

Determinants of foreign direct investment in Arab countries during 1970–2016



Bilal Louail *

College of Business Administration, Northern Border University, Arar, Saudi Arabia

ARTICLE INFO

Article history:

Received 9 November 2018

Received in revised form

27 January 2019

Accepted 29 January 2019

Keywords:

Foreign direct investment

Panel data regression model

Arab countries

Economic growth

Economic openness

ABSTRACT

The aim of this study is to determine factors that attracted foreign direct investment to the Arab countries during the period of 1970–2016. Previous studies have shown that there are determinants attracting foreign direct investment to polarized countries, for which such investments are very important and have positive effects. Therefore, we studied and measured such determinants in Arab countries that are in dire need of investment. We found that foreign direct investment is positively affected by crude domestic output, economic openness, and value of foreign direct investment for the past year (t-1). However, they are negatively affected by inflation rates in the previous four years (t-4).

© 2019 The Authors. Published by IASE. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

The disparity between developed and developing countries has deepened since the end of the last century. This has been due to both underdevelopment and several class conflicts in many underdeveloped countries, which had a negative impact on their economic structural imbalances, including on unemployment, balance of payments, and indebtedness; this forced many of these countries to change their economic course and implement immediate measures, the most important of which are liberalization of foreign trade and entry of privatization and price liberalization. Despite the reasons that led to the search for foreign partners, there is a dispute between the supporters and opponents of foreign investment, which lead to the privatization of public institutions.

Several theories have been developed to model the private investment decision and identify its most important determinants. Keynes was the first to draw attention to the existence of an independent investment decision at the level of the aggregate economy, and this decision is based on the concept of marginal efficiency of capital that the investor expects compared with the interest rate as an alternative cost of invested funds.

There is no doubt that foreign direct investment plays an important role in the development of the economies of countries. No one ignores its importance for the state in advancing economic and social development, increasing productive capacity, raising economic growth rate, and improving the economic situation. Countries throughout the world, including Arab countries, attempt to improve their investment climate to attract as much FDI as possible.

The investment environment provided by developing countries, particularly Arab countries, is the main determinant for attracting these investments. Moreover, major regional blocs have also emerged, in which the forces of more than one country unite and integrate their economies as well as their natural, financial, and human resources to compete with other major countries and economies.


FDI flows in Arab countries have increased significantly over the last few years, but these flows are still modest compared with direct investment flows in economic regions around the world, especially in member countries of the European Union, Association of Southeast Asian Nations, and North American Free Trade Agreement.

Research on this subject is important because FDI is an economic phenomenon. The process of encouraging and protecting FDI results from the opening up of economies and their integration into the global economy, as well as their ability to promote global integration in general and Arab integration in particular. This is a factor in the establishment and implementation of international economic relations, and FDI provides an opportunity for growth and development.

* Corresponding Author.

Email Address: bilal.louail@nbu.edu.sa

<https://doi.org/10.21833/ijaas.2019.03.015>

 Corresponding author's ORCID profile:

<https://orcid.org/000-0002-2383-4329>

2313-626X/© 2019 The Authors. Published by IASE.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

This study aims to clarify the relationship between FDI and other economic variables and to identify the most important obstacles to the entry of FDI into Arab countries. Thus, the research problem lies in the following question:

1.1. Factors attracted FDI to Arab countries during the period of 1970–2016

To answer this problem and achieve the desired research objectives, we test a range of hypotheses to arrive at results of interest to the study.

This study attempts to contribute to the literature on inward FDI determinants in four different and simultaneous aspects. First, it uses data on all Arab country regions. Second, it uses data on the real amount of FDI received by each region rather than on the number of affiliates of foreign firms; this is one of the main drawbacks of previous studies on this topic. Third, an additional contribution of this study is its method of selecting potential FDI determinants. In contrast with the more usual, ad hoc selection of variables, it employs exploratory factor analysis because this is an advisable statistical tool to simplify econometric analysis when the number of potential explanatory variables in a model is, as in this case, very large. The obtained results are supported by appropriate theories well established in the literature. Fourth, we examine the determinants of FDI in Arab countries during the study period of 1970–2016.

2. Literature review and hypotheses

2.1. Economic determinants of foreign direct investment in applied studies

Many researchers have identified the determinants of FDI. Most agree on the existence of common or semi-agreement factors with respect to certain determinants and motives of foreign investments. This section details the most important economic determinants in applied studies.

2.1.1. Growth and development of market size

According to traditional theory of international trade, capital transfer refers to when the demand for goods and services produced by investment companies in investment-receiving countries increases. Multinational corporations prefer to invest in countries where production costs are low, but their local market must be taken into account. The indicators for the market and growth to market products (an important determinant to attract FDI), and to determine the size of the market and its development are as follows:

Gross domestic product: Gross domestic product (GDP) is a key determinant for multinational enterprises that seek growth, access to new markets, or to increase their share of host country markets. Countries with a large domestic output are highly

suited for many domestic and foreign enterprises. This applies to non-tradable services because introducing them to host markets primarily requires the establishment of own branches in these countries. In addition, the large size of GDP helps institutions in operating tradable products and achieving economies of scale.

Some empirical studies have shown that there is a positive correlation between total output volume in absolute terms and FDI (Green and Cunningham, 1975; Dunning, 1981).

Globalization can affect the form and purpose of FDI. The global economy is now characterized by a geographically dispersed industry and the integration of markets and materials through investment and trade. Hence, the GDP is now seen to have reduced importance as a traditional determinant of FDI.

Population: We can measure the size of the market by population density because the population constitutes the consumer; hence, it is a determinant of FDI.

GDP per capita: The GDP per capita is the GDP divided by the population or the income of each individual residing in the geographical area of the state, which can also be important to FDI.

2.1.2. Economic openness

Economic openness plays an important role in attracting FDI, which leans toward more open economies because enterprises are perpetually looking for facilities—guaranteed in an economically open environment—customs and tariff concessions, and bilateral and international agreements.

Customs, induction, and non-tariff reforms: In regulating their foreign trade under protection, states rely on a set of technical tools used in the control of exports and imports by their customs regime, which, in turn, regulates the foreign trade of each state. This, along with relevant reforms, contributes to FDI appeal.

Bilateral and international agreements to ensure free movement of exchanges and capital: Bilateral agreements have advantages that facilitate the movement of goods and capital, which contributes to FDI revival.

Establishment of free zones: The establishment of free zones is expected to attract FDI, as it involves removing restrictions on goods entering the country with respect to such areas. This allows foreign investors to use and transport goods and machinery from regions outside the country of investment. These areas reduce costs, in addition to marketing their products in those areas. Low prices keep the demand high owing to exemptions in customs duty. Thus, the presence of such areas has a positive impact on FDI flow.

2.1.3. Monetary policy and inflation

Monetary policy aims to balance the national economy by creating equilibrium between total

supply and aggregate demand, maintaining the stability of the general level of prices, attracting foreign investments, and reducing unemployment rates. Therefore, it is extremely important to FDI, especially through the following:

Exchange rate: Multinational companies react negatively to exchange rate fluctuations. Several studies note this, especially the ones by [Caves and Caves \(1996\)](#). [Caves and Caves \(1996\)](#) revealed a negative correlation between the nominal and real exchange rate and the flow of FDI to America. Sudden fluctuations in exchange rates have a negative impact on the investment climate, since these fluctuations make it difficult to conduct studies. Further, export-oriented FDI may also be affected by the relative changes in the exchange rate ([Omar, 2000](#)).

Banking and financial system: Before making investments, foreign investors search for countries with sophisticated financial systems and institutions that can provide the investor with necessary and timely funds. Therefore, the government policy in the host country seeking to attract FDI must develop the financial system.

Inflation: Inflation rates have a direct impact on pricing policies and profit volume, thus influencing capital flows. They also affect production costs, which are of great importance to multinational corporations. The profitability of the market is also affected by high inflation rates in countries, along with a bad investment climate ([Omar, 2000](#)). Hence, foreign investors seek price stability. In high inflation scenarios, both national and foreign investments fall into a danger zone. Moreover, inflation distorts investment patterns, where investors tend to invest in short-term, rather than long-term, investments.

Notably, Latin American countries (Chile, Colombia, and Costa Rica), which have managed to reduce inflation to less than 20% since 1984, have achieved remarkable success in attracting FDI.

2.1.4. Political and institutional factors

Both political and institutional factors play an important role in attracting FDI:

Political stability: Political stability is one of the most important factors that influence FDI appeal. Foreign companies are drawn to politically stable economies. Applied studies have proved that political instability adversely affects FDI flow.

2.1.5. Education

Education is defined by the degree of learning and training; higher the education levels, higher the flow of FDI to provide a labor force.

2.1.6. Infrastructure

Many economists have confirmed [Romer \(1986\)](#) and [Lucas's \(1988\)](#) growth theory, namely, public

investment in infrastructure has an important macroeconomic impact in the long term, especially in the field of transportation (land, sea, and air) and communications. This aspect promotes FDI in the host country.

Communications: The presence of a sophisticated communications network helps the flow of FDI, as it allows efficient and easy communication, such through telephone, Internet, and so on.

Baseline establishments: Infrastructure such as roads, railways, and airports is a factor in attracting foreign capital because it increases ease of movement across regions, transport of goods for distribution or import of raw materials, and openness to the outside world.

2.1.7. Legislative policies for foreign direct investment

The state inherently regulates and protects investments by establishing a set of rules with the intent to attract and control foreign capital within the restrictions set by international rules. If the state is seeking FDI, in order to develop its national economy in accordance with its legitimate interests, it should work to provide a favourable climate for it. Perhaps, one important means would be a provision in national laws guaranteeing good economic climate, especially in the face of various obstacles, thereby encouraging investments.

2.1.8. Natural resources

Most studies confirm the importance of available natural resources in a host country as a determinant of FDI appeal. There are several natural resources, such as:

Petroleum: The oil market enjoys numerous advantages, making it the world's leading source of energy and the most widely used raw material in many chemical and petrochemical industries. Nevertheless, the rapid depletion of oil resources, high demand, and dry wells in some producing countries, such the US, China, and Indonesia, are persistent issues. The imperatives of achieving energy security, besides the global attention to environmental pollution issues, have motivated the industrialized world to find new energy alternatives.

Oil is a strategic commodity that generates massive profits to compensate for potential risks, especially since investment in it is characterized by capital intensity and low labor. Therefore, FDI is also influenced by oil; the presence of petroleum in a country is a determinant of FDI.

Gas: Natural gas is a natural resource. It is beneficial to the economy, as it allows self-sufficiency, export to economically weaker countries, and is a useful raw material in many industries. Natural gas, like petroleum, is also strategically important. It used as a tool of economic hegemony by developing countries, while it is also a factor of economic integration between highly advanced and under-developed countries.

Natural gas is therefore a determinant of FDI, with respect to investments in it or its financial returns.

2.2. Prior studies

According to Dunning's theory [Dunning \(1981\)](#) FDI determinants of the host country are distinguished into three types:

- 1) Ownership advantages: These are significant determinants of FDI that show that factors such as research and development and advertising expenditure, managerial resources, technology, capital intensity, labour skills, firm size, scale economies, and experience have an effect on activities of FDI or multinational enterprises ([Faeth, 2009](#)).
- 2) Site advantage: An advantage is given to an investor firm if it starts its operations in the specific host country (instead of another country or investor's home country) ([Tintin, 2013](#)).
- 3) Internal adjustment feature: An advantage is given to an investor firm if it bundles its production or service instead of unbundling technical consultation, maintenance, and others ([Tintin, 2013](#)).

The study of FDI determinants is not easy, since researchers that dealt with these determinants presented different results, because either they studied different economies or their duration of study varied.

Prior literature mostly studied a group of countries over a period of years (using panel data with a regression model). In our review, we divide these studies into two sections. The first is the study of one country: all studies in this section examined whether macroeconomic variables, such as size and growth potential of a country's market, stability of the economy, degree of trade openness, income level, and variables related to natural disaster, affect FDI inflows into the host country ([Anuchitworawong and Thampanishvong, 2015](#)). This study concluded that the occurrence of natural disasters negatively affects FDI, although with some time lag. Weaker Thai currency tends to increase FDI flows, perhaps due to firms taking advantage of the low costs of acquiring production and other facilities in Thailand. Moreover, weaker host country currency makes host country assets less expensive relative to assets in the home country. There exists a two-way relationship between FDI and level of economic development. While higher level of economic development of the host country tends to attract more FDI, larger FDI tends to promote the host country's level of economic development ([Hunady and Orviska, 2014](#)).

The second is a cross-country study conducted in different regions, and in countries with a distinct economic background. Some of these studies focused on identifying important determinants of FDI, such as labour costs, firing costs, gross domestic product (GDP) per capita, public debt, and openness of the

economy; here, openness and labour costs are particularly significant. Open economies with lower labour costs are more likely to attract FDI; conversely, stricter labour standards seem to be less attractive due the negative effect of firing costs on FDI. The study of [Hunady and Orviska \(2014\)](#) also presented evidence that supports the assumption that financial and economic crises will have a negative effect on FDI. In another study on developing countries, [Ucal \(2014\)](#) focused on the relationship between FDI and poverty. Their results showed that there is a statistically significant relationship between FDI and poverty, and it is obvious that FDI reduces poverty in selected developing countries.

[Brahim and Dupuch \(2016\)](#) concluded that for a group of European countries, the determinants evolved over time, suggesting that competitiveness of the social and, mainly, the tax system affects the technological gap. This coincides with the occurrence of a crisis, which generates greater volatility in FDI flows.

[Tintin \(2013\)](#) verified the positive and economically significant influence of GDP size, trade openness, European Union membership, and institutions (measured by economic freedoms, state fragility, political rights, and civil liberty indices) on FDI inflows. Their results also revealed the existence of notable differences in the determinant factors across four investor countries.

[Villaverde and Maza \(2015\)](#) found that economic potential, labour market characteristics, technological progress, and competitiveness have a significant impact on FDI location patterns; in contrast, market size and labour regulation do not seem to play a noteworthy role. Finally, the authors perform some robustness tests to make sure the results are not sensitive to outliers, spatial dependence, size of regions, endogeneity, and consideration of only the top 50 FDI recipient regions.

[Różański and Sekuła \(2016\)](#) analysed FDI determinants for 26 developed economies and 25 emerging markets. The analysis was conducted using a panel regression model for the period 1996–2014 as well as using macroeconomic and institutional variables. They found that growth dynamics, increasing welfare, and size of the market positively influence FDI. Among institutional variables, government stability index and the rule of law index have a positive impact upon FDI. Misgivings with respect to the quality of democracy and corruption do not undermine FDI inflow.

[Rime \(2009\)](#) showed that FDI in oil-poor countries is positively affected by GDP, per capita income, infrastructure, education, and political stability, and it is negatively affected by inflation and exchange rate. Other Arab countries are affected by the same variables. [Nabil \(2008\)](#) showed that in addition to economic growth attracting FDI to host countries, there is a causal relationship between FDI and economic growth in these countries. The

researcher focused on the formation of working capital as a determinant of FDI.

Laabas and Abdmoulah (2009) dealt with the determinants of inter-Arab investment and stated that gravity variables explain a small part of the changes in investment flows. The interpretation of the model is strong when it considers the heterogeneity of these flows between countries, that is, that the flows are unevenly distributed among countries. In addition, other determinants also contribute to increasing the inter-investment flows, such as proximity, language, and colonial history. However, the researcher neglected the variable of natural resources, especially for Arab countries that are rich in resources.

Dimitrova and Triki (2018) showed that the increase of political state fragility deters FDI inflows to SEMED countries. By contrast, their economic and social state fragilities are insignificant for FDI. This could be explained by the fact that investors are usually attracted by government stability and a strong investment profile.

Bayar and Gavriltea (2018) analyzed interactions between FDI inflows and financial sector development in Central and Eastern European Union countries between 1996 and 2015 with panel data analysis. Our findings reveal that there is no cointegrating relationship among FDI inflows, investments of foreign portfolio, and the development of financial sectors, but there is a one-way causality from development of financial sectors to FDI inflows over the short run.

2.3. Research hypotheses

To answer the previous problem and achieve the desired research objectives, we propose the following set of hypotheses:

H1: There is a positive relationship between FDI and market size in Arab countries.

H2: There is a relationship between FDI and FDI for the past year.

H3: There is a positive relationship between FDI and the educational level in Arab countries.

H4: There is a positive relationship between FDI and political stability in Arab countries.

H5: There is a negative relationship between the flow of FDI into Arab countries and the global financial crisis.

H6: There is a negative relationship between FDI and corruption in Arab countries.

3. Data and methodology

In this study, we used a panel data regression model to identify significant determinants of FDI. Moreover, we used the EViews 9 software for analysis.

3.1. Data

All variables used in this study include a cross-sectional component (21 Arab countries) as well as a times-series component (1970–2016). Data were taken from the World Bank's database for all the variables during the study period and for the consolidation of data sources. The variables are summarized in Table 1.

3.2. Methodology

The functional form of the model is as follows:

$$LNFDI_{it} = \beta_0 + \beta_1 LNFDI_{i(t-1)} + \beta_2 LNGDP_{it} + \beta_3 LNOPENNESS_{it} + \beta_4 LNINF_{i(t-4)} + U_{it} \quad (1)$$

where;

$LNFDI_{it}$: logarithm of FDI in country i at the time t ;

$LNFDI_{i(t-1)}$: logarithm of FDI in country i at time $t-1$

$LNGDP_{it}$: logarithm of GDP in country i at time t ;

$LNOPENNESS_{it}$: logarithm of openness of the economy of country i at time t .

$LNINF_{i(t-4)}$: logarithm of inflation in country i at time $t-4$; and

U_{it} : error term.

Table 1: Variables used in the panel data regression model and their expected effects

Nature	Variable	Characteristic	Expected sign
Dependent variable	LNFDI	Logarithm of foreign direct investment, net inflows (balance of pay, current US\$)	
	LNGDP	Logarithm of gross domestic product (GDP) (current US\$)	Positive (+)
Independent variable	LNPOP	Logarithm of population, total	Positive (+)
	LNGDPpc	Logarithm of GDP per capita (current US\$)	Positive (+)
	LNOPENNESS	Logarithm of [import value index (2000 = 100) + export value index (2000 = 100)]/GDP	Positive (+)
	LNINF	Logarithm of inflation, consumer prices (annual %)	Negative (-)
	LNREER	Logarithm of real effective exchange rate index (2010 = 100)	Positive (+)/ Negative (-)

Source: All data are from the World Development Indicators' Data Bank by the World Bank (databank.worldbank.org/wdi).

Since differences across countries may influence the dependent variable LNFDI, we apply a fixed effects least squares dummy variable (FELSDV; see Appendix A, Table A1) to consider heterogeneity among the 17 countries and allow the countries to have their own intercepts. After the estimate of the model using the random effects model (REM; see

Appendix A, Table A2) and the Hausman Test (see Appendix A, Table A3), the null hypothesis was rejected (there is no difference between the REM method and FELSDV model method), as $P = 0.0000$. Therefore, the FELSDV method is better than the REM model method, and Table 2 demonstrates the test results.

Table 3 shows that the most important statistical indicators of the variables used in the model, which are related to the 17 Arab countries for the 36 years of the study period; this means 462 views that are largely acceptable to the nature of this study.

In Table 4, which represents the correlation matrix between variables, we observe that there is no correlation between the variables of the model. This increases the accuracy of the model, which uses the best linear unbiased estimators.

Table 2: Results of the Hausman test

Test summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		50.880482	4	0.0000
Cross-section random effects test comparisons:				
Variable	Prob.	Var (Diff.)	Random	Fixed
LNFDI (-1)	0.238019	0.378509	0.000411	0.0000
LNGDP	2.868478	2.337777	0.147523	0.1671
LNOPNNESS	5.227825	2.227018	3.952947	0.1312
LNINF (-4)	-1.363191	-0.634434	0.108930	0.0272

WARNING: The estimated cross-section random effects variance is zero.

Source: Output of EVIEWS 9.

Table 3: Descriptive statistics of the variables in the study

	Mean	Median	Maximum	Minimum	Std. Dev.	Obs.
LNFDI	14.07195	19.42061	24.39845	-21.88401	13.22882	462
LNFDI (-1)	14.20352	19.28896	24.39845	-21.88401	12.90500	462
LNGDP	24.06163	24.12948	27.35177	20.74268	1.300387	462
LNINF (-1)	1.529210	1.602321	4.889023	-2.862058	1.257129	462
LNOPNNESS	-18.49374	-18.48695	-15.10879	-20.74612	1.139849	462

Source: Output of EVIEWS 9.

Table 4: Correlation of the variables in the study

	LNFDI	LNFDI(-1)	LNGDP	LNINF(-4)	LNOPNNESS
LNFDI	1				
LNFDI (-1)	0.409	1			
LNGDP	0.141	0.132	1		
LNINF (-4)	-0.101	-0.030	-0.206	1	
LNOPNNESS	0.021	0.039	-0.781	0.094	1

Source: Output of EVIEWS 9.

4. Empirical results and discussion

After estimating the model, we obtained the results presented in Table 5, which we sum up in Eq. 2.

The form can be accepted in general. The R-squared statistic shows that the explanatory variables collectively explain the changes in the flow of FDI in Arab countries by 28.04%. According to the Durbin-Watson statistics (= 1.912294), there is no autocorrelation, which explains the quality of the model.

The estimation results show that the inflow of FDI was affected by the previous year with a positive and statistically significant effect at the 99% confidence level. The greater is the inflow of FDI for

year t-1 by 1%, the greater is the flow of FDI by 0.24% in the short term.

Table 5: Results of model estimation

Dependent variable: LNFDI	
Variable	Coefficient/Prob.
LNFDI (-1)	0.238019 (0.0000)***
LNGDP	2.868478 (0.0004)***
LNINF (-4)	-1.363191 (0.0132)**
LNOPNNESS	5.227825 (0.0147)**
C	40.43765 (0.3594)
R-squared	0.280439
Adjusted R-squared	0.247805
Durbin-Watson stat.	1.912294
Number of observations	462
F-statistic	8.593665 (0.000000)***

Note: Probabilities are in parentheses. *, **, and *** show significance at the 10%, 5%, and 1% levels, respectively.

Source: Output of EVIEWS 9.

$$LNFDI_{it} = 40.43 + 0.24*LNFDI_{i(t-1)} + 2.87*LNGDP_{it} + 5.22*LNOPNNESS_{it} - 1.36*LNINF_{i(t-4)} + U_{it} \quad (2)$$

(0.35) (0.000)*** (0.0004)*** (0.0147)** (0.0132)**

where the asterisks ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The internal raw product also has a positive and moral impact on the flow of FDI in Arab countries with a confidence level of 99%; that is, the higher is the GDP in Arab countries by 1%, the greater is the flow of FDI by 2.87%. Moreover, economic openness had a positive and moral impact at the 95% confidence level. As total exports and imports are

divided by the GDP in Arab countries by 1%, the flow of FDI increased by 5.22%.

The results showed that inflation rates have a negative impact and a moral confidence level of 95%. As the rate of inflation in Arab countries increased by 1%, the flow of FDI in year t-4 decreased by 1.36%.

Given the fact that previous research did not address the determinants of foreign direct investment in the Arab countries. Thus, the results

obtained should be confirmed and submitted to the decision-makers in Arab countries to benefit from them. What is neglected in this study can be considered the beginning of future studies.

The results obtained confirm the need for drastic reforms in the Arab economies to benefit from foreign direct investment flows and become a tool for their development rather than an instrument of economic hegemony.

5. Conclusion

The results indicate that the flow of FDI in Arab countries is determined by several factors, the most important of which are FDI for the past year (t-1), GDP, economic openness, and inflation rates for the previous four years (t-4).

This study differed from previous studies conducted in developed countries because of differences in the economies of Arab and developed countries. In addition, lack of some statistics on Arab countries caused a mismatch between the results of this study and studies that preceded it.

Based on this study's results, decision makers in Arab countries must work on the development of GDP, exports, and imports, as well as reduce inflation to increase the flow of FDI to their countries. Thus, the study makes the following recommendations:

- Find a mechanism to improve the ability of all less-developed Arab countries to attract greater FDI and distribute it in a more equitable manner among the internal regions of each country.
- Ensure the stability of international borders with neighbouring countries and the quality of relations with the outside world, including adherence to international treaties and conventions under the umbrella of the institutions of the international community.
- Improve the accuracy of economic statistics through the establishment and development of databases and information in accordance with internationally agreed statistical standards, as well as enhance their quality in terms of transparency, periodicity, regularity, and comprehensiveness in their issuance.
- Develop projects for the infrastructure of roads, bridges, ports, means of transport of all types, ICT networks, as well as develop land, sea, and air link projects among Arab countries.

However, despite the importance of the obtained results, which give an account of the size and significance of the impact of GDP, economic openness, and inflation on the flow of FDI to Arab countries, as well as their impact on decision makers in these countries, some restrictions have prevented the search for some variables. This study also did not consider the importance and impact of the variables studied at the level of Arab regional blocs (e.g., Gulf Cooperation Council and Maghreb countries) and overlooked some variables because lack of data. These variables, such as the rate of schooling and

corruption, can have a significant impact on the flow of FDI. Such imperfections of this study open up prospects for future research topics.

Acknowledgment

The authors gratefully acknowledge the approval and support of the deanship of scientific research study (grant no. BA-2016-1-6-F-5729) at the Northern Border University, Arar, Kingdom of Saudi Arabia.

Compliance with ethical standards

Conflict of interest

The authors declare that they have no conflict of interest.

References

- Anuchitworawong C and Thampanishvong K (2015). Determinants of foreign direct investment in Thailand: Does natural disaster matter?. *International Journal of Disaster Risk Reduction*, 14: 312-321.
<https://doi.org/10.1016/j.ijdrr.2014.09.001>
- Bayar Y and Gavriltea MD (2018). Foreign direct investment inflows and financial development in central and eastern European Union countries: A panel cointegration and causality. *International Journal of Financial Studies, Open Access Journal*, 6(2): 1-13.
- Brahim M and Dupuch S (2016). Foreign direct investments in Europe: Are the East-West differences still so noticeable?. *The European Journal of Comparative Economics*, 13(1): 37-61.
- Caves RE and Caves RE (1996). *Multinational enterprise and economic analysis*. Cambridge University Press, Cambridge, UK. **PMCID:PMC1217418**
- Dimitrova A and Triki D (2018). Does state fragility matter for foreign direct investment? Evidence from Southern and Eastern Mediterranean countries. *Management Decision*, 56(8): 1787-1803.
<https://doi.org/10.1108/MD-03-2017-0252>
- Dunning JH (1981). Explaining the international direct investment position of countries: Towards a dynamic or developmental approach. *Weltwirtschaftliches Archiv*, 117(1): 30-64.
<https://doi.org/10.1007/BF02696577>
- Faeth I (2009). Determinants of foreign direct investment—A tale of nine theoretical models. *Journal of Economic Surveys*, 23(1): 165-196.
<https://doi.org/10.1111/j.1467-6419.2008.00560.x>
- Green RT and Cunningham WH (1975). The determinants of U.S. foreign investment: An empirical examination. *Management International Review*, 15(2/3): 113- 120.
- Hunady J and Orviska M (2014). Determinants of foreign direct investment in EU Countries—Do corporate taxes really matter?. *Procedia Economics and Finance*, 12: 243-250.
[https://doi.org/10.1016/S2212-5671\(14\)00341-4](https://doi.org/10.1016/S2212-5671(14)00341-4)
- Laabas B and Abdmoulah W (2009). Determinants of Arab intraregional foreign direct investments. *Journal of Business and Policy Research*, 4(2): 138-169.
- Lucas JRE (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1): 3-42.
[https://doi.org/10.1016/0304-3932\(88\)90168-7](https://doi.org/10.1016/0304-3932(88)90168-7)
- Nabil K (2008). Les déterminants de l'investissement direct étranger dans les pays d'accueil en développement. *Cahiers du CREAD, Algérie*, (83-84): 69-90.

Omar S (2000). Globalization and contemporary economic issues, edar eljameia, Egypt. Council for Foreign Relations at the Diplomatic Club, Cairo, Egypt.

Rime MR (2009). Les investissements directs étrangers dans les pays arabes. Ph.D. Dissertation, Laboratoire d'économie appliquée au développement, Toulon, France.

Romer PM (1986). Increasing returns and long-run growth. *Journal of Political Economy*, 94(5): 1002-1037. <https://doi.org/10.1086/261420>

Rózański J and Sekuła P (2016). Determinants of foreign direct investment in developed and emerging markets. *Dynamic Econometric Models*, 16: 49-64. <https://doi.org/10.12775/DEM.2016.005>

Tintin C (2013). The determinants of foreign direct investment inflows in the Central and Eastern European Countries: The importance of institutions. *Communist and Post-Communist Studies*, 46(2): 287-298. <https://doi.org/10.1016/j.postcomstud.2013.03.006>

Ucal MŞ (2014). Panel data analysis of foreign direct investment and poverty from the perspective of developing countries. *Procedia-Social and Behavioral Sciences*, 109: 1101-1105. <https://doi.org/10.1016/j.sbspro.2013.12.594>

Villaverde J and Maza A (2015). The determinants of inward foreign direct investment: Evidence from the European regions. *International Business Review*, 24(2): 209-223. <https://doi.org/10.1016/j.ibusrev.2014.07.008>

Appendix A. Empirical findings with Eviews software outputs

Table A1: Fixed effects least squares dummy variable model

Dependent variable: LNFDI; Method: Panel least squares; Date: 04/06/18 Time: 11:39; Sample (adjusted): 1980 2015; Periods included: 36; Cross-sections included: 17; Total panel (unbalanced) observations: 462				
Variable	Coefficient	Std. error	t-statistic	Prob.
C	40.43765	44.07422	0.917490	0.3594
LNFDI (-1)	0.238019	0.047482	5.012841	0.0000
LNNGDP	2.868478	0.796611	3.600853	0.0004
LNOPNNESS	5.227825	2.134546	2.449151	0.0147
LNINF (-4)	-1.363191	0.547760	-2.488665	0.0132
Effects specification				
Cross-section fixed (dummy variables)				
R-squared	0.280439	Mean dependent var.		14.07195
Adjusted R-squared	0.247805	S.D. dependent var.		13.22882
S.E. of regression	11.47325	Akaike info. criterion		7.762302
Sum squared resid.	58051.22	Schwarz criterion		7.950282
Log likelihood	-1772.092	Hannan-Quinn criter.		7.836312
F-statistic	8.593665	Durbin-Watson stat.		1.912294
Prob (F-statistic)	0.000000			

Source: Output of EViews 9.

Table A2: Random effects model (REM)

Dependent variable: LNFDI; Method: Panel EGLS (cross-section random effects); Date: 05/15/18 Time: 02:05; Sample (adjusted): 1980 2015; Periods included: 36; Cross-sections included: 17; Total panel (unbalanced) observations: 462; Swamy-Arora estimator of component variances				
Variable	Coefficient	Std. error	t-statistic	Prob.
C	-5.398846	10.35843	-0.521203	0.6025
LNFDI (-1)	0.378509	0.042940	8.814810	0.0000
LNNGDP	2.337777	0.697900	3.349728	0.0009
LNOPNNESS	2.227018	0.776749	2.867100	0.0043
LNINF (-4)	-0.634434	0.437162	-1.451254	0.1474
Effects specification				
Cross-section random			S.D.	Rho
Idiosyncratic random			0.000000	0.0000
			11.47325	1.0000
Weighted statistics				
R-squared	0.193553	Mean dependent var.		14.07195
Adjusted R-squared	0.186494	S.D. dependent var.		13.22882
S.E. of regression	11.93168	Sum squared resid.		65060.80
F-statistic	27.42076	Durbin-Watson stat.		1.993054
Prob. (F-statistic)	0.000000			
Unweighted statistics				
R-squared	0.193553	Mean dependent var.		14.07195
Sum squared resid.	65060.80	Durbin-Watson stat.		1.993054

Source: Output of EViews 9.

Table A3: Correlated random effects: Hausman test

Test summary	Chi-Sq. statistic	Chi-Sq. d.f.	Prob.
Cross-section random	50.880482	4	0.0000
** WARNING: estimated cross-section random effects variance is zero.			
Cross-section random effects test comparisons:			
Variable	Fixed	Random	Var (Diff.)
LNFDI (-1)	0.238019	0.378509	0.000411
LNNGDP	2.868478	2.337777	0.147523
LNOPNNESS	5.227825	2.227018	3.952947
LNINF (-4)	-1.363191	-0.634434	0.108930
Dependent variable: LNFDI; Method: Panel least squares; Date: 05/15/18 Time: 04:36; Sample (adjusted): 1980 2015; Periods included: 36; Cross-sections included: 17; Total panel (unbalanced) observations: 462			
Variable	Coefficient	Std. error	t-statistic
C	40.43765	44.07422	0.917490
			Prob.
			0.3594

LNFDI (-1)	0.238019	0.047482	5.012841	0.0000
LNGDP	2.868478	0.796611	3.600853	0.0004
LNOPNNNESS	5.227825	2.134546	2.449151	0.0147
LNINF (-4)	-1.363191	0.547760	-2.488665	0.0132

Effects specification

Cross-section fixed (dummy variables)

R-squared	0.280439	Mean dependent var.	14.07195
Adjusted R-squared	0.247805	S.D. dependent var.	13.22882
S.E. of regression	11.47325	Akaike info. criterion	7.762302
Sum squared resid.	58051.22	Schwarz criterion	7.950282
Log likelihood	-1772.092	Hannan-Quinn criter.	7.836312
F-statistic	8.593665	Durbin-Watson stat.	1.912294
Prob (F-statistic)	0.000000		

Source: Output of EVIEWS 9.