
A Study of the Impact of Domestic and Foreign Direct Investment on Economic Growth in the Kingdom of Saudi Arabia

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Abstract

This study aimed to measure the impact of domestic and foreign direct investment, along with other factors, most notably the value of Saudi exports, on the economic growth rate during the period 1990-2023. This study used econometric analysis and estimated the proposed model consisting of three behavioral equations. The results showed that a 10% increase in the value of estimated domestic investments, estimated foreign direct investments, and the total value of Saudi exports leads to an increase in the economic growth rate by 1.16%, 2.78%, and 12.87%, respectively.

In light of the factors determining both domestic and foreign direct investment, a gradual decline in these investments is expected through 2030. Despite the decline in domestic and foreign investments, the increase in the value of Saudi exports from SAR 2,098.5 billion in 2025 to SAR 3,023.0 billion in 2030 will lead to an increase in the Kingdom of Saudi Arabia's economic growth rate from 5.0% in 2025 to 7.3% in 2030. To achieve the targeted economic growth rate, it is necessary to maintain domestic and foreign direct investment rates and increase the value of Saudi exports of goods and services until they reach SAR 3,023.0 billion in 2030.

Keywords: Domestic Investments, Foreign Direct Investment, Economic Growth, Saudi Vision 2030.

1. Introduction

Investment refers to the expenditure of funds to implement new investment projects or expand existing ones, increasing capital formation across the economy and society. Investment is also defined as the total fixed capital formation spent on acquiring new capital goods, in addition to renovations and improvements made to existing capital goods in a country. Investment is of great economic importance in all developing and developed countries due to the economic surplus it generates, which leads to increased production and national income, the creation of new job opportunities, increased rates of economic development, and the achievement of economic and social well-being for society (YAO Kouadio and Drama, 2019).

Local investments are affected by several factors, the most important of which include the following: (1) Political and security stability, which enhances the confidence of local investors, encouraging them to invest their capital in new projects. (2) Fiscal and monetary policies, as tax policy plays an important role in creating an investment environment, and high interest rates limit investors' desire to borrow for investment. (3) The availability of advanced infrastructure (transportation networks, communications, energy) contributes to reducing production costs and increasing operational efficiency, making the environment more attractive to investments. (4) Market size and increased local demand for goods and services motivate investors to expand their activities to meet growing market needs. (5) The availability of natural resources and raw materials locally reduces import costs and encourages the establishment of industries that depend on these resources. (6) Technological development and innovation contribute to improving production efficiency and reducing costs, making investment more attractive. (7) The existence of clear and transparent laws that protect the rights of investors and ensure the ease of starting and conducting business. (8) Economic stability, i.e., a stable GDP growth rate and low inflation rates provide positive signals to investors about the health of

the local economy. (9) Trade openness, as free trade policies and trade agreements provide greater opportunities for investors to access new markets and expand their businesses. (10) The availability of capital and liquid assets in companies facilitates the financing of new projects without the need for borrowing (Wasilla, 2022).

Foreign investment may be direct, known as long-term real investment in productive assets, or indirect, known as non-real investment, such as investing in stock, which is a short-term financial investment. Foreign direct investment (FDI) refers to a company investing in projects located outside the borders of its home country in various forms, including establishing a new project, acquiring the assets of an existing facility, or through mergers and acquisitions. The advantages of FDI are numerous, including (1) reducing imports and increasing export-oriented production; (2) contributing to economic development; (3) improving local investment through the inflow of capital and domestic savings; (4) fostering a spirit of competition among local companies; (5) reducing unemployment rates through the establishment of new projects; and (6) increasing growth rates and economic development through the provision of capital (Rahma, 2020). Some studies have focused on foreign direct investment (FDI). Hussein (2014) studied FDI and its impact on growth and economic integration in the Gulf Cooperation Council (GCC). This study demonstrated that FDI contributes to increasing economic growth rates, producing many goods, encouraging intra-regional trade, and increasing economic integration among GCC countries. Al-Sayari and Al-Bakr (2016) examined FDI in the GCC countries. This study demonstrated that FDI inflows to the Gulf countries are positively affected by the previous year's investment flows, the abundance of natural resources, the presence of regulations, and economic growth. This study recommended the need to attract investments with added value to the economy, contributing to the creation of new job opportunities and localizing technology.

Another study (Nafadi, 2017) indicated that foreign investment is the main source of

economic growth for least developed countries, as it contributes to increasing exports and economic development rates. This study recommended the following: (1) the necessity of creating an appropriate investment environment to localize foreign investments, establish development projects, and provide job opportunities; (2) expanding markets through joint Arab action, with the aim of increasing international competitiveness; and (3) the necessity of transitioning to a green economy, given its many advantages, the most important of which is attracting foreign investments.

Rahma's study (2020) demonstrated that the determinants of foreign direct investment (FDI) are represented by gross domestic product (GDP), government spending, economic openness, export value, and inflation. This study revealed a long-term relationship between the independent variables and FDI. In the short term, a significant relationship was found between GDP and FDI. Tayer's study (2021) also examined the determinants of attracting foreign direct investment in the Kingdom of Saudi Arabia. This study revealed that the tax burden is the most influential variable in the long term, followed by political and security stability, loans provided to the private sector, and economic openness. In addition, (Ghanem et al, 2023) studied the impact of environmental protection on foreign direct investment (FDI) flows to the Kingdom of Saudi Arabia. This study revealed that the Middle East Green Initiative led to a decrease in carbon dioxide emissions due to improved energy efficiency in key sectors in addition to the shift toward solar power generation. Despite the importance of FDI in developing the national economy, it has been characterized by instability, with the coefficient of variation in the value of FDI reaching 75.94% during the period 2000-2020. It was also found that a 10% increase in domestic consumption of refined petroleum products leads to a 7.97% increase in carbon dioxide emissions. A 10% increase in both estimated carbon dioxide emissions and the inflation rate leads to a 4.71% and 2.3% decrease in FDI, respectively. A 10% increase in economic openness leads to a 34.42% increase in FDI.

A study by (Hakimi, 2023) examined the legal foundations supporting foreign investment in the Kingdom of Saudi Arabia. This study revealed that to achieve the goals of Vision 2030, the Public Investment Fund (PIF) was developed, and the rules and regulations governing investment were amended to align with the vision's objectives. This study recommended updating the foreign investment system and its executive regulations, particularly with regard to the conditions and procedures for granting licenses, adding certain projects to the list of permitted foreign investors, and providing a clear investment map of the most important projects offered for foreign direct investment and the sectors they cover.

Commodity exports also play a significant role in influencing the economic growth rate. A study by (Al-Duwaib, 2025) showed that approximately 94% of the changes in Libya's economic growth rate were attributed to the value of exports during the period 1985-2021. This study recommended the need to increase the contribution of non-oil economic sectors to Libyan exports. A study by (Masoudi and Ezzi, 2019) examined the determinants of economic growth in Algeria during the period 1980-2017. This study revealed that the most important variables determining economic growth are the value of investments, foreign trade (exports and imports), loans directed to the private sector, and oil prices.

By monitoring the values of domestic and foreign direct investments in the Kingdom of Saudi Arabia, it is evident that the total domestic capital formation increased from SAR 83.3 billion in 1990 to SAR 737.0 billion in 2015, then decreased to SAR 639.6 billion in 2016, and then increased to SAR 1,116.7 billion in 2023. Foreign direct investment is also characterized by instability, ranging from a minimum of SAR 7.05 billion in 2000 to a maximum of SAR 105.21 billion in 2022. Due to the volatility and instability of investments, especially foreign direct investment, the growth rate of the gross domestic product (GDP) has been characterized by instability, declining from 9.8% in 1991 to -0.6% in 1999, then increasing to 8.8% in 2003, and then

declining to -0.8% in 2023 (Saudi Central Bank, 2023).

2. Research Objectives

The research aimed to measure the impact of domestic and foreign direct investment on economic growth in the Kingdom of Saudi Arabia during the period 1990-2023 by examining the following objectives:

1. The current status of domestic and foreign direct investment in the Kingdom of Saudi Arabia.
2. Estimating the proposed model for studying the impact of domestic and foreign direct investment on economic growth in the Kingdom of Saudi Arabia.
3. Predicting the economic growth rate in the Kingdom of Saudi Arabia through 2030.

3. Research Hypotheses

The study included several research hypotheses, the most important of which are as follows:

1. Domestic and foreign direct investments are important factors in increasing the rate of economic growth.
2. Creating an appropriate investment climate is a necessary condition for attracting domestic and foreign direct investments.
3. Foreign direct investment contributes to promoting economic integration between countries.
4. The positive or negative outcomes of foreign investments depend on the extent to which the host country interacts with these investments.

4. Methodology

To achieve its objectives, this study relied on data from (1) the annual statistics issued by the Saudi Central Bank (SAMA) and (2) the World Bank website. To achieve its objectives, this study also relied on estimating the proposed model to study the impact of domestic and foreign direct investment on the economic growth rate of the Kingdom of Saudi Arabia during the period 1990-2023. The proposed model consists of the following behavioral equations, which are explained below.

The proposed model includes the following variables: (1) three endogenous variables: domestic investments (in billion SAR) (Y1), foreign direct investment (in billion SAR) (Y2), and the economic growth rate expressed as the growth rate of the gross domestic product (GDP) (Y3); and (2) eight exogenous variables: average interest rates on long-term deposits in commercial banks (X1), economic stability expressed as the instability coefficient in the GDP (X2), the inflation rate prevailing in the Saudi economy expressed as the implicit deflator in the GDP (X3), the capital productivity coefficient expressed as the ratio of value added to total investments (X4), the degree of economic openness expressed as the ratio of foreign trade (exports + imports) to the GDP (X5), environmental quality expressed as the amount of carbon dioxide emissions (X6), the amount of demand or market size expressed as the total population (X7), and the value of Saudi exports of goods and services (in billion SAR) (X8). The stability of the variables used in the estimation was confirmed based on the Fuller–Dickey test. The proposed model was estimated using the ordinary least squares method given that the matrix of internal variables has a diagonal of one and all numbers above this diagonal take the number zero as follows (Gujarati, translated and reviewed by Odeh and Al-Dash, 2015).

Internal variables of the model			External variables of the model							
Y_1	Y_2	Y_3	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8
1	0	0	$-a_1$	$-a_2$	$-a_3$	$-a_4$	0	0	0	0
0	1	0	0	0	$-b_1$	$-b_2$	$-b_3$	$-b_4$	$-b_5$	0
$-c_1$	$-c_2$	1	0	0	0	0	0	0	0	$-c_3$

5. Results

5-1 The Current Status of Investments and Economic Growth in the Kingdom of Saudi Arabia:

Studying the current status of domestic and foreign direct investment in the Kingdom of Saudi Arabia during the period 1990-2023 revealed, as shown in Figures (1, 2) and Table (1), the total capital formation ranged from a minimum of SAR 83.25 billion in 1990 to a maximum of SAR 1,116.73 billion in 2023, with an annual average estimated at approximately SAR 397.97 billion. Total capital formation increased at an annual growth rate of 8.5% during the study period.

Foreign direct investment (FDI) ranged from SAR -7.05 billion in 2000 to SAR 105.21 billion in 2022, with an annual average of approximately SAR 16.88 billion. FDI increased at an annual growth rate of 9.95% during the study period. Figure (3) shows that the annual growth rate of GDP ranged from -3.6% in 2020 to 11.0% in 2011, with an annual average of approximately 3.51%. The annual growth rate in the gross domestic product (GDP) was found to be statistically insignificant due to its fluctuation and instability during the study period. Gross capital formation, foreign direct investment, and the GDP growth rate were characterized by instability, with coefficients of variation reaching 76.09%, 159.17%, and 99.98%, respectively.

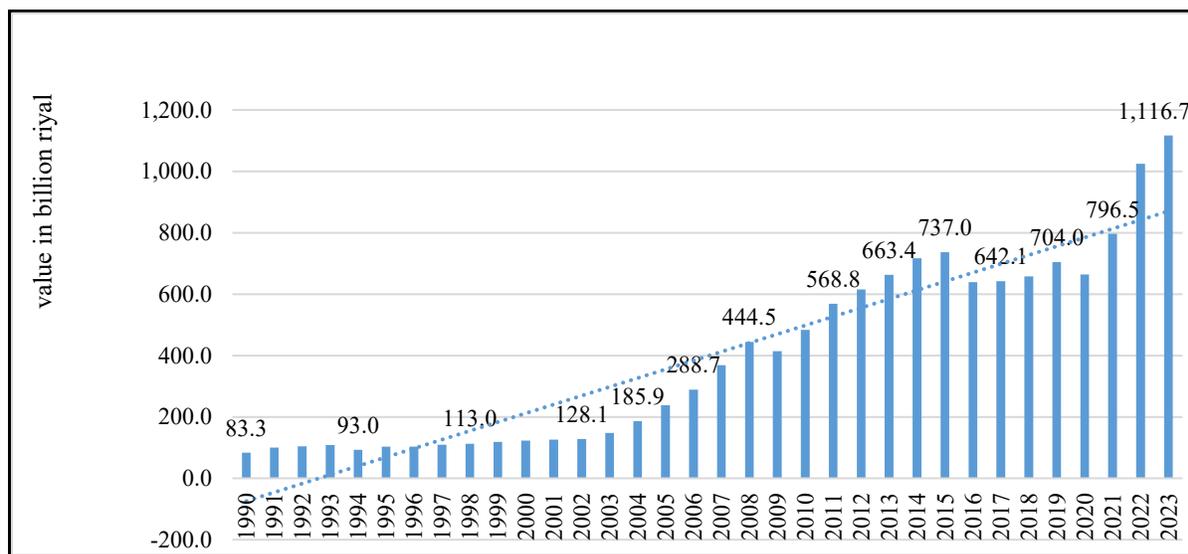


Figure 1. Total domestic capital formation during the period 1990-2023. Source: Saudi Central Bank, Open Data Platform, period 1990-2023.

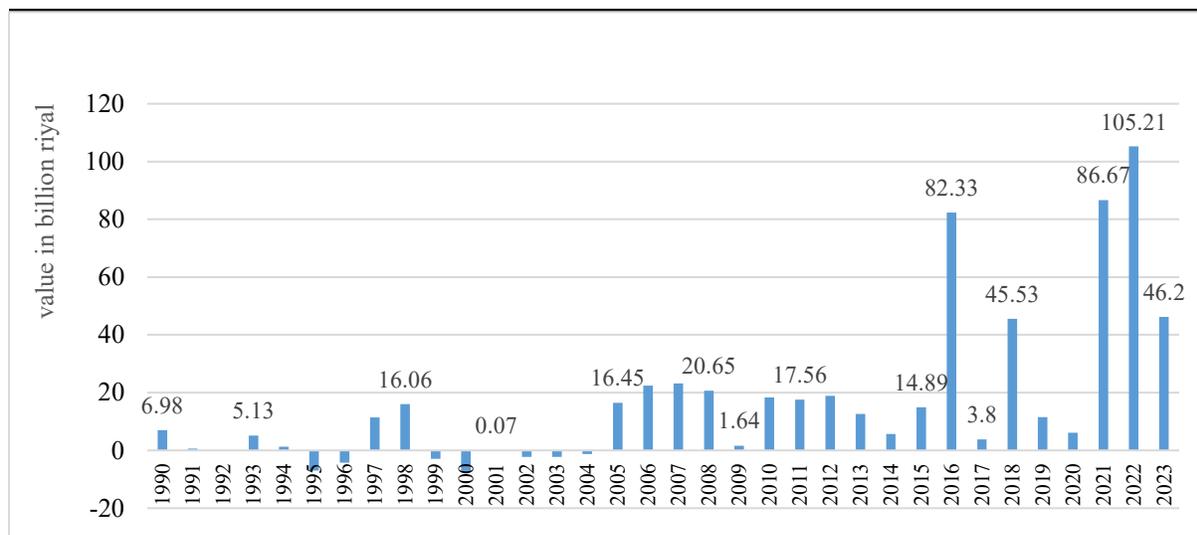


Figure 2. The value of foreign direct investments in the Kingdom of Saudi Arabia during the period 1990-2023. Source: World Bank, website, open data, period 1990-2023.

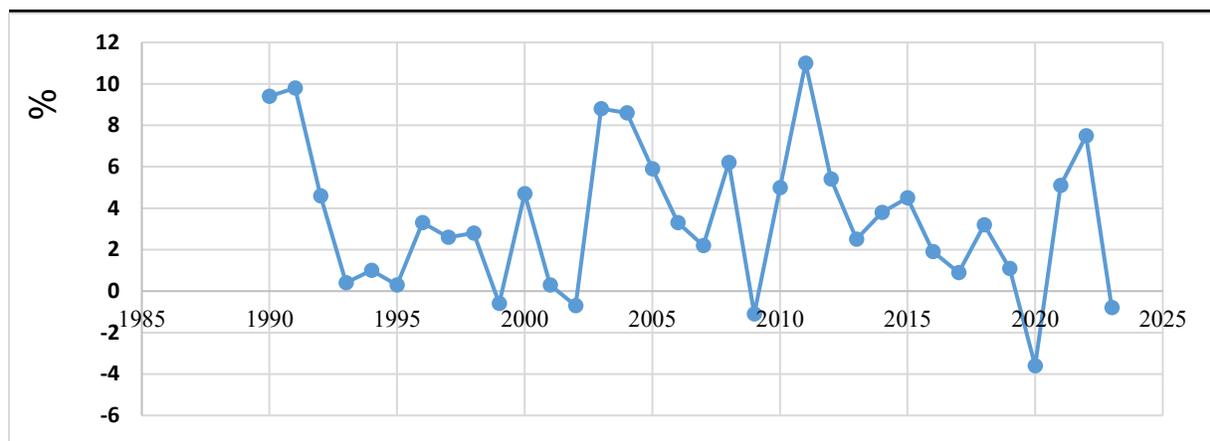


Figure 3. Annual GDP growth rate during the period 1990-2023. Source: Saudi Central Bank, Open Data Platform, period 1990-2023.

Table 1. Equations of the general trend of gross capital formation, foreign direct investment, and GDP growth rate during the period 1990-2023.

Variable	Growth rate%	F	R ²	equation
Gross Capital Formation	8.5	443.81	0.93	$Ln\hat{Y}_1 = 4.158 + 0.085T$ (51.32)** (21.07)**
Foreign Direct Investment	9.95 *	20.22	0.39	$\hat{Y}_2 = -12.500 + 1.679T$ (-1.67) ^{ns} (4.49)**
GDP Growth Rate	-	0.73	0.02	$\hat{Y}_3 = 4.427 - 0.052T$ (3.58)** (-0.85) ^{ns}

**Significant at the 1% probability level; ns, not significant. Source: Calculated from the data in Table (1).

*The growth rate was calculated using the following law: $r = (\frac{dY}{dT} / \bar{Y}) \times 100$.

5-2 Evaluating the Proposed Model to Study the Impact of Investments on the Economic Growth Rate:

5-2-1 Description of the Proposed Model Variables:

By studying the current situation, the internal variables of the proposed model were described, including domestic investments, foreign direct investment, and the economic growth rate. Regarding the external variables of the proposed model, the data in Tables (2 and 3) show that the average interest rate on long-term bank deposits

declined from 8.23% in 1990 to 0.93% in 2021 and then increased to 5.94% in 2023, with an annual average of 3.76% during the study period. Overall, the average interest rate on deposits declined at an annual rate of 4.5%. The instability coefficient of GDP increased from 14.1% in 1990 to 40.0% in 2012 and then decreased to 0.7% in 2022, with an annual average of 14.16% during the study period. The deflator as an indicator of the inflation rate increased from 36.37% in 1990 to 118.9% in 2022 and then decreased to 115.4% in 2023, with an annual average of 69.14% during the study period. In general, the deflator increased at an annual growth rate of 4.0%. The capital productivity coefficient decreased from 520.7% in 1990 to 337.1% in 2015 and then increased to 339.0% in 2023. Overall, the capital productivity coefficient decreased at an annual rate of 1.1% during the study period.

Table 2. Descriptive analysis of the external variables of the proposed model to study the impact of investments on the economic growth rate during the period 1990-2023.- Source: Compiled from (1) Saudi Central Bank, Open Data Platform, period 1990-2023; (2) World Bank, Open Data, period 1990-2023.

Year	Deposit interest rate (%)	Output instability coefficient (%)	Shrinkage coefficient (%)	Capital productivity factor (%)	Degree of economic openness (%)	CO ₂ emissions (million tons)	Population (million people)	Export value (billion SAR)
1990	8.23	14.1	36.37	520.7	58.3	72.34	10.64	177.69
1995	6.43	4.2	38.52	512.3	54.5	98.52	13.29	200.44
2000	6.86	12.6	44.96	568.4	56.8	125.05	16.18	308.47
2005	3.74	4.3	62.41	513.5	73.1	172.03	20.56	702.16
2010	1.08	15.7	86.16	406.3	67.8	238.77	25.16	981.87
2015	1.09	1.0	83.91	337.1	56.5	308.04	29.97	817.54
2020	1.28	23.7	88.98	397.3	42.5	322.62	30.99	685.68
2021	0.93	15.6	100.81	386.7	49.1	331.25	31.33	1074.38
2022	3.69	0.7	118.94	387.2	54.2	335.06	32.18	1672.06
2023	5.94	11.2	115.42	339.0	49.4	345.96	33.26	1391.16
Average	3.76	14.16	69.14	462.58	59.23	202.22	21.98	716.93
Standard deviation	2.11	10.91	27.86	66.64	10.38	94.66	7.43	482.99
Coefficient of variation %	56.12	77.05	40.30	14.41	17.52	46.81	33.80	67.37

Table 3. General trend equations for the external variables of the proposed model during the period 1990-2023.

Variable	Growth rate (%)	F	R ²	Equation
Average interest rate	-4.5	22.67	0.41	$\text{Ln } \hat{X}_1 = 1.908 - 0.045T$ (10.10)** (-4.76)**
GDP instability coefficient	-	0.11	0.003	$\hat{X}_2 = 13.032 + 0.065T$ (3.36)** (0.33) ^{ns}
Deflator coefficient	4.0	266.23	0.89	$\text{Ln } \hat{X}_3 = 3.445 + 0.040T$ (69.43)** (16.32)**
Capital productivity coefficient	-1.1	44.19	0.58	$\text{Ln } \hat{X}_4 = 6.323 - 0.011T$ (186.30)** (-6.65)**
Economic openness	0.07	8.94	0.37	$\hat{X}_5 = 44.789 + 2.477T - 0.072T^2$ (9.61)** (4.03)** (-4.22)**
Environmental quality	5.1	1165.06	0.97	$\text{Ln } \hat{X}_6 = 4.296 + 0.051T$ (143.27)** (34.13)**
CO ₂ emissions	3.6	1146.46	0.97	$\text{Ln } \hat{X}_7 = 2.396 + 0.036T$ (111.87)** (33.86)**
Population	7.3	128.70	0.80	$\text{Ln } \hat{X}_8 = 5.021 + 0.073T$ (39.02)** (11.34)**

** Significant at the 1% probability level; ns, not significant. Source: Calculated from the data in Table (2).

The degree of economic openness, expressed as the ratio of foreign trade (exports + imports) to GDP, increased from 58.3% in 1990 to 82.5% in 2008 and then decreased to 49.4% in 2023. Overall, the degree of economic openness increased at a small rate of 0.07% per year during the study period. Carbon dioxide (CO₂) emissions also increased from 72.34 million tons in 1990 to 346.0 million tons in 2023, i.e., CO₂ emissions increased at an annual growth rate of 5.1% during the study period. The total population increased from 10.64 million in 1990 to 33.26 million in 2023, i.e., the total population increased at an annual growth rate of 3.6% during the study period. Finally, the value of Saudi exports of goods and services increased from SAR 177.69 billion in 1990 to SAR 1,672.06 billion in 2022 and then decreased to SAR 1,391.16 billion in 2023. Overall, the value of Saudi exports increased at an annual growth rate of 7.3% during the period 1990-2023.

5-2-2 Stability and Stationarity of the Internal and External Variables of the Proposed Model:

To study the impact of domestic and foreign direct investment on the economic growth rate during the period 1990-2023, the stability and stationarity of the internal and external variables of the proposed model were examined using the augmented Dickey–Fuller (ADF) test. The data in Table (4) show that the internal and external variables of the proposed model are not stationary at this level. However, they are stable when taking the first differences, i.e., they do not contain a unit root, as the calculated t values are greater than the critical values at the 5% or 1% significance level. Therefore, the internal and external variables of the proposed model are stable and integrated to the first degree, with the exception of the total population variable, which was found to be stable when taking the second differences, i.e., it is integrated to the second degree. Therefore, this was excluded when estimating the proposed model to standardize the degree of integration of the variables used in the estimation.

The correlation coefficient matrix between the external variables of the proposed model was also estimated Table (5), where it was shown that a strong correlation (0.95) exists between the inflation rate and environmental quality expressed by the amount of carbon dioxide emissions (CO₂). A strong correlation (0.81) also exists between environmental quality and the productivity coefficient of invested capital. Therefore, the environmental quality variable was excluded to get rid of the problem of multicollinearity, which leads to large standard errors and inaccurate regression coefficients, thus making the effect of the independent variable insignificant (Gujarati, translated and reviewed by Odeh and Al-Dash, 2015).

Table 4. Extended Dickey–Fuller test for the internal and external variables of the proposed model during the period 1990-2023.- Source: Collected and calculated from the data in Table (2).

Characteristics		Significance level	Intercept	Trend and Intercept	None
Critical value Variables		1%	-3.65	-4.27	-2.64
		5%	-2.96	-3.56	-1.96
		10%	-2.62	-3.21	-1.61
Domestic investment Y_1	Level	(t) (AIC)	0.96 10.86	-1.86 10.74	2.06 10.80
	First differences	(t) (AIC)	-3.46 10.82	-3.94 10.79	-2.82 10.87
Foreign direct investment Y_2	Level	(t) (AIC)	-1.35 9.32	-3.01 9.07	-1.60 9.37
	First differences	(t) (AIC)	-4.85 9.39	-5.11 9.38	-4.57 9.40
Economic growth rate Y_3	Level	(t) (AIC)	-2.13 5.24	-3.02 5.31	-0.87 5.43
	First differences	(t) (AIC)	-7.43 5.54	-7.27 5.60	-7.52 5.48
Interest rate X_1	Level	(t) (AIC)	-1.37 3.08	-1.07 3.14	-0.78 3.06
	First differences	(t) (AIC)	-5.51 3.08	-5.58 3.12	-5.67 3.02
GDP instability coefficient X_2	Level	(t) (AIC)	-2.39 7.50	-3.34 7.56	-1.92 7.65
	First differences	(t) (AIC)	-5.58 7.81	-5.48 7.87	-5.68 7.74
Shrinkage coefficient X_3	Level	(t) (AIC)	-0.33 7.00	-2.44 6.88	1.52 6.97
	First differences	(t) (AIC)	-4.99 7.05	-4.95 7.10	-4.94 7.06
Productivity factors capital X_4	Level	(t) (AIC)	-1.37 10.25	-2.76 10.14	-0.97 10.24
	First differences	(t) (AIC)	-6.28 10.31	-6.26 10.35	-6.29 10.27
Degree of economic openness X_5	level	(t) (AIC)	-1.41 6.33	-1.38 6.38	-0.51 6.32
	First differences	(t) (AIC)	-4.79 6.41	-4.78 6.46	-4.85 6.35
Environmental quality (CO_2 emissions) X_6	Level	(t) (AIC)	0.28 6.92	-2.52 6.93	2.51 6.99
	First differences	(t) (AIC)	-4.28 6.87	-4.22 6.93	-1.02 7.09
Total population X_7	Level	(t) (AIC)	-0.20 -0.21	-3.12 -0.41	1.98 -0.17
	First differences	(t) (AIC)	-3.10 0.34	-3.06 -0.28	-0.67 -0.09

	Second differences	(t) (AIC)	-5.84 -0.69	-7.65 -1.02	-5.88 -0.75
Saudi export value X_8	Level	(t) (AIC)	-0.85 13.74	-1.87 13.71	0.59 13.75
	First differences	(t) (AIC)	-6.13 13.70	-6.01 13.77	-5.94 13.69

Table 5. Matrix of correlation coefficients between the external variables of the proposed model during the period 1990-2023.- Source: Collected and calculated from the data in Table (2).

Variable	X_1	X_2	X_3	X_4	X_5	X_6	X_8
X_1	1.00	-0.27	-0.68	0.61	-0.23	-0.72	-0.64
X_2	-0.27	1.00	0.19	-0.01	0.41	0.07	0.28
X_3	-0.68	0.19	1.00	-0.78	0.18	0.95	0.97
X_4	0.61	-0.01	-0.78	1.00	-0.02	-0.81	-0.70
X_5	-0.23	0.41	0.18	-0.02	1.00	-0.05	0.37
X_6	-0.72	0.07	0.95	-0.81	-0.05	1.00	0.85
X_8	-0.64	0.28	0.97	-0.70	0.37	0.85	1.00

5-2-3 Equations of the Proposed Model to Study the Impact of Investments on the Economic Growth Rate:

The behavioral equations of the model proposed to study the impact of domestic and foreign direct investments on the economic growth rate during the period 1990-2023 were estimated using the sequential application of the ordinary least squares (OLS) method, after verifying the problems of multicollinearity and autocorrelation of the residuals. The behavioral equations of the estimated model shown in Table (6) yield the following results:

1. The first equation: A 10% increase in both the GDP instability coefficient and the prevailing inflation rate leads to a decrease in domestic investment by 0.06% and 13.34%, respectively. A 10% increase in the productivity of invested capital leads to an increase in domestic investment by 11.67%.
2. The second equation: A 10% increase in the prevailing inflation rate leads to a 2.33% decrease in foreign direct investment. A 10% increase in both the productivity of invested capital and the degree of economic openness leads to increases in foreign direct investment flows by 9.04% and 10.81%, respectively.

3. The third equation: Increasing the value of estimated domestic investments, estimated foreign direct investments, and the total value of Saudi exports of goods and services by 10% leads to increases in the economic growth rate by 1.16%, 2.78%, and 12.87%, respectively.
4. The behavioral equations of the proposed model are free from the problem of autocorrelation of the residuals, due to the insignificance of the (F) value of the Breusch–Godfrey serial correlation LM Test, which is 0.82 and 0.87 for the second and third equations, respectively. No autocorrelation is noted in the variance of the series due to the insignificance of the (F) values of the arch test, which are 0.88, 0.29, and 0.23 for the three behavioral equations, respectively. The behavioral equations in the proposed model also have good efficiency in representing the data used in the estimation according to the indicators measuring the efficiency of the model, the most important of which is Theil's unequal coefficient (U-Theil), the value of which is close to zero (Table 7).

Table 6. Estimated behavioral equations to study the impact of investments on the economic growth rate during the period 1990-2023.

Statement	Equations
Local Investments	$\text{Ln } \hat{Y}_1 = 6.685 - 0.010 \text{Ln } X_1 - 0.006 \text{Ln } X_2 - 1.334 \text{Ln } X_3 + 1.167 \text{Ln } X_4 + 0.992 \text{ar}(1)$ <p style="text-align: center;">(14.74)** (-0.47)^{ns} (-2.11)* (-15.88)** (12.79)** (25.87)**</p> <p style="text-align: center;">$R^2 = 0.94, F = 113.58, D.W = 1.36, Arch \text{ test} = 0.88$</p>
Foreign Direct Investment	$\hat{Y}_2 = 30.700 - 0.057 X_3 + 0.033 X_4 + 0.308 X_5$ <p style="text-align: center;">(2.39)* (-2.21)* (12.63)** (3.68)**</p> <p style="text-align: center;">$R^2 = 0.76, F = 31.67, D.W = 1.91, LM \text{ test} = 0.82, Arch \text{ test} = 0.29$</p>
Economic Growth Rate	$\text{Ln } \hat{Y}_3 = -6.685 + 0.116 \text{Ln } \hat{Y}_1 + 0.278 \text{Ln } \hat{Y}_2 + 1.287 \text{Ln } X_8$ <p style="text-align: center;">(-2.13)* (4.08)** (2.09)* (3.51)**</p> <p style="text-align: center;">$R^2 = 0.83, F = 48.42, D.W = 1.53, LM \text{ test} = 0.87, Arch \text{ test} = 0.23$</p>

** Significant at the 1% probability level, * Significant at the 5% probability level; ns, not significant.
Source: Calculated from the data in Figures (1, 2, 3) and Table (2).

Table 7. Indicators measuring the efficiency of the behavioral equations of the estimated model during the period 1990-2023.- Source: Collected and calculated from the behavioral equations in Table (5).

Index	Behavioral equations		
	First	Second	Third
Root means square error (RMS)	0.348	0.642	0.759
Mean absolute error (MAE)	0.309	0.549	0.617
Mean absolute percentage error (MAPE)	5.170	7.99	10.45
Theil's un-equalization coefficient (U)	0.031	0.085	0.099

5-3 Predicting the Economic Growth Rate of the Kingdom of Saudi Arabia Through 2030:

The economic growth rate of the Kingdom of Saudi Arabia up to 2023 was predicted by forecasting the exogenous variables of the estimated model. Using the general trend equations shown in Table (3), the following is expected:

1. The interest rate on long-run bank deposits will remain stable at 5.94% from 2023 to 2030 given the low interest rate on long-run bank deposits during the study period. The instability coefficient of GDP is also assumed to remain stable at 11.2% from 2023 to 2030 given the insignificance of the current and expected increase in the instability coefficient of GDP.
2. The prevailing inflation rate is expected to increase from 132.3% in 2025 to 161.6% in 2030, with an estimated annual average of approximately 146.5% during the period 2025-2030. The capital productivity index is also expected to decrease from 375 in 2025 to 355.0 in 2030, with an estimated annual average of approximately 364.9 during the period 2025-2030.
3. The degree of economic openness is expected to decrease from 40.6% in 2025 to 25.3% in 2030, with an estimated annual average of approximately 33.2%. The value of Saudi exports of goods and services is also expected to increase from SAR 2,098.5 billion in 2025 to SAR 3,023.0 billion in 2030, with an annual average estimated at approximately SAR 2,538.3 billion during the period 2025-2030 (Table 8).

Table 8. The predictive value of the external variables of the proposed model through 2030.

Year	Exogenous variables					
	Interest rate%	Output instability coefficient%	Capital deflator	Capital productivity factor	Economic openness	Export value (billion SAR)
2025	5.94	11.2	132.3	375.0	40.6	2098.5
2026	5.94	11.2	137.7	370.9	37.9	2257.5
2027	5.94	11.2	143.3	366.9	34.9	2428.4
2028	5.94	11.2	149.2	362.9	31.9	2612.3
2029	5.94	11.2	155.2	358.9	28.7	2810.2
2030	5.94	11.2	161.6	355.0	25.3	3023.0
Average	5.94	11.2	146.5	364.9	33.2	2538.3

In light of the predictive values of the external variables and the behavioral equations of the estimated model shown in Table (5), domestic investments are expected to decrease from SAR 1,174.7 billion in 2025 to SAR 843.8 billion in 2030, with an estimated annual average of approximately SAR 993.2 billion during the period 2025-2030. Foreign direct investments are also expected to decrease from SAR 48.01 billion in 2025 to SAR 41.14 billion in 2030, with an estimated annual average of approximately SAR 44.67 billion during the period 2025-2030. Finally, despite the decrease in domestic and foreign direct investments, the increase in the value of Saudi exports of goods and services leads to an increase in the economic growth rate of the Kingdom of Saudi Arabia from 5.0% in 2025 to 7.3% in 2030, with an estimated annual average of approximately 6.1% during the period 2025-2030 (Table 9).

Table 9. The predictive value of the internal variables of the proposed model through 2030.- Source: Collected and calculated from the equations in Table (5) and the data in Table (7).

Year	Internal variables		
	Local investments (billion SAR)	Foreign direct investment (billion SAR)	Economic openness rate (%)
2025	1174.7	48.01	5.0
2026	1099.4	46.76	5.4
2027	1029.4	45.42	5.8
2028	963.1	44.07	6.3
2029	902.0	42.64	6.8
2030	843.8	41.14	7.3
Average	993.2	44.67	6.1

6. Conclusions

The study examined the impact of domestic and foreign direct investments, in addition to other factors, most notably the value of Saudi exports of goods and services, on the economic growth rate during the period 1990-2023. In light of the factors determining both domestic and foreign direct investments, a gradual decline in these investments is expected through 2030, especially given the current and anticipated military tensions and wars in the Middle East. Despite the decline in domestic and foreign investments, increasing the value of Saudi exports from SAR 2,098.5 billion in 2025 to SAR 3,023.0 billion in 2030 would lead to an increase in the Kingdom of Saudi Arabia's economic growth rate from 5.0% in 2025 to 7.3% in 2030. These figures are consistent with the World Bank's projected Saudi economic growth of 5.4% in 2026 and with Saudi Vision 2030, which aims to increase the GDP from SAR 3,514 billion in 2024 to SAR 6,500 billion in 2030 (Kingdom of Saudi Arabia, 2025). To increase the economic growth rate to 7.3% in 2030, it is necessary to maintain domestic and foreign direct investment levels, in addition to continuing to increase the value of Saudi exports of goods and services to reach SAR 3,023.0 billion in 2023.

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