The Role of Foreign Direct Investment in Spurring Economic Growth in North African Countries

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Abstract-
The purpose of this paper is to test the effect of foreign direct investment (FDI) on economic growth in North African countries using the recent growth theory and econometrics technique; theoretically the most of the recent economic research consider the foreign direct investment one of the important factors of growth in many region, I examined the hypothesis on north African countries and the results showed that the FDI inflows impact on economic growth in North African countries statistically has a positive effect even though FDI inflows to the region still doesn’t achieve the desired result.

Key words: Economic Growth; foreign Direct Investment (FDI); North African countries

ملخص-
تهدف هذه الورقة البحثية إلى اختبار تأثير الاستثمار الأجنبي المباشر على النمو الاقتصادي في دول شمال أفريقيا. باستخدام نظريات النمو الاقتصادي وتقنيات القياسية من الناحية النظرية أغلب الأبحاث الاقتصادية المنشورة مؤخرا تشير إلى أن الاستثمار الأجنبي المباشر يعد أحد العوامل...
Introduction:

During the last three decades north African countries adopted many economic reform policies to keep in pace with the rise of global growth, one of the policies was in form of supporting and welcoming foreign companies to attract foreign direct investment in order to spur economy growth, this policies had started earlier in Tunisia and Morocco and later in Algeria. On a study on central and eastern Europe (CEE) and the middle east and north Africa (MENA) Darrat, A. F., et al. (2005) found that FDI has a significant effect only on EU accession contries and no effect or negative effect in non EU accession and MENA countries. Despite the many empirical studies on the impact of FDI on growth in developing countries, and sub-Saharan Africa there is a very limited articles on FDI effect on growth in Middle East and North African region.

The question is does FDI inflows causes a change in economy growth in northern African countries? To answer this question I use a panel data analysis from 1980 to 2011 on the six north African countries Algeria, Egypt, Libya, Morocco, Sudan, and Tunisia.

The United Nation Conference on Trade and Development define foreign direct investment (FDI) as “an investment involving a long-term relationship and reflecting a lasting interest in and control by a resident entity in one

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1 in form of many agreements with the International monetary fund IMF which wasn’t effective see www.animaweb.org
economy (foreign direct investor or parent enterprise) of an enterprise resident in a different economy (FDI enterprise or affiliate enterprise or foreign affiliate). Such investment involves both the initial transaction between the two entities and all subsequent transactions between them and among foreign affiliates” (UNCTAD)

2. Literature Review:

Literary many studies acknowledge the advantages of FDI on economic growth, beside other few studies showed a negative effect of FDI on economic growth

<table>
<thead>
<tr>
<th>Author (s)</th>
<th>Year</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>De Mello, L. R</td>
<td>1999</td>
<td>Time series and panel data study on period from 1970 to 1990, showed that FDI effect on growth depends on the relation between foreign and domestic investment</td>
</tr>
<tr>
<td>Carkovic, M</td>
<td>2002</td>
<td>Dynamic panel data study on 72 countries during a period from 1960 to 1995 the results viewed the positive impact on growth</td>
</tr>
<tr>
<td>Lyroudi, K.</td>
<td>2004</td>
<td>empirical Bayesian analysis on the US and the western European countries the results showed that FDI does not exhibit any significant relationship with economic growth for the transition countries</td>
</tr>
<tr>
<td>Andreas, J</td>
<td>2006</td>
<td>The study covered 90 countries from 1980 to 2002, the result shows a positive effect of FDI on growth in developing countries while the effect was negative on developed countries</td>
</tr>
<tr>
<td>Anita H and Ferda H</td>
<td>2006</td>
<td>tested the impact of FDI on growth in 140 country across the world they found a positive and significant results</td>
</tr>
<tr>
<td>Ilan Noy</td>
<td>2007</td>
<td>examine the role of inward FDI on Indonesia economic growth from 1997 to 2007 and the results showed a negative effect,</td>
</tr>
</tbody>
</table>

2Www.unctad.org
Aviral Tiwari, et al. 2011 Using a panel model Study during the period 1986-2008 on 23 Asian countries found that FDI and exports enhance economic growth

Sukar, A., et al. 2011 Beside trade openness macroeconomic policies, FDI has a significant effect on economic growth, the Study from 1975-1999 in sub-Saharan African countries

Najia Saqib, et al. 2013 maintain that Pakistan’s economic performance is negatively affected by foreign investment while its domestic investment has benefitted its economy, Moreover, the nation’s debt, trade and inflation have found to have negative impact on its GDP as well.

3. Overview of Economic Growth and Foreign Direct Investment in North African Countries:
In the last three decades North African countries economic growth was not too deferent from the global as the chart bellow shows, except after the ARAB SPRING when the economic growth dropped

Figure 1: GDP growth Rates, Source: UNCTAD Database 2015
Figure 1 shows the GDP growth Rates of the world, Sub-Saharan and North
Africa region, from 1980 to 2010 economic growth in north African countries was almost in same trend with world economic growth, but in 2011 declined sharply and this was the remnants of instability and revolutions in Middle-East and North Africa, or what is known as the Arab Spring (Tunisia, Egypt and Libya).

Figure 2 shows the FDI inflows to North African countries from 1980 to 2011. During the eighties and nineties of the last century North African countries share of FDI was limited due to the economic policies pursued by the most of this countries from 2000 the FDI inflow grows obviously, and the share of Egypt was very significant due to the strategic location and large economy Egypt represent in North Africa and the Middle East till 2008 where it dropped after the revolution.

4. The model identification:

The Panel data, or cross data, have two dimensions( Temporal: Longitudinal, Individual: cross) it reports the values of the variables collected for a set or panel of individuals over a series of periods.

The formal notation uses two indices: $x_{it}$ notes the observation of the $x$ variable for individual $i$ at time $t$.

If we fix the individual observed time series is obtained, while if the review period is fixed, a cross section is obtained, or instantaneous, for all
individuals. It is possible to envisage cross-data of more than two dimensions.

Many econometric models, especially in the field of international studies, may face cross data, the particular nature of these calls to consider specifications and appropriate estimation methods.

In this paper I apply the fixed effect model and the random effect model.

5. **Data and Empirical estimation:**

The data for the six countries complied from the World Bank and united nation conference on trade and development (UNCTAD) database, I used fixed effect model to investigate the relationship between FDI and economic growth on panel data of six countries during a period from 1980 to 2011.

The estimation model based on the production function developed by Jawaid, S. T et al, 2012, Specified as follows:

\[
GDPGR_{it} = \beta_0 + \beta_1 \cdot FDI_{it} + \beta_2 \cdot TR_{it} + \beta_3 \cdot INF_{it} - \beta_4 \cdot OP_{it} + \mu_i
\]

Where:

- GDPGR: Real Gross domestic product Growth Rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2.291329</td>
<td>1.227312</td>
<td>1.866949</td>
<td>0.0635</td>
</tr>
<tr>
<td>FDI</td>
<td>0.451159</td>
<td>0.197776</td>
<td>2.281169</td>
<td>0.0237</td>
</tr>
<tr>
<td>TR</td>
<td>0.013185</td>
<td>0.021791</td>
<td>0.605057</td>
<td>0.5459</td>
</tr>
<tr>
<td>INF</td>
<td>0.003926</td>
<td>0.019204</td>
<td>0.204425</td>
<td>0.8383</td>
</tr>
</tbody>
</table>

Fixed Effects (Cross)

<table>
<thead>
<tr>
<th>Country</th>
<th>Effect Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALGERIA</td>
<td>-0.62264</td>
</tr>
<tr>
<td>EGYPT</td>
<td>1.269049</td>
</tr>
<tr>
<td>LIBYA</td>
<td>-2.15202</td>
</tr>
<tr>
<td>MOROCCO</td>
<td>0.022282</td>
</tr>
<tr>
<td>SUDAN</td>
<td>1.968963</td>
</tr>
<tr>
<td>TUNISIA</td>
<td>-0.44928</td>
</tr>
</tbody>
</table>

Effects Specification

Cross-section fixed

- Adjusted R-squared: 0.8186
- F-statistic: 4.436918
- Prob(F-statistic): 0.000064
FDI: Foreign direct investment inward flow as a Percentage of Gross Domestic Product
TR: trade openness export plus import on Gross Domestic Product
INF: Inflation
µ: Random errors
i = i-th (cross-sectional unit)
t = t-th (time period).

Literary I expect a positive effect of Foreign direct investment and trade openness, and a negative effect of Inflation

6. Estimations Results:

I run a fixed and random effect tests
The tables below shows the fixed and random effect model result
Table 2: fixed effect
Source: author estimation
Table 3: Random effect

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>3.185155</td>
<td>0.990054</td>
<td>3.217153</td>
<td>0.0015</td>
</tr>
<tr>
<td>FDI?</td>
<td>0.786712</td>
<td>0.157235</td>
<td>5.003421</td>
<td>0</td>
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<tr>
<td>TR?</td>
<td>0.016</td>
<td>0.014859</td>
<td>1.07703</td>
<td>0.2829</td>
</tr>
<tr>
<td>INF?</td>
<td>0.023275</td>
<td>0.016428</td>
<td>1.416748</td>
<td>0.1582</td>
</tr>
</tbody>
</table>

Effects Specification

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<th></th>
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</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idiosyncratic random</td>
<td>4.171408</td>
<td>1</td>
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</tbody>
</table>

Weighted Statistics

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<tbody>
<tr>
<td>Adjusted R-squared</td>
<td>0.79087</td>
</tr>
<tr>
<td>F-statistic</td>
<td>8.632371</td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.000022</td>
</tr>
</tbody>
</table>

Source: author estimation

The empirical result shows that in the two tests the entire variable except inflation has the expected sign,
- Relationship between FDI and the dependant variable GDPGR; in the two model I observe that the estimated coefficient of FDI is positive which mean FDI is supporting the economy growth In all the ix countries
- Trade openness has a positive coefficient as well exhibited a positive effect
on economic growth as well,
- Effect of inflation expected to be negative but the inflation coefficient is positive too which determine that inflation can be a useful tool for the policy makers to spur economic growth

7. **Summary and conclusion:**

In conclusion, the foreign direct investment inflows spurs economic growth, in this study I had applied the fixed and Random effect test which is suitable test for as this kind of study across 6 countries during a period of 31 years, The north African countries during the last three decades experienced a growth and decline cycle as in many developing economies in addition the current circumstance this countries is facing (The Arab Spring) harm the economy growth and affect negatively the foreign direct flow to the region at least at the short run,

Beside the factors I have tested still left some determent of economic growth which holds a large effective part of economic growth in North Africa as political stability, infrastructure, Education, and oil price which play a very significant role on both oil importer and exporter countries economic growth.

**References:**


Lim, C. Y., et al. (2011). Oil price and economic growth: evidence from 10 Sub-Saharan Africa countries, UTAR.


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