Journal of Economics and Administrative Sciences
2024; 30(144), pp. 260-271

P-ISSN 2518-5764
E-ISSN 2227-703X

Journal of Economics and Administrative Sciences (JEAS)

Available online at http://jeasiq.uobaghdad.edu.iq
DOI: https://doi.org/10.33095/9r7a6230

Possibility of Benefiting from the Egyptian Experience in Implementing Agricultural Policies to Enhance Food Security in Iraq for the period (2000-2018)

Duaa Ali Abdul Husssein*
Department of Economics
College of Administration and Economics,
University of Baghdad, Iraq.
E-Mail : doaa.ali1102a@coadec.uobaghdad.edu.iq
Orcid : https://orcid.org/0009-0008-4316-4626
***Corresponding author**

Sabah Nema Ali
Department of Economics
College of Administration and Economics,
University of Baghdad, Iraq.
E-Mail: sabah.n@coadec.uobaghdad.edu.iq
Orcid: https://orcid.org/0009-0007-6448-8569

Received:8/5/2024 **Accepted:11/9/2024** **Published Online First: 1 /12/ 2024**

This work is licensed under a Creative Commons Attribution-Non-Commercial 4.0 International (CC BY-NC 4.0)

Abstract:

Purpose: The research aims to identify the challenges facing the agricultural sector in Egypt in light of the global food crisis and the role of agricultural policies in confronting them considering the available resources and the extent of benefiting from the banking experience in implementing agricultural policies to enhance food security in Iraq.

Theoretical framework: The research dealt with the study of agricultural policies and their role in enhancing food security in Iraq by benefiting from the Egyptian experience. The research problem revolves around the fact that the agricultural sector in Egypt faces several challenges, including weak government support for investment in this sector, in contrast to high production costs, the increasing population growth rate, and political and security instability, which led to an increase in the food gap and reliance on abroad to cover local demand for food commodities, especially strategic ones, and the extent of benefiting from the banking experience in implementing agricultural policies to enhance food security in Iraq.

Design/methodology/approach: The researcher adopted the deductive method and the descriptive analytical method to study agricultural policies and their role in enhancing food security. The Egyptian experience for the years (2000-2018) was studied and the extent to which it was benefited from in Iraq, especially since that period witnessed a volatile economic situation as a result of the political and economic events that Iraq witnessed.

Findings: The analysis of agricultural production relative to local consumption reveals a significant gap, leading to increased reliance on imports to meet domestic demand.

Research, Practical & Social implications: The current research contributes to clarifying the role played by agricultural policies in enhancing the level of food security in Iraq by benefiting from the Egyptian experience.

Originality/value: The results showed that the number of publications related to banking activities and their role in enhancing market value is increasing, and that the field of economics is the most contributing, as the participating countries provided the largest number of publications.

P-ISSN 2518-5764
E-ISSN 2227-703X

Keywords: Production, Consumption, Agricultural Investment, Agricultural Policy, Food Security.

JEL Classification : Q1, Q10, Q18, Q180.
Authors' individual contribution : Authors' individual contribution: Conceptualization — D.A.A ; Methodology — D.A.A.; Formal Analysis — S.N.A. & D.A.A.; Investigation — S.N.A. ; Data Curation — D.A.A. & S.N.A ; Writing — Original Draft — D.A.A. ; Writing — Review & Editing — S.N.A.; Visualization —D.A.A.; Supervision — S.N.A. ; Project Administration — S.N.A.
Declaration of conflicting interests : The Authors declare that there is no conflict of interest.

1. Introduction:

Agriculture is the art and science of cultivating the soil, growing crops, and raising livestock (Osiyale & Audu, 2022). In developing countries, agriculture is the principal source of income for rural inhabitants and the most prominent feature of land use (Shiferaw et al., 2014). Furthermore, it is a mainstay of their economy and contributes to GDP (Keshavarz & Karami, 2014). Agriculture has been affected by three main factors: agricultural stress factors, which simultaneously affect plants: Desertification, global warming, and soil salinity (Zandalinas et al., 2021) ;(Mohammed, 2024). Agriculture is one of the most land-intensive sectors worldwide, and the sector not only contributes to but is also influenced by climate change (Mutua & Goda, 2021). The agricultural sector is the sole sector that meets the food demand of people, provides raw materials to industries, creates employment for agricultural laborers, and gives food to livestock (Ajay et al., 2022). Agricultural policy is described as laws related to local agriculture and imported agricultural products from abroad (Zidan et al., 2023). Agricultural policy is a set of principles, methods and means of action through which any country's agricultural sector's objectives are achieved (Ţenea, 2021). Agricultural policies consist of various innovative approaches, ranging from crop diversification, modern agriculture, climate-smart agriculture, and weather forecasting to agroforestry approaches (Sarma et al., 2024). Agricultural policies also play a crucial role in ensuring food security and economic development in advanced economies (Mwangi, 2023); (Bamoi & Yilmaz, 2021). In addition to the primary role of agriculture to ensure food security, agriculture provides public goods such as farm biodiversity (Heyl et al., 2021).

Food is the most crucial basic human need and basic right for everyone. Therefore, food needs are necessary so that humans can survive (Setiartiti, 2021). Food security involves people's physical and economic access to food, emphasizing quantity and quality for healthy living. Individual, household (Shaibu et al., 2023). Food security policy includes decision-making around production and processing techniques, marketing, availability, utilization, and food consumption (Eneh, 2021). Agriculture is also responsible for economic and social development in developing countries.

Regarding food security, agriculture provides many of society's food needs (Abdelmajid et al., 2021). Food is a fundamental requirement for human survival. Food security is the availability of food, both in quantity and quality (ALLEN & OGBE, 2022). The traditional definition of food security encompasses four well-known pillars: availability, access, utilization, and stability (Barel-Shaked & Buda, 2024). Worldwide, food security remains a major burden that needs to be tackled to reach the Sustainable Development Goals (SDGs) (Garbero & Jäckering, 2021). The research addressed the possibility of benefiting from the Egyptian experience in implementing agricultural policies to enhance food security. The research problem revolves around the fact that the agricultural sector in Egypt faces several challenges, including weak government support for investment in this sector, in contrast to high production costs, the increasing population growth rate, and political and security instability, which led to an increase

P-ISSN 2518-5764
E-ISSN 2227-703X

in the food gap and reliance on abroad to cover the local demand for food commodities, especially strategic ones, and the extent of benefiting from the banking experience in implementing agricultural policies to enhance food security in Iraq. The importance of the research comes from the extent to which Iraq benefits from the Egyptian experience in enhancing food security by adopting appropriate agricultural policies, as agricultural policies play an important role in achieving food security requirements to face the challenges of the global food crisis, by allocating resources to increase food reserves in emergencies and confronting the risk of deficit to achieve food security by working to prepare agricultural policies that are consistent with the state's capabilities and achieve its goals. The research aims to identify the challenges facing the agricultural sector in Egypt, considering the global food crisis and the role of agricultural policies in confronting them, considering the available resources and the extent of benefiting from the banking experience in implementing agricultural policies to enhance food security in Iraq.

2. Literature Review and Hypothesis Development:

A study (Al-Zubaidi & Al-Bayati, 2018) shows Iraq depends on the outside to provide basic food requirements, i.e., the inability of the agricultural sector to achieve food security despite the components to possess it. We note that Iraq relied abroad to provide strategic commodities (rice and wheat), which led to increased national exposure. In other words, imports outweighed the volume of exports. A study conducted by (Burkovska et al., 2021) indicated that food security depends not only on the sufficiency of food to meet the population's needs but also on the affordability of food, ease of distribution, and environmental safety. On the other hand, agriculture policies include policy instruments related to the domestic farm sector, trade, food pricing, and ensuring food safety; food and agriculture policies have the potential to influence dietary behaviors through factors such as food prices, transportation, pricing, etc. (Asirvatham et al., 2022). The study (Youssef, 2023) addressed the means of achieving food security, the current situation in Egypt, and the self-sufficiency rates in basic commodities. It also explained the most prominent challenges facing the Egyptian state on its way to achieving its food security and the efforts made by the Egyptian government to overcome these challenges. In a study conducted by (Toledo et al., 2023) in Ecuador, it became clear that developing agricultural food policies, implementing agricultural reform and government programs all contribute to enhancing food security and achieving food self-sufficiency. The study conducted by (Toledo et al., 2023) deals with the problem of food security and its relationship to the size of government support for agriculture. Within the framework of this study, it became clear that it is necessary to study the features of food security, its application, and the optimal criteria for determining self-sufficiency. In a study conducted by (Harbi et al., 2023), it became clear that Iraq is going through a critical phase, evident in the increasing demand for agricultural and food products. The decline in Iraqi agricultural production and the deterioration of the percentage of agricultural area in the gross domestic product have led to a decline in the value of agricultural production, leading to a decrease in the individual's share of this production. The study conducted by (Sultan et al., 2019) aimed to measure the impact of agricultural policies on contributing to agricultural output growth in Iraq and Egypt. The research included a time series that extended over twenty-two years (1995-2016), indicating that the agricultural policies followed in Iraq during the study period were inappropriate. A study (Ashour, 2024) confirmed that the food crisis is caused by two main factors: the rise in prices resulting from the weak performance of the global market and the second is the decrease in production resulting from unsuitable climatic conditions. The study (Ameen, 2024) addressed the current food gap for wheat and sugar on an ongoing basis and the insufficiency of local production supply to meet consumption in Egypt. The results showed that wheat and sugar beet crops enjoy direct and indirect support, but wheat enjoys an elevated level of protection. At the same time, sugar beet outperforms wheat in financial and economic profitability in the first period before the exchange

P-ISSN 2518-5764
E-ISSN 2227-703X

rate floats. Based on the above, the current research assumes that the weak implementation of appropriate agricultural policies in Egypt has led to a decline in food security because of the growing local demand for agricultural commodities, especially strategic commodities, in light of the challenges of the global food crisis.

3. Methodology:

To prove the hypothesis, the researcher adopted the deductive approach and the descriptive analytical approach to study the role of agricultural policies in enhancing food security. The deductive approach was used to determine the reality of agricultural policies to achieve food security in addition to developing a vision for the future model of agricultural policies to increase food production in light of the possibility of benefiting from the experience of the State of Egypt. As for the period of the data analyzed, the period (2000-2020) was chosen based on the available data.

4. Results:

The agricultural areas are (8.47) million acres, representing about (3.5%) of the total area of Egypt. Water sources depend on seasonal rains, wells, springs, and the Nile River. The reasons for the development of agriculture include the application of vertical farming and the stability of the individual's share of agricultural land. As for self-sufficiency, it is one of the basic steps to achieve food, economic, social, and political security. In other words, it is one of the first steps towards agricultural development in developing countries. The indicator, i.e., self-sufficiency, shows the country's ability to provide food for members of society, especially the main strategic commodities (grains). Despite the fact that the country is one of the importing countries, the government was able, through agricultural development operations in the seventies of the last century, to achieve good rates of self-sufficiency in food crops, to reach the level of safety in some of them, such as (rice, potatoes), while the deficit was within safe limits, meaning that the quantity produced was equal to the quantity consumed or greater. While there was a deficit in some deficit crops, such as (corn, wheat, sugars, legumes, and oils), which constitute the main food for the poor (Kamel & El Bilali, 2022). The agricultural sector in Egypt suffers from several obstacles and challenges represented by (fragmentation of agricultural ownership, backward and lack of development of irrigation methods, the sector's inability to absorb the surplus agricultural labor in the countryside, which led to increased migration to the city, the weakness of scientific research and agricultural extension devices, in addition to the separation of scientific research from the applied aspect and the poor achievement of justice in the distribution of income between the agricultural sector and other sectors). With traditional agriculture reaching its limits under the pressure of the law of diminishing marginal returns, it has thus become technically incapable of pushing the economy forward. While it was framed from the social aspect by the single-crop export pattern imposed by the British occupation on the country through social relations considering semi-feudal exchange and production and family units within the scope of production. This established structural imbalances in the national economy presented by the poor allocation of resources with the dominance of a single crop (cotton) over a high percentage of agricultural employment at the expense of the optimal allocation of resources, which is based on local needs. On the other hand, it relied on backward patterns of capital control over direct producers, thereby draining the economic surplus achieved in this sector, in addition to not encouraging its social and technical development (Baig et al., 2019). The agricultural sector is considered one of the main pillars of the local economy, as it contributes about (11%) of the gross domestic product and about (22%) of the total value of commodity exports, in addition to absorbing about (27%) of the total labor force, in addition to providing food for the population and raw materials needed for many Egyptian industrial activities. The agricultural sector is also a market for many industrial products, agricultural equipment, chemical fertilizers, and agricultural pesticides.

P-ISSN 2518-5764
E-ISSN 2227-703X

The extent of the contribution of local production of the agricultural sector to providing food needs and determining self-sufficiency rates for various food commodities and groups can be determined from Table (3) below, which shows the development of self-sufficiency rates from agricultural production for the period (2000-2018). Agricultural production achieved high rates of self-sufficiency (fruits, vegetables, eggs, and starches). While the self-sufficiency rate of grains (wheat, barley, maize, sorghum, and rice) tended to decline to reach (45.6%) in 2018 compared to (69%) in 2000. The food gap of maize, one of the most important crops used as animal feed, became about (66%). While the self-sufficiency rate of legumes tended to decline from (56.4%) to (37.6%), and the self-sufficiency rate of dairy increased from (91.8%) to (99.3%), as well as fish from (58.5%) to (79.4%) during the same period. While there is a food gap of about (21.6%), the self-sufficiency rate of poultry has tended to decrease from (99%) to (84%), so the self-sufficiency rate decreased with a food gap estimated at about (35%), and from oil crops (from 69.7% to 29%) with a gap of (71%) (Al-Mahdi et al., 2021). Table (1) shows the development of self-sufficiency rates in agricultural and food production in Egypt for the years (2000-2018):

Table 1: the development of self-sufficiency rates in agricultural and food production in Egypt for the years (2000-2018)

Agricultural commodities	2000	2005	2010	2015	2018
Cereal crops	69.10	68.9	51.3	56.5	45.6
Fruits	100.70	104.9	108	113.2	114.6
Vegetables	101.80	103.1	103.2	105.6	103.3
Wheat	58.70	62.1	40.7	49	47.2
Corn	60.70	58.1	53.1	51.6	34
Rice	123.80	126.9	88.8	92	65
Poultry	99.3	100	87.1	94.7	84.9
Eggs	100	100.4	99.7	99.8	100
Fish	58.5	70.9	69.7	68	79.4
Red meat	74.1	76.2	81.4	68.8	69.3
Sugar crops	100	100	100	100.2	92.4
Oil crops	69.7	59.4	33.5	38.4	29
Dairy	91.8	94.7	90.6	99.5	99.3
Starches	104.5	50.11	104.8	108.5	106.5
Legumes	56.4	42	36.3	48	37.6

Source: (Al-Mahdi et al., 2021).

When comparing the actual self-sufficiency rate and the estimated rate based on the agricultural development strategy, we find that it specifies an increase in wheat production of about (12,000 - 15,120) thousand tons for the period (2017-2023) respectively, thus achieving self-sufficiency of (73.9% - 80.8%) respectively. However, the actual wheat production amounted to (8,423) thousand tons, equivalent to about (47%) of the volume of quantities available for consumption, which indicates that the goal set in the strategy has not been achieved. As for rice, the strategy has determined the reduction of total production of it, which is produced at a rate exceeding the consumption volume by about (126%), with the aim of reducing the water used to produce it while maintaining the continuity of achieving self-sufficiency at a level of (105%) in 2017, but the self-sufficiency rate decreased to about (65%) only, and thus resorting to imports to meet the required needs for it, as well as for corn. The plan has also determined the increase in the production of fish, red meat and poultry to reach self-sufficiency rates of (108.7%, 77.3% and 100%) in 2017, but what was achieved from these products amounted to (79%, 69% and 84%), indicating a decrease in progress in achieving the

goals specified in the strategic plan. Table (2) shows a comparison between the planned and actual estimates of self-sufficiency rates:

Table 2: comparison between the planned and actual estimates of self-sufficiency rates

Indicators	Wheat	Rice	Corn	Red Meat	Poultry	Fish
Actual Self-Sufficiency Ratios in 2017	47	65	34	69	84.9	79.4
Targeted Self-Sufficiency Estimates in 2017	73.9	105.2	78.3	77.3	100	108.7
Targeted Self-Sufficiency Estimates in 2030	80.8	103.1	91.9	93.3	100	99.4

Source: (Al-Mahdi et al., 2021).

From the above, we find that agricultural production rates, when compared to local consumption, indicate a decrease in the volume of production compared to the required consumption volume, and thus an increase in reliance on imports, whether through quantities or values, to meet the needs to bridge the gap between production and consumption. This results in an increase in the cost of imports and thus an increase in the trade balance deficit as a result of changes in the country's foreign exchange rate, as is evident from Table (5) for the development of the relationship between the foreign exchange rate and the value of total exports and imports on the one hand. And the value of the deficit in the trade balance and the value of agricultural exports and imports for the period (2000-2020), on the other hand. It is noted that the deficit in the trade balance increased by (from 30 to 41) billion pounds, and the deficit between agricultural exports and imports tended to increase from (20.28 to 30.65) billion pounds. Despite the increase in the value of the deficit in the agricultural trade balance, it is noted that the increase in the rate of export coverage of imports is not due to a decrease in the value of the latter, but rather due to an increase in the value of exports at increasing rates. Table (3) shows the development of foreign trade indicators for agricultural activity and its impact on the trade balance for the period (2000-2020):

Table 3: the development of foreign trade indicators for agricultural activity and its impact on the trade balance for the period (2000-2020)

Y	Foreign Exchange Rate (Currency/Dollar)	Total Exports	Total Imports	Net Balance (Surplus/Deficit) in Overall Trade	Agricultural Exports	Agricultural Imports	Agricultural Trade Balance Deficit	Agricultural Export Coverage (%)
2000	3.41	16.35	48.65	-32.3	1.8	6.39	-40.5	28.2
2005	5.78	61.63	114.69	-53.06	6.2	13.67	-46.23	45.4
2010	5.62	154.85	300.36	-48.854	17.5	26.35	-114.9	66.4
2015	7.69	163.25	568.91	-405.66	20.5	30.38	-11.9	67.5
2020	15.82	309.74	687.32	-41.622	47.1	72.16	-25.06	65.3

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Statistics Bulletins, various issues (2000-2020).

The agricultural sector is one of the most important commodity sectors in economic activity as it is the basis for achieving food security and a source of raw materials for industrial activity, which makes it a key sector in achieving economic development goals and the economic growth that follows. The value of agricultural output has increased steadily (from 52.7 to 668.7) billion pounds in 2020, while its contribution to the gross domestic product has decreased (from 16.7% to 12.1%) for the period (2000-2020). It is noted from Table (4) that the agricultural sector suffers from a decline in its productivity from achieving self-sufficiency rates in most crops and food groups, with their rates trending for the period (2000-2018), and thus

increasing the degree of food exposure by relying on imports. This necessitates addressing the challenges that stand in the way of achieving the targeted agricultural development and increasing self-sufficiency rates. Table (4) Development of the contribution of agricultural activity to the gross domestic product for the period (2000-2020):

Table 4: Development of the contribution of agricultural activity to the gross domestic product for the period (2000-2020)

Y	GDP Value / Billion	Agricultural GDP Value / Billion	Agricultural GDP Contribution (%)
2000	315.67	52.72	16.7
2005	506.51	75.47	14.9
2010	1150.59	161.08	14
2015	2473.1	279.46	11.3
2020	5526.95	668.76	12.1

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Statistics Bulletins, various issues (2000-2020).

The total cultivated land area is estimated at about (9.19) million acres in 2018 compared to (9.1) in 2015, an increase of (0.6%), while the total cropped area reached (16.1) million acres. The cultivated area is distributed between old lands that reach (95.6) acres and (3.98) million acres for new reclaimed lands, as shown in Table (5).

Table 5: Development of cultivated areas and cropped areas for the period 2000-2018

Value/thousand acres

Years	Cultivated area	Crop area	per capita share of cultivated area
2000	7836	14027	0.13
2005	8385	14920	0.12
2010	8741	15353	0.11
2015	9096	15800	0.10
2018	9193	16061	0.10

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Statistics Bulletins, various issues (2000-2020).

Table (5) above shows that both the cultivated and cropped areas tended to increase during the period (2000-2018), but the latter's growth rate was less than the population growth rate. Hence, the per capita share of the cultivated area tended to decline continuously for the same period. Agricultural lands face many challenges, most notably the fallowing and erosion of agricultural lands and desertification, as the fertility and productivity of the land deteriorate. Also, construction on agricultural lands with the increase in population and the need for urban expansion increased this phenomenon, which caused an increase in the prices of building lands compared to the prices of agricultural lands, which affected the rates of agricultural production, as the number of cases of encroachment on agricultural lands reached about 1.796 million cases, with a total of 79,860 thousand acres for the period (2011-2017), while the area of agricultural lands encroached upon during the period (2011-2016) amounted to about 71,333 thousand acres across Egypt. As a result of the population increase and encroachment on land, which exceeds the increase in the cultivated area, the average per capita share of the cultivated area per acre decreased from 0.23 acres in 1960 to 0.10 acres in 2016, with a decrease rate estimated at 56% during that period. The economic impact of encroachment on agricultural land was reflected in some strategic crops, as the average lost area of summer crops reached 52.31 thousand acres. The average lost quantity reached 223.440 thousand tons, with an average lost value of 457.263

P-ISSN 2518-5764
E-ISSN 2227-703X

million pounds. In contrast, the average lost area of the studied winter crops reached 46.691 thousand acres, with an average lost quantity of 279.203 thousand tons. In contrast, the average lost value reached 397.008 million pounds.

The total water resources are estimated at 64.4 billion cubic meters annually from traditional and non-traditional resources. The Nile water is 55.5 billion cubic meters/year, rain and floods are 1.3 billion cubic meters/year, while renewable and non-renewable groundwater from the Western and Eastern Deserts, Sinai, the Valley, and the Delta is 7.5 billion cubic meters/year. At the same time, seawater desalination is 100 million cubic meters/year. Water requirements indicate that the agricultural and drinking sectors are the sectors that consume the most water, as the agricultural sector consumes 63.25 billion cubic meters, taking into account the losses in distribution to canals. The drinking sector consumes 10.55 billion cubic meters/year. This requires determining the quantities of water used in the agricultural sector and the losses resulting from the transportation and delivery network. Water quantities at Aswan indicated about 50 billion cubic meters in 2018, while water quantities at the mouths of canals reached 46 billion cubic meters and available in the fields reached 41.9 billion cubic meters, indicating that the efficiency of the water transport and delivery network reached only 82% between the quantities available at Aswan and the quantities available in the fields because large quantities are lost during transport and delivery operations. Traditional irrigation methods (flood irrigation) are one of the main challenges facing the development and rationalization of water resources, as they contribute to increasing the salinity of old lands and deteriorating their quality. Accordingly, implementing the strategy of transitioning to modern irrigation methods may contribute to saving no less than ten billion cubic meters of water annually.

The Egyptian economy suffers from weak investment rates in the agricultural sector. If the situation continues as it is, it will be difficult to achieve the goals of the sustainable development strategy, Egypt Vision 2030, whether at the macro level or in the agricultural sector, as high and sustainable growth requires increasing the domestic savings rate to 30-35% of the GDP, while the savings rate of the GDP during the period (2009-2012) amounted to about (16%) on average annually, declining to (3.1%) in 2016/2017. The total investment rate implemented amounted to about (16%) of the GDP, and in the agricultural sector, the rate amounted to (5.6%) for the period (2002-2018). Although the agricultural sector is a private sector, private investment is still less than the required size due to the limited saving capacity of the rural population, which is due to their limited income on the one hand and the pattern of agricultural income distribution on the other. Table (6) shows the development of the volume of agricultural investments between the public and private sectors, as the data indicate that private agricultural investments are fluctuating, with a minimum of EGP 2.70 billion at current prices in 2012, representing 50.2% of total agricultural investments, with a growth rate of about (24.4%) in 2011-2012. It reached its maximum in 2018 at about EGP 16 billion, representing about (64%) of total agricultural investments amounting to EGP 24.987 billion in the same year, with a rate of (41.6%). As for agricultural investments in the public sector, they fluctuated from (2000-2018) with a minimum of (2.43) billion pounds at current prices in 2007, representing about (31.2%) of total agricultural investments with an annual growth rate of (-13.1%), while the maximum in 2018 reached about (8.987) billion pounds, representing about (35.97%) of total agricultural investments with an annual growth rate of (48.8%). We find that investments of a size commensurate with the ambitious goals included in the agricultural development plan were not approved, as the approved investments are related to agriculture and irrigation together.

P-ISSN 2518-5764
E-ISSN 2227-703X

Table 6: Development of the volume of agricultural investments in the public and private sectors (2000-2018)

Years	Agricultural investments at current prices			Agricultural investment growth rate			Agricultural investment ratio	
	Private	General	Total	Private	General	Total	Private to Total	General to Total
2000	40.021	3.213	8.134	-	-	-	49.4	39.5
2001	5.309	2.888	8.197	32	-10.1	0.8	64.8	35.2
2002	8.898	3.697	9.594	11.1	28	17	61.5	38.5
2003	3.183	3.220	6.403	-46	-12.9	-33.3	49.7	50.3
2004	4.00	3.559	7.559	25.7	10.5	18.1	52.9	47.1
2005	4.250	3.170	7.42	6.3	-10.9	-1.8	57.3	42.7
2006	5.244	2.800	8.044	23.4	-11.7	8.4	65.2	34.8
2007	5.358	2.434	7.791	2.2	-13.1	-3.1	68.8	31.2
2008	5.223	2.850	8.073	-2.5	17.1	3.6	64.7	35.5
2009	4.119	2.743	6.862	-21.1	-3.8	-15	60	40
2010	3.865	2.878	6.743	-6.2	4.9	-1.7	57.3	42.7
2011	3.558	3.276	6.834	-7.9	13.8	1.4	52.1	9.47
2012	2.698	2.672	5.371	-24.2	-18.4	-21.4	50.2	49.7
2013	5.434	2.950	8.384	101.4	10.4	56.1	64.8	35.2
2014	7.481	4.146	11.627	37.7	40.5	38.7	64.3	35.7
2015	8.201	5.213	13.414	9.6	25.7	15.4	61.1	38.9
2016	11.240	5.251	16.419	37.1	0.7	22.9	68.2	31.4
2017	11.300	6.039	17.339	0.5	15	5.1	65.2	34.8
2018	16.00	8.987	24.987	41.6	48.8	42.45	64.03	35.97
Average	6.13	3.65	9.78	14.16	7.08	8.09	62.7	37.3

Source: Ministry of Development, Planning and Follow-up website.

The problems of weak public investment are due to several reasons, including limited irrigation water and low efficiency of its use, lack of proper utilization of the capabilities of research agencies, weak agricultural extension apparatus, and weak agricultural financing systems, in addition to the challenges related to climate change and its direct and indirect effects on agricultural productivity related to (rainfall patterns, drought, floods, and the geographical redistribution of pests and diseases, and the huge amounts of carbon dioxide absorbed by the oceans cause acidification). Climate change has also affected temperatures in the warm region, causing most deciduous fruit trees and olives to fail to meet their cooling needs, leading to a decrease in olive productivity by more than (70%), and wheat productivity decreased from 40 to 50% in 2018. From the above, we find that the intensive use of pesticides in large quantities and the risks associated with decreased productivity because of climate change have weakened the product and its ability to withstand storage and transportation. Accordingly, the general trend of self-sufficiency rates warns of a weak possibility of implementing the strategic plan for agricultural development and achieving the goals set for 2030. The medium-term development plan achieved policies that included improving the agricultural investment climate, reviewing agricultural legislation and policies to ensure their consistency with other relevant policies, and expanding the provision of soft loans to smallholder farmers and young graduates.

P-ISSN 2518-5764
E-ISSN 2227-703X

5. Conclusion:

The agricultural development strategy set ambitious self-sufficiency goals, but actual production fell short. Wheat production was expected to achieve 73.9% to 80.8% self-sufficiency by 2023, yet it only reached 47%. Rice self-sufficiency was intended to remain at 105% in 2017 but declined to 65%, leading to increased imports. Similar gaps were seen in fish, red meat, and poultry production, where self-sufficiency rates were significantly lower than targets. These discrepancies highlight the challenges in achieving the strategy's goals, emphasizing the need for a strategic reassessment to match production with targets better.

The analysis of agricultural production relative to local consumption reveals a significant gap, leading to increased reliance on imports to meet domestic demand. This growing dependency on imports has driven up the cost of imports, contributing to a widening trade balance deficit, as influenced by fluctuations in the foreign exchange rate. Between 2000 and 2020, the trade balance deficit increased from 30 to 41 billion pounds, with the agricultural trade deficit rising from 20.28 to 30.65 billion pounds. Although there has been an increase in the export coverage rate of imports, this improvement is attributed to a rise in export values rather than a reduction in import costs. This situation underscores the need for strategies to enhance domestic agricultural production and reduce import dependency to stabilize the trade balance and mitigate the impact of foreign exchange rate fluctuations.

The agricultural sector, vital for food security and a key driver of economic development, has shown significant growth in output value, increasing from 52.7 to 668.7 billion pounds between 2000 and 2020. However, its contribution to the gross domestic product (GDP) has declined from 16.7% to 12.1% during the same period. Despite its importance, the sector needs help with declining productivity, failing to achieve self-sufficiency in most crops and food groups. This decline has increased reliance on imports, raising the country's food exposure and vulnerability. Addressing these challenges is crucial to enhancing agricultural productivity, boosting self-sufficiency, and strengthening the sector's contribution to GDP. Strategic interventions are needed to reverse the trend and ensure the agricultural sector can support broader economic growth and sustainability. The Egyptian agricultural sector faces significant challenges, including declining per capita cultivated land, urban encroachment, water inefficiencies, and inadequate investment. Despite some output growth, these issues hinder productivity and sustainability. Low investment rates, particularly in the private sector, fail to meet the sector's needs, threatening the goals of Egypt Vision 2030. Addressing these challenges through targeted investment and modernized practices is crucial for enhancing agricultural productivity, ensuring food security, and supporting long-term economic growth.

Authors Declaration:

Conflicts of Interest: None

-We Hereby Confirm That All The Figures and Tables In The Manuscript Are Mine and Ours. Besides, The Figures and Images, which are Not Mine, Have Been Permitted Republication and Attached to The Manuscript.

- Ethical Clearance: The Research Was Approved by The Local Ethical Committee in The University.

References:

Abdelmajid, S., Mukhtar, A., Baig, M. B., & Reed, M. R. (2021). Climate change, agricultural policy and food security in Morocco. *Emerging Challenges to Food Production and Security in Asia, Middle East, and Africa: Climate Risks and Resource Scarcity*, 171–196.

Ajay, K. S., Kumar, S., Ashraf, S. N., & Jyoti, B. (2022). Implications of Farmer's Adaptation Strategies to Climate Change in Agricultural Sector of Gujarat: Experience from Farm Level Data. *Research on World Agricultural Economy*, *3*(1), 42–57.

ALLEN, F., & OGBE, J. E. (2022). Agricultural Policy and Food Security in Nigeria: An Appraisal of the Ban on Rice Importation. *Conflict*, 34–45.

Al-Mahdi, A. , Sakar, O. , & Shafi'i, A. ,. (2021). Food Security Challenges in Egypt According to Agricultural Development Sustainable 2030. *Egyptian Journal of Agricultural Economics*, *31*(4), 1279–1298.

Al-Zubaidi, M. N. , & Al-Bayati, H. M. ,. (2018). The Agricultural Sector and Achieving Food Security in Iraq - Components and Challenges. *Journal of Management and Economics*, *7*(27), 189–208.

Ameen, F. A. (2024). Assessment of the Agricultural Policy of Wheat and Sugar Beet Crops under the Food Security Conditions In Egypt. *Alexandria Science Exchange Journal*, *45*(1), 31–55.

Ashour, A. L. A. K. (2024). The global food crisis and its impact on Iraqi food security. *Nasaq*, *41*(6).

Asirvatham, R., Demi, S. M., & Ezezika, O. (2022). Are sub-Saharan African national food and agriculture policies nutrition-sensitive? A case study of Ethiopia, Ghana, Malawi, Nigeria, and South Africa. *Agriculture & Food Security*, *11*(1), 60.

Baig, M. B., Straquadine, G. S., Qureshi, A. M., Hajiyev, A., & Abou Hadid, A. F. (2019). Sustainable agriculture and food security in Egypt: Implications for Innovations in agricultural Extension. *Climate Change, Food Security and Natural Resource Management: Regional Case Studies from Three Continents*, 103–131.

Bamoi, A. G. A., & Yilmaz, H. (2021). A multi-perspective analysis of agricultural policies in West Africa: policy strategies for rethinking sustainable agricultural development. *J. Global Innovat. Agri. Sci*, *9*(3), 115–125.

Barel-Shaked, S., & Buda, E. (2024). Exploring the nexus of agricultural policy reforms and food security. *Frontiers in Sustainable Food Systems*, *8*, 1366807.

Burkovska, A., Shebanina, O., Lunkina, T., & Burkovska, A. (2021). Ensuring food security in the context of the sustainable development of agriculture. *Management Theory and Studies for Rural Business and Infrastructure Development*, *43*(3), 337–345.

Eneh, O. C. (2021). Nagging Food Insecurity Amidst Numerous Public Agricultural Policies, Strategies, Programmes and Projects in Nigeria: Identifying and Fixing the Key Issues. *International Journal of Environment, Agriculture and Biotechnology*, *6*(4), 103–112.

Garbero, A., & Jäckering, L. (2021). The potential of agricultural programs for improving food security: A multi-country perspective. *Global Food Security*, *29*, 100529.

harbi Ibrahim, I., & Said, Y. H. (2023). Food security policy in Iraq and the challenges of response after 2003. *Tikrit Journal For Political Science*, *3*(pic4), 287–314.

Heyl, K., Döring, T., Garske, B., Stubenrauch, J., & Ekardt, F. (2021). The Common Agricultural Policy beyond 2020: A critical review in light of global environmental goals. *Review of European, Comparative & International Environmental Law*, *30*(1), 95–106.

Kamel, I. M., & El Bilali, H. (2022). Agri-Food Sustainability and Food Security in Egypt. In *Sustainable Agriculture and Food Security* (pp. 443–458). Springer.

Keshavarz, M., & Karami, E. (2014). Farmers' decision-making process under drought. *Journal of Arid Environments*, *108*, 43–56.

Mohammed, O. H. ,. (2024). *Agricultural economics and agricultural policy* (1st ed). College of Administration and Economics.

Mutua, K., & Goda, P. (2021). Multidimensional assessment of European agricultural sector adaptation to climate change. *Studies in Agricultural Economics*, *123*(1), 8–22.

Mwangi, L. (2023). Impact of Climate Change on Agricultural Food Production. *International Journal of Agriculture*, *8*(2), 1–10.

Osiyale, B. O., & Audu, J. K. (2022). Agricultural Policies and Food Security in Lagos State, Nigeria: A Historical Approach. *LAPAI JOURNAL OF NIGERIA HISTORY*, *14*(1), 34–51.

Sarma, H. H., Paul, A., Kakoti, M., Talukdar, N., & Hazarika, P. (2024). Climate resilient agricultural strategies for enhanced sustainability and food security: A review. *Plant Archives*, *24*(1), 787–792.

Setiartiti, L. (2021). Critical point of view: The challenges of agricultural sector on governance and food security in Indonesia. *E3S Web of Conferences*, *232*, 01034.

Shaibu, U. M., Umeh, J. C., Abu, G. A., Abu, O., & Egyir, I. S. (2023). Econometric modeling of the nexus of agricultural policy and food security in Nigeria: A dummy variable regression approach. *African Journal of Food, Agriculture, Nutrition and Development*, *23*(6), 23763–23785.

Shiferaw, B., Tesfaye, K., Kassie, M., Abate, T., Prasanna, B. M., & Menkir, A. (2014). Managing vulnerability to drought and enhancing livelihood resilience in sub-Saharan Africa: Technological, institutional and policy options. *Weather and Climate Extremes*, *3*, 67–79.

Sultan, W. , Ali, A. , & Sultan, M. ,. (2019). An analytical study of the reality of agricultural policies and their role in the growth of agricultural output under current circumstances. *Rafidain Agriculture Journal*, *47*(2), 33–39.

Țenea, L. (2021). Reforms of the Common Agricultural Policy-From Ensuring Food Security to Rural Development. *Annals of'Constantin Brancusi'University of Targu-Jiu. Economy Series*,*(4)*.

Toledo, L., Salmoral, G., & Viteri-Salazar, O. (2023). Rethinking Agricultural Policy in Ecuador (1960–2020): Analysis Based on the Water–Energy–Food Security Nexus. *Sustainability*, *15*(17), 12850.

Youssef, A. M. A. E. R. (2023). An Analysis of Food Security with New Agricultural Policies in Egypt. *American Journal of Environmental and Resource Economics*, *8*(1), 67–75.

Zandalinas, S. I., Fritschi, F. B., & Mittler, R. (2021). Global warming, climate change, and environmental pollution: recipe for a multifactorial stress combination disaster. *Trends in Plant Science*, *26*(6), 588–599.

Zidan, A., ALhasoon, A., & Seddik, Z. (2023). The impact of agricultural policies in achieving food security, wheat and rice crops in Egypt and Morocco for the period (1995-2020). *Euphrates Journal of Agricultural Science*, *15*(3), 101–132.