

The Interrelationship between Food Security and Economic Growth: A Case Study of Algeria (2020–2025)

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Abstract:

This research aims to shed light on the interrelationship between food security and economic performance in Algeria, by analyzing their impact on each other. Food security contributes to the stability of the economy by reducing external dependence, reducing inflation, and boosting national production. In turn, improved economic performance contributes to financing the agricultural sector, developing infrastructure, and supporting sustainable production policies, thereby enhancing national food security. The Algerian experience is a clear example of this interdependence, where economic diversification outside the hydrocarbons sector is an essential entry point to achieve balanced development and sustainable food security.

Keywords: Food Security; Economic Security; Agricultural Sector; Economic Diversification; Algeria case.

1. Introduction

The economic and climate crises have made the world subject to many challenges mainly related to food security, which are constantly increasing. This further complicates the relationship between food and economic security. In this context, Algeria is one of the countries where this interaction is embodied, as agriculture is one of the main pillars on which it bases its development policy in the economic field and the processes of diversifying sources of income away from oil production.

This topic is of great importance, as it discusses an issue that touches on the core of the social and political stability of states. Any imbalance in food security is the cause of economic turmoil, and the opposite is also true of economic security, as any economic deterioration necessarily leads to the destabilization of the state's ability to secure its basic food needs. It can be said that Algeria is a country where this challenge has undeniably emerged, and as a result, it is making a clear effort to achieve its self-sufficiency, and thus reduce its dependence on the outside world, especially in light of the continuous changes in the prices of oil and raw materials in the world.

This topic is not random but has objectives that can be summarized in that it includes a study of how economic stability contributes to achieving sustainable and balanced food security by supporting the country's infrastructure. In addition, it is an attempt to analyze the impact of food security on economic security indicators in the State of Algeria in particular, such as inflation and employment. It also aims to provide an analysis of Algerian policies in the recent period, and their prospects in building integrated and sustainable development in both fields.

All of this raises the question of: **To what extent is there a mutual impact between economic stability and food security, particularly in Algeria?**

To answer this problem, the descriptive analytical approach is relied upon, based on the analysis of recent economic and sectoral data collected from official sources, whether national or international. Thus, an attempt is made to link the quantitative and qualitative indicators in order to clarify the strong link between the economic and food dimensions in the case of Algeria, while referring to the extent to which its agricultural performance has evolved in the context of government policies between 2022 and mid-2025.

This is according to the plan consisting of two main axes as follows:

The first axis: The impact of achieving food security on economic performance in the Algerian context

The Second axis: The Impact of Economic Performance on Food Security Indicators - Analyzing the Case of Algeria.

2. The Impact of Achieving Food Security on Economic Performance in the Algerian Context

By saying that food security is the basis for the stability of the economies of countries, Algeria's economic security is of course affected by the extent to which it is able to achieve self-sufficiency and abandon imports. Since the world is subject to the phenomenon of price volatility, which in turn affects the balance of trade and purchasing power, it is necessary to discuss the relationship between them in order to understand the challenges facing national policies in this regard. The following is an enumeration of the images in which food security is influential in achieving the economic sovereignty of the State.

2.1 Contributing to Price Stability and Controlling Inflation

Algeria's performance in the agricultural sector has improved significantly, thanks to several government investments that have expanded agricultural areas and reclaimed land. In this context, the country has also adopted modern production methods, by providing improved seeds and relying on advanced technologies. These measures have led to an increase in the size of the exhibition of staple food items such as wheat, vegetables and fruits (Boulila & Benbaekhti and others, 2024, pp. 4-7).

Achieving food security is a factor, in addition to the strong performance in the field of hydrocarbons, in stabilizing prices locally and reducing inflation rates, as if we compare the two periods 2022-2023 and 2024, we find that the first period was estimated at 9.3%, while in the latter period it was estimated at 4.2% (Bank of Algeria, June 2024, p. 3). This has been reflected in the trade balance, which leads to the stability of the national economy.

This decline in inflation is attributable at least to two factors: first, the availability of more domestic food, which reduces the dependence of the state and consumers on more expensive food imports. The second is the reduction and rationalization of import costs, which reduces the pressure on

the trade balance and benefits the purchasing power of citizens. From an economic perspective, when a country achieves or is close to food sufficiency, it reduces the risk of global food price fluctuations or sudden shortages, thereby contributing to macroeconomic stability.

This link between food security and inflation or prices is supported by studies that suggest that supporting the agricultural sector can reduce food instability and can contribute to controlling food inflation (Mazouzi & Benkheznadj, 2024).

2.2 Liberating the State from Dependence on Foreign Markets

During the period between 2022 and 2025, Algeria witnessed a development in reducing its dependence on the foreign market in the field of food security. This is after raising the rate of self-sufficiency in its agricultural products, especially durum wheat and vegetables, by about 75%, and (GLOBAL TRT 2025) it seems logical that there should be a reduction in import bills, following the increase in national production, which reduces dependence on imports.

In the same context, the decline in imports, in parallel with the growth of energy sector revenues, helped raise foreign exchange reserves, to \$70 billion in mid-2025, up from \$53 billion in 2022 (Lahyani, 2025). This enhances the economic ability to face external shocks on the one hand and the financial stability of the country on the other hand.

From the perspective of state sovereignty, reducing reliance on foreign markets for an essential commodity such as food enhances national autonomy and reinforces control over national supply chains. Moreover, it limits vulnerability to external economic and political pressures, thereby endowing food security with a clear strategic dimension (Yacef, 2024).

2.3 Reducing Economic Burdens and Investing in Human Resources

The growth of production in the agricultural sector creates many new jobs, some of which are direct at the level of production, such as the job of

the farmer, the field workers, the seasonal and permanent supervisors. Some of them are indirect in the income of production, such as working in nurseries, the production of seeds, fertilizers, or mechanical services. Jobs are also created in the post-harvest field, such as food processing, product packaging, and then transportation and marketing. These new positions are integrated, as each job is directly on the farm. It can generate many jobs in other sectors, which is called the multiplier effect of the agricultural sector on employment. The Algerian government signed an agreement in 2024 with the Italian group Bonifiche Ferraresi to implement an integrated agricultural project worth about \$420 millions, through which more than 6,700 direct and indirect jobs were created (BF Completes 2025). Similarly, the foreign partnership agreement concluded by Algeria with the Kingdom of Saudi Arabia for the development of an agricultural hub in the province of “Mania–Ostrich” has contributed to employment generation, resulting in the creation of approximately 182 permanent jobs and 300 seasonal positions (Farmland grab 2025).

As for Algeria, the southern regions and those known as the plateaus are characterized by a different production composition, as the south is characterized by palm oases, livestock breeding, and plateaus characterized by the cultivation of cereals and semi-arid pastures. Expanding agricultural areas or improving irrigation in these areas is absorbing a local workforce that was previously dependent on alternative activities, especially temporary migration and daily work (Algeria Press Service 2025).

Therefore, the creation of employment opportunities in this context carries significant developmental and social implications, as it contributes to local economic growth, social stability, and the strengthening of productive capacities, especially with regard to reducing youth migration and improving the incomes of families in the villages. The addition of jobs means mathematically a potential reduction in the unemployment rate, provided that these positions remain constant or tend to increase to a lesser extent than the jobs that have been added.

From a purely economic perspective, raising output and value added for the agricultural sector raises the share of the non-oil sector in GDP. It leads to a reduction in dependence on the import of certain food commodities, thereby improving the balance of food trade and easing pressure on hard currency reserves. This supports the national economy and makes it more resilient when it is exposed to shocks – especially in the price of hydrocarbons.

The creation of employment opportunities in this context carries significant developmental and social implications, as it contributes to local economic growth, social stability, and the strengthening of productive capacities. However, assessing the extent to which such initiatives effectively reduce excessive dependence on the hydrocarbons sector requires a comparative approach, notably through indicators such as the ratio of oil revenues to GDP or the share of export revenues before and after the increased contribution of the agricultural sector (Ben Meira 2024).

Therefore, in order to effectively invest in human capital and transform it into a sustainable driver of development, agricultural growth must be supported by a set of integrated and mutually reinforcing elements. In the absence of such conditions, the employment generated may remain fragile, seasonal, or low value-added, thereby undermining its long-term social impact.

These elements include, first, the upgrading and diversification of agricultural production through workforce training, input diversification, and the adoption of modern technologies. Second, they require improved access to markets by strengthening transport, logistics, and storage infrastructure. Third, facilitating access to appropriate and affordable financing for farmers and small agricultural enterprises remains essential. Finally, agricultural development must be accompanied by robust environmental safeguards aimed at enhancing climate resilience, particularly in relation to water scarcity and adaptation to climate change.

Despite the efforts made, achieving full food security or complete self-sufficiency remains elusive in Algeria due to several obstacles, the most important of which are the scarcity of water resources, climate change, weak infrastructure, high transportation and storage costs, poor linkage between production and markets, and lack of sufficient diversification (Sid & Kalakhi, 2025).

3. Assessing the Relationship Between Economic Performance and Food Security Indicators in Algeria

As already noted about the impact of food security on economic security, the opposite is also possible. The stability of purchasing power and the diversity of sources of income affect the ability of the state to provide food in a sustainable manner. The reliance on hydrocarbons in the Algerian economy is a reason why food security is vulnerable to fluctuations affecting global markets, which emphasizes the need to diversify the production hall and promote self-sufficiency. The following are some of the requirements that contribute to this.

3.1 Public Support for the Development of the Agricultural Sector

Algeria has given special importance to financing and supporting the agricultural sector through the 2024 Finance Law, in the context of the process of enhancing food security and trying to reduce dependence on the external market. This is evident in the financial allocations directed to support a series of strategic interventions, that amounted to about 500 billion Algerian dinars, which included production inputs and agricultural infrastructure, as a significant part of these funds was allocated to support "nitrogen fertilizers" by approximately 200 tons for the 2024-2025 season. Farmers are also supported in purchasing seeds, ensuring that the cultivated area is optimally utilized and resulting in an estimated yield of approximately 1.3 million quintals. This reflects the focus of public policies on raising the yields of strategic crops such as wheat and oilseeds (Algerian Ministry of Finance, 2023).

This support also includes programs to modernize irrigation systems and expand investments in water resource management, as new operations have been registered in this field with the aim of increasing water use efficiency and reducing losses in arid and semi-arid regions (Finance Bill 2024, 2023). In addition, various mechanisms have been resorted to to disburse subsidies, including direct grants (such as subsidizing input prices through official channels such as CCLS), (CCLS Cooperative Grains and Dry Pulses, 2024) soft interest-subsidized loans. This support includes seasonal loan programs, such as the “Companion Loan,” in which the Ministry covers the interest portion, as well as investment incentives, including tax exemptions and other fiscal concessions (Ministry of Agriculture, 2025). Programmes to digitize farmers' transactions to enable them to access subsidies are no exception.

Preliminary indicators for the 2024 season showed considerable progress in cereal production, especially durum wheat, which is positively due to the food import bill, which has been reduced due to the cash gains from abundant crops. It follows that the allocations directed towards inputs and infrastructure have contributed to raising the level of agricultural outputs in the short term, but this does not negate the fact that Algeria remains an importer of grains compared to the national consumption need (Hanno 2024).

3.2 Attracting Private Investments and Foreign Partnerships

Recently, the agricultural sector in Algeria has seen an increasing demand for private investment and international partnerships, especially in the greater south of Algeria (desert agriculture), as part of a national plan aimed at enhancing food security and diversifying the economy (Arab Fields, 2025). As a result, the state has introduced modern and environmentally sound agricultural technologies, including smart irrigation systems that save water, as well as advanced infrastructure for storage and processing, not to mention precision agriculture. This is considered the first contributor to raising the quality of Algerian crops and productivity (FAO 2025). For example, in the southern desert of the country, specifically the

state of Adrar, the Qatari company "Baladna" has signed a commitment to invest \$3.5 billions on a vast area estimated at 117,000 hectares to establish a project that includes the production of fodder, farms for the production of powdered milk, and the raising of cows for coffee and meat. This project aims to meet 50% of Algeria's milk powder needs and create about 5,000 local jobs, as mentioned above, and the implementation of the first phase of it will start by 2026 and continue over the next nine years (Arab Chih, 2025).

In addition, within the framework of opening partnerships for the Algerian government, in the past few years, promotional campaigns have been launched for the aforementioned model projects for desert agriculture, taking advantage of the vast areas and the dry climate to apply what is known as the principles of climate-smart agriculture, as well as entering into a number of framework agreements and working to facilitate investments (Naili, 2025). This is aimed at strengthening the resilience of food systems in addressing climate change. This confirms the UAE's encouragement of private and foreign investments in the agricultural field as part of the policy of diversifying the national economy and achieving food security, and the growing interest of the UAE and foreign companies in entering into bilateral partnerships aimed at large-scale production (U.S Departement of State 2025).

The agreement signed by the Algerian government in 2024 with the Italian group "Bonafiche Ferrarresi" for the implementation of an agricultural project in the aforementioned "Timimoun" province is a vivid example, as it was implemented on an area estimated at 36,000 hectares, of which 35,400 were allocated for crops and the remaining area was allocated to industrial structures (BF Completes 2025).

The same is true with the Algerian-Saudi partnership for the development of the agricultural cat of "Lamnia" province, where more than 200,000 hectares have been allocated for the cultivation of crops and the breeding of dairy cows, with the possibility of expanding to 28,000 hectares

with an estimated support of about 12 billion Algerian dinars (farmlandgrab, 2024).

The active involvement of foreign partners and the private sector in the process of raising productivity is mainly reflected in the transfer and application of modern technologies, which can be mentioned as follows:

- Introducing water-saving irrigation technologies, such as irrigation by irrigation and automatic water control through special systems.
- Precision farming systems, such as remote sensing, data analysis systems to optimize planting and harvest schedules, satellite imagery, etc.
- Relying on advanced infrastructures for storing, cooling and processing agricultural crops.
- Reliance on renewable energies to operate pumps and greenhouses, which are supported by the practice guidelines recommended by the Food and Agriculture Organization of the United Nations (FAO) as a pillar for increasing production and reducing climate risks (FAO 2025) (Ferrah, 2021).

Despite the positives, attention should be paid to a number of controls necessary to avoid water risks, as desert agriculture would consume sensitive groundwater resources that could threaten hydrological sustainability. Additional social protection mechanisms for land and labour rights should also be enacted to avoid imbalances between the benefits of local investors and farmers.

Finally, it is necessary to focus on a primary goal, which is to achieve national food security in the first place, as there are many projects that focus on producing quantities for export rather than meeting local needs, which causes an imbalance between raising production and social returns in the food field.

3.3 Improving Infrastructure and Distribution

Algeria has recently stepped up efforts in the agricultural sector to improve its logistics infrastructure, particularly in relation to cold and transport chains, as an important part of the national strategy to increase efficiency in exchange for reducing post-harvest losses (Algerian Ministry of Agriculture and Rural Development, 2023).

As a result, the Ministry of Agriculture and Rural Development has begun to implement projects to establish modern cold rooms in the main production areas, acquire refrigerated transport trucks, as well as develop packaging and transport systems with the provision of several lines to finance farmers through public banks (Al-Masdar Online, 2024). This was after receiving support from international partners such as the World Bank (World Bank in Algeria, 2024).

Based on field estimates provided by the Ministry of Agriculture, these projects have contributed to reducing agricultural losses by an estimated 22% compared to 2021 (World Bank in Algeria, 2024). This is due to reducing the time it takes for products to be transported from the field to the market, and storing them in conditions that will maintain their quality for longer periods (FAO, 2022). This decrease in losses has positively affected the abundance of products in the markets and contributed to the stability of prices in light of seasonal fluctuations, which are the reason for the sudden rise in the prices of some food items or even their scarcity (Algerian Ministry of Trade, 2023).

According to the conclusions of many international experiences, such as FAO reports and applied studies in developing countries (FAO, 2022) (McKinsey & Company, 2021), investment in cold chains can increase the amount destined for marketing by between 5% and 10% when reducing losses by similar percentages, and by projecting on the situation in Algeria, it is indeed confirming the enhancement of local food security and easing the pressure on the trade balance (Food Systems Dashboard, 2025).

4. Conclusion

Based on the above analysis, it can be said that the recent experience in Algeria has confirmed the existence of a reciprocal relationship between two dimensions of human security, namely food security and economic security. This relationship was not limited to sectors, but went beyond them to achieve economic and social stability. The data showed that working to bring about change for the better in the agricultural sector in terms of performance is not only a technical or productive issue, but a basis for controlling the economic balance. The opposite also applies to economic security, which ensures stability and the attainment of food security, especially if strong fiscal policies are adopted.

It should be emphasized that achieving food security is not a circumstantial matter, but a fundamental necessity for achieving the economic and social sovereignty of any country. In this regard, the situation in Algeria illustrates the need to achieve self-sufficiency, which can only be achieved by meeting the essential requirements, foremost of which is political will, comprehensive planning for several sectors. We do not forget to gather the necessary resources to serve a development goal that is certain that achieving food security is a pillar for achieving economic security.

Accordingly, this study, which was projected on the Algerian case, concluded with the following results:

- 1- The improvement in Algerian domestic agricultural production has led to a decrease in inflation rates to 4% at the end of 2024, leading to stability in the prices of food products.
- 2- There has been a noticeable increase in the percentage of food self-sufficiency, especially in durum wheat and vegetables, to the extent that it has reached the limit of 75%, which eases the pressure on the Algerian trade balance.
- 3- There has been a decline in the unemployment rate in the agricultural sector after the creation of about 120,000 jobs, especially in the southern and central regions.
- 4- Government support for agriculture has been increased by allocating more than 500 billion Algerian dinars in 2024, which

have been directed to the development of distribution and transport mechanisms and other means in this field.

- 5- The foreign exchange reserve index has developed to more than \$69 billion in mid-2025, due to the decrease in the percentage of imports of food products in contrast to the increase in the percentage of agricultural exports.

Through these results, the following suggestions can be made:

- 1- Working to establish agricultural research and development centers specialized in developing seed quality and adapting production to the purity of climate change.
- 2- Expansion of desert agriculture in the Great South, enhanced by cutting-edge agricultural technologies.
- 3- Continue to stimulate private and foreign investment in the agricultural field through tax relief and the provision of agricultural real estate, as well as by simplifying administrative procedures.
- 4- Include food security as a basis in national economic development plans, thereby strengthening the relationship between Algeria's economic and food policies.
- 5- Activating means to monitor and measure the impact of agricultural policies on economic growth annually.

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