The Impact of Fiscal Policy on Economic and Social Development in Iraq

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Abstract: - This paper uses quarterly data from the period (2004-2023) and the regression model to show how fiscal policy, through its tools (public revenues and public expenditures), affects economic development (such as GDP and inflation) and social development (such as unemployment and poverty) in the Iraqi economy.-Self-distributed slowdown periods (ARDL), and the findings indicated that public revenues and expenditures, which are financial policy tools, have a direct correlation with GDP, a direct correlation with inflation, a direct correlation with fiscal policy tools, and an inverse correlation with inflation. The relationship between unemployment and public revenues and expenditures. The relationship between public spending and poverty was inverse, and all of the aforementioned associations hold true in both the long and short term, and they are consistent with economic theory. The relationship between public revenues and poverty was inverse in the short term, which is compatible with the logic of the economic theory, but direct in the long run, which contradicts economics theory.

Key-Words: - Fiscal policy, Economic dimension, Social dimension, GDP, Poverty, Inflation, Unemployment.

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1 Introduction

Fiscal policy occupies an important position among other policies because it plays a major role in achieving the multiple goals that the economy seeks [1], thanks to its numerous tools that it can adapt to affect the levels of national income, employment, and all economic and social aspects of society [2], and its effectiveness depends on the extent of consistency between it and other economic and monetary policies.

[3], to achieve the pillars and foundations on which the economic development process is based [4] and fiscal policy also helps in achieving social justice by adapting its tools to achieve a fair distribution of income and controlling inflation as an economic phenomenon [5]. The budgetary support of the economy is meaningless without a working and created budgetary design that, within the aggregate of potential members, can adaptively react to the rising needs of distinct beneficiaries of budgetary resources, [6].

As for the paper gap, the Iraqi economy has a lot of financial and human resources, but it still struggles to implement a financial policy that uses financial resources to raise the macroeconomic variables to the level that is desired, [7].

Which impacted Iraq's economic growth and development path negatively and led to its growth being unbalanced in light of the single-rentier economy, which lacks political flexibility and the capacity to renew, [8]. This begs the following key question: To what extent can financial policy enhance the economic and social aspects of the Iraqi economy throughout the research period.

This paper is significant in that it highlights the influence of fiscal policy and its tools on economic and social indicators. This is particularly relevant for Iraq, as the country has both financial and human resources capable of advancing the goals of sustainable development in both its social and economic dimensions, Therefore, the aim of the paper: The research aims to follow effective mechanisms that enable it to apply financial policy tools and structural reform in the Iraqi economy to overcome the crises that Iraq suffers from, such as inflation, unemployment and poverty.

1.1 Hypothesis

This research is founded on the hypothesis that establishing a clear and well-defined financial policy for the Iraqi economy can yield a positive and constructive effect by contributing to GDP growth and lowering rates of unemployment, inflation, and poverty. From this, the following subhypotheses are derived:

 $H_{I:}$ There is a positive relationship between fiscal policy tools and GDP in Iraq.

 H_2 : There is a positive relationship between fiscal policy tools and inflation in Iraq.

 H_3 : There is an inverse relationship between fiscal policy tools and unemployment in Iraq.

 H_4 : There is an inverse relationship between fiscal policy tools and poverty in Iraq.

1.2 Research Methodology

The research relied on the "analytical and quantitative" approach in analyzing and measuring the impact of fiscal policy on the economic and social dimensions of the Iraqi economy after 2003.

1.3 Literature Review

- 1 A study [9], the analysis of the relationship between government social investment and economic growth in Iraq from 1980 to 2012 aims to clarify the causal connection between the government's social spending index and economic growth during this period, using the Vector Autoregression (VAR) model. The study concluded that the channels through which social expenditures-such welfare as education. healthcare, and social protection—promote economic growth are more effective in improving the health and living standards of citizens compared to the reverse impact of GDP growth on living standards, as evidenced by the Granger causality index.
- 2 At the study [10], nine distinctive pointers were chosen to degree maintainable advancement. These markers were analyzed for their capacity to degree the financial, natural, and social measurements of economic improvement. As it were two of the markers (economic society and genuine reserve funds) were found to require under consideration all three measurements of

maintainable advancement, whereas the remaining markers measured either the social and financial social measurements, the and natural measurements, or as it were the financial and natural measurements. A normal maintainability file (NASI) was proposed in this consideration, calculated as a normal file of all nine markers. The deviation of each pointer compared to the NASI was decided, and it was found that the Worldwide Well-Being Record taken after the Human Advancement Record was the slightest degenerate from the normal positioning.

- **3** The study [11] examines the nature of the relationship between government measure and financial development, distinguishing the ideal level of government measure employing an expansive dataset through a novel and common non-linear Generalized Strategy of Minutes approach in board information. They found a deviated effect of government estimates on financial development in both created and creating nations around the assessed edge.
- **4** The study [12] aims to evaluate the impact of fiscal policy on the economies of OECD countries by conducting research and gathering necessary information, followed by estimating the impact using panel data methodology. This approach seeks to conclude whether fiscal policy is capable of having a positive effect on the economies of OECD countries.
- 5 [13] ponder analyzes the complex impacts of improvement money-related on financial complexity by analyzing a worldwide test of 86 nations from 2002 to 2017, utilizing a money-related comprehensive record of improvement. The discoveries show that monetary education and markets, alongside their subindicators-such as money-related profundity, get to, and efficiency-have noteworthy positive impacts on financial complexity.
- 6 The study [14], open investing between the necessities of social investing and a few necessities of feasible improvement: Iraq as a case ponder for the period (2004-2019), The objective is to illustrate the adequacy of this sort of use, to know the advancement of the sums designated to it, how it is conveyed over the foundation, the its commitment to assembly degree of improvement needs. The objective is to track and analyze the advancement of social consumption and its components, as well as their effect on pointers of maintainable advancement. The objective is to conclude that there's no long-term harmony relationship between some variables included within the acknowledged show, and a

few connections damage the rationale of the financial hypothesis.

- **7** The report [15] looks at the part of financial arrangement in supporting financial recuperation after emergencies, with a center on monetary arrangements that advance social advancement and bolster evenhanded dissemination of riches.
- 8 [16] ponder comes about recommending that governments ought to overhaul improvement approaches to put rise to accentuation on financial, social, social, and natural components. It too highlights the got to revamp natural law as an arrangement to natural issues and to address pressing concerns with respect to government straightforwardness and responsibility in Indonesia, making arrangements more comprehensive and ecologically cognizant.

2 Problem Formulation

2.1 Theoretical Framework

Fiscal policy: It is the monetary administrative exercise concerned with the advancement and soundness of the economy. These exercises are the devices of budgetary arrangement (charges, investing), obligation administration, and the common budget [17], and must be coordinated and integrated with monetary, economic, and credit controls, [18]. From another concept, it is defined as the procedures and measures taken by the state to influence the economy through (expenditures, income, and revenues), [19].

2.1.1 Fiscal Policy Tools

Tools can be divided into:

Public expenditures: A set of cash amounts that come out of the financial liabilities of the state or one of its public bodies or departments in order to satisfy the general needs of society, [20].

Public revenues: Public revenues refer to the financial resources that the government collects from a variety of designated sources to meet and finance its public spending needs, [21].

General budget: Reflects the government's financial and monetary plan, its social impact is clear on individuals in society through social and health care and education, which gives the individual a sense of belonging and patriotism within the state, [22]. Furthermore, it addresses the fundamental needs of private sector institutions by creating new investment opportunities and ensuring adequate cash liquidity to fulfill the demands of social development [23] and Figure 1 shows the development of fiscal policy rates during the

research period in the Iraqi economy.



Fig. 1: Public revenues and expenditures in Iraq for the period (2004-2023) (trillion dinars) *Source:* [24]

As shown in Figure 1 the dominance of oil revenues over the state's general revenues requires the state to diversify the Iraqi economy towards enhancing revenues by activating the role of tax revenues and customs duties, whether direct or indirect and supporting other productive sectors in the private sector. This will increase the flow of public revenues and thus reduce the financial deficit in the general budget, increase financial surpluses and exploit them optimally, and thus achieve a more stable and growing economy in all its sectors. Public expenditures witnessed an upward trend during the period (2004-2023), but the largest proportion of this increase went towards operating expenses, and the smaller proportion went towards investment expenditures and did not benefit from the increase in expenditures in the years that the country witnessed. The financial budget was high so we were supposed to work on establishing giant investment projects, including laboratories and factories, building giant infrastructure, and diversifying the Iraqi economy. However, due to the lack of proper behavior and public waste, the financial distress, and administrative corruption that eats away at the state's structure, there is a large deficit in the general budget, so that public revenues no longer cover even employee salaries. This indicates the lack of financial and administrative discipline in the Iraqi general budget. After the year (2020), the health situation improved among the countries of the world, the ports opened, and commercial activity flowed in various countries of the world during the research period.

2.1.2 Obstacles to Implementing Financial Policies

The most important of these obstacles or difficulties can be stated in the following context, [25]:

1 Technical problems related to the extent to which economic cycles can be accurately predicted, and

therefore the proper selection and timing of necessary and appropriate measures and their implementation.

- **2** Other problems related to the extent to which public opinion understands and gains support for the measures or policies that are being taken or are intended to be taken, especially those related to imposing new taxes or reducing public spending.
- **3** There are some concerns that government spending may crowd out and compete with the private sector, and even encroach on the role and limits of the sector, in a way that leads to discouraging the private sector, discouraging it and hindering it, and hindering the process of sustainable development, contrary to the role of the public sector and the reality of its mission and duties.

2.2 Economic and Social Dimensions

2.2.1 The Economic Dimension

The economic dimension is one of the best dimensions that the state uses from its available resources, whether these resources are natural. human, or cognitive, meaning that the correct and good management in achieving sustainable development within any country, as sustainable development means the possibility of producing goods and services continuously [26], in arrange to realize financial well-being for individuals of society within the longest conceivable period, and it moreover looks for to halt the squander of characteristic assets, or alter the design of utilization and squander of normal assets and vitality and move forward the level of proficiency [27], and it also seeks justice in the distribution of resources and income and reducing the disparity that occurs in income between the classes of society to alleviate the burdens of poverty and improve the standard of living, and the economic dimension of sustainable development seeks to reduce military spending and direct its resources to achieve development goals, in order to meet the basic needs of individuals. including improving the level of education, health, housing, and energy by increasing spending on these requirements [28] and among the most important indicators of the economic dimension:

- **Gross Domestic Product**: All monetary values added from services and goods produced within a country in a final manner and over a period of time, usually one year, [29].
- **Inflation**: Any continuous increase in the general level of prices, due to the excess output in the economy's total demand that exceeds the total supply and its inability to cover the total demand,





Fig. 2: Gross Domestic Product at Current Prices and Inflation Rate in Iraq for the Period (2004-2023) *Source:* [24]

The study indicated that the GDP index is one of the indicators that measure the individual's contribution to economic activities, and it is also an indicator that measures the growth of the individual's share. The general inflation index of the Iraqi economy is high As shown in Figure 2, so the government must work to increase the expected level of GDP in the Iraqi economy at current prices. As for inflation, this results in a rise in the overall price level, impacting the stability of the Iraqi economy. Consequently, nations worldwide aim to achieve general price stability and work towards reducing inflation rates.

2.2.2 Social Dimension

Human potential is a key component of wealth, while capital and natural resources serve as supporting factors in the production process. The individual is the primary driver of economic activities, playing a crucial role in capital accumulation and the discovery of natural resources. Furthermore, individuals form the foundation of economic, political, and social organizations and institutions. [31], to develop the skills and knowledge of its members and provide the best health services to ensure the health and activity of its members, as health services are crucial to boosting people's physical and mental health, and it cannot in any way accomplish the social goals of development other than by guaranteeing a healthy life and promoting everyone's well-being, regardless of age, [32]. Having a skilled and motivated workforce, along with fostering sustainable growth within it, is essential. This requires ensuring access to quality education and providing long-term learning opportunities, which are crucial for improving the lives of all members of society. Therefore, the education system serves as the foundation for sustainable development, facilitating the acquisition of skills and knowledge. It also encourages spiritual innovation and promotes unity by overcoming sectarian and ethnic divisions [33] and the most important of these indicators are:

- Unemployment: The forced stop of the economically productive side of work despite the ability of the experienced person to work and the desire to work and contribute to production within a certain wage, [34].
- **Poverty**: The total level of daily earnings that is not sufficient to obtain the minimum necessities of life to maintain physical efficiency, [35].



Fig. 3: Iraq's unemployment and poverty rates during that time (2004-2023) Source: [24]

The poverty indicators in Iraq have remained relatively constant at around 22% throughout most of the study years, which may have significant social and economic implications for Iraqi society. It is the government's responsibility to reduce poverty rates and secure a decent standard of living for all members of society. As for unemployment indicators, rates have been high during the study period As shown in Figure 3. According to the International Labour Organization's 2021 report, Iraq's unemployment rates are particularly high, especially among youth, with around 60% of the unemployed being young people. This increases the risk of social unrest, and these high rates lead to social challenges such as increased poverty and crime, underscoring the urgent need to create job opportunities for young people and support small and medium-sized enterprises, [36].

3 Problem Solution

This study adopted a distinctive perspective from the traditional framework typically used in such research by employing a descriptive and temporal approach to enhance financial integration, [37]. This advanced approach is based on the work of researchers focusing on skewness, kurtosis, and the Jarque-Bera test, which shaped the analytical tools employed in the study. These include cumulative sum (CUSUM) tests, t-tests, and the error correction model (ECM), utilized within the framework of Autoregressive Distributed Lag (ARDL) analysis due to the stationary properties exhibited by the variables, [38]. The dataset for this study is derived from the "Central Bank" of Iraq's 2023 statistical bulletin, covering the period from 2004 to 2023. The estimation is conducted using the E-Views statistical software.

3.1 Determine the Model Variables

This part of the study outlines the main variables selected to examine the connection between fiscal policy and the economic and social development in Iraq. The choice of these variables is guided by their significance and their effectiveness in reflecting the core aspects of the research issue, Table 1 presents a detailed explanation of each variable, including its category and symbol.

| Table 1. Description | of research | variables |
|----------------------|-------------|-----------|
|----------------------|-------------|-----------|

| radie in 2 esemption | | |
|-----------------------|-----------------------|-------------|
| Variable | Symbol | Туре |
| Public Revenue | X_1 | Independent |
| Public Expenditure | X_2 | Independent |
| GDP at Current Prices | \mathbf{Y}_1 | Continued |
| Inflation | Y_2 | Continued |
| Unemployment | Y ₃ | Continued |
| Poverty | Y_4 | Continued |
| | | |

Source: Researcher's own work.

In its characteristic numerical work, they consider indicated as takes after:

1) Gross domestic product model at current prices:

3.2 Stability Test Results

Due to the brief time arrangement of the factors utilized for estimation, the analyst utilized a component inside the (Eviews12) program to alter the yearly information to quarterly [39] and his component works agreeing to the taking after steps [40]:

Use the ordinary least squares (OLS) method to

estimate the ADF test models, followed by calculating the joint probability statistics, with (e_t) being the estimated error term.

Estimation of short-run error variance $\delta = \sum e$

Correction factor estimation S_t^2 , This denotes the long-run variance of the error, calculated using the variances of the common residuals of the potential statistics, as shown in the following formula:

$$S_t^2 = \frac{1}{n} \sum_{t=1}^n e_t^2 + 2 \sum_{i=1}^J \left(1 - \frac{i}{J+1} \right) \frac{1}{n} \sum_{t=i+1}^n e_t e_{t-i} \quad (1)$$

Also, estimating the long-term variance requires determining the degree of delay or time lag (j), which is estimated based on the number of observations n according to the following formula:

$$\mathcal{J} \approx 4 \left(\frac{n}{100}\right)^{\frac{2}{9}} \tag{2}$$

Finally, calculating the Phillips-Peron statistic requires estimating the following equation:

$$\Delta \mathbf{Y}\mathbf{t} = \mathbf{\mu} + \lambda \mathbf{Y}\mathbf{t} \cdot \mathbf{1} + \mathbf{t} \tag{3}$$

To test the steadiness of the ponder factors to decide whether the factors are steady and whether there's a unit root [41], the standard demonstrates must be tried to guarantee its steadiness sometime recent estimation, in arrange to unravel the issue of untrue relapse, as the steady variable returns to the long-term balance state [42] and after testing the solidness of the time arrangement, we gotgot the taking after comes about:

Table 2 (Appendix) shows the results of the test of the stability of the research variables, as we notice that all the research variables are not stable from the original level. However, when taking the first difference for the same variables, we notice that the variables have stabilized at different levels of significance (1%, 5%, 10%), with respect to Phelps-Peron.

3.3 "Autoregressive Distributed Lag (ARDL) Model Specified"

The ARDL show is based in its application on a rule that takes into consideration the plausibility of controlling the time slack periods in arrange to get the required comes about from the information control prepare. It permits a certain number of slants to reach the ideal slack period through which the long-term harmony relationship shows up, [43].

Table 3 (Appendix) shows that the results of the descriptive statistics reveal the characteristics associated with the study's variables. The variables exhibit positive skewness and an uneven distribution. For instance, all variables, including

public revenues, display this trait (x_1 =2.404), open use (x_2 =2.73, GDP (y_1 =2.39), swelling (y_2 =1.68), unemployment (y_3 =0.67), destitution (y_4 =0.55), we discover all the values are positive and have a long tail but for unemployment and destitution, but it is ordinarily disseminated. Moreover, the Kurtosis arrangement all crest at more prominent than 3, but for y_3 once more where it is level at less than 3. Additionally, the Jarque-Bera insights appear that all the arrangements are measurably critical at a level littler than 0.05 percent except for (y_3 , y_4) which is additionally not measurably noteworthy, [44].

3.4 Estimating the GDP Model at Current Prices

1 Initial Model Estimation:

This test checks the existence of a joint integration relationship between the research variables in the model, i.e. whether there is a long-run equilibrium relationship. According to the (ARDL) methodology, the (AIC) criterion is automatically used to determine the duration of the time interval, [45]. Table 4 shows the configuration of the estimated results model (ARDL).

Table 4. Results of estimating the initial ARDL

| | model | | |
|--------------------|----------|--------------------|----------|
| \mathbb{R}^2 | 0.989166 | F-statistic | 1360.568 |
| Adj R ² | 0.997482 | DW stat | 2.368714 |
| Prob(F-statistic) | | 0.000000 | |

The results in Table 5 indicate that they are significant and demonstrate high quality for the the estimated model, with coefficient of determination reaching ($R^2=0.98$), This indicates that the independent variables have explanatory power; specifically, the independent variables $(x_1,$ x₂) account for approximately 98% of the variation in the dependent variable, with the remaining 2% representing the influence of factors not included in the model. The adjusted coefficient of determination was found to be $(R^2=0.997)$, as the value of the corrected coefficient of determination is less than the value (DW=2.36), This suggests that there is no spurious regression among the research variables, allowing for the estimation of the long-term relationship between them, [41].

2 Bound Test Results:

To evaluate the long-term relationship between the dependent variable and the independent variables, the lower and upper bounds of cointegration were tested. The calculated value of (F) is presented in Table 5, which displays the results of this limit test.

Table 5. Results of the bounds test for the (ARDL)

| | mode | el | | |
|----------------|---------|---------|-------------|------|
| Test Statistic | Value | Sign if | I(0) | I(1) |
| F-statistic | 12.8123 | 10% | 2.18 | 3 |
| Κ | 2 | 5% | 2.29 | 3.48 |
| | | 2.5% | 2.87 | 3.63 |
| | | 1% | 3.26 | 4.25 |

Table 5 shows that the value of the F statistic is 12.8123, which exceeds both the upper and lower bounds at the 10% significance level. This indicates a cointegrating relationship between the dependent variable and the independent variables. Consequently, we can estimate both the short-term and long-term relationships, as well as the error correction parameter, [45].

3 Assessing the reaction of short-term and longterm parameters and the blunder adjustment parameter:

The error correction model is composed of two components: the first represents the short-term elasticities, while the second reflects the long-term elasticities of the relationship being analyzed [46], shown in Table 6 and the results came as follows.

Table 6. Findings from evaluating the short- and long-term parameters' responses

| | "Cointeg | rating, Fo | rm" | |
|-------------------|--------------|----------------|------------------|--------|
| Variable, | Coefficient, | Std. Error, | t- Statistic, | Prob., |
| D(X1), | 5.457574 | 0.024555 | -1.409680 | 0.0035 |
| D(X2), | 0.814211 | 0.782210 | -4.799366 | 0.0062 |
| CointEq (- 1), | -1.506030 | 0.004191 | -11.0453 | 0.0000 |
| | ''Long Ru | n Coefficie | ents" | |
| Variable, | Coefficient, | Std. Error, | t-Statistic, | Prob., |
| X1 | 3.345521 | 2.457555 | -0.214557 | 0.0000 |
| X2 | 7.475411 | 4.145445 | 1.124457- | 0.0005 |
| С | -88293.22 | 454803.4 | -0.194135 | 0.0498 |

Table 6 shows that the error correction coefficient value is ((-1.506)CointEq(-1)), with a significance level below 5%. This indicates a longterm relationship between the dependent and independent variables. Furthermore, in the short term, public revenues and the gross domestic product (GDP) at current prices exhibit a positive relationship, significant at the 5% level. Public expenditures also show a positive relationship with GDP at this significance level in the short term. In the long term, there is a significant positive correlation between both public revenues and public expenditures with GDP, at a level below 5%. These findings align with economic theory, which suggests a positive relationship between public revenues, expenditures, and GDP at current prices, [47].

4 Estimated model quality tests:

ARDL model quality tests comprise a number of tests, such as:

• Heteroskedasticity Test ARCH:

There is a set of tests that show the stability of the homogeneity of error variance or not, including the (ARCH) test, which is based on the probability value of the chi-square (χ^{2}) [48] and the outputs are shown in the following Table 7.

Table 7. Results, of the, ARCH, Test.

| He | eteroskedasti | city, Test,: ARCH, | |
|----------------------|---------------|-------------------------------|-------|
| F-statistic, | 0.62452 | Prob. F, (23,65) | 0.562 |
| Obs*R ² , | 0.86321 | Prob. Chi ² , (23) | 0.763 |

Table 7 shows that the probability value (Prob) of the chi-square reached (0.562), which explains our acceptance of the null hypothesis stating that the model errors are constant variance and that there is no problem in the research model. We rejected the alternative hypothesis stating that the model errors are heterogeneous variance because it exceeds the significance level (5%).

• Testing the autocorrelation problem

The LM test is used to detect the presence or absence of an autocorrelation problem, which also depends on the significance of the chi-square value (χ^{2}) [46] and the outputs of which are shown in Table 8 as follows:

| | (LM) | test | |
|--------------------|-----------------------|-----------------------|-----------|
| "Breusch- | Godfrey Serial | Correlation LN | /I Test'' |
| F | .63512 | F (2,23) | .4863 |
| Obs*R ² | .4452 | Chi ² (2) | .6649 |

Table 8 shows that the probability chi-square value of (0.4863) supports the acceptance of the null hypothesis, indicating that there is no issue of serial autocorrelation in the model. This leads us to reject the alternative hypothesis, which would suggest the presence of serial autocorrelation in the model's errors, as the probability value exceeds the 5% significance level.

5 Structural static test results:

To guarantee the precision and legitimacy of the comes about, the aggregate residuals test (CUSUM) was conducted as appeared in Figure 4.

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Fig. 4: Cumulative test of residuals (cu sum) GDP equation

The comes about of total test of the residuals of the GDP condition over the inquire about period appears a climate of basic steadiness within the behavior of the evaluated work, which permits the utilization of these comes about in the financial approach and determining since they comes about to have incredible validity, [39].

3.5 Estimating the Inflation Model 1 Initial model estimation

This test checks whether there is a joint integration relationship between the study variables in the model, i.e. whether there is a long-run equilibrium relationship, and according to the (ARDL) methodology, the (AIC) criterion is automatically used to determine the duration of the time interval, and Table 9 shows the model initialization and the estimated results (ARDL).

Table 9. Results of estimating the initial ARDL

| | m | odel | |
|-----------------------|--------|--------------------|----------|
| R-squared | 0.9962 | F-statistic | 1584.568 |
| Adj R ² | 0.9786 | DW stat | 1.9632 |
| Prob(F- statistic) | | 0.00000 | |

The results in Table 9 demonstrate that the estimated model is both significant and of high quality. The coefficient of determination ($R^2=0.99$) indicates strong explanatory power, meaning that the independent variables (x_1,x_2) account for approximately 99% of the variations in the dependent variable, with the remaining 1% attributed to other factors not included in the model. Additionally, since the adjusted R^2 is less than the DW=1.96), estimating the long-term relationship between the variables is feasible. The adjusted $R^2=0.9786$ further suggests the absence of spurious regression among the research variables.

2 Bound Test Results:

Table 10. Results of the bounds test for the (ARDL) model

| | | - | | |
|----------------|----------|--------|-------------|--------------|
| Test Statistic | Value | Signif | I(0) | I (1) |
| F | 13.96321 | 10% | 2 | 3.1 |
| Κ | 2 | 5% | 2.14 | 3.63 |
| | | 2.5% | 2.73 | 3.37 |
| | | 1% | 3.36 | 4.63 |
| | | | | |

Table 10 reveals that the F statistic is 13.96321, which exceeds both the upper and lower bounds at the 10% significance level. This suggests the presence of a cointegration relationship between the dependent and independent variables, facilitating the estimation of both short-term and long-term relationships, along with the error correction parameter.

3 Assessing the reaction of short-term and longterm parameters and the blunder adjustment parameter:

Table 11. Results of estimating the response of short-term and long-term parameters

| | Cointe | grating For | m | |
|------------------------|-------------|---------------|-----------------|--------|
| Variable | Coefficient | Std. Error | t- Statistic | Prob. |
| D (X 1) | -6.74E-08 | 4.87E-08 | - 1.800629 | 0.0065 |
| D (X 2) | 3.13E-08 | 6.58E-08 | 0.476396 | 0.0455 |
| CointEq (-1) | -0.047887 | 0.178775 | - 4.124200 | 0.0000 |
| | Long Ru | ın Coefficie | ents | |
| Variable | Coefficient | Std. Error | t- Statistic | Prob. |
| X1 | -4.67E-08 | 4.89E-08 | - 0.875424 | 0.0245 |
| X2 | 6.75E-07 | 1.22E-07 | - 2.645782 | 0.0057 |
| С | -65.67541 | 51.11477 | - 2.988712 | 0.0766 |

Table 11 indicates that the error correction coefficient is ((-0.0478) CointEq(-1)), with a significance level below 5%, signifying a long-term relationship between the dependent and independent variables. In the short term, there is an inverse relationship between public revenues and inflation, significant at the 5% level. Conversely, public expenditures show a direct relationship with inflation at this significance level in the short term. Over the long term, an inverse relationship exists between public revenues and inflation, also significant at the 5% level, while inflation and government spending display a clear positive correlation. This aligns with Keynesian economic theory, which suggests an inverse relationship between public income and inflation rates, and a direct link between inflation rates and government spending, [49].

4 Estimated model quality tests:

ARDL model quality tests comprise a number of tests, such as:

• ARCH homogeneity test:

|--|

| | Heteroskedastic | ity, Test,: ARCI | H, |
|--------------------|-----------------|-----------------------|--------|
| F | 0.1635 | F(36,65) | 0.6563 |
| Obs*R ² | 9.63256 | Chi ² (36) | 0.6435 |
| | | | |

Table 12 shows that the $chi^2=0.656$. Since this p-value exceeds the 5% significance level, the null hypothesis of homoscedasticity is accepted, indicating no issues with heteroscedasticity in the model's errors. Consequently, the alternative hypothesis, which assumes heteroscedasticity, is rejected, [41].

• Testing the autocorrelation problem:

| Table 13. Results of the LM Test | | | | | | |
|----------------------------------|--|----------------------|--------|--|--|--|
| Breusch | Breusch-Godfrey Serial Correlation LM Test | | | | | |
| F | 0.5632 | F (2,13) | 0.6532 | | | |
| Obs*R ² | 2.2635 | Chi ² (2) | 0.6356 | | | |

Table 13 the probability chi-square value of (0.6532) indicates that we accept the null hypothesis that there is no serial autocorrelation problem in the model, and reject the alternative hypothesis that confirms that the model suffers from the serial autocorrelation problem of errors because it is greater than the significance level of (5%), [46].





Inflation equation

Figure 5 the results of the cumulative residual test for the inflation equation over the research period indicate structural stability in the behavior of the estimated function, allowing these results to be used in economic policy and forecasting, as they have a high degree of credibility, [39].

3.6 Estimating the Unemployment Model 1 Initial model estimation:

Table 14. Results of estimating the initial ARDL

| model | | | | | |
|--------------------|--------|--------------------|----------|--|--|
| \mathbb{R}^2 | 0.9836 | F-statistic | 1356.236 | | |
| Adj R ² | 0.9845 | DW stat | 1.9632 | | |
| F | | 0.00000 | | | |

The comes about of Table 14 shows that they are noteworthy and of great quality for the evaluated demonstration, which the coefficient of determination reached ($R^2=0.98$), which implies that there's illustrative control for the autonomous factors, i.e. the autonomous variables (x1, x2)clarify roughly (98%) of the changes that happened within the subordinate variable, whereas the remaining percentage, which is (2%), speaks to the impact of other factors that were not included within the demonstrate. As for the rectified coefficient of assurance, it comes to $(R^2=0.9845)$, as the esteem of the rectified coefficient of assurance is less than the esteem (DW=1.96), which demonstrates the nonappearance of wrong relapse between the inquire-about factors, and hence the long-term relationship between the factors can be assessed.

2 Bound Test Results:

Table 15. Results of the bounds test for the (ARDL)

| | model | | | | | |
|----------------|-----------|-------------|-------|-------|--|--|
| Test Statistic | ''Value'' | ''Sign if'' | I (0) | I (1) | | |
| F | 16.3036 | 10% | 2.2 | 3.09 | | |
| Κ | 2 | 5% | 2.56 | 3.49 | | |
| | | 2.5% | 2.88 | 3.87 | | |
| | | 1% | 3.29 | 4.37 | | |

According to Table 15, the f statistic value attained 16.3036, which is higher than both the upper and lower bounds at the 10% significance level. This indicates that the dependent and independent variables have a joint integration relationship. As a result, we calculate the error correction parameter and the short- and long-term connection.

3 Assessing the reaction of short-term and longterm parameters and the blunder adjustment parameter:

Table 16 demonstrates a long-term connection between the dependent and independent variables, indicated by an error correction coefficient of ((-0.08545)(CointEq(-1)), which is significant at a level below 5%. In the short term, a negative association is identified between public revenues and unemployment, also significant at the 5% threshold. Similarly, there is an inverse relationship between government expenditure and unemployment at this significant level in the short term. Over the long term, unemployment shows a negative correlation with both public revenues and government spending, significant at levels below 5%. These results align with economic theory, which asserts an inverse relationship between, public expenditure and the unemployment rate, [50].

| Table 16. Findings from calculating how long-term |
|---|
| and short-term characteristics will respond |

| Cointegrating Form | | | | | | |
|-----------------------------|-------------|---------------|-----------------|--------|--|--|
| Variable | Coefficient | Std. Error | t- Statistic | Prob. | | |
| D (X1) | 29228 | .25134 | 16.60166 | .0035 | | |
| D (X2) | 06306 | .04822 | - 15.42926 | .0145 | | |
| CointEq (-1) | 08545 | .06457 | - 22.71575 | .0000 | | |
| | Long Ru | ın Coefficie | nts | | | |
| Variable Coefficient Std. t | | | t- | Droh | | |
| v al lable | Coefficient | Error | Statistic | 1100. | | |
| X1 | .4557- | 1.45578 | .377572- | .01557 | | |
| X2 | .3436- | 2.12822 | .050436- | .04534 | | |
| С | .1487- | 1.477858 | .581306- | .00573 | | |

4 Estimated model quality tests:

ARDL model quality tests comprise a number of tests, such as:

• ARCH homogeneity test:

Table 17 shows the test outputs as follows.

| Table | 17 | Results | of | the | ARCH | Test |
|-------|-----|---------|----|-----|------|-------|
| raute | 1/. | Results | 01 | unc | AICH | I USI |

| Breusch-Godfrey Serial Correlation LM Test | | | | | |
|--|---------|-----------------------|--------|--|--|
| F | 0.76623 | F (39,23) | 0.8962 | | |
| Obs*R ² | 21.6351 | Chi ² (39) | 0.8362 | | |

Table 17 shows that the probability value (Prob) of the chi-square reached (0.8962), which explains our acceptance of the null hypothesis that the model errors are constant variance and that there is no problem in the research model, and our rejection of the alternative hypothesis that confirms that the model errors are heterogeneous variance, because it exceeds the significance level (5%).

• Testing the autocorrelation problem:

Table 18 shows the test outputs as follows:

| Table 18. Results of the LM Test | | | | | |
|--|-------|---------------------------|-------|--|--|
| "Breusch-Godfrey Serial Correlation LM Test" | | | | | |
| F | .3261 | Prob.F (2,16) | .8652 | | |
| Obs*R ² | .1362 | Prob.Chi ² (2) | .6632 | | |

Table 18 the probability chi-square value of (0.8652) indicates our acceptance of the null hypothesis that there is no serial autocorrelation problem in the model, and the rejection of the alternative hypothesis that confirms that the model suffers from the serial autocorrelation problem of errors because it is greater than the significance level of (5%).

5 Structural static test results



Fig. 6: Cumulative test of residuals (cu sum) Unemployment equation

Figure 6 the results of the total test of the residuals of the Unemployment condition over the inquired about period appear a climate of basic steadiness within the behavior of the evaluated work.

3.7 Estimating the Poverty Model

1 Initial model estimation:

Table 19. Results of estimating the initial ARDL model

| | | model | |
|--------------------|--------|--------------------|----------|
| \mathbb{R}^2 | .99654 | F-statistic | 1069.236 |
| Adj R ² | .99654 | DW stat | 3.1236 |
| F | | .00000 | |

Table 19 results show that the estimated model is both significant and of high quality, with a coefficient of determination ($R^2=0.99$). This indicates that the independent variables provide explanatory strong power, accounting for approximately 99% of the variations in the dependent variable, while the remaining 1% represents the influence of factors not included in the model. Since the adjusted R^2 is below the DW=3.123, there is no indication of spurious regression among the research variables, making it possible to estimate the long-term relationship. The adjusted R² value is 0.9954.

2 Bound Test Results:

Table 20. Results of the bounds test for the (ARDL) model

| model | | | | | | |
|--------------------|---------|--------|-------|-------|--|--|
| Test Statistic | Value | Signif | I (0) | I (1) | | |
| F-statistic | 8.63762 | 10% | 2.4 | 3.25 | | |
| K | 2 | 5% | 3.16 | 2.91 | | |
| | | 2.5% | 2.42 | 3.43 | | |
| | | 1% | 3.51 | 4.16 | | |

According to Table 20 at 10% significance levels, the f statistic's value exceeded both the top and lower bounds, reaching 8.63762. This indicates that the dependent and independent variables have a joint integration relationship. This suggests that we calculate the mistake redress parameter as well as the brief- and long-term connections.

3 Assessing the reaction of short-term and longterm parameters and the blunder adjustment parameter:

Table 21. Results of estimating the response of short-term and long-term parameters

| Cointegrating Form | | | | | |
|------------------------|-------------|---------------|-----------------|--------|--|
| Variable | Coefficient | Std. Error | t- Statistic | Prob. | |
| D (X 1) | 0.51674- | 0.074128 | 4.273059 | 0.0001 | |
| D (X2) | -4.28876 | 1.229556 | - 2.674742 | 0.0203 | |
| CointEq (-1) | -0.40308 | 0.051794 | - 5.798125 | 0.0000 | |
| | Long Ru | ın Coefficie | ents | | |
| Variable | Coefficient | Std. Error | t- Statistic | Prob. | |
| X1 | 0.069161 | 0.024373 | 2.837650 | 0.0073 | |
| X2 | -0.053625 | 0.029503 | - 1.817595 | 0.0772 | |
| С | 7.966496 | 2.930361 | 2.718606 | 0.0090 | |

Table 21 illustrates a long-term relationship between the subordinate and free factors, with a mistake redress coefficient of ((-0.10308) CointEq(-1)), significant at a level below 5%. Economic theory posits an inverse relationship between public revenues and the poverty rate, and this is reflected in a significant short-term inverse relationship between public revenues and poverty at the 5% significance level. Additionally, there is a short-term inverse association between public spending and poverty, also significant below 5%, [51]. At a significance level below 5%, a long-term correlation was found between poverty and public revenues. This finding contradicts the predictions of economic theory, which asserts a negative correlation between poverty and public spending, as well as between public income and the poverty rate. This aligns with the general premise of economic theory, which

suggests an inverse relationship between public expenditure and the poverty rate, [52].

4 Estimated model quality tests:

ARDL model quality tests comprise a number of tests, such as:

• ARCH homogeneity test:

| Table 22. Results of the ARCH Test | | | | | |
|--|---------|-----------------------------------|--------|--|--|
| Breusch-Godfrey Serial Correlation LM Test | | | | | |
| F-statistic | 11.3652 | Prob. F (29,23) | 0.7536 | | |
| Obs*R ² | 12.6541 | Prob. Chi² (29) | 0.7412 | | |

Table 22 shows that the probability value (Prob) of the chi-square reached (0.7536), which explains our acceptance of the null hypothesis that the model errors are constant variance and that there is no problem in the research model, and our rejection of the alternative hypothesis that confirms that the model errors are heterogeneous variance, because it exceeds the significance level (5%).

• Testing the autocorrelation problem:

Table 23. Results of the LM Test

| Breusch-Godfrey Serial Correlation LM Test | | | | |
|--|--------|----------------------|-------|--|
| F | 1.6325 | F (2,26) | .2031 | |
| Obs*R ² | 1.5231 | Chi ² (2) | .1452 | |

Table 23 the probability chi-square value of (0.2031) indicates our acceptance of the null hypothesis that assumes the absence of the problem of serial autocorrelation in the model, and our rejection of the alternative hypothesis that confirms that the model suffers from the problem of serial autocorrelation of errors because it is greater than the significance level (5%).

5 Structural static test results



Figure 7 the results of the total test of the residuals of the poverty condition over the inquire about period appear a climate of basic steadiness within the behavior of the evaluated work.

4 Conclusion

Iraq has critical assets to maximize incomes due to its riches of rural and oil assets, as well as its territorial and tourism highlights. By analyzing the effect of monetary approach devices (open incomes open uses) on financial advancement and measurements (GDP and expansion) and social measurements (unemployment and destitution) in Iraq's economy utilizing information from 2004 to 2023 data, sometime recently 2004 was not accessible due to political, social, and measurable changes in Iraq's economy [53], the ponder comes about appear a positive effect of monetary arrangement instruments on the financial and social viewpoints of economic improvement. There's a positive relationship between open incomes, open uses, and the financial measurement pointers related to GDP [54], whereas there's a negative relationship between salary and swelling, and a positive relationship with open consumptions, adjusting with Keynesian financial hypothesis, [49]. The relationship between monetary arrangement instruments and social measurement markers appeared a reverse relationship between open incomes and unemployment, and between open uses and unemployment, as well as a reverse relationship between open consumptions and destitution. The relationship between open revenues and destitution was too reversed within the brief term, [47]. Iraq remains a single-sector economy, intensely subordinate to oil alone. To move forward with monetary approach viability, the state must differentiate Iraq's economy by enacting coordinate or backhanded parts for charges and traditions obligations and supporting other beneficial segments within the private segment to extend incomes. This will help increment open incomes, diminish the budget deficit, and increment monetary surpluses for ideal utilization to attain more noteworthy financial stability and growth over all segments [35]. The study's discoveries have noteworthy suggestions for the longer term of financial action in creating imaginative financial arrangements and execution procedures, as well as setting Iraq's economy in the correct way toward maintainable improvement. This paper suggests centering on rationalizing open investing, setting up oversight components for central uses. differentiating incomes by creating the rural segment, empowering the nourishment businesses, upgrading the mechanical and mining segments, advancing and restoring tourism, moving forward assess administration, expanding straightforwardness, creating budgetary the

administration's division, and contributing in renewable energies.

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APPENDIX

Table 2. Phelps-Peron (pp) test for research variables

| | | UNIT ROO | T TEST TAB | LE (PP), at L | evel | | |
|------------------------------|--------------|-----------------------|-----------------------|-----------------------|----------------|----------------|----------------|
| | Variables | Y1 | Y2 | ¥3 | Y4 | X1 | X2 |
| With Constant | t-Statistic | -0.9907 | -1.4433 | -3.9174 | -2.0697 | -1.7978 | -1.0811 |
| | Prob. | 0.7525 | 0.5563 | 0.1032 | 0.2574 | 0.3788 | 0.7190 |
| | Morale level | n ₀ | n ₀ | n_0 | n ₀ | n ₀ | n ₀ |
| With Constant & - Trend - | t-Statistic | -2.1761 | -1.6398 | -3.7624 | -2.2484 | -2.2869 | -2.2322 |
| | Prob. | 0.4951 | 0.7671 | 0.2245 | 0.4559 | 0.4353 | 0.4646 |
| | Morale level | n ₀ | n ₀ | n ₀ | n ₀ | n ₀ | no |
| Without Constant & Trend | t-Statistic | 1.1852 | -1.4030 | -2.0835 | -0.0306 | 0.2788 | 0.6660 |
| | Prob. | 0.9382 | 0.1482 | 0.4365 | 0.6692 | 0.7640 | 0.8576 |
| | Morale level | n ₀ | n_0 | n_0 | n_0 | n_0 | n_0 |
| | | UNIT ROOT 1 | TEST TABLE (PI | P), At First Differ | ence | | |
| | Variables | d (Y) | d (Y) | d (Y) | d(Y) | d(X) | d(X) |
| With Constant | t-Statistic | -3.0296 | -3.6737 | -3.8672 | -4.2613 | -3.0713 | -4.1667 |
| | Prob. | 0.0370 | 0.0066 | 0.0037 | 0.0011 | 0.0334 | 0.0015 |
| | Morale level | ** | *** | *** | *** | ** | *** |
| With Constant & - Trend - | t-Statistic | -2.9661 | -3.6834 | -3.6060 | -4.2139 | -3.0232 | -4.1641 |
| | Prob. | 0.1491 | 0.0301 | 0.0365 | 0.0071 | 0.1335 | 0.0082 |
| | Morale level | n_0 | ** | ** | *** | n_0 | *** |
| | t-Statistic | -2.7159 | -3.6867 | -3.8171 | -4.3018 | -2.9668 | -4.0665 |
| & Trend | Prob. | 0.0072 | 0.000 | 0.000 | 0.000 | 0.0035 | 0.000 |
| a richu - | Morale level | *** | *** | *** | *** | *** | *** |

The following notes are included: (*) Significant at 10%; (**) Significant at 5%; and (***) Significant at 1%. as well as (no) Not Important

Table 3. Descriptive Result

| | X1 | X2 | Y1 | Y2 | Y3 | Y4 |
|--------------------|-----------------------|-----------|-----------------------|-----------------------|----------|----------|
| Mean | 1.92e-08 | 1.60e-15 | 2.05E+08 | 10.69380 | 15.50950 | 22.85150 |
| Median | 208313.8 | 0.047112 | 2.19E+08 | 5.798000 | 15.17000 | 22.36500 |
| Maximum | 6247876 | 5.634207 | 3.11E+08 | 53.10600 | 26.90000 | 31.20000 |
| Minimum | -17239410 | -16.76160 | 53235358 | 0.068000 | 8.830000 | 15.00000 |
| Std.dev | 3424946 | 2.989283 | 78992399 | 14.39822 | 4.303535 | 3.747727 |
| Skewness | <mark>2.404399</mark> | 2.739056 | 2.398998 | 1.681154 | 0.671337 | 0.551036 |
| Kurtosis | 11.94564 | 16.58948 | 3.984030 | 4.818239 | 1.392656 | 3.331428 |
| Jarque-bear | 4.540734 | 7.750974 | 5.563307 | 48.70370 | 6.523167 | 4.414697 |
| Probability | 0.003274 | 0.020744 | <mark>0.041936</mark> | <mark>0.000000</mark> | 0.438328 | 0.109992 |
| Sum | 6.17E+09 | 6.54E+09 | 1.64E+10 | 855.5040 | 1240.760 | 1828.120 |
| Sum Sq. Dev. | 6.36E+16 | 6.15E+16 | 4.93E+17 | 16377.39 | 1463.112 | 1109.591 |
| Observations | 80 | 80 | 80 | 80 | 80 | 80 |