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Does FDI Crowd Out/in Domestic Investment in Jordan

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Abstract

This paper investigates whether foreign direct investment (FDI) crowds-out/in domestic investment in Jordan. We analyze the effect on the aggregate economy using data from 1980 to 2017. The Autoregressive Distributed Lag (ARDL) model was used for short and long term relationships. The analysis shows that FDI crowds out domestic investment in Jordan. The channels of this crowding-out effect may be manifold. If FDI is directed to existing projects through privatization and does not create new investment, crowding out may occur. FDI may also crowd out domestic investment when MNCs enter sectors previously dominated by state-owned firms.

Keywords: Foreign Direct investment, Crowding out, Crowding in, Real gross domestic product, Autoregressive distributed lag (ARDL).

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هل الاستثمار الأجنبي المباشر يزاحم أم يكمل الاستثمار المحلي في الأردن؟

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ملخص

حاولت هذه الدراسة استقصاء فيما إذا كان الاستثمار الأجنبي المباشر (FDI) يزاحم داخل/خارج في الاستثمار المحلي في الأردن. حيث نقوم بتحليل التأثير على الاقتصاد الكلي باستخدام البيانات من عام 1980 إلى عام 2017. وتم استخدام نموذج الانحدار الموزع التلقائي (ARDL) للعلاقات القصيرة والطويلة الأجل. حيث يظهر من خلال تحليلنا أن الاستثمار الأجنبي المباشر يزاحم الاستثمار المحلي في الأردن. قد تكون قنوات تأثير الازدحام هذا متعددة. إذا تم توجيه الاستثمار الأجنبي المباشر إلى المشاريع القائمة من خلال الخصخصة ولا يخلق استثمارات جديدة، فقد يحدث ازدحام. وقد يؤدي الاستثمار الأجنبي المباشر أيضًا إلى ازدحام الاستثمار المحلي عندما تدخل الشركات المتعددة الجنسيات إلى قطاعات كانت تسيطر عليها سابقًا الشركات المملوكة للدولة.

الكلمات الدالة: الاستثمار الأجنبي المباشر، المزاحمة، الازدحام، الناتج المحلي الإجمالي الحقيقي، الانحدار الموزع التلقائي (ARDL).

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1. Introduction

One of the recent methods used to supplement local investment fund, with the aim of carrying out economic projects that seek to reach economic growth and development, is foreign direct investment (FDI); which is considered as one of the most important cases on the international scene. So, this leads to answer the following question: Does foreign direct investment crowd out local investment or not?

Jordan is facing a lot of great difficulties in creating capital for small amounts of savings, due to the lack of economic resources and the lack of foreign exchange reserves. In any country in the world, the formation of capital does not require any external or internal loan, as long as it requires external sources such as: foreign direct investment or economic grants. In order to build local capacity, Jordan has adopted special policies and measures that attract foreign investors, since it has adopted programs to reform the trading system and remove restrictions on the inflow of capital and foreign direct investment, and work on the issuance of several laws and legislation, the most important of which is the Investment Promotion Law of 2014 in order to provide a suitable investment environment.

The benefits that may arise from the inflow of FDI, can be shown through stimulating and increasing the volume of investment by the participation of foreign companies in production processes, or foreign companies buy homemade inputs or that FDI works to increase the country's export capacity, this results in an increase in the volume of foreign exchange in the country, then it promotes capital formation in the recipient country and mobilizes and directs domestic savings to create domestic investments, creating new jobs, promoting technology transfer and thus promoting economic growth. On the contrary, encouraging FDI and opening local markets to foreign companies create risks that may not be observed in the short term such as and exposing local companies for difficulties to sell their products, or the monopolizing to of local markets and the uniqueness of those companies to produce distinctive items or goods for which there are no alternatives in the local markets, so that congestion in domestic investment occurs.

2. Importance of the study:

Jordan as a developing country faces many economic obstacles in the form of limited domestic savings that are not sufficient to work on all existing investment opportunities, as well as the scarcity of foreign exchange that does not allow them to import capital goods and intermediate goods important to its development efforts. FDI and domestic investment are considered very important for financing economic growth and development, and it is important to check if these two kinds of investment complete each other or if there is a crowding out effect.

3. Objectives of the study:

This study aims to:

1. Provide an overview of the foreign direct investment inflows (FDI) in Jordan during the period 1985-2017.
2. Provide an overview of the gross fixed capital formation (GFCF) in Jordan during the period 1985-2017.
3. Show the relationship between (FDI) and Domestic Investment in Jordan during the period 1985-2017.
4. Investigate if there was a crowd out/in Domestic Investment in Jordan during the period 1985-2017.

4. Literature Review

There are several theories that tried to explain FDI. Firstly; the Neoclassical investment theory, which focuses on the factors that affect the company's spending on capital and investment under the neoclassical investment theory are interest rates, depreciation rates, national income levels, the difference between currently available capital stock and required capital stock, and government policies. Secondly; the exchange rates theory on Imperfect capital markets, which attempts to explain foreign direct investment, as it works on analyzing foreign exchange from the point of international trade. Thirdly; the theory of selective, which sees that foreign direct investment depends on three main variables: monopolistic advantages owned by the firm; advantages the place enjoyed by the host country; and advantages of internal use of monopolistic advantages. And fourthly; the internalization theory, which explains the growth of transnational corporations and their motives for achieving foreign direct investment.

The talk about the impact of crowding out and domestic investment from FDI is the same as talking about FDI on domestic investment. Because as mentioned earlier, crowding out occurs if FDI cannot stimulate the formation of domestic investment; on the contrary, crowding in occurs if FDI can stimulate the formation of domestic investment. Borensztein et al.,(1998) found through their study, that there is a crowded-in effect of foreign direct investment on domestic investment, for 69 a non-developed country, both through complementarity to production and via higher efficiency from advanced technology. FDI may crowd-out domestic investment if instead of increase capital accumulation in the recipient country, it displaces domestic investors through channels such as competition in the product market, financial market or via superior technology, Borensztein et al., (1998) tested the effect of FDI on domestic investment for 69 developing countries and found a crowding-in effect both through complementarity to production and via higher efficiency from advanced technology. Agosin and Mayer (2000) researched whether domestic investment crowds out foreign direct investment in 32 countries on three continents (Asia, Africa, and Latin America) during the 1970-1996 period. The researcher, concluded that there is a crowding-in effect on domestic investment on foreign direct investment in the Asian continent in the long term from 1970-1996, and there is a neutral effect in African countries, while some Latin American countries are crowding out and others are crowding in. Whereas if the period is divided into two, in the 1976-1985 period in Africa and Asia there was crowding in investment, only in Latin America investment crowding out occurred. The same thing also happened in the period 1986-1996. Resmini and Siedschlag (2008) examine whether FDI inflows to China crowd out FDI inflows to European Union countries. They used panel data analysis of 35 countries (OECD and non-OECD members). Based on the results of their research they found that FDI inflows into China are complementary (crowding in) to inflows to 15 major European countries and are substitutable (crowding out) to new EU countries located in Central and South Europe. The substitution effect is due to small economies such as Bulgaria and the Baltic countries which compete with China in terms of efficiency-seeking FDI being affected by the wave of FDI into China. FDI inflows to their countries decreased because FDI mostly flow to China (ACAR et al., 2012). The effect of Foreign Direct Investment on Domestic Investment: Evidence from MENA Countries, the analysis is limited to the period 1980-2008. 13 countries, among which seven of them are classified as oil-rich 5 and six are classified as oil-poor 6 countries, are analyzed. Three different estimations are executed using the

panel Generalized Method of Moments (GMM) technique and concluded that FDI crowds out domestic investment in the region (specifically in the 13 countries chosen for analysis) as well as in the oil-poor and oil-rich countries of the MENA. (Jude 2014) tested the hypothesis of FDI led capital accumulation in Central and Eastern European countries. More precisely, investigate the relationship between FDI and local investment, using a sample of 10 CEEC over the period 1990-2010, and find FDI to crowd out domestic investment, while the effect decreases with time. Results also indicate that green field FDI may develop long run complementary with domestic investment, while mergers and acquisitions do not prove any significant effect on domestic investment. Finally, financial development seems to foster a certain crowding-in effect. (Djokoto, et al., 2014) investigated the effects of foreign direct investment (FDI) into agriculture on domestic investment in agriculture. Time series data from 1976 to 2007 was fitted to a derived model. Estimation results show foreign direct investment in agriculture crowd-in domestic investment into agriculture. A targeted approach that will attract foreign direct investment into agriculture is required as to complement existing efforts at boosting domestic agricultural investment. However, the evidence for this relationship has been conflicting, that for agriculture is rare. For Ghana, a developing agrarian economy that has promoted foreign direct investment for some decades now, it is imperative to establish the relationship between foreign direct investments and domestic investment. Also, the estimation was based on a theoretically derived model. (Ameer, et al., 2017) examined the relationship between outward foreign direct investment (OFDI) and domestic investment (DI) in China using cointegration and Granger causality analyses (including bivariate and multivariate Granger causality models). The results suggest that the conclusions drawn from a bivariate model may not be valid because of the omission of important control variables. The results of the multivariate model show that there is a positive long-run unidirectional causal relationship running from OFDI to DI In the short run, DI and OFDI do not show Granger causality. (Gungo and Ringim, 2017) tested this study is conducted to empirically analyze the linkage between FDI, domestic investment (DI) and economic growth for the case of Nigeria. To this end, annual time series data for the period of 1980-2015 was employed. The study employs Johansen multivariate cointegration test and vector error correction model (VECM) as estimation techniques. The Johansen cointegration result of the study reveals that, FDI DI and economic growth have a long-run equilibrium relationship. According to the

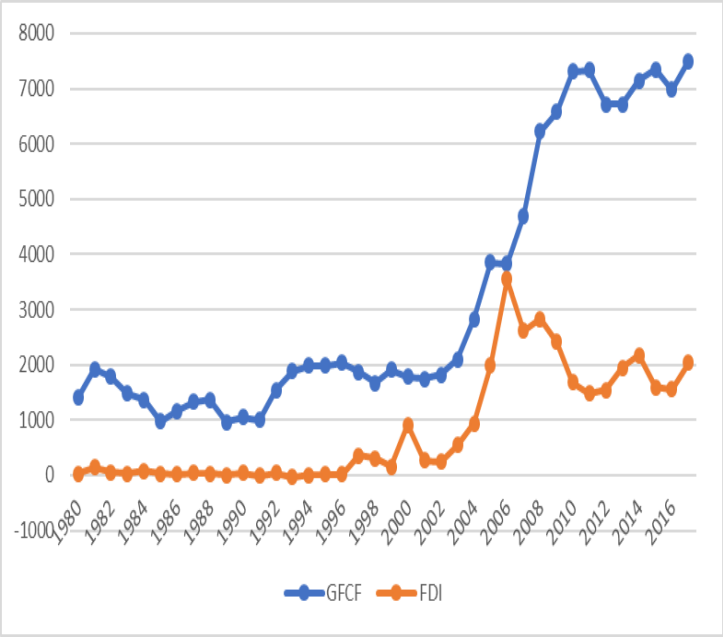
VECM result and the speed of adjustment of the variables towards their long-run equilibrium path was 52.55%. Furthermore, Granger causality test reveals a uni-directional causality running from FDI to economic growth that is, FDI is an important predictor of economic growth. Ahmad (2018) examined the effects of foreign direct investment (FDI) on domestic investment and economic growth, in addition to the extent to which foreign investment either crowds in or crowds out domestic investment in China. Yearly data from 30 Chinese provinces for the period 2000-2014 has been used. Pedroni and Kao tests confirmed the existence of long-run relations. We found positive and significant effects of FDI and domestic investment on the economic growth of China using DOLS, FMOLS and GMM estimators; however, domestic investment made a higher contribution to the growth and development of the Chinese economy. As regards to crowding in or crowding out, FMOLS showed a neutrality hypothesis, while DOLS and GMM demonstrated that FDI crowded out domestic investment. We conclude that the effects of FDI on domestic investment (in other words, on the economy) are not always favorable. Jude (2019) investigated the relationship between foreign direct investment (FDI) and domestic investment in a sample of 10 Central and Eastern European countries over the period 1995–2015, and found that short-term crowding out effect on domestic investment, followed by a long-term crowding in. Greenfield FDI develops stronger long-run complementarities with domestic investment, while mergers and acquisitions do not show a significant effect on domestic investment. Financial development seems to mitigate crowding out pressures and even foster a crowding in for mergers and acquisitions.

5. Relationship between FDI and Domestic Investment in Jordan

Since the 1990s and the conclusion of trade agreements, Jordan has started great attention to attract foreign investors. Jordan became a favorable environment for investors after the government carried out many measures that serve foreign investors through trade agreements, tax cuts and facilitating procedures. With regard to local investment and foreign direct investment, many foreign and Arab studies have been conducted, particularly in the direction of foreign direct investment to the host country, and this does not mean that there is no reciprocal relationship between domestic investment and foreign direct investment, or that they are separate from some, in fact, That domestic investment affects foreign direct investment significantly as (Anyanwu, 1998) has proven in his study that domestic investment is one of the important elements that attract foreign direct investment.

On the other hand, some studies such as (Stevens and Lipses, 1992) and (Feldslein, 1994) were based on the relationship between local investment and foreign direct investment, and the results signals that there is an inverse relationship in investment, and this is from the fact that some studies may be discouraged by the fact that foreign direct investment generates concerns with the host country, from the disappearance of competition between local and multinational companies, and the loss of local companies' shares in the local market, because of the power of multinational companies.

(Khamaysh and Qaraan, 2012) Studied the effect of the relationship between domestic investment and foreign direct investment in Jordan, and concluded that foreign direct investment has a negative impact, that is, the entry of foreign direct investment leads to a decrease in the volume of domestic investment in Jordan, in the long term, but has a positive effect, in the short term, This means that the relationship between domestic investment and foreign direct investment is crowding out, as the following graph shows:



Graph (1) Relationship between FDI and domestic investment in Jordan

It appears through the drawing, that the volume of domestic investment and foreign direct investment over time goes upward, as foreign direct investment is less than domestic investment, and this indicates one fact, that local investment controls the capital market in Jordan, however, some researchers still question this statistic.

6. Methodology and Model

To check if FDI crowds-out domestic investment in Jordan, the (ARDL) method has been applied to investigate the relationship between FDI and domestic investment proxied by gross fixed capital formation (GFCF) in Jordan is. Due to the lack of recent data in Jordan, the analysis is limited to the period 1980-2017.

The functional equations specified to the study are based on the model by ACAR, et al. (2012). The linear formulation of GFCFSHR is given as follows:

$$GFCFSHR_t = \alpha_t + \alpha_1 FDISHR_t + \alpha_2 TRDSHR_t + \alpha_3 LNGDP_t + \alpha_4 IR_t + u_t$$

Where:

Table (1) Description Variable

Variable	Description	Source	Unite
GFCFSHR	Gross fixed capital formation share in GDP	World Bank	USD
FDISHR	FDI flow share in GDP	UNCTAD	USD
TRDSHR	Total trade volume share in GDP	UNCTAD	USD
LNGDP	Natural logarithm of GDP	UNCTAD	USD
IR	Interest rate	UNCTAD	%

Gross fixed capital formation is used as a proxy to domestic investment which is widely used in the literature. about the FDI variable, inward FDI flows are taken and analyzed yearly of FDI inflows to the host country. Moreover, the flow variable rather than the stock variable is selected since the effect of FDI entering each year is important in terms of analyzing its effect on domestic investment. Total trade volume is the sum of exports from and imports to the country. Except for GDP, the share of each variable in GDP is included as an explanatory variable to avoid the biases potential to arise from different GDP levels of the country. Interest rate is accepted as a determinant of domestic investment; however, it is not included as an explanatory variable into the model. Interest rate is excluded as an explanatory variable following the vast literature finding insignificant effects on domestic investment (Agosin, 2005).

An extension of tests of co-integration (concurrent) is through my methodology Angel-Granger and Johansen. It is necessary to have the strings understudy integrated of the same degree, and these methods result in the case of the sample of the small study results are inaccurate and as a result of these problems. ARDL methodology has become more used recently, which was developed by Pesaran and Shin (1998), Pesaran et al (2001), because this methodology does not require the variables to be integrated of the same degree and less then I(2). This methodology can be used if there is a small sample, and this method also separates the effects in the short and long terms.

6.1 Unit root test

It is required that the stationarity property of the time series be investigated. This action is due to the fact that most of the macroeconomic variables are nonstationary, and hence, the estimation of parameters using OLS obtains a very high R^2, and the rise of spurious regression problem may be generated by a non-stationary process: the augmented Dickey-Fuller (ADF) unit root test is extensively used in research (Dickey and Fuller 1979). The ADF test was also determined by Mackinnon (1996).

The unit root test results are shown in table (1). As it is shown that the variables (GFCFSHR, FDISHR, and LNGDP) are stationary in I(1) and the variable TRDSHR is stationary at level, Therefore, the application of the Autoregressive distributed lag (ARDL) model is applicable.

Table 2 summarizes the analysis of the unit root of the underlying variables and levels and first difference, thus:

Table (2) Augmented Dickey-Fuller (ADF) Test with Intercept

Variables	Levels		First Difference		Remarks
	t-Statistic	Probability value	t-Statistic	Probability value	
GFCFSHR	-2.476	(0.1293)	-5.5618	(0.0000*)	I(1)
FDISHR	-2.0409	(0.2689)	-6.3103	(0.0000*)	I(1)
TRDSHR	-3.05088	(0.0396**)	-	-	I(0)
LNGDP	0.543224	(0.9859)	-5.09362	(0.0002*)	I(1)

Note: Δ denotes first differences. Significant at * 1%; , **5%

Source: Authors' calculations using EViews 10.0

6.2 Lag Length Selection Test

To get rid of the self-correlation problem, we used Lag Length Selection Test, to determine the number of periods appropriate for this model, and to reduce the error, many criteria have been used (standard Akaike Information Criterion (AIC)), (Final prediction error (FPE)) and (Schwarz Information Criterion (SIC)) (Ang, 2007) , but the criterion (AIC) has been relied upon, and It was found through the test that the optimum number set at three intervals to slow down on a standard basis.

Table (3) Lag Length Selection Test

Lag	FPE	AIC	SC
0	14436.9	23.76685	23.98904
1	17.62831	17.0418	18.37495*
2	19.15591	17.03192	19.47603
3	14.96636*	16.52969*	20.08477

Source: Authors' calculations using EViews 10.0

6.3 Cointegration Bound Test

As the first stage in the ARDL methodology, the long-term relationship of integration should be tested in the Fisher test. The FDI index was determined as a variable of other independent variables (FDI volume, exchange rate, trade volume (exports and imports) and Gross Domestic Product (GDP).

Through the table, it appears that the calculated value of 10.90 is greater than the values of the upper I(I) and lowest I(0) at all probability levels, which indicates that there is a long-term balance relationship between the study variables, from here we move to a short and long-term test, as the table shows. Following is the results obtained from the Cointegration bound test:

Table (4) Cointegration bound Test

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.89584***	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.50%	2.88	3.87
		1%	3.29	4.37

***: There is a long-term relationship at 1%.

Source: Authors' calculations using EViews 10.0

6.4 Long-run Estimation:

It seems that there is a long-term relationship among the variables. As a result of this, the long-term relationship can be estimated, and Table 5 shows that the variables are of long-term statistical significance, as it shows that the gross domestic product, FDI and the volume of trade have a negative impact during the study period 1980-2017 on domestic investment in Jordan. It can be said that long run Crowd-out domestic investment in Jordan from Foreign direct investment. The number of periods has been set at three intervals to slow down based on a standard basis on the (AIC) standard as shown in Table (2) and the optimal ARDL model selected is (1,1,2,0).

Table (5) Estimated Long Run ARDL Approach (1,1,2,0) based on AIC

Dependent variable (GFCF)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-39.4436	13.383	-2.94729	0.0074
GFCF	-0.67198	0.100544	-6.6834	0.0000
FDI	-0.63767	0.127731	-4.99226	0.0001
LGDP	4.281005	1.284383	3.333123	0.0030
TRD	0.130547	0.024881	5.246794	0.0000

Source: Authors' calculations using E-Views 10.0

It is clear from the previous results, that each of the model's transactions is statistically acceptable at the 1% level of significance, where the results showed that the volume of foreign direct investment effect negative on domestic investment for the period of 1980-2017 in Jordan, while the gross domestic product and volume of trade effect positive domestic investment, and all variable is statistically significant.

6.5 Short-run Estimation:

The results indicated in table 6 show consistency with long-term coefficients of variables. In this context, it is seen that coefficients of, FDI, LNGDP and ECM(-1) are statistically significant. In addition, error correction coefficient is -0.67 which shows that it is significant and negative as expected. We conclude from this result that 67% of short-term deviations can be solved, and we will reach a long-term equilibrium quickly.

Table (6) Estimated Short Run ARDL

Approach (1,1,3,0) based on AIC

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI)	-0.374102	0.09384	-3.986586	0.0006
D(LGDP)	37.76757	7.128318	5.298245	0.0000
D(LGDP(-1))	25.85288	8.304762	3.113019	0.0051
D(LGDP(-2))	20.5797	7.778883	2.645585	0.0148
ECM(-1)	-0.671975	0.07502	-8.95729	0.0000

Source: Authors' calculations using EViews 10.0

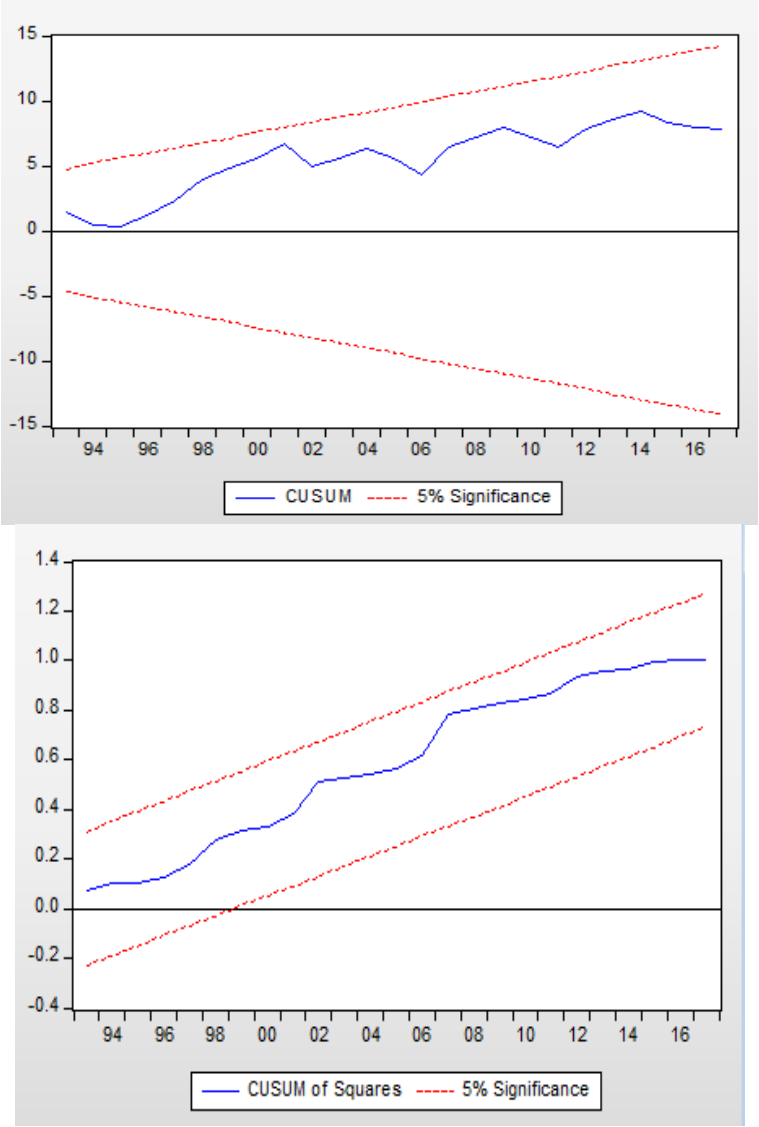
The results are shown in Table (6) the estimated coefficients of the explained variables and the dependent variable in the short term, as these coefficients show the modification of all the variables in the model (Dritsakis, 2011). Where the error correction limit coefficient (cointEq (-1)) is the most important coefficient in the results of short-term coefficients in the ARDL model. The results of the error correction limit factor in the first model indicate that its value (0.671975) has a significant value of 0.000, which means that the short-term equilibrium approaches the equilibrium in the long term and that the long-term changes take one and a half years to be corrected in the short term.

6.6 CUSUM and CUSUM of Squares test for Stability test

CUSUM and CUSUMQ stability tests are utilized in order to test long term stability of the estimated coefficients. These tests are graphical applications applied on the error terms represented in equation. According to the test results, if error terms rank among critical values at 5%

significance level, it can be considered that the model is stable. The results of CUSUM and CUSUMQ in figure 1. As a result, related values appear in critical values in CUSUM and CUSUMQ graphs. However, although there are some deviations in certain periods, consequently, values return the critical borders. Thus, it can be said that estimated parameters are stable.

Graph (1) CUSUM and CUSUMQ Stability Tests (1980-2017)



6.7 Diagnostic Tests:

To ensure the efficiency of the model used in the analysis and the absence of any standard problems, diagnostic tests were performed as follows:

Table (7) Estimated Diagnostic Tests

Test	Test- Statistics	Prob.
ARCH	F -statistics = 0.670676	Prob. F(1,32) = 0.4189
Breusch-Godfrey (LM Test):	F-statistic = 1.160424	Prob. F(2,20) = 0.3336
Ramsey RESET Test	F-statistic = 1.093897	Prob. F(1,21) = 0.3075
Heteroskedasticity Test	F-statistic = 0.601385	Prob. F(12,22) = 0.8182

The results appeared in Table (7) show that the model is free from the problem of sequential correlation between random errors, as the probability (F-statistic) is greater than 5%, and therefore the null hypothesis can be accepted that there is no serial correlation between random errors. Also, the results show the F-statistic probability for testing the stability. The variance of the error term is greater than 5%, so the null hypothesis can be accepted for the error term variance.

7. Conclusion

Over the past thirty-seven years, FDI has increased dramatically, which is reflected in the world's share of FDI inflows in GDP. Jordan has attracted higher levels of FDI, especially in recent years. This study seeks to investigate the effect of those trends in FDI inflows on domestic investment outcomes in Jordan. The theoretical literature indicates that foreign direct investment may lead to crowding out domestic investment in the short term, our analysis shows that FDI crowds out domestic investment in Jordan. FDI may also crowd out domestic investment when MNCs enter sectors previously dominated by state-owned firms. This effect is probably due to the fact that foreign investors can easily compete with local investors,

especially because of superior technology that gives foreign investors a competitive advantage over the domestic counterpart. Still, this feature of the FDI inflow to the Jordan needs further research, especially on the dynamics and the characteristics of domestic investment in the region.

Based on these results, it is recommended that the government introduce a policy of preferential treatment regarding attracting foreign investors to the country. For sectors where foreign direct investment is linked to the effect of crowding out, there should be safety measures in place to protect domestic investors from leaving the business, while those associated with the effect of crowding out should be opened and encouraged for more FDI inflows.

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