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THE ROLE OF THE FOOD INDUSTRY IN PROMOTING SUSTAINABLE FOOD SECURITY IRAQ

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Abstract. The paper aimed to show the role of the food industry sector in Iraq in employment and value-added creation and the extent of its contribution to achieving sustainable food security if the results of the research indicated its weak ability to provide food and ensure its stability and its low contribution to creating added value, and the most important weaknesses and threats facing it were identified. The food industry, as well as a statement of strengths and opportunities that can contribute to its development and building an integrated system interconnected with other sectors, especially the agricultural sector.

Keywords: food industries; sustainable food security; Iraq.

РОЛЬ ПИЩЕВОЙ ПРОМЫШЛЕННОСТИ В ОБЕСПЕЧЕНИИ УСТОЙЧИВОЙ ПРОДОВОЛЬСТВЕННОЙ БЕЗОПАСНОСТИ ИРАКА

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Аннотация. В статье анализируется состояние пищевой промышленности в Ираке. Изучаются факторы, влияющие на способность пищевой промышленности обеспечить устойчивую продовольственную безопасность. Выявляются наиболее важные детерминанты продовольственной безопасности, влияющие на достижение устойчивой продовольственной безопасности Ирака. Осуществляется анализ сильных и слабых сторон пищевой промышленности Ирака, определяются угрозы и возможности. Отмечается, что пищевая промышленность в настоящее время не в состоянии реагировать на чаяния потребителей и покрывать их растущие потребности в продуктах питания, как с точки зрения количества, качества, так и цены. Сделан вывод о том, что для повышения уровня интеграции между сельскохозяйственным сектором и агропродовольственной промышленностью и снижения процента потерь от них, необходимо уменьшить зависимость от международных рынков; обеспечить соответствие пищевой промышленности международным производственным стандартам и спецификациям; использовать современные технологии в области упаковки; подготовить новую стратегию развития пищевой промышленности для

увеличения ее позитивного участия в достижении устойчивой продовольственной безопасности.

Ключевые слова: пищевая промышленность; устойчивая продовольственная безопасность; Ирак.

Introduction

The issue of food security is one of the most important challenges facing the economies of countries, especially developing countries, at the present time, in light of the rise in food prices at the global level and the ever-increasing domestic demand for food, and this is what prompts governments to search for institutional mechanisms and procedures that contribute to achieving food security and reducing dependence on international markets [1, p. 190].

The food industry is considered one of the most important branches of industrial production at the global and local levels, and has the ability to achieve sustainable food security, through its role in meeting the growing food needs of the consumer while observing and respecting production standards and specifications that protect consumer health and the environment.

The importance of this research: paper lies in identifying the weaknesses in the ability of the food industries in Iraq to achieve food security, since the food industries at the present time are unable to respond to the aspirations of consumers and cover their increasing food needs, both in terms of quantity, quality, and price, which makes their role limited in achieving security Sustainable food due to its close connection with global markets to provide the primary inputs for the production process is difficult due to the weak flexibility of the agricultural production system and the decline in its productivity, which makes the prices of food products in Iraq unstable due to its connection to price fluctuations in global markets.

Research problem: The research problem can be identified through the following question: What is the extent of the food industry's contribution and ability to achieve sustainable food security in Iraq in light of the continuous rise in food prices at the global level?

The research aims: analyze the reality of food industries in Iraq, study and analyze the factors affecting the ability of the food industry to achieve sustainable food security, and analyze the most important determinants of food security affecting the achievement of sustainable food security in Iraq.

The study assumes that there is a great connection between the food industries with international markets, especially in the field of obtaining their inputs and means of production, which makes them recipients of the shocks of high food prices, and this is a major reason for the weakness of their contribution to achieving sustainable food security in Iraq.

Firstly, an overview

• Analysis of performance indicators in the food industry sector for the period 2015-2020:

The food industry branch is one of the most important branches of industrial production in Iraq.

However, the branch's contribution and role in covering food needs remains very limited in Iraq, and what confirms this is the continuous increase in the volume of food imports during the last decades.

Supporting the food industry is the most important priority of the food and industrial policy in Iraq, as it aims to achieve two main goals.

- Providing and satisfying the food needs of the population.
- Reducing imports of finished products by adopting an import substitution policy.

The structure of the food industries in Iraq was distinguished after 2003, in light of the openness of the Iraqi economy and the transition to a market economy [2, p. 51].

Table 1 – The number of establishments for the food industry sector and the number of employees in Iraq for the period 2016-2020

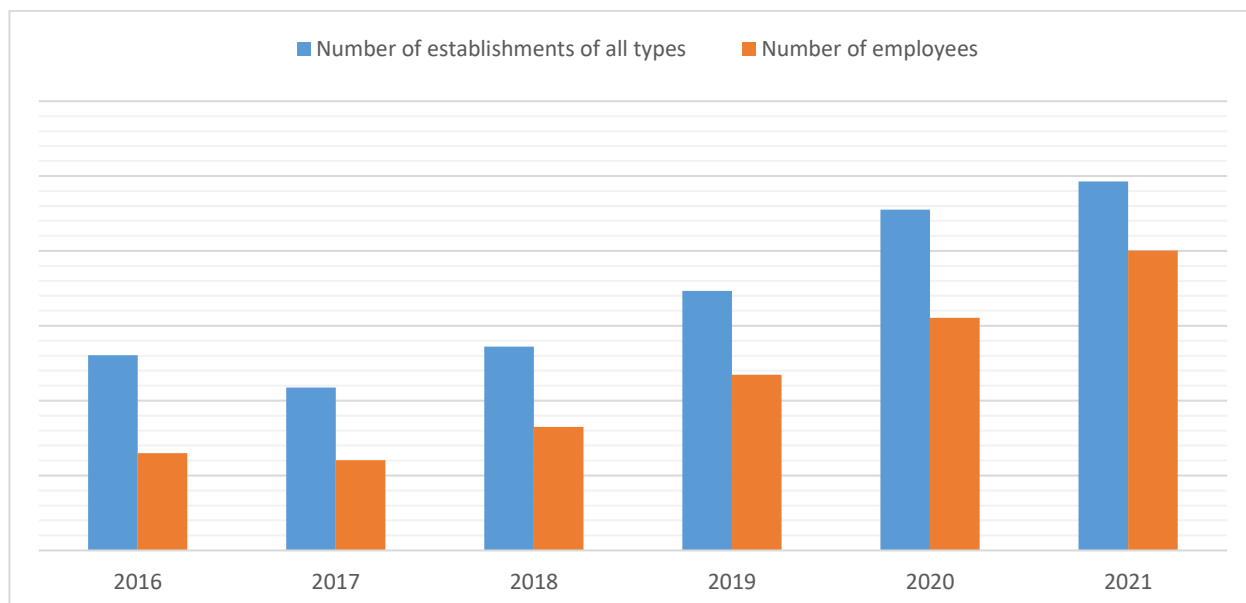
| Years | Number of establishments of all types (small size, medium size, large size) | growth rate% | Number of employees | growth rate% |
|-----------------------------------|---|--------------|---------------------|--------------|
| 2016 | 6708 | | 47839 | |
| 2017 | 5373 | -19.90 | 35413 | -25.97 |
| 2018 | 5459 | 1.60 | 38452 | 8.58 |
| 2019 | 6238 | 14.27 | 40400 | 5.07 |
| 2020 | 6515 | 4.44 | 41811 | 3.49 |
| 2021 | 8477 | 30.12 | 46781 | 11.89 |
| Compound Growth Rate% CAGR | | 3.98 | -0.37 | |

Source: Prepared by the researcher based on the data of the Ministry of Planning, Central Statistical Organization, Directorate of Industrial Statistics, 2021.

From the data in Table No. (1), we find that the total number of industrial establishments in the food industry sector in Iraq (small, medium, and large size) in 2016 amounted to 6708 industrial facilities, which increased to (8477) facilities in 2021, with a compound growth rate of (3.98%) for the period 2016-2021 [3, p. 317].

It is also noted that the food industry sector does not contribute to reducing unemployment and providing job opportunities, as its contribution to employment decreased during the period (1916–2021), as the number of workers decreased from 47,839 workers in 2016 to 46,781 in 2021 at a compound growth rate (-0.37%) despite the increase in the number of industrial establishments, and this is an indication of the low efficiency of this sector.

Figure 1 – Developments in the number of food industry establishments and the number of employees in Iraq for the period 2016-2020



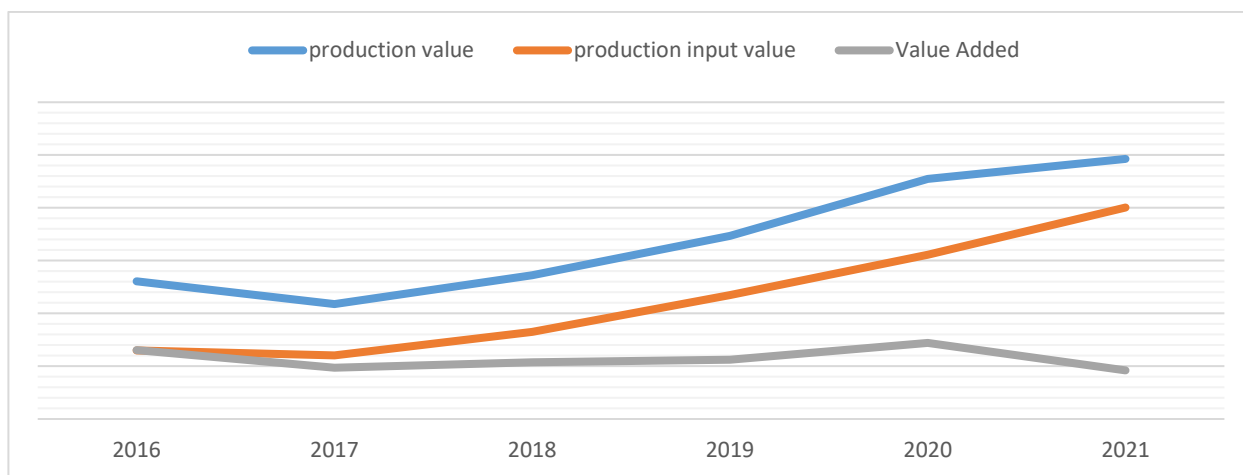
The value-added indicator is one of the most important indicators that many economic studies and research rely on to judge the role and importance of the value-added productive sector.

Table 2 – Shows the value of production, the value of production inputs, and the added value of the food industry sector in Iraq for the period 2016-2020

| Years | production value | production input value | Value Added | growth rate% |
|------------------------------------|------------------|------------------------|--------------|--------------|
| 2016 | 1304451382 | 650752200 | 653699182 | |
| 2017 | 1088290795 | 602417798 | 485872997 | -25.67 |
| 2018 | 1361202680 | 824762214 | 536440466 | 10.41 |
| 2019 | 1733656940 | 1172203999 | 561452941 | 4.66 |
| 2020 | 2275032060 | 1554509514 | 720522546 | 28.33 |
| 2021 | 2463322253 | 2002931092 | 460391161 | -36.10 |
| Compound Growth Rate % CAGR | | | -5.68 | |

Source: Prepared by the researcher based on the data of the Ministry of Planning, Central Statistical Organization, Directorate of Industrial Statistics, 2021.

Figure 2 – Developments in the production value, the value of production inputs, and the added value of the food industry sector in Iraq for the period 2016-2020



We note from Table No. (2) that the value-added index was fluctuating, as the added value of food industry facilities in Iraq for the year 2016 was about (653699182) dinars and decreased in 2021 to (460391161) dinars, with a compound growth rate of (-5.68). This is another indicator of poor performance efficiency in the food industry sector, which necessitates the need to work hard to develop the system of integration between both the agricultural and industrial sectors, which creates high added value for the food industry sector in particular.

• Analyzing the most important food security determinants affects achieving sustainable food security.

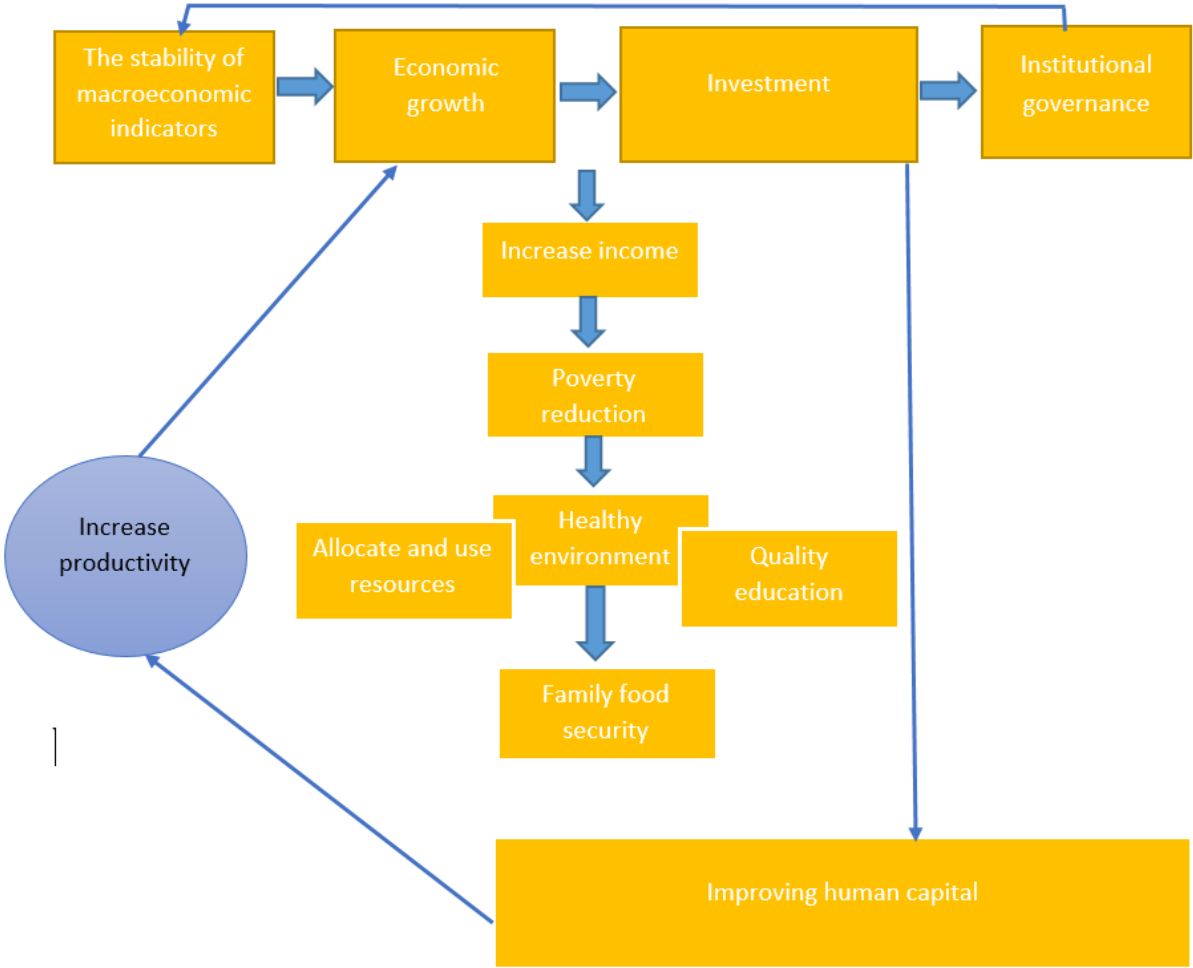
With the emergence of the concepts of comprehensive development and sustainable development, the concept of food security has evolved from its traditional framework to include the element of sustainability in the management of various natural resources with the ability to protect national, regional, and global environmental systems and to establish sustainable and diversified production patterns that take into account the present and future needs of the population without harming their health or the environment [4, p. 95].

The following figure 1 illustrates the most important determinants of food security in general and the relationships between them. Where the figure shows the necessity of macroeconomic stability that leads to economic growth, and then economic growth is an attractive element for investments that increase the improvement of human capital. To a greater increase in economic growth and an increase in economic stability rates.

The previous set of determinants lead to the generation of income in the community, and the income generated in turn leads to reducing poverty rates; and decreasing poverty levels leads to better exploitation of resources and an improvement in the healthy environment for families, as well as those families' interest in and access

to quality education. Hence, family food security is achieved and, consequently, human capital is improved, which in turn leads to increased productivity that increases economic growth rates [5, p. 113].

Figure 3 – Illustrates the most important determinants of food security in general and the relationships between them



Source: Prepared by the researcher

Second, the role of the food industry in achieving long-term food security in Iraq

Clarifying the extent to which the food industries in Iraq contribute to achieving sustainable food security depends on defining its main dimensions, represented in the elements of availability, stability, and access to food, and analyzing the extent to which these industries are able to achieve each of them [6, p. 227].

Availability: Availability of food represents the supply side and means the ability to provide supplies and supplies of food products in quantity and quality to meet consumer needs on a continuous basis in line with the current population development

and changing consumer habits, whether from local production or through import from foreign markets [7, p. 254].

The ability of the food industry in Iraq to provide food is linked to:

- The volume of local production of the food industry: Availability is related to the volume of local production of food industries and their ability to cover local demand, knowing that these industries depend for their input on local materials and agricultural commodities imported from international markets. It is noted in Iraq that the rate of local production coverage of local demand for food products does not exceed an average of 25%. Its levels vary according to the nature of the products, and this production is characterized by fluctuation and is threatened with decline in light of climatic changes, as it is expected that the increase in temperature and the shrinking of agricultural land will lead to a decrease in grain production by about 25% and the production of vegetables by about 35% within the year 2030, which makes the food industry capacity The availability of food based on local production is very weak. This will cause a widening of the food gap in Iraq, which is a clear indication of the difference between the volume of domestic production and net imports of various food commodities. The dependence of the food industry on achieving the element of availability on international markets in a large way requires the availability of two basic conditions related to the ability to import: in the sense of its ability to provide foreign exchange from the export process and the issue of obtaining food products at reasonable prices. This makes its ability to provide food dependent on developments in food supply and prices in international markets. In addition, the impact of developments in the consumption patterns of the Iraqi individual, who seeks to simulate the prevailing patterns at the global level, and the impact of the process of commercial openness that Iraq is witnessing after 2003, which weakened the production capacities of the branch institutions, especially the governmental ones, most of whose productive branches witnessed a significant decline in the volume of production. These facts make the food industry unable in the short and medium term to provide and provide food products in sufficient size to cover the requirements of the local market in Iraq [8, p. 133].

- Weak integration of agricultural production with the manufacturing sector: It should be noted that the availability component is also related to the extent of the ability of the agro-food industries to integrate agricultural production with the industrial sector to support the manufacturing industry, but it records weak integration rates, as the correlation rates between the manufacturing sector and the agricultural sector were very low and did not exceed 7% due to semi-dependence on imports.

- The ability to reduce the percentage of food wastage: availability is also related to the ability to reduce the percentage of wastage through the food chain from the stage of harvesting and harvesting to the manufacturing process, transformation, and distribution, and the ability to absorb surplus production during the seasons of relative abundance and transform it into manufactured products. In this context, a study conducted by the Food and Agriculture Organization indicated that the problem of

agriculture in Iraq does not lie in the lack of production alone but in the weakness of the necessary infrastructure for storage.

Stability: The stability of the food supply refers to reducing the possibility of a decrease in food consumption during difficult seasons, emergency and exceptional situations, and ensuring the sustainability of its availability without being affected by fluctuations and crises by relying on a number of precautionary measures and policies (strategic stock, optimal utilization of agricultural resources, and the conclusion of commercial deals to purchase foodstuffs) [9, p. 366].

- In light of the high rate of linkage of the food industries in Iraq with international markets, which in recent years has witnessed a number of fluctuations and changes on a large scale, which led to a rise in the prices of many foods (cereals, milk, sugar, edible oil), which expectations indicate a rise in the future in light of the survival. The factors causing it, which are active from time to time, lead to the instability of global food markets and the rise in prices, which in turn lead to the instability of food supplies in Iraq before affecting

- The food industries are at risk of rising world food prices or shrinking the global supply of agricultural products in light of the weak flexibility of the production system in Iraq at the present time.

Food accessibility: It represents the demand side and it is intended to provide access to food, physical and economic access to food products. It expresses the possibility of access to food by the ability of individuals to acquire their needs of food commodities according to their material capabilities and the factors affecting the possibility of obtaining them, such as the prices of food commodities and the incomes of individuals, population growth, and the growth of food production.

Third, analysis of the factors affecting the ability of the food industry to achieve sustainable food security:

Among the most important factors affecting the ability of food industries to achieve sustainable food security in Iraq are:

- Weak interdependence and integration between the food industries and the agricultural sector:

- Agriculture contributes greatly to the development of food industries as it provides them with the necessary inputs for the production process, but what has been observed in Iraq is that this interdependence is very weak, which has caused a dramatic increase in the volume of imports of agricultural raw materials, especially under the current conditions in Iraq, in addition to the inability of the local supply of agricultural production to cover the demand and provide the appropriate raw materials for the food industries in terms of size, quality, and price, since the contribution of local agricultural production does not exceed, on average, 20% of the local market needs.

- The weak link between the agricultural sector and the food industries can be explained by the lack of success of the adopted agricultural policies and the exacerbation of the problems faced by the agricultural sector in Iraq despite the

availability of many ingredients for the advancement of agriculture, and the most important of these ingredients and problems can be highlighted in the following table:

Table 3 – Shows some strengths and weaknesses of the agricultural sector in Iraq

| Strengths | Weaknesses |
|--|--|
| <p>Focus on investment projects that increase economic integration between the food industries and the agricultural sector to increase the complementary links between the two sectors and improve the level of their contribution to the GDP.</p> <p>The abundance and diversity of agricultural potential and natural resources</p> <p>Providing the appropriate investment climate for foreign agricultural investments.</p> <p>Providing the appropriate investment climate for foreign agricultural investments to improve the production base of the food industry sector.</p> <p>Applying product control systems and controlling product quality and specifications according to international standards, which leads to improving the mental image of local products for the Iraqi consumer and thus increasing demand in the local market.</p> | <p>Weak interdependence and economic integration between the agricultural and industrial sectors.</p> <p>Improper exploitation of available agricultural resources and reliance on imports to meet food needs.</p> <p>Weakness in the organizational structure of the food industry sector institutions and the absence of positive representation of professional organizations.</p> <p>Lack of interest in the sectors that represent the basis for the development of the food industry sector, the most important of which is the agricultural sector.</p> <p>The weakness of the quality control systems for local manufactured products in the food industry causes the trend to increase the demand for imported goods.</p> |

Therefore, improving and raising the degree of integration between the agricultural sector and food industries in Iraq depends on the ability to value the strengths of the agricultural sector and exploit the opportunities available to it, and on the other hand, address its shortcomings and shortcomings and confront the various threats it faces. Because the development of national production for the food industry will remain excluded if a clear policy is not adopted to disengage it from the international markets in which the prices of raw materials are constantly fluctuating, negatively affecting the final cost and the prices of its outputs.

Accumulation of non-competitive characteristics of the food industry:

Despite the availability of many ingredients for the success of the food industries in the Iraqi economy, they do not rise to the level of competitiveness and production levels are low. The food industry sector in Iraq faces many threats (despite the availability of opportunities) at present, which has made its role in achieving food security very limited. Some of them can be highlighted in the following table:

Table 4 – Iraq’s food industry sector faces both opportunities and threats

| Opportunities | Threats |
|---|---|
| <p>The Iraqi consumer's desire for local manufactured products and their lower prices compared to imported products.</p> <p>The possibility of using modern technologies in production in the food industry sector has increased.</p> <p>Most economic sectors are experiencing unemployment and a lack of job opportunities. Activating the supervisory role to eliminate administrative and financial corruption.</p> | <p>Continuing trade openness and a commodity dumping policy.</p> <p>The inability of the food industry sector to adapt production methods and techniques to international production standards and specifications.</p> <p>High population growth rates compared to low agricultural production rates.</p> <p>The spread of financial and administrative corruption in all sectors, including the agricultural sector.</p> |

It is clear from the table the magnitude of the threats facing the food industry sector, which negatively affect its ability to provide food and ensure its supplies, especially in light of the continued unstudied trade openness and the inability of these industries to adapt their production methods and techniques to international production standards and specifications and raise rates of exploitation of their production capacities that do not exceed 30%.

Conclusions:

1. The food industry sector does not contribute to reducing unemployment and providing job opportunities as its contribution to employment decreased during the period (1916–2021), as the number of workers decreased from (47839) workers in 2016 to (46781) in 2021 at a compound growth rate. (-0.37%) despite the increase in the number of industrial establishments, which is an indication of the low efficiency of this sector.
2. The value-added index of the food industry sector was volatile, as the added value decreased in 2021 to (460391161) dinars, with a compound growth rate of (-5.68). This is an indication of the poor performance efficiency in the food industry sector and its inability at the present time to achieve sustainable food security.
3. It is noted in Iraq that the coverage rate of local production of local demand for food products does not exceed an average of 25%, with different levels depending on the nature of the products. It will cause a decrease in the production of major crops such as cereals and vegetable production until 2030.
4. The volume of interdependence between the agricultural sector and the food industries is very weak, causing a slowdown in the growth and development of the food industries as we see an increase in the volume of imports of agricultural raw materials, which is increasing dramatically, especially in light of the current conditions in Iraq, in addition to the inability of the local supply of agricultural production to cover demand and provide raw materials on occasion.

5. It is clear from the foregoing that the agro-food industries in Iraq face many challenges in activating their role and contribution in providing the necessary and stable food to the consumer, and that they urgently need to adopt a number of urgent measures in order to ensure their positive and sustainable growth.

Recommendations

1. Increasing the level of integration between the agricultural sector and the agro-food industries and reducing the percentage of losses from them to reduce the heavy dependence on international markets that witness price and quantitative fluctuations that have a direct impact on the ability of the food industries in Iraq to provide food and ensure the stability of its supplies and prices.

2. Enforcing the food industry to conform with international production standards and specifications; using modern technology in the field of packaging; providing support services for refrigerated transport; and increasing storage capacities to ensure the ability of products to maintain their healthy properties.

3. Preparing a new strategy for the transformative food industries branch to increase its positive participation in achieving sustainable food security, based on intensifying rehabilitation programs for these industries to raise their competitiveness, improve the quality of their outputs and speed up their implementation, encouraging the establishment of industrial zones and developing integrated cluster chains that contribute to raising production capacity.

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