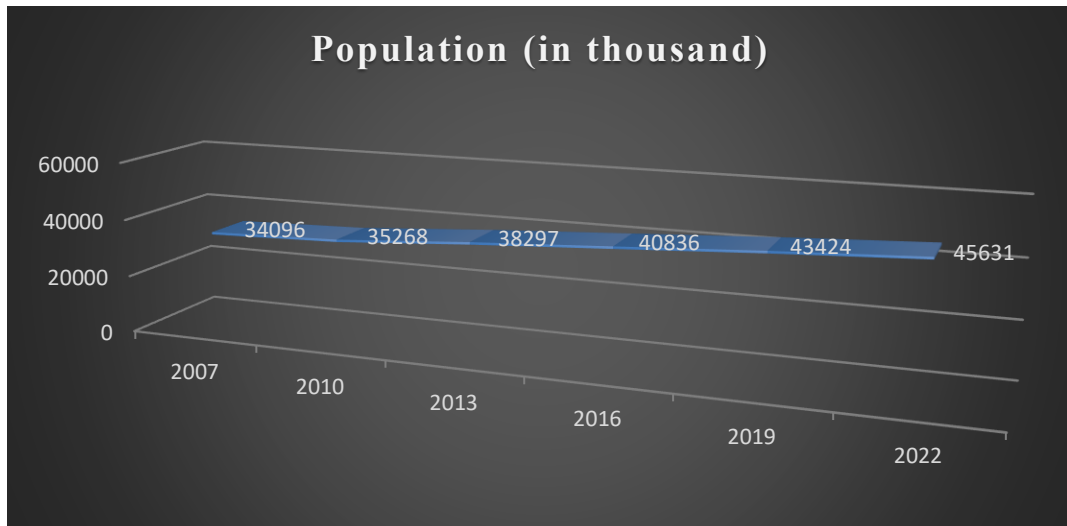


Figure (1): The evolution of Algeria's population during the period 2007-2022.

Source: Created based on data from the National Statistics Office (ONS) publications.

From the above figure, the population of Algeria witnessed a significant increase from 34,096,000 people in 2007 to 45,531,000 people, an increase of approximately 10 million people, equivalent to a rate of 30%. The decline in the mortality rate while maintaining a high fertility level led to unprecedented growth rates in Algeria's demographic history, especially in the period following independence in 1962, after which a noticeable stabilization occurred during the twenty-first century.

B - Development of general fertility levels in Algeria:

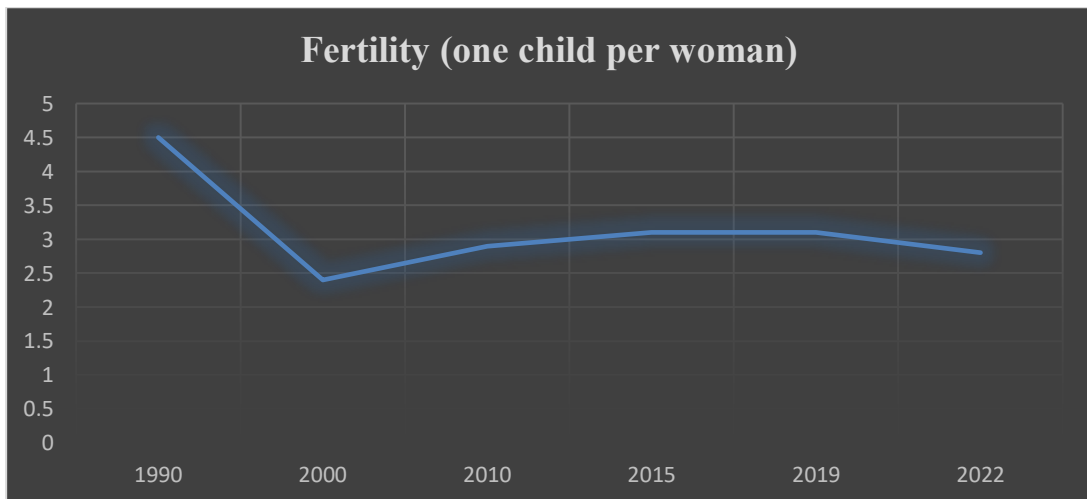


Figure (2): Development of general fertility levels in Algeria for the period 1990-2022

Source: Created based on data from the National Statistics Office (ONS) publications.

Fertility rates witnessed a significant decline between 1990 and 2000, as about half of the 4.5 children per woman approached 2.4 children per woman, while they rose again from 2010 until 2018 to reach a rate of 3.1 children per woman, but they declined again to reach a rate of 2.8 children per woman. It is known that the increase in the educational level of mothers and their going out to work contributed to this decline. There is no doubt that the decline in fertility rates is the result of a revolution for both couples and contraceptives, as all marriage and fertility indicators indicate that profound changes have occurred in the traditionally prevailing family model. In general, Algerian families have moved from the large family model to a smaller, more nuclear model, and there is no doubt that this is due to several living conditions, including environmental (urban/rural) and cultural change, as it should be noted that the reality of the national fertility rate at a large rate does not exceed two children per woman. This is due to there being a great diversity in standards and behaviors in matters of childbearing, even in the same regions, as the desire to have children is still strong and the family image is highly appreciated, but the demand for children is declining almost everywhere.

Third: The reality of the labor market in Algeria:

A- Labor force participation:

Table (1): Distribution of the Economically Active Population in Algeria 2019.

Gender distribution by	May 2019		
	male	female	total
Current working population	9219000	2062000	11281000
Employers and self-employed	3085000	388000	3473000
permanent employees	3313000	1141000	4454000
Non-permanent employees and trainees	2694000	480000	3174000
Family helpers	127000	53000	180000
unemployed population	920000	529000	1449000
Current active population	10140000	2591000	12730000
Population aged 15 years and over	15190000	14967000	30157000
Employment rate %	60.7	13.8	37.4
Unemployment rate %	11.4	20.4	11.4
Economic activity rate in %	66.8	17.3	42.2

Source: ONS (2016): Activity, Employment & Unemployment In September 2016, n763, the Technical Directorate responsible for Population and Employment Statistics, Algiers, December 2019, p.04.

The table above generally illustrates the labor force participation rate, which refers to the economically active population. According to the National Office of Statistics, economically active or employed individuals are those who declare they have work, even if it is performed at home. Demographically, this includes everyone with a job, even if they are family helpers in institutions, agricultural investors, artisans, and traders. Their number reached approximately 12 million, comprising about 10,140,000 males and 2,591,000 females. The overall economic activity rate was 42.2%. It is noteworthy that this rate varies by gender, reaching 66.8% for males and 17.3% for females. The unemployment rate was 11.2%, also varying by gender, with 20.4% for females and 11.2% for males.

Table (2): Distribution of employed individuals in Algeria by sector of activity in 2019.

Gender activity sector	male		female		total	
	number	Percent%	number	Percent%	number	Percent%
public	3007000	32.6	1260000	61.1	4267000	37.8
Special - mixed	6212000	67.4	802000	38.9	7014000	62.2
total	9219000	100	2062000	100	11281000	100

Source: ONS (2019): Activity, Employment & Unemployment in September 2019, n763, the Technical Department in charge of Population and Employment Statistics, Algiers, December 2019, p.04.

The last table monitors the nature of the employment sector, distinguishing between wage earners and self-employed workers, as well as between those working in the public sector and their counterparts in the private sector. Table number (2) clearly shows the dominance of the private and mixed sectors over the number of employed individuals in Algeria during the year 2019, with a rate of 62.2% compared to 37.8% in the public sector. It is also worth noting that the male category holds the highest percentage in the private and mixed sectors at 67.4% compared to 38.9% for females.

Fourth: Population expectations and labor sector needs: Prospects for the year 2050:

What is agreed upon are the variables that have an impact on the labor market: They are demographic and economic variables. With regard to the population variables specific to Algeria, we relied primarily on setting hypotheses for population growth through fertility (high/medium/low), while conforming to the United Nations fertility projections and the morphology of the nature of the trends. Our local community, which is heading towards declining fertility levels:

- ❖ The first (average) hypothesis, according to the United Nations, is that fertility is moving towards 2.1 children per woman, and it has been coded as project1
- ❖ The second (high) hypothesis: We assumed that the fertility rate would remain constant, which is 3 children per woman, and it was coded as project2
- ❖ The third (low) hypothesis: We assumed that fertility horizons 2050 reach a minimum of 2 children per woman, or 1.8 children per woman, which represents project3

In order to build future projections in the labor sector, we entered the following data that we obtained from data published by the National Bureau of Statistics:

- The labor force contribution rate for males for the age group 10-14 is non-existent
- The labor force contribution rate for males in the age group 15-64 is 66.8%
- The labor force contribution rate for females for the age group 10-14 is non-existent
- The labor force contribution rate for females for the age group 15-64 is 17.3%.
- The gross domestic product for the base year (2019) was estimated at \$193.5 billion.
- Annual growth rate of the gross domestic product: It should be noted that this rate fluctuates between decline and rise, as in 2019 it witnessed a decline and was estimated at 0.8.

- Projections results:

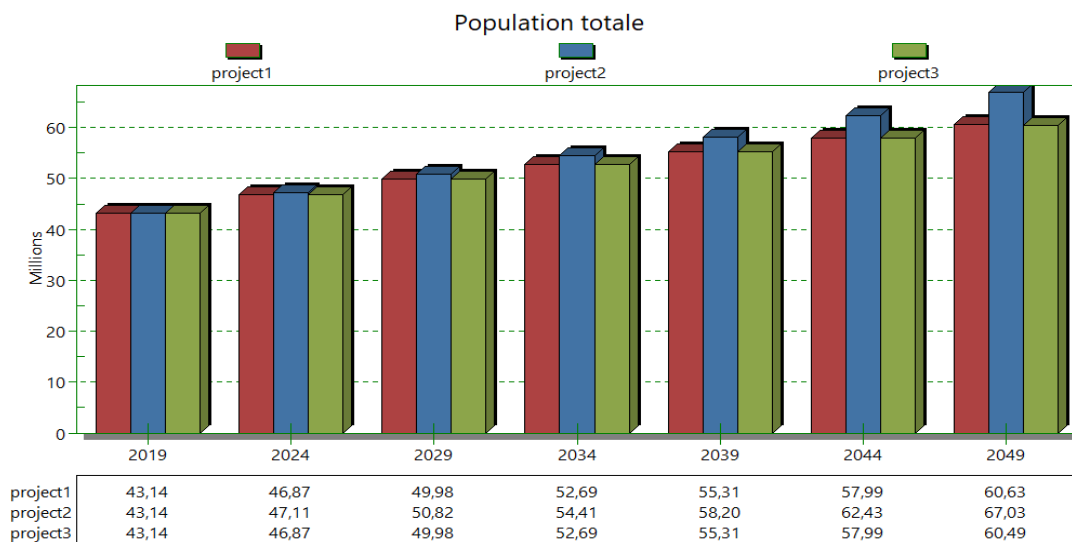


Figure (3): Population of Algeria for the period 2019-2050

Source: Extracted from the Spectrum system of projections

According to Figure No. (3), the population horizons for 2050 are close with respect to the two fertility hypotheses of 2.1 children per woman and 1.8 children per woman, as they were estimated respectively at 60.63 million people and 60.49 million people, while the fixed hypothesis of three children per woman is that the population reached 67.03 million people. To clarify the trend in the distribution of age groups of the Algerian population in the year 2050, we extracted the population pyramid for the first hypothesis (the trend in fertility of Algerian women is about 2.1 children per woman in the year 2050) as follows:

Population by age and sex (Millions)

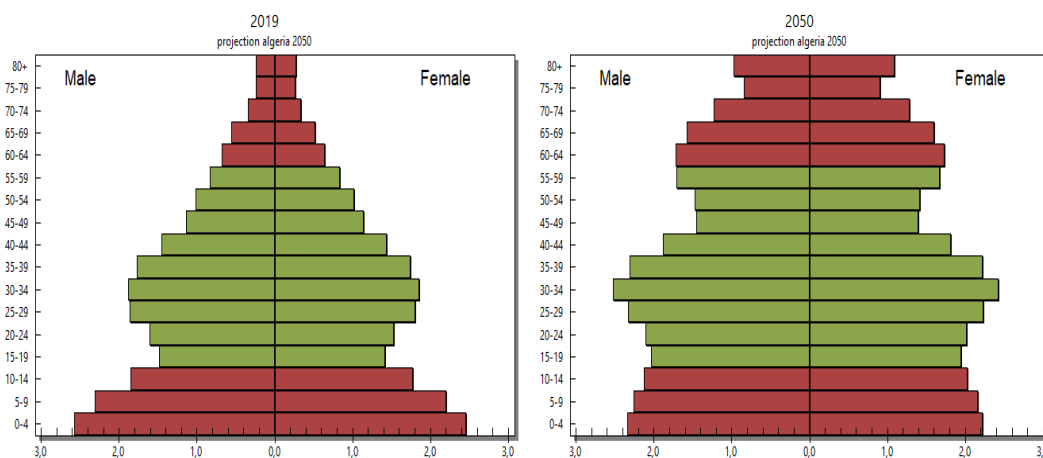


Figure (4): Population pyramid for the population of Algeria in 2019-2050

Source: Extracted from the Spectrum system of projections

Although the proportion of people in the working population is determined by the interaction of many factors, the main influence remains the shape of the age pyramid, that is, the relative share of different

age groups by gender. For example, the probability of entering or remaining in the labor market varies greatly over a person's life, so it is useful to have an overview of the impact that aging may have on the overall rate by 2050. There is no doubt that the demographic composition of Algerian society expected by 2050 AD confirms the features of the beginning of the demographic aging of society. Although the largest percentage remains in the possession of the active society, the change in age structure rates begins to have an impact with the passage of time.

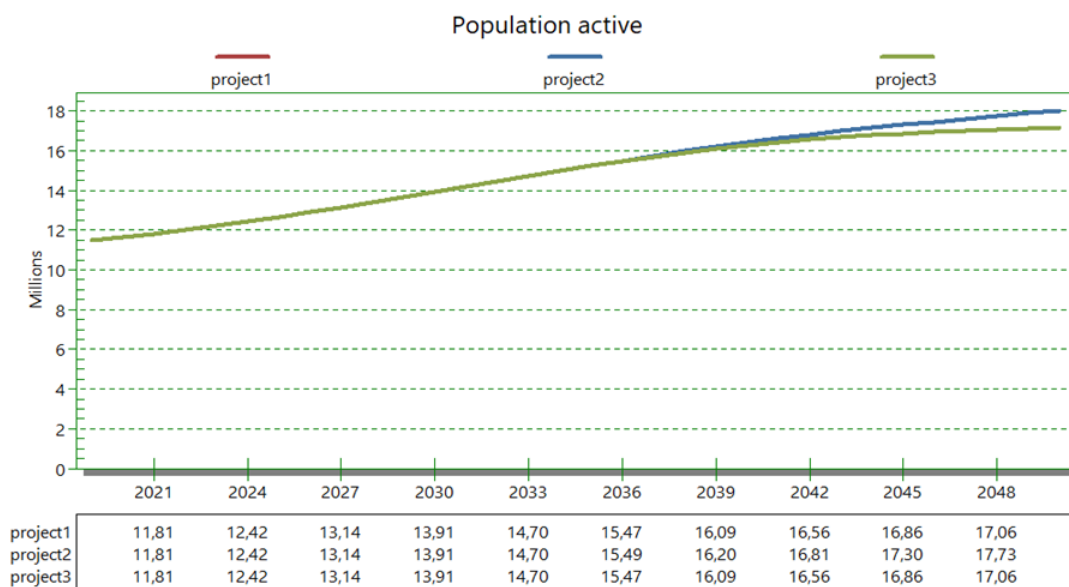


Figure (5): Active population

Source: Extracted from the Spectrum system of projections

Through Figure (5), the number of active population is somewhat similar to all the forecasting hypotheses regarding fertility in the 2050 horizons, as it was estimated at about 17 million people compared to 11 million people in 2019, an increase estimated at about 6 million people, as we previously discussed who the active population is, as the demographics of the active population represent individuals. The internationally specified working age is between 15 and 65 years. As is clear from the last figure, the number of active residents is constantly increasing, which requires those responsible for setting employment policies in Algeria to direct them in a way that suits the needs of citizens, and this is what we will determine later by the number of jobs that must be created each year until the year 2050.

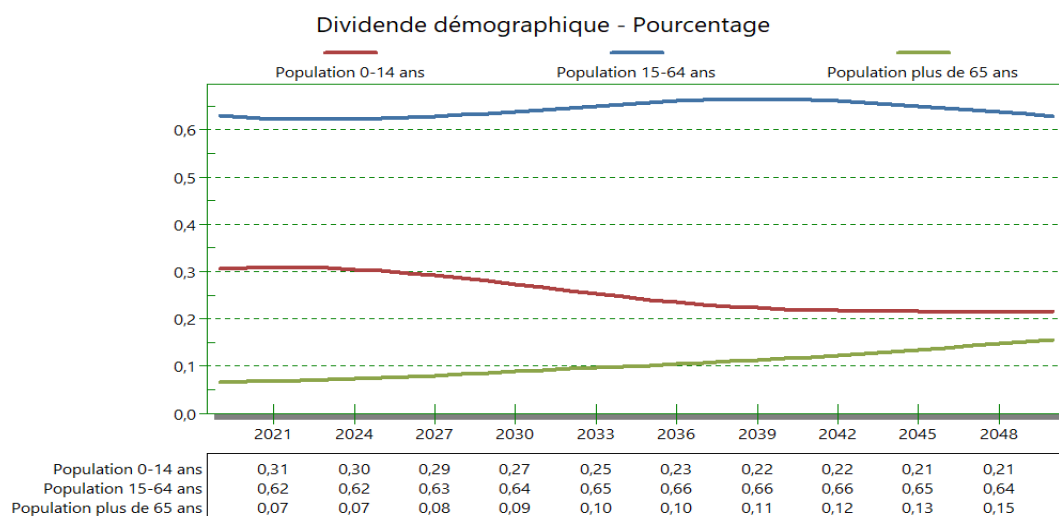


Figure (6) Demographic dividend

Source: Extracted from the Spectrum system of projections

The curve shows a decrease in the dependency ratio for the age group under 15 years, because of the decline in the population in the group over the years because of low fertility levels, while we notice the opposite in the age group over 65 years. The increase in dependency in this group is due to the increase in life expectancy, which will reach 80.7 years for men and 82.7 years through Spectrum estimates of the population of Algeria for the horizons of 2050. On the other hand, Algeria has a significant percentage of the population of the working age group 15-64 years, which witnessed an increase starting in 2030 and then declining again in 2045, settling in 2048 at 64%. There is no doubt that this size of the workforce requires planning techniques. With a degree of clarity and knowledge of labor markets, their environment, and the current and future challenges they face.

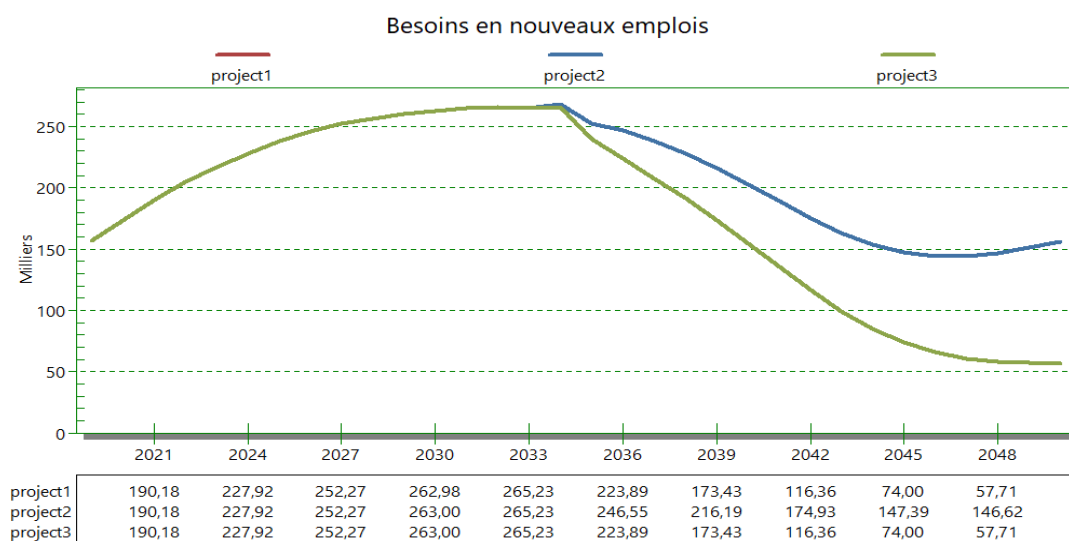


Figure (7): Number of new jobs required to be created during 2019-2050

Source: Extracted from the Spectrum system of projections

According to Figure (7), the number of jobs that must be provided is constantly increasing at the level of the three hypotheses, as in 2019 190.18 thousand new positions were required, and it reached its highest levels in the year 2033, when it reached at the level of the three hypotheses the equivalent of 265.33 thousand new positions, and after that it witnesses a gradual decline until 2048, and it was estimated at 57.71 thousand positions for each of the 2.1 and 1.8 children per woman. As for the fertility hypothesis of 3 children per woman, it was higher, which was represented by 146.62 thousand positions. What can be concluded from this analysis is that the lower the fertility levels, the more it contributes to the decrease in the number of new entrants to the labor market, and this leads to a decrease in the number of new positions that must be created. Work occupies a pivotal place in the life of every individual. It is a source of identity, a source of income, and a means of meeting material needs, as decent work is the basis for stability and social progress.

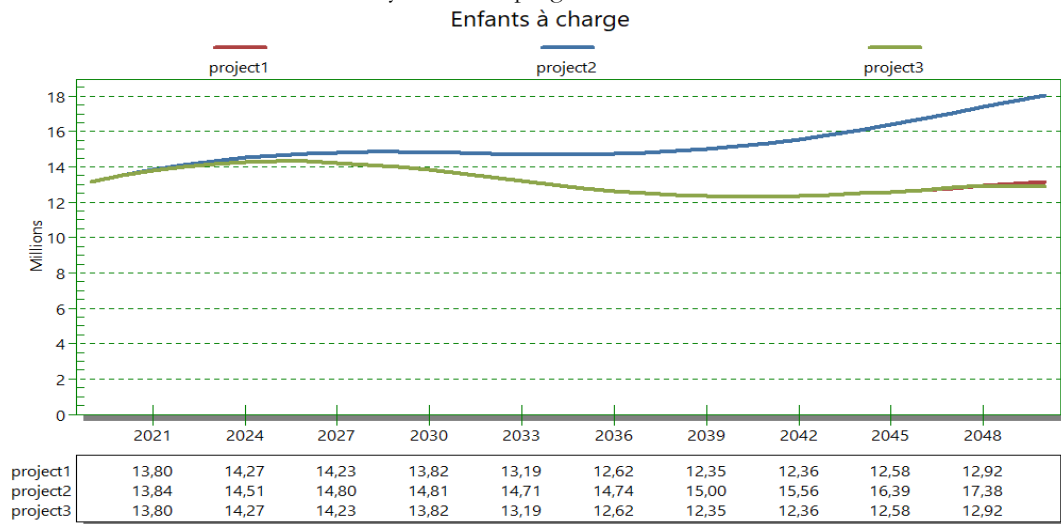


Figure (8): Child support 2019-2050

Source: Extracted from the Spectrum system of projections

Through the last figure, it is clearly evident that child support is affected by fertility levels. The higher the fertility, the greater the child support, and this is reflected in the high hypothesis (project2), in which child support was 17.38 million people, in contrast to the rest of the hypotheses in which child support was 12.92 million people.

General results:

- * Assuming that the fertility of Algerian women remains constant at a rate of 3 children per woman until the year 2050, the population will trend towards 67.03 million people.
- * Assuming average fertility of about 2.1 children per woman until the year 2050, the population of Algeria will move to 60.63 million people.
- * Assuming low fertility below two children per woman, the population of Algeria by 2050 will be about 60.49 million people.
- * As for the active population, it will witness a noticeable increase at the level of the three hypotheses, as it will reach the threshold of 17 million people in 2050 compared to 11 million people in 2019, that is, an increase of 6 million people over 31 years.
- * The demographic dividend is close at the level of the three assumptions, as it is also heading towards an increase year after year, as the percentage of the dependent population reached its peak in 2036, when it was estimated at 66%, and then stabilized at 64% starting in 2048.

- * The more the assumptions change, the more the number of positions that must be created changes, as the lower the fertility levels, the more this contributes to reducing the number of positions that must be created.
- * Child dependency is affected by levels of fertility rates. The higher the latter, the greater the burden of children.

Conclusion

In conclusion, the recently observed decline in fertility indicators, the decline in the mortality rate, and the rise in life expectancy, in addition to some demographic shifts that would affect the composition of society, are among the important assumptions that must be taken into account in any future planning process with the aim of matching future needs in terms of In terms of job positions and the number of entrants to the labor market, that is, the balance between supply and demand for work As for the recommendations that we propose from our study:

- Ensuring the right of young people to decent work through effective policies that generate stable, safe and secure employment without discrimination.
- Commitment to giving priority to job creation and a skilled workforce by increasing investment that supports youth in the field of entrepreneurship and providing capacity building for youth.
- The importance of population changes. Studying them allows monitoring the changes that occur at the level of population structure with the aim of developing strategic plans in all fields, such as determining the number of job positions that must be created annually.

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