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Evaluation of the reality of the degree of manufacturing in the Iraqi industrial sector - challenges and solutions

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Abstract

This study seeks to evaluate the degree of industrialization in the Iraqi industrial sector, by studying the various effects of the degree of industrialization on the number of jobs, production value, value of supplies, added value, and sales value in Iraqi industries. This will help identify the most important challenges facing this vital sector, and develop solutions and proposals that serve the goal of this study and society at the same time. To achieve this goal, the data obtained from the Iraqi Ministry of Planning - Central Industrial Statistics Department, for the years 2020 - 2021 - 2022, were evaluated and analyzed. In light of the results of the quantitative analysis of the indicators of the Iraqi industrial sector, it was found that the percentage of the degree of industrialization is 54%, and this percentage is very limited because most of the products provided by this sector are consumer and do not cover the market's needs, which facilitates the entry of competitors into the Iraqi market. This is due to many problems that the sector suffers from, perhaps the most important of which are weak financing, deterioration of infrastructure, weak marketing strategies, weak stimulation of local production, which made the contribution of this sector to the gross domestic product of large manufacturing industries less than 5% only.

Keywords: Degree of industrialization, Iraqi industrial sector, production value

Introduction

The industrial sector leads other sectors in achieving economic development for most countries, and thus it has become believed that the path to economic development passes through the manufacturing process and in the direction that is consistent with the nature and abundance of productive resources (Jassim and Zahwa, 2014) ^[16]. It is known that Iraq possesses enormous natural resources, and if these resources are exploited properly, this country will be at the forefront of industrial countries, and this will be reflected in the gross domestic product by improving the balance of payments (Directorate of Industrial Statistics, Iraqi, 2022). Iraq is considered one of the countries rich in various resources in the world, which makes it have great opportunities to develop its industrial sector. However, wars, internal conflicts, and political and economic fluctuations have greatly affected the industrial infrastructure and hindered manufacturing processes, as levels of productivity and industrial competitiveness have declined, which necessitated a comprehensive and accurate assessment of the current reality of the industrial sector (World Bank, 2022) ^[15]. These challenges have led to a decline in productivity rates, as nearly 70% of public sector companies operate at about 30-50% of their capacity, in addition to a decline in the level of quality of production and services as a result of weak adherence to standard specifications for production. In addition, the weakness of the industrial sector has contributed significantly to increasing unemployment rates, as the total workforce in this sector (public, mixed, private) is estimated at about 500,000 workers, which is a small number compared to the number of people in the country, which is more than 40 million individuals, but 30% of companies are out of work, which has made this number of workers a surplus of 33%, and 40% of government companies are companies losing and disbursing workers' salaries from the Ministry of Finance's grants. In light of the aforementioned challenges and facts about the Iraqi industrial sector, the contribution of this sector to the gross domestic product of large manufacturing industries is less than 5%, while the contribution of the extractive industry to the GDP is about 95% because the country's economy is rentier and depends on oil and its associated resources. In this context, evaluating the reality of the degree of industrialization in the Iraqi

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industrial sector is of great importance, given the multiple challenges that this sector has faced over the past decades, in order to provide effective solutions to develop the Iraqi industrial sector.

Previous Studies

The study (Al-Bayati, 2017) ^[6] aims to evaluate the impact of the pharmaceutical industry on the value of industrial production in Iraq. This study revealed that the Iraqi pharmaceutical industries face many challenges, including (productivity, administrative, marketing, financial, technical, competitive) in light of weak government support, which made these industries cover 35% of the needs of the Iraqi people.

The study (Al-Shammari and Al-Sharmani, 2021) ^[10] that focused on the reality of small industries in Iraq, showed that the numerical indicators (number of establishments, number of workers) had a general trend indicating a decline due to the circumstances after 2003, while the value indicators (wages and benefits, value of production and its requirements) indicated any increase due to the rise in wages, the rise in the level of prices and inflation. By applying the main industrial performance efficiency standards to small industries, the results that were reached were achieving an increase in each of the total added value, labor productivity, wage rate and added value, while achieving a decrease in the degree of manufacturing during the period studied.

Study (Zhou) The research was interested in studying the industrial sector in Salah al-Din Governorate, and comparing it with the rest of the Iraqi governorates, as the research aims to identify the reality of the industrial sector in Salah al-Din Governorate through indicators of the number of workers, the number of establishments, the value of production and the degree of manufacturing, and the research concluded that the industrial sector in Salah al-Din Governorate did not rise to the level of the Iraqi governorates, and the governorate occupied low ranks among the Iraqi governorates, as a result of the weak activation of the role of oversight and control to ensure the progress and growth of the industrial sector in the governorate away from tampering with the quality of the product and prices.

Study (Ubaid, 2024) ^[12] The study dealt with analyzing the trends of industrial efficiency of public sector industries in Iraq, and the research relied on quantitative statistical methods and means, namely: (number of workers - production value - value of production requirements - wages and salaries - added value), and the study reached the application of efficiency standards according to the type of industry, as the chemical industry, the pharmaceutical and pharmaceutical products industry, and the motor vehicle industry came at the forefront of the classification, while the

food industries, the leather products industry, and the rubber and plastics industry came at the end of the classification.

Study Methodology

Study Problem: The Iraqi industrial sector suffers from many challenges, the most important of which are (weak financing, weak infrastructure, mismanagement and corruption, ineffective marketing, departure of engineering and technical expertise to work outside Iraq, reliance on imports instead of local production, etc.). These challenges have cast their shadows on the individuals of Iraqi society, making this society a consumer rather than a producer, in addition to the high level of unemployment that has increased the rate of poverty and hunger. To address these challenges and address them, it is necessary to evaluate and measure the level of industrialization in the Iraqi industrial sector, because accurate evaluation and analysis of the level of industrialization enables any company to identify strengths and weaknesses in infrastructure, technology, and production efficiency and eliminate unemployment, in addition to its important role in improving the level of product quality because it determines and complies with standard criteria in production, in addition to its major role in supporting innovation processes in the industrial sector in a way that achieves sustainable growth, and also helps direct investments more effectively. To benefit from the results of this study in solving its problem, the following question was raised: How does the level of industrialization contribute to the development of the Iraqi industrial sector?

Study Objective: The main objective of the study is to evaluate the level of industrialization in the Iraqi industrial sector, and this objective helps us to identify the most important challenges facing this sector that were mentioned in the study problem, and to address or confront these challenges by providing a set of solutions based on the results of the study.

Study Hypotheses: The study is based on the following hypotheses:

There is an impact of the value of supplies on the degree of industrialization in the industrial sector.

There is an impact of the value of production on the degree of industrialization in Iraqi industries.

Indicators used to measure the level of industrialization

Table (1) shows the most important indicators used to measure the results of the economic activity of large companies in Iraq, and we will rely on these indicators to measure the degree of industrialization in order to identify the level of development or backwardness in the Iraqi industrial sector.

Table 1: Indicators used to measure the results of the economic activity of large companies in Iraq

Indicator	The Definition	Measurement	Source
Worker productivity	It is considered one of the most important and most widely used criteria used to measure performance efficiency, and an indicator for calculating production efficiency	Production value/number of employees	Noman, 2021 ^[1]
Wage rate	It represents the costs incurred by the company to pay employees' fixed and variable wages, and represents a large percentage of production costs	Wages/number of employees	Noman, 2021 ^[1]
Production value	It is the value of units that are produced from production processes during a certain period of time	The value of commodity production + the value of non-commodity production	Abdul, 2019 ^[1]
Value of supplies	It is sometimes expressed as a value for inputs, and it	The total value of raw materials (raw	Abdul, 2019 ^[1]

	represents all costs of industrial production (inputs) during a certain period of time	materials) + the total value of packaging materials + the total value of other commodity supplies + the value of service supplies	
Value Added	It is the actual value added by the economic unit or the real output of the factory	Production value - input value	Al-Awadi, 2016 [4]
Sales value	It refers to the total revenues achieved by a company or institution from the sale of its products or services during a certain period of time, and is considered an important indicator of financial performance and commercial success.	Number of units sold * Selling price per unit.	Khader et al., 2023 [9]
rate of change	It is the amount of difference in the productivity of a given year relative to the productivity of the base year	Productivity for a specific year – Base year productivity/Base year productivity	Al-Najjar and Mohsen, 2023 [3]
Manufacturing degree	The percentage contribution of the total value of supplies compared to the total value of production	Supplies value / Production value* 100	Directorate of Industrial Statistics, Iraq, 2023

Challenges facing the Iraqi industrial sector: Although Iraq has huge amounts of natural, human and material resources, the industrial sector in Iraq faces many challenges, the most important of which are (Zhou et al., 2021):

1. Unstable electricity services, which negatively affects the sustainability of the industrial sector in its various forms.
2. High prices of fuel for operating factory machines.
3. Weak government funding for companies in the public and private sectors, as well as limited bank loans for these sectors. In this case, companies cannot import modern production lines, which makes the industrial sector largely backward.
4. Lack of control over the quality of local products, which leads to easy entry into the Iraqi market by competitors.
5. Weak infrastructure due to war and government neglect, which has a negative impact on the volume of production in the country, and this will make Iraq import most products from abroad.
6. Low worker productivity due to the lack of productive companies that absorb the increase in the employment of workers.

Analysis of the results of the Iraqi industrial sector by sector type for the year 2022: Table (2) shows the number of establishments in the public, private and mixed sectors, as well as the value of production, supplies, sales and added value. We will analyze each indicator separately from the other as follows:

Sector type: The number of large companies in the private sector is 793, representing 93% of the total number of other companies. Thus, the private sector constitutes the largest percentage, followed by the public sector with 53 companies and a percentage of 6.2%, and the mixed sector ranked last with a percentage of 0.008. This indicates the private sector's control over industrial activity in Iraq.

Number of employees: The public sector has the largest number of employees, as their number reached 84,449

thousand workers and a percentage of 68% of the total number of employees, followed by the private sector with 38,893 workers and a percentage of 31.3%, while the number of employees was 814 workers and a percentage of 0.007, which indicates that the public sector occupies a large percentage of the workforce in the industry.

Workers' wages: The total wages paid to workers in the industrial sector amounted to (1,478,000,000) billion, and the largest share was for the public sector with an amount of (1,207,000,000) billion. We also note that the cost of wages in the private sector came in second place with an amount of (266,000,000) million. It is interesting that the cost of wages in the mixed sector is very low (5,000,000) million, which indicates the existence of high wages in the public sector.

Production and requirements value: The public sector have the highest production cost at (6,118,000,000) billion, and the highest requirements value at (3,618,000,000) billion, while the private sector came second in terms of production value at (5,889,000,000) billion, as well as in terms of requirements value at (2,861,000,000) billion. The mixed sector ranked last in terms of production and requirements value. These amounts indicate that the public sector has a large volume of production operations, which reflects a great reliance on resources and raw materials in the public sector.

Sales value and added value: The mixed sector's sales value and added value are very low, which made it third in the ranking of other sectors, i.e. last place, while the public sector ranked second, as the sales value amounted to (5,616,000,000) billion, and its added value (2,500,000,000) billion, while the private sector won first place with sales value (5,694,000,000) billion, and added value (3,028,000,000) billion, which indicates the effectiveness of the private sector in marketing its products.

Based on analyzing these results, it became clear that the private sector is the most dominant in terms of the number of establishments, sales and added value, while the public sector employs the largest percentage of workers and bears the highest cost of production and supplies, while the mixed sector came in last place according to all indicators.

Table 2: Results of the Iraqi industrial sector by sector type for the year 2022

Indicators	General	Private	Mixed	Total
Number of establishments	53	793	6	852
Number of employees	84,449	38,893	814	124,156
Wage cost	1,207,000,000	266,000,000	5,000,000	1,478,000,000
Production cost	6,118,000,000	5,889,000,000	3,000,000,000	12,009,000,000
Cost of supplies	3,618,000,000	2,861,000,000	2,000,000,000	6,480,000,000
Sales value	5,616,000,000	5,694,000,000	3,000,000,000	11,313,000,000
Value Added	2,500,000,000	3,028,000,000	1,000,000,000	5,529,000,000

Worker Productivity Analysis: Table (3) indicates the results of the general index of wages and productivity of workers in the Iraqi industrial sector, as shown below:

1. In 2020-2021, worker productivity increased by 26.8%, which led to an increase in the rate of productivity change by 36.2%, which means that there is an improvement in production efficiency, or an increase in investment in technology and training.
2. Worker Productivity and Added Value: The rate of change increased by 47.4% in 2022 compared to last

year, which shows a significant increase in efficiency or improvements in production processes and added value.

3. Productivity and Wages: In 2022, the rate of change in wages became 55.5%, which means that there is a noticeable improvement in how to achieve productivity from wages, or employ new human resources.
4. Average wages per worker: The average wage rate decreased to 12.5% in 2022, which is due to the restructuring of wages.

Table 3: Results of the General Index of Wages and Productivity of Workers in the Iraqi Industrial Sector

Indicators	2020	2021	2022	Percentage of change
Worker productivity in production (million dinars)	55,990,000	71,020,000	96,730,000	36.2%
Worker productivity from value added (million dinars)	25,600,000	34,660,000	51,120,000	47.4%
Dinar productivity of wages	4.8	5.6	8.71	55.5%
Average annual worker wage (million dinars)	11,700,000	12,700,000	11,110,000	12.5% -

General analysis of the Iraqi industrial sector: In this paragraph, we analyze the data obtained from the Iraqi Ministry of Planning on the industrial sector in Iraq over the past three years (2020, 2021, 2022), shown in Table (4) as follows:

1. Number of companies: In 2020, the number was 682 companies, and in 2021 the number rose to 781 companies, while in 2022 the number became 852 companies, with a change rate of 9%. The increase in the number of large industrial companies indicates growth in the industrial sector and an increase in investments or expansion, but it is limited.
2. Number of workers: The number of workers increased in 2022 to (124,156) thousand workers, with a change rate of 7% from the previous year, which is the highest number of other years, and this indicates growth in production and employment in the industrial sector.
3. Wage value: The value of wages in the years 2020 - 2021 - 2022 respectively (1,313,000,000) (1,467,000,000) (1,478,000,000) billion, with a change rate of 0.7%. This increase in the value of wages and incentives reflects an increase in labor costs and perhaps an increase in productivity as well.
4. Production cost: The change rate for the cost of production for the year 2022 increased by 46%, as the cost this year amounted to an amount of (12,009,000,000) billion Iraqi dinars, indicating an increase in operational costs and raw materials compared to other years.
5. Value of supplies: The value of supplies for the year 2021 amounted to (4,213,000,000) billion, and in 2022 the value of supplies amounted to (6,480,000,000)

billion, and the increase in the amount made the change rate rise to 54% over 2021, which reflects an increase in the prices of raw materials and supplies needed for production.

6. Value of sales: The results indicate that the value of sales for the year 2020 was (5,781,000,000) billion, and for the year 2021 (7,644,000,000) billion, while the highest value was for 2022 with an amount of (11,313,000,000) billion, this result indicates growth in business volume and an increase in revenues.
7. Added value: The year 2022 recorded the highest added value, amounting to (5,529,000,000) billion, which is greater than the added values for the years 2020 and 2021, which means that the percentage of change increased to 38%. These results show that there is a tangible development in productivity and the value added by the industrial sector to the economy.
8. Industrialization degree: The industrialization degree for 2020 reached 54%, which is equal to the industrialization degree for the year 2020, while in 2021 the industrialization degree decreased to 51%. The percentage of change in the industrialization degree for the period 2021-2022 amounted to 6%. This increase in the industrialization degree reflects an increase in industrial production as a percentage of the general economy.

It can be said that the industrial sector in Iraq faces major challenges in terms of high costs, but it continues to witness weak growth that contributes in a limited way to the general economy through an increase in productivity and added value.

Table 4: Results of the general index of large industrial establishments operating in Iraq

Indicators	2020	2021	2022	Percentage change 21/22
Number of large industrial facilities	682	781	852	9%
Number of employees	112.414	115.869	124.156	7%
Value of wages and incentives (billion dinars)	1,313,000,000	1,467,000,000	1,478,000,000	0.7 %
Production cost (billion dinars)	6,294,000,000	8,229,000,000	12,009,000,000	46%
Cost of supplies (billion dinars)	3,416,000,000	4,213,000,000	6,480,000,000	54%
Sales value (billion dinars)	5,781,000,000	7,644,000,000	11,313,000,000	48%
Value added (billion dinars)	2,878,000,000	4,016,000,000	5,529,000,000	38 %
Manufacturing degree	% 54	%51	%54	6%

Chart 1 shows the changes in the degree of industrialization in the Iraqi industrial sector during the past three years (2020, 2021, 2022). In 2020, the degree of industrialization was 54%, then it declined to 51% in 2021, then returned in 2022 to rise to 54%, indicating the industrial sector regaining part of its activity and an improvement in the

volume of industrial production for the Iraqi economy. The chart shows fluctuations in the degree of industrialization during this specific period, with a slight improvement in industrial performance in 2022 compared to the previous year.

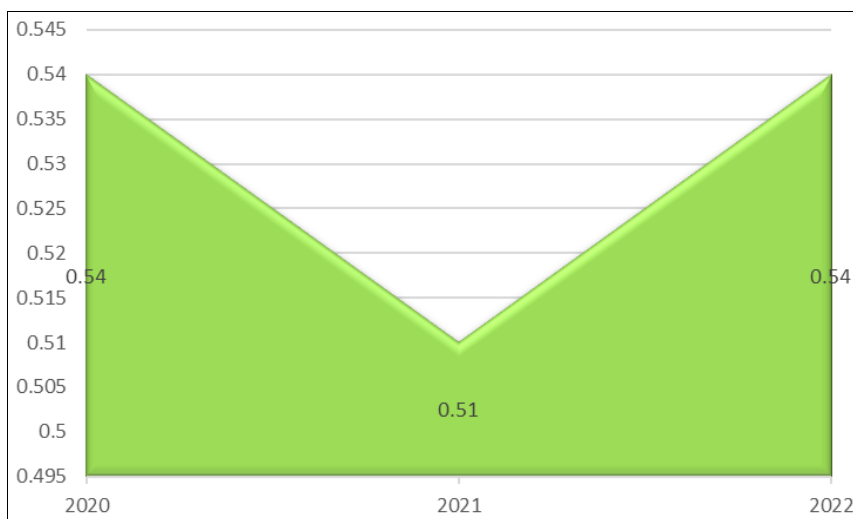


Fig 1: A chart showing the degree of industrialization in the Iraqi industrial sector

In light of Figure 1, it is necessary to compare the degree of industrialization between Iraq and neighboring countries (Iran, Turkey, Saudi Arabia, Kuwait, Jordan, and Syria), in order to know the size of the gap between Iraq and those countries, as the Iraqi non-oil industrial sectors (transformation) achieve an added value to the GDP at a rate ranging between 1-5% (Al-Dhamen, 2016) [2]. In Iran, the added value rate reached about 40% by mid-2023, while in Turkey, the added value rate for industry constituted 30%, while Saudi Arabia obtained 40% of the added value to the GDP from the industrial sector, while Kuwait achieved about 50%, while Jordan’s percentage of the added value for

industry was about 20% (<https://www.iaea.org>) (<https://www.imf.org>), and Syria was excluded due to the war. Accordingly, Iraq needs to develop non-oil industrial sectors to achieve economic balance and reduce dependence on oil. It is necessary to benefit from the successful experiences in neighboring countries such as Turkey, Iran, and Saudi Arabia to improve the industrial infrastructure and enhance investment in technology and advanced industries, as well as enhance policies that support innovation. Education and vocational training to enhance the industrial sector in Iraq.

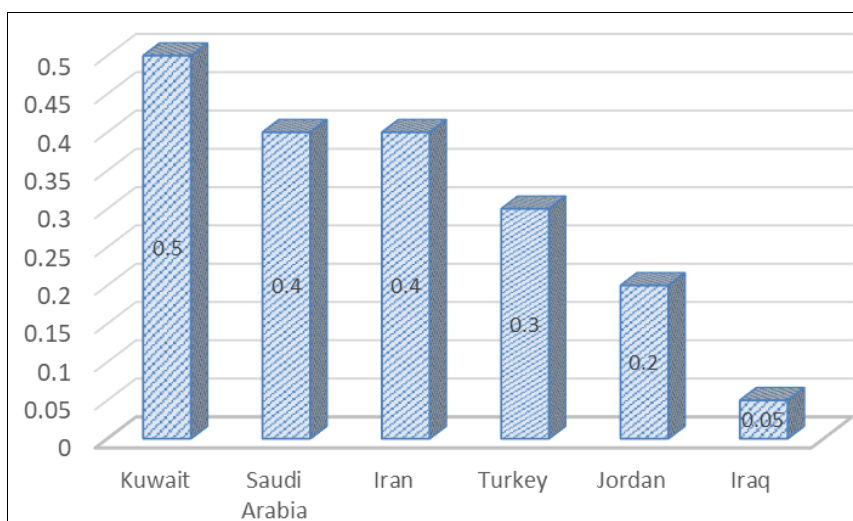


Fig 2: Comparison of the added value of countries neighboring Iraq

The administrative effects of the results of the Iraqi industrial sector and their treatment: Analysis of the results shows that the Iraqi industrial sector faces many challenges that have affected its competitiveness and productivity. Although the private sector controls a large number of establishments, sales and added value, the public

sector employs the largest percentage of workers and bears the highest cost of production and supplies. Worker productivity has also witnessed a significant increase, indicating an improvement in production efficiency or an increase in investment in technology and training. This increase in productivity reflects an improvement in the

quality of production processes, in addition to addressing the added value, as the added value has increased, indicating a tangible improvement in productivity and the value that the industrial sector adds to the economy. This improvement reflects the efforts made to increase production efficiency and improve the quality of products, in addition to discussing the volume or value of sales, and it was found that there is an increase in the value of sales, which means there is growth in the volume of business and an increase in revenues, which enhances the ability of companies to invest in improving and developing their production processes.

To enhance the degree of industrialization in the Iraqi industrial sector, focus must be placed on addressing the aforementioned challenges through comprehensive strategies aimed at improving infrastructure, enhancing financing, combating corruption, developing effective marketing strategies, focusing on local competencies, supporting local production, and increasing the use of technology to improve productivity to enhance productivity and added value, as activating these solutions will contribute to enhancing the sustainable growth of the industrial sector and increase its contribution to the Iraqi economy.

Discussion of the results

The study discussed many indicators of the degree of industrialization of the Iraqi industrial sector, and it was found that there is a significant weakness in this important sector in terms of the number of companies, the number of workers, the value of sales, and the added value, which made the contribution of this sector to the GDP less than 5% and the rest depends on the oil industries, as the private sector controls the industrial activity in Iraq. The study also discussed that the public sector employs a large percentage of the workforce in the industry, as this sector provides higher total wages than other sectors, while the value of the requirements was also the share of the public sector, which reflects a great dependence on resources and raw materials in the public sector, and with regard to the added value, the private sector won first place, which indicates the effectiveness of the private sector in marketing its products. Regarding worker productivity, worker productivity increased to 36% in 2022, in addition to worker productivity and added value increasing by 47.4% in 2022, while the productivity and wage index increased in 2022, the wage rate increased to 55.5%, while the average wage rate decreased to 12.5% in 2022, due to the restructuring of wages.

The industrialization rate for 2020 reached 54%, which is equal to the industrialization rate for 2020, while in 2021 the industrialization rate decreased to 51%, the change rate in the industrialization rate for the period 2021-2022 amounted to 6%, this increase in the industrialization rate reflects an increase in industrial production as a percentage of the general economy, it can be said that the industrial sector in Iraq faces major challenges in terms of high costs, but it continues to witness weak growth that contributes in a limited way to the general economy through an increase in productivity and added value.

Based on these challenges, we propose the following solutions: 1- Work on improving the infrastructure of all formations of this sector by preparing investment plans by the government or the private sector to meet the local market's need for products required by society, 2- The necessity of establishing a special fund to finance the

industrial sector, which is undertaken by the Ministries of Industry, Planning and Finance, or loans from internal and external parties to support the industrial sector, 3- Activate the role of regulatory bodies to prevent corruption of all kinds, 4- Develop comprehensive marketing strategies aimed at enhancing the presence of Iraqi products in local and international markets, and improving the quality of products to meet international standards, 5- Improve working conditions and wages in the industrial sector to attract and retain competencies, and provide continuous training and professional development programs, 6- Strengthen local production through policies to support and stimulate national industries, and impose restrictions on the import of products that can be manufactured locally.

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