

**The reality of food security in Algeria
in light of global food inflation**

واقع الأمن الغذائي في الجزائر في ضوء التضخم الغذائي العالمي

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Abstract:

Food Security is one of the main topics that took up a large space after the Corona crisis and was followed by the Russian-Ukrainian war. These events had a major impact on the rise in food prices in the world and the rise in malnutrition indicators in many poor countries in the world. This global food inflation had a major impact on food security and sustainable development programs, as it was announced that it is impossible to eliminate hunger and poverty in the world by 2030. In this research, we will shed light on the reality of food security in Algeria in light of global food inflation, which indicates that Algeria achieved the fifth place in the Arab world in the Global Food Security Index and the 43rd place globally. Algeria was also classified in 2024 among the countries with food inflation less than 2%.

Key words: Food security, Global food inflation, Global food security index, Malnutrition.

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ملخص:

يُعدّ الأمن الغذائي أحد أبرز المواضيع التي حظيت باهتمام واسع النطاق بعد أزمة كورونا، والتي تلتها الحرب الروسية الأوكرانية. وكان لهذه الأحداث أثر بالغ على ارتفاع أسعار الغذاء عالميًا، وتقادم مؤشرات سوء التغذية في العديد من الدول الفقيرة. وقد أثر هذا التضخم الغذائي العالمي تأثيرًا كبيرًا على الأمن الغذائي وبرامج التنمية المستدامة، إذ أعلن أنه من المستحيل القضاء على الجوع والفقر في العالم بحلول سنة 2030. في هذا البحث، سنسلط الضوء على واقع الأمن الغذائي في الجزائر في ضوء التضخم الغذائي العالمي، والذي يُشير إلى أن الجزائر احتلت المرتبة الخامسة في العالم العربي على مؤشر الأمن الغذائي العالمي، والمرتبة 43 عالميًا. كما صُنّفت الجزائر سنة 2024 ضمن الدول التي يقل فيها التضخم الغذائي عن 2%.

الكلمات المفتاحية: الأمن الغذائي، التضخم الغذائي العالمي، مؤشر الأمن الغذائي العالمي، سوء التغذية.

Plan:

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Introduction:

The issue of food security is a fundamental issue and is even the most important security issue as it concerns human life and livelihood, and food security is the **essence of national security**. Countries have been exposed to severe price fluctuations in the international market, evident during the global food crises of 2006–2007 and the climate change crisis in 2010 and the same is the case in light of the Corona crisis that continued significantly during 2020 and 2021, as the food supply crisis negatively affected Arab economies, including Algeria, but the Russian–Ukrainian war crisis in 2022 has become more threatening to the food situation in the entire world¹ for all this, the World Bank included food and nutritional security in 2024 among the eight global challenges that must be addressed on a large scale².

The Study Problem

The problem of the study in the following: **What is the reality of food security in light of global food inflation in Algeria?**

Hypotheses

To answer the problem raised, we will start from the following hypotheses:

- **Global food inflation could affect the achievement of food security dimensions defined by international bodies.**
- **There is an effect between the independent variable, inflation, and the dependent variable, food security, in a direct or positive manner.**

1) Theoretical background:

Food security is the generally accepted state where food is available to all members of society at all times in sufficient quantities and in safety. However, reality confirms that food security is impossible in many parts of the world due to several factors, leading to the phenomenon of malnutrition, which must be combated as a strategic dimension of food security.

1-1) Food Security Concept:

The concept of food security did not emerge until the mid-1970s, in discussions of international food problems at the time of the global food crisis. The initial focus was primarily on food supply problems and ensuring the availability and relative stability of basic foodstuffs at both the international and national levels. This set of international and institutional concerns on the supply side reflected the changing organization of the global food economy that precipitated the crisis. A process of international negotiations followed, leading to the World Food Conference in 1974. The issues of famine, hunger and food crisis were also widely addressed in the wake of the events of the mid-1970s. A redefinition of food security was necessary after it became clear that the Green Revolution's success didn't lead to the anticipated rapid drop in poverty and malnutrition. This updated definition then integrated the behavior of vulnerable and affected people as a critical, acknowledged aspect of food security itself³.

In recent years, there has been a lot of literature linking climate change and food security, as well as the Corona crisis and the Russian-Ukrainian war. Much of the literature sees climate change as the most important cause of the spread of malnutrition, as climate change causes drought and desertification, and thus the scarcity of agricultural land and food shortages in the world⁴.

Food security is part of the Sustainable Development Goals (SDGs), as food security and sustainability are global concerns, especially for policymakers⁵. The United Nations Sustainable Development Goals have given a prominent place to the issue of food security in the world, as the second goal of the Sustainable Development Goals is to end hunger and all forms of malnutrition by 2030, and ensure that all people - especially children - have access to sufficient and nutritious food all year round⁶.

The most widely accepted definition is that of the World Food Summit (1996), which was revised in 2001 by FAO: "Food security exists when all people, at all times, have physical [and] economic access to sufficient, safe, nutritious food that meets their dietary needs and food preferences for an active and healthy life"⁷.

After defining food security, it is necessary to define malnutrition because they are two conflicting concepts in the same context. Defining malnutrition will make the concept of food security clearer and more specific.

1-2) Malnutrition concept & dimensions of food security:

Malnutrition is directly linked to the four dimensions of food security; in much of the literature, it is considered the ultimate outcome of the failure in food availability, difficulty in access, inadequate utilization, or lack of stability across these dimensions over time.

- Malnutrition Concept:

The term "malnutrition" refers to deficiencies, excesses or imbalances in an individual's intake of energy and/or nutrients. It covers 3 overarching groups of conditions⁸:

- undernutrition, which includes wasting (low weight-for-height), stunting (short height-for-age) and underweight (low weight-for-age);
- micronutrient malnutrition, which includes micronutrient deficiencies (lack of important vitamins and minerals) or excess micronutrients;

- overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes and some cancers).

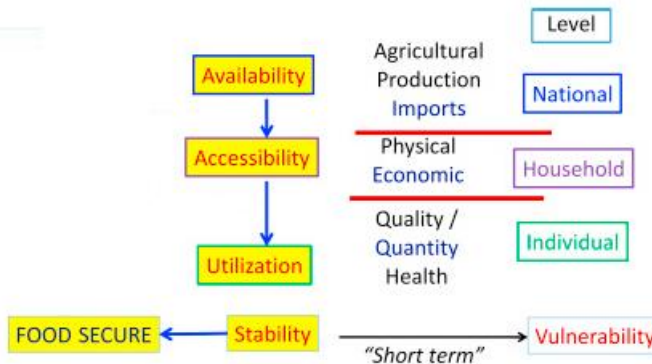
According to the previous definition of the World Health Organization, malnutrition takes three forms: unhealthy nutrition, undernutrition, and unbalanced nutrition⁹. Most forms of malnutrition around the world - in villages or cities - are rooted in poverty and inequality.

There are two types of malnutrition: acute malnutrition, which is a serious health condition characterized by rapid deterioration in nutritional status and affects children under the age of five, and moderate malnutrition, which if appropriate health measures are not taken, becomes acute¹⁰.

- Dimensions of food security:

The following figure identifies the four dimensions identified by the World food organization to achieve food security in a country, which are availability, accessibility, utilization and stability¹¹.

Figure 01 - Dimensions of food security



Source : Wocatpedia (2016), «Definition and dimensions of food security», https://wocatpedia.net/wiki/Definition_and_Dimensions_of_Food_Security

We can briefly explain the four dimensions to understand the shape more clearly as follows¹²:

- **Availability:**

Availability refers to the physical presence of food. At the national level, food availability is a combination of domestic food production, commercial food imports and exports, food aid, and domestic food stocks. At the household level, food can be produced by the household itself or purchased from local markets.

- **Accessibility:**

Access to food is ensured when all households have sufficient resources to purchase food in sufficient quantities, quality and diversity for a nutritious diet. This depends primarily on the amount of household resources and on prices. In addition, accessibility is also a matter of the physical, social and political environment. Radical changes in these dimensions can seriously disrupt production strategies and threaten the access of affected households to food. For example, developing countries may be affected by severe droughts or floods more frequently. Accordingly, harvests are reduced and food prices rise, affecting the availability and accessibility of food for households.

- **Utilization:**

Utilization describes the social and economic aspects of food and nutrition security in the household, which are determined by knowledge and habits. Assuming that nutritious food is available and accessible, the household must decide what food to buy, how to prepare it, and how to consume and allocate it within the household.

- **Stability:**

If the dimensions of food availability, access and utilization are properly achieved, stability is the condition for the entire system to be stable and thus ensure household food security at all times. Stability issues may indicate short-term instability (which can lead to acute food insecurity) or medium- to long-term instability (which can lead to chronic food insecurity). Climatic, economic, social and political factors can all be sources of instability.

2) Study variables:

In this study, we will try to provide data through curves and tables for the variables of our study, which are food security, malnutrition, global inflation, and food security indicators, so that we can then analyse and draw conclusions in the fourth section of our study.

2-1) Malnutrition & food inflation:

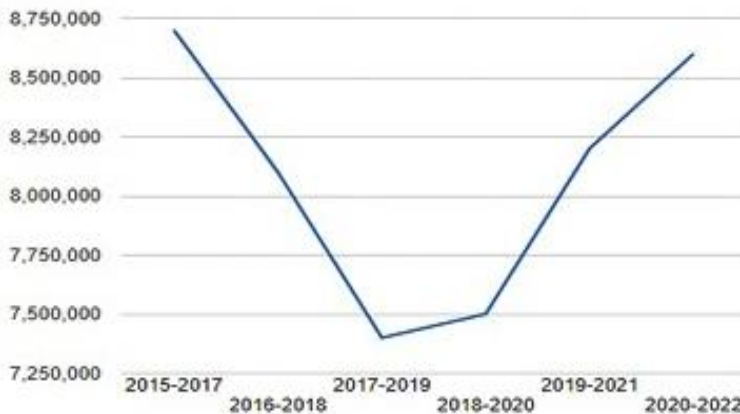
Malnutrition is closely linked to food price inflation, as rising food prices erode household purchasing power and limit access to nutritious diets, particularly among the most vulnerable populations¹³. As food prices rise, households often resort to less diverse and less nutritious food choices, which can increase the risk of malnutrition, micronutrient deficiencies, and other forms of undernutrition, highlighting the critical impact of economic factors on food and nutrition security¹⁴.

- Malnutrition :

From 2021 to 2023, the prevalence of moderate or severe malnutrition in Algeria reached 8.5 million people at a rate of 18.90% of the population. This is a relatively high percentage, indicating a gap in the ability to access sufficient food, especially with the impact of global crises like COVID-19 and the Russia-Ukraine war.

Figure 02 - Number of people experiencing moderate or severe food insecurity in Algeria

In millions



Source : GAFS (2023), «Global food and nutrition security dashboard», retrieved 05, 23, 2024,
<https://www.gafs.info/country-profiles/?state=Advice&country=DZA&indicator=IPCC>

According to statistics issued by the Food and Agriculture organization, from 2021 to June 2023, 0.04 million Sahrawi refugees faced moderate or severe acute food insecurity in Algeria, which reflects 28% of the population analysed, and from 2021 to 2023, the prevalence of severe food insecurity in Algeria reached 5.6% by number 2.5 million people¹⁵.

- Food inflation :

We review the latest statistics on food inflation in the world and compare them to inflation in Algeria.

1) In the world:

In Figure N° 03, a world map shows the rate of global food inflation, indicated by colors, Algeria appears in green among the countries where food inflation is less than 2%¹⁶.

Figure 03 - Inflation food in the world



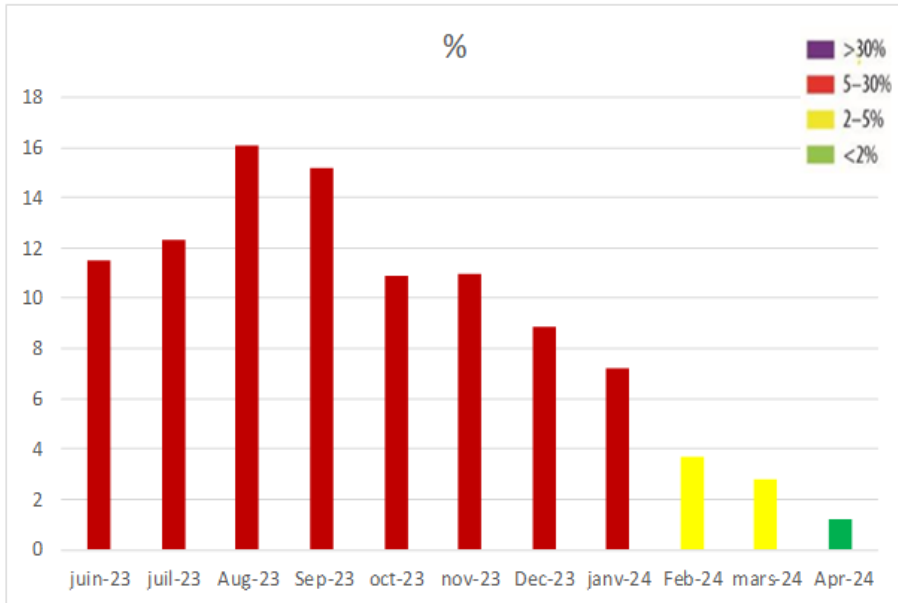
Source : Worldbank. (2024), «Food-security», June-27-2024. retrieved 06 30, 2024, p. 3,
<https://thedocs.worldbank.org/en/doc/40ebbf38f5a6b68bfc11e5273e1405d4-0090012022/related/Food-Security-Update-CVII-June-27-2024.pdf>

2) In Algeria:

Statistics from the World bank showed data on the evolution of food price inflation in Algeria for the period from June 2023 to April 2024, which revealed a significant variation over 10 months, as shown in the following figure.

Figure 04 - Food price inflation in Algeria (June 2023 - May 2024)

percentage change on an annual basis



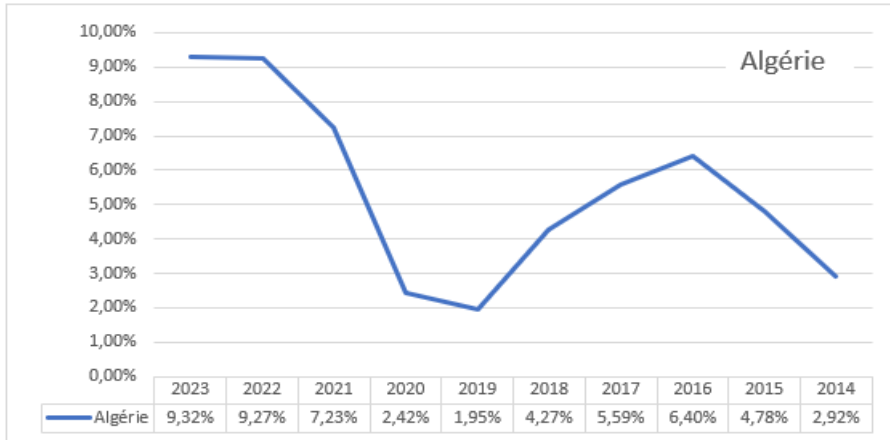
Source : World bank. (2024), «Food-security», June-27-2024, retrieved 06 30, 2024, p. 3,
<https://thedocs.worldbank.org/en/doc/40ebbf38f5a6b68bfc11e5273e1405d4-0090012022/related/Food-Security-Update-CVII-June-27-2024.pdf>

The chart shows fluctuations in food prices on an annual basis.

Although Algeria was classified among countries with food inflation of less than 2%, the fluctuations could affect price stability and people's purchasing power.

The following figure (Figure 05), illustrates the evolution of consumer goods inflation rates from 2014 to 2023, spanning almost ten years¹⁷.

Figure 05 - Evolution of inflation rates for consumer goods in Algeria for the period 2014-2023 (%)



Source : Donnees mondiales (2023), «L'évolution de l'inflation en Algérie», retrieved 06 30, 2024,
<https://www.donneesmondiales.com/afrique/algerie/inflation.php#:~:text=Au%20cours%20des%2053%20derni%C3%A8res,%2C3%25%20a%20%C3%A9t%C3%A9%20calcul%C3%A9>

The chart shows an increase in the pace of inflation in some years, with relative stability during other periods. Peaks were observed during years of crises (such as the COVID-19 pandemic), which confirms the impact of external factors on the Algerian economy.

2-2) Food security indicators in Algeria:

Food security indicators in Algeria provide a comprehensive picture of the country's performance across key dimensions such as food availability, affordability, quality and safety, and resilience to shocks ¹⁸. Recent

international reports indicate that Algeria ranks in the middle of the global food security index among Arab countries, scoring relatively better in economic resilience, but with persistent gaps in food quality, safety, and the stability of food supplies over time¹⁹.

- Food Security Index:

an index constructed on 59 unique indicators that provides a worldwide perspective on which countries are most and least vulnerable to food insecurity and how resource risks increase vulnerability²⁰. The global food security index measures the level of food security through the following pillars: Affordability, Availability, Quality and Safety, Natural Resources and Resilience²¹.

Table 01 - Food security index in the top ten arab countries for 2022

Ranking among arab countries	Global ranking	Dietary and economic resilience Food	resilience Food	Crisis level	Food security index	Country
1	26	5.94	7.92	2.65	7.07	Emirates
2	29	5.07	8.00	2.09	6,99	Qatar
3	30	5.83	7.63	2.49	6,99	Bahrain
4	41	5.33	7.55	2.57	6,77	Oman
5	43	5.29	6.66	1.69	6.76	Algeria
6	44	4.61	7.96	2.32	6,75	Saudia Arabia
7	47	4.44	7.82	2.18	6,69	Kuwait
8	63	4.59	6.80	2.20	6,40	Morocco
9	64	4.51	7.04	2.38	6,39	Tunisia
10	76	3.90	6.89	2.49	6,10	Jordan

Source : DeepKnowledge (2022), «Global food security index», retrieved <https://www.dka.global/food-security-index-q2-2022>

Algeria ranks fifth among Arab countries (43rd globally) in the 2022 Food Security Index. It was outperformed by countries like the UAE (26th globally) and Qatar (29th globally), indicating better performance in those countries in terms of economic and food resilience. Algeria received a good score in "Economic Resilience to Food" (5.29) and "Crisis Level" (1.69), which indicates a relative stability in the face of shocks. The score for "Food Resilience" (6.66) is lower compared to some other countries, such as Saudi Arabia (7.96)²².

- Food Availability Index:

The food availability Index measures the adequacy of national food supplies, the risk of supply disruptions, national capacity to distribute food and research efforts to expand agricultural and food production. The Food Availability Index is measured through five indicators: food supply adequacy, public spending on agricultural research and development, agricultural infrastructure, agricultural production variability and the risk of political instability.

Table 02 - Food availability index scores in arab countries (2019-2022)
Scores from 0-100

Country	2019	2020	2021	2022	Change between 2021-2022
Egypt	74,3	62,8	60	54,2	9,7-
Saudi Arabia	70,7	73	67,8	67,2	0,9-
Qatar	69,5	70,7	74,4	72,9	2-
Kuwait	60	68,3	72,3	62,9	13-
UAE	66,8	66,5	71,3	73,8	3,5
Sultanate of Oman	63,9	57,3	59,1	64,3	12,2
Bahrain	56,2	56,8	67,5	60,1	11-
Tunisia	59,6	56,7	54	54,1	0,2
Algeria	59	55,7	58	57,3	1,2-
Morocco	51,9	51,4	51,8	42,9	17,2-
Jordan	51,7	48,2	55,2	59,8	8,3
Syria	42,4	41,3	30,1	26,6	11,6-
Sudan	37,5	30,8	31,6	48,2	52,5
Yemen	27,3	27,5	27,6	26,9	2,5-
Arab World	56,5	55,8	54,6	55,6	1,9
World	56,85	57,32	56,7	57	0,5

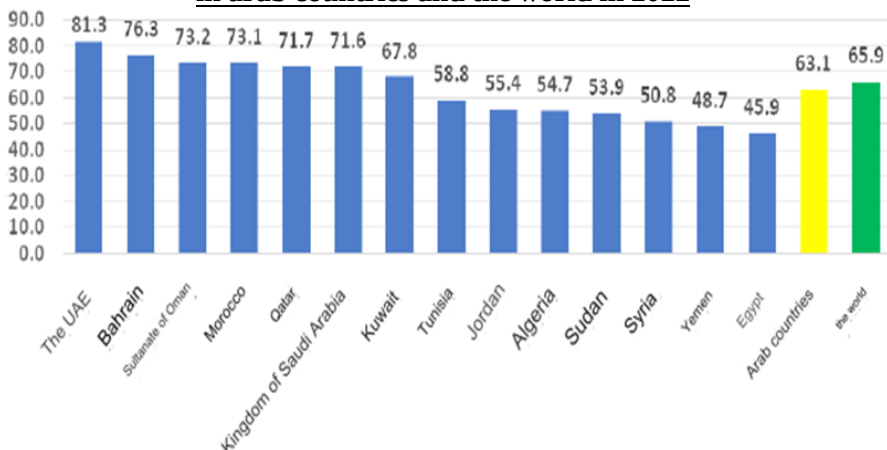
Source : AOAD (2022), «Arab program for the sustainability of food security», League of arab states, p. 27,
<https://www.aoad.org/Arab%20Program%20For%20The%20Sustainability%20Of%20Food%20Security-En-Final.pdf>

Algeria's performance was average compared to countries like the UAE (73.8) and Saudi Arabia (67.2), but it was better than Morocco (42.9) and Yemen (26.9). The slight decrease may reflect the impact of global inflation or challenges in local production²³.

- Food Quality and Safety Index:

The attached chart, "The Food Quality and Safety Index in Arab Countries and the World for 2022," shows the index scores for thirteen Arab countries, compared to the Arab regional average and the global average. The index is typically measured on a scale of 0 to 100, with a higher score indicating better performance in food quality and safety²⁴.

**Figure 06 - Food quality and safety index
in arab countries and the world in 2022**

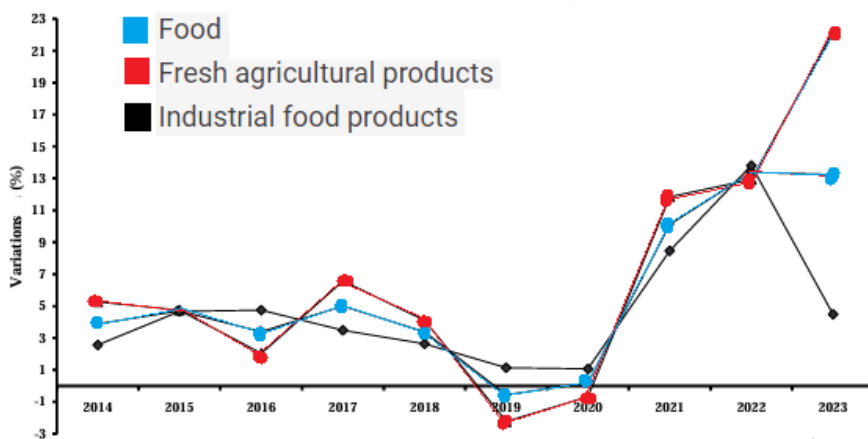


Source : AOAD (2022), «Arab program for the sustainability of food security», League of arab states, p. 27,
<https://www.aoad.org/Arab%20Program%20For%20The%20Sustainability%20Of%20Food%20Security-En-Final.pdf>

The bar chart indicates that **Algeria** scored **54.7 points** on the Food Quality and Safety Index in 2022. This result places Algeria in the lower-to-middle range when compared to the included Arab nations and the regional and global averages.

In Figure N° 07, There are significant fluctuations in agricultural product prices compared to industrial ones. This reflects the sensitivity of the agricultural sector to climate changes and global crises, which increases food security challenges²⁵.

Figure 07 - Annual evolution of the variance of fresh agricultural products and industrial food products indices from 2014 to 2023



Source : ONS (2024), «Indice des prix à la consommation», statistical collections, n° 238,
chrome-extension://efaidnbmninnibpcapjpcglclefindmkaj/https://www.ons.dz/IMG/pdf/ipc2014_2023.pdf

There are significant fluctuations in agricultural product prices compared to industrial ones. This reflects the sensitivity of the agricultural sector to climate changes and global crises, which increases food security challenges.

Conclusion:

This study sought to assess the reality of food security in Algeria in light of global food inflation. Based on an analysis of global and regional indicators and data related to inflation and malnutrition, the main findings and conclusions of the study can be summarized as follows:

Substantiation of hypotheses:

- **Hypothesis 1 (Accepted):** "Global food inflation could affect the achievement of food security dimensions defined by international bodies": The results demonstrate that food inflation directly affects the access dimension (through deteriorating purchasing power) and the stability dimension (through annual price fluctuations), and also affects the utilization dimension (through impacting the quality of available food);
- **Hypothesis 2 (Accepted):** (There is an effect between the independent variable, inflation, and the dependent variable, food security, in a direct or positive manner): The results confirm a strong and influential relationship between inflation and food security. However, this effect is essentially inverse and negative, as high inflation leads to a decline in food security levels, particularly in the access dimension, as confirmed by the proportion of the population affected by moderate or severe food insecurity.

Results:

- The impact of inflation on stability, Inflation rates for consumer prices in Algeria (2014-2023) showed an increase in the rate of inflation, with significant peaks recorded during years of global crises such as the covid-19 pandemic;
- Challenges of remote access: Although Algeria is classified among countries with food inflation below 2% in 2024, the recorded fluctuations negatively impact citizens' purchasing power;
- Algeria achieved a relatively advanced position in the 2022 Global Food Security Index (GFSI), ranking fifth in the Arab world and 43rd globally;

- The study revealed shortcomings in the utilization dimension, with Algeria scoring 54.7 points in the 2022 Food Quality and Safety Index, a score lower than the Arab regional average (63.1 points) and the global average (65.9 points);
- Agricultural Production Volatility: An analysis of the evolution of the variance of fresh agricultural product price indices compared to industrial products.

Recommendations

Based on the findings and the challenges facing food security in Algeria, the study recommends the following:

- Protecting purchasing power and stability by focusing on anti-inflation policies that specifically target basic food commodities. This includes reviewing and developing government support mechanisms to ensure they reach those who deserve them and reduce price fluctuations;
- Immediate action is needed to raise the food quality and safety index by strengthening food product health oversight and intensifying consumer nutrition and health awareness campaigns to reach regional and global averages;
- Strengthening local production: Given the agricultural sector's vulnerability to climate change and crises, investments should be directed toward sustainable production technologies that are drought and pest-resistant, while increasing the budget for agricultural research and development;
- Conducting future quantitative and field studies to assess the true impact of state-provided agricultural support programs on food price stability and countering the repercussions of global inflation, to test the third hypothesis more deeply.

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