

**The Impact of Trade Openness on Foreign Direct Investment Inflow
in Jordan: Econometric Study (1990-2022)**

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Abstract

This study aimed to identify the impact of trade openness on the inflow of foreign investment in Jordan during the period 1990-2022. The researcher worked on using ARDL. This methodology is suitable for small samples. The results showed that the variables are stable on the first difference, this is what makes Bound test applicable. The results of the long-term analysis indicated that increasing openness by 1% contributes to an increase in foreign investment equivalent to 4%, moreover, that increasing openness in the short term by 1 contributes to an increase in foreign investment equivalent to 1.7%. The study recommended the necessity of maintaining this level of trade openness toward the world.

Keywords: Trade openness, inflation, foreign direct investment.

Jel: E60, O11, O24

Introduction

Trade is an essential factor in the quest to eradicate global poverty. Countries that open their doors to global trade typically grow faster, are able to innovate, improve productivity, and provide greater incomes and opportunities for their people. Trade openness also benefits low-income countries by providing affordable goods and services to their consumers. Through trade and global value chains, integration into the global economy helps promote economic growth and reduce poverty at both the local and global levels. The World Bank Group's work in countries including Bosnia and Herzegovina, Macedonia, and Indonesia has helped facilitate cross-border trade, make logistics more reliable, and simplify customs clearance procedures. These projects and others are helping to create a more open, reliable, and predictable global trading system for everyone.

Economic freedom is the important framework that enables companies and investors to carry out their economic and other activities without any interference from the government, as it allows them to exercise their responsibilities and make their decisions as long as they have positive benefits for the public good and contribute to achieving economic development. Many economists believe that the relative importance of economic freedom as a determining factor for attracting foreign direct investment, it has surpassed other traditional economic determinants.

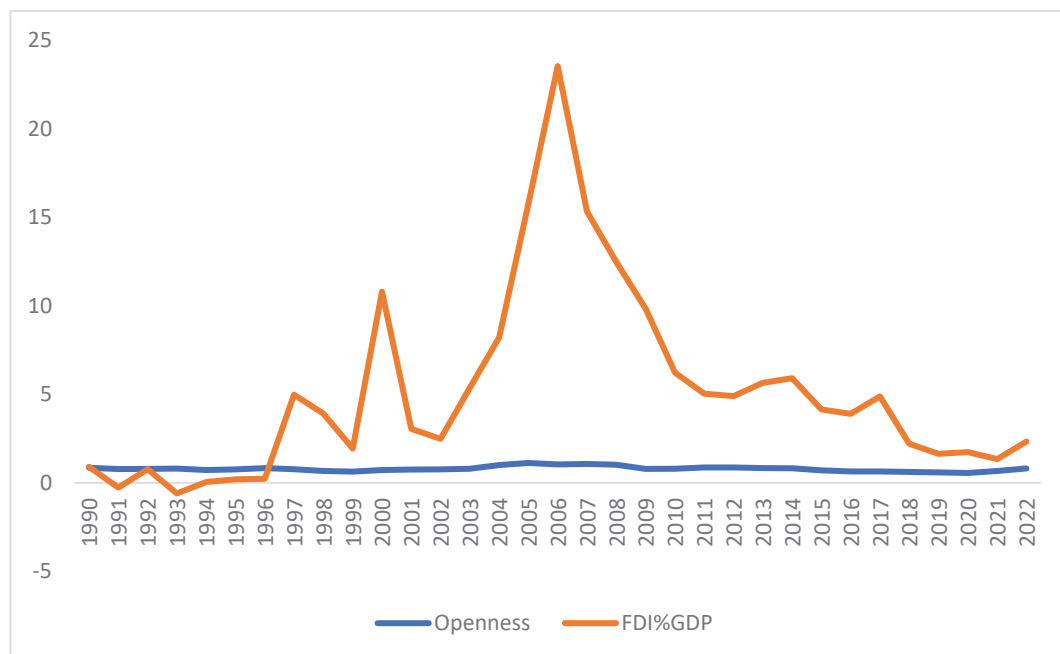
Accordingly, many economists and politicians confirm that host countries that enjoy higher levels of economic freedom have a greater ability to attract foreign direct investments. For example, the main reason for the success of Asian countries in attracting large flows of foreign capital is the removal of barriers and restrictions that would obstructing the path of investors, reducing and removing barriers can be translated into the state's ability to greatly facilitate export and import operations.

The Importance of the study

Trade openness plays a major role in creating the investment environment. Countries that wish to attract more foreign investments resort largely to openness to the outside world by facilitating trade operations, whether exports or imports. Jordan is one of the countries that has sought in recent years to encourage foreign investments. This study attempts to show the impact of trade openness and its role in attracting foreign investments.

Trade openness and foreign direct investments in Jordan

Jordanian trade openness to the outside world constituted a new phase of macroeconomic policies. Privatization projects and bilateral trade agreements contributed significantly to economic modernization despite the many obstacles. Despite the small size of the Jordanian economy, there are multiple latent investment opportunities. There is no doubt that openness contributed to the increase in foreign investments, the political and economic crises that the region is experiencing, had a major impact on this, and Figure No. (1) shows the development of the flow of foreign investments to Jordan during the period between 1990-2022.



Literature review

Trade openness is considered one of the important factors in the flow of foreign investments. The acceleration in trade relations between countries that the world has witnessed has strengthened the role of foreign investments in achieving economic development. Trade liberalization has become a basic requirement in dealing with global markets, especially in light of technical development and global competition. There are many Previous studies include the following:

Hisham Mohamed Hassan (2023) examined the importance of trade openness for attracting foreign direct investment (FDI) inflows, for the GCC economies (Kingdom of Saudi Arabia, United Arab Emirates, Oman, Qatar, Kuwait and Bahrain) covering the period 1995–2018, using panel VAR model. It provides a direct test of causality between FDI inflows, trade openness, GDP per capita, and inflation. The main empirical findings of the panel analysis reveal that in the long run, trade openness contributes positively to the inflow of FDI in the GCC economies. The panel causality analysis shows that there is a unidirectional causal relationship running from trade openness and inflation to FDI, whereas no causality was traced with other variables.

Banday (2021) In this paper we investigate the causal relationship between foreign direct investment, trade openness and gross domestic product in BRICS countries over the period of 1990–2018. We applied auto regressive distributed lag model to test cointegration and the Dumitrescu and Hurlin Granger causality tests. Empirical results show that FDI and trade openness have a positive impact on long-term economic growth. We also find there is a long-run relationship from both real effective exchange rate and gross capital formation to economic growth. The main results of causality analysis reveal that there is bidirectional causality from foreign direct investment to economic growth, trade openness to foreign direct investment, and unidirectional causality from trade openness to foreign direct investment.

Lien, Nguyen Thi Kim (2021) The purpose of this paper is to study the impact of trade openness on foreign direct investment (FDI) inflows into Vietnam, an emerging country with relatively high trade openness in recent years. The study used the vector autoregression (VAR) model to examine the impact of trade openness on FDI in Vietnam, in the period from 2005 to 2019. The research data are time-series data, with quarterly frequency, from 2005:Q4 to 2019:Q3. The FDI data were collected by International Financial Statistics. The data of trade openness were calculated based on Vietnam's export, import, and GDP data collected by the General Statistics Office of Vietnam. The estimated result shows that the trade openness has a positive effect on FDI. The current FDI is heavily influenced by FDI in the past with an average explanation of 74%. The main findings indicate that trade openness has a positive effect on FDI inflows into Vietnam. The findings also show that FDI in Vietnam is significantly affected by the shocks of the FDI itself in the past. The findings of the study suggest the Vietnamese Government improves the quality of trade openness and FDI, continues and maintains economic relations with other countries to increase trade openness.

Research results of Djulius (2017) shows the impact of increasing international trade of host countries with FDI. Specifically, trade openness has a positive relationship with FDI. Burakov, Intse, and Freidin (2018) studied FDI inflows in the Russian Federation and Belarus between 1997 and 2017. Research results show that trade openness has a positive impact on FDI.

Mphigalale Tshifhiwa Victor (2011) The impact of trade openness on foreign direct investment (FDI) inflows in emerging market economies, This study examines the influence of trade openness on foreign direct investment (FDI) inflows in emerging market economies. The study focuses on a sample of 15 emerging market economies during 1992-2006. The econometric framework utilised in the study consist of panel data analysis, although the pooled OLS model is first estimated in order to give the reader a sense of what to expect in the main results. Using alternative estimation techniques, the study shows that, indeed, trade openness carries with it the potential of harnessing more FDI into emerging market economies but this need to be complemented by appropriate macroeconomic and sectoral policies. Notably, as the

results of the study suggest, foreign investors generally consider the host country's market size, its labour market practices with respect to the real wage, and the current and expected rates of inflation, in order to invest in the country. The results from the study suggests that, given identical trade openness strategies, emerging market economies that have larger market sizes are likely to be more successful in attracting FDI than those with smaller market sizes. The evidence also suggests that, given identical trade openness strategies, emerging market economies that have lower real wages and lower price inflation are likely to be more successful in attracting FDI than those with high real wages and high or variable price inflation. Finally, the findings of this study do not provide strong evidence in support of the fact that infrastructural development, property rights and external debt matter in attracting FDI into emerging markets. The policy implications of this study for South Africa, which is currently contesting for FDI with the fast growing and relatively larger economies of Brazil, Russia, India and China (otherwise referred to as, BRICs), is that urgent attention needs to be given to the rising prices and wages provoked by increasingly strong unions, and weak anti-trust regulations in the country, in spite of a fairly successful inflation targeting framework adopted a decade ago.

Shah and Khan (2016) assessed the impact of trade liberalization on inward FDIs in six emerging countries, namely Brazil, China, India, Mexico, the Russian Federation, and Turkey, for the time period of 1996 to 2014 using the random effects model. The independent variables—total population, GDP per capita, total trade, primary education, preferential trade agreements, and regional trade agreements—are used as proxies for market size, development level, openness, human capital, and trade liberalization. As results, market size, and human capital have a positive and significant impact on FDI inflows, while trade and regional trade agreements prove to be insignificant, but preferential trade agreement positively impacts on FDI inflow.

Noris Fatilla Ismail, Suraya Ismail (2023) Trade Openness and its influence on Foreign Direct Investment in ASEAN-3, Using annual data from 1980 to 2019, this study explores trade openness and its influence on FDI in ASEAN-3. The study includes Malaysia, Indonesia, and Thailand are synonymous as ASEAN-3 countries. The Autoregressive Distributed Lag (ARDL) study shows that trade openness has influenced FDI inflow into ASEAN-3. According to empirical data, trade openness and FDI inflows in Malaysia and Indonesia have a strong relationship. Meanwhile, Thailand has a negative relationship between trade openness and FDI inflows. Overall, this study can help policymakers improve their future planning in order to capitalise on greater prospects for FDI inflows into ASEAN-3 countries.

A study conducted by Asongu et al. (2018) on and MINT (Mexico, Indonesia, Nigeria, and Turkey) countries demonstrated that market size, infrastructure availability, and trade openness play significant roles in attracting FDI. According to Jabri et al. (2013), the determinants of FDI inflows to Middle East and North Africa (MENA) region

covering the period of 1970-2010 found that trade openness and economic growth had a positive influence on FDI inflows.

Vijayakumar, Sridharan, and Rao (2010) studied BRICS countries and found that variables like market size, labour cost, infrastructure, exchange rate and gross capital formation has a positive and significant impact on FDI inflows. On the other, variables like trade openness and economic stability and growth were found insignificant.

Methodology

Autoregressive distributed lag (ARDL), developed by Pasaran et al. (2001), is used to clarify the long- and short-term relationships and test the validity of Thirlwall's law. This method differs from previous approaches in several ways, including the ability to determine the integrated relationship between the dependent and independent variables over the long and short terms, establish variables at different stationary levels, and, most importantly, eliminate autocorrelation.

Model specification

The association between trade openness and FDI will be assessed using a time series data set from Jordan during the period 1990-2022. Data were collected from the World Development Indicator published by the World Bank. FDI inflows are the dependent variable, The trade openness, which is the sum of imports and exports scaled by GDP (OP), population as human index (POP) and value of percentage in the consumer price index representing the rate of inflation (INF). The model used by Abdul Rahim et al. (2018), Boateng et al. (2015) and Qamar Zaman et al. (2018) to determine the link between trade openness and FDI inflows.

The equation (1) below shows that economic growth Qatar is affected by international oil prices.

$$FDI = F(OP, INF, POP) \quad (1)$$

$$FDI_{LR} = \alpha + \pi OP + \rho INF + \delta POP + \omega_t \quad (2)$$

Where FDI foreign direct investment and LR for long run, OP is openness degree, INF is inflation rate, POP population, ω_t is the classical regression error term.

$$\Delta FDI_{LR} = \alpha + \sum_{i=1}^{m1} \sigma FDI_{LR-i} + \sum_{i=0}^{m2} \pi \Delta INF_{t-i} + \sum_{i=0}^{m3} \rho \Delta OP_{t-i} + \sum_{i=0}^{m4} \delta \Delta POP_{t-i} + \delta_1 FDI_{LR-1} + \delta_2 INF_{t-1} + \delta_3 OP_{t-1} + \delta_4 POP_{t-1} + v_t \quad (3)$$

To examine whether variables move toward long run equilibrium values adjustment, estimates of $\delta_1 - \delta_4$ are used to form an error-correction term (EC). Thus, lagged variables in Eq. (3) are changed by EC_{t-1} establishing a modified form of Eq. (4) as follow:

$$\Delta FDI_{LR} = \alpha + \sum_{i=1}^{m1} \sigma FDI_{LR-i} + \sum_{i=0}^{m2} \pi \Delta INF_{t-i} + \sum_{i=0}^{m3} \rho \Delta OP_{t-i} + \sum_{i=0}^{m4} \rho \Delta POP_{t-i} + \lambda EC_{t-1} + \mu_t \quad (4)$$

Where λ is the speed of adjustment parameter. A significant negative coefficient EC_{t-1} support adjustment toward long run equilibrium.

Empirical results:

The findings of the bound test indicate the existence of a long-term association. This study used annual data with a sample size of 32 observations covering 1990–2022, and the maximum lag length in the ARDL was set to 1.

Because time series data frequently lacks a consistent trend and causes their means to fluctuate constantly, testing for the presence of a unit root is required to prevent erroneous results. The tests that were used were the Phillips-Perron test (PP), Phillips & Perron (1988), and the Augmented Dickey-Fuller (ADF), Dickey & Fuller (1981).

Table 1. Unit root results

<i>Variables</i>	<i>At level</i>		<i>First difference</i>	
	ADF Test	PP test	ADF Test	PP test
FDI	-2.007	-2.048	-5.682	-5.683
OP	-2.419	-1.993	-3.899	-3.8007
INF	-3.500	-3.285	-6.408	-14.361
POP	1.045	1.226	-3.553	-1.934

*** significance at 1%, 5%,10%. ** significance at 5%, 10%.

The results specified that the null hypothesis of the series contains a unit root that cannot be rejected at a level for all variables in the ADF and PP unit root approaches. However, at first difference, this null hypothesis can be rejected because those variables are all stationary. Thus, the long-run relationship among these variables can be tested.

Table 2. Johanson Cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.710386	48.68328	47.85613	0.0417
At most 1	0.201122	11.50708	29.79707	0.9476
At most 2	0.108104	4.770674	15.49471	0.8327
At most 3	0.043636	1.338501	3.841465	0.2473

Table 3. Bound test results

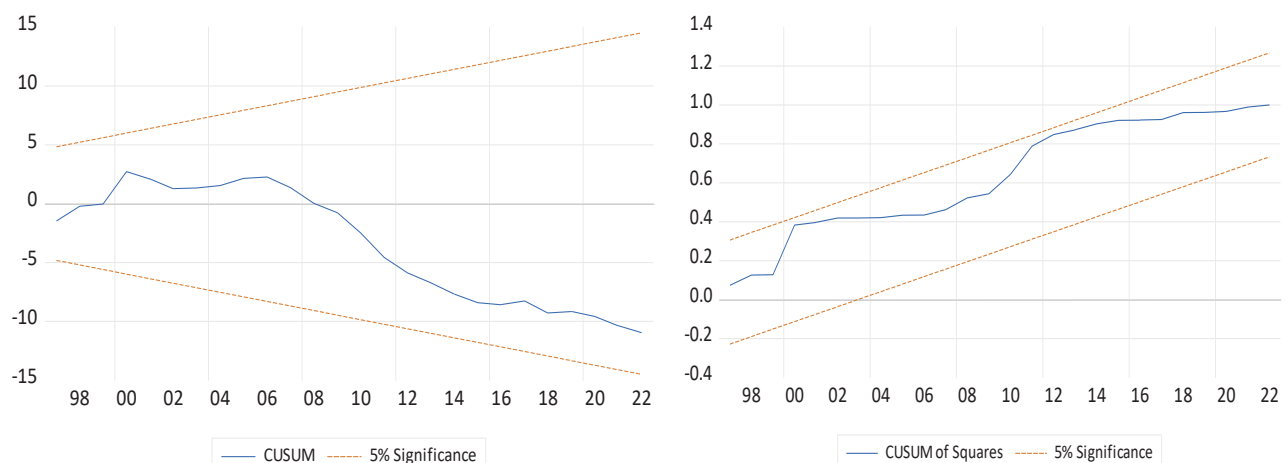
Panel A: Long- run results. Dependent Variable LM				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(OP)	4.084997	1.519384	2.688587	0.0124
LOG(POP)	1.197011	0.736133	1.626080	0.1160
LOG(INF)	-0.174477	0.196774	-0.886691	0.3834
C	-16.07922	11.44737	-1.404622	0.1720
Panel B: short-run results. Dependent Variable LM				

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(OP)**	1.729339	0.791697	2.184344	0.0381
LOG(POP)**	0.506742	0.372368	1.360864	0.1852
LOG(INF(-1))	-0.073863	0.073753	-1.001498	0.3258
CointEq(-1)*	-0.423339	0.110080	-3.845735	0.0007

Table 3 shows that the income elasticity of imports is positive and significant in the long and short run, an increase of 1% in oil price will lead to an increase in economic growth by 3.23% in the long run, as well as in short-run results reveal that an increase 1% in oil price will generate 0.5% in economic growth in Qatar. This result confirms that economic growth in Qatar embedded to increase in oil prices. The coefficient of Error Correction Term (ECM) which yields the speed of adjustment is negative and significant, it notifies us that 1.76% of all errors or disequilibrium in the short term is adjusted in the next period.

Stability Test

Figure (2) stability test



Conclusion

The results of the econometric analysis showed that trade openness has a significant impact on foreign investments in Jordan, whether in the long or short term. Trade openness is the motivating factor for investors to enter the Jordanian market. Jordan, as a country that enjoys political and economic stability in a turbulent region, has worked to connect to the global market. Largely through trade liberalization programs and the free trade agreement particularly with the United States in 2001, which allowed it to be a suitable platform for the flow of foreign investments despite its limited size. Accordingly, the study recommends the need to overcome other reasons that are largely associated with trade liberalization, especially the infrastructure sector. Because of this major role in increasing the flow of foreign investment.

References

- Abdul Rahim Ridzuana, Nor Asmat Ismail & Abdul Fatah Che Hamat. (2018). Modeling Macroeconomic Determinants for Foreign Direct Investment Inflows in ASEAN-5 countries. *Int. Journal of Economics and Management*, 12 (1): 153-171.
- Asongu, S., Akpan, U.S., Isihak, S.R. (2018). Determinants of foreign direct investment in fast-growing economies: evidence from the BRICS and MINT countries. *Financial Innovation*, 4(1). [https:// doi: 10.1186/s40854-018-0114-0](https://doi.org/10.1186/s40854-018-0114-0).
- Boateng, A., Hua, X., Nisar, S., & Wu, J. (2015). Examining the determinants of inward FDI: Evidence from Norway. *Economic Modelling*, 47, 118–127. <https://doi.org/10.1016/j.econmod.2015.02.018>.
- Dickey, D.A., Fuller, W.A. 1981. Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49, 1057-1072.
- Hassan, Hisham Mohamed, the importance of trade openness and inflation for attracting Foreign Direct Investment in GCC Countries (December 31, 2022). Available at SSRN: <https://ssrn.com/abstract=4315836> or <http://dx.doi.org/10.2139/ssrn.4315836>.
- Jabri, A., Guesmi, K., & Abid, I. (2013). Determinants Of Foreign Direct Investment In MENA Region: Panel Co-Integration Analysis. *Journal of Applied Business Research (JABR)*, 29(4), 1103–1110. <https://doi.org/10.19030/jabr.v29i4.7976>.
- LIEN, Nguyen Thi Kim (2021) The Effect of Trade Openness on Foreign Direct Investment in Vietnam, *Journal of Asian Finance, Economics and Business* Vol 8 No 3 (2021) 0111–0118.
- Qamar uz Zaman, Zhang Donghui, Ghulam Yasin & Shah Zaman, Muhammad Imran. (2018). Trade Openness and FDI Inflows: A Comparative Study of Asian Countries. *European Online Journal of Natural and Social Sciences*. Vol.7, No 2 pp. 386-396. ISSN 1805-3602.
- Shah, Mumtaz Hussain, and Yahya Khan. 2016. Trade Liberalisation and FDI Inflows in Emerging Economies. *Business & Economic Review* 8: 35–52.
- Umer Jeelanie Bandaya , Saravanan Murugana and Javeria Maryamb (2021) Foreign direct investment, trade openness and economic growth in BRICS countries: evidences from panel data, *Transnational Corporations Review* 2021, VOL. 13, NO. 2, 211–221.
- Vijayakumar, N., Sridharan, P., & Rao, K.C.S. (2010). Determinants of FDI in BRICS Countries: A panel analysis. *International Journal of Business Science and Applied Management*, 5, 1–13.