

## Assessment of the Effects of Fiscal Policy on Economic Growth in Saudi Arabia

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### ABSTRACT

This study provides empirical analysis of the impact of fiscal policy on economic growth in Saudi Arabia. The study analysing time series data from 1980 to 2023. Augmented Dickey-Fuller and Philips perron unit root test was employed to establish the stationarity of the variables while the Autoregressive Distributed Lag (ARDL) model was used for testing for the existence of long-run and short-run equilibrium conditions. The findings suggested a co-integration between the dependent and independent variables as well as a long-term relationship between the variables in Saudi Arabia during the period studied. The estimation results reveal that adjusted R<sup>2</sup> value of 0.8854 showed that about 89.5% of the total variation in the real GDP is explained by the independent variables included in the model. Specific fiscal policy variables that have significant and positive impact on economic growth in Saudi Arabia are government expenditure, terms of trade index, and real effective exchange and debt. In addition, the results of the study indicated that tax revenue, has a negative and significant impact on real GDP in Saudi Arabia during the period under review. Therefore, this study clearly suggests raising government expenditure must be a key part of any strategy to increase growth and trade reform has been strongly growth enhancing in S Saudi Arabian economy. while avoiding tax structures targeted explicitly at the country's low real GDP.

**Keywords:** Fiscal Policy, Economic Growth, Saudi Arabia, ARDL model.

### 1.1 Introduction

A country's principal macroeconomic objective is to achieve a high economic growth rate. However, the key measure of the overall health of an economy is the size and direction of its economic growth, often measured by the change in GDP from one period to another. Economic growth is a critical indicator of a nation's overall financial health (Abid, 2020). Demand-side economic theories advocate for government spending for boosting a country's economic growth. However, there is no general agreement among researchers on this point. On the one hand, the Keynesian view emphasizes the size of government spending and views it as a cause of economic growth, not the reverse (Chu et.al. (2020). Contrary to this view, the neo-classical growth models argue that government fiscal policy does not have any effect on the growth of national output. However, it has been argued that government fiscal policy (intervention) helps to improve failure that might arise from the inefficiencies of the market, (Varadi & Anlalramsanga, 2012). In endogenous growth models, an increase in government spending may raise the steady-state rate of growth due to positive spillover effects on investment in physical and/or human capital. Therefore, the efficacy of fiscal policy in improving economic conditions in the long run is, however, a controversial issue and needs further investigation. There has been a revival of interest among policymakers and researchers in understanding the linkages between fiscal policies and economic growth. It is worth mentioning that, there was growing concern amongst policy makers over the potentially distorting effects of government spending programmes and taxes.

Over time, it has become a cornerstone for analysing the dynamics of fiscal policy in both developed and developing economies (Ahmed, 2019; and Sossounoy & Kolenikov, 2023). As economies develop, there is a natural tendency for government expenditure to increase, driven by the growing need for public infrastructure, social services, and regulatory frameworks to support economic activity (Ahmad, 2018; Modibbo & Inuwa, 2020; Sadashiv, 2023).

Optimal fiscal policy in Saudi Arabia and in other developing countries plays a pivotal role in growth process and, hence, serves as a vital instrument for economic growth. Fiscal policies also target economic growth and the maintenance of its gains and stability during crises. Therefore, public fiscal policy in the Kingdom plays a major role and usually focuses on three main goals: achieving economic growth and stability, ensuring financial sustainability, and fostering intergenerational justice. Fiscal policy is highly relevant to the conditions in Saudi Arabian from 1980 to 2023. During this time, the link between economic growth, and fiscal policy is highly appealing, making it possible to make estimates about it. As Saudi Arabia's oil export revenues constitute about 90% of its budget, its fiscal policy is largely a function of developments in the oil market. The challenges confronting Saudi Arabia's fiscal policymakers arise from the finite, volatile and uncertain nature of the oil revenues on which the state budget depends. Moreover, During the period of study Saudi Arabian economy experienced, a sharp decline in oil prices, exacerbated by factors such as the United States (U.S.) oil boom, heightened spending, and the global pandemic, led to

significant fiscal imbalances (IMF,2016). It has been estimated that during 2014-2015 the drop in oil prices leads to decline in oil revenue from 32.3% of GDP to 18.4 % of GDP as a result government deficit increased from 3.4 % to 15.4 % of GDP (IMF, 2016). It should be mentioned that the fiscal deficit rose steeply at around 8.5 % in 2019.

As a result , the economic activities decreased and health spending increased, the country's budget deficit widened, reaching 9.8% of GDP in 2020 (IMF, 2019) . Thus, the Saudi regime has sought to reduce public spending, raise revenue, and move away from its economic dependence on natural resources by undertaken such fiscal programs to fund large-scale initiatives programs (IMF,2014). This required to increase VAT rate from 5% to 15 % as advocated by international monetary fund. Thus, the introduction of VAT in Saudi Arabia, which coincided with energy price reforms, resulted in heightened inflationary pressures. (IMF, 2019). The average consumer price increased by 3.3 percentage points during 2018, growing from -0.8% in 2017 to 2.5% in 2018. Similarly, following the tripling of VAT later in 2020, the inflation rate increased by 5.5 percentage points from -2.1% in 2019 to 3.4% in 2020. (Annual report,2021). From the other side increase of VAT rate may increase government revenue lead to covering all short-fall and gaps to essential governmental projects as well as paying government dues without experiencing any delays and additional cost of finances (<https://sa.andersen.com>)

The Saudi Ministry of Finance (2024) asserted that, despite the slowdown in global economic growth and ongoing economic challenges and geopolitical tensions, Saudi Arabia has demonstrated the strength of its fiscal position and the flexibility of its economy in the face of challenges, represented by safe levels of government reserves and acceptable levels of public debt, in addition to a flexible spending policy that helps deal with crises that may arise in the future. This view was supported by the world bank (2024) view, that the fiscal policies in Saudi Arabia play a fundamental role in supporting diversification efforts, such as, strategic government spending and tax incentives which can encourage investments in non-oil sectors like manufacturing, agriculture, and services, thereby broadening the economic landscape. In addition, Abdelkawy Al Shammre, (2024) asserted that these policies aim to attract foreign direct investment, stimulate private sector growth, and create a more resilient economic environment via massive public investment programmes which is consistent with a more expansionary fiscal policy.

The main objective of this study is to examine the impacts of fiscal policy on economic growth in Saudi Arabia from 1970 to 2023.

Fiscal policy contributes mainly to establishing economics cities and is highly emphasized by the Saudi Vision 2030. The significance of this study is clear because of the scarcity of studies on the field of fiscal policy in Saudi Arabia, its determinants, and ways to attract it. By reviewing the literature, the present study makes significant contributions to the existing body of knowledge on fiscal policy and economic growth. It provides a comprehensive analysis of Saudi Arabia's Vision 2030, tracking progress and outcomes over time to evaluate the effectiveness of fiscal reforms and

diversification strategies. Additionally, it presents robust empirical evidence on the impact of fiscal variables (diversification efforts) by analysing data on government spending, taxes, and others variables and economic outcomes. The study also imparts some policy recommendations for the development of sound fiscal policy in Saudi Arabia. This analysis could help to derive insights for fiscal authorities.

However, literature, in particular, of the empirical analysis on the relationship between fiscal policy variables and economic growth are rather scarce and they vary in terms of data sets, econometric techniques, and often produce conflicting results. Even though a relationship between fiscal policy and economic growth is mentioned in the economic literature, different studies that look into this link come to different outcomes. The relationship between fiscal policy and economic growth has been debated for decades and has not clearly stated yet. This study highlights the necessity for Saudi Arabia to refine its fiscal policies towards greater economic diversification and stability. The recommendation of this study however, may be valuable and extremely useful to the policymakers to conduct a suitable fiscal reform in Saudi Arabia. This empirical study may enrich the knowledge on the complex relationship between fiscal policies and economic growth. Finally, an attempt is made to offer empirical evidence of the role of fiscal governments policy on economic growth in Saudi Arabia country.

The rest of the paper is organized as follows: Section II contains the literature review, theoretical and empirical literature. Section III presents methodology, model specification, variables' description and data. Section IV shows estimation and empirical results and finally Section V shows summary and conclusion and recommendations and limitation of the study.

## **2- Literature Review**

### **2.1 Theoretical literature**

Fiscal policy, has long been one of the main instruments used by governments to intervene and influence economic activity. There are three sorts of fiscal policy instruments: fiscal policy that focuses on tax revenue, fiscal policy that focuses on government spending, and fiscal policy that combines government spending and tax revenue as a funding source. And, there are two types of fiscal policy, the first, is the expansionary fiscal policy which employed by the government during economic recessions. This policy involves increasing liquidity within the country through heightened government spending or tax reductions, with the objective of stimulating the economy to restore economic and social equilibrium. The second one is the contractionary fiscal policy which implemented by the government to address inflationary gaps. This policy entails reducing liquidity within the country through decreased government spending, tax hikes, or a combination thereof, with the aim of curbing demand to restore economic and social equilibrium. Thus, depending on economic conditions, public expenditures and taxes are used to influence the economy in the direction of expansion or contraction.



Theories used to analyse the impact of fiscal policy on economic growth includes the Keynesian view on fiscal policy, the Harrod–Domar growth model, neoclassical views, endogenous growth models, and the Ricardian equivalence theory.

However, the views and theories on the effectiveness of this fiscal instrument have often been contradictory. Thus, Keynes (1936) gave a theoretical basis for the use of fiscal policy, showing that public expenditures and taxes are an effective tool for regulating economic cycles. According to this theory, insufficient aggregate demand is the main cause of economic recessions. Hence, the need to increase public expenditures or the private expenditures of citizens following tax cuts increases their power to purchase and therefore consumption, to stimulate and improving economic growth and thus create job. Keynes believed that governments could stabilize the business cycle and regulate economic output by adjusting spending and tax policies to make up for the shortfalls of the private sector (Alfaro, 2025). This view was contradicted by the neoclassical view, which argues that government intervention in the economy has minimal effects on economic growth and the distribution of income. However, the Harrod–Domar growth model suggests that a fiscal policy that induces the savings rate could promote growth. Nevertheless, the fact that the capital output ratios are assumed to be given and technology does not influence growth, limits its applicability to explain real situations.

Therefore, according to the Monetarists, public expenditure can decrease unemployment over time, due particularly to the phenomenon of the "money illusion" of the economic agents. In all endogenous growth models that have been developed in the past, the government can influence growth, either directly or indirectly. Thereby, it can have major consequences for standards of living. According to the theory of endogenous growth, public expenditure on investment in human capital will stimulate economic growth, since innovation, research and development (R&D) and their diffusion in the production process in a country is only the result of well-trained human capital. Similarly, this theory considers that increased in public expenditure to alleviating market distortions, enforcing property rights, providing infrastructural services, and ensuring better financial markets generate efficiencies that translate into growth (Burgess (2001). However, the endogenous growth theories are still to be supported by empirical literature (Barro, 1996). It is interesting that this theory mentioned that fiscal stimulus is usually expansionary, but it depends on circumstance. While Counter-cyclical fiscal policies are designed to stabilize the economy by adjusting government spending and taxation in response to economic fluctuations. These policies aim to counterbalance the business cycle, mitigating adverse effects and promoting economic stability and growth (Abdelkawy and Al Shammre (2024). In addition, these policies indicate that increased government spending positively affects private consumption and labor supply, leading to higher overall economic activity (Shaheen ,2019) There is limited evidence in the literature on the short-term effects of countercyclical fiscal policy in the context of developing countries (Clements et.al (2015). According to the Ricardian Equivalence Theorem (RET), the government's financing decisions should be irrelevant. In this view, only

need to be concerned with the size and composition of government spending to establish the growth effects of government activities. (Brons, et.al 1999).

## 2.2 Empirical literature

Onifade et al. (2020) investigated the impacts of public expenditures on economic growth with respect to capital expenditure, recurrent expenditure and the government fiscal expansion in Nigerian economy. Pesaran's ARDL approach has been applied to annual time-series data from 1981 to 2017. Empirical findings show that, there is a positive relationship between public spending indicators and economic growth in Nigeria. Also, the findings indicated that, recurrent expenditures of government tend to have a negative and significant effects on economic growth. while public capital expenditures have the positive and in significant impacts on economic growth over the period of the study. Further results reveal that debt financing by fiscal expansion is strongly granger causing public expenditures and domestic investment also Granger causing real growth in the economy.

Al-Tamimi (2020) showed the impact of government spending on Jordan's economy for the period (2010 – 2019), where government spending and tax revenues as percentages of GDP are explanatory variables and economic growth is the affected variable. This study employed the Autoregressive distributed lag (ARDL) method for estimation of the results. This research reported insignificant effects of government spending and tax revenues as percentages of GDP on Jordan's economy for the period (2010 – 2019).

Chai-Thing Tan. et.al (2020) analysed the impact of monetary and fiscal policies on economic growth in Malaysia, Singapore and Thailand from 1980: Q1 to 2017: Q1. Autoregressive distributed lag (ARDL) approach is employed to determine the long-run relationship. Further, a range of econometric models, such as fully modified least squares method (FMOLS), canonical cointegration regression (CCR) and dynamic ordinary least squares method (DOLS), are applied to check the robustness. The main findings of this study that interest rate had a negative impact on economic growth in three selected countries, government spending had a negative impact on economic growth in Malaysia and Singapore, but had a positive impact in Thailand and monetary policy is more effective in Malaysia and Singapore, while fiscal policy is more effective in Thailand.

Alkawaldeh et.al (2020) examined the effect of taxes and interest rate on economic growth in Jordan by employing the time series data from 1970-2019. The study uses cointegration test developed by Gregory and Hansen to investigate the long-run relationship and the dynamic autoregressive distributive lags were used for the estimation result. The long run and short-run estimates revealed the positive and negative effects of taxes and the interest rate on economic growth respectively. While the 1997 Asian financial crisis and 2015 food crisis show a negative effect on economics.

Rexha, et.al (2021) studied the impact of fiscal policy on economic growth in the Republic of Kosovo from 2006 to 2016 using VAR and Granger tests. The data

demonstrated a correlation between government spending and economic growth. Moreover, the results indicate a bidirectional relationship between expenditures and public revenues.

Hasanov et al. (2022) investigated the impacts of government current and capital spending in economic growth in Saudi Arabia in 1989 – 2018. The results showed that government current and capital spending have a positive influence on non-oil GDP.

Harman Singh (2022) employed auto-regressive distributed lag (ARDL) cointegration and error-correction modelling to study the long-run impact of investment, exports, imports, and three components of government expenditures (expenditures on health, education, and other government spending) on GDP growth in Saudi Arabia from 1985 to 2018. The results observed the long-run positive relationship between GDP, investment, exports and government education expenditure, but a negative relationship between GDP, imports, government health spending, and government other expenditures. The analysis revealed that investment, exports, and government educational expenditures all have long-run positive effects on the GDP growth, while imports, government health expenditures, and government other expenditures negatively affect GDP growth in Saudi Arabia.

Al\_kasasbeh, et.al. (2022) investigated the Impact of fiscal policy and trade Liberalization on Economic Growth in Jordan. The study used Augmented Dicky Fuller unit root tests and Kapetanios unit root tests with structural breaks for the empirical investigation. The study finds that government spending and taxation have a favourable influence on economic growth, according to the simulation results. Whereas the Public debt has a negative but negligible effect on economic growth.

Daoudi (2023) analysed the impact of fiscal policy on economic growth in Algeria using the Autoregressive Structural Vector Methodology (SVAR). The study concluded that there is a positive effect of public spending on the economic growth in Algeria, but it is smaller, and it is only in the short term and then turns into a negative impact in the medium and long term. This indicated that ordinary taxation is very limited to increase economic growth in Algeria with the strong presence of petroleum taxation.

Fuad Kreishan (2023) assessed the relationship among non-oil revenue, government spending and economic growth in Bahrain. The study used annual time series data for the period from 1990 to 2020. Vector Error Correction Model (VECM) approach of stationarity test, cointegration test, stability test and Granger causality test are used to analysed the data. Moreover, Impulse Response Function (IRF) has also been generated to explain the response to shock between the variables. The findings showed that government spending appears to be the main source for economic growth in Bahrain.

Nhemhafuki (2023) analyses the relationship between Economic Growth measured in terms of GDP Growth and Government Expenditure, GDP and Population. It employs annual cross-section time series data of the concerned variable of 117 countries from 2001 to 2021. Random Effect model was used for the analysis. The pool-ability of

data is tested by the Breusch and Pagan LM test which confirmed that Pooled OLS is not appropriate for the model. The Hausman Specification Test was then conducted for choosing between the Fixed Effect or Random Effect model. The Hausman Specification Test for the Model suggests the Random effect model is appropriate for the analysis of the data. Thus, Random effect regression is used to find the consequences of explanatory and the control variables on the dependent variable. Government Expenditure as an explanatory variable has a positive relationship with the Economic Growth, even in the case of controlling for Population and the Trade Openness. Both the control variable is depicted to have positive relationship with the Economic Growth

Iqbala & Nader (2024) examined the relationship between government expenditures and economic growth in Saudi Arabia over the period from 1970 to 2023. The results from the ARDL model confirm that government expenditure, government consumption expenditure, and government spending significantly influence economic growth, and conversely, economic growth also significantly affects government expenditures over the long term. Additionally, in the short run, the analysis found no evidence for the impact of economic growth on government spending.

Ajibu Jonas (2024) analysed the impact of government spending on economic growth in Saudi Arabia from 1970 to 2022. A five variable of the Vector Error Correction model (VECM) is used to analyse the relationship between government spending, import, population, exchange rate, and economic growth (GDP). The results from the impulse response, variance decomposition, and five-year forecasting indicated that in the short run, government spending and imports have improved Saudi Arabia's economic growth. Also, the results of this study indicated that there was no four-way Granger causality among the variables but just two-way.

Khanal & Nepal (2024) examined the relationship between the different fiscal policy variables and how they impact growth in Nepal. The study applied descriptive and causal relationship research design. Secondary data from 1974- 2022 were used. The findings suggested a co-integration between the dependent and independent variables as well as a long-term relationship between the variables. The estimated coefficients of government tax and net outstanding foreign loans show the response to Nepal's RGDP. It showed that one percent increase in government tax revenue raises GDP by 0.2489 percent. Similarly, one percent increasing in the net outstanding foreign loan increases real GDP by 0.0613 percent. As a result, independent variables such as government tax and net outstanding foreign loans both contribute to Nepal's GDP

Abdelkawy and AlShammre (2024) investigated the impact of Government Consumption (GC) on Saudi Arabia's GDP during major economic crises from 1969 to 2022. This study, used an Autoregressive Distributed Lag (ARDL) model. The findings of the study indicated that while GC does not significantly influence GDP in the short term, its long-term effectiveness varies across different crises.

Mas Andini (2024) examined the concept and impact of fiscal policies on economic growth based on prior researches. The study mentioned that fiscal policy encompasses three main tools: government expenditure, taxation, and debt. Based on prior research,



this study concluded, the correlation between fiscal policy and economic growth is ambiguous and inconsistent, with instances of both positive and negative associations, depending on a number of heterogeneous factors, such as the research methodology used, the level of development of the sampled countries, the relative size of the public sector, institutional quality, the composition, and the selected control variables, among others. Moreover, this study, mentioned there is a general agreement on the fact that the relation between fiscal policy and economic growth is non-linear and depends on various partial effects that are difficult to disentangle. This ambiguity in theoretical and empirical literature invites additional studies on the relationship between government and economic growth.

Arjang et.al (2025) examined the impact of fiscal policy on economic growth in developing countries, emphasizing the role of government expenditures and tax policies in shaping economic outcomes. The findings indicate a strong positive relationship between fiscal policy and economic growth, where government spending and tax measures significantly contribute to enhancing economic performance. Specifically, the study reveals that well-structured fiscal policies can effectively promote growth, with key fiscal tools such as public investment and tax reforms playing a vital role. The results suggest that developing countries can achieve higher economic growth by implementing strategic fiscal measures, which can address structural challenges and encourage sustainable development.

### **2.3 Fiscal policy in Sudia Arabia**

The fiscal policy in Saudi Arabia has been heavily reliant on oil revenues. As highlighted by AlRasasi et.al, 2019 oil revenues have a strong link to both short- and long-term economic growth in the country. However, the volatility of oil prices poses a significant challenge to fiscal stability. The Saudi government has implemented various measures to mitigate this volatility, including the establishment of the Public Investment Fund (PIF) to manage and invest oil revenues strategically. Saudi Arabia's Vision 2030 aims to diversify the economy away from oil dependence, emphasizing the development of non-oil sectors such as tourism, entertainment, and technology. This ambitious plan involves significant fiscal reforms and strategic investments to enhance economic resilience .For improving fiscal balance of the Kingdom and to cover the revenue gap to overcome revenue short-fall as the result of falling oil prices long before COVID-19 crises, the Saudi Arabia increased the value added Tax (VAT) rate to 15% from the originally declared rate of 5%, which was implemented in 2018). However, this decision was recommended by International Monterey Fund (IMF) which advised the Kingdom of Saudi Arabia and other GCC countries adopting VAT.

### **Model Specification**

The model used to investigate the impact of fiscal policy on economic growth in Saudi Arabia is the model that proposed by Musgrave (1959). The Musgrave's theory postulates that macroeconomic factors such as economic growth, income inequality, employment, inflation, and balance of payments stability can be influenced by changes in fiscal and monetary policy instruments, such as taxes, government

expenditure, exchange rates, rate of interest, capital formation, and so on. Therefore, the model can be as follows:

$$Y_i = f(x_1, x_2, x_3 \dots \dots \dots x_j) \quad (1)$$

Where:

$Y_i$  = economic growth, income inequality, employment, inflation, and balance of payments stability.  $x_1 \dots \dots \dots x_j$  = policy instrument (taxes, government expenditure, exchange rates, interest rates, and capital flows (i.e., as a variable influencing balance of payments)). The model above shows that policy instruments can efficiently influence the macroeconomic variables. Musgrave asserts that the policy tool will be regarded as efficient to the dependent variable.

Based on the theoretical considerations discussed above, Daniel, et.al (2015) proposed a model and applied it to investigate the impact of fiscal policy on economic growth in South Africa. This model is extended by Tendengu, et.al. (2022). The model used by this study is similar to the Tendengu et, al.'s (2022) model but different from it by inclusion of variables such as- current account, debt and general government expenditure instead of public sector investment, domestic private investment, portfolio investment and inflation rate.

So, the empirical equation of this study can be represented as follows:

$$\text{GDP\_RATE} = f(\text{GCEX}, \text{LOGTR}, \text{TOT\_INDX}, \text{REER}, \text{FDI}, \text{CA}, \text{DEP}, \text{GEX}) \quad \text{--2}$$

Where:

where GDP\_RATE = real gross domestic product rate,

GCEX = government consumption expenditure,

TR = tax revenue,

TOT\_INDX = the terms of trade index,

REER = real effective exchange rate,

FDI = the foreign direct investment,

CA = current account,

DEP = total debt and

GEX = general government expenditure.

The dependent variable in our model is the real GDP per capita.

The explanatory variables are Government consumption expenditure refers to all the expenditure by the government that does not bring direct income to the state, for example, expenditure on social grants, health, education, and fighting crime, among others (Treasury 2017). Tax revenue, Terms of trade index is the indicator consists of the import to GDP ratio and the export to GDP ratio, It is the measure of free trade openness; Real effective exchange rates refer to the weighted average index of an economy's currency compared to the weighted index of another economy's currency. Foreign direct investment (FDI) is used as a proxy of financial openness, current account, the total debt and the general government expenditure.

Note that all these variables are expressed as percentage of GDP except the tax revenue in logs.

Equation 2 can be written as follows:

$$GDP\_RATE_t = \beta_0 + \beta_1 \log TR_t + \beta_2 GCEX_t + \beta_3 TOT\_INDX_t + \beta_4 REER_t + \beta_5 FDI_t + \beta_6 CA_t + \beta_7 DEPT_t + \beta_8 GEX$$

The short-run elasticities can be derived by formulating the error correction model as follows:

$$(GDP_{RATE})_t = \sigma_0 + \sum_{k=1}^m B_k (GDP\_RATE)_{t-k} + \sum_{k=0}^n y_k \ln(TR)_{t-k} + \sum_{k=0}^q \rho_k (GCEX)_{t-k} + \sum_{k=0}^{\mu} \mu_k (TOT\_INDX)_{t-k} + \sum_{k=1}^v \pi_k (REER)_{t-k} + \sum_{k=0}^x \rho_k (FDI)_{t-k} + \sum_{k=0}^{\rho} \rho_k (CA)_{t-k} + \sum_{k=0}^{\rho} \rho_k (DEP)_{t-k} + \sum_{k=0}^{\rho} \rho_k (GEX)_{t-k} + \varepsilon_t \quad (4)$$

The long-run ARDL equilibrium of the models as follows:

$$(GDP_{RATE})_t = \sigma_0 + \sum_{k=1}^m B_k \Delta (GDP\_RATE)_{t-k} + \sum_{k=0}^n y_k \Delta \ln(TR)_{t-k} + \sum_{k=0}^q \rho_k \Delta (GCEX)_{t-k} + \sum_{k=0}^{\mu} \mu_k \Delta (TOT\_INDX)_{t-k} + \sum_{k=1}^v \pi_k \Delta (REER)_{t-k} + \sum_{k=0}^x \rho_k \Delta (FDI)_{t-k} + \sum_{k=0}^{\rho} \rho_k \Delta (CA)_{t-k} + \sum_{k=0}^{\rho} \rho_k \Delta (DEP)_{t-k} + \sum_{k=0}^{\rho} \rho_k \Delta (GEX)_{t-k} + \omega t \quad (5)$$

For this study, time-series data from 1980 to 2023 was used. Annual data has been taken from World bank data base and others sources. Autoregressive Distributed Lag (ARDL)-ECM approach and some diagnostic and specification tests were employed to determine the impact of fiscal variables on economic growth on time series data. Several econometrical methods have been proposed for investigating long-run equilibrium (cointegration) among variables. The basic idea of Augmented Dickey Fuller (ADF) is to correct a high order serial correlation by adding lagged difference terms in the right-hand side of the equation. Meanwhile, Phillips and Perron (PP) use nonparametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms (Gujarati, 2004). However, this study utilizes the autoregressive distributed lag (ARDL) modelling approach which is initially proposed by Pesaran & Shin (1998). The main advantage of ARDL modelling lies in its flexibility that it can be useful when the variables are of different order of integration. ARDL technique provides best results in the presence of endogeneity. More over, Studentmund, (2005) added that ARDL is chosen because this technique allows each variable to be treated as independent or dependent variable in the equation ; besides in level, time lag of the variable(s) is often more influential to explain the dependent variable ; Aso, it can trace the causal relationship among variables which is one of the main purposes of this research ; Moreover, It can detect the policy controlled variable(s). Given all these reasons Autoregressive Distributed Lag (ARDL) test is employed to the economic growth and fiscal policy model.

## 4- Results and Discussion

### 4.1 Descriptive analysis

Table (1) below displays the summary statistics for all variables used in the study.

As reported in Table (1) all the fiscal policy variables government consumption, tax revenue and terms of trade index, foreign direct investment, effective Exchange Rate, current account, Debt and general expenditure have a mean and a positive value, this

revealed that the fiscal policies implemented in Saudi Arabian's economy during the period of study (1980-2023). In addition, a high variance of data occurs in some strategic variables which are government consumption (GCEX), Tax Revenue (Log TR), Exchange Rate (REER), Current Account (CA), Debt (DEB), and General Expenditure (GEX)). Amongst other reasons, however, beginning in late 1997, Saudi Arabia again faced the challenge of low oil prices. Because of a combination of factors—the East Asian economic crises, a warm winter in the West caused by El Niño, and an increase in non-OPEC oil production—demand for oil decreased and pulled oil prices down by more than one-third as Saudi oil income declined in the late 2010s, as a result the kingdom's international debt soared and per capita income dropped from approximately \$18,000 in 1981 to \$7,000 in 2001 (Mabro,2009).In addition to the rapid population growth of Saudi Arabia and foreign direct investment reached only \$1.4 billion in 2017 (UNCTAD , 2018).

**Table 1: Descriptive statistics**

	GDP_RA TE	GCEX	LOGTR	TOT_IN DX	REER	FDI	CA	DEP	GEX
Mean	2.281074	88.67560	2228.162	14.16368	133.5662	1.539465	3.987832	40.23562	12.92806
Median	2.893284	88.44987	2242.441	13.68010	118.5867	0.881763	3.888360	26.02915	8.394977
Maximum	10.99376	110.7008	2398.788	23.24357	246.9999	8.496352	28.12464	102.9917	50.79137
Minimum	-16.10910	63.84456	1917.210	7.461797	94.29737	-1.940149	-20.80522	1.540992	2.045738
Std. Dev.	5.178154	12.54466	122.7462	4.325765	44.96247	2.515374	13.79954	32.75881	10.77414
Skewness	-1.326214	-0.057476	-0.369270	0.236084	1.756371	1.145685	0.228633	0.629393	1.388241
Kurtosis	5.716962	2.117996	2.469835	2.151900	4.642607	3.624218	1.942536	1.942742	4.685237
Jarque-Bera	26.43164	1.450434	1.515279	1.727398	27.56878	10.34004	2.433424	4.954288	19.33961
Probabilit y	0.000002	0.484219	0.468772	0.421600	0.000001	0.005684	0.296202	0.083983	0.000063
Sum	100.3673	3901.726	98039.15	623.2017	5876.913	67.73648	175.4646	1770.367	568.8347
Sum Sq. Dev.	1152.971	6766.846	647865.0	804.6264	86929.84	272.0656	8188.377	46145.00	4991.534
Observatio ns	44	44	44	44	44	44	44	44	44

Source: Author's calculation form E- views



## 4.2 Correlation Matrix

A correlation matrix is a statistical technique used to evaluate the relationship between two variables in a data set. As shown in Table (2), the relationship between dependent and independent variables is examined in correlation analysis. All the variables were negatively correlated with economic growth except terms of trade - index (TOT\_IND<sub>X</sub>), Current account (CA) and general government expenditure (GEX) show a positive association with economic growth. Table (2) Also, shows how each of the variables were correlated to each other. And there are no variables that displayed serial correlation (a correlation coefficient of 0.9 and above) except for TOT\_IND<sub>X</sub> vs GCEX.

**Table2 : Correlation Matrix**

	GDP_RA TE	GCEX	LOGTR	TOT_IND <sub>X</sub>	REER	FDI	CA	DEP	GEX
GDP_RATE	1.000000	-0.093665	-0.341215* *	0.109764	-0.591792* **	-0.276813 *	0.385380** *	-0.133518	0.085914
GCEX	-0.093665	1.000000	0.184467	-0.982180	0.102568	-0.164290	-0.758465	0.202026	0.194936
LOGTR	-0.341215* *	0.184467	1.000000	0.185033	0.649905	-0.095504	-0.350121	0.299698	0.209238
TOT_IND <sub>X</sub>	0.109764	-0.982180	-0.185033	1.000000	-0.104403	0.075226	0.759618	-0.125638	-0.191228
REER	-0.591792* **	0.102568	0.649905	-0.104403	1.000000	0.015212	-0.265629	0.017701	0.465772
FDI	-0.276813* *	-0.164290	-0.095504	0.075226	0.015212	1.000000	0.131471	0.346971	-0.277760
CA	0.385380* **	-0.758465	-0.350121	0.759618	-0.265629	0.131471	1.000000	0.131471	-0.115171
DEP	-0.133518	0.202026	0.299698	-0.125638	0.017701	-0.346971	-0.297148	1.000000	-0.165718
GEX	0.085914	0.194936	0.209238	-0.191228	0.465772	-0.277760	-0.115171	-0.165718	1.000000

\*, \*\*and \*\*\* indicates respectively 10%, 5 %and 1% level of signification,

Source: Author's calculation form E- views

## 4.3 Testing for Stationarity of the Series

To test for the stationarity of the data, the order of integration (unit root) tests was conducted for each of the variables. The order of integration test was used to identify whether or not data was stationary. Using both Augmented Dickey Fuller (ADF) and Philip Perron (PP) performed these tests. The test was applied to the all variables as percentage of GDP except for total revenue its applied in natural logarithms. The results of the unit root test on the level and its difference of the series are given in Table (3). Both ADF and PP test show that all of the variables in the model are integrated of order one 1 (1) except GDP\_RATE, REER and FDI which were integrated at the level at 1(0). The autoregressive distributed lag (ARDL) to bound testing approach is used when the unit root test yields a mixed result for the order of

integration, such as I(0) and I(1).

**Table 3: ADF and PP Unit root test results**

Variables	ADF			PP		
	Level	1 <sup>st</sup> differences	Results	Level	1 <sup>st</sup> difference	Results
GDP_RATE	-3.971239** *		I(0)	-4.011378***		I(0)
GCEX	-2.321819	-5.744769***	I(1)	-2.317298	-5.724376***	I(1)
LOGTR	2.712705	-3.632024***	I(1)	2.275821	-3.750806***	I(1)
TOT_INDX	-2.355186	-5.952900***	I(1)	-2.335061	-5.952044	I(1)
REER	-3.462369**		I(0)	-3.433232**		I(0)
FDI	-5.951042** *		I(0)	-5.973695***		I(0)
CA	-2.366298	-5.842976***	I(1)	-2.452437	-5.806418	I(1)
DEP	-2.548566	-4.887257***	I(1)	-1.900983	-5.730168***	I(1)
GEX	-1.375648	-6.177810***	I(1)	-6.084839***		I(0)

\*\* and \*\*\* indicates respectively 5% and 1% level of signification Source : Author's calculation form

E- views

Source: Author's calculation form E- views

#### 4.4 VAR Lag Order Selection Criteria

It is important to choose length of the lag to incorporate in the model before testing for the existence of cointegration. The length chosen should be sufficiently large to make serial correlation of the residuals unlikely. However, the longer the length, the greater the number of parameters to be estimated and fewer the degree of freedom. Therefore, there is need to determine the lag length that trade off the reduction in bias due to long lag lengths of increased efficiency from short lags. The test was performed by estimating the unrestricted VAR model, with 8 variables in the model and 44 observations. To take account of the small sample properties the analysis of this study relied on the adjusted Log- likelihood (LR) statics. According to Akaike Information Criterion (AIC) and Hannan-Quinn Information (HIC) method, the optimal lag length for economic growth was 2 as shown in Table (4).

**Table 4: Optimal lag Selection Test**

La g	Log L	LR	FPE	AIC	SC	HQ
0	- 1340.427	NA	6.53e+16	64.25844	64.63080	64.39492
1	- 1015.708	494.8107	6.47e+11	52.65275	56.37633*	54.01759
2	- 867.4144	162.4165*	4.56e+10*	49.44830*	56.52310	52.04150*

\* Indicates lag order selected by the criterion

Source: Author's calculation form

E- views

LR: s sequential modified LR test statics (each test at 5% level)

FPE: Final prediction error

AIC: Akaike Information Criterion

SC: Schwarz Information Criterion

HQ: Hannan-Quinn information Criterion

#### 4.5 Bounds Test

**Table 5: Bounds Cointegration test Result**

		Signification level	I(0)	I(1)
F-statistic	4.130715	10%	1.85	2.85
		5%	2.11	3.15
		2.5%	2.33	3.42
		1%	2.62	3.77

**Source: Author's calculation form E- views**

As shown in Table (5) the ARDL bounds testing results exercise are favourable in that the computed F-statistic (4.13) is greater than the upper bound 3.77 for a 1% level of significance. This shows a cointegrating relationship among the variables, which supports the finding and confirms that the variables are in a stable long-run relationship. Second, government consumption expenditure, tax revenue, the terms of trade index, real effective exchange rate, the foreign direct investment, current account, total dept and general government expenditure is studied.

#### 4.6 Short Run and Long run Relationship.

The estimated parameters for the short run and long run economic growth model are reported in table 6 and 7 below. The results in table 6 indicated that all the estimation variables that tax revenue (TR), terms of Trade index (TOT\_INDEX), real effective exchange rate (REER), forgien direct Investment (FDI), debt (DEP) and government expenditure (GEX) have a significant and enduring effect on real GDP in Saudi Arabia during the period of study.

The findings show that the coefficient of government consumption is positive and insignificant. This is consistent with Abdelkawy and AlShammre (2024) who found that government consumption does not significantly influence GDP in the short term. This result supports the “Ricardian equivalence” argument, whereby any increase in government spending is offset by higher individual savings in anticipation of future tax increases (Barro, 1989). Also, this insignificant relationship between the government consumption and growth could be attributed to the economic cissies during the 2014–2016 oil price collapse demonstrated that government consumption alone was insufficient to counteract economic downturns, emphasizing the need for diversified revenue strategies. This finding also, is inconsistent with the view of Onifade et al. (2020) and Ajibu Jonas (2024) who claimed the government consumption, have improved economic growth.

**Table 6: Short run ECM estimation Results**

Variables	Coefficients	Std. Error	t-statistics	Prob.
D(GDP_RATE(-1))	0.317252**	0.121845	2.603744	0.0166
D(LOGTR)	0.001975	0.022889	0.086267	0.9321
D(LOGTR(-1))	0.088644***	0.029056	3.059822	0.0061
D(TOT_INDX)	1.259869***	0.194133	6.489716	0.0000
D(TOT_INDX(-1))	-0.432387***	0.139851	-3.091780	0.0055
D(REER)	-0.256758***	0.056217	-4.56250	0.0002
D(REER(-1))	0.247373***	0.061893	3.996775	0.0007
D(FDI)	-0.353481	0.217961	-1.621765	0.1198
D(DEP)	-0.116479***	0.25810	-4.512965	0.0002
D(GEX)	0.168198***	0.34624	4.857791	0.0001
D(GEX(-1))	-0.211096***	0.044601	-4.73036	0.0001
CointEq (-1)	-0.579887***	0.075489	-7.681811	0.0000
R <sup>2</sup> -squared	0.896491	Mean dependent VAR	Mean dependent VAR	0.77477
Adjusted R-square	0.896491	S.D dependent Var	S.D dependent Var	5.547821
S.E of regression	2.086622	Akaike info Criterion	Akaike info Criterion	4.543926
Sum squared resid	130.6197	Schwarz Criterion	Schwarz Criterion	5.04043
Loglikelihood	-83.42245		Hannan-Quinn criter	4.725904
Durbin Watson stat.	2.251090			

\*Note: P-value and any subsequent tests do not account for model selection

Source: Author's calculation form E- views



**Table 7: ARDL estimation Results**

Variables	Coefficients	Std.Error	t-statisc	Prob. *
GDP_RATE(-1)	0.157478	0.184199	0.854934	0.4022
GDP_RATE(-2)	-0.317252*	0.164917	-1.923703	0.0681
GCEX	0.305765	0.361726	0.845294	0.4075
LOGTR	0.001975	0.045499	0.043398	0.9658
LOGTR(-1)	0.103158	0.62242	1.6 57381	0.1123
LOGTR(-2)	-0.088644*	0.045257	-1.958676	0.0636
TOT_INDX	1.259869	1.024994	1.229148	0.2326
TOT_INDX(-1)	-0.639782**	.024994	-2.167745	0.0418
TOT_INDX(-2)	0.432387*	0.231683	1.866289	0.0760
REER	-0.256758***	0.085402	-3.006465	0.0465
REER(-1)	0.333346**	0.0157566	2.115595	0.0465
REER(-2)	-0.247373***	0.086040	-2875086	0.0091
FDI	-0.353481	0.34004	-1.033558	0.3131
FDI(-1)	0.507287	0.368119	1.378052	0.1827
CA	-0.027347	0.075851	-0.360536	0.7220
DEP	-0.116479**	0.041842	-2.783804	0.0111
DEP(-1)	0.095693**	0.043999	2.174878	0.0412
GEX	0.168198**	0.063020	2.668959	0.0144
GEX(-1)	0.057815	0.076471	0.756042	0.4580
GEX(-2)	0.211096***	0.070381	2.999357	0.0068
Cointes(-1)	-57.57218	48.50923	-1.186829	0.2485
R <sup>2</sup> -squared	0.885390	Mean dependent VAR		2.180640
Adjusted R- square	0.776238	S.D dependent Var		5.272314
S.E of regression	2.493990	Akaike info Criterion		4.972497
Sum squared resid	130.6197	Schwarz Criterion		5.841332
Loglikelihood	-83.42245	Hannan-Quinn criter		5.2909960
F- statistic	8.111508	Durbin-Watson Stat		2.251090
Prob(F-statistic)	0.000006			

\*Note: P-value and any subsequent tests do not account for model selection

Source: Author's calculation form E- views

The estimated coefficient of tax revenue and lag1tax is insignificant and positive This is consistent the with findings of Alkhawaldeh.et. al (2020) who found a positive effect of tax revenue on economic growth, this result seems to be consistent with view that high tax revenues are conducive to growth. It is necessary to realize that taxation influences economic growth solely through its impact on individual growth variables, which are capital accumulation and investment, or human capital (Macek, 2014; Kotlán, Machová and Janíčková, 2011).

Also, the results show lag 2 tax revenue is negative and significant at 10 percent level. Implying that increased in tax will have negative effects on economic growth. May be due to multiple taxation on corporate income which affects savings and investment Temerigha. et.al (2021). This concurs the argument view, that most growth model predict that income tax are detrimental to growth. Moreover, this view could be supported by.

Gale and Samwick (2014) who reported that tax rate cuts may encourage individuals to work, save, and invest, but if the tax cuts are not financed by immediate spending

cuts they will likely also result in an increased federal budget deficit, which in the long-term will reduce national saving and raise interest rates. this consistent with prior finding, who found that, taxes distort private agents' decisions to save and invest, which in turn could alter the growth rate of the economy. It is worth mentioned that, the net impact of tax on growth is uncertain, and inconclusive, but many estimates suggest it is either small or negative. The lack of clear evidence on how tax policy affects growth could partly be accounted for by the expenditure policies simultaneously being pursued. (Clements, et.al (2015)

As reported in Table (7) The coefficient of the terms of trades index is positive and highly significant at 1percent level. This finding is consistent with the prior findings, which have found that trade openness to be positively favourable associated with the economic growth for developing economics via capital formation. Habib, et.al (2016) and Keho (2017). Also, this result is inconsistent with the Levine and Renelt (1992) who did not find this index to be robustly correlated with GDP per capita growth. but the lag of terms of trade index is negative and significant at 5 percent level. These results have been supported by the work of Ajayi and Araoye (2019), Moyo and Khobai (2018) and As shown in table 7 the coefficient of real effective exchange rate is negative and significant at 1 percent level. This suggests that during the period under investigation, Sudia Arabian economy experiences large deterioration in their terms of trade, which causes the equilibrium real exchange rate to depreciate, other things being equal. In this context, a real depreciation (that is, a decline in the real effective exchange rate) can be considered as a narrowing of the gap between actual and equilibrium real exchange rates. The fact that the impact of exchange rate(REER) is greater would reinforce the positive role played by improved external competitiveness in boosting growth, these findings are consistent with Benigno et al. (2015) and McLeod and Mileva (2011) who mentioned that, however, an exchange rate undervaluation acts like a subsidy to the (more efficient) tradables sector. This result reflects the facts that exchange rate reacts favourably to the economic growth. While the lag of REER showed appositve and significant at 1 percent level. This result confirms the findings of Di Nino et al. (2011) and Karima, et.al who claimed that countries with a positive exchange rate share a positive relationship between undervaluation and economic growth. They conflict with Mashilana and Hlalefang (2018) who argued that exchange rate depreciation has a negative impact on export.

However, the foreign direct investment tends to have a negative and in significant impact on growth rate as shown in Table 7. However, the negative coefficient of FDI on economic growth rate is consistent with some studies such as Saltz, (1992) who find a negative relationship between FDI and economic growth. And, inconsistent among other, with Zhang (2001), and Alfaro et al. (2000) who provide evidence on the positive effects of FDI on economic growth. That reflects the fact that FDI contributes to total productivity and economic growth. In contrast, Aitken et.al (1997) argued that there is no significant positive relation between FDI and economic growth. Even when the relation is positive, the effects tend to be weak.

Empirical evidence on the link between FDI and economic growth is also inconclusive. Therefore, it can be theoretically argued that why developing countries may not gain from FDI. There several theoretical arguments behind that. Firstly, Krugman [1998] argues that the transfer of control from domestic to foreign firms may not always be beneficial to the host countries because of the adverse selection problem. FDI undertaken within a crisis situation. This concern is particularly important to the developing countries including the SSA countries, where, as part of privatization, state owned enterprises are sold to foreign firms simply because foreign firms have more available funds than domestic ones. Secondly, as pointed out by Agosin and Mayer (2000), FDI may also “crowd out” domestic firms through unfair competition. There is also a concern that the enclave nature of many foreign owned firms and their minimal linkage to the rest of the economy could reduce the potential spillover contribution to the national economy. thirdly, the potential subsequent outflow of foreign firms' subsidiary earnings to their parent companies could also cause deterioration in the balance of payments. Moreover, it is argued that foreign corporations tend to produce inappropriate goods that are tailored to satisfy the wealthy portion of the host country's consumers, thereby increasing inequality and engaging in transfer pricing.

As in the growth model, the estimated coefficient on the current account is insignificant and negative. This result implies that maintaining high current account surplus could be detrimental to economic growth. And also, could be attributed to high level of importation of goods and services for development, which stimulated aggregate domestic demand and, by extension, increased the level of economic activities. These results are consistent with empirical evidence of Akbas et al. (2014) who found an inverse association between current account balance and economic growth. They conflict with Sanni, et.al (2019) among others who believed that an increased in real GDP growth will lead an improvement of current account balance. This result suggests that policy makers should be interested in the drivers of current account balance for policy adjustment to correct undesirable effects. And, It is equally important for a country to take advantage of the opportunities provided by global trade to improve the general well-being of the populace (Sanni, et.al,2019)

The estimated coefficient on the debt is significant and negative, implying that arise in debt causes growth rate to decrease. These results could be attributed to, given the huge debt will tend to have a growth-depressing effect as expectations on profitability of investments and savings will tend to be lower. however, the negative coefficient of debt on growth rate is consistent with Al\_kasasbeh et.al. (2022) who found that the public debt has a negative but negligible effect on economic growth. and also, consistent with the view, as to the effects of the stock of government debt, there is no accordance in the literature on its effects on growth. They conflict with Muye et.al (2017) who argued that public debt affects economic growth in a positive and statistically significant manner. In general, the literature indicates that foreign borrowing has a positive impact on investment and growth up to a certain threshold level, beyond which its impact is adverse. There has also been considerable discussion

on how high interest bills on debt, including that held by local residents, have constrained productive spending by countries. However, the empirical evidence on this matter is mixed. It is worth to mention that, despite the overwhelming evidence in the literature suggesting debt stifles growth. However, the empirical evidence on this matter is mixed. There is widespread concern in the international community that the debt burden in developing countries has retarded growth, and that debt service payments effectively crowd out public spending on health, education, and other poverty-reducing programs.

The results show that the general government expenditure has a positive sign and significant effect on growth rate. This outcome concurs the empirical findings of Fuad Kreishan (2023), Rahman et.al (2023) and Rexha, et.al (2021) who showed that government spending appears to be the main source for economic growth. In addition, these results support the Kenyans view that, the public expenditures and taxes are an effective tool for regulating economic cycles. Also, Alesina, et.al (1996) reported that increased spending on education, health, infrastructure, and research and development can boost long-term growth. Thus, it can generate greater fiscal resources to finance spending on human capital, further bolstering the dynamism of the economy. In this context public expenditure can be focused and considered as an important tool on the Millennium Development Goals (MDGs).

The results from the table above also, shows that the lag of general government expenditure contributes negatively and significant at the 1 percent level. This confirms the Neo-classical theoretical argument of that the negative correlation between growth and government consumption is expected, this could be explained by the argument being that government consumption has no direct effect on private sector productivity, but lowers savings and growth through the distorting effects of taxes. However, Keynes, (1936) has opposed the classical theory and suggests the dynamic role of government expenditure. It is interesting mentioning that the relationship between government expenditure and economic growth is complex and can be both positive and negative, depending on various factors, including how the expenditure is financed and allocated. In general, government spending can stimulate economic growth through increased aggregate demand, infrastructure development, and investments in areas like education and healthcare. However, excessive government spending can also lead to negative effects such as higher taxes, reduced private investment, and inflation (Arawatari, 2023).

In theory, the value ECM (-1) must be significant and negative which is exactly the results are presented in Table 7. The error correction term implies that the method of adjustment to restore equilibrium is very effective. The coefficient is- 0.58 and is vital at the level of 1%, meaning that, the short run shocks or deviations are corrected by the speed of 58% towards the long-run equilibrium.

#### **4.7 Diagnostic test and stability test**

To ensure the robustness of the empirical results and estimation for the study, the residuals from the model was subjected various diagnostic checking. Breusch-Pagan Godfrey, Breusch-Godfrey LM tests, test and Jarque-Bera normality test were used in



the study to test for heteroscedasticity, serial correlation and normality. Table (8) displays the test's outcomes.

From the result of diagnostic checking of the model the F- statistics is 1.088497 of Breusch - pagan - Godfrey test is more than 0.3939 implies that Breusch-Pagan Godfrey LM test results indicated that the model is free from the problem of heteroscedasticity.

To check for autocorrelation problem, the model was tested by Breusch-Godfrey, LM test was the F- statistics is 1.845579 more than 0.1739 this revealed that Breusch-Godfrey LM test showed no evidence of serial correlation in the residuals of the model.

The Jarque-Bera (JB) test used to check for the normality of the residuals for the model.; results showed a normal distribution, and the null hypothesis of normal distribution of residuals was rejected, as the p-value of 0.734481 is insignificant

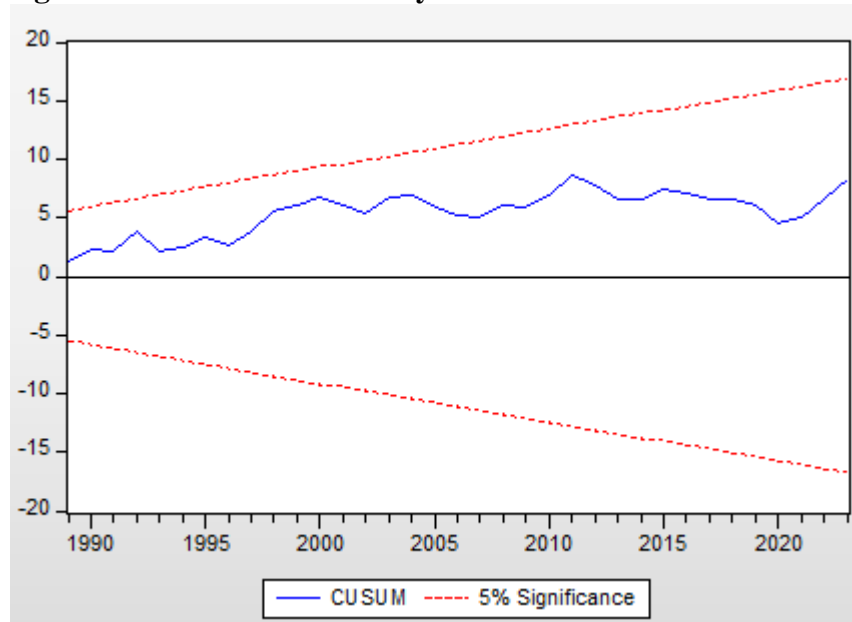
The CUSUM test for recursive residual indicates the stability in the model Which is shown in figure 1. The result indicates that plots of the CUSUM match with the critical boundary line at the significant level of 5 percent. So, the study period has confirmed the stability of the model in other words, the model is stable without any structural break.

**Table (8) Diagnostic tests:**

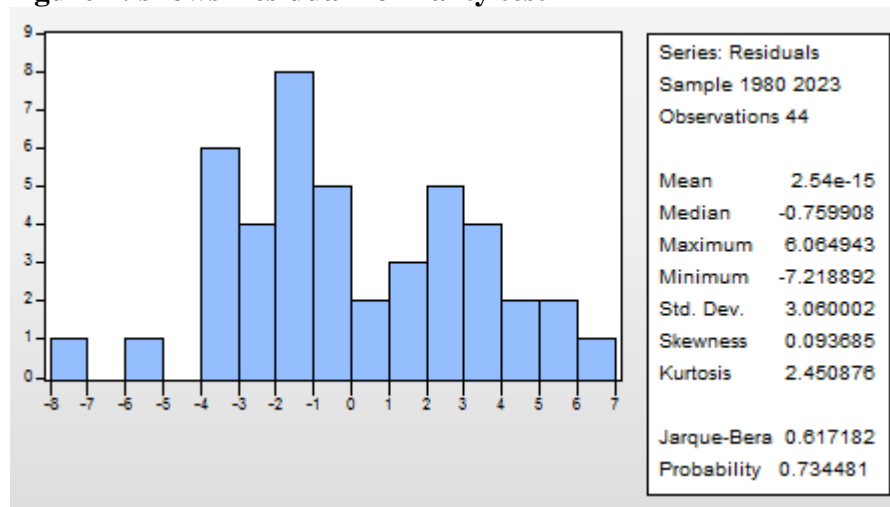
Normality test:			
Jarque-Bera	0.617182		
Probability	0.734481		
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.845579	Prob. F (2,33)	0.1739
Obs*R-squared	4.426432	Prob. Chi-Square (2)	0.1093
Heteroskedasticity Test: Breusch-Pagan-Godfrey:			
F-statistic	1.088497	Prob. F (8,35)	0.3939
Obs*R-squared	8.766159	Prob. Chi-Square (8)	0.3624
Scaled explained SS	4.023836	Prob. Chi-Square (8)	0.8550

Source: Author's calculation from E- views

**Figure1: shows Model Stability test**



**Figure 2: shows Residual normality test**



#### 4.8 Summary and conclusion

This study examines the impact of the fiscal policy on economic growth of Saudi Arabia over the period 1980-1923. The objectives of this study is to conduct an empirical investigation of the effect of fiscal policy on the performance of the Saudi Arabian economy. The economic growth (GDP\_RATE) was used as a dependent variable, and fiscal policy instruments were used as an independent variable. The results of the model are fairly robust and consistent with theory. The study showed that the introduction of government consumption in 1980-2023 has a positive and insignificant effect on economic growth. The empirical results reveal that Lag2 of the terms of trade index that used as a proxy for degree of openness is estimated to be positive and highly significant. The evidence presented in this study offers unambiguous support for the export led growth hypothesis, the elimination of trade barriers would allow for a more efficient international movement of resources, that enhances growth prospects and thus enabling developing countries to exploit competitive export opportunities.

Although the results give evidence that increased of tax revenue will tend to decrease growth rate. These results indicated that, a particular large adverse impact of taxes on economic growth, thus underscoring the importance of establishing and maintaining macroeconomic fiscal policy stability in Saudi Arabia.

That is the lag 1 debt supports economic growth in Sa Saudi during the period of study while the lag 2 debt has a negative and significant effect. This would reflect the fact that large fluctuations in the amounts of debt made it impossible for Saudi to plan for long term economic growth, with long gestation lags.

In this study there is some evidence showing that exchange rate would improve international competitiveness and create the incentives to expand the production of internationally tradeable goods. To the extent that depreciation reflects trade openness this suggests that trade reform is strongly growth enhancer.

The results indicate the coefficient of government expenditure is positive and significant at 5 percent level. And also, it shows that lag2 government expenditure is positive and highly significant effect at 1 percent level. That is government expenditure supports growth in Saudi Arabia. It can be concluded that public policy can play in encouraging growth in the economy of Saudi Arabia. These findings reinforce the crucial role played by government expenditure in the growth process in this country. This study clearly suggests raising government expenditure must be a key part of any strategy to increase growth. it should be emphasized macroeconomic fiscal policy affects per capita growth through effects government expenditure on growth, in support of these efforts, the role of government will need to be focused on the effective delivery of essential public service sand basic infrastructures, as well as promotion of education and other social development. It will be essential to fully restore and consolidated macroeconomic stability by continuing to implement sound fiscal policies. The study provides essential insights for policymakers to design more efficient fiscal policies that foster long-term economic stability and growth.

#### 4.9 Recommendation of the study

The following recommendation are offered to foster the use of fiscal policy reforms by Saudi Arabia, to consider the gains of fiscal policy and to move beyond its present limitations.

- 1- The evidence suggests a clear need to improve the tax system by identifying much more rigorously the types of tax that have positive net returns, at the same time policy makers should take, the relationship between the tax revenue and economic growth must be consider.
  - 2- A well-directed government debt can create the conditions for trade and investment; it is worth to mentioning that a large amount of debt has not been the most important factor in economic growth.
  - 3- Based on research analysis it can be concluded that government expenditure has positive significant influence on economic growth in Saudi Arabia. This study clearly suggests raising government expenditure must be a key part of any strategy to increase growth. However, there is every need for an improvement in government expenditure on health, education and economic services, as components of productive expenditure, to boost economic growth more.
  - 4- Effective and efficient tax administration, and good management of tax is needed .
  - 5- Further related research along these lines will be needed
- our result seems to go along with Rodrik (2008)'s evaluation that an undervalued currency can be seen as a growth strategy.

#### 4.10 Limitations of the study

The study faces some limitations, first the analysis of the study employs annual data 1980-2023. The size of the sample size has been a limiting factor in this work, if the data are available in a desired frequency and period (quarterly or even longer annual bases) more conclusive results could be obtained. Also, the data are collected from different sources so the overall quality and reliability of the data was quite questionable. Results based on such data may not be highly reliable and will be interpreted with caution.

Moreover, in the estimation of the of the VAR system, it is difficult to use wide range of variables relatively if the number of observations is limited, in order to maintain a manageable system. since as more variables are included to the system, many more degree of freedom will be consumed, because of lags in the estimation procedures. Thus, economic theory and in particular growth process might be generated by many variables, so using VAR system might limit the inclusion of such important variables

To address this limitation of the study, it is therefore suggested that further research should be undertaken.



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