

Interaction Between FDI, Institutional Quality, Pandemic and Economic Growth Inthe Mena Region: Application On Dynamic Panel Data (GMM)

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Abstract

The objective of this work is to study the interaction between four different indicators namely FDI, institutional quality, pandemic and economic growth. In other words, this paper presents the effects of institutional quality in a pandemic context on the attraction of FDI to stimulate economic growth while showing the types of FDI that can be attracted during the period 2011-2020. The latter is characterized by two types of the pandemic namely the Ebola epidemic in Africa and the Covid-19 epidemic in Asia. Our empirical contribution is based on dynamic panel data (GMM) using the Arellano and Bond (1998) approach. The results found validate the hypothesis that institutional quality is the engine of economic growth. In addition, among the main results found when the interpretation has serious and clarified the implications for countries just below the threshold of institutional quality. Any reform in the area of democratic accountability, the quality of the bureaucracy, ethnic or military tensions in politics is likely to result in a gradual increase in the benefits of FDI, even for countries well below the threshold. However, due to institutional complementarities, reforms targeting specific characteristics of institutional quality may in fact bring other characteristics of their relevance closer together to show this work focused on institutional quality to attract FDI to stimulate growth in a context of the epidemic.

Keywords: FDI, Institutional Quality, Pandemic, Economic Growth and Dynamic Panel Data (GMM).

Introduction

The pandemic is an epidemic that exposes over an international geographic region. It manifests in social and economic changes over time like trade wars and like another industrial revolution of globalization...) for everyone and especially for the MENA region.

Indeed, the governments of the MENA region have reacted quickly to deal with the situation. There are other policy measures some states have created crisis cells whose objective is to inform and retain foreign investors. Although it is difficult to compensate for the consequences of the "pandemic" on investment, strategic reflections are emerging that aim to assess "the role of investment promotion agencies", the disruption in value chains and the future positioning of the region. Investment recovery measures should prioritize the development impact of FDI and spur MENA economies to adopt ambitious reforms for more inclusive growth. Moreover, Patrick Zylberman (2020) defined the pandemic as being a high attack rate explained by a very high morbidity, the level of

mortality of which does not enter into this definition, a high attack rate not necessarily implying a very high pathogenicity.

In this context, the health situation may not be favorable to attract investment, especially the attractiveness of FDI which is compulsory for the structuring of the country at the socio-political and economic level. However, Rodrik, Subramanian and Trebbi find that the rule of law has a positive impact on economic growth [1]. At the same time, Acemoglu, Cutler, Finkelstein and Linn (2006) concluded that private institutions with property rights are the main engines of long-term economic growth. These studies suggest that institutions are the fundamental determinants of long-term economic growth.

Kaufmann, Kraay and Mastruzzi have shown six institutional indicators that can give an overall empirical opinion of institutional quality performance for our work on the one hand [2]. And on the other hand, our contribution will present descriptive statistics relating to the countries of the MENA region.

This part will end with a presentation of the results found by the GMM model as well as the interpretations of these results. Finally, the conclusion will confirm the results found.

Literature Paper Changes in FDI and Economic Growth

Since 2000, growth in the region has still failed to exceed the required levels. This unfavorable trend in output growth was reflected in the decline in per capita income. Real per capita incomes grew at a rate of less than 1% during the 1990s, and declined on average during the 1980s, compared to average growth rates of around 5% in the late 1960s and in the early 1970s.

Indeed, the World Bank estimates that despite the increases in recent years in the ratio of directly clean investment abroad (FDI) and GDP in 2003, on average, only represented a third of the level reached in the world plan. FDI in the Arab world represented less than 5 billion dollars in 2003, that is to say barely 0.8% of FDI in the world, according to "*Indicators of development in the world in 2005*". As a result, the region does not attract enough private capital inflows to promote growth and sustainable development. FDI is not the only type of investment that the region fails to attract: portfolio investments are also absent.

In addition, according to the International Finance Institute (IFI), of the \$ 37 billion in net portfolio investments made in emerging markets in 2003, the share of portfolio investments in the Middle East and Africa was only 500 million dollars, or about 1.4%. However, regulations for the protection of investments encourage the flow of trade and investment for growth purposes

Articulation between growth FDI in an institutional context

Among the positive effects of FDI on economic growth, there are several authors such as Ndefo (2003) who deduces a crowding out effect of FDI. Unlike Borensztein et al. (1998), Alfaro et al. (2004) argue that FDI positively influences economic growth through financial markets. According to them, the level of development of local financial markets is crucial for the positive effects of FDI on economic growth to be realized.

Adams (2009) deduces a positive influence of FDI on economic growth and in the short term, FDI has a negative influence on domestic investment while in the long term, this influence is positive. In addition, Dabla-Norris et al. (2010) focus their research on the explanation of variations in FDI flows from advanced countries to developing countries, the results of which show that low-income countries are particularly sensitive to changes in the cost of borrowing in advanced countries. (a drop in the borrowing rate leads to an increase in FDI) In addition, among the negative effects of FDI on economic growth, there are several authors such as Lipsey (2004) who analyzes the impact of FDI on countries of origin. The author argues that FDI also has negative effects for both countries of origin and host countries. For the impact of FDI on countries of origin, he sums up the negative influence through the deterioration of wages and demand for employment. For host countries, he argues that foreign companies can stifle host country growth and hamper their technological progress.

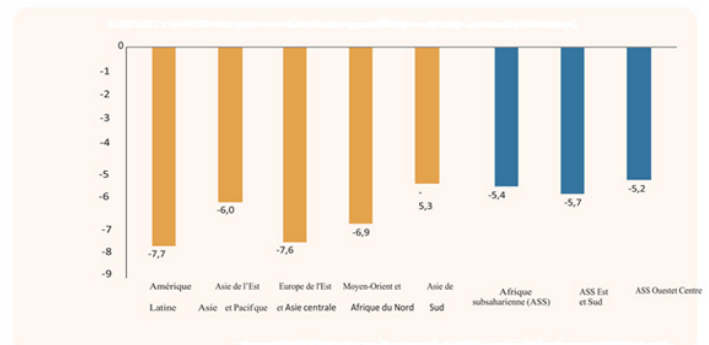
Finally, the study by Chouchane-Verdier (2004) analyzes the ef-

fectiveness of financial liberalization policies under the aegis of international institutions and the neoliberal theses of Mac Kinnon (1973) and Shaw (1973).

Articulation between growth FDI

In 2020, global foreign direct investment affected by the Coronavirus pandemic crisis. MENA countries are likely to be even more impacted due to the large share of FDI in primary sectors and in manufacturing.

Indeed, the structural characteristics of each economy have experienced disruption, the Monetary Fund (IMF) predicts all economies in the MENA region. This area is among the regions most exposed to global financial markets showing a greater decline in GDP growth than the less exposed regions. Consequently, the collapse of the stock and oil markets explains the sharp declines recorded in Latin America and the Caribbean (-7.7%), Europe and Central Asia (-7.6%), the Middle East and in North Africa (-6.9%), while the declines are relatively smaller in South Asia (-5.3%) and in sub-Saharan Africa (-5.4%) and in sub-Saharan Africa (-5.4%).



According to IMF Decrease in investment in the main industries and countries of origin A sectoral distribution of greenfield investments announced in the eight countries studied in the MENA region between 2003 and 2019 shows that real estate on the one hand, coal, oil and gas natural resources on the other hand accounted for 32% and 25% respectively of the total of 525.8 billion USD of investments.

Chemicals, services such as hospitality and tourism, and renewable energy, also account for a significant share of investments in the region. Egypt dominates the scene with almost half of the announced greenfield FDI in the eight countries (245 billion USD).

The numerous containment measures, widely implemented in the region, are likely to have serious repercussions by reducing greenfield FDI in many strategic sectors for the economies, in the coming months. The region expects to experience a significant downturn in the manufacturing sector, in line with trends observed since early 2020 in non-OECD countries (see OECD note on foreign direct investment flows in the time of COVID-19).

According to the latest consultations with investment promotion agencies (IPAs) in MENA countries, there is no trend towards divestment or project cancellations yet, but significant investment delays are expected.

The pandemic puts the economies of the Middle East and North Africa (MENA) region in the face of a new set of challenges. Restrained by an unfavorable investment climate and regional geopolitical tensions, the region has so far struggled to attract more and better foreign direct investment (FDI). While the predicted short-term recession is expected to hit the region's economies hard, the crisis could nonetheless open up new opportunities to take advantage of global trends, such as the relocation and restructuring of global and regional value chains.

This will depend on the continuation of the ongoing reforms, the adoption of new strategies and measures adapted to the post-epidemic context, as well as the strengthening of regional cooperation. This note provides an overview of the impact of the COVID-19 crisis on investment in the region, and outlines government policy responses to promote investment and foster a more inclusive recovery. This note was prepared by the MENA-OECD Competitiveness Program and reviewed by the Investment Division of the Directorate of Financial and Enterprise Affairs - including FDI data and resources, with financial support from the Swedish International Development Cooperation Agency (Sida) and the European Union.

The Program covers 18 economies in the region: Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestinian Authority, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates and Yemen.

FDI between institutional quality and boosting growth

Currently, the world economy will keep remarkable effects because the multiplication of the pandemic (epidemic) Coronavirus which poses a great threat to the world economy since the financial crisis, according to the OECD. "It is inevitable that the epidemic will have a huge impact on the economy and society."

Changes in the world economy

The world economy will save the traces of the epidemic (Coronavirus). This virus presents, according to the OECD "the greatest threat to the world economy since the 2008 financial crisis". Moreover, it will have mutations already underway, namely:

- Investment does not become a priority;
- Debt will become the great economic debate;
- The regionalism of company production;
- China is no longer participating in global growth;
- Economic stagnation expected soon;
- The existence of global inflation;
- Coordination becomes a priority between economic decision-makers;

We will examine to what extent this idea remains valid if we move from the economy to the social state. Our empirical attempt is based on a ten-year period (2011-2020).

Tunisia: follow-up services now represent 70% of IFAP's activities. The Agency offers services that prioritize ad hoc requests and problems encountered by investors in the health and agrifood sectors (in accordance with a ministerial directive), and encourage the manufacture of the necessary products and services, from current production lines.

Problems often stem from a blockage or delay in production and exports due to logistical and transport concerns - especially in the Port of Rades which was already in lockdowns before the crisis due to social problems. Requests from investors in other sectors are not given priority and are dealt with on a case-by-case basis. TIA also announced an online customer assessment study for more information.

Estimation Methodology

The literature review emphasizes the analyzes of the effect of institutional quality (IQ) in a pandemic context (PAN) to attract capital from FDI (FDI) on economic growth (GDP). In this context, we will deal with the impact of institutional quality on FDI in the MENA region.

Hypotheses

Some authors study the impact of institutional quality (IQ) in a pandemic context (PAN) to attract FDI capital (FDI) on economic growth (GDP). Thus, based on the above literature, we have formulated the following assumptions:

1. H1: The pandemic indicator is calculated by the following formula: (Number of attacks) / 10. This indicator describes the number of attacks for a country over the study period.
2. H2: The articulation between FDI in a context of pandemic supposedly favorable to attract capital from FDI, which stimulates economic growth (GDP) for MENA countries.
3. H3: Let's assume that (FDI) is a catalyst for the MENA region.
4. H4: Institutional quality (IQ) in the context of a pandemic (PAN) is a mediator (intermediary) between FDI and economic growth (GDP).

Sample, Period and Data Sample

Our sample of countries is made up of 16 countries from the Arab world to Know: 6 African countries, 10 Gulf countries. In fact, this study region is made up of 16 countries namely: Bahrain, Oman, Kuwait, Jordan, Iraq, Iran, Yemen, United Arab Emirates, Qatar, Saudi Arabia, Tunisia, Turkey, Morocco, Egypt, Sudan, Algeria.

Period

Depending on the availability of data, our study period extends from 2011 to 2020 over a period of 10 years.

Data

We have formed an international database available in "World Bank CD: WDI ».

Definitions and measures of variables

Economic growth indicator (GDP)

Levine et al., 2000, Beck et al., 2000, and Beck and Levine, 2004) noted (GDP). Likewise, Mohem and Mairesse (1999, 2001) give a few orders of magnitude on the contribution of R&D to GDP growth.

- Control Variables

For our work, the ratio of trade value (export + import) / GDP to capture the degree of openness (Sachs and Warver (1995)) noted (TRADE) and the tertiary enrollment rate to control the accumulation of human capital noted (HK).

- Investment

Business investment includes gross fixed capital formation (INV) and stock change which is considered a catalyst for any growth variable because it makes human labor more efficient.

- Foreign direct investment

One variable is justified by the abundant literature which states that foreign direct investment has a positive impact on economic growth such as Ikiara, Moses M. (2003) and Fosto, which prove that technology transfers have a positive effect on growth and noted (FDI).

Institutional quality

IMGs are not used by the World Bank Group to allocate resources. The impact of institutional factors namely the Institutional Quality noted (IQ) grouping six indicators and carried out by Kaufman D. Kraay A. and Mastruzzi M (3)

Pandemic Indicator

This indicator is calculated by the author as follows: the number of attacks for a country over the study period. In other words, the total number attacked by the epidemic over a period of 10 years. This ratio is denoted (PAN).

Estimation model

Generalized Moments Method (GMM): Dynamic Panel

The dynamic panel method “Generalized moments” was introduced by Holtz-Eakin, Newey and Robsen (1988), and Arellano Bond and Arrelano and Bover (1995). It is characterized by several very specific advantages in the nature of the data panel and in the solutions it provides (4).

Indeed, the GMM dynamic panel method makes it possible to provide solutions to the problems of simultaneity bias, to reverse causality and omitted variables. This method makes it possible to control both the individual and temporal effects and the specific endogenous rolling bias of the variables, especially when there are one or more lags of the dependent variable included as an explanatory variable.

According to Blundel and Bond (1991), has the GMM estimator system which combines the first difference equations with the level equations in which the variables are instrumented by their first differences, which seems more powerful. The dynamic panel GMM estimator combines two tests:

- Sargan / Hansen over-identification tests.
- The Arrelano Bonde test and autocorrelation such as the two hypotheses the absence of autocorrelation of the errors of the difference equation

In our empirical work, it is clear that the lagged variables exist and persist according to our theoretical development, it will therefore be necessary to distinguish the nature of the explanatory variables. The dynamic model is expressed in first differences, the instruments are level, and vice versa. In the estimation model, the use of lagged variables as instruments differs depending on the nature of the explanatory variables:

For exogenous variables, their present values are used as instruments. For predetermined or weakly exogenous variables (variables which may be influenced by past values of the dependent variable, but which remain uncorrelated with future realizations of the error term), their values lagged by at least one period can be used. as instruments and for variables and their values shifted by two or more periods can be valid instruments. The validity of the selected instruments can be confirmed or refused, based on the Hansen and Sargan tests.

In total, Arellano and Bond add to this list of instruments the delays of the endogenous variable by showing the orthogonality residuals (4). We will therefore use the Generalized Method of Moments (GMM) based on dynamic panel data which is used as the instruments come out.

Description of the model

To empirically study the role played by institutional quality in a pandemic context in determining economic growth, the following simple model is used:

$$Y_{i,t} - Y_{i,t-1} = \gamma Y_{i,t-1} + \phi K_{i,t} + \varphi Z_{i,t} + \mu_t + \eta_i + \varepsilon_{i,t} \quad (E1)$$

$$Y_{i,t} - Y_{i,t} = \gamma Y_{i,t} + \beta_1 X_{i,t} + \eta_i + \varepsilon_{i,t} \quad (E2)$$

With: $Y_{i,t}$: The growth rate of GDP per capita at time t .

$K_{i,t}$: The vector of standard variables linked to growth.

$Z_{i,t}$: The vector of institutional variables and pandemics linked to growth.

μ_t and η_i are respectively the unobservable and identifiable factors that affect all countries in the sample.

$$Y_{i,t} = \beta_0 + \gamma Y_{i,t-1} + \beta_1 X_{i,t} + \phi K_{i,t} + \varphi Z_{i,t} + \mu_t + \eta_i + \varepsilon_{i,t} \quad (E3)$$

Thus, the model which will serve as a reference to evaluate the role played by the institutional quality $IQ_{i,t}$ and $PAN_{i,t}$ in a context of pandemic (PAN) the growth determination economic whose $X_{i,t}$ represents the following indicators: $INV_{i,t}$, $TRADE_{i,t}$ and $HK_{i,t}$ adding $FDI_{i,t}$ in the first regression.

In our econometric analysis on the effect of structural and institutional variables in the MENA region. So, the equation used takes the following general form:

$$GDP_{i,t} = \beta_0 + \gamma GDP_{i,t-1} + \beta_1 INV_{i,t} + \beta_2 TRADE_{i,t} + \beta_3 HK_{i,t} + \eta_i + \varepsilon_{i,t} \quad (E4)$$

The second equation describes the integration of the basic indicator $FDI_{i,t}$ to show its effect on economic growth for the study region during the period indicated.

So, it takes the following form:

$$GDP_{i,t} = \beta_0 + \gamma GDP_{i,t-1} + \beta_1 INV_{i,t} + \beta_2 TRADE_{i,t} + \beta_3 HK_{i,t} + \beta_4 FDI_{i,t} + \eta_i + \varepsilon_{i,t} \quad (E5)$$

Regarding the third equation, two indicators will be added namely $FDI_{i,t}$ and $IQ_{i,t}$ to clarify their impacts on economic growth during the study period for the MENA region.

$$GDP_{it} = \beta_0 + \beta GDP_{it-1} + \varphi_1 IQ_{it} + \beta_1 INV_{it} + \beta_2 TRADE_{it} + \beta_3 HK_{it} + \beta_4 FDI_{it} + \eta_i + \varepsilon_{it} \quad (E6)$$

For the last equation, the main idea is to study, in the context of the pandemic, the effects of institutional quality to attract FDI on economic growth, the three indicators of which will be added such as FDI_{it} , IQ_{it} and PAN :

$$GDP_{it} = \beta_0 + \beta GDP_{it-1} + \varphi_1 IQ_{it} + \varphi_2 PAN_{it} + \beta_1 INV_{it} + \beta_2 TRADE_{it} + \beta_3 HK_{it} + \beta_4 FDI_{it} + \eta_i + \varepsilon_{it} \quad (E7)$$

The linear dynamic panel data model includes the p-lags of the dependent variable as covariates and contains unobserved panel-level effects, either fixed or random. By construction, the level of the unobserved panel effects correlates with the lagged dependent variables, making the standard estimators inconsistent.

Arellano and Bond derived a coherent generalized method of moments (GMM) estimator for the parameters of this model; xtabond fits this estimator (4). Anderson and Hsiao (1981, 1982) suggest using other shifts in the level or difference of the dependent variable to instrument the lagged dependent variables that are included in a dynamic panel data model after the effects at the level of the panel were removed by initial differentiation.

One-step estimator

Arellano and Bond apply their new estimators and test the statistics to a dynamic Panel model (GMM) (4).

Indeed, all the variables are indexed on countries i and time t . The model of Arellano and Bond presents the results they obtained from several specifications (5). Arellano and Bond report the coefficients and their standard errors of the one-step robust estimators of a dynamic model.

Descriptive analysis, presentation of results

Descriptive analyzes Descriptive measures¹

First, our analysis will focus on descriptive measures, in this case the characteristics of position (mean), dispersion (standard deviation) and coefficients of variation of the explanatory variables. This is to give us an idea of the distribution and the degree of homogeneity of the series.

The Average: The average is a measure of position which makes it possible to identify the value around which the observations are distributed

Standard deviation: The standard deviation is a measure of dispersion that allows us to assess the variability of a series. In other words, it makes it possible to determine the fluctuations of the observations around the arithmetic mean [14].

The Coefficient of Variation

The coefficient of variation is a composite measure formed from the mean and the standard deviation. It makes it possible to gauge what the average is worth with regard to all the observations.

Table 1: Descriptive statistics

| Variable | Obs. | Mean | Std. Dev. | Min. | Max. |
|----------|------|----------|-----------|-----------|----------|
| GDP | 160 | 5.205326 | 4.1676 | -10.47967 | 20.84316 |
| FDI | 160 | 3.363997 | 3.544579 | -2.246876 | 18.38329 |
| IQ | 160 | 3.363997 | 3.544579 | -2.246876 | 18.38329 |
| INV | 160 | 3.363997 | 3.544579 | -2.246876 | 18.38329 |
| TRADE | 160 | 3.981272 | 12.12841 | .4617964 | 57.995 |
| HK | 160 | 27.09269 | 14.46521 | 6.09751 | 60.6836 |
| PAN | 160 | 10.0625 | 5.886438 | 4 | 26 |

Source: The output of Stata15.1 made by the authors

Matrix Tables

We present, secondly, the tables of the correlation matrices, namely also the analysis of the graphs which will allow us to appreciate

the nature and the type of relationship existing between the endogenous variable and the exogenous variables taken. In other words, it allows us to detect the presence of a tistic relation between the variables.

Table 2: Correlation matrix between the variables

| | GDP | FDI | IQ | INV | TRADE | HK | PAN |
|-------|---------|---------|---------|---------|---------|--------|--------|
| GDP | 1.0000 | | | | | | |
| FDI | 0.2003 | 1.0000 | | | | | |
| IQ | 0.1477 | 0.1002 | 1.0000 | | | | |
| INV | 0.0097 | -0.0954 | 0.1321 | 1.0000 | | | |
| TRADE | -0.0081 | -0.0968 | 0.1422 | 0.6947 | 1.0000 | | |
| HK | -0.0704 | 0.2557 | -0.3330 | 0.2914 | 0.2956 | 1.0000 | |
| PAN | -0.1205 | -0.2218 | -0.5060 | -0.0028 | -0.0137 | 0.2328 | 1.0000 |

Source: The output of Stata15.1 made by the authors

Multivariate Analysis

At this level, we will try to specify the model. Unlike linear regression models where we can specify a one-dimensional model on the basis of economic theories and then perform model validation tests, in the case of panel-type models, the analysis focuses on two dimensions.

We analyze the characteristics of a set of countries over a defined period of time, we perform various tests in order to define the shape of the model studied. In other words, we are trying to find out whether it is a stacked model, a fixed effect model (country / time) or a random effect model, from the tests. It is in this vein that we have to do the Breusch-Pagan and Hausman test for the specification of the model. de Hausman

Presentation of the results

Table 3: Interaction between FDI, Institutional Quality, Pandemic and Growth.

| Reqs | Reg (A) | Reg (B) | Reg (C) | Reg (D) |
|----------------------|-------------------------|-------------------------|-----------------------|-----------------------|
| Vbles | | | | |
| GDP _{i,t-1} | 0.2565629 (2.24)** | 0.1824054 (1.77) * | 0.1849932 (1.81)* | 0.1914146 (1.88)** |
| Cste | 9.054167 (2.86) ** | 8.567999 (2.77)** | 8.37591 (2.56) ** | 8.483253 (2.63) ** |
| INV | 1.799355 (2.73)** | 1.702779 (2.66)** | 1.734492 (2.69)** | 1.728254 (2.66)** |
| TRADE | -0.7855389 (-1.51) | -0.6776751 (-1.37) | -0.7353654 (-1.50) | -0.7442579 (-1.5) |
| HK | -0.1792977 (-1.54) | -0.1819611 (-1.67) * | -0.1596911 (-1.51) | -0.1412564 (-1.44) |
| FDI | | 0.2936777 (1.86) * | 0.1985639 (1.29) | 0.2009884 (1.30) |
| IQ | | | 1.79361 (0.50) | 1.866547 (0.70) |
| PAN | | | | 0.7832528 (2.78)** |
| N.Obs. | 128 | 128 | 128 | 128 |
| N.Group. | 16 | 16 | 16 | 16 |
| N. of instruments | 40 | 42 | 44 | 45 |
| Wald □□□□ | 21.35 | 23.72 | 24.09 | 349.86 |
| Prob > □□□□ | 0.0003 | 0.0002 | 0.0005 | 0.0000 |

Source: The output of Stata15.1

- **Reg A:** Arellano-Bond dynamic panel-data estimation: The estimation of this first equation without FDI, IQ and PAN.
 - **RegB:** Arellano-Bond dynamic panel-data estimation: The estimation of this first equation with FDI and without IQ and PAN
 - **Reg C:** Arellano-Bond dynamic panel-data estimation; The estimation of this first equation with FDI and IQ and without PAN.
 - **Reg D:** Arellano-Bond dynamic panel-data estimation: The estimation of this first equation with FDI, IQ and PAN.
- *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Discussion

Using the GMM method or the Arellano-Bond dynamic panel-data estimation model over a period of ten years for the MENA region whose model has an explanatory power $R^2 = 0.66$. The model estimate in Table 3 deals with four cases. The first does a study on a sample. The estimate of this first equation without FDI, Institutional Quality and Pandemic, the second is based on a sample. The estimation of this first equation with FDI and with, Institutional Quality and Pandemic, while the third case focuses on a sample. The estimate of this first equation with FDI and, Institutional Quality and without Pandemic. The last case focuses the study on a sample.

First Regression: Without FDI, Institutional Quality and Pandemic

Arellano-Bond's "Dynamic Panel-Data Estimation" model: from Table 3 for the first case (Estimation of the first equation without FDI, Institutional Quality and Pandemic (PAN). Regression A describes a positive significance (1.799355) between domestic investment and the growth rate of 5%. An increase in domestic investment of 5% translates to an increase in almost 3 points. This last result actually describes the classical growth theory and the new endogenous growth theory. This result certainly describes the review of the economic literature.

In addition, the first regression of the model shows that there is a negative and insignificant link between trade openness and economic growth (-0.7855389). This result actually describes a certain imbalance between regions of the world especially advantage and specializations especially goods and competitive products and the difference between high technology goods and other goods for the MENA region.

Second Regression: With FDI and without, Institutional Quality and Pandemic

The estimate of the model in Table 3 for the second case (regression B or equation 2 of our model which was with FDI and without Institutional Quality and Pandemic. The estimate of Equation N°2 describes a positive significance (0.2936777) between foreign direct investment FDI and the growth rate of 10%. An increase in the share of foreign direct investment FDI of 10% translates to an increase in growth rate almost 2 points.

However, the advantages of FDI are absolutely recognized (Aitken and Harrison (1991); Romer (1993); Bronshtein, De Gregorio and Lee (1998); Bende et al. (2000) and OCDE, 2002): technology

transfer, job creation, development of competition, transmission of best production and management practices, improvement of the level and quality of education and professional skills in host countries. These allow easy access to international markets. All of these factors should necessarily support the economic growth of a recipient country, but under well-defined conditions.

In addition, Equation 2 clarifies the relationship between investment and GDP growth rate which was positive (1.702779) and significant by 10% confirming the review of the economic literature. In this context, changes in geographical location, ownership and control links could have consequences on the level of investment in advanced economies, in particular by increasing the degree of dependence of investment decisions in a country to the 'taking into account not only the state of its economy but also global demand and the relative costs of investing in other economies (Young, 1999; Belderbos et al., 2012).

In addition, regression B shows that there is a negative (-0.1819611) and significant link of 10% between human capital and economic growth. Therefore, an increase in the enrollment rate of human capital causes a decrease in the growth rate of 1.8% on the one hand. On the other hand, successful investments in R&D could lead to time-lagged hardware investments and enterprise software complements investments in capital goods related to information and communication technologies.

Third Regression: With FDI and Institutional Quality and without Pandemic

Regression C, which describes equation 3 of our model well, groups together FDI and Institutional Quality without Pandemic. This estimate shows that institutional quality has a non-significant positive impact (1.79361), which implies that MENA countries require reforms.

However, Sanders (1981) and Jong-A-Pin (2009) focus on four dimensions of institutional quality, they always reflect the two fundamental dimensions; while political instability within the regime reflects the institutional quality (political instability) that results from a change of regime or government.

In addition, regression C clarifies the relationship between foreign direct investment and the GDP growth rate which was positive (0.1985639) and not significant not confirming the review of the economic literature. Moreover, Dutt (1997), Boukha-Hassane and Zatl (2001) confirm that foreign direct investments represent the exogenous variable alongside other direct catalysts of growth. In this case, the institutional quality remains important to attract FDIs and consequently, the institutions of the countries remain behind compared to the advanced countries on the updating of the legal texts as reforms in progress especially in the presence of pandemic to accelerate the rate of growth with sanitary FDI. This situation will be explained in the latter case.

Last Regression: With FDI, Institutional Quality and Pandemic

The last regression D with FDI, Institutional Quality and Pandemic. The regression shows that the Pandemic (PAN) has a positive

(0.7832528) and significant effect of 5% that implies that when the number of attacks of the epidemic (Pandemic) increases 0.05 the growth rate (GDP) thus increases almost 3 times for MENA countries.

This result confirms that the economic growth rate is increasing in the context of a pandemic. The WHO considers that “the majority of countries in North Africa (the MENA region) have good quality health systems among the 191 health systems in the world, except for a few countries such as Syria and Yemen (Arezki R. and Nguyen H., 2020)”.

In addition, regression D clarifies the relationship between foreign direct investment and the GDP growth rate (GDP) which was positive (0.7832528) and not significant, not confirming the review of the economic literature. Also, the positive (0.2009884) and non-significant relationship between the institutional quality (IQ) the GDP growth rate describes the general context of the economies of the MENA region given the global health and economic conditions and also the instability. Policy for this region. Overstated [4-18].

Conclusion

This work presents the effects of institutional quality in a pandemic context on the attraction of FDI to stimulate economic growth while showing the types of FDI that can be attracted during the period 2011-2020.

Empirically and using the GMM method over a period of ten years. The model estimate deals with four cases. The first does a study on a sample of estimating this first equation without FDI, Institutional Quality and Pandemic. The second is based on a sample whose estimate of this first equation with FDI and without, Institutional Quality and Pandemic, while the third case focuses on a sample whose estimate of this first equation with FDI and, Institutional Quality and without Pandemic. The last case focuses the study on a sample whose estimation of this first equation with FDI, Institutional Quality and Pandemic. In this sense, the first two hypotheses H_1 , H_2 and H_3 are validated since the results found in our empirical test are too relevant and explanatory. First, the existence of an institutional quality threshold which conditions the growth effect of FDI casts doubt on the effectiveness of policies for attracting FDI. More specifically, these policies will have no benefit for host countries unless there is an improvement in their institutional framework. Therefore, sequencing is necessary in the implementation of economic policies, with priority given to measures to upgrade the local institutional environment before engaging in FDI attraction policies. Second, the results can provide guidance for building institutional reforms in developing countries, as they provide insight into the effectiveness of institutional reforms in terms of FDI-led growth. Finally, the interpretation has serious implications for countries just below the threshold of institutional quality. Any reform in the area of democratic accountability, the quality of the bureaucracy, ethnic or military tensions in politics is likely to result in a gradual increase in the benefits of FDI, even for countries well below the threshold. However, due to institutional complementarities, reforms targeting specific characteristics of institutional quality may in fact bring other characteristics of their relevance closer together.

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