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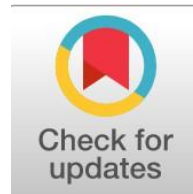
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## The Impact of Dynamic Interactions of Budget Deficits on Human Development Services (Social and Personal Services) in the Iraqi Economy

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### Abstract

**General Background:** The Iraqi economy relies heavily on volatile oil revenues, leading to significant fluctuations in public fiscal management. **Specific Background:** Public budget management is intrinsically linked to the provision of essential Human Development Services, including social welfare, education, and health. **Knowledge Gap:** Despite the critical role of these services, the dynamic relationship between fiscal deficits and the provision of social and personal services remains insufficiently quantified in the Iraqi context. **Aims:** This research measures the impact of budget deficits on Human Development Services in Iraq using the Autoregressive Distributed Lag (ARDL) model for the period 2004–2022. **Results:** Findings reveal a significant inverse relationship; a one-billion-dinar increase in the fiscal deficit causes a long-term reduction of approximately 0.38 billion dinars in service production due to project delays and suspended support programs. **Novelty:** The study provides a precise empirical model quantifying the fiscal-social trade-off in a rentier economy, highlighting the slow 11% annual corrective response of social infrastructure to financial shocks. **Implications:** Policymakers must prioritize funding for vital health and education sectors and diversify revenue streams to decouple human development from oil-price-induced fiscal instability, thereby ensuring financial sustainability.

### Highlights:

- Fiscal deficits trigger immediate project suspensions and reduced maintenance in vital social infrastructure.
- The service sector exhibits a sluggish recovery mechanism, requiring nearly a decade to fully correct short-term financial imbalances.
- Over-reliance on extractive industry revenues creates structural vulnerability, hindering long-term social welfare stability.

**Keywords:** Budget Deficit; Fiscal Policy; Human Development Services; Iraqi Economy; ARDL Model

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## Introduction:

The relationship between Iraq's budget deficit and public finances is close and sensitive, especially given the rentier nature of the Iraqi economy and its over-reliance on oil revenues as a major source of financing public expenditures. This appropriation contributed to exposing the public budget to sharp fluctuations caused by changes in global oil prices, which is reflected in the widening budget deficit gap and the fluctuation of the state's financing capacity.

The activity of Human Development Services (Social and Personal Services) is one of the most affected economic activities by the development of the public budget, due to its direct relationship with government spending, especially in the fields of education, health, social welfare, and personal services.

This results in a decline in the quality of services provided, and delays or suspensions of the implementation of strategic projects, especially projects for the construction of schools, hospitals, and service infrastructure, which contributes to the widening gap between rapid population growth and the volume of available social services. Fiscal pressures associated with deficits may also weaken real ability to spend on personal services, which will reflect negatively on welfare levels, especially among low-income groups.

Based on this problem, it is important to study the dynamic relationship between the overall budget deficit and the activity of Human Development Services (Social and Personal Services) in the Iraqi economy, by adopting reference analysis tools based on time series analysis, to measure the nature of this relationship in the short and long term. Determine the extent to which this service activity responds to changes in the budget deficit, in a way that contributes to supporting the formulation of more efficient fiscal policies and social justice.

### First. Research Problem:

The Iraqi economy suffers from a worsening of the public budget deficit as a result of the continuous expansion of government spending and the heavy dependence on oil revenues, which puts pressure on public expenditure allocations, especially those directed to Human Development Services (Social and Personal Services). Under these circumstances, the problem of the extent to which this activity affects the variability of the budget deficit arises, and therefore the research problem is the following question:

What is the nature and magnitude of the dynamic relationship between the public budget deficit and the activity of Human Development Services (Social and Personal Services) in the Iraqi economy in the short and long term?

### Second. Research Hypothesis:

The budget deficit has a significant statistical impact on the activity of Human Development Services (Social and Personal Services) in the Iraqi economy, both in the short and long term.

### Third. Research Objectives:

Research aims to:

1. Explain the concept of the budget deficit and the most important factors that led to the exacerbation of the deficit in the Iraqi economy.
2. Analyzing the evolution of the budget deficit and fiscal policy in Iraq during the study period.
3. Measuring and analyzing the impact of the budget deficit on the activity of Human Development Services (Social and Personal Services) in the Iraqi economy, in the short and long term, using the standard method.

### Fourth. Importance of the research:

This research is important because of the need for the Iraqi economy to understand the relationship between budget deficits and fiscal policy and its implications for the activity of Human Development Services (Social and Personal Services), as the persistent budget deficit puts pressure on public resources and limits the state's ability to provide basic services to citizens. The study also seeks to provide practical guides to decision-makers on how to guide fiscal policies in a way that achieves financial sustainability and ensures that Human Development Services (Social and Personal Services) continue to be delivered effectively, in a way that contributes to improving the standard of living of citizens and promoting economic development.

### Fifth. Research Restrictions:

1. Time limits: 2004 to 2022.
2. Spatial Limits: The Iraqi Economy.
3. Objective limits: budget deficit, fiscal policy, and Human Development Services (Social and Personal Services) activity.

## Sixth. Research Methodology:

The approach taken by the research to study the relationship between the budget deficit and the activity of Human Development Services (Social and Personal Services) in Iraq is an analytical approach as standard methods, in particular the Distributed Slowdown Self-Regression Model (ARDL), have been used in the research to examine the relationship between variables in the short and long term, while testing the stability and integration of variables using unit root tests and co-integration tests. Boundary Test)

## Topic I: The Theoretical Roots of Budget Deficits and Human Development Services (Social and Personal Services)

First. The concept of budget deficit: Budget deficit is a central issue in economic and financial studies, and refers to the gap between state expenditures and revenues over a specific fiscal period, usually a year, which requires the government to adopt fiscal policies to ensure economic stability (Auerbach & Gill, 2009). This deficit has direct effects on the state's ability to finance necessary government spending, whether in investment sectors or public services such as education and health and social services (Auerbach, Gill, Urzag & Potter, 2003).

Recent studies focus on the fact that expansionary or austerity fiscal policies can affect the size of the deficit, and therefore on overall economic performance, including the impact of deficits on levels of consumption, investment, and tax revenues (Auerbach & Gill, 2022). Empirical literature suggests that budget deficits or government spending vary depending on the structure of the economy and fiscal policy, making deficit management a critical tool for balancing economic growth and financial stability (Varela & Ribeiro, 2025).

Accordingly, the budget deficit is seen not only as a fiscal problem, but also as a strategic variable used to assess the effectiveness of fiscal policy and its impact on the economy and social and personal services, reflecting the government's ability to adapt to economic crises and ensure the provision of basic services to citizens (Auerbach, Gill, Urzag, & Potter, 2003; Auerbach & Gill, 2009).

Second. Reasons for the general budget deficit: The most prominent reasons for the budget deficit can be summarized as follows:

1. Economic reasons: Insufficient public budget to cover basic expenditures is one of the most prominent economic causes of fiscal deficits. The lack of revenues compared to expenditures increases the size of the deficit and widens the fiscal gap, and the situation in economies that depend on a single source of income is further complicated, where price fluctuations in global markets and international economic instability make the government more vulnerable to budget challenges. Moreover, expanding government spending on social support programs or public investments increases spending faster than revenue growth. This contributes to the persistence of the deficit and limits the state's ability to provide public and development services efficiently, so it is essential to set clear priorities in allocating financial resources and directing them towards the sectors that have the greatest impact on economic growth and supporting sustainable development. This will contribute to improving economic performance and meeting the needs of society in a balanced and effective manner (Abdullah, 2025: 1237).

2. Financial Reasons: Several fiscal factors contribute to the budget deficit, most notably poor tax revenue collection as a result of partial or total tax evasion. This is often the result of inadequate legislation or the imposition of inadequate penalties for tax evasion. The low average per capita income and the large number of tax breaks hinder the state's ability to collect taxes, as well as a lack of tax awareness among citizens. The situation is exacerbated by administrative gridlock in the tax system, widespread financial and administrative corruption, the accumulation of arrears, and the non-collection of fees for public services such as electricity and water, all of which weaken available financial resources and reduce the efficiency of the implementation of public projects, ultimately leading to an increase in the budget deficit (Alwan, 2019: 311).

3. Social causes: Continuous migration from rural to urban areas increases the demand for public services, as services provided in cities are usually more diverse and complex than those available in rural areas. This expansion in demand increases government spending on essential sectors such as education, health, and culture, as well as the provision of necessary infrastructure such as water, electricity, and transportation, as well as social welfare programs that include nursing homes, orphanages, and maternal and child care, as well as in cases Crises, whether health, political, economic, or due to natural disasters, increase the pressure on public finances dramatically, requiring the state to increase its spending beyond usual rates. For example, the Corona pandemic in 2020 led to a significant decline in the income of poor groups and a decrease in public consumption as a result of weak government revenues, especially oil, which made the state face difficulties in meeting urgent social needs. However, the government has tried to address these challenges by increasing spending on social welfare programs and supporting the most affected families and groups, with the aim of mitigating the impact of the crisis on the standard of living of the population (Al-Shammari, 2025: 519).

## Third. Public Services Concept:

The service sector is one of the essential components of economic activity in any country, due to its important role in supporting GDP and promoting economic and social development, and this sector reflects the level of economic development and the level of well-being of the community, due to its direct connection to the basic services provided to the population.

The service sector consists of three main activities: home ownership activity, public government services activity, and personal services activity.

1. **Public Government Services Activity:** This activity includes legal and regulatory bodies that provide non-market services to society, such as legislative, judicial, and executive authorities, and includes central and local governments, social security funds, and government-linked non-profit organizations. This includes the provision of collective services such as defense and security, and individual services such as education and health, which is an essential element of economic and social stability and community development (United Nations, 2005: 68). Investment in this activity reflects the state's ability to provide basic services to its citizens, ensure equitable distribution of resources, and achieve social justice.

2. **Personal Services Activity:** Personal services activity is linked to services provided by individuals or institutions for a fee, and includes multiple areas such as education, health, entertainment, and domestic services according to the International Monetary Fund (IMF, 2009: 72) (Al-Barwani, 2016: 17-18), and these services include: education, health and medical services, religious services, and domestic services such as cleaning, laundry, ironing, hairdressing and beautification, entertainment and advertising services, and services provided to the commercial sector, in addition to Other personal services such as shoe dyeing, burial services, and social events services. This activity contributes to the employment of a large part of the workforce and reflects the level of community well-being and the quality of services provided to the individual, making it a vital indicator of the ability of the country and society to meet the daily needs of the population.

3. **Housing Ownership Activity:** Housing ownership activity is one of the main pillars of any economy, as it contributes to the development of residential infrastructure and the establishment of the necessary real estate structures. This activity is one of the major contributors to GDP, as it reflects the volume of investment in housing, infrastructure, housing unit construction, and related services such as rent, building maintenance, and other real estate services (Okota, 2024: Studies show that the performance of this activity is positively related to economic development, real estate, and the financial sector, and directly affects the labor market and macroeconomic behaviors, and is an indicator of the state's ability to support housing projects and enable families to access adequate housing (Gaspareniene et al., 2014:16)..

Fourth. **The Impact of the Budget Deficit on Human Development Services (Social and Personal Services):**

Studies show that the budget deficit is not just a fiscal issue, but a strategic indicator of a state's ability to manage its resources and achieve economic and social stability (Auerbach & Gill, 2009), i.e. when expenditures exceed available revenues, fiscal policies are under significant pressure, forcing the government to make difficult decisions between financing the deficit by borrowing. The issuance of cash or the reduction of spending of these options has a direct impact on vital sectors, especially Human Development Services (Social and Personal Services), which are key pillars of community well-being and sustainable economic development (Auerbach, Gill, Urzag, & Potter, 2003). Fiscal deficits are therefore an influential factor in the relationship between fiscal policy and human development, with any narrowing or weakening of financial resources directly reflected in the state's ability to provide social protection and basic personal services. (Varela & Ribeiro, 2025)

Moreover, the literature suggests that effective fiscal deficit management requires not only revenue and expenditure control, but also the design of fiscal policies that are resilient and resilient to economic shocks, such as low resource prices or health and natural crises. Sound fiscal strategies—such as reprioritizing spending, diversifying revenue sources, and enhancing tax collection effectiveness—are vital tools to ensure the sustainability of social and personal services without an excessive increase in public debt or inflation, contributing to a stable environment for economic growth and social development (Auerbach & Gill, 2022, 101)

## **Second Topic: Analysis of the General Structure of the Budget and Human Development Services (Social and Personal Services) in Iraq**

First. **Analysis of the Structure of the Public Budget (Public Revenues and Public Expenditure) in the Iraqi Economy during the Period (2004-2022):**

Over the past two decades, fiscal policy in the Iraqi economy, especially after the adoption of the 2005 constitution and the adoption of democratic practices, has suffered from structural imbalances that have led to the emergence of the so-called "double halt model," which is considered one of the most dangerous patterns in public financial management. This model is embodied through two main paths (Saleh, 2022: 2):

The first track is the rentier nature of the public budget and the volatility of the cycle of extractive assets, especially oil, where investment spending is closely linked to revenues generated by the extraction sector. This sector, in turn, is subject to periodic fluctuations in international markets, due to the Iraqi budget's dependence on it for more than 90% of total public revenues, making fiscal policy very sensitive to external shocks.

The second track is seen in the sessions of the parliament and the accompanying legislative rigor resulting from the excesses of the political quota system, which prompts the government to adopt what is known as the minimum budget based on the Financial Management Law in Iraq. The expenditure is limited to the actual fixed expenditures of the previous year, and its adoption as a criterion for monthly expenditure until the approval of the general budget law, the legislation of which is often delayed. As a result, public expenditure is concentrated on its operational (consumer) side, at the expense of investment expenditure, which It contributes to disrupting the process of economic development and weakening its

sustainability.

In light of the above, it is clear that there is a temporal and structural correlation between these two tracks on the one hand, and the level of investment expenditure and the implementation of government projects on the other hand. Table (1) shows the deficit and surplus in the general budget in the Iraqi economy during the period (2004-2022) as follows:

**Table (1): Structure of the General Budget in the Iraqi Economy during the Period (2004-2022) (Million Iraqi Dinars)**

Annual Percentage Change *	Deficit or surplus	Compound annual maturity ratio	Annual Percentage Change *	Actual Public Expenditure	Compound annual maturity ratio	Annual Percentage Change *	Actual General Revenue	Years
-	865,248	20	-	32,117,491	25	-	32,982,739	2004
<b>1,532.79</b>	14,127,715		(17.88)	26,375,175		22.80	40,502,890	2005
<b>(18.17)</b>	11,560,937		42.16	37,494,608		21.12	49,055,545	2006
<b>32.27</b>	15,291,615		4.84	39,307,836		11.30	54,599,451	2007
<b>(15.15)</b>	12,975,001		71.15	67,277,181		46.98	80,252,182	2008
<b>(102.93)</b>	(379,709)	8	(17.37)	55,589,062	14	(31.21)	55,209,353	2009
<b>61.46</b>	(613,084)		26.17	70,134,201		25.92	69,521,117	2010
<b>(3,564.63)</b>	21,241,111		12.30	78,757,665		43.84	99,998,776	2011
<b>(32.55)</b>	14,326,829		33.50	105,139,574		19.47	119,466,403	2012
<b>(137.41)</b>	(5,360,160)		13.30	119,127,555		(4.77)	113,767,395	2013
<b>(507.27)</b>	21,830,397		(29.86)	83,556,226		(7.37)	105,386,623	2014
<b>(117.99)</b>	(3,927,263)		(15.75)	70,397,515		(36.93)	66,470,252	2015
<b>222.32</b>	(12,658,167)		(4.73)	67,067,437		(18.14)	54,409,270	2016
<b>(114.58)</b>	1,845,840		12.56	75,490,115		42.14	77,335,955	2017
<b>1,292.14</b>	25,696,645		7.13	80,873,189		37.80	106,569,834	2018
<b>(116.18)</b>	(4,156,527)		38.15	111,723,522		0.94	107,566,995	2019
<b>209.94</b>	(12,882,754)		(31.90)	76,082,443		(41.25)	63,199,689	2020
<b>(148.38)</b>	6,232,064		35.18	102,849,400		72.60	109,081,464	2021
<b>617.87</b>	44,737,826		13.72	116,959,611		48.24	161,697,437	2022
<b>(50.36)</b>	4117327		-	10.70		74,543,148	-	14.08
-	-	7%	-	-	9%	-	-	Compound annual maturity ratio

Source: The researcher's work based on the Central Bank of Iraq, Statistical Bulletins, Different Years, (2004-2022).

Table (1) shows that there is a general upward trend in actual public revenues during the period (2004-2008), as it increased from JD (32,982,739) million in 2004 to JD (80,252,182) million in 2008, with a compound growth rate of about (25%). This increase is due to the trade openness of the Iraqi economy after 2004, which contributed to an increase in oil production and exports, as well as a significant rise in international oil prices, which reflected positively on oil revenues. Hence the public revenues.

However, the actual public revenues witnessed a significant decline thereafter, as they decreased by about (-31.21%) to reach (5,209,353) million dinars, which led to a deficit in the general budget of the Iraqi government amounting to (379,709) million dinars. This decrease is attributed to several factors, most notably the weak efficiency of the tax system in collecting revenues, in addition to the existence of a disconnect between the public budget and its economic functions (Al-Ani and Al-Sheikhani, 2016: 272), in addition to the repercussions of the mortgage crisis, which negatively affected the economies of the world in general and the Iraqi economy in particular.

In 2012, actual public revenues increased again to reach KD 119,466,403 million, driven by a significant increase in oil revenues that contributed 97.60% of the total public revenues for that year. This reflects the rentier nature of the Iraqi economy, where crude oil dominates the bulk of public revenues, accounting for about 90% of budget revenues, while non-oil revenues represent a limited percentage of them (Mohammed, 2021: 303).

During the period (2013-2016), the Iraqi economy was subjected to a double shock represented by the sharp decline in the price of crude oil as well as exceptional security conditions, which resulted in a decrease in actual public revenues from 113,767,395 million dinars in 2013 to 54,409,270 million dirhams in 2016. This decrease was reflected in the widening of the overall budget deficit, which increased from 5,360,160 million dinars in 2013 to 12,658,167 million dinars in 2016.

In 2017, actual public revenues recorded a significant improvement, increasing by JD22,926,685 million, with an annual change rate of (42.14%) compared to the previous year, reaching JD77,335,955 million. This increase is mainly due to the significant increase in oil and mineral resources revenues, which amounted to about AED 20.8 trillion, with an annual growth rate of (47%). Extractive revenues accounted for about (84.14%) of total public revenues, while income taxes increased GDP taxes and production duties increased significantly by 179%, contributing 2.3% of public revenues (Central Bank of Iraq, Annual Report, 2017: 45).

During the period (2018-2019), the actual increase in general revenues continued to reach JD106,569,834 million in 2018 and JD107,566,995 million in 2019, with an annual rate of change of (37.80%) and (0.94%) respectively. This increase was attributed to the increase in extractive revenues resulting from the improvement in average prices of exported oil, as these revenues accounted for the largest share of public revenues, recording a contribution of (89.7%) in 2019.

However, the global health crisis (COVID-19) in 2020 led to the adoption of comprehensive lockdown policies, in addition to the accompanying decline in global production and the decline in demand for crude oil, which led to a decrease in the average price of a barrel of oil to about (40.69) dollars in 2020. This was reflected in a significant decrease in oil revenues, and its contribution to actual public revenues decreased to (86.15%), which led to a decrease in public revenues by 44,367,306 million dinars compared to 2019, reaching ( 63,199,689 million dinars in 2020).

During the period (2021-2022), actual public revenues increased significantly, reaching JD 109,081,464 million in 2021 and JD (161,697,437) million in 2022, with an annual rate change of (72.60%) and (48.24%) respectively. This increase was attributed to the recovery of global production and the increase in oil demand, which led to a positive shock in oil demand that raised average crude oil prices, and this was reflected in the increase in the contribution of extractive revenues to the general revenue structure to (87.34%) in 2021 and (95.01%) in 2021 2022.

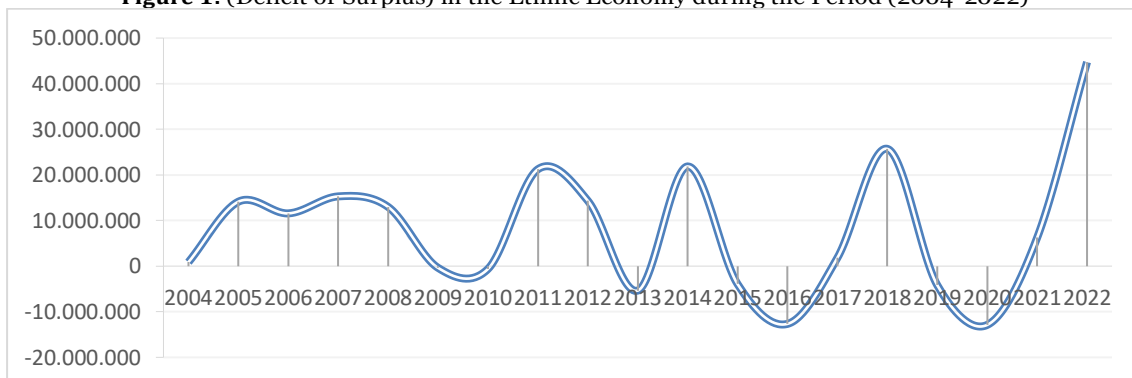
As is evident from Table (1) that Iraq's actual public spending has taken an upward trajectory During the period (2004-2008), it increased from JD32,117,491 million in 2004 to JD67,277,181 million in 2008. This increase is due to the adoption of the Iraqi government Expansionary fiscal policy It aimed to meet its growing financial obligations, particularly those resulting from the expansion of public sector employment and the absorption of increasing numbers of the workforce, as well as the requirements of post-2003 reconstruction.

However, public expenditure witnessed a significant decline in 2009 to reach 55,589,062 million dinars, affected by the repercussions of the global financial crisis that negatively reflected on public revenues, prompting the government to adopt relative austerity measures to reduce the pressure on the public budget.

In 2015, the Iraqi economy faced a severe financial crisis, represented by a significant decline in global oil prices, which have fallen below \$50 per barrel since June 2014, and the escalating costs of the war on terrorism. These factors put significant pressure on public finances, contributing to a budget deficit of about AED 3,927,263 million, in addition to a decrease in public expenditure by (15.75%) compared to the previous year, reaching AED 70,397,515 million in 2015. Relative in economic conditions, public expenditure witnessed a significant increase in 2017, as it increased by JD8,422,678 million, with an annual rate of change (12.5%) compared to the previous year, reaching JD75,490,115 million compared to JD67,067,437 million in 2016. This increase is attributed to the increase in current and investment spending, in addition to the improvement in the government's ability to finance this expenditure in light of the increase in the price of the OPEC benchmark basket by about (10%), reaching (60.74) dollars per barrel in the second October of 2017, which is the highest level since June 2015.

During the period (2018-2022), public expenditure maintained high levels as a result of the adoption of an accommodative fiscal policy supported by the expansion of public revenues, with the exception of 2020, which witnessed a decline in public expenditure to reach AED 76,082,443 million. Despite this relative decline, it was accompanied by a large fiscal deficit of about JD12,882,754 million, as a result of the two severe fiscal crises facing Iraq, represented by the repercussions of the COVID-19 pandemic and low oil prices. The increase in consumer spending, especially Spending on the health sector to counter the health and social impacts of the pandemic has also deepened this deficit. As the health crisis subsided, public expenditure rose again in the following years, and Figure 12 shows the gap between the sources of public expenditure and public revenues (deficit or surplus) as follows:

**Figure 1:** (Deficit or Surplus) in the Ethnic Economy during the Period (2004-2022)



Source: The researcher's work based on the data of Table (1).

## Structural Analysis of the Services Sector and its Economic Contribution in Iraq during the Period (2004-2022)

The activities of the service sector are called service activities, and its structure in the Iraqi economy consists of two main activities: housing ownership and Human Development Services (Social and Personal Services). These activities form a major part of the sectors that contribute to the composition of GDP and contribute significantly to the absorption and employment of large numbers of the workforce, especially in the personal services activity, which is one of the main

components of Human Development Services (Social and Personal Services).

In addition, the service sector plays an important role in supporting the economic development process by improving social welfare levels, meeting the needs of the service community, and enhancing human capital. Tables (2) and (3) show the structure of the services sector in Iraq during the period (2004-2022), in addition to the development of this structure and the percentage of the contribution of the services sector to (GDP) during the same period, as follows.

**Table (2):** Structure of the Services Sector in the Iraqi Economy during the Period (2004-2022) (Million Iraqi Dinars)

Personal Services	General Government	Human Development Services (Social and Personal Services)	Ownership of Residences	Years
2141631.1	6728928.0	8870559.1	8052443.2	2004
2208267.7	7579380.8	9787648.5	8299626.0	2005
2291197.1	11422419.1	13713616.2	8990705.3	2006
2004460.2	12297928.1	14302388.3	9322462.8	2007
2310280.7	12782466.5	15092747.2	9605384.1	2008
2557480.7	13849802.5	16407283.2	9845396.9	2009
2731389.4	14734804.9	17466194.3	10017684.8	2010
3023648.1	15892960.6	18916608.7	10355537.2	2011
3471387.6	16415839.0	19887226.6	9374312.4	2012
3959695.5	17354825.0	21314520.5	9589713.5	2013
4062332.4	15440931.6	19503264.0	9773792.2	2014
3972870.3	15610781.8	19583652.1	7435997.3	2015
4080790.3	14986350.5	19067140.8	7714138.7	2016
4220590.5	14881446.0	19102036.5	7977075.8	2017
5123421.9	14880850.7	20004272.6	8848099.7	2018
5283433.2	15170521.3	20453954.5	9165658.0	2019
5277032.1	14397012.4	19674044.5	9494660.3	2020
5342319.7	16830698.4	22173018.1	9687552.3	2021
5478647.0	16494084.5	21972731.5	10020287.5	2022
3660046.1	14092212.2	17752258.3	9135291.0	Arithmetic Average

Source: Researcher's work, based on the Iraqi Ministry of Planning, Central Bureau of Statistics, Directorate of National Accounts, Special Reports on GDP (2004-2022).

**Table (3):** Change in the structure of the services sector and the percentage of contribution to the GDP in the Iraqi economy during the period (2004-2022) (%)

Annual Percentage * Change	Percentage of Personal Services	Annual Percentage Change *	General Government %	Annual Percentage Change *	Human Development Services (Social and Personal Services) %	Annual Percentage Change *	Residential Home Ownership %	Years
-	2.1	-	6.6	-	8.7	-	7.9	2004
3.1	2.1	12.6	7.3	10.3	9.4	3.1	8.0	2005
3.8	2.1	50.7	10.4	40.1	12.5	8.3	8.2	2006
(12.5)	1.8	7.7	11.0	4.3	12.8	3.7	8.3	2007
15.3	1.9	3.9	10.5	5.5	12.4	3.0	7.9	2008
10.7	2.0	8.4	11.0	8.7	13.1	2.5	7.8	2009
6.8	2.0	6.4	11.0	6.5	13.1	1.7	7.5	2010
10.7	2.1	7.9	11.1	8.3	13.2	3.4	7.2	2011
14.8	2.1	3.3	10.0	5.1	12.2	(9.5)	5.7	2012
14.1	2.3	5.7	9.9	7.2	12.1	2.3	5.5	2013
2.6	2.3	(11.0)	8.6	(8.5)	10.9	1.9	5.4	2014
(2.2)	2.2	1.1	8.5	0.4	10.6	(23.9)	4.0	2015
2.7	1.9	(4.0)	7.1	(2.6)	9.1	3.7	3.7	2016
3.4	2.0	(0.7)	7.2	0.2	9.2	3.4	3.9	2017
21.4	2.4	(0.0)	7.0	4.7	9.4	10.9	4.2	2018
3.1	2.3	1.9	6.8	2.2	9.1	3.6	4.1	2019
(0.1)	2.7	(5.1)	7.3	(3.8)	10.0	3.6	4.8	2020
1.2	2.6	16.9	8.5	12.7	11.1	2.0	4.9	2021
2.6	2.5	(2.0)	7.7	(0.9)	10.2	3.4	4.7	2022
5.6	2.2	5.8	8.8	5.6	11.0	1.5	6.0	Arithmetic Average

Source: Prepared by the researcher based on the data of Table (2).

First: The Activity of Owning Residential Houses:

Tables (2) and (3) show that the activity of residential home ownership amounted to JD8,052,443.2 million in 2004, contributing 7.9% of GDP. This activity witnessed a continuous upward trend during the period (2004-2009), as it increased in 2006 with a rate of change of (8.3%) to reach JD8,990,705.3 million, reflecting the improvement in the levels of investment in residential infrastructure during that period.

However, the residential home ownership activity witnessed a significant decline in 2015, decreasing by (-23.9%) to reach JD7,435,997.3 million, compared to JD9,773,792.2 million in 2014. This decline is mainly due to the unstable economic and political conditions witnessed in Iraq at the time, which negatively affected the real estate market and the volume of residential investments. On the other hand, this activity increased again, recording a growth rate (3.6%) to reach JD9,165,658.0 million in 2019. This improvement is due to the expansion of investments in infrastructure, in addition to the role played by the Housing Fund and the Real Estate Bank through the granting of soft loans, which contributed to enhancing the purchasing power of low-income people to enable them to build housing units or buy houses, in addition to the decrease in the prices of some building materials.

Homeownership activity continued to increase to reach JD10,020,287.5 million in 2022, contributing 4.7% of GDP. Figure (9) shows that the average contribution of this activity to the GDP reached about (6.0%) during the study period, while the average annual rate of change was about (1.5%), which indicates a relative decrease in the importance of this activity compared to the rest of the economic activities that contribute to the GDP.

Second: Human Development Services (Social and Personal Services) Activity:

The activity of this activity consists of two main activities: the activity of personal services and the activity of public government services, and it is clear from Tables (2) and (3) that the value added of this activity amounted to (8,870,559.1) million dinars in 2004, with a contribution of (8.7%) to the GDP.

This value continued to rise to reach JD21,314,520.5 million in 2013, with a contribution of (12.1%) of GDP, mainly due to the increase in the value of public government services. However, Human Development Services (Social and Personal Services) activities recorded a decrease in 2014 by (-8.5%) to reach JD19,503,264.0 million, which led to a decrease in their contribution to GDP to (10.9%). This is due to the decline in the contribution of the extraction sector as a result of the decline in oil prices globally and the pressure resulting from public spending.

In 2018, the value of Human Development Services (Social and Personal Services) increased to JD20,004,272.6 million, as a result of the significant increase in personal services activity with a rate of change (21.4%). This is due to the decrease in expenditure allocations for general government activity, which led to the growth of personal services exceeding public government services (Central Bank of Iraq, Annual Report, 2018: 14).

This activity also recorded a significant increase in 2021, reaching AED 22,173,018.1 million, with a growth rate of (12.7%) compared to 2020, where the value reached AED 19,674,044.5 million. This activity contributed to (11.1%) of GDP, and this increase was attributed to the increase in expenditure on public government activity as a result of the increase in extractive revenues resulting from the increase in global demand for oil and its high prices. The contribution of the general government was about (8.5%) of the GDP, while the contribution of the general government to personal services was (2.6%).

However, the year 2022 witnessed a slight decrease in the activity of Human Development Services (Social and Personal Services) by (-0.9%) to reach (21,972,731.5) million dinars, and its contribution to the GDP decreased to (10.2%). This decrease is due to the decrease in the activity of the general government by (-2.0%), as a result of the non-approval of the general budget for 2022.

Figure (2) shows that the average contribution of Human Development Services (Social and Personal Services) to GDP was about (11.0%) during the study period, while the average annual rate of change was (5.6%), indicating that this activity ranks second among the economic activities that contribute to the GDP in Iraq.

Third Topic: Results of the Final Impact of the General Budget Deficit in the Human Development Services (Social and Personal Services) Sector:

First. Standard Models Description and Measurement of Sleep for Research Variables

Analyzing and measuring the relationship between the public budget deficit and Human Development Services (Social and Personal Services) in Iraq, the characteristics of the time series of the variables included in the standard model were examined., represent Budget deficit (BD) is an independent variable, while Represent Human Development Services (Social and Personal Services) (SPDS) is a dependent variable, as one of the main channels influenced by fiscal policy.

The Common Integration Test (Borders) was used within the framework of the ARDL model, which allows estimating the relationship between variables whether they are I(0) or I(1) integrated. Accordingly, the impact of the budget deficit on Human Development Services (Social and Personal Services) in the short and long term was estimated, illustrating the nature of the relationship between financial imbalances and the level of social development in Iraq.

First. Characterization of the measurement of the relationship between standard models using the ARDL methodology:

This is shown in the table (4(Variables used in the model)Dependent variable), f) independent variable), the dependent and independent variables used can be explained as in Table (4):

**Table (4):** Description of the study variables used in the standard models

Unit of Measurement	Name of variables	Variable type	Variable symbol	t
million dinars	Human Development Services (Social and Personal Services)	Dependent variable	SPDS	1
million dinars	Budget deficit or surplus	Independent variable	BD	2

Source: Prepared by the researcher, based on the research variables.

It is clear from Table (4) that the variables included in the model and before measuring the effect between them, it is necessary to know the dormancy of each variable in order to use the model best to measure this relationship.

Second. Measuring the hibernation of variables in the time series:

Expresses what you express Time Chains A set of readings or observations that describe the development of a particular economic phenomenon over successive periods of time, allowing the analysis of its dynamic behavior and the derivation of general trends and the periodic fluctuations associated with them. The study of the properties of time series is an essential step in standard analysis, especially before estimating economic models, as this directly affects the avoidance of false conclusions.

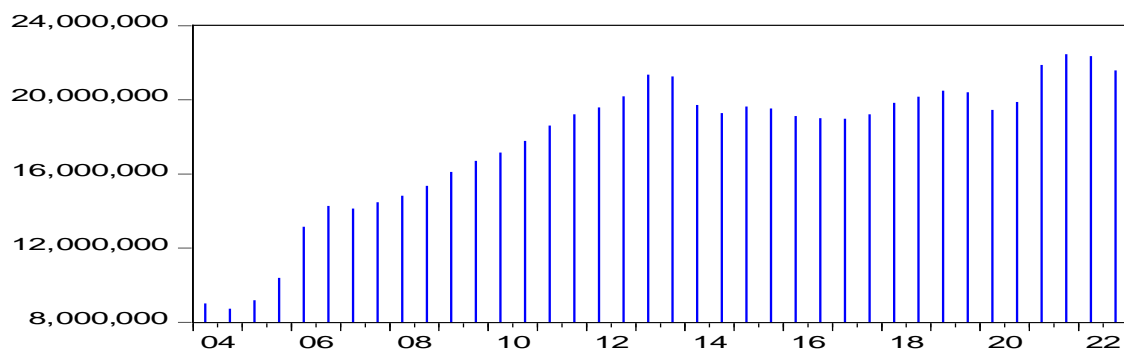
There are many tests that are used to determine the degree of dormancy (stability) of small variables, as these tests aim to detect the presence or absence of a unit root. Graphing testing is an important initial test, as it relies on the formal representation of the time series through time, to observe whether it fluctuates around a fixed mean with stable variance limits, or whether it shows an upward or downward trend, indicating that it is not constant.

Although the graphical test is important in giving an initial impression of the behavior of the time series, it is a descriptive and inconclusive test, and should be supported by more accurate statistical tests, such as the Dickey-Fuller Extended Test (ADF), to determine the degree of accurate integration of variables before moving on to co-integration tests and estimating appropriate standard models.

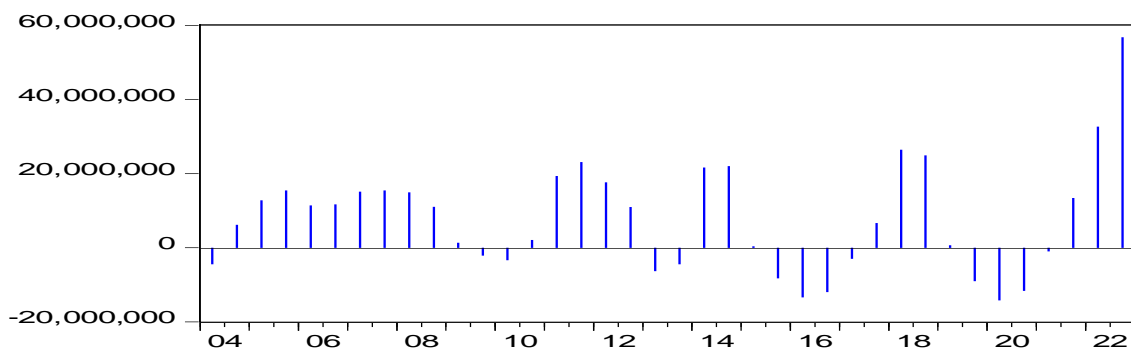
1. Graphical testing of the studied variables:

Figure (3) shows the sleep test according to the (diagram) of the model and the following:

**Figure 3:** Sleep test according to the model graph  
**SPDS**



**BD**



Source: From the researcher's work based on the results of econometric estimates obtained through EViews version 13.

It is clear that time series can be unstable at their original level (level), as it is clear that these variables have a general trend, as Figure (3) shows the sleep test according to (graph).

2. Results of the Variable Dormancy Test according to (ADF):

Table (5) shows the results of the inertia of the variables included or used in the model, as follows:

**Table (5)** Results of the Variable Dormancy Test according to (ADF)

Variables	Test Format	Statistic t	Maybe.	Conclusion
<b>SPDS</b>	With Fixed	-3.6028	0.0108	** Fixed
<b>BD</b>	With Fixed	-4.2474	0.0019	*** Fixed
<b>SPDS</b>	With Constant & Trend	-2.6633	0.2569	Unstable
<b>BD</b>	With Constant & Trend	-3.9646	0.0192	** Fixed
<b>SPDS</b>	Without Stability & Direction	1.5781	0.9695	Unstable
<b>BD</b>	Without Stability & Direction	-3.0853	0.0030	*** Fixed
<b>d(SPDS)</b>	With Fixed	-4.8090	0.0004	*** Fixed
<b>d(BD)</b>	With Fixed	-3.6448	0.0104	** Fixed
<b>d(SPDS)</b>	With Constant & Trend	-5.6367	0.0003	*** Fixed
<b>d(BD)</b>	With Constant & Trend	-3.5766	0.0486	** Fixed
<b>d(SPDS)</b>	Without Stability & Direction	-4.0200	0.0002	*** Fixed
<b>d(BD)</b>	Without Stability & Direction	-3.7493	0.0005	Fixed ***

Source: From the researcher's work based on the results of econometric estimates obtained through EViews version 13.

It is clear from the test results in Table (5) that all the studied variables were inconsistent (incomplete) at the level (at the level) and became constant when taking the first difference for them, i.e. they were integrated at the first score (at the first difference) and in all three cases represented by (with constant, with constant & direction, without constant and direction), and based on the above, the rest of the variables were at the first difference. (At the first team).

First. Initial Estimate of the Model:

Table (6) shows the results of the preliminary estimation of the Distributed Slowdown Autoregression Model (ARDL), It is as follows:

Statistical Indicator	Value	Statistical Indicator	Value
Selection Coefficient (R <sup>2</sup> )	0.969461	Average Dependent Variable	18504641
Rate Determination Coefficient (R <sup>2</sup> Rate)	0.962917	Standard deviation of the dependent variable	2844049
Standard error in regression	547677.9	Akai Information Standard	29.44162
Total Square Residue	8.40E+12	Schwartz Standard	29.75269
Possibility of Record	-508.2283	Hanan-Quinn Standard	29.54900
Statistic F	148.1432	Durbin-Watson Statistic	1.922066
Probability of Statistic F	0.000000		

researcher's work based on the results of econometric estimates obtained through EViews version 13.

The results from Table (6) indicate that the model has a high degree of explanatory efficiency and normative relevance, as the value of the probability of testing (Statistical F) was about (0.0000), which is less than the approved significance level of (5%), which indicates the statistical significance of the model and its validity in interpreting the relationship between the studied variables. The statistical value of (Statistical F) was also about (148.1432), which is a high value that reflects the explanatory power of the model and its ability to clarify the effect of the independent variable on the dependent variable.

As for the adjusted coefficient of determination, it reached about (0.962917), which means that about (96%) of the changes in Human Development Services (Social and Personal Services) can be interpreted as resulting from the changes that occurred in the budget deficit.

The results also showed the value of the Durbin-Watson statistic (1.922066), indicating that there was no real problem with the self-correlation test.

Second. Short impact results and error correction coefficient of the model:

This is shown in the table (7) Results of the Short Model Effect

**Table (7)** Short Effect Results and Error Correction Coefficient of the Model

Variable	Parameter.	Error Year	Statistic t	Maybe.
D(BD)	-0.027581	0.010279	-2.683296	<b>0.0121</b>
CointEq(-1)*	-0.110210	0.022264	-4.950136	<b>0.0000</b>

Source: From the researcher's work based on the results of econometric estimates obtained through EViews version 13.

Table (7) shows that increasing the budget (deficit and surplus) by one billion will lead to a decrease in the production of the Human Development Services (Social and Personal Services) sector by (-0.027581) billion dinars in the short term, and this indicates that there is an inverse relationship between the increase in the Iraqi budget surplus in the Human Development Services (Social and Personal Services) sector. Thus, although there was a large surplus during the school years, this indicates that this excess expenditure is not being exploited or directed to improve the Human Development Services (Social and Personal Services) sector. The impact of the budget deficit surplus in the Human Development Services (Social and Personal Services) sector is of great importance at the level of (0.0121), which is less than 5%.

It was also found that the error correction coefficient was less than 5% and negative, and its value was limited between (0-1), i.e. conforming to the conditions of the error correction coefficient when it reached (-0.110210), the negative

reference to the correction process and the value (0.110210) indicates the amount of correction approximately (11%), and this explains to us that any defect that occurs during the short term is corrected in the long term by 11% per year (0.110210).<sup>(1)</sup> That is, we need a period of (9 years) to correct the defect that occurs in the short term, and that this coefficient was statistically significant and statistically significant at the score of (0.0000), i.e. it is less than 5%.

Third. Model Integration Integration:

Table 8 shows the results of the Boundary Test for Co-Integration (Boundary Test) within the Distributed Slowdown Self-Regression Model (ARDL), which is used to detect a long-term equilibrium relationship between budget deficits and Human Development Services (Social and Personal Services) in Iraq.

**Table 8:** Boundary Test

F Limits Test		-		
Test Statistics	Value	Border	I(0)	I(1)
Statistic F	7.623420		-	
K	1	5%	3.62	4.16

Source: Developed by the researcher based on the results of econometric estimates obtained through EViews version 13.

The zero hypothesis in the test states that there is no long-term relationship between variables at their levels (null hypothesis: a no-levels relationship), and the acceptance or rejection of this hypothesis is judged by comparing the statistical value of (F) at the lower and upper critical bounds of I(0) and I(1). If the value (statistic F) is above the non-constant upper limit I(1), the null hypothesis is rejected and the co-integration of the variables is recognized, but if it is below the minimum consonant letter. I(0) The null hypothesis is acceptable.

The test results showed that the value of (Statistic F) reached (7.623420), which is higher than the non-fixed upper limit of I(1) at the significance level of (5%) of (4.16%), which led to the rejection of the null hypothesis and the acceptance of the alternative hypothesis that there is a long-term equilibrium relationship between the budget deficit and Human Development Services (Social and Personal Services).

Fourth. The results of the long-term impact of the model:

This is shown in the table (9) Results of the Short Model Effect

**Table (9)** Short Effect Results and Error Correction Coefficient of the Model

Variable	Laboratories	Error Year	Statistic t	Maybe.
BD	-0.380191	0.159403	-2.385101	<b>0.0241</b>
C	22565461	1623967.	13.89527	<b>0.0000</b>

Source: From the researcher's work based on the results of econometric estimates obtained through EViews version 13.

1. Increasing the budget deficit by one billion will lead to a decrease in the production of the Human Development Services (Social and Personal Services) sector by (-0.380191) billion dinars in the long run , and this indicates that there is an inverse relationship between the increase in the Iraqi budget surplus in the Human Development Services (Social and Personal Services) sector. Thus, although there is a large surplus during the school years, this shows that these excess expenditures are not being exploited or directed towards improving the Human Development Services (Social and Personal Services) sector, and this is shown through morale. Each increase in the fiscal deficit puts pressure on the provision of social and personal services. By postponing projects, reducing maintenance, or suspending social support programs. Conversely, effective fiscal deficit management (revenue diversification, improved tax collection, and spending control) enhances the state's ability to deliver basic services, raising the quality of life and reducing poverty and unemployment.

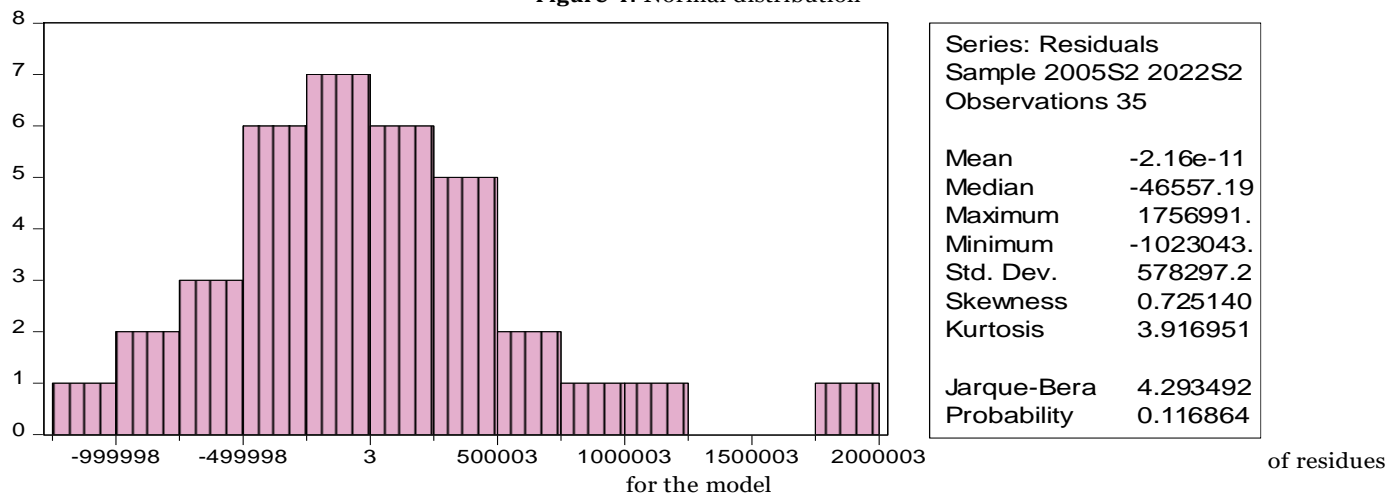
Fifth. Statistical problems of the model:

There are many statistical problems that can give the Standard Model false results if they are one or all of them, and perhaps the most prominent of these problems are:

1. The problem of the normal distribution of residues for the model:

Figure (4) shows the normal distribution of the residues of the model as follows:

Figure 4: Normal distribution



Source: From the researcher's work based on the results of econometric estimates obtained through EViews version 13.

The statistical significance of (Jarco-Berra) was (11%), i.e. greater than 5%, and shows that the residues were naturally distributed, as the normal distribution of the residues in the case of abnormal gives false and incorrect results.

2. The problem of variation and the self-correlation of the model:

Table 10 shows the results of the Brosch-Bagan-Godfrey heterogeneity test and the Brusch-Godfrey LM sequential test, with the aim of verifying the integrity of the standard model and the extent to which it is free of standard problems that may affect the efficiency of the estimates and the reliability of the results.

Table (10) Variance of Variance and Autocorrelation of the Model

Flexibility Heterogeneity Test	
Maybe	0.9541
LM Test for Serial Correlation	
Maybe	0.2877

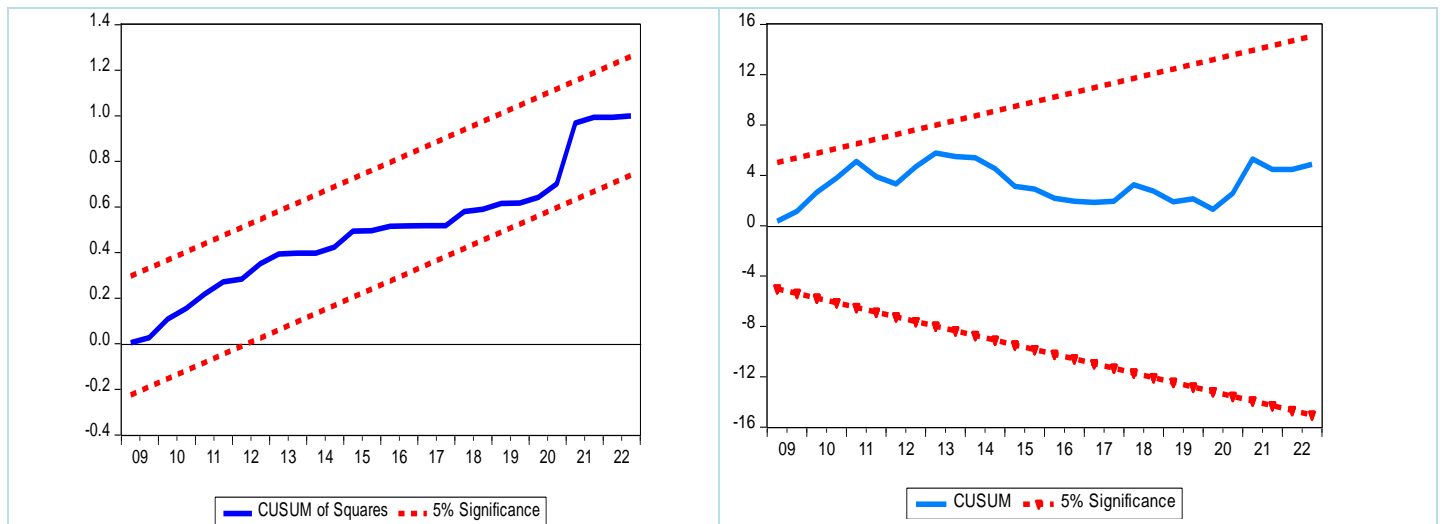
Source: From the researcher's work based on the results of econometric estimates obtained through EViews version 13.

Table (10) shows that the results of the variance test showed that there was no problem with the variance of variance in the rest of the model, as the value of the probability of chi-squared was about (0.9541), which is greater than the approved significance level (5%), which leads to the acceptance of the null hypothesis that the variance of random errors is constant and the rejection of the alternative hypothesis that indicates the existence of a different variance problem. This reflects a good degree of statistical stability and estimation efficiency.

As for the self-correlation test, the results showed that there was no problem with the self-correlation between the remnants of the model, as the value of the chi-square probability was about (0.2877), which is also greater than the significance level (5%), which means accepting the hypothesis of nothingness, indicating the absence of self-correlation and rejecting the alternative hypothesis that assumes its existence.

These results confirm that the estimated standard model has sound statistical characteristics, and that the rest of the model is independent and stable, enhancing the reliability and reliability of the results in explaining the relationship between budget deficits and Human Development Services (Social and Personal Services) in the Iraqi economy.

3. Structural stability of the estimated model: Figure (5) illustrates the structural stability diagnoses of the estimated model through the CUSUM and CUSUMSQ tests, which are used to examine the stability of the model's parameters during the study period.



Source: From the researcher's work based on the results of econometric estimates obtained through EViews version 13.

The results of Figure (5) indicate that the model is free of structural instability, as the residual cumulative sum test (CUSUM) and the remaining squares cumulative sum test (CUSUMSQ) curves fell within the confidence limits at the level of statistical significance (5%) throughout the study period, indicating the stability of the model's coefficients and the absence of significant structural changes affecting the relationship between the study variables.

## Conclusions:

1. The impact of public revenues and fiscal deficits on social and personal services, as the data showed that public revenues in Iraq increased from 32,982,739 million dinars in 2004 to 161,697,437 million dinars in 2022, but the heavy dependence on oil revenues has made the Human Development Services (Social and Personal Services) sector highly vulnerable to oil price fluctuations and economic crises. This was reflected in the continuity of the implementation of educational, health and service projects.
2. The results showed that the expansion of public spending contributed to the improvement of the level of social and personal services, especially in the health, education, and social welfare sectors, while the decrease in spending during crisis periods, such as the COVID-19 crisis in 2020, increased the pressure on basic services and reduced their efficiency.
3. The importance of the services sector in supporting the Iraqi economy, as the study showed that the social and personal services sector represents one of the important components of GDP, as it clearly contributed to supporting economic activity and improving the level of social welfare, in addition to its role in absorbing an important part of the workforce.
4. The results of the boundary test confirmed a long-term equilibrium relationship between the budget deficit and Human Development Services (Social and Personal Services), where a value (statistic  $F = 7.623420$ ) was higher than the critical values at the significance level of 5%, indicating a stable dynamic correlation between the two variables.
5. The results of the error correction model showed that the correction coefficient reached  $(-0.110210)$  and a high level of significance, indicating that short-term imbalances need a relatively long period of time to correct them, as only about 11% of imbalances are corrected annually, reflecting the slow response of social services to financial and economic changes.
6. The results showed that the increase in the budget deficit by one billion dinars leads to a decrease in the production of the Human Development Services (Social and Personal Services) sector by about  $(-0.380191)$  billion dinars in the short term, which confirms the inverse relationship between the fiscal deficit and the level of social services, as a result of the effect of the deficit on reducing investment spending. Delaying projects and reducing the efficiency of services provided to citizens.

## Recommendations:

1. Restructure public spending priorities by directing financial resources towards vital sectors that have a direct impact on human development, especially health, education, and social services, while minimizing the waste of unnecessary expenditures, and ensuring the continuity of the provision of basic services even in periods of fiscal deficits and economic crises.
2. Diversify public revenue sources by reducing over-reliance on oil revenues by revitalizing non-oil productive sectors, and enhancing tax revenues and government fees, contributing to the provision of sustainable sources of financing that support Human Development Services (Social and Personal Services).
3. Enhancing the efficiency of government expenditure management through the development of financial control

mechanisms and follow-up of public expenditure to ensure efficient resource allocation and access to support for deserving groups, while adopting performance indicators that measure the quality of social services and the effectiveness of associated spending.

4. Support fiscal sustainability and counter shocks by establishing reserve funds and prudent fiscal policies to counter economic fluctuations and emergency crises such as low oil prices or health crises, and help protect spending on social and personal services from sharp cuts.

5. Developing the institutional structure of public services by enhancing the efficiency of government institutions responsible for providing social and personal services, through digital transformation, simplifying administrative procedures, and improving the level of coordination between government agencies to raise the quality of services provided to citizens.

6. Promoting social justice and human development by directing fiscal policy towards achieving equity in the distribution of public services among governorates and different social groups, while prioritizing low-income and the most vulnerable groups, thus contributing to improving the level of social welfare and supporting sustainable economic development.

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