

Article

The impact of foreign direct investment on exports in the kingdom of Saudi Arabia (an empirical study)

Mahmoud Magdy Barbary^{1,2,*}, Abdalla Ramadan Tawfiq²¹ Department of Finance, College of Business Administration in Hawtat bani Tamim, Prince Sattam bin Abdulaziz University, Al-Kharj 11942, Saudi Arabia² Department of Economics and Foreign Trade, Faculty of Commerce and Business Administration, Helwan University, Cairo 11795, Egypt* **Corresponding author:** Mahmoud Magdy Barbary, mahmoudmagdy@commerce.helwan.edu.eg

CITATION

Barbary MM, Tawfiq AR. (2024). The impact of foreign direct investment on exports in the kingdom of Saudi Arabia (an empirical study). *Journal of Infrastructure, Policy and Development*. 8(6): 4990. <https://doi.org/10.24294/jipd.v8i6.4990>

ARTICLE INFO

Received: 4 March 2024

Accepted: 9 April 2024

Available online: 10 July 2024

COPYRIGHT



Copyright © 2024 by author(s).

Journal of Infrastructure, Policy and Development is published by EnPress Publisher, LLC. This work is licensed under the Creative Commons Attribution (CC BY) license. <https://creativecommons.org/licenses/by/4.0/>

Abstract: This study is considered one of the few studies that attempted to explore the relationship between exports and foreign direct investment in the Kingdom of Saudi Arabia. The study aims to determine the nature of the relationship between exports and foreign direct investment in the Kingdom of Saudi Arabia during the period between (1990–2023). Employing Ender’s methodology using cointegration and error correction model. The study also relies on data on Saudi exports and foreign direct investment inflows from the World Bank databases. The results indicate the existence of Cointegration between foreign direct investment (FDI) inflows and the Saudi exports in the period (1990–2023), as for the causal relationship between the two variables, the results showed the causal relation between exports and FDI inflows from the direction of exports only, which means that Saudi exports cause FDI inflows in Saudi Arabia, and the study recommends giving more incentives to attract foreign investors in different sector rather than oil sector, besides improving the logistical services which is vital to any investment attraction strategy.

Keywords: FDI; exports; Saudi Arabia; causality; cointegration**JEL Classification:** C22; C32; F13; F423; O13

1. Introduction

Foreign direct investment is considered one of the most important factors in enhancing economic growth and fostering economic development processes within the country. From this standpoint, all countries, regardless of their economic level, are working to grant investors a number of economic, legislative and other incentives in the hope of attracting such investments within their countries, according to several reports issued by United Nations Conference on Trade and Development (UNCTAD). The growth rates of foreign direct investment are accelerating faster than the growth rates of gross domestic product and international trade around the world (UNCTAD, 2005).

The export orientation is one of the most important motives towards attracting foreign direct investment, depending on the large amount of invested capital and the ability to borrow from international markets, to take advantage of economies of scale, which is beneficial to the exports of the host country, and this matter is indirectly beneficial to local producers, by providing information on international trade, which motivates local producers to seek competition, which in turn also benefits the host country’s exports. (Jaumatte, 2004).

Economic policy makers specially in developing countries, are also working to attract foreign direct investment to achieve several goals, such as increasing the

employment rate and increasing technological development through the transfer of technology within the country, increasing the country's earnings from foreign currencies and increasing the economic growth rate. That is, the matter is not dependent on increasing exports only, but extends to include several other economic goals.

Nevertheless, the process of attracting foreign direct investment and the incentives associated with it must be carried out with caution, as foreign direct investment leads to a significant increase in the country's imports because of the need of these investments for raw materials and intermediate products necessary for the production process, in addition to the impact on the balance of payments resulting from the transfer of profits abroad (Todaro and Smith, 2015).

Thus, foreign direct investment can lead to a significant increase in imports, with the inability to predict that this matter will be reflected later on an increase in exports or not.

FDI is linked to exports in many countries, as most FDI aim to access new markets by using of the advantages possessed by developing countries, such as the availability of labor at low wages, the availability of raw materials, proximity to international markets, or benefiting from regional trade agreements in which developing countries are members in it, which highlights the importance of studying the relationship between the two variables and its direction. The literature has been concerned with studying the relationship between the two variables in a number of countries, but this study is considered one of the rare attempts to study the relationship between the two variables in Saudi Arabia, with the special nature of its economy as a result of its dependence on oil for decades.

2. Literature review and previous studies

Economic literature, starting from the classical school, dealt with the relationship between exports and economic growth, highlighting the importance of trade and its impact on economic growth, as increasing exports increases job opportunities, improves the standard of living, and increases the exporting country's foreign currency reserves. However, economic literature did not give the same attention to discussing the integration between foreign direct investment and exports. Despite the importance of exports and foreign direct investment as individual variables affecting economic growth, the links between the two variables themselves did not receive the same theoretical attention.

International trade transactions can be viewed as an alternative to the movement of factors of production between countries, including foreign direct investment. According to the Heckscher-Ohlin-Samuelson model, exports and imports are considered an indirect exchange of factors of production. In if there are restrictions on trade transactions, trade and foreign direct investment are considered Alternatives rather than complementary elements to each other (Wei et al., 2001).

The impact of multinational corporations in highlighting the relationship between exports and foreign direct investment cannot be neglected, as multinational corporations establish their business in several countries where the ideal economic environment is available for work. When the determinants of prosperity and growth

are available in the host country, these companies begin to move towards export, which leads to attract more foreign direct investment to the host country, and thus a two-way causal relationship can be found between exports and foreign direct investment, but this relationship depends on the volume of foreign direct investment inflows and the quality of the host country's exports, and this relationship also varies from one country to another, which adds great importance on studies that measure the relationship between foreign direct investment and exports in various countries, which guide economic policy makers towards taking the correct necessary measures towards attracting foreign direct investment and increasing exports (Babu, 2018).

Among the theories that confirmed the existence of a relationship between foreign direct investment and exports is the Flying Geese theory, which was first formulated by Kaname Akamatsu. According to this theory, multinational companies shift their production operations from the home country to other countries in order to reduce the costs of production, as the host countries have cheaper labor and a closer location to other trading partners, which also reduces the cost of transportation. Therefore, in addition to multinational companies benefiting from this process, the host countries also benefit, as their export capabilities increase in addition to transferring and localizing technology and benefiting from the administrative and production expertise of those companies. This ultimately increases the competitive capabilities of the host country and contributes to raising its growth rates. Therefore, it can be said that the relationship between foreign direct investment and exports here is a complementary relationship (Sultan, 2013).

Also, the country's economic and commercial policy cannot be neglected in determining the nature of the relationship between the two variables. Foreign direct investment inflows may lead to an increase in exports, which leads to more foreign direct investment inflows, but if the goal of foreign direct investment is to benefit from the consumption capacity of the host country or to get an access to the local market, foreign investments can increase imports, not exports (Rifat, 2012).

Vernon (1966) discussed in the product life cycle model the positive impact of foreign direct investment inflows on increasing the exports of host countries, as the product passes through the four stages of innovation, growth, maturity, and decline. In the maturity stage, companies move the production to other countries to reduce production costs to protect themselves from imitation by competitors, then export part of the production to the home country. In the final stage, the product itself and the technology used in production become obsolete and known to everyone, and production of the product becomes available to all local producers who (thanks to the low cost of production) have become international competitors in the production of this product. In this case the trade flow is reversed as production takes place in a host country and is later re-imported in the home country (Vernon, 1966).

Vernon model was applied to the industrial sector, where Kojima (1985) found that the flow of foreign direct investment from a home country that does not enjoy a comparative advantage in the production of a specific product to a host country that enjoys that comparative advantage will have an effect in creating trade, which will lead to increase the host country's exports later (Kojima, 1985).

According to New Trade Theory, vertical foreign direct investment or the process of dividing production stages between more than one country (International

production fragmentation), which based on some conditions, such as that Production process is done in at least two successive stages, and that production takes place in at least two countries, with each country adding added value to the product, and that at least one of the producing countries imports inputs, intermediate goods, or raw materials from abroad, also part of the final production must be exported. Thus, this process that begins with foreign direct investment leads to the creation of trade and ultimately increased exports in the host country (Zeddies, 2007).

On the empirical level, many studies focused on the relationship between FDI and exports in different countries. Yet, this attempt is considered one of the first studies that focused on this relationship in KSA, especially in the recent years after king Salman and his crown prince Mohammed Bin Salman started their new economic policy and Saudi vision 2030.

Some of these studies focused on the causality relationship between the two variables such as: Mahmoud Barbary (2022) which concluded the there is no causal relationship between FDI and exports in Egypt between (1991–2019) using cointegration and error correction model. The study of Olayiwoand and Okodua (2013) focused on the impact of FDI on the non-oil exports in Nigeria which followed Export led growth policy, the results of the study were similar to the aforementioned study, as there was no effect of foreign direct investment on non-oil exports, as most investments are directed to the oil sector.

The study of Selim et al. (2016) focused on the impact of FDI on the export's performance in the Western Balkan countries and found that FDI positively affects the exports performance.

In general, countries that are characterized by high oil exports or the concentration of exports in the petroleum sector may attract huge foreign investments in the oil extraction sector without directing these investments to other productive sectors in the country, which may create somewhat misleading results about the impact of foreign direct investments on the exports of those Countries.

Khan and Leng (1997) aimed to analyze the overlapping relationship between foreign direct investment, exports, and economic growth by applying it to Singapore, Taiwan and South Korea. The study concluded that there is no causal relationship between foreign direct investment inflows and exports in Taiwan and South Korea, while there is a one-way causal relationship from exports to foreign direct investment flows in Singapore.

Liu et al. (2002) investigated the causal relationship between each of the foreign direct investment inflows, trade and economic growth in China using quarterly macroeconomic data in the period between 1981 and 1997. The study concluded that there is a bidirectional causal relationship between foreign direct investment flows and exports in China in the period under study.

Metwally (2004) tested the relationship between foreign direct investment, exports and economic growth in Egypt, Jordan, and Oman during the period between 1981 and 2000 using the simultaneous equations model. The study found that exports of goods and services are strongly affected by foreign direct investment flows in the three countries.

Zhang (2005) relied on cross-sectional data for 186 industries in China, and the study concluded that there is a positive relationship between foreign direct investment

and exports in China, and the effect is greater in labor-intensive industries than in capital-intensive industries. The study also concluded that foreign direct investment increases exports more than domestic investment does.

Pacheco-Lopez (2005) aimed to test the causal relationship between FDI flows and exports in Mexico using the Granger causality test. The study concluded that there is a bidirectional relationship between both FDI flows and exports.

Mukhtarov et al. (2019) investigated the impact of foreign direct investment (FDI) on exports in the case of Jordan, employing Autoregressive Distributed Lag Bounds Testing (ARDL BT) cointegration approach to the data ranging from 1980 to 2018. The results indicate that there is a long-run relationship among the variables. Also, we find that there is a positive and statistically significant impact of FDI on exports in the long run. The estimation results indicate that a 1% increase in FDI increases exports by 0.13%.

Barbary (2022) aimed to test the existence of the causal relationship between foreign direct investment inflows and exports in Egypt in the period between 1991 and 2019, in order to determine the nature and direction of the relationship, as Egyptian exports during the study period were characterized by stability in terms of the quantities of exported products and in terms of trading partners despite the fluctuation in foreign investment flows during the same period, while a number of countries followed export-led growth strategies and achieved high rates of attracting foreign direct investments aimed primarily at exports, the study found that Egypt is taking slow steps towards the same path despite its distinguished location between continents and the multiple trade agreements to which Egypt is involved in, in addition to other advantages that it shares with a number of developing countries, related to currency, labor costs, and tax advantages, in addition to high rates of foreign direct investment compared to other Middle East and North Africa (MENA) countries, but the volume of Egyptian exports was disproportionate to those multiple advantages. The study concluded that there is no causal relationship between the two variables under study.

3. Foreign direct investment and exports in Saudi Arabia

The Kingdom of Saudi Arabia is considered the largest economy in the Middle East in addition to being a member of the G20. It also has an ambitious economic vision, which is Vision 2030, which aims to develop and diversify the Saudi economy by 2030. The strength of the Saudi economy is due to its huge petroleum reserves and its exports to the same sector.

Regarding the exports sector which plays a crucial role in the Saudi economy, depending basically on oil but it started to gradually be diversifying since the issuing of vision 2030, in 2020 the oil exports were about 70% of the Saudi exports beside petrochemicals, industrial goods, and food and agriculture. The main exports partners were Asia, GCC countries, and the Middle East.

Table 1. Saudi Exports by HS codes (2015–2022) for the top 15 Products groups—Millions of USD & % of total Exports.

Code	Product label	2015	2016	2017	2018	2019	2020	2021	2022
TOTAL	All products	213376	178874	220068	294535	261516	185699	276204	411184
		100%	100%	100%	100%	100%	100%	100%	100%
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral ...	164066	134986	170245	231587	212639	132022	202216	327009
		76.89	75.46	77.36	78.63	81.31	71.09	73.21	79.53
39	Plastics and articles thereof	15221	14430	16991	20905	19040	16318	23750	23147
		7.13	8.07	7.72	7.1	7.28	8.79	8.6	5.63
29	Organic chemicals	10238	7606	9762	14302	12676	9706	14358	16209
		4.8	4.25	4.44	4.86	4.85	5.23	5.2	3.94
31	Fertilisers	1072	882	924	1258	1132	1248	3593	7318
		0.5	0.49	0.42	0.43	0.43	0.67	1.3	1.78
89	Ships, boats and floating structures	2467	2365	2222	2637	2650	3552	3847	3735
		1.16	1.32	1.01	0.9	1.01	1.91	1.39	0.91
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, ...	1506	854	709	2290	2394	2311	2043	3223
		0.71	0.48	0.32	0.78	0.92	1.24	0.74	0.78
76	Aluminium and articles thereof	2032	1902	2143	2258	2151	2114	2454	2951
		0.95	1.06	0.97	0.77	0.82	1.14	0.89	0.72
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television ...	1097	1064	1057	1200	1339	1284	1895	2670
		0.51	0.6	0.48	0.41	0.51	0.69	0.69	0.65
84	Nuclear reactors, boilers, machinery, and mechanical appliances; parts thereof	1758	1564	1626	1941	1849	1589	2075	2392
		0.82	0.87	0.74	0.66	0.71	0.86	0.75	0.58
74	Copper and articles thereof	463	405	568	572	501	519	1007	2079
		0.22	0.23	0.26	0.19	0.19	0.28	0.36	0.51
38	Miscellaneous chemical products	516	504	497	695	626	659	990	1767
		0.24	0.28	0.23	0.24	0.24	0.36	0.36	0.43
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad ...	605	1018	934	878	1503	2263	2046	1524
		0.28	0.57	0.42	0.3	0.57	1.22	0.74	0.37
87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	1290	1101	1640	1293	1066	919	1630	1518
		0.6	0.62	0.75	0.44	0.41	0.5	0.59	0.37
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere ...	1203	1197	1120	1093	1128	1104	1062	1097
		0.56	0.67	0.51	0.37	0.43	0.59	0.38	0.27
73	Articles of iron or steel	803	769	730	940	838	789	718	1048
		0.38	0.43	0.33	0.32	0.32	0.43	0.26	0.25

Source: ITC calculations based on UN COMTRADE statistics, 2023.

As it shown in the **Table 1** that Saudi exports rely strongly on petroleum exports, which range between 70% and 80%, while the rest of the other exports are metals, some manufactured goods, dairy products, and agricultural products.

As for the trading partners of Saudi Arabia, or more precisely the countries importing from the Kingdom of Saudi Arabia, they are represented by China, India, the United States and Japan, most of which are developed countries or industrialized countries that import oil from Saudi Arabia for industrial uses, which is shown in the

following **Table 2**.

Table 2. Top ten importing countries from Saudi Arabia (2015–2022)—Millions of USD.

Importers	2015	2016	2017	2018	2019	2020	2021	2022
World	213376	178874	220068	294535	261516	185699	276204	411184
China	5608	4135	5970	9724	9645	8181	50909	66646
India	3003	2458	2607	3564	3880	3096	26657	41916
Japan	633	721	980	971	809	665	2735	40770
Korea, south	902	658	732	1186	939	844	23291	37909
USA	1483	1287	1337	1837	1837	1847	1433	23238
UAE	6773	6566	7686	8131	7903	8917	15086	17809
Egypt	1972	1525	1401	2025	1819	1783	10322	13789
Taiwan	870	608	722	0	515	437	7023	10433
Singapore	2355	2218	3067	4020	3558	2872	7046	9956
Bahrain	1534	1550	1576	1839	1661	1853	7024	9870

Source: ITC calculations based on UN COMTRADE statistics, 2023.

As shown in **Table 2**, China comes at the top of the countries importing from the Kingdom of Saudi Arabia. Petroleum exports from the Kingdom of Saudi Arabia to China reach about 85% of total exports, while the remaining percentage comes from organic chemicals, copper, and some other metals. As for India, Saudi exports of oil to India accounts for about 81% of total exports, and the remaining percentage comes from fertilizers, organic chemicals, and aluminum. Most of the remaining countries importing from the Kingdom of Saudi Arabia are similar in these percentages. The only difference comes in the United Arab Emirates, whose imports from the Kingdom of Saudi Arabia of oil amount to less than 40%. The remaining percentage is distributed among other goods and products, most of which are considered manufactured goods and not minerals or extractives.

As for FDI inflows, Saudi Arabia paid a huge attention to attract more and more FDI inflows in the past decade especially with the launch of Saudi vision 2030, which focused on diversifying the aspects of investments in Saudi Arabia, this was reflected on the determinants of FDI and how Saudi Arabia dealt with these determinants, not only the economic determinants, but also infrastructure, technology, cultural factors, institutional factors, human element, and the regulations governing FDI (Tocar, 2018).

The Saudi business environment is characterized by a number of important features that make it an ideal destination for FDI inflows, such as the availability of a strong and stable energy sector, with energy cost representing a large portion of production costs in most developing countries, the availability of a huge, growing, high-income local market, and the desire of the Saudi leadership to achieve comprehensive economic reform, in addition to the investment incentives provided in a large number of economic zones in the Kingdom, such as NEOM and the Red Sea project, and the ease of doing business, and easy access to cheap and skilled labor from countries neighboring Saudi Arabia (USA Department of State, 2023).

These reforms were reflected in foreign direct investment inflows in Saudi Arabia,

as these inflows increased despite their fluctuations from year to year. However, these fluctuations were not specific to Saudi Arabia only, but rather affected most countries in the Middle East, whether for regional or international reasons, which can be noticed in the following **Table 3** foreign direct investment inflows in a group of Middle Eastern countries.

Table 3. FDI Inflows (2015–2022)—millions of USD (UNCTAD, 2023).

Country	Ysar							
	2015	2016	2017	2018	2019	2020	2021	2022
KSA	8141	7453	1419	4247	4563	5486	19286	7886
Turkey	18976	13651	10965	12480	9290	7880	11840	12881
Tunisia	1003	885	881	1036	845	652	660	713
Israel	11337	11988	16893	21515	19047	24758	21486	27760
Morocco	3255	2157	2686	3559	1720	1763	2266	2141
Egypt	6925	8107	7409	8141	9010	5852	5122	11400
Jordan	1600	1553	2030	955	730	726	622	1137
South Africa	1729	2235	2008	5450	5125	3106	40984	9051
UAE	8551	9605	10354	10385	17875	19884	20667	22737

Source: UNCTAD, World Investment Report 2023.

As a result of these reforms, Saudi Arabia was able to place itself among the top 25 countries attracting FDI in 2021 for the first time ever, which is shown in the following **Figure 1**, which shows the top 25 countries in terms of FDI inflows.

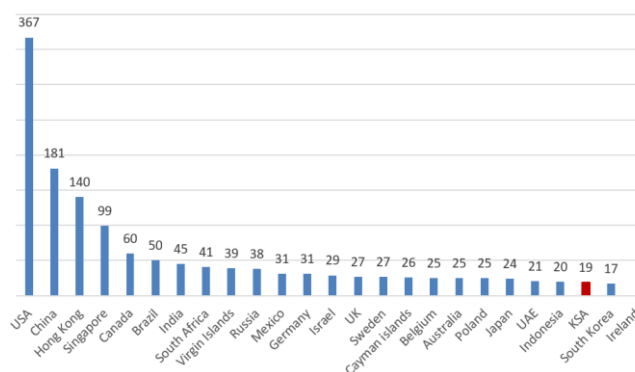


Figure 1. Top 25 countries by FDI inflows 2021—USD billions (UNCTAD, 2023).

4. Methodology and data

The study will depend on Ender’s methodology using cointegration and error correction model to reach the nature of the relationship between foreign direct investment and exports in Saudi Arabia and the availability of the causal relationship between the two variables and the direction of this relationship using Granger Causality Test. The study also relies on data on Saudi exports and foreign direct investment inflows from the World Bank databases for the period from 1990 to 2023, Exports will be represented using the percentage of exports to GDP, while FDI inflows will be represented using the percentage of FDI inflows to GDP.

4.1. Time series stationary test

The stationarity of time series data is considered one of the necessary characteristics required when studying the causal relationship between variables. To judge the extent of stationarity of the data, the Unit Root Test was conducted using the Augmented Dickey Fuller Test (ADF) and Philip Perron Test (PP). The following **Table 4** shows the results of the test:

Table 4. Results of the unit root test using (ADF) and (PP) Test for variables during the period (1990–2023).

Variables	ADF test		PP test	
	t-Statistic	Sig.	t-Statistic	Sig.
FDI_INFLOWS_PERCENTAGE_GDP	-4.167487	0.0028	-3.982081	0.0045
EXPORTS_PERCENTAGE_GDP	-4.750632	0.0006	-4.665861	0.0008

EViews program output.

The results indicate that the FDI_INFLOWS_PERCENTAGE_GDP variable and the EXPORTS_PERCENTAGE_GDP variable are stationary at the first level of differences I (1) using the Intercept constant, where *Sig.* less than 0.05.

4.2. The cointegration test

The cointegration test, through the Engle-Granger methodology, aims to test if there is cointegration between time series data for the two variables in the long run or not. The following **Table 5** shows the results of this test:

Table 5. Results of Engle-Granger cointegration test.

Variables	Engle-Granger cointegration test			
	tau-statistic	Sig.	z-statistic	Sig.
FDI_INFLOWS_PERCENTAGE_GDP	-4.709379	0.0035	-26.72804	0.0018
EXPORTS_PERCENTAGE_GDP	-4.127102	0.0140	-22.21155	0.0099

EViews program output.

The results indicate that the *Sig.* less than 0.05 for both tau-statistic and z-statistic for both variables. Which confirms the existence of cointegration between the time series data of the FDI_INFLOWS_PERCENTAGE_GDP variable and the EXPORTS_PERCENTAGE_GDP variable in the long run at the 5% level.

4.3. Analysis of the causal relationship

To test the causal relationship, Pairwise Granger Causality Tests were used to determine the nature and direction of the relationship between variables. The following **Table 6** shows the results of this test.

Table 6. Pairwise granger causality tests results.

Variables	Causality test	
	F-Statistic	Sig.
FDI_INFLOWS_PERCENTAGE_GDP does not Granger Cause EXPORTS_PERCENTAGE_GDP	0.05373	0.8183
EXPORTS_PERCENTAGE_GDP does not Granger Cause FDI_INFLOWS_PERCENTAGE_GDP	11.6102	0.0019

EViews program output.

5. The results

The results indicate that FDI inflows in Saudi Arabia doesn't cause exports, since *Sig.* = 0.8183 is greater than 0.05, which denies the existence of a causal relationship from the direction of the variable FDI_INFLOWS_PERCENTAGE_GDP to the variable EXPORTS_PERCENTAGE_GDP at the 5% level.

While the results also indicate that Saudi exports cause FDI inflows, as *Sig.* = 0.0019 is less than 0.05, which confirms the existence of a causal relationship from the direction of the variable EXPORTS_PERCENTAGE_GDP to the variable FDI_INFLOWS_PERCENTAGE_GDP at the 5% level.

6. Research findings

The study proved the existence of Cointegration between FDI inflows and the Saudi exports in the period under study, as for the causal relationship between the two variables in Saudi Arabia, the results showed the causal relation between Exports and FDI inflows from the direction of Exports only. The most likely justification for this lies in the fact that most of Saudi exports come from oil, which attracts most FDI inflows to the oil exploration and extraction sector, while most other FDI inflows are directed primarily to the consumption of domestic market, which is consistent with the findings that exports cause FDI inflows. While FDI inflows does not cause exports in the Kingdom of Saudi Arabia.

These outcomes are consistent with the Saudi economy, which for many decades has been primarily dependent on oil exports and oil related investments, while the Saudi economy can reduce its dependence on this sector and diversify among other sectors such as industry, tourism, and agriculture, which is what was stipulated in vision 2030.

7. Research recommendations

Based on the foregoing the study recommends the following:

- Offering more investment incentives to attract investors to other productive sectors. And linking these incentives to the export orientation of these investments so that they are not limited to production directed at the local market only. Also, establishing an investment map that includes all sectors in the Kingdom of Saudi Arabia and making marketing exhibitions in European and Asian countries to attract investors to the Kingdom of Saudi Arabia.
- Improve logistical services and raise the rate of logistical performance index in the Kingdom of Saudi Arabia to serve as a logistic hub for trade between East

and West.

- Not relying on exporting crude oil only and expanding related industries such as the petrochemical industry and oil refining and linking FDI inflows directed to this sector to the expansion of domestic petroleum manufacturing.

8. Future research directions

As for the directions of future studies, it is recommended to use qualitative analysis, in addition to using sectoral analysis and studying the causal relationship between exports and foreign direct investment, but sector ally, with a focus on providing more official data regarding exports and foreign direct investment and not contradicting the data issued by the state with international economic organizations.

Author contributions: Conceptualization, MMB and ART; methodology, MMB and ART; software, MMB and ART; validation, MMB and ART; formal analysis, MMB; investigation, ART; resources, MMB; data curation, MMB; writing—original draft preparation, MMB; writing—review and editing, ART; visualization, ART; supervision, MMB; project administration, ART; funding acquisition, MMB. All authors have read and agreed to the published version of the manuscript.

Funding: The authors extend their appreciation to Prince Sattam bin Abdulaziz University for funding this research work through the project number (PSAU/2023/02/25138).

Conflict of interest: The authors declare no conflict of interest.

References

- Babu, A. (2018). Causality between foreign direct investments and exports in India. *Theoretical and Applied Economics* Volume, 4(617), 135-144.
- Barbary, M., (2022). Foreign direct investment-Exports causality in Egypt, *Journal of faculty of politics and economics Bani Suef University*, 16(15), 6-27.
- Enders, W. (1995). *Applied Econometrics Time Series*. Wiley.
- Jaumatte, F. (2004). Foreign direct investment and regional trade agreement: The market size effect revisited. *International Monetary Fund*.
- Khan, K., Leng, K (1997). Foreign Direct Investment, exports and Economic growth. *Singapore Economic Review*, 42(2), 40-60.
- Kojima, K. (1985). Japanese and American Investment in Asia: A Comparative Analysis. *Hitotsubashi Journal of Economics*, 26, 1-35.
- Liu, X., Burridge, P., & Sinclair, P. J. N. (2002). Relationships between economic growth, foreign direct investment and trade: evidence from China. *Applied Economics*, 34(11), 1433–1440. <https://doi.org/10.1080/00036840110100835>
- Metwally, M. M. (2004). Impact of EU FDI on economic growth in Middle Eastern countries. *European Business Review*, 16(4), 381–389. <https://doi.org/10.1108/09555340410547035>
- Pacheco-Lopez, P. (2005). Foreign Direct Investment, Exports and Imports in Mexico. *The World Economy*, 28(8), 1157–1172. <https://doi.org/10.1111/j.1467-9701.2005.00724.x>
- Rifat, T. B. (2012). Economic growth, exports, and foreign direct investment in least developed countries: A panel granger causality analysis. *Economic Modelling*, 29, 868-878.
- Sultan, Z. A. (2013). A Causal Relationship between FDI Inflows and Export: The Case of India. *Journal of Economics and Sustainable Development* ISSN 2222-1700, Vol.4, No.2, 2013.
- Tocar, S. (2018). Determinants of Foreign Direct Investment: A Review. *Review of Economic and Business Studies*, 11(1), 165–196. <https://doi.org/10.1515/rebs-2018-0069>

- Todaro, M., & Smith, S. (2015). *Economic Development*, 7th ed. Boston.
- UNCTAD. (2005). *World Investment Report, 2003–2005*. Available online: https://unctad.org/system/files/official-document/wir2005_en.pdf (accessed on 15 January 2024).
- UNCTAD. (2021). *World Investment Report 2021*. Available online: https://unctad.org/system/files/official-document/wir2021_en.pdf (accessed on 18 January 2024).
- UN CTAD. (2023). *World Investment Report 2023*. Available online: https://unctad.org/system/files/official-document/wir2023_en.pdf (accessed on 18 January 2024).
- USA Department of State. (2023). *2023 Investment Climate Statements: Saudi Arabia*. Available online: <https://www.state.gov/reports/2023-investment-climate-statements/saudi-arabia/> (accessed on 10th February 2024).
- Vernon, R. (1966). International Investment and International Trade in the Product Cycle. *The Quarterly Journal of Economics*, 80(2), 190. <https://doi.org/10.2307/1880689>
- Wei, Y., Wang, C., Liu, X. (2001). Causal links between foreign direct investment and trade in China. *China Economic Review*, 12, 190-202.
- Zeddies, G. (2007). Determinants of International Fragmentation of Production in the European Union. *IWH Discussion Papers*.
- Zhang, K. H. (2005). How Does FDI Affect a Host Country's Export Performance? The Case of China. Available online: <https://faculty.washington.edu/karyiu/confer/xian05/papers/zhang.pdf> (accessed on 23 January 2024).