

Algeria Facing the Food Challenge

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Abstract.

The food security has been taken very seriously by the public authorities since the country's independence in 1962. This major social concern was affirmed in the various political speeches of leaders and in the national charter of 1974. A charter which proclaims the universal right of the population to healthy, varied, sustainable and accessible food for all. For this, a decisive role was given to the national agricultural and agri-food sector to ensure the supply of the population with basic foodstuffs at accessible prices targeting, in particular, disadvantaged social groups. A policy based strongly on a generalized and unconditional subsidy, granted to both consumers and producers. Agricultural policies were therefore designed and implemented to achieve this objective and achieve food self-sufficiency in the country. A mission entrusted to the national agricultural sector which will help reduce the country's food dependence on foreign countries and reduce its food bill. For this, several agricultural development programs were designed and implemented since the country's independence to make this sector a real engine of economic growth capable of feeding the population and also leading to the adequate development of other sectors located in upstream and downstream of its sphere. However, and despite the sincere desire of the public authorities and the scale of the investments made to make this sector efficient; the results obtained still remain modest and far from the expected objectives. Indeed, the analysis of the results obtained demonstrate that the contribution of the national agricultural and agri-food sector in covering the food needs of the population in basic food products (semolina, flour, sugar and milk), above all, remains low and reached 35% of the total of these needs. The rest of the food gap, i.e. 65%, is ensured by massive and systematic costly imports leading to an average annual bill which varies between 7.5 and 9.5 billion dollars covered by volatile oil revenue. This poor performance of the national agricultural and agri-food sector is attributed to the inconsistency and inadequacy of the agricultural policies and programs adopted by the State with the reality of the local economic and social environment. Added to this is an exclusive support for the nurturing role of the State which limits initiatives and encourages opportunism. In this article, we will try to clarify all these aspects of Algeria's food policy, its achievements, its limits and its future reforms.

Keywords: Food policy, Agriculture, Subsidy, Food self-sufficiency, Food dependence.

Introduction

The issue of food security has been and remains a major and universal concern for nations, which have committed to addressing this problem with utmost seriousness. The recognition of the magnitude and impact of food insecurity, along with its adverse effects on the social and political stability of countries and their development, became evident only in the early 1970s with the onset of the 1973 food crisis. This crisis compelled all countries, under the pressure and insistence of international organizations such as the Food and Agriculture Organization (FAO), the World Food Council (WFC), the World Health Organization (WHO), and nutrition experts, to work towards the adoption and implementation of development policies and plans that, for the first time, incorporated food and nutritional objectives.

The obligation for countries to adopt concrete and serious food and nutritional strategies within their development plans was further emphasized in November 1974 during the World Food Conference, which aimed to improve consumption patterns through socio-economic planning [1].

A food strategy, as defined by the WFC, is “a means by which a country achieves a greater degree of self-sufficiency through an integrated effort aimed at increasing food production, improving food consumption, and eradicating hunger. It involves an assessment of a country’s food situation, which then serves as the basis for formulating a coherent set of measures, programs, and projects intended to achieve the government’s food objectives. Implementing such a strategy requires strengthening national capacities and mobilizing additional external assistance...” [2].

Algeria, confronted with this phenomenon, assumed, in the aftermath of its independence, both the right and duty to ensure food security for its population. The primary goal of this mission was to meet the population’s food and nutritional needs, which were classified as a national priority in the country’s economic policy. This focus was reflected in various development plans adopted since the 1970s, particularly following the emergence of the “food shock” phenomenon in 1973, which caused an unprecedented food crisis. The state was therefore compelled to ensure adequate food supplies to promote development and maintain a degree of “*social peace*” [3].

The management of the country’s food policy was exclusively monopolized by the state, which implemented strict control over food production and supply [4]. Public institutions and mechanisms were established to manage both production and imports, as well as distribution, through a heavy subsidy policy that allowed the entire population, especially the most disadvantaged, to access a balanced diet.

The agricultural sector was central to the country’s economic choices due to its pivotal role in supporting the food policies promoted by the state. This crucial role primarily aimed to “*promote and establish agriculture operating under the dominant global technological model* (mechanization, hybrid seeds, chemical fertilizers, pesticides...), economically capable of ensuring the continuous improvement of the purchasing power of rural populations, meeting the food needs of a growing urban population, and contributing to the investment efforts led by the state” [5].

This focus on the agricultural sector was particularly evident in cereal production, which “still occupies a predominant place both in Algeria’s agricultural and agri-food production and in household food consumption” [6].

Despite numerous natural, technical, financial, and social constraints, this objective appears to have been partially achieved. Indeed, in both quantitative and qualitative terms, the average Algerian—like their Moroccan and Tunisian neighbors—today enjoys significantly better nutrition than at the beginning of independence [7]. This progress is supported by the results of three national consumption surveys conducted in the periods 1966/1967, 1979/1980, and 1988/2011, which reveal a clear improvement in food consumption among citizens. This improvement encompasses cereal products (durum wheat, soft wheat, and derivatives) as well as animal products such as poultry, eggs, and milk, in addition to fish, fruits, and vegetables.

However, this improvement in consumption was made possible largely through massive imports of essential food products such as wheat, seed oils, sugar, and milk. While statistical data from the Ministry of Agriculture and Rural Development (MADR) indicate that, by the late 1960s, agricultural production could meet over 90% of the population’s needs, this figure fell sharply to barely 30% at the start of the 1980s. The agricultural trade balance experienced a dramatic reversal from 1974 onwards, with a persistent deficit that undermined the objectives of food self-sufficiency [8].

Based on the above, this article aims to highlight the critical importance Algeria attaches to addressing food security through various economic development plans, particularly those targeting the promotion and modernization of the national agricultural sector. By conducting an objective analysis of available statistical data, this study seeks to provide insights into the relevance and limitations of these agricultural policies, which are shaped by a volatile oil rent and a generalized subsidy policy for basic food products. Furthermore, this approach allows us to examine the burden and detrimental effects of importing basic food products on the national budget and the level of the country’s food dependency.

II. Materials and Methods

2.1 Materials

This study was made possible through the analysis of statistical and socio-economic data obtained from credible sources, including works conducted and published by well-known economists in the field, as well as findings drawn from periodic reports and assessments published by specialized international institutions addressing food security.

2.2 Method

The analysis of a country's, region's, or population group's food situation is conducted primarily through social and economic studies, as well as food surveys and polls based on established sampling techniques used in quantitative and descriptive statistics. For this purpose, a large-scale operation of socio-economic data collection was carried out using carefully designed questionnaires, drawing on three main sources of information:

1. **Food Balance Sheets (FBS):** Collected, verified, and regularly published by the FAO (2020), the World Bank (2020), and the Organization for Economic Cooperation and Development (OECD).
2. **Budget/Consumption Surveys (B/C):** Conducted by the National Office of Statistics (ONS).
3. **Food Consumption Surveys:** Also carried out by the ONS.

III. Results and Discussion

3.1 The Food Model in Algeria

3.1.1 Definition

In the absence of a universal definition of a food model, specialists describe it as *“a system developed from a set of technical, social, symbolic, and political rules, choices, and practices. It goes well beyond the nature of the food consumed and intersects with a country's culture, societal identity, and values, its economic situation, state policies, household incomes, and the population's health status”* [9].

3.1.2 Structure of Food Consumption

The consumption model in Algeria is dominated by cereals and milk, with cereals accounting for **39.22%** and dairy products for **20.6%** of total food consumption. Sugar and sweets represent **10%**, and oils and fats another **10%**. Cereals provide **59%** of the caloric intake and **70%** of the protein intake [10].

Algerians' dietary practices are closely tied to the country's development policies. Through various plans, the state has sought to address historical food and nutritional deficiencies inherited from the colonial period. The state's primary objective has been to increase self-sufficiency and ensure accessible and stable food supplies through mechanisms such as:

1. Subsidy policies;
2. Valorization of existing agricultural potential;
3. Development of agri-food industries;
4. Supplementary imports of agricultural production inputs;
5. Heavy reliance on imports of staple food products.

3.1.3 Factors Influencing Changes in Food Consumption Patterns

Several factors directly or indirectly influence changes in a country's food consumption model. These factors may be technological, sociological, economic, cultural, or political. They bring significant shifts in dietary behaviors and consumption practices. The evolution of consumption patterns is influenced on two main levels:

A. Quantitative Factors:

a. Population Growth:

The rapid increase in Algeria's population has significantly impacted food consumption levels. The population, estimated at **10.8 million** at independence, grew to **43.3 million** in 2020 [11]. This demographic surge has created strong demand for staple food products.

b. Household Income and Expenditure Levels:

Improved living standards have positively influenced the quantities of food consumed. According to available statistical data [12], annual household income rose from **15.5 billion dinars** in 1969 to **181 billion dinars** in 1988, reaching **11,381.5 billion dinars** in 2018 [13].

c. Extent of Imports:

Domestic food production deficits have forced authorities to rely heavily on imports to meet the growing population's food demands. This practice has become a staple of Algeria's food policy, generating a substantial financial burden funded by oil revenues. The food import bill increased from **\$684 million** in 1974 to **\$9.75 billion** in 2011, stabilizing at around **\$8 billion** in recent years. This food bill represents **30%** of Algeria's total imports, primarily comprising cereals (~**\$4 billion annually**), milk and its derivatives (**\$1 billion**), and sugar (**\$800 million**) [14]. Consequently, the share of imports in food consumption has grown from **36%** to **68%** in recent years [15].

B. Accessibility Through Subsidies:

The population's access to staple food products at affordable prices has been made possible through a generalized subsidy system, which covers bread, certain wheat and barley derivatives, reconstituted pasteurized milk from powdered milk, refined cooking oil, and white crystalline sugar. The gap between the market cost of raw materials and regulated wholesale prices is borne by the state. In **2021**, the subsidy allocation was estimated at **197 billion dinars** (0.9% of GDP).

However, available statistical data show that this generalized subsidy policy disproportionately benefits wealthier social groups rather than the most vulnerable populations. Specifically, wealthier groups consume:

1. Six times more subsidized energy products;
2. **61%** of subsidized electricity;
3. **58%** of subsidized water;
4. **8%** of subsidized food products.

B. Qualitative Factors:

It is essential to note that the dietary ration refers to the quantity of food a person must consume daily to meet their body's needs. It is measured as an average food ration, expressed in calories. Available statistical data show that the average daily caloric intake of an Algerian increased from **1,723 calories in 1962** to **2,944 calories in 1990** [16]. Today, it stands at **3,343 calories**, significantly exceeding the World Health Organization's recommended intake of **2,700**

calories [17]. As a result, Algeria is classified as a country with a *low level of hunger*, as highlighted by the International Food Policy Research Institute (IFPRI).

3.2 The Role of Food Security in Agricultural and Economic Policies

Food security has been central to the economic and social concerns of the Algerian government, as evidenced by various development plans, the national charter, and official political discourse. According to some authors [18], the interventionist role of the state is “*critical for the functioning of agricultural and agri-food markets.*” The policy has primarily targeted improving dietary intake by ensuring both the **qualitative** and **quantitative** satisfaction of the population's nutritional needs, particularly for disadvantaged groups. This intervention is justified given the magnitude of the food security challenge. The interventionist role of the state in market regulation is widely accepted in developing economies [19].

The following sections address the different phases of Algeria's food policy evolution, closely tied to the economic and agricultural reforms undertaken since independence.

3.2.1 Phase 1: State Monopoly (1967–1989)

Ensuring a healthy and balanced diet for all Algerians was both a choice and a challenge for the post-independence Algerian state. From the outset, the government adopted a food policy supported by price subsidies aimed at:

1. **Meeting citizens' food needs** at accessible prices.
2. **Targeting disadvantaged social groups** to improve consumption, reduce social disparities, and eliminate undernourishment [20].
3. **Diversifying dietary consumption** by promoting protein-rich animal products over staple foods traditionally consumed by Algerians.

During this period, food security became a matter of state responsibility, managed exclusively by public authorities. However, some experts note that Algeria adopted a comprehensive food policy later than its Maghreb neighbors. As one specialist pointed out, “*Algeria was slow to adopt a real food policy, but it undoubtedly went the farthest in implementing reforms and comprehensive reflection compared to other North African countries like Egypt, Morocco, and Tunisia*” [21, 22].

This phase was characterized by a **centralized management** of the national economy and **state monopoly** over all agricultural and agri-food activities. To achieve its food policy goals, the state took immediate steps after independence, including:

- **Nationalizing agricultural lands** previously owned by colonizers.
- Launching the ambitious **Agrarian Revolution Project**.

Development plans for the agricultural sector were adopted, supported by a massive investment program amounting to over **40% of the Gross Domestic Product (GDP)** to boost the national economy. The main objectives included:

1. Rationally exploiting agricultural resources.
2. Effectively targeting agri-food sectors, especially cereals, milk, and fruits and vegetables.
3. Reducing imports of agricultural products and alleviating the national food bill.

This policy led to significant progress in productive activities and household incomes, accompanied by substantial demographic growth and urbanization. These economic achievements profoundly influenced dietary habits, stimulating

the “*evolution of food consumption patterns driven by changes in consumption models*” [24]. Food availability improved both in quality and quantity, and access to affordable food became widespread due to a generalized price subsidy policy.

The development of local agriculture through intensified production of plant and animal products enabled citizens to access better nutrition. However, this food performance remained heavily dependent on **state-led import policies** to address domestic production deficits, thereby undermining the goal of achieving national food self-sufficiency.

3.2.2 Phase 2: Gradual State Disengagement (1990–1999)

This phase, often referred to as the “*Black Decade*” in Algeria’s history, was marked by a significant economic slowdown caused by terrorism. This crisis triggered profound economic, social, and political disruptions in the country. Despite the challenges, the government continued its economic reforms, emphasizing greater private sector participation in the economy, particularly in agriculture.

The private sector was entrusted with a key role in revitalizing the national economy. However, despite the collective will, the economy failed to achieve substantial performance due to low investment levels caused by limited financial resources. The volatility of oil revenues, weak GDP growth due to economic stagnation, and the population's mounting needs significantly hindered the attainment of economic objectives.

The agricultural and agri-food sectors showed poor results, characterized by minimal added value and low production volumes. Meanwhile, national debt grew, and imports reached record levels, calling into question the state’s food policy goals. The average dietary intake of Algerians saw no significant improvement during this period.

Despite the economic reforms outlined in the **Structural Adjustment Program (SAP)**, the government continued to shoulder the responsibility of ensuring food availability for its citizens at exorbitant costs. This effort occurred within a hostile economic, social, and political context characterized by:

- The closure of public enterprises.
- Workforce reductions.
- Surging unemployment levels.
- Devaluation of the dinar.
- Declining purchasing power.
- Rising inflation.

To mitigate these hardships, the government implemented measures to reduce poverty. These included:

- **Unemployment insurance systems** and compensation programs for laid-off workers.
- **Targeted support programs** for low-income heads of households.

3.2.3 Phase 3: Economic Liberalization (2000 to Present)

This phase of Algeria’s economic history has been marked by **improved performance** in economic, social, and political stability. Several development programs and plans [25] were launched, particularly in the agricultural and agri-food sectors, to finalize and consolidate the objectives set in the previous phases. These programs were reinforced by significant levels of investment aimed at modernizing agriculture and enhancing production, yields, and diversification.

The private sector played a **key role** in this phase, following the privatization of public enterprises and incentives to encourage private investment in agriculture and agri-food industries. Substantial financial support was provided to private partners to establish businesses through bank credits, tax incentives, and other fiscal measures. These reforms were made possible largely due to the significant **oil revenues** collected during this period.

An assessment of the outcomes of these reforms reveals **notable progress** compared to the previous phases, particularly in agriculture and agri-food sectors. Key achievements include:

- **Elimination of external debt,**
- **Improvement of GDP** and agricultural GDP (PIBA),
- **A relatively stable trade balance,**
- **Increased foreign currency reserves,**
- **Reduction in unemployment rates,**
- **Control of inflation.**

These economic successes have had a **positive impact** on the country's food security in terms of **availability, accessibility, and quality of the dietary ration**, benefiting citizens in general and disadvantaged groups in particular. Increased household incomes have contributed to higher food expenditure levels.

However, these achievements have come at **significant costs**, primarily due to the **subsidy policies** implemented by the state to support its food security strategy and maintain social stability. Algeria's food policy still relies heavily on **systematic and increasing food imports** to meet the growing needs of the population and address the shortfall in local agricultural production.

IV. Conclusion and Recommendations

In conclusion, despite the **financial, material, and human resources** mobilized by the state to implement its food policy and achieve objectives such as self-sufficiency and food security, the results remain **unsatisfactory**. The state's dominant control over the food economy—through its monopoly on management, regulation, and oversight via public entities—appears to be a key factor behind this outcome.

The various agricultural and agri-food development policies implemented since independence have proven to be **inadequate and inconsistent**, further widening the gap between local production of essential food products and imports. Indeed, Algeria still relies on **imports for 70%** of its internal food demand—an approach that deepens food dependency and undermines its food security strategy.

This food policy, characterized by **massive imports** and generalized subsidies for basic food consumption, must be **reviewed and reformed**. The current approach is excessively costly for the public treasury and highly vulnerable to global oil price fluctuations, which remain the primary source of foreign exchange for the national economy.

The key reform axes for Algeria's food policy can be summarized as follows:

1. **Promote local agricultural production** over imports by implementing a **realistic and coherent agricultural policy**. This policy should aim to increase agricultural production, improve yields, and enhance the productivity of essential plant and animal products at optimized costs.
2. **Develop food distribution and marketing channels** to ensure timely and spatial access to essential food products for citizens. This will also help end market speculation and ensure better control over food and agri-food product markets.
3. **Encourage agricultural scientific research** and related upstream or downstream sectors. Scientific research can help improve agricultural yields, diversify production, and enhance labor efficiency in agriculture and connected sectors.
4. **Establish specialized institutions** to **collect, analyze, and disseminate economic and statistical data**. This information should be made available to researchers for study and research purposes, enabling evidence-based policymaking.

5. **Revise the subsidy policy** for production and consumption. Mechanisms should be implemented to **target subsidies more effectively** toward desired beneficiaries. This would enhance the efficiency of subsidy programs and prevent misuse by opportunistic actors.

In the following chapter, we will focus on the **characteristics of cereal cultivation**, its policies, missions, objectives, and the challenges and limitations it faces.

Table 1: Evolution of the price of bread, semolina, and packaged milk (1984–2018) in current Algerian Dinars.

Years	Baguette bread (250gr)	Semolina (1 kilogram)	Milk (1 liter)
1984	0,70	1,80	1,00
1987	0,80	2,00	1,50
1989	1,00	2,30	1,70
1992	1,00	2,30	4,00
1994	3,00	18,00	8,50
1995	5,00	20,00	12,00
1996	6,00	21,60	15,00
1997-2001	7,50	31,00	20,00
2001-2018	8,00	38,00	25,00
2019-2020	10,00	45,00	25,00

Data from the Ministry of Commerce - Algeria, 2020.

Table 2: Global Hunger Index in Algeria.

Years	GIH score*	% of population undernourished	(%) Prevalence of wasting in children under 5 Years	(%) Prevalence of stunting in children under 5	Mortality rate of children under 5
1992	16,8	7,4	7,1	22,9	4,5
2000	14,8	8,7	3,1	23,6	4,0
2008	10,8	6,1	4,2	13,2	2,9
2016	8,7	2,9	4,1	11,7	2,6

Global Hunger Index: 9.9 (Low) - 10.0–19.9 (Moderate) - 20.0–34.9 (Serious) - 35.0–49.9 (Alarming) - 50.0+ (Extremely Alarming)

Source: IFPRI, 2016. *Global Hunger Index: Armed Conflict and the Challenge of Hunger*.

Table 3: Share of Agricultural GDP (PIBA) and Agri-Industrial GDP (PIBIAA) as a Percentage of Total GDP from 2000 to 2014.

Sector	2000	2005	2010	2014
Agriculture	8,3	8,1	9,2	11,2
Agri-food	8,5	5,6	5,4	5,6
Other sectors	83,2	86,3	85,4	83,2
Total	100	100	100	100

Data from the National Office of Statistics (ONS), Algeria, 2018.

Table 4: Evolution of GDP from 2005 to 2017 (in billions of dollars).

Years	2005	2009	2010	2015	2016	2017	2018	2019	2022*
Volume	100,3	137,2	150,6	170,4	175,49	170,4	188,3	200,2	

Data from the National Office of Statistics (ONS), Algeria, 2020.

IMF estimate. Source: <https://www.tresor.economie.gouv.fr/Pays/DZ/indicateurs-et-conjonctures>. Accessed on 02/03/2024 at 11:24 AM.

Table 5: Evolution of GDP Growth Rate in Algeria.

Major sector titles	2017	2018	2019	2020	2021	2022	1er trimestre 2023
Agriculture, forestry and fishing	1	3,5	2,7	1,7	-1,9	5,8	2,2
Hydrocarbons	-2,4	-6,4	-4,9	-10,2	10,5	-0,6	1,4
Industries	4,7	3,9	4	-3,5	5,3	5,2	6,1
BTPH including Petroleum Services and Works	4,6	5,2	3,8	-3,1	4,7	3,3	4,7
Market services	3,7	3,2	3,1	-6,7	4,9	5,5	4,4
Non-market services	0,5	2,8	1,8	-0,1	1,5	2,8	3,1
Gross Domestic Production	1,5	0,7	0,9	-6	3,8	3,3	3,0
Gross Domestic Product (GDP)	1,3	1,1	1	-5,1	3,4	3,2	3,0
GDP excluding Hydrocarbons	2,1	2,9	2,7	-3,8	2,3	4,3	4,0
GDP excluding Agriculture	1,3	0,8	0,8	-6	4,3	2,9	3,1

Ministry of Finance – Algeria, 2023. Source: <https://www.mf.gov.dz/index.php/fr/solde-global-du-tresor>. Accessed on 02/03/2024 at 11:14 AM.

Table 6: Evolution of Food Imports, 2000–2017 (in millions of dollars).

Year	2000	2001	2002	2003	2004	2005
Food(1)	2 415	2 395	2740	2 678	3 597	3 587
Total(2)	9 173	9 940	12 009	13 534	18 308	20 357
Ratio(1)/(2)%	26.32	24.29	22.82	19.78	19.65	17.62
Year	2006	2007	2008	2009	2010	2011
Food(1)	3 800	4 954	7 813	5 863	6 058	9 850
Total(2)	21 456	27 631	39 479	39 294	40 473	47 247
Ratio(1)/(2)%	17.71	17.93	19.79	14.92	14.97	20.85
Year	2012	2013	2014	2015	2016	2017
Food(1)	9 022	9 580	11 005	9 316	8 223	8 437

Total(2)	50 376	55 028	58580	51 702	47 089	46 059
Ratio(1)/(2)%	17.91	17.41	18.79	18.02	17.46	18.36

Customs Data, CNIS Reports, 2000–2017. Ministry of Finance, Algerian Customs: Foreign Trade Statistics of Algeria.

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Table 7: Evolution of Cereal and Milk Imports in Total Food Product Imports, 2000–2019 (Unit: Millions of Dollars).

Years	2000	2001	2002	2003	2004	2005	2006
TotalFood	2 415	2 395	2740	2 678	3 597	3 587	3 800
Cereals	1 000	1 000	1 300	1 100	1 400	1 400	1 300
Milkandderivatives	374	484	448	455	745	674	640
Year	2007	2008	2009	2010	2011	2012	2013
TotalFood	4 954	7 813	5 863	6 058	9 850	9 022	9 580
Cereals	1 900	4 000	2 300	1 900	4 000	3 200	3 300
Milkandderivatives	979	1 166	800	903	1 364	1 094	1 073
Year	2014	2015	2016	2017	2018	2019	2020
TotalFood	11 005	9 316	8 223	8 437	8 573	8 072	7 360
Cereals	3 600	3 500	2811	2 774	3064	2 706	2 423
Milkandderivatives	1 799	1 002	985	1 409	1 401	1 245	1 163

CNIS Reports, 2000 to 2020 (First 11 Months of 2020). Ministry of Finance, Algerian Customs: Foreign Trade Statistics of Algeria.

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