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Analysis and Measurement of Investment in The Industrial Sector and Its Impact on Unemployment in Iraq for The Period (2004-2022)

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Abstract:

The study scrutinizes the influence that industrial investment has on unemployment rates in Iraq during the years ranging from 2004 to 2022. Employing the ARDL econometric model, the study analyzes and interprets the net as well as foreign investments and their concomitant relationship with unemployment. The findings reveal a significant and direct qualitative relationship between investment in the industrial sector and unemployment, showing that increased investment in this sector will, indeed, decrease the unemployment level. This has managed to emphasize the importance of an industrial sector in the absorption of surplus labor and contributions to gross domestic product (GDP). Further, by establishing a local industry that meets national demand of goods and services, investment in the industrial sector will have an alternative to imports and be able to stabilize the economy while improving growth. The latter includes the standpoint that efficient public spending would, therefore, be maximized by the industrial sector in terms of economic development and employment. Also, the study will emphasize how a stable investment environment can thus be used to attract local and foreign investments by having political, economic, and social stability. The results also show that bureaucracy clearing, enhancement of physical infrastructure, and legal guarantees and incentives form an important list of things that encourage a conducive investment environment. Overall, the study gives an insight to contribute better understanding on how those strategic investments in the industrial sector can serve to reduce upfront unemployment and yet foster sustainable economic growth in Iraq. This study offers significant insights to many policy makers in terms of maximizing the effectiveness of public spending and investment in achieving long-term economic objectives.

Keywords: Unemployment, investment, Industrial Sector, Gross Domestic Product (GDP), ARDL Model.

1. Introduction:

Investment in general and Investment in the industrial sector in particular depend on an environment characterized by political economic and social stability(Hassan & Al-Birmani, 2024),Through a set of economic institutions and policies, in addition to legislation and laws that affect investor confidence and convince him to direct his investments in a specific country(Yahya & Salman, 2024) and not invest in another countryMost of the political situations in the country and its stability or instability(Ghanawi & Al-Kubaisi, 2024), in addition to the economic situations, are affected by the availability of production elements and the infrastructure that has been established in the country(Khudari et al., 2021), Investment in the industrial sector is considered one of the important sources of financing development and increasing employment rates, alleviating the unemployment problem(Musa & Maijama'a, 2020), This thing made most countries of the world, with their different orientations, strive to achieve it (Investment), Unemployment(Abu, 2019), in its various forms, is considered one of the most important economic and social problems that most developing countries suffer from, as well as developed countries(Wang & Li, 2021), with differences in causes, results, and treatment, No country in the world can achieve full employment for all members of societ(Shamkhi et al., 2022), The causes of the unemployment problem are partly internal and partly external(Jss Alper, 2018), but the most important of these causes are the high rates of lack of education, the low educational and health levels(Al-Rubay, 2021), training programs, and weak economic activity, in addition to the inability of the national economy to employ the largest possible number of national workers. In addition, the instability of the political situation and contradictions in programs led to the inability to manage the national economy(Amiri, 2022); Iraq has sought and continues to seek to advance the country's economy and prepare and provide the necessary financing for infrastructure projects by taking advantage of global capital. However, interest in the investment environment is still weak.The public sector dominates economic activity despite promoting the market economy mechanism (Hassan Al-Azzawi, 2020); the investment environment must be characterized by several incentives that help attract investments at the local and foreign levels. Macroeconomic indicators must reflect a state of financial and monetary stability with an increasing level of economic growth, in addition to the presence of a legal legislation that provides the necessary privileges and guarantees for local and foreign Investment (Hesse & Poghosyan, 2016) , The lack of flexibility of government institutions, bureaucracy, administrative centralization, and the absence of a single window, in addition to the fact that Iraq, under the policies of global trade openness(Al-tamimi, 2022), was unable to achieve many accomplishments, as these policies led to a reduction in investment growth in the industrial sector due to heavy reliance on imports, which caused very bad repercussions on the productive sectors, especially the industrial sector, economic performance(Mohi, 2022), and the inability of the economy to absorb the surplus labor force, These factors negatively affected Iraq's position in international indicators of the investment environment (ease of doing business index/global competitiveness index/corruption perceptions index...etc.)(Mujbil & Obaid, 2023), as Iraq occupied late positions in most of these indicators, which led as a result to weak Investment in industry in Iraq at the level of productive sectors(Achdut & Refaeli, 2020), especially the industrial sector during the study period (2004-2022), which had a negative impact on absorbing the surplus labor force, which was reflected in the increase in unemployment rates apparent and disguised unemployment Therefore(Esmaee & Ibrahim, 2022), economic policies, including their financial, monetary and commercial branches, must be reconsidered and a state of coordination between them must be created by focusing on the data of economic theory that is appropriate to the reality of the Iraqi economy and its real potential(B. Mohammed, 2022).

Despite the distinction of the Iraqi economy through the presence of natural and material resources, it suffers from the problem of unemployment, which has caused many economic problems(Abid, 2019), most notably the great waste of human energies in employment and production, in addition to the social problems represented by deteriorating income levels, in addition to the increasing phenomenon of deprivation (Abd Ulkareem A & Darub Kassar Al Hiyali, 2023), which requires standing at this phenomenon, analyzing it and knowing its real causes Investment plays an important role in addressing the unemployment problem that the Iraqi economy suffers from and contributes to restoring work to many vital sectors, the most important of which is the industrial sector, whose success depends on the success of investment projects that are expected to contribute to improving the economic and living conditions(B. et al., 2022). Let us talk about the importance of Investment in addressing unemployment. We notice that the government has been unable to absorb the many unemployed people and employ them in the government sector and state departments. Therefore, the role of Investment (Yaqoub & Abdul_Hussein, 2022), both local and foreign, emerges as an ideal solution through its contribution to absorbing large numbers of the workforce(Abd Ulkareem A & Darub Kassar Al Hiyali, 2023), especially among the youth, It is necessary to point out the necessity of benefiting from Investment in developing the industrial sector because it contributes to providing job opportunities through strategic projects that contribute to diversifying sources of income and not being satisfied with developing the oil sector and relying on oil revenues as the sole resource for the country, which is often exposed to fluctuations due to price shocks(Rahim et al., 2020), The seriousness of the unemployment phenomenon in Iraq is highlighted by the fact that these rates are constantly increasing, and this is considered a waste of human resources, which results in negative economic effects. This problem becomes more serious when the young age group constitutes high rates within the limits of the unemployed.

2. Literature Review and Hypothesis Development:

The importance of this study comes from its focus on the phenomenon of unemployment as a problem rooted in the reality of the Iraqi economy. The study, with its analytical aspect, reached the possibility of reducing this problem through the investment spending policy that contributes to supporting the non-oil productive sectors, which in turn increases the employment rates of the workforce and reduces unemployment rates. (Baker, 2020) This study's recommendations include diversifying(Sabr et al., 2021) the production base through Investment in the industrial sector and not relying on oil as the sole resource in the Iraqi economy. The importance of this research is evident from the topic it addressed in Iraq for years (2017-2021). which is the impact of changes in oil prices on the GDP. This study recommends directing part of the oil revenues toward supporting the productive sectors through Investment. (Jassim, 2021). This study learned the importance of public spending, especially in the investment aspect, on the investment process in Iraq for the duration (2004-2019). This research highlights its importance by stating the role of investment spending in developing non-oil productive sectors, especially the industrial sector, which contributes to increasing the gross domestic product and reducing unemployment rates. (Hamad et al., 2022). This study addressed the Iraqi economy and the reality of unemployment. The study aimed to identify the causes and results of unemployment during the study period. The study concluded that unemployment in all its forms greatly affects the living standards of the workforce through its impact on real income, which leads to weak purchasing power and a low level of consumption, which leads to a loss for the national economy in addition to the waste of human resources, especially those that enjoy a large stock of human capital.(Al-Yasiri & Al-Yasiri, 2022) .

This research aims to use econometrics quantitative analysis to identify the impact of private sector investment in the manufacturing industry on economic growth and unemployment during the research period (2004-2021). The research concluded that manufacturing and GDP are mutually integrated.(Abd Ulkareem A & Darub Kassar Al Hiyali, 2023) This study examines the effects of economic factors (GDP, inflation, population growth, and public expenditures) on Iraq's unemployment (1991-2020). Research recommends reducing inflation and population growth rates and increasing public expenditures and GDP to reduce unemployment rates. (Ali & Ahmed, 2023)

3. Methodology :

3.1 Sample:

In this study, the researchers followed the inductive approach to prove or disprove the hypothesis under investigation, as the general theoretical aspects of both Investment in the industrial sector and unemployment in Iraq were addressed, and then the results were drawn after using statistical data and quantitative measurement

3.2 Research Tools:

The researchers adopted the Econometrics approach using statistical data and the ARDL model to measure the relationship to reach the type of relationship between the research variables, in addition to adopting the descriptive analytical approach for the economic analysis of the study variables during the period (2004-2022)

3.3 Data Analysis Tools:

The study relied on the quantitative approach by using the Econometrics model to show the impact of Investment in the industrial sector as an influential variable on unemployment as a dependent variable to prove the validity of what the study contained or not during the study period.

4. Results:

4.1 Evaluation of the investment environment in Iraq according to international indicators of the investment environment:

Many international organizations help investors and decision-makers by providing them with digital information that helps them make investment decisions. They prepare and set up a set of indicators that can help them know the conditions of each country. Many studies have shown the importance of these indicators, in addition to the existence of a strong link between the ranking of each country within these indicators and the investments it attracts.

4.1.1 Ease of Doing Business Index:

The Ease of Doing Business Index, which was issued in 2004 by the World Bank Group and the International Finance Corporation, is one of the most important indicators that are viewed as a guiding tool in assessing the effectiveness of laws and procedures related to doing business in the process of economic development in the world and helps to make comparisons between them. This index consists of 10 sub-indicators. Table 1 shows the sub-indicators of the Ease of Doing Business Index in Iraq for the period (2008-2018), as it is clear from the partial improvement in the business environment conditions. Especially about starting a business project, in which there was a ten-rank advance globally, as there was progress in the licensing index, as Iraq moved from the rank of (104) in (2008) to (93) in (2018). As for the property registration index, Iraq ranked 40 in 2008 compared to 101 in 2018. It is noted that the credit access index has declined significantly, as it ranked 186 in 2018, while it ranked 135 in 2008. Although Iraq has progressed in the contract enforcement index, its ranking in the investor protection and cross-border trade indices has deteriorated, ranking 124 and 179. Based on the previous analysis of the ease of doing business index in Iraq, economic policymakers and those interested in addressing procedures related to business activities must pay much attention to procedures related to settling insolvency cases, in addition to reforms in the field of banking credit, which is considered one of the basic pillars in establishing investment projects and financing them in the expansion and operational aspects.

Tabe1: Ranking of the sub-indicators of the Ease of Doing Business Index in Iraq for the years (2018-2008)

Sub-indicator	Scientific ranking		Sub-indicator	Scientific ranking	
	2008	2018		2008	2018
Project start	164	154	Investor protection	107	124
Extracting building permits	104	93	Pay taxes	37	129
get electricity	-	116	Contract execution	130	144
Property registration	40	101	Cross-border trade	175	179
Get credit	135	186	Settlement of insolvency cases	-	168

Source: world bank group, doing business (2018), reforming to create jobs, the edition Washington, (2018), p (168).

Table (2) shows that Iraq was not ranked in this index in 2004. It entered its ranking for the first time in 2005, when it was ranked 114 out of 155 countries, then fell to 145 in 2006 out of 175 countries included in the index. It then fell to 146th in 2007, 164th in 2008, and 175th in 2009 out of 181 countries. In 2010, it ranked 159th. It is clear from the Doing Business Report for 2020 that Iraq has occupied a backward position on the global level, coming in at 172nd out of 190 global economies. This ranking is considered a deterrent to investment and does not encourage investors, especially foreigners, to invest in the country.

Table 2: Iraq's ranking according to the Ease of Doing Business Index for the period 2004-2020.

Years	Iraq's global ranking	Total participating countries	years	Iraq's global ranking	Total participating countries
2004	-	-	2013	151	185
2005	114	155	2014	154	189
2006	145	175	2015	156	189
2007	146	178	2016	161	189
2008	164	178	2017	168	189
2009	175	181	1018	171	190
2010	159	183	2019	171	190
2011	166	183	2020	172	190
2012	155	185			

Source: The word bank, international finance corporation, doing business:2020, p4

4.1.2 Index of Economic Freedom/Global Competitiveness Index/Digital Readiness Index

During the study period, there was no ranking for Iraq in the Global Competitiveness Index and the Digital Infrastructure Readiness Index, in addition to the fact that Iraq did not occupy any position in the Economic Freedom Index based on reports issued by the Heritage Foundation.

4.1.3 Regulatory climate of the legal environment for investment in Iraq:

The regulatory climate expresses how government legislation and regulations can affect businesses and their activities, which can effectively impact operating efficiency and cost and, thus, affect institutions' profitability. In Iraq, it is clear that there is more than one law related to the process of regulating the investment issue, as many laws have been issued that aim to stimulate and develop investment, which leads to confusion in the mind of the investor due to the existence of more than one legislation, in addition to the process of diligence from one official to another, as there are many laws that regulate the investment process, the most important of which are: Investment Law No. 13 of 2006, as amended by Investment Laws No. 2 of 2010 and No. 50 of 2015 The above the law was issued by the Iraqi Council of Representatives in 2006 and is considered one of the best investment laws issued during the period, as its legislation aimed to

push the path of economic and social development forward, in addition to attracting scientific, technical and technological expertise, in addition to providing job opportunities for the Iraqi workforce. It has also granted extensive benefits to private sector investors, both local and foreign, and has provided many guarantees. It includes most economic sectors except for investment in the oil and natural gas extraction and production sectors, banking, and insurance. Under this law, the National Investment Commission was formed with all its branches in the governorates of Iraq. It was entrusted with setting investment policies, drawing up plans, and setting controls to regulate investment. In addition, it facilitated procedures and adopted programs to prepare and promote investment opportunities at the federal government level. In contrast, the tasks of setting investment plans were entrusted to the governorates' governorates' commissions in a manner that did not conflict with the federal government's investment policy.

4.2 Production Structure Analysis:

The contribution index of economic sectors to GDP can be analyzed by determining the contribution percentage of each sector to GDP, as shown in Table 3, which includes an analysis of the contribution percentages of economic sectors to GDP. The oil sector had the largest share among economic sectors in contribution percentages during the study period, with an average period of (48.9%). These percentages fluctuated during the study period. It reached (57.67%) in 2004. These percentages decreased in subsequent years, reaching (42.97%) in 2009 due to the decline in oil prices in the global market because of the global financial crisis and the country's impact on this crisis. Then it rose slightly in 2011, reaching (53.06%), then decreased in subsequent years Due to the military developments taking place in the country and the decline in oil revenues. Then its contribution rates increased in 2018 to (46.3%), then decreased in 2020, reaching (32.26%) due to the outbreak of the Covid-19 pandemic. The percentages of this sector increased in the years (2021/2022), reaching (45.55% / 57.09%), respectively, As a result of the increase in oil revenues due to the increase in its prices in the international market and recovery from the Covid-19 pandemic. The services sector comes in second place relative importance to the GDP during the study period, with an average period of (44.6%). However, the Agency and the National Accounts

Table 3: The relative importance of economic sectors in the GDP.

Years	GDP	Oil sector	Relative importance of the oil sector	Agricultural sector	Relative importance of the agricultural sector	Industrial sector	Relative importance of the industrial sector	Service sector	Relative importance of the service sector
2004	53499238	30855992	57.67	3693768	6.90	937681	1.75	18011796	33.67
2005	73911088	42529152	57.54	5064158	6.85	971031	1.31	25346747	34.30
2006	96067160	53030897	55.20	5568985	5.80	1473218	1.53	35994059	37.46
2007	111961230	59274337	52.94	5494212	4.91	1817913	1.62	45374766	40.53
2008	158443584	87521201	55.23	6042017	3.81	2644173	1.66	64638996	39.28
2009	131632210	56563771	42.97	6832552	5.19	3411291	2.59	64824594	49.25
2010	163104739	73569919	45.10	8366232	5.13	3678714	2.25	77489872	47.51
2011	218617834	115999413	53.06	9918316	4.54	6132760	2.80	86567344	39.59
2012	255727068	127225674	49.75	10484949	4.10	6919449	2.70	111096995	43.40
2013	274745875	126445194	46.02	13045856	4.80	6286042	2.28	128968781	46.90
2014	267262787	117357982	43.91	13128622	4.91	4999233	1.87	131776949	49.31
2015	196203013	65590963	33.43	8160769	4.15	4234716	2.15	118216563	60.25
2016	198774369	67796890	34.10	7832046	3.94	4436442	2.23	118708989	59.72
2017	224636323	89065057	39.64	6598384	2.93	4819896	2.14	124152984	55.26
2018	272083889	120616218	44.33	7572265	2.78	5464371	2.0	138431034	50.87
2019	279757642	114831638	41.04	10411174	3.72	5902961	2.11	148611868	53.12
2020	217413594	63622025	32.26	13130927	6.03	5582241	2.56	135078400	59.12
2021	302691912	137895586	45.55	9970509	3.29	6714286	2.21	148111531	48.93
2022	384555222	219563842	57.09	10922787	2.84	6852589	1.78	147216003	38.28
The average % during (2004-2022)			48.9		4.5		2.0		44.6

Source: Prepared by the researcher based on data from the Ministry of Planning, Central Statistical.

Directorate. reality shows the weakness of the services provided due to neglect in most projects due to financial and administrative corruption. This means that the services sector is unproductive. The agricultural sector's contribution to the GDP has been deteriorating , as value of the agricultural sector was (3,693,768) during 2004 The contribution rate to the GDP amounted to (6.90%), then it gradually decreased to reach (7,572,265.1) during 2018 The contribution rate to the GDP amounted to (3.78%) and an average period of (4.5%) due to problems including the lack of suitable environmental conditions, bad weather conditions, low soil fertility and salinity due to poor management of irrigation operations, which led to a decrease in the rates of the unit of cultivated areas. In the same context, the industrial sector shows a clear defect due to the low percentage of its contribution to the gross domestic product, which did not reach approximately (3%) in the best of circumstances, and with an average period of (2%) during the study period. The reasons for this are due to the challenges that this sector was exposed to, especially after 2003, represented by the obsolescence of the production mechanisms and equipment of the factories and the disappearance of many of them, in addition to the exposure of many of them to theft and looting and the loss of their production equipment, the high levels of production costs and the weakness of production lines that lack government support, which made the industrial sector not keep pace with technological progress, in addition to the weakness of trade policies that allowed the local market to be flooded with imported industrial goods, which led to the flooding of the local market with imported industrial products,

which led to deterioration of most production operations With the deterioration of the production process, which led to significant losses in the local industry.

4.3 investment Analysis:

4.3.1 Analysis of investment in the local industrial sector:

Capital formation in the macroeconomy is seen as the basic component of domestic investment. Investment in the local industrial sector is theoretically considered a basic component for facilitating economic growth and employment. The economist Keynes explained that additional investment contributes to increasing the aggregate demand of the economy, and the increase in industrial investment occurs through real investments by public or private sector companies. The path of the volume of local investment,

Table 4: Relative importance of the industrial sector (public - private) in GDP in Iraq for the period (2004-2022)

Years	GDP	Industrial sector				
		public sector	Private sector	Public and private sector	Growth rate	Relative importance of public and private sector to GDP
2004	53499238.6	191509.1	5577.2	197086.3	-	0.37
2005	73911088.3	53664.9	12338.2	66003.1	-66.5	0.08
2006	96067160.6	3178070.9	40321.1	3218392	4776.1	3.36
2007	111961230.2	159820.0	29647.5	189467.5	-94.1	0.17
2008	158443584.4	192907.2	7703.9	200611.1	5.8	0.13
2009	131632210.0	436239.5	104097.3	540336.8	169.3	0.41
2010	163104739.2	1225556.8	22691.4	145248.5	-73.1	0.77
2011	218617834.8	1181466.7	429139.7	1610606.4	1008.8	0.74
2012	255727068.5	995920.9	35336.9	1031257.8	-35.9	0.41
2013	274745875.0	1829696.9	246547.6	2076244.5	101.3	0.76
2014	267262787.8	746928.9	438998.3	1185927.2	-42.8	0.45
2015	196203013.3	366150.9	485510.7	851661.6	-28.2	0.44
2016	198774369.4	211136.7	1248404.3	1459541	71.4	0.74
2017	224636323.2	157115.6	3758721.5	3915837.1	168.3	1.77
2018	272083889.0	471692.5	678731.8	1150424.3	-70.6	0.43
2019	279757642.6	846224.6	2289934.9	3136159.5	172.6	1.14
2020	217413594.1	1467123.4	109940.8	1577064.2	-49.7	0.73
2021	302691912.5	1496878.4	143878.0	1640756.4	4.0	0.54
2022	384555222.6	1811924.2	2233412.8	4045337	146.5	1.05

Source: Table prepared by the researcher based on data from the Central Bank of Iraq, Department of Statistics and Research, Annual Statistical Bulletin, multiple years.

Both public and private, for the industrial sector in Iraq can be illustrated through Table (4), as it is clear that the volume of investment in the industrial sector has witnessed a state of annual fluctuation, as it reached its maximum volume of (4,045,337.0) during (2022) The contribution rate to the GDP amounted to (146.5%) and relative importance of (1.05%) compared to its lowest level, which amounted to (285,780) The contribution rate to the GDP amounted to (-73.1%) and a relative importance of (0.77%). The fluctuation continued to decrease and increase due to fluctuations in oil prices in the global market and the instability of the security situation, and then the spread of Covid 19, which led to a significant decrease in the volume of investment to reach (1,577,064.2) million dinars and The contribution rate to the GDP amounted to (-49.7%) and relative importance of (1.14) in 2019. The volume of investment in the industrial sector increased after that, reaching (1,640,756.4) million dinars in 2021; as a result of the improvement in global

oil prices, this is due to the increasing global need for oil, which appeared positively in the volume of investment in the industrial sector.

The government in Iraq issued Law 13 in 2006 and its amendments, which laid the basic foundations for attracting foreign investment in Iraq by lifting some of the restrictions that were hindering foreign investment, in addition to providing some incentives. As a result, the flow of foreign investment has increased.

4.3.2 Analysis of foreign investment flows in Iraq:

In 2006, the Iraqi government issued Investment Law No. 13 of 2006, which set the basic foundations for attracting foreign investment in Iraq by lifting some of the restrictions hindering foreign investment and providing some incentives. As a result, the flow of foreign investment has increased.

4.3.2.1 Development of FI During years of study:

The flow foreign investment **(FI)** in Iraq witnessed an influx after 2003, especially after economy within

Table 5: The relative importance of foreign investment to the GDP in Iraq

Years	GDP	FI in Iraq	Growth rate	Relative importance of foreign investment in GDP
2004	53499238.6	435900	-	0.82
2005	73911088.3	756535	71.67	1.03
2006	96067160.6	561861	-25.63	0.59
2007	111961230.2	1218605	153.52	1.09
2008	158443584.4	2214208	91.14	1.41
2009	131632210.0	1874454	-13.90	1.43
2010	163104739.2	1633320	-12.64	1.01
2011	218617834.8	2201940	34.81	1.01
2012	255727068.5	3964400	80.66	1.56
2013	274745875.0	-2722610	-31.32	-1.00
2014	267262787.8	-11865216	335.80	-4.46
2015	196203013.3	-9013060	-25.57	-4.63
2016	198774369.4	-7407750	-17.81	-3.76
2017	224636323.2	-5988080	-19.16	-2.70
2018	272083889.0	-5813150	-2.92	-2.16
2019	279757642.6	-4174520	-28.19	-1.51
2020	217413594.1	-3402210	-18.50	-1.58
2021	302691912.5	-3814950	-7.97	-1.27
2022	384555222.6	-3048480	-20.63	-0.80

Source: Table prepared by the researcher based on data from the Central Bank of Iraq, Department of Statistics and Research, Annual Statistical Bulletin, multiple years.

the country moved towards (FERR ECONOMY). Table (5) shows the development of **(FI)** and also relative importance of **(FI)** in GDP. Table (5) shows that the volume of foreign investment was (435,900) million dinars in 2004, then increased to reach (756,535) during 2005, and the change has reached (71.67%). In 2006, the volume of foreign investment decreased to reach (561,861) million dinars, and the change has reached (-25.63%). This decrease in the value of investment was due to the deterioration of the security situation. In the years (2007/2008, the volume of investment increased gradually, reaching (1,218,605 / 2,214,208) with an annual growth rate of (153.52% / 91.14%). The reason for this increase is the issuance of Investment Law No. 13 of 2006. In the years (2009/2010), the volume of foreign investment decreased to reach (1,874,454 / 1,633,320) million dinars due to the global economic crisis, recording a negative growth rate (-13.90% / -12.64%), then increased during the years (2011/2012) to reach

(220,1940,396,400) and the change has reached (34.81% / 88.66%). After that, the volume of foreign investment continued to fluctuate during the study period until it reached (3,048,480) million dinars in 2022.

4.4 Unemployment:

Most economic experts agree on what the International Labor Organization has come up with regarding the definition of unemployment, which is all people of working age who are willing, seeking and able to work but do not find work during the reference period (the reference period is used to measure unemployment and is usually for a period of one or two weeks) within the prevailing wage level. The unemployment rate represents the percentage of unemployed people to the total labor force, as shown in the following equation:

Unemployment rate (UNE) = (unemployed/labor force size including number of unemployed + number of employed) * 100%

Table (6) shows that unemployment rates in Iraq reached (27.0%) in 2004, It is noted that the (UNE) began to decline after this year to reach (15.34%) during 2008 as a result of the approval of Law 22 of 2008 regarding amending the salary scale and the subsequent employment of a number of workers in the public sector, which was reflected in the decrease in the (UNE) within the country. It is noted that the lowest unemployment rate is 11% for the year 2011. After that, (UNE) continued to fluctuate to reach 16% during 2022. It is noted that the average duration of the (UNE) is (14.39%), which is close to its annual rates during the research period. By tracking (UNE) in Iraq during the research period, it is noted that they are higher than the normal rate. This is evidence that the economic sectors, especially the industrial sector, did not take their natural role in absorbing the surplus labor force, which was reflected in the continued increase in (UNE) above their normal rate.

Table 6: UNE in I for the duration (2004-2022)

duration	(UNE)	duration	(UNE)
2004	27.0	2014	12.80
2005	17.97	2015	13.20
2006	17.50	2016	10.82
2007	11.70	2017	13.80
2008	15.34	2018	12.87
2009	14.00	2019	12.76
2010	12.00	2020	13.74
2011	11.00	2021	16.50
2012	11.92	2022	16.60
2013	12.10		Average 14.39

Source: Central Bank of Iraq data, General Directorate of Statistics and Research, data for multiple years.

4.5 Indicative analysis of the relationship between investment trends in the industrial sector and unemployment.

4.5.1 Description of the estimated model.

$$UNE = f(IND, FI)$$

$$UNE = (B_0 + B_1 x_1 y + B_2 x_2 y + u_t)$$

UNE: (Unemployment Rate)

IND:(The percentage of contribution of investment in the industrial sector to the gross domestic product)

FI: (Foreign investment to GDP ratio)

Table 7: Econometric Model Variables.

Type of variable	The name of the variable	The variable code
Independent	(The percentage of contribution of investment in the industrial sector to gross domestic product)	IND
Independent	(Foreign investment to GDP ratio)	FI
dependent	(Unemployment rate)	UNE

Source: Prepared by the researcher based on the model description.

4.5.2: Unit root tests:

From Table (8) we can see the output of the (augmented Dickey Fuller) stationary experience the variables represented by the symbols (UNE, IND, FI) are not stationary in the original level, but rather stationary in the first difference. Thus, the ARDL model will be adopted in the Econometrics analysis, which basically requires that the study variables (time series) be either stable at the level or in the first difference. Thus, we have fulfilled the conditions of the ARDL model, which will be used to measure the nature of the relationship between the research variables.

Table 8: augmented Dicky Fuller Test for the Estimated Model.

		At Level			**At First Difference**		
		Intercept	Trend & Intercept	None	Intercept	Trend & Intercept	**None**
Prob.	IND	0.5946	0.8884	0.0001	0.0003	0.0019	**0.0000**
	FI	0.3210	0.7214	0.2601	0.0015	0.0084	**0.0023**
	UNE	0.1691	0.6336	0.4897	0.0002	0.0014	**0.0000**

Source: Prepared by the researcher based on the outputs of the statistical program (10EViews).

4.5.3: ARDL model (test):

Table (9) shows the results of the (ARDL) test of the model for autoregressive distributed lags. It was found that the model is acceptable, as the coefficient of determination reached (96%), (meaning that the independent variable explains (96%) of the changes that occur in the dependent variable), while the remaining percentage (4%) is due to other factors not included in the model.

Table 9: Model Test Results ARDL.

V	C	S. E	t-S	P.V	
UNE (-2)	1.00	0.14	6.256962	0.00	
IND	23342331	5797	4.030302	0.00	
FI	-2779336.	30.8	-8.261239	0.00	
Adjusted R-squared	0.960950	D-W	1.734572	P (F-s)	0000

Source: Prepared by the researcher based on the outputs of the statistical program (10EViews).

4.5.4 Co-integration test of the estimated model:

Table (10) shows that the statistical value (F-statistics) reached (40940032), which is greater than the tabular value of the upper and lower limits at a (significance level of 0.05%), indicating the existence of joint integration between the independent and dependent variables of the model. Therefore, (the null hypothesis Ho* is rejected and the alternative hypothesis H1* is accepted).

Table 10: Boundary Test Results for Integration.

Test Statistic	Value	k
F-statistic	4.94	2
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.6	3.4
5%	3.1	4.0
2.5%	3.6	4.4
1%	4.1	5

Source: Prepared by the researcher based on the outputs of the statistical program (10 EViews).

4.5.5 Testing the error - correction model according to the ARDL methodology:

The error correction model test consists of two parts. The first part includes the short-term parameters as in Table (11). There is an effect of the independent variables on the dependent variable due to the significance of the relationship through the probability value and the presence of an inverse relationship due to the negative sign, i.e. the presence of a short-term relationship between the independent variables (IND-FI) and the dependent variable (UNE) during the study period.

Table11: Results of the evaluation of the (short-term error correction model) according to the Ardel methodology.

Short term		
(Variable)	(Coefficient)	(Prob)
D(UNE (-1))	0.407587	0.0000
D(IND)	-0.541343	0.0460
D(FI)	-0.023094	0.0001
CointEq (-1)*	-0.133041	0.15

Source: Prepared by the researcher based on the outputs of the statistical program (10EViews).

4.5.6 Appreciation of the (long term) relationship:

This test shows the long-term parameter assessment to detect the degree of effect of the independent variable in the dependent variable, as well as determining the type of long-term relationship:

Table 12: Results of the evaluation of the (long-term error correction model) according to the Ardel methodology.

Long term		
(Variable)	(Coefficient)	(Prob)
IND	O.237800	0.3369
FI	1.223334	0.1150
C	23.583038	0.0000

Source: Prepared by the researcher based on the outputs of the statistical program (10 EViews).

From Table 12, which shows the results of the long-term parameter test, the probability value was 0.3369 for the independent variable IND and the probability value was 0.1150 for the independent variable Fi, and this indicates the absence of a long-term equilibrium relationship between the independent variables IND/Fi and the dependent variable UNE due to the absence of a negative and significant relationship between the research variables in the long term.

4.5.7: Conducting model quality tests:

The quality tests of the ARDL model include several tests, which are:

4.5.7.1: (Serial autocorrelation problem test):

In this case, the LM test is used, which depends on the probability value of Chi-Square, which is (0.28), which means that the model does not suffer from serial autocorrelation.

Table 13: Serial autocorrelation test for residuals of the (ARDL model).

Breusch-Godfrey Serial Correlation LM Test:			
(F-statistic)	0.215334	(Prob. F)	0.3203
(Obs-R-squared)	0.521416	(Prob. Chi-Square)	0.2802

Source: Prepared by the researcher based on the outputs of the statistical program (10EViews).

4.5.7.2: Testing the problem of Heteroskedasticity:

This test is used to confirm the extent to which the estimated model is free of the problem of contrast difference of the remains. The table shows the results of the variance difference problem (ARCH) test, as it reached the value of (F-statistic) at the probability level (0.9044), which is greater than (0.05), and the probability value (Prob chi-Square is (0.8997) which means that the model is free of the problem of variation difference, and therefore here we must accept the non-existence hypothesis, which states that there is no problem of variation difference between the random residuals, and we reject the alternative hypothesis, which stipulates that there is a problem of variation difference between the random residuals, and therefore this test enhances the accuracy of the results of the model (ARDL).

Table (14): Results of the Stability of the Error Limits Variance Test (Contrast Homogeneity) of the (GDP) Model.

(Heteroskedasticity Test: ARCH)			
(F-statistic)	1.295122	(Prob. F)	0.9044
(Obs R-squared)	1.325255	(Prob. Chi-Square)	0.8997

Source: Prepared by the researcher based on the outputs of the statistical program (10 EViews).

4.5.7.3: Testing the problem of normal distribution of residuals:

Figure (1) shows that the value of (F-statistic) at a probability level of (0.422636), which is greater than (0.05%), which indicates that the model is free of the problem of normal distribution, that we accept the hypothesis of non-fit, which stipulates that there is no problem of normal distribution of the residuals. We reject the alternative hypothesis that there is a problem of normal distribution of the residuals. The results of this test also enhanced the accuracy of the ARDL model.

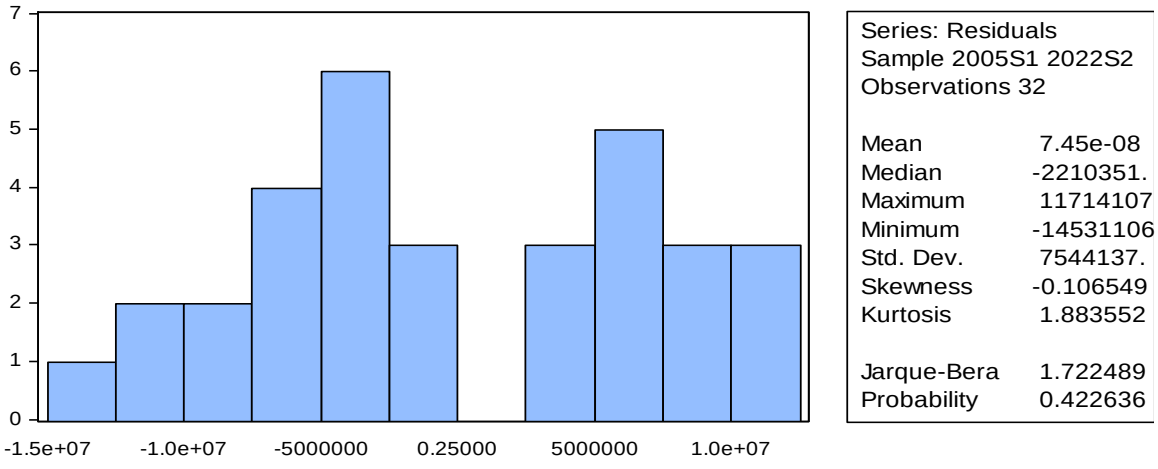

Figure 1: Test the problem of normal distribution of the residuals of the estimated model (ARDL)**.**

Source: Prepared by the researcher based on the outputs of the statistical program (10 EViews).

4.5.7.4: Stability diagnostics test

From this figure (2), the estimated model is stable during the study period because the estimated line falls within the critical limits at a significant level of 0.05%.

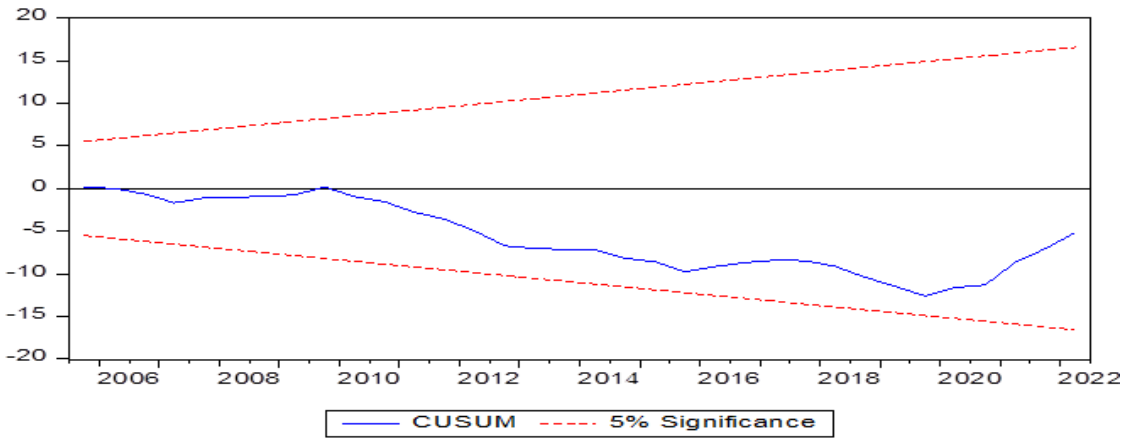

Figure 2: Cumulative Total Test

Source: Prepared based on the outputs of the statistical program (10EViews).

5. Discussion of the Results:

5.1 It is clear to us, as stated in Table No. 2, that the business environment in Iraq faces many difficulties despite the existence of Investment Law No. 13 and its amendments and the legal frameworks it represents that contribute to providing guarantees and privileges for investment in the industrial sector, as the issue of attracting investments does not stop at this level, as bureaucracy Administrative centralization and inflexibility of government institutions In addition to the weak protectionism of the local product, in addition to this, the weak provision of credit to investors by banks according to specific credit ceilings, on the other hand, has directly affected the investor's reluctance to invest in industrial projects due to weak customs protection for investors.

5.2 It is clear from Table 3 that the oil sector had the largest share among the other sectors in the contribution percentages, as it dominated the rest of the sectors in the contribution percentage during the study period with an average period of (48.9%). The industrial sector shows a clear imbalance due to the low percentages of its contribution to the gross domestic product, which Almost did not arrive at best (3%), With an average duration of (2.0) during the study period; the reasons for this are the challenges that this sector was exposed to, especially after the year (2003), represented by the obsolescence of factories' production mechanisms and equipment, in addition to the disappearance of many of them, the increasing levels of production costs, and the weakness of production lines that lack government support and which It worked to make the industrial sector out of step with the process of technological progress.

5.3 It is clear from Table No. 2 that there is an imbalance in the production structure, and this is evident by tracking the ratios of sectoral contributions to the gross domestic product, which is a clear indicator that the economic sectors, especially (industrial), did not take their appropriate role in the economic structure. Due to the lack of forward and backward links between them and the lack of balanced growth, the agricultural sector is a traditional sector with low productivity. Traditional production methods prevail in most of them and are also weak in return. The industrial sector is also low in productivity for multiple reasons, the first of which is poor allocation and lack of optimal exploitation of resources.

5.4 The Iraqi economy achieves large financial returns (rentiers) that have nothing to do with most segments of society in achieving them, as the groups that work in other (non-oil) sectors are disconnected from those working in the oil sector except to a small extent because the oil industry in Iraq is... It is primarily of a crude oil extractive nature. It is only active in refining and petrochemicals at a very low rate that hardly meets the overall requirements of the local economy for petroleum derivatives. This weakens the interconnection process between the oil sector and other sectors through forward and backward links. This leads to the creation of duality in the Iraqi economy, expressed in the presence of an advanced oil sector and the backwardness of the rest of the economic sectors that are considered to have the greatest weight in the operation process.

5.5 The unemployment problem in Iraq is generated by the interaction of all the structural imbalances that the Iraqi economy suffers from, especially the imbalance in the production structure and the subsequent shortcomings in the sectors that absorb workers. This was affected by the imbalance in the structure of foreign trade with the unbridled tendency towards imports, which led to an almost complete cessation of production and a decline in non-exports. This has caused an imbalance in the labor market that crystallized in the disproportion between the labor supply and demand. These causes have led to widespread unemployment.

5.6 In Table 11, the results of the Econometrics tests for the short-term parameters showed the existence of a short-term relationship between the independent research variables (IND/Fi) and the dependent variable (UNE) due to the significance of the relationship between the research variables in addition to the existence of a negative value Coefficient for the independent research variables and the dependent variable in the short term. In Table 12, the results of the Econometrics tests showed the absence of a long-term equilibrium relationship. These results are results that match the reality of the Iraqi economy and contradict the economic logic that assumes a positive impact of investment in the industrial sector on reducing unemployment rates because investment leads to diversification of the production structure and an increase in the percentage of contribution of the productive sectors to the gross domestic product, and as a result, leads to the creation of new job opportunities that contribute to reducing unemployment rates. However, the reality of the Iraqi economy is that it is a rentier economy in which the oil sector contributes the largest percentage to the gross domestic product, as shown in Table 3. Therefore, rentiers did not contribute to increasing investment in the productive sectors, especially the industrial sector, and thus did not contribute to creating new job opportunities that contributed to absorbing the surplus labor force and reducing the unemployment rate.

6. Conclusion.

The unemployment problem in Iraq is generated by the interaction of all the structural imbalances that the Iraqi economy suffers from, especially the imbalance in the production structure and the subsequent shortcomings in the sectors that absorb the labor. This resulted from a deterioration between exports and imports in favor of imports. Due to *the rampant tendency towards imports led to an almost complete halt in production and a decline in non-oil exports. This caused an imbalance in the labor market that crystallized in the disproportion between the supply of labor and the demand for it. These reasons led to the spread of unemployment. By using the analytical and econometric approaches to estimate and analyze the relationship between investment trends in the industrial sector and unemployment, Econometrics tests have proven the validity of the study hypothesis, as they have proven the existence of a short-term relationship and the absence of a long-term equilibrium relationship between the study variables under investigation. This is evidence of the weak impact of investment in the industrial sector on unemployment in Iraq during the study period.

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.

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