European journal of volunteering and community-based projects Vol.1, No 1; 2021
ISSN: 2724-0592 E-ISSN: 2724-1947
Published by Odv Casa Arcobaleno

# Foreign direct investment, institutional development, financial development and economic growth

**Bouzayani Rajab**
Faculté des sciences économique et de gestion de Sfax, Tunisia e-mail: bouzayanilazher@gmail.com
**Abida Zouheir**
Faculté des sciences économique et de gestion de Sfax, Tunisia e-mail: Abidazouheir@gmail.com

**Abstract**
The aim of this paper is to focus on relationship between FDI, financial development, institutional development and economic growth in North African countries from 1995 to 2017. Using the system Generalized Method of Moments (GMM) in a panel data analysis, we justify the positive effect of FDI, institutional development and financial development on the economic growth in North African countries. We also noted the important complement between FDI, institutional development and financial development.
**Keywords:** Foreign direct investment, Institutional development, Financial development, economic growth, Panel data analysis

**Doi:** 10.5281/zenodo.4743808

## *1.Introduction*

From an endogenous growth perspective, economic growth is determined by accumulation of human capital Romer (1986, 1990), institutional development North (1970, 1991), capital flows Findlay (1978), research and development, economic stability, innovation, financial development Mackinnon (1973) and Show (1973), etc.

FDI contributes to economic growth through several transmission channels as intensification international trade through the creation of dynamic comparative advantages, technology transfer and accumulation of human capital. These three benefits are often not known as spillovers. In addition, there are other channels of connection between FDI and economic growth such as capital formation, good management within new enterprises and intensification competitive sphere.

Institutional development contributes directly or indirectly to economic growth. North (1991) defines the term institutional as all informal constraints such as sanctions, taboos, customs,

traditions and codes of conduct, and formal rules such as constitutions, laws and private property rights.

The term quality of institutions includes the index of economic freedom. In this regard, according to the Fraser Institute (2018), institutions contains size of government, legal system and respect for private property rights, monetary stability, degree of commercial freedom and regulation.

Financial development affects economic growth through the mobilization of savings Mackinnon (1973) and Show (1973). Indeed, following the liberalization of the interest rate, mobilization of savings facilitates the financing of agents financing needs. Again, financial development effectively allocates and mobilizes external resources. That is, businesses in developing countries are financed from international financial institutions. This operation will make it possible to mobilize global savings. This operation will make it possible to mobilize global savings.

The organization of the paper is as follows: The first section presents the effect of FDI and determinants of economic growth according to theoretical reviews. The second section deals with date and econometric specification. The third section deals with the presentation of the results obtained.

## *2. Review of literature*

The economic benefits of attracting FDI are generally different. The latter derives from the effects of technology transfer, encouragement of exports, improvement of domestic investment, intensification of the competitive edge, and good management within new firms in the event of mergers and acquisitions.

Regarding technology transfer, Khun (2018) justified the positive and significant impact of FDI on economic growth in Cambodia over the 2006-2016. This effect is explained by the transfer of new technologies to physical capital and absorption, the diffusion of new knowledge of human capital.

Mohamed (2016) showed that FDI only positively affects Moroccan growth from 1980 to 2012 that FDI is concentrated in the industrial sector and of French origin. It explained this condition by the existence of technologies in the sector in which FDI is concentrated. However, the technologies that accompany FDI are disseminated to physical capital.

In theory, effect of FDI on economic growth depends on financial development of the host countries. In this regard, Mohamed Sghaier (2018) focuses on the relationship between FDI, financial development and economic growth in North African countries from 1992 to 2016.

The use of the GMM econometric technique on panel data shows the positive and significant effect of FDI and financial development on GDP. It showed that the impact of FDI on economic growth in the North African region depends on the level of financial development. That is, the more financial system is developed, the greater the effect of FDI on GDP.

The trade openness of the host countries facilitates export and import processes of foreign companies products. In this perspective, Diouf and Hai (2017) focus on the relationship between FDI, trade openness and economic growth in 13 West African countries from 1980 to 2015. The results of the weighted ordinary least squares justify positive effect of FDI, trade openness on economic growth. The study indicated that there is a one-way causality between FDI and economic growth and a two-way causality between trade and economic growth. According to Diouf and Hai (2017), impact of FDI on GDP depends on the degree of trade openness.

The attractiveness of FDI is not only due to financial development, human development, commercial openness, but depends on the development of institutions. These guarantee the private ownership of foreign investors. Still, democracy and good governance in host countries can attract the sight and attention of foreign investors.

Malikane and Chitambara (2017) examined the link between FDI, democracy and GDP in 30 countries in southern Africa. They justify that FDI and democracy positively affect economic growth, so effect of FDI depends on degree of democracy

Hammami and Chakroun (2009) analysed the link between the quality of institutions, economic, social performance and attractiveness of long-term FDI through the use of cross-sectional data for 145 countries. They showed the significant correlation between quality institutional and attractiveness of FDI.

Amadou (2018) analysed the effects of the interaction between inflation volatility and governance quality on FDI in 34 countries in sub-Saharan Africa from 1996 to 2014. It has shown that inflation volatility negatively affects attractiveness of FDI, while improving the quality of governance reduces negative impact of inflation volatility on the attractiveness of FDI.

Mihaela et al. (2018) examined the relationship between quality institutional and attractiveness of FDI in 110 countries (41 developed and 69 developing and poor countries) from 2002 to 2012. Regression using the ordinary least square method shows that the government of developed countries has a positive and significant effect on the attractiveness of FDI. The relationship between good governance and FDI is explained by political stability, the

application of legal rules and respect for citizens' private property rights. They showed that size of government in developing and poor countries has a positive and significant effect on FDI.

Azmat (2007) tested the link between governance and FDI in a sample of Asian and Latin American countries from 1996 to 2002. Econometric technique of MCO regression shows that there is a positive and significant relationship at the 1% threshold between rule of law, regulation, government efficiency and political stability. Corruption control has a positive and significant effect at the 5% threshold on attractiveness of FDI.

According to previous reviews by Khun (2018), Mohamed Sghaier (2018), Diouf and Hai (2017), Hammami and Chakroun (2009) and Amadou (2018) and Mihaela et al. (2018), we see the effect of FDI on the economic growth of host countries depends on financial development and institutional development, trade openness and human development.

## *3. Data and Empirical methodology*

### *3.1 Data*

We study processes data from the 4 North African countries: Tunisia, Egypt, Algeria and Morocco from 1995 to 2017. The per capita GDP growth rate (constant USD 2010) refers to dependent variable. FDI, institutional development, financial development are independent variables, the other variables are control variables. The data base obtained from the World Bank (2018).

- FDI refers to the net investment entry to acquire a sustainable management interest (10% or more of the voting shares) in an enterprise operating in an economy other than the investor's. This is sum of own funds, reinvestment of profits, other long-term capital and short-term capital as shown in the balance of payments. The expected sign of FDI is positive.
- Institutional development is measured by the Economic Freedom indicator. This indicator contains private property law, international trade, size of government, regulation, corruption control and legal system. Each sub-index contains other sub-indices. In total, the economic freedom index contains 42 distinct variables. Each sub-index scores between 0 and 10. The Economic Freedom indicator series is obtained by the Fraser Institute (2018). The expected sign of the coefficient of institutional development is positive.
- Financial development can measure by the ratio M2 as a percentage of GDP, ratio of domestic credit distributed by the banking sector as a percentage of GDP, ratio of domestic credit distributed to the private sector and GDP. We measured financial

development by ratio of domestic credits to the private sector as a percentage of GDP because the financial systems that collect deposits and then direct credits to government or state-owned enterprises.

- Gross fixed capital formation is measured by value of domestic investment and stock of capital as a percentage of GDP. Barro (1999), Balasubramanyam and al. (1996) have justified the positive use of domestic investment for economic growth.
- Inflation is measured by the general increase in consumer prices. The expected sign of inflation coefficient is negative. High inflation can hamper purchasing power, consumption and subsequently demand and economic growth.
- Human development can measure by the rate of primary, secondary or university enrolment, number of branches in higher education, demographic rate. Generally, human development positively affects economic growth (Han and Lee (2020). Due to the absence of the secondary and university enrolment rate database in our study, we used primary enrolment rate as a proxy for human development.

### *3.2 Methodology*

Relative to time series, dynamic panel data holds one or more delays of the independent variable appear as dependent variables in model. Because of the complexity of the econometric model in the form of dynamic panel data (the existence of a dependent variable to right of independent variable) standard econometric estimation techniques do not allow to obtain unbiased estimates. Econometric technique GMM allows econometrics to simplify indignity of variables essential in case of presence of one or more delays of variable to explain appear as explanatory variables. It also allows controlling specific effects. Panel data estimation by econometric GMM technique born by Arrelando and Bond (1991), Arrelando and Bover(1995) The objective of our study is to identify complement between FDI and institutional development, financial development and economic growth in North African countries. Specificity of models below is inspired by Choong (2012).

$$\Delta GDP_{it} = \alpha_0 + \alpha_1 \Delta GDP_{it-} + \alpha_2 FDI_{it} + \alpha_3 FD_{it} + \alpha_4 HD_{it} + \alpha_5 INF_{it} + \alpha_6 ID + \alpha_7 GFCF_{it}\, \alpha_8 FD.\, FDI_{it} + \varepsilon_{it}$$

With:

$\varepsilon_{it} = \gamma_i + \mu_t + \theta_{it}$

$t = 1995 \ldots\ldots 2017$ et $i = 1,2,3,4$

To identify role of financial development in improving economic growth through FDI we have estimated model below.

$$\Delta GDP_{it} = \alpha_0 + \alpha_1 \Delta GDP_{it-1} + \alpha_2 FDI_{it} + \alpha_3 FD_{it} + \alpha_4 HD_{it} + \alpha_5 INF_{it} + \alpha_6 ID + \alpha_7 GFCF_{it}\, \alpha_8 FD.\, FDI_{it} + \varepsilon_{it}$$

European journal of volunteering and community-based projects Vol.1, No 1; 2021
ISSN: 2724-0592 E-ISSN: 2724-1947
Published by Odv Casa Arcobaleno

To identify role of institutional development in improving economic growth through FDI we have estimated following model.

$$\Delta GDP_{it} = \alpha_0 + \alpha_1 \Delta GDP_{it-1} + \alpha_2 FDI_{it} + \alpha_3 FD_{it} + \alpha_4 HD_{it} + \alpha_5 INF_{it} + \alpha_6 ID + \alpha_7 GFCF_{it}\, \alpha_8 ID.FDI_{it} + \varepsilon_{it}$$

- ***Unit root test***

The IPS approach has several advantages over the Levin, Lin and Shin test by taking into account the heterogeneity of autoregressive root under the alternative. Im, Pesaran and Shin (2003) propose a test statistic based on average of the individual DF and ADF statistic. The Im, Pesaran and Shin (2003) tests are ranked among first generation stationary tests. The table below summarizes unit root test of the different series.

**Table 1 Stationarity Test**

| | Im, Pesaran and Shin | | |
|---|---|---|---|
| **variables** | **Level** | **1st difference** | **2nd difference** |
| **GDP** | 0.056<br>0.522 | -1.270<br>0.101 | -6.801<br>0.000 |
| **FD** | 1.490<br>0.931 | -1.447<br>0.073 | -6529<br>0.000 |
| **FDI** | -0.023<br>0.490 | -0.738<br>0.230 | -4.523<br>0.000 |
| **ID** | -2.823<br>0.002 | -7.968<br>0.000 | -10.726<br>0.000 |
| **INF** | 2.682<br>0.996 | 3.802<br>0.000 | -7.405<br>0.000 |
| **GFCF** | 2.439<br>0.992 | 2.240<br>0.012 | -6.198<br>0.000 |

Source : Author STATA 15

The table above does not reject the null assumption of a unit root at level of GDP, gross fixed capital formation, financial development, inflation and FDI. That is, GDP, gross fixed capital formation, financial development, inflation and FDI are not flat at the level. However, index of institutional development is stationary. When we go to 1st difference we notice that all variables become stationary except GDP and FDI. In the second difference all the variables become stationary. In this case, we accept that variables are co integrated of order 2.

- ***Serial autocorrelation test***

The serial autocorrelation test is used to test an error autocorrelation greater than unit. Autocorrelation test, also known as the Breusch-Godfred test (1980). Serial autocorrelation test is based on a search for a significant relationship between residues and same shifted residue. Breusch-Godfred (1980) hypothesis is formulated as:

H0: Lack of autocorrelation
H1: Autocorrelation

The decision is taken by classical Fischer test of nullity of coefficients or by the distributed LM statistic according to a Khi-2 law at p degrees of freedom.

With: $LM = T \times R^2$
If LM $>\chi_p^2$ read, error independence hypothesis is rejected. Table below displays the error independence test results.

**Table 2 Breusch-Godfred LM serial autocorrelation test**

| **Test** | **Breusch-Godfred test** | | |
|---|---|---|---|
| **Models** | **Model 1** | **Model 2** | **Model 3** |
| $\chi^2$ | 26.093 | 23.625 | 18.553 |
| **P.** $\chi^2$ | 0.000 | 0.000 | 0.000 |

Source : Author STATA 15

According to results of Breusch-Pagan LM test the null hypothesis of independence of errors is rejected. That is, there is a serial autocorrelation problem for the 3 models.

- ***Individual heteroscedasticity test***

In econometric terms, heteroscedasticity is said if variances of the residuals of variables are different. homoscedasticity correspond to case where residues of variables are constant. Most commonly used test for heteroscedasticity is Wald test (2000). Null hypothesis of Wald test assumes homoscedasticity. So heteroscedasticity test problem is this:

H0: Homoscedasticity
H1: heteroscedasticity

If probability associated with test is less than 5% H0 is rejected. If probability is greater than 5%, then null hypothesis is verified. Table below displays the results of Wald test.

**Table 3 Wald test**

| **Test** | **Wald test** | | |
|---|---|---|---|
| **Models** | **Model 1** | **Model 2** | **Model 3** |
| $\chi^2$ | 35.78 | 22.90 | 42.06 |
| **P.** $\chi^2$ | 0.000 | 0.001 | 0.000 |

Source : Author STATA 15

Based on this table, we reject homoscedasticity hypothesis and assume heteroscedasticity hypothesis in most models.

### *4. Empirical results*

After processing data on STATA 15 the following results are obtained. Table below shows the results of GMM estimate.

**Table 4 Estimation table**

| *Variable* | *Model 1* | *Model 2* | *Model 3* |
|---|---|---|---|
| *Constant* | *0.041765 (***)* | *0.083432 (***)* | *0.100947 (**)* |
| *Initial GDP per capita* | *-0.089259 (*)* | *-0.085374 (*)* | *-0.005374 (***)* |
| *Foreign Direct Investment* | *0.009827 (**)* | *0.011721 (***)* | *0.009974 (**)* |
| *Financial Development* | *0.048065 (*)* | *0.052194 (**)* | *0.042021 (***)* |
| *Inflation* | *-0.050976 (***)* | *-0.042229 (***)* | *-0.066121 (**)* |
| *Institutional Development* | *0.032203 (**)* | *0.049546 (**)* | *0.041965 (*)* |
| *Human Development* | *0.049409 (***)* | *0.066662 (***)* | *0.062922 (*)* |
| *Gross fixed capital formation* | *0.061573 (n.s)* | *0.068059 (n.s)* | *0.17239 (**)* |
| *Foreign Direct Investment* Financial Development* | - | *0.005496 (*)* | - |
| *Foreign Direct Investment* Institutional Development* | - | - | *0.065223 (*)* |
| *Probabiliy Sargan test* | *0.070159* | *0.078791* | *0.070684* |

T-Statistics are in parentheses. Significance levels at which the null hypothesis is rejected: *** 1%; ** 5%, and * 10%.

Source: Author STATA 15

Sign associated with FDI is positive and statistically significant at 5% level. This is contribution of FDI inflows to economic growth of North African countries. Our result is corroborated with studies of Diouf and Hai (2016) and Khun (2018). Positive relationship between FDI and economic growth is explained by FDI inflow to region leading to transfer of new technologies which improves physical productivity which is a source in economic growth. Sign associated with variable "institutional development" is positive and statistically significant at 5% level. That is, development institutional positively affects economic growth in North African countries. Our research result is consistent study Mihaela and al. (2018). From an economic point of view, relationship is explained by good governance, respect for private property rights, compliance with legal rules can encourage the view of foreign investors.

Financial development has a positive and statistically significant effect on economic growth in North African countries. According result, it is said that financial system in North African countries from 1995 to 2017 is developed. This result is contradicted by traditional literature by Rostami and al. (2017). Our result can be explained by the agreement of loans granted to the private sector in the North African region by removal of credit ceilings and reduction of compulsory reserves of commercial banks at central bank.

As regards control variables, the positive effect of human capital on economic growth is justified. That is to say, human development in North African countries has a positive and significant effect. This relationship is explained by quality of workforce in North African countries following the improvement of the education system and the completion of training cycles. Our result is consistent with study by Alexander and al. (2019).

The general increase in prices has a negative and statistically significant effect on economic growth at 1% level. This is explained by effect of rapid increase in prices in region on purchasing power and subsequently in aggregate demand which weakens economic growth.

The sign associated with gross fixed capital formation is positive and statistically insignificant. Lack of allocation of gross fixed capital formation to economic growth in North African countries is explained by high burden of officials and investment in non-productive sectors, which threatens economic performance in long term.

The delayed variable has a negative effect on dependent variable. Link between the two is explained by assumption of convergence in countries towards the same point of GDP per capita in the long term. Our result is consistent with work Sala-i-Martin (1997).

In a second step we estimate interaction effect between FDI and financial development on economic growth in North African countries. We observe positive and significant effect of FDI*FD variable on economic growth and improvement of financial development effect and FDI. The improvement in FDI coefficients and financial development is explained by financial development in North African countries attracting FDI. It effectively mobilizes and allocates external resources, which facilitates financing of companies located in North Africa region.

In a third step we estimate interaction effect between FDI and institutional development on economic growth. We noted that FDI*institutional development variable has a positive and statistically significant effect at 10% level. Again, increase in growth effect of FDI has been observed. This improvement is explained by important role institutions in economic growth through the attractiveness of FDI. In this case, it can be seen that more liberal countries can benefit more from effects FDI.

## *5. Conclusion*

Our study focuses on the relationship between FDI and growth in presence of financial development and institutional development. Our research results are consistent with teaching of our theoretical analysis.

Using the system Generalized Method of Moments on panel data from 4 North African countries from 1995 to 2017 justifies contribution FDI, institutions and financial development

and human development for economic growth. However, gross fixed capital formation does not affect economic growth in North African countries. The general increase in prices handicaps GDP in North African countries.

We tested effect of complement between financial development and FDI on economic growth. We have seen important role of financial development in North African countries in effect of FDI on economic growth. We have explained this relationship through financial development strategy in North African countries in attractiveness FDI.

We examined interaction effect between economic freedom as an index institutional development and FDI on economic growth. We have seen positive effect of complement between FDI and institutional development. This relationship is explained by development of institutions in North African countries with respect for private property rights of foreign investors.

In light of our results and explanations, we urge North African countries to further develop the financial system to benefit more from effects FDI on economic growth. Again, we recommend North African countries to develop institutions to attract more FDI. But the question now is, does FDI persist in regional income inequality?

***Bibliography***

Azeroual, M. (2016). Investissements directs étrangers au Maroc: impact sur la productivité totale des facteurs selon le pays d'origine (1980-2012). Africa Development, 41(1), 191-213.

Bobbo, A. (2018). Volatilité de l'inflation, gouvernance et investissements directs étrangers entrants en Afrique sub-saharienne. African Development Review, 30(1), 86-99.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The review of economic studies, 58(2), 277-297.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. Journal of econometrics, 68(1), 29-51.

Gani, A. (2007). Governance and foreign direct investment links: evidence from panel data estimations. Applied economics letters, 14(10), 753-756.

Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and growth in EP and IS countries. The economic journal, 106(434), 92-105.

Barro, R. J. (1999). Inequality, growth, and investment (No. w7038). National bureau of economic research.

Barro, R. J. & Sala-i-Martin, X. X. (1995). Technological diffusion, convergence, and growth (No. 735). Center Discussion Paper.

Breusch, T. S., & Pagan, A. R. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. The review of economic studies, 47(1), 239-253.

Choong, C. K. (2012). Does domestic financial development enhance the linkages between foreign direct investment and economic growth?. Empirical Economics, 42(3), 819-834.

Findlay, R. (1978). Relative backwardness, direct foreign investment, and the transfer of technology: a simple dynamic model. The Quarterly Journal of Economics, 92(1), 1-16.

Gayle, W. (2000). Econometric Analysis. Upper Saddle River. NJ: Prentice–Hall.

Hammami, S. & Chakroun M. (2009). Gouvernance, qualité des institutions et attractivité en matière d'IDE », ResearchGate, Section Sciences Economiques. (23).2009.

Han, J. S., & Lee, J. W. (2020). Demographic change, human capital, and economic growth in Korea. Japan and the World Economy, 53, 100984.

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. Journal of econometrics, 115(1), 53-74.

Malikane, C., & Chitambara, P. (2017). Foreign direct investment, democracy and economic growth in southern Africa. African Development Review, 29(1), 92-102.

McKinnon, R. I. (2010). Money and capital in economic development. Brookings Institution Press.

Modou, D., & Liu, H. Y. (2017). The Impact of Asian Foreign Direct Investment, Trade on Africas Economic Growth. International Journal of Innovation and Economic Development, 3(1), 72-85.

North, D. C. (1990). Institutions, institutional change and economic performance. Cambridge university press.

North, D. C. (1991). Institutions, ideology, and economic performance. Cato J., 11, 477.

Romer, P. M. (1986). Increasing returns and long-run growth. Journal of political economy, 94(5), 1002-1037.

Peres, M., Ameer, W., & Xu, H. (2018). The impact of institutional quality on foreign direct investment inflows: evidence for developed and developing countries. Economic research-Ekonomska istraživanja, 31(1), 626-644.

Romer, P. M. (1990). Endogenous technological change. Journal of political Economy, 98(5, Part 2), S71-S102.

Sghaier, I. M., & Abida, Z. (2013). Foreign direct investment, financial development and economic growth: Empirical evidence from North African countries. Journal of International and Global Economic Studies, 6(1), 1-13.

Sghaier, I. M. (2018). Financial Development, Institutions and Economic Growth in North African Countries. Romanian Economic Journal, 20(69).

Shaw, E. S. (1973). Financial deepening in economic development.

Sokang, K. (2018). The impact of foreign direct investment on the economic growth in Cambodia: Empirical evidence. International Journal of Innovation and Economic Development, 4(5), 31-38.