

The three-ways linkages between domestic investment, exports and economic growth: new evidence from Saudi Arabia

Sayef BAKARI

University of Tunis El Manar, Tunisia
University of Jendouba, Tunisia
bakari.sayef@yahoo.fr

Abstract. *This research paper aims to investigate the relationships between domestic investment, exports, and economic growth in Saudi Arabia from 2000 to 2021. Using cointegration and vector error correction model analyses, six key findings have emerged. Firstly, neither domestic investment nor exports have a significant long-term impact on economic growth. Secondly, long-term domestic investment does not significantly influence exports, and vice versa. Regarding long-term dynamics, the research reveals that economic growth and domestic investment positively influence exports over an extended period. Additionally, domestic investment and exports serve as causal factors for short-term economic growth. Furthermore, short-term relationships exist where economic growth and exports stimulate domestic investment, albeit with relatively weaker significance. Finally, the results highlight that economic growth and domestic investment jointly foster short-term export expansion. The research suggests the need to investigate additional economic, political, and structural factors beyond domestic investment and exports to better understand and enhance long-term economic growth in Saudi Arabia.*

Keywords: domestic investment, exports, economic growth, cointegration analysis, VECM, Saudi Arabia.

JEL Classification: C13, E22, F14, O47, O53.

1. Introduction

Saudi Arabia, as one of the most significant and influential economies in the Middle East, occupies a pivotal role in the global economic arena. Its vast wealth of natural resources, particularly its massive oil reserves, has been the cornerstone of its economic might for decades. These oil reserves have not only shaped Saudi Arabia's economic landscape but also positioned it as a key player in global energy markets. The revenue generated from oil exports has fueled extensive development projects, elevated living standards, and amassed substantial sovereign wealth. However, the heavy reliance on oil exports introduces a precarious vulnerability to the country's economy. The volatility of global oil prices, driven by geopolitical tensions, technological advancements in alternative energy sources, and shifting market dynamics, underscores the need for Saudi Arabia to diversify its economic base. As the global economy transitions towards sustainability and environmental stewardship, Saudi Arabia faces the imperative to innovate and seek sustainable pathways for long-term economic growth beyond its oil-dependent framework. This context raises crucial questions about the interplay between exports, domestic investments, and economic growth in Saudi Arabia. Understanding these dynamics is essential for crafting effective economic policies that can navigate the nation through an era of unprecedented global economic change. Exports, particularly of crude oil, have historically been the linchpin of Saudi economic strategy, generating substantial revenues that finance public expenditure and development projects. However, this hydrocarbon dependence creates a dual-edged sword—while it provides significant income, it also exposes the economy to external shocks and price fluctuations. On the other hand, domestic investments, encompassing both public and private sectors, are vital for building and enhancing the country's productive capacities. These investments stimulate economic growth, create jobs, and foster innovation. Therefore, a comprehensive analysis of how exports and domestic investments interact and influence Saudi Arabia's economic trajectory is imperative for understanding the broader implications for sustained economic growth.

This research aims to delve deeply into these complex and essential interconnections by examining the period from 2000 to 2021, a timeframe marked by significant economic and geopolitical events. During these two decades, Saudi Arabia witnessed considerable fluctuations in oil prices, implemented ambitious economic reforms under the Vision 2030 initiative, and navigated changes in the global trade landscape. These factors collectively shape the economic environment and provide a rich context for analyzing the intricate relationships between exports, domestic investments, and economic growth. To elucidate these relationships, we employ advanced econometric methodologies such as cointegration analysis and the Vector Error Correction Model (VECM). These tools enable us to identify both short-term and long-term trends and uncover potential causality links among the studied variables. The cointegration analysis helps determine whether a long-run equilibrium relationship exists between exports, domestic investments, and economic growth, while the VECM allows us to explore the dynamic adjustments towards this equilibrium. The findings of this research hold significant promise for providing valuable insights to policymakers, economists, investors, and other economic stakeholders within and beyond Saudi Arabia. By understanding the nuanced interactions between exports and domestic investments, policymakers can design strategies that mitigate the risks associated

with oil dependency and leverage domestic investments to diversify the economy. This, in turn, can enhance the economy's resilience to external shocks and foster sustained economic growth. For instance, policies that encourage investment in non-oil sectors such as technology, tourism, and renewable energy can create new revenue streams and job opportunities, thereby reducing the economy's vulnerability to oil price volatility. Moreover, insights from this research can inform investment strategies for both public and private sectors, guiding them towards areas with the highest potential for growth and development.

Furthermore, this study contributes to the broader academic discourse on economic development and diversification in resource-rich economies. By providing empirical evidence on the Saudi Arabian context, this research enriches our understanding of the economic dynamics in the Middle East, a region often characterized by its reliance on hydrocarbon resources. The lessons drawn from Saudi Arabia's experience can offer valuable insights for other resource-dependent economies seeking to diversify and achieve sustainable growth. Additionally, the use of advanced econometric techniques such as cointegration analysis and VECM adds methodological rigor to the study, setting a precedent for future research on similar topics. This can pave the way for new research perspectives and stimulate further academic inquiry into the factors driving economic growth and diversification in resource-rich countries. The remainder of this work is structured to provide a comprehensive analysis of the topic. In the second section, we present a literature review that explores existing research on the link between exports, domestic investments, and economic growth. This review provides a theoretical foundation for our study, highlighting key findings and identifying gaps in the current knowledge. The third section details our empirical methodology, explaining the data sources, econometric models, and analytical techniques employed in the study. This section aims to provide a clear and transparent account of our research approach, ensuring the replicability and validity of our findings. In the fourth section, we present our empirical results, discussing the implications of our findings and their relevance to the Saudi Arabian context. Finally, in the fifth section, we conclude the study by summarizing the key insights and offering recommendations for policymakers and economic stakeholders. These recommendations are intended to guide future economic strategies and contribute to the ongoing discourse on sustainable development and economic diversification.

2. Literature survey

The linkages between domestic investment, exports, and economic growth are fundamental to understanding economic development and crafting effective economic policies. This section delves into the theoretical foundations and empirical evidence related to these relationships. It outlines how domestic investment contributes to economic growth by enhancing productive capacity, how exports drive growth by expanding market access and generating foreign exchange, and how these factors interrelate to create a dynamic economic environment. A comprehensive understanding of these interactions is crucial for policymakers aiming to design strategies that promote sustainable economic development.

2.1. Theoretical background

Understanding the theoretical linkages between domestic investment, exports, and economic growth is essential for a comprehensive analysis of economic development. Examining these relationships offers valuable insights into how economies function and grow, which is critical for formulating effective economic policies. Here's an in-depth explanation of the importance of studying these linkages, supported by relevant literature.

2.1.1. The Role of Domestic Investment

Domestic investment, both public and private, is a cornerstone of economic growth. According to Solow's (1956) growth model, investments in capital enhance a country's productive capacity, leading to increased output and growth. Public investments in infrastructure and education provide the necessary foundation for private investments to thrive, as highlighted by Barro (1990). For instance, a well-developed transport network reduces logistics costs, and a skilled workforce boosts productivity. Private investments directly contribute to the production of goods and services, fostering innovation and efficiency, as discussed by Romer (1990). Moreover, investments generate employment opportunities, increase income levels, and stimulate demand for goods and services, creating a virtuous cycle of growth. Endogenous growth theories, such as those proposed by Lucas (1988), emphasize that investment in human capital, innovation, and knowledge can lead to sustained economic growth. Thus, understanding the impact of domestic investment on economic growth helps policymakers identify the most effective areas to allocate resources to maximize growth outcomes.

2.1.2. The Importance of Exports

Exports are crucial for economic growth as they provide access to larger markets beyond the domestic economy. Classical trade theories by Smith (1776) and Ricardo (1817) suggest that exports allow countries to specialize in producing goods and services where they have a comparative advantage, leading to more efficient resource allocation and higher productivity. Krugman (1980) further supports this by highlighting how exporting firms can achieve economies of scale, reducing per-unit costs and increasing competitiveness in international markets. Exports also generate foreign exchange earnings, essential for importing goods and services not produced domestically. Export-led growth models, as discussed by Balassa (1978), argue that increased exports lead to higher economic growth by stimulating production, increasing income, and improving the balance of payments. Understanding the impact of exports on economic growth helps design trade policies that promote export diversification and competitiveness.

2.1.3. Economic Growth and Its Drivers

Economic growth, defined as the increase in a country's output of goods and services over time, is a key indicator of economic development and prosperity. The Solow growth model (1956) identifies capital accumulation, labor force growth, and technological progress as primary drivers of growth. In this context, both domestic investment and exports are crucial components that drive these factors. Domestic investment contributes to capital accumulation, enhancing productive capacity. Exports open up new markets and increase

demand, encouraging firms to invest in expanding production capabilities. Moreover, exports can lead to technology transfer and innovation, as firms strive to remain competitive in the global market (Grossman and Helpman, 1991). The interaction between these factors creates a dynamic process where investment and exports mutually reinforce each other, leading to sustained economic growth.

2.1.4. Interconnectedness of the Three Variables

The theoretical linkages between domestic investment, exports, and economic growth are interconnected and mutually reinforcing. Domestic investment increases productive capacity, enabling the production of more goods for both domestic consumption and export. Higher exports generate additional revenue and foreign exchange, which can be reinvested in the economy, further boosting investment and growth. According to endogenous growth theory, investment in human capital, innovation, and knowledge leads to sustained economic growth (Romer, 1986). Similarly, the export-led growth hypothesis suggests that increased exports stimulate economic growth by expanding market size and encouraging efficiency (Feder, 1983). The new trade theory by Krugman (1980) also highlights the role of economies of scale and network effects in driving growth through trade.

Understanding the theoretical linkages between domestic investment, exports, and economic growth has significant policy implications. Policymakers need to design strategies that foster a conducive environment for investment, promote export diversification, and ensure sustainable economic growth. Policies that improve infrastructure, enhance education and skills, and support technological innovation can attract domestic and foreign investment (Barro, 1990). Trade policies that reduce barriers, improve market access, and enhance competitiveness can boost exports (Krugman, 1980). A comprehensive understanding of these linkages helps identify potential trade-offs and complementarities. Excessive reliance on exports without sufficient domestic investment can lead to vulnerabilities to external shocks, while focusing solely on domestic investment without promoting exports can limit growth opportunities. Balanced policies integrating domestic investment and export promotion are essential for achieving sustainable economic growth (Rodrik, 2008). The theoretical importance of studying the linkages between domestic investment, exports, and economic growth lies in the comprehensive understanding it provides of how economies function and grow. These linkages are interconnected and mutually reinforcing, creating a dynamic process that drives sustained economic growth. By understanding these relationships, policymakers can design effective strategies that foster investment, promote exports, and ensure sustainable economic development. This theoretical exploration is essential for identifying the most effective policy interventions to maximize growth outcomes and improve economic prosperity.

2.2. Empirical evidence

This section presents empirical evidence on the causal relationships between Foreign Direct Investment (FDI), exports, domestic investment, and economic growth, based on various studies conducted across different countries and regions. Utilizing methodologies such as panel Granger causality tests, Johansen's multivariate cointegration approach, and vector

error correction models (VECM), these studies reveal intricate dynamics among these economic variables. The findings highlight the varying influences of FDI, exports, and domestic investment on economic growth, offering insights for policymakers on fostering sustainable economic development. Sooreea-Bheemul and Sooreea (2013) utilize panel Granger causality techniques to explore the long-term causal relationships among FDI, exports, domestic investment, and economic growth in 28 developing and emerging countries from 1980 to 1998. Their findings reveal unidirectional causality from economic growth to domestic investment, but bi-directional causality between other variable pairs. FDI is found to be superior to domestic investment in terms of spillover and linkage effects, driving exports and economic growth, which in turn attract more FDI. Despite the absence of a direct causal link from domestic investment to economic growth, the study emphasizes the importance of not neglecting domestic investors in favor of FDI and exports. Shawa and Grafoute (2014) analyze the causal relationships between FDI, GDP growth, domestic investment, and exports in Kenya from 1980 to 2013 using cointegration and Granger causality tests. The results indicate long-term relationships among the variables. Specifically, exports predict domestic investment, and a bidirectional relationship exists between exports and FDI. Additionally, domestic investment predicts FDI inflows, suggesting that policies should consider these dynamics to achieve desired economic outcomes. Keho (2015) examines the relationships among FDI, exports, and economic growth in 12 sub-Saharan African countries from 1970 to 2013 using Johansen's multivariate cointegration approach. The findings reveal co-integration among the variables in ten countries, with economic growth positively affecting FDI in five countries and exports being positively related to FDI in four countries. Granger causality tests show mixed results, with various forms of causality between FDI, GDP, and exports across different countries. The study supports FDI and export-promoting policies based on these empirical insights. Tsitouras and Nikas (2016) apply time series and panel data cointegration analysis to investigate the causal relationships between exports, inward FDI, and GDP in 15 European transition economies from 1995 to 2014. The study includes domestic investment and government spending as auxiliary variables. The results validate the export-led growth and FDI-led growth hypotheses primarily for economies that joined the EU in 2004, while other economies benefit from a culture of saving that enhances local investment and export capacity. Ullah et al (2014) explore the interactions between domestic investment, FDI, and economic growth in Pakistan from 1976 to 2010 using the Johansen cointegration approach and Toda-Yamamoto causality tests. The study finds a long-term relationship among the variables and bidirectional causality between FDI and domestic investment, indicating mutual reinforcement.

In the context of Japan, Bakari (2017) conducted an analysis to assess the impact of exports and domestic investment on economic growth from 1970 to 2015. Utilizing ordinary least squares regression, the empirical findings revealed a positive association between domestic investment, exports, and economic growth. This suggests that both domestic investment and exports are significant drivers of Japan's economic growth. Turning to Nigeria, Bakari et al. (2018) investigated the interplay among exports, domestic investment, and economic growth for the duration of 1981 to 2015. Employing cointegration analysis and a vector error correction model, the empirical results indicated the absence of a long-term

relationship between exports, domestic investment, and economic growth. This implies that other factors may play a more critical role in Nigeria's long-term economic performance. Similarly, in their study of India, Fakraoui and Bakari (2019) scrutinized the relationship between exports, domestic investment, and economic growth during the period of 1960 to 2017. The empirical findings corroborated the absence of a long-term relationship between exports, domestic investment, and economic growth. This lack of long-term association suggests that India's economic growth may be influenced by different determinants over an extended period. Within the context of Uruguay, Bakari et al. (2019) found no discernible impact of exports and domestic investment on long-term economic growth during the period spanning from 1960 to 2017. However, in the short term, they observed that only exports were a causal factor for economic growth. This highlights the significance of exports as a short-term driver of Uruguay's economic performance, while domestic investment appears less influential in the short run. In the case of Peru, Bakari et al. (2020) examined the nexus between exports, domestic investment, and economic growth over the period from 1970 to 2017. Employing cointegration analysis and a vector error correction model, their findings revealed an absence of both a long-term and short-term relationship between domestic investment, exports, and economic growth. This suggests that neither exports nor domestic investment significantly influence Peru's economic growth within the studied timeframe. For the United States, Bakari and Tiba (2019) determined that domestic investment and exports had a long-term impact on economic growth during the period spanning from 1970 to 2019, as evidenced by their application of a vector error correction model. This finding underscores the importance of both domestic investment and exports as long-term growth drivers for the U.S. economy.

Bakari (2022) scrutinized the relationship between exports, domestic investment, and economic growth in Greece from 1970 to 2020. Utilizing cointegration analysis and a vector error correction model, the empirical results indicated a lack of both long-term and short-term relationships between exports, domestic investment, and economic growth. This suggests that these variables may not be the primary determinants of Greece's economic growth. In the case of 14 MENA countries, Taiwo-Onifade et al. (2022) found that domestic investment positively impacts economic growth during the period from 2003 to 2017. Additionally, they discovered that trade has a negative impact on economic growth, highlighting the complex and varying influences of these factors on economic performance in the MENA region. Bakari (2016a) examined the relationship between exports, imports, and economic growth in Canada using data from 1990 to 2015. By applying Johansen cointegration analysis, the Vector Auto Regression Model, and Granger-Causality tests, Bakari found no long-term relationship between exports, imports, and economic growth. However, there was strong evidence of bidirectional causality from imports to economic growth and from exports to economic growth. This indicates that, in the short run, both imports and exports are significant drivers of economic growth in Canada. Bakari (2016b) also investigated the relationship between domestic investment and economic growth in Canada for the same period. Using correlation analysis, Johansen co-integration, and the Vector Error Correction Model, the study concluded that there is no long-term relationship between domestic investment and economic growth. However, in the short run, there was

a weak relationship, suggesting that domestic investment influences economic growth over shorter periods, though it does not cause economic growth in the long run.

In their study on Arab countries, Bakari and El Weriemmi (2022) used data from 1990 to 2020 and the Vector Error Correction Model to explore the nexus between domestic investment and economic growth. Their findings showed no long-term relationship, but there was bidirectional causality in the short run. This suggests that while domestic investment is necessary and can drive short-term economic growth, long-term growth requires more consistent and effective investment policies. Yedder et al (2023a) focused on North African countries using the Panel CS-ARDL Model to analyze data from 1990 to 2021. Their study revealed that domestic investment and exports do not significantly impact long-term economic growth. However, imports had a positive long-term effect. This highlights the complex economic organization and instability in the region, which hinders the effectiveness of domestic investments and exports in promoting sustained growth. Yedder et al (2023b) explored the interplay between domestic investments, exports, and economic growth in Angola from 2002 to 2022. Using cointegration analysis and the ARDL model, their study found no significant impact of domestic investments and exports on long-term economic growth. These unexpected results challenge conventional economic theories and suggest the need for a reevaluation of Angola's economic policies. Akermi et al (2024) studied the impact of final consumption, domestic investment, exports, and imports on Albania's economic growth from 1996 to 2021. Using cointegration analysis, VECM, and the WALD test, they found no causality between these variables and economic growth in both the short and long run. This points to Albania's critical economic situation, necessitating urgent reforms and strong strategies to stimulate growth. Othmani et al (2023) investigate the interplay between patents, domestic investment, and economic growth in the USA from 1980 to 2020 using cointegration analysis and the VECM model. Their findings indicate the absence of a long-term causal relationship between these three variables. However, in the short run, domestic investment and economic growth influence patenting activity, suggesting that patents are not primary drivers of economic growth and domestic investment in the USA. Instead, other factors are likely stimulating American economic activity. In their study, Ben Yedder et al (2023) explore the role of patents in the relationship between domestic investment and economic growth in MENA countries from 1998 to 2022 using panel data analysis. The empirical results demonstrate that domestic investment positively impacts economic growth, while patents do not significantly influence it. Additionally, the impact of domestic investment on economic growth remains unaffected by patent activity, highlighting the limited role of patents in the economic development of these countries. Pegkas and Tsamadias (2016) investigate the causal relationship between economic growth and its determinants (FDI, domestic investment, exports, and human capital) in Greece from 1970 to 2012. Using time series analysis, they find that all determinants positively affect economic growth in the long run. However, structural reforms are necessary to enhance these contributions. Mamun and Kabir (2023) analyze the impact of remittances, FDI, and exports on Bangladesh's economic growth from 1976 to 2019 using ARDL bounds tests. The study identifies positive roles for remittances and exports, but a negative role for FDI, suggesting policy adjustments to foster long-term growth, especially considering recent global events. Öncel et al (2024) examine

the relationship between financial development indicators, export performance, and economic growth in nine Commonwealth of Independent States from 1995 to 2020. Using PVAR analysis and VECM, they find positive impacts of financial development and export on economic growth, though the effect of gross capital formation is inconclusive. The study highlights the significant positive impact of financial development and exports on long-term economic growth.

The empirical studies reviewed demonstrate a diverse range of relationships between FDI, exports, domestic investment, and economic growth. While some countries exhibit bidirectional or unidirectional causality among these variables, others show no long-term relationships. These variations underscore the importance of context-specific economic conditions and policies. The results suggest that while domestic investment and exports play significant roles in driving economic growth in the short term, long-term effects may depend on additional factors and effective policy measures. The findings highlight the need for tailored economic strategies that consider the unique dynamics of each country's economic environment to achieve sustained growth.

3. Empirical methodology

In this section, we outline the empirical methodology employed to examine the relationships among domestic investments, exports, and economic growth in Saudi Arabia. This investigation is structured into three key components: the description of the dataset, the methodology for analysis, and the model specification. By systematically presenting these elements, we aim to provide a clear framework for understanding how domestic investments and exports influence economic growth, utilizing data spanning from 2000 to 2021. Our approach incorporates time series analysis, drawing from established models and techniques to uncover the intricate dynamics at play.

3.1. Data

To investigate the relationship among domestic investment, exports, and economic growth in Saudi Arabia, we will employ a time series dataset covering the period from 2000 to 2021. This dataset is derived from the annual statistical reports provided by the World Bank, which offers comprehensive and reliable economic indicators. The dataset includes three primary variables:

- **Economic Growth (Y):** Represented by Gross Domestic Product (GDP) measured in constant 2015 US dollars. This variable captures the overall economic output and growth of Saudi Arabia over the specified period. Using constant dollars allows us to adjust for inflation and thus provides a more accurate measure of real economic growth.
- **Exports (X):** This variable accounts for the value of goods and services exported by Saudi Arabia, also measured in constant 2015 US dollars. The constant price adjustment ensures that the data reflects the real value of exports without the distortion of inflationary effects. This measure is crucial for understanding how changes in export levels impact economic growth.

- **Domestic Investment (DI):** Represented by Gross Fixed Capital Formation (GFCF) in constant 2015 US dollars. GFCF includes expenditures on physical assets like buildings, machinery, and infrastructure, which are essential for productive capacity and long-term economic development. Again, constant prices are used to provide an accurate reflection of real investment levels over time.

Table n°1. *Description of variables*

No	Variable	Explanation	Description	Source
1	Y	Economic Growth	GDP (constant 2015 US\$)	World Bank Indicators
2	X	Exports	Exports of goods and services (constant 2015 US\$)	World Bank Indicators
3	DI	Domestic investment	Gross fixed capital formation (constant 2015 US\$)	World Bank Indicators

Source: Built by the authors.

The dataset's use of constant prices for GDP, exports, and domestic investment ensures that our analysis is not skewed by inflationary changes. This approach allows for a clearer examination of the real relationships and effects among these variables, facilitating a more accurate assessment of how domestic investments and exports influence economic growth in Saudi Arabia.

3.2. Methodology

To investigate the relationship among domestic investment, exports, and economic growth in Saudi Arabia, our empirical methodology will leverage the Sims (1980) model, a sophisticated approach well-suited for analyzing time series data. The Sims model is particularly advantageous for our study due to several key merits that align with our analytical objectives. One of the primary strengths of the Sims model is its ability to explore co-integration among variables. Co-integration refers to a statistical property where non-stationary time series variables move together in the long run, despite being individually non-stationary. This is crucial in our context because it helps us understand whether a long-term equilibrium relationship exists between domestic investment, exports, and economic growth. By identifying such relationships, we can better grasp how these variables interact over time and how shocks in one variable might impact the others in the long run.

The Sims model provides a more realistic approximation of economic relationships compared to alternative models, especially when dealing with a manageable number of variables, typically five or fewer. This feature is particularly useful for our analysis, as it allows us to maintain model simplicity while capturing the essential dynamics between the variables. By focusing on a smaller set of variables, we can reduce the complexity of the model and avoid overfitting, which enhances the reliability of our findings. Another significant advantage of the Sims model is its capability to assess causal links between short-term and long-term variables. Assuming that co-integration is present, the model can help distinguish between short-term fluctuations and long-term trends. This distinction is important for understanding how temporary changes in domestic investment or exports might affect economic growth in the short run, and how these effects persist or evolve over the long term. This approach provides a nuanced view of the causal relationships, which is vital for developing effective economic policies.

The Sims model is well-suited for studies involving time series data, which is precisely the type of data we are analyzing. Time series analysis involves examining data points collected or recorded at specific time intervals, and the Sims model's design accommodates the unique challenges associated with such data, including serial correlation and trends. This suitability ensures that our analysis will effectively handle the intricacies of time series data and provide robust results. Our empirical approach will start with assessing the stationarity of the variables using the Augmented Dickey-Fuller (ADF) test. Stationarity is a crucial prerequisite for reliable time series analysis, as non-stationary data can lead to misleading results. If our variables are not stationary at the level, we will difference them and re-test for stationarity in the first differences.

Following this, we will conduct co-integration analysis using the Johansen Test. This test will help us identify whether a long-term equilibrium relationship exists among the variables. If the Johansen Test indicates the presence of co-integration, we will employ the Vector Error Correction Model (VECM) to analyze the short-term dynamics and long-term relationships between the variables.

Additionally, the Wald Test will be used within the VECM framework to test the significance of the parameters. In cases where co-integration is not detected, we will turn to the Vector Autoregression (VAR) Model and the Granger Causality Test. The VAR model will allow us to capture the linear interdependencies among the variables, while the Granger Causality Test will help us determine the direction of causality between them. By following this comprehensive empirical methodology, we aim to uncover the intricate relationships among domestic investment, exports, and economic growth in Saudi Arabia, providing valuable insights for policymakers and researchers interested in understanding and enhancing economic development.

3.3. Model specification

To analyze the causal relationships among exports, domestic investment, and economic growth, we will use a neoclassical model framework. This model helps us understand how these variables interact and influence one another within the context of economic growth. The neoclassical model posits that economic growth is driven by factors such as capital accumulation, technological progress, and labor force expansion. In this study, we focus on how domestic investment and exports contribute to economic growth, particularly in the context of Saudi Arabia. The fundamental equation for our analysis can be expressed as:

$$Y = F [DI, X] \quad (1)$$

The function (1) can also be reproduced in a log-linear econometric format thus:

$$\text{Log}(Y)_t = \alpha_0 + \alpha_1 \text{Log}(DI)_t + \alpha_2 \text{Log}(X)_t + \varepsilon_t \quad (2)$$

Where:

α_0 : is the constant term

α_1 : is the coefficient of domestic investment

α_2 : is the coefficient of exports

ε : is the random error term

t: is the time trend.

By applying this model, we aim to quantify how domestic investment and exports individually and jointly affect economic growth. The coefficients α_1 and α_2 provide insights into the relative importance of each factor. For instance, a higher α_1 would indicate that domestic investment has a significant impact on economic growth, whereas a high α_2 would highlight the importance of exports. After establishing this theoretical framework, we will employ the dataset to conduct an empirical investigation. This investigation will assess the relationships between exports, domestic investment, and economic growth, using data from Saudi Arabia. Our approach involves examining both short-term and long-term effects, and evaluating how these variables interact over time. This comprehensive analysis will help in understanding the dynamics at play and inform policy recommendations aimed at fostering economic growth through effective investment and trade strategies.

4. Empirical results

This section presents the empirical results of our study on the dynamic relationships between economic growth, domestic investment, and exports in Saudi Arabia. We begin with a stationarity analysis using the Augmented Dickey-Fuller (ADF) unit root test to determine the stationarity of the variables under study. This is followed by an examination of the optimal lag order selection using various criteria such as the Log-Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), and Hannan-Quinn Information Criterion (HQ). Finally, we perform a cointegration analysis using the Johansen test to explore the long-term equilibrium relationships among the variables and apply the Vector Error Correction Model (VECM) to understand both the long-run and short-run dynamics.

4.1. Stationarity analysis

The table n^o2 presents the results of the Augmented Dickey-Fuller (ADF) unit root test for three economic variables: economic growth (LOG(Y)), domestic investment (LOG(DI)), and exports (LOG(X)), evaluated both at level and at first difference. The examination of the results at the level reveals that none of the variables are stationary. For LOG(Y) (economic growth), the t-statistic is -1.2639 with a p-value of 0.6261 when including a constant, indicating non-stationarity at this level. Similarly, LOG(DI) (domestic investment) has a t-statistic of -2.4009 with a p-value of 0.1534, further suggesting that this series is non-stationary. LOG(X) (exports) shows a t-statistic of -1.7820 with a p-value of 0.3784, which also confirms non-stationarity at the level. When considering both a constant and a trend, the situation remains unchanged. LOG(Y) displays a t-statistic of -0.8014 with a p-value of 0.9493, reinforcing its non-stationarity at the level. LOG(DI) has a t-statistic of -0.2613 with a p-value of 0.9862, indicating that it is also non-stationary. For LOG(X), the t-statistic is -2.4506 with a p-value of 0.3457, confirming the absence of stationarity. Without including constant and trend, the t-statistics are positive (3.3975 for LOG(Y), 1.5144 for LOG(DI), and 0.6691 for LOG(X)), and the p-values are extremely high, confirming non-stationarity at the level.

Table n°2. Results of Unit Root Test (ADF)

At Level				
Variables		LOG(Y)	LOG(DI)	LOG(X)
With Constant	t-Statistic	-1.2639	-2.4009	-1.7820
	Prob.	0.6261	0.1534	0.3784
With Constant & Trend	t-Statistic	-0.8014	-0.2613	-2.4506
	Prob.	0.9493	0.9862	0.3457
Without Constant & Trend	t-Statistic	3.3975	1.5144	0.6691
	Prob.	0.9994	0.9628	0.8526
At First Difference				
Variables		d(LOG(Y))	d(LOG(DI))	d(LOG(X))
With Constant	t-Statistic	-3.7087	-2.6286	-4.2806
	Prob.	0.0124	0.1040	0.0037
With Constant & Trend	t-Statistic	-4.1001	-4.7703	-4.4000
	Prob.	0.0217	0.0084	0.0121
Without Constant & Trend	t-Statistic	-2.5277	-2.0440	-4.2696
	Prob.	0.0144	0.0419	0.0002

Notes: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1%.

*MacKinnon (1996) one-sided p-values.

Source: Authors' calculations using EViews 12 software.

The results of the unit root test at first difference show that all variables become stationary. For $d(\text{LOG}(Y))$, the t-statistic is -3.7087 with a p-value of 0.0124 when including a constant, indicating stationarity after differencing. $d(\text{LOG}(DI))$ has a t-statistic of -2.6286 with a p-value of 0.1040, showing stationarity in first difference, though the p-value is close to the 10% significance threshold. $d(\text{LOG}(X))$ shows a t-statistic of -4.2806 with a p-value of 0.0037, confirming stationarity after differencing. When both a constant and a trend are included, $d(\text{LOG}(Y))$ has a t-statistic of -4.1001 with a p-value of 0.0217, indicating stationarity. $d(\text{LOG}(DI))$ displays a t-statistic of -4.7703 with a p-value of 0.0084, also confirming stationarity. $d(\text{LOG}(X))$ has a t-statistic of -4.4000 with a p-value of 0.0121, which further indicates stationarity. Without constant and trend, $d(\text{LOG}(Y))$ presents a t-statistic of -2.5277 with a p-value of 0.0144, showing stationarity. $d(\text{LOG}(DI))$ has a t-statistic of -2.0440 with a p-value of 0.0419, confirming stationarity. $d(\text{LOG}(X))$ shows a t-statistic of -4.2696 with a p-value of 0.0002, which also confirms stationarity. The results demonstrate that all the variables under consideration—economic growth, domestic investment, and exports—are stationary after first differencing. This finding suggests that co-integration analysis is appropriate to investigate the long-term relationships among these variables. Given the stationarity results, we will proceed with the Sims co-integration model for our analysis. This model is well-suited for examining long-term equilibrium relationships and complex interactions among variables, particularly in the context of time series data. The Sims model will help assess long-term relationships and identify potential causal connections among the variables.

4.2. Lag order selection criteria

Table n°3 presents the results of the VAR (Vector Autoregression) Lag Order Selection Criteria for the variables $DLOG(Y)$, $DLOG(DI)$, and $DLOG(X)$. This analysis is crucial for determining the optimal number of lags to include in the model to accurately capture the dynamic relationships among the variables. The table lists several key criteria used to

select the appropriate lag order: LogL (Log-Likelihood), LR (Sequential Modified Likelihood Ratio Test Statistic), FPE (Final Prediction Error), AIC (Akaike Information Criterion), SC (Schwarz Information Criterion), and HQ (Hannan-Quinn Information Criterion). Each criterion provides a different perspective on the model's fit and complexity, balancing the trade-off between goodness of fit and the number of parameters included. The results for different lag orders (0 to 3) are displayed in the table, showing the values of each criterion for each lag. The asterisks (*) indicate the optimal lag order selected by each criterion. Notably, the second lag (Lag 2) is identified as the optimal lag order by most criteria:

- LR (Sequential Modified Likelihood Ratio Test Statistic) shows that Lag 2 significantly improves the model fit, with a value of 20.46506.
- FPE (Final Prediction Error) suggests that Lag 2 has the lowest prediction error (6.76e-09).
- AIC (Akaike Information Criterion) is minimized at Lag 2, with a value of -10.42767.
- HQ (Hannan-Quinn Criterion) also points to Lag 2 as the optimal choice, with a value of -10.28444.
- While the SC (Schwarz Criterion) indicates that Lag 0 might be optimal (value of -9.810026), the majority of criteria agree on Lag 2. The SC tends to select models with fewer parameters due to its heavier penalty for additional parameters.

Table n°3. Results of Lag Order Selection Criteria

VAR Lag Order Selection Criteria						
Endogenous variables: DLOG(Y) DLOG(DI) DLOG(X)						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	92.62579	NA	9.50e-09	-9.958421	-9.810026*	-9.937959
1	98.10491	8.523079	1.44e-08	-9.567213	-8.973631	-9.485366
2	114.8490	20.46506*	6.76e-09*	-10.42767*	-9.388905	-10.28444*
3	121.7954	6.174547	1.14e-08	-10.19949	-8.715538	-9.994873

* indicates lag order selected by the criterion

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

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Authors' calculations using EViews 12 software.

Economically, selecting a lag order of 2 years implies that the interactions between the variables—economic growth (DLOG(Y)), domestic investment (DLOG(DI)), and exports (DLOG(X))—are best captured when considering a two-year time horizon. This means that the effects of changes in domestic investment and exports on economic growth, and vice versa, manifest most significantly over a period of two years. Given the annual frequency of the dataset, this lag selection reflects a realistic timeframe for observing the dynamic impacts among these economic indicators. The VAR Lag Order Selection Criteria collectively suggest that a lag order of 2 is optimal for the model. This choice allows for a comprehensive and accurate representation of the temporal interdependencies among economic growth, domestic investment, and exports in Saudi Arabia. Consequently, the subsequent analysis and modeling will incorporate a two-year lag to ensure robust and meaningful results.

4.3. Cointegration analysis

Table n°4 presents the results of the Johansen cointegration test, which is employed to determine the existence of long-term equilibrium relationships among the variables in our study: economic growth (LOG(Y)), domestic investment (LOG(DI)), and exports (LOG(X)). The Johansen test comprises two parts: the Trace test and the Maximum Eigenvalue test. In the Trace test, the hypothesis is that there are no cointegrating equations (CEs). The null hypothesis is rejected if the trace statistic exceeds the critical value at the 5% significance level. The results show that for the null hypothesis of no cointegration (None), the trace statistic is 38.27943, which is higher than the critical value of 29.79707, with a p-value of 0.0042. This indicates rejection of the null hypothesis at the 5% significance level, suggesting the presence of at least one cointegrating equation. For the hypotheses of at most one and at most two cointegrating equations, the trace statistics are 9.385172 and 2.702706, respectively, which are lower than their corresponding critical values, indicating that additional cointegrating equations are not significant.

The Maximum Eigenvalue test also examines the number of cointegrating equations by comparing the maximum eigenvalue statistic with the critical value. For the null hypothesis of no cointegration, the maximum eigenvalue statistic is 28.89426, which exceeds the critical value of 21.13162, with a p-value of 0.0033. This result confirms the presence of one cointegrating equation. The tests for at most one and at most two cointegrating equations show maximum eigenvalue statistics of 6.682466 and 2.702706, respectively, which do not exceed their critical values, indicating no further cointegration.

Table n°4. Results of Johansen Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0,05 Critical Value	Prob.**
None *	0.799158	38.27943	29.79707	0.0042
At most 1	0.310127	9.385172	15.49471	0.3309
At most 2	0.139421	2.702706	3.841466	0.1002
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0,05 Critical Value	Prob.**
None *	0.799158	28.89426	21.13162	0.0033
At most 1	0.310127	6.682466	14.26460	0.5273
At most 2	0.139421	2.702706	3.841466	0.1002

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Authors' calculations using EViews 12 software.

Both the Trace test and the Maximum Eigenvalue test consistently indicate the existence of one cointegrating equation among the variables. This finding supports the presence of a long-term equilibrium relationship between economic growth, domestic investment, and exports in Saudi Arabia. As a result, we will employ the Vector Error Correction Model (VECM) in subsequent analyses. The VECM is suitable for capturing both the long-term relationships and short-term dynamics among the variables, allowing for a comprehensive understanding of their interactions.

4.4. Estimation of VECM models in the long run

Table n°5 presents the results of the long-term estimation of the Vector Error Correction Model (VECM). This model is used to examine the long-term relationships between economic growth (LOG(Y)), domestic investment (LOG(DI)), and exports (LOG(X)). The VECM provides insights into how these variables interact over an extended period, capturing both the short-term fluctuations and long-term equilibrium dynamics. Firstly, the analysis indicates that neither domestic investment nor exports have a significant long-term impact on economic growth. The coefficients for LOG(DI) and LOG(X) in the equation for LOG(Y) are not statistically significant, as evidenced by their t-statistics and corresponding p-values. This suggests that, in the context of Saudi Arabia, changes in domestic investment and exports do not significantly drive long-term economic growth. Instead, other factors not included in the model may play a more crucial role in influencing the country's economic growth trajectory over the long run.

Secondly, the results show that domestic investment does not significantly influence exports in the long term, and exports do not significantly influence domestic investment either. The coefficients for LOG(DI) in the LOG(X) equation and LOG(X) in the LOG(DI) equation are both statistically insignificant. This finding implies that, while domestic investment and exports are essential components of the economy, their long-term interdependence is not strong. The lack of a significant long-term relationship between these two variables suggests that their effects on each other are either indirect or mediated by other economic factors.

However, the research reveals that both economic growth and domestic investment positively influence exports over an extended period. Specifically, a 1% increase in economic growth leads to a 0.104175% increase in exports, and a 1% increase in domestic investment results in a 0.145555% increase in exports in the long term. These findings highlight the importance of economic growth and domestic investment in boosting the country's export performance. The positive relationship between economic growth and exports suggests that as the economy expands, the production capacity and competitiveness of domestic industries improve, leading to higher export volumes. Similarly, increased domestic investment enhances the infrastructure, technology, and productivity of export-oriented sectors, contributing to greater export growth.

Table n°5. Results of VECM models in the long run

	Log (Y)	Log (DI)	Log (X)
Log (Y)		- 0.715708	0.104175***
		(1.80059)	(0.26646)
		[0.39748]	[-0.39096]
Log (DI)	- 1.397219		0.145555***
	(0.53082)		(0.07031)
	[2.63218]		[-2.07028]
Log (X)	9.599239	6.870249	
	(1.48217)	(1.32658)	
	[-6.47646]	[-5.17893]	
C	- 0.056417	0.040378	0.005877

Standard errors in () & t-statistics in []

Notes: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1%.

Source: Authors' calculations using EViews 12 software.

The results also underscore the complexity of the relationships between economic variables in the long term. While domestic investment and exports do not significantly impact economic growth, they are crucial for enhancing the country's export capabilities. This dynamic indicates that the benefits of domestic investment and economic growth are more apparent in the export sector rather than directly influencing overall economic growth. The positive impact of economic growth and domestic investment on exports suggests that policies aimed at fostering economic expansion and encouraging domestic investment can have significant spillover effects on the export sector, thereby enhancing the country's trade performance.

The VECM results provide valuable insights into the long-term interactions between economic growth, domestic investment, and exports in Saudi Arabia. While domestic investment and exports do not directly drive long-term economic growth, they play a crucial role in boosting the country's export performance. The positive relationships between economic growth, domestic investment, and exports highlight the importance of fostering economic policies that promote overall economic expansion and encourage domestic investment. These policies can lead to substantial improvements in the export sector, contributing to the country's trade balance and economic resilience in the long run.

4.5. Estimation of VECM models in the short run

Table n°6 presents the results of the short-term estimation of the Vector Error Correction Model (VECM). This model is designed to capture the immediate interactions and adjustments between economic growth (LOG(Y)), domestic investment (LOG(DI)), and exports (LOG(X)) within a shorter time frame. The short-term dynamics offer valuable insights into how these variables influence each other in the short run, providing a nuanced understanding of their causal relationships.

The results indicate that domestic investment and exports serve as significant causal factors for short-term economic growth. This finding suggests that increases in domestic investment and export activities can lead to immediate improvements in economic performance. For instance, when businesses invest in new projects, equipment, or infrastructure, the immediate effect is often an increase in economic activity, job creation, and productivity, all of which contribute to short-term economic growth. Similarly, an uptick in exports can boost the economy by increasing production demand, generating foreign exchange earnings, and fostering economic activities linked to the export sectors.

Furthermore, the results reveal that there are short-term relationships where economic growth and exports stimulate domestic investment, although the significance of these relationships is relatively weaker. This means that while economic growth and export activities do positively impact domestic investment in the short run, the effect is not as strong or as direct as the impact of domestic investment and exports on economic growth. The positive influence of economic growth on domestic investment can be attributed to increased business confidence and profitability during periods of economic expansion, encouraging firms to reinvest their earnings. Similarly, higher export levels can lead to greater capital inflows and improved financial conditions, which in turn can spur domestic investment. However, the relatively weaker significance suggests that other factors,

possibly including economic policies, market conditions, and external economic environments, also play a crucial role in determining the level of domestic investment.

Table n°6. Results of VECM models in the short run

VEC Granger Causality/Block Exogeneity Wald Tests			
Dependent variable: D(DLOG(Y))			
Excluded	Chi-sq	df	Prob.
D(DLOG(DI))	15.77935	2	0.0004
D(DLOG(X))	29.14358	2	0.0000
All	36.94183	4	0.0000
Dependent variable: D(DLOG(DI))			
Excluded	Chi-sq	df	Prob.
D(DLOG(Y))	5.831395	2	0.0542
D(DLOG(X))	4.656425	2	0.0975
All	5.982735	4	0.2004
Dependent variable: D(DLOG(X))			
Excluded	Chi-sq	df	Prob.
D(DLOG(Y))	20.58493	2	0.0000
D(DLOG(DI))	15.89570	2	0.0004
All	26.68279	4	0.0000

Source: Authors' calculations using EViews 12 software.

The analysis also highlights the synergistic effect of economic growth and domestic investment in fostering short-term export expansion. This finding underscores the importance of a vibrant domestic economy and robust investment climate for enhancing export performance. When the economy grows, it generally leads to better infrastructure, more efficient production processes, and enhanced competitiveness of domestic industries, all of which are vital for increasing exports. Likewise, domestic investment contributes to the development of export-oriented sectors by improving technological capabilities, expanding production capacities, and enhancing the quality of goods and services destined for international markets. The combined effect of economic growth and domestic investment creates a favorable environment for exports to flourish in the short term.

The short-term VECM results provide a detailed picture of the immediate interactions between economic growth, domestic investment, and exports. Domestic investment and exports emerge as key drivers of short-term economic growth, highlighting their critical role in stimulating economic activity. Although economic growth and exports also encourage domestic investment, this relationship is less pronounced, indicating the influence of additional factors. Finally, the joint contribution of economic growth and domestic investment to short-term export expansion emphasizes the importance of fostering a dynamic domestic economy and a supportive investment climate to boost export performance. These findings are essential for policymakers aiming to implement strategies that harness the short-term benefits of investment and export activities to stimulate overall economic growth.

5. Conclusions and recommendations

This research paper investigates the relationships between domestic investment, exports, and economic growth in Saudi Arabia from 2000 to 2021. Through rigorous cointegration and vector error correction model (VECM) analyses, several important findings have

emerged. Firstly, it is observed that neither domestic investment nor exports have a significant long-term impact on economic growth. This suggests that over an extended period, other factors beyond these two variables might play a more crucial role in driving the nation's economic development. It is imperative for policymakers to identify and focus on these other contributing factors to effectively sustain long-term economic growth. Secondly, the analysis indicates that long-term domestic investment does not significantly influence exports, and vice versa. This finding challenges the conventional notion that increased domestic investment directly boosts export performance. It suggests that in the context of Saudi Arabia, the relationship between these two variables is more complex and might be influenced by various external and internal factors, such as global market conditions, trade policies, and domestic economic structures. Despite the lack of significant long-term impacts, the research reveals positive long-term dynamics where economic growth and domestic investment positively influence exports over an extended period. An increase in economic growth and domestic investment is associated with a subsequent rise in exports. This implies that fostering a stable and growing domestic economy, alongside encouraging investments, can create a favorable environment for export activities to thrive in the long run. This highlights the importance of maintaining economic stability and promoting investment to enhance the country's export capabilities.

The short-term analysis provides additional insights. It is found that domestic investment and exports serve as causal factors for short-term economic growth. This indicates that, in the short run, increasing investments and export activities can lead to immediate improvements in economic performance. For instance, investment in infrastructure and production capacities can rapidly boost economic activity and job creation, while a rise in exports can increase foreign exchange earnings and stimulate related sectors. Furthermore, short-term relationships are identified where economic growth and exports stimulate domestic investment, albeit with relatively weaker significance. This suggests that while economic expansion and export growth do encourage investment, other factors also play a critical role in driving domestic investment decisions. Policymakers should consider these additional factors when designing strategies to stimulate investment. Lastly, the results highlight that economic growth and domestic investment jointly foster short-term export expansion. This underscores the synergistic effect of a vibrant domestic economy and a robust investment climate in enhancing export performance. By focusing on policies that promote economic stability and encourage investments, Saudi Arabia can boost its export sector in the short term.

The findings of this research suggest that while domestic investment and exports are crucial for short-term economic growth, their long-term impact on economic growth in Saudi Arabia is limited. Therefore, it is essential to investigate additional economic, political, and structural factors to better understand and enhance long-term economic growth. Policymakers should adopt a comprehensive approach that includes fostering economic stability, promoting investments, and identifying other key drivers of economic growth to achieve sustainable development.

References

- Akermi, N., Yedder, N.B., and Bakari, S. (2024). Impact of final consumption, domestic investment, exports, and imports on economic growth in Albania. *Theoretical and Applied Economics*, 31(1) (638), (Spring), pp. 231-252.
- Bakari, S. (2016a). *Does Domestic Investment Produce Economic Growth in Canada: Empirical Analysis Based on Correlation, Cointegration and Causality* (No. 75966). University Library of Munich, Germany.
- Bakari, S. (2016b). *Impact of Exports and Imports on Economic Growth in Canada: Empirical Analysis Based on Causality* (No. 75910). University Library of Munich, Germany.
- Bakari, S. (2017). *The Nexus between Export, Import, Domestic Investment and Economic Growth in Japan* (No. 76110). University Library of Munich, Germany.
- Bakari, S. (2022). On The Relationship Between Domestic Investment, Exports and Economic Growth: Evidence from Greece. *Journal of Smart Economic Growth*, 7(3), pp. 13-34.
- Bakari, S., and El Weriemmi, M. (2022). *Causality between Domestic Investment and Economic Growth in Arab Countries* (No. 113077). University Library of Munich, Germany.
- Bakari, S., and Tiba, S. (2019). *Long run and short run Macroeconomics Determinants of Economic Growth in the USA: Cointegration and VECM Analysis* (No. 96618). University Library of Munich, Germany.
- Bakari, S., Fakraoui, N., and Mabrouki, M. (2020). *The Contribution of Domestic Investment, Exports and Imports on Economic Growth: A Case Study of Peru* (No. 99041). University Library of Munich, Germany.
- Bakari, S., Mabroukib, M., and Othmani, A. (2018). The six linkages between foreign direct investment, domestic investment, exports, imports, labor force and economic growth: new empirical and policy analysis from Nigeria. *Journal of Smart Economic Growth*, 3(1), pp. 25-43.
- Bakari, S., Tiba, S., and Fakraoui, N. (2019). Does Domestic Investment Contribute to Economic Growth in Uruguay? What did the Empirical Facts Say? *Journal of smart economic growth*, 4(2), pp. 53-69.
- Balassa, B. (1978). Exports and Economic Growth: Further Evidence. *Journal of Development Economics*, 5(2), pp. 181-189.
- Barro, R.J. (1990). Government Spending in a Simple Model of Endogenous Growth. *Journal of Political Economy*, 98(5), S103-S125.
- Ben Yedder, N., El Weriemmi, M., and Bakari, S. (2023). *The nexus between domestic investment and economic growth in MENA countries; Do Patents matter?* (No. 118174). University Library of Munich, Germany.
- Fakraoui, N., and Bakari, S. (2019). Tie Among Domestic Investment, Exports and Economic Growth: Empirical Analysis from India. *Journal of Smart Economic Growth*, 4(1), pp. 1-15.
- Feder, G. (1983). On Exports and Economic Growth. *Journal of Development Economics*, 12(1-2), pp. 59-73.
- Grossman, G.M., and Helpman, E. (1991). *Innovation and Growth in the Global Economy*. MIT Press.

- Keho, Y. (2015). Foreign direct investment, exports and economic growth: Some African evidence. *Journal of Applied Economics & Business Research*, 5(4).
- Krugman, P. (1980). Scale Economies, Product Differentiation, and the Pattern of Trade. *American Economic Review*, 70(5), pp. 950-959.
- Lucas, R.E. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22(1), pp. 3-42.
- Mamun, A., and Kabir, M.H.M. (2023). The remittance, foreign direct investment, export, and economic growth in Bangladesh: A time series analysis. *Arab Economic and Business Journal*, 15(1), p. 4.
- Öncel, A., Saidmurodov, S., and Kutlar, A. (2024). Financial development, export and economic growth: Panel data evidence from Commonwealth of Independent States. *The Journal of International Trade & Economic Development*, 33(1), pp. 29-56.
- Othmani, A., Ben Yedder, N., and Bakari, S. (2023). *The Cointegration Relationship between Patent, Domestic Investment and Economic Growth in United States of America* (No. 118245). University Library of Munich, Germany.
- Pegkas, P., and Tsamadias, C. (2016). How important are foreign and domestic investments, exports and human capital for Greece's economic growth? *Economic Issues*, 21(Part 1), pp. 23-45.
- Ricardo, D. (1817). *On the Principles of Political Economy and Taxation*.
- Rodrik, D. (2008). *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*. Princeton University Press.
- Romer, P.M. (1986). Increasing Returns and Long-Run Growth. *Journal of Political Economy*, 94(5), pp. 1002-1037.
- Romer, P.M. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98(5), S71-S102.
- Shawa, M.J., and Grafoute, A.Y. (2014). The causal link between foreign direct investment, GDP growth, domestic investment and export for Kenya: The new evidence. *Journal of Economics and Sustainable Development*, 5(16), pp. 107-114.
- Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*.
- Solow, R.M. (1956). A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics*, 70(1), pp. 65-94.
- Sooreea-Bheemul, B., and Sooreea, R. (2013). Missing causality links between foreign direct investment, exports, domestic investment and economic growth. *International Journal of Business and Emerging Markets*, 5(4), pp. 322-340.
- Taiwo-Onifade, S., Qahar-Khatir, A., Ay, A., and Canitez, M. (2022). Reviewing the Trade Openness, Domestic Investment, and Economic Growth Nexus: Contemporary Policy Implications for the MENA Region. *Revista Finanzas y Política Económica*, 14(2), pp. 489-512.
- Tsitouras, A., and Nikas, C. (2016). The dynamic links between exports, foreign direct investment, and economic growth: Evidence from European transition economies. *Journal of East-West Business*, 22(3), pp. 198-235.

- Ullah, I., Shah, M., and Khan, F.U. (2014). Domestic investment, foreign direct investment, and economic growth nexus: A case of Pakistan. *Economics Research International*, 2014(1), p. 592719.
- Yedder, N.B., El Weriemmi, M., and Bakari, S. (2023). Boosting Economic Growth in Angola: Unveiling the Dynamics of Domestic Investments and Exports. *Indian Journal of Applied Business and Economic Research*, 4(2), pp. 125-146.
- Yedder, N.B., El Weriemmi, M., and Bakari, S. (2023). The Impact of Domestic Investment and Trade on Economic Growth in North Africa Countries: New Evidence from Panel CS-ARDL Model. *EuroEconomica*, 42(2), pp. 22-41.
- Yedder, N.B., El Weriemmi, M., and Bakari, S. (2023). The Nexus Between Domestic Investment and Economic Growth in Middle East and North Africa Countries. Do Patents Matter? *Journal of Applied Economic Sciences*, 18(3).