Could foreign direct investment increase unemployment: case of KSA

Said Jaouadi
Assistant Professor, Department of Finance and Banking, Saudi Arabia

Abstract:
The aim of the paper is to shed the light on the effect of foreign direct investment on unemployment of host countries. The empirical investigation relied on finding out the essence of the expectations underlined in the theoretical background. In economic literature, authors assumed that FDI has positive impacts on developing countries hosting such investments.
The present survey attempted to determine the principal foundations of the relationship between FDI and unemployment in short and in long run. The empirical research focused on the cointegration approach in econometrics.
The empirical survey underlined the harmful impact of FDI on unemployment in KSA in short and long-term, due to the inefficiency of the Saudi labor market that remains particular compared with other developing countries.

Keywords: Unemployment, FDI, labor market institutions, host countries, cointegration.

JEL-Classifications: E24, C22, F16, J61, J64.

I - Introduction:
Several surveys and studies continue to consolidate the vital role of foreign direct investment in developing countries. In theory, authors considered that foreign direct investment contribute in enhancing the finance ability of the host-countries. Also, the bulk of these researches bare out the positive impact of this particular investment on the growth of the developing countries, through facilitating the technology diffusion and creating employment.
The paper attempted to identify the essence of the relationship that exist between foreign direct investment and employment in KSA. The empirical research made up a new perspective to illustrate the nature of the correlation associating FDI and employment, through identifying the long-run and the short-run relationships between these two aggregates.

II – Assumptions:
The present paper provided an attempt to find out the impact of FDI on employment in KSA from a new perspective. The empirical investigation relied on some assumptions as foundations of the new framework conducted in the research, mentioned as following:
• There is a direct relationship between FDI and employment.
• The unemployment of male used as dependent variable, describes effectively the global situation of employment in KSA.
• The unemployment in KSA is natural and the labor market is able to respond to the needs of the companies. The period of the survey did not recorded frictional or cyclical unemployment.

III – Review of Literature:
The current paper attempted to sum up the abundant literature that focused to find out the essence of the relationship connecting foreign direct investment (FDI) to employment, from economic perspective.
Recently, developing countries are formulating their proper economic policies to seduce international and multinational companies to invest in their territories, by offering considerable reductions in imposition on income and decreasing their taxes.
In fact, it seems obvious that developing countries are entering into competition. They utilize their potential to seduce foreign investors, for the prime objective: to attract the maximum of foreign direct investment, considered as source of many benefits for their economies.
For Driffield and Taylor (2000), the authors found strong evidence of inflows of FDI on creating employment in the host-country. The paper considered the foreign investment as a tool to reduce the structural unemployment in United Kingdom.

According to Lin and Wang (2004), the authors conducted an empirical research on developed countries. It enabled them to underline the association between FDI outflow and unemployment in developing countries.

For Karlsson et al (2009), the foreign investment inflows have a beneficial impact on growth in China. The authors account for their findings through underlining the high productivity of labor, they also highlighted that some effects of FDI are indirect on domestic private firms. According to the authors, the foreign investments are facilitating the diffusion of innovation and the technology transfer to China.

According to the survey of Denisia (2010), based on the macroeconomic analysis of the contribution of foreign investment in the economy. From the empirical investigation, it stems that the FDI has affected the unemployment, the high productivity and the innovation spillovers, from macroeconomic perspective.

Mpanju (2012) conducted an empirical research to estimate the impact of FDI on employment in Tanzania. The author obtained some significant findings, they underlined the positive effect of foreign inflows of investment on employment. According to the results, it seems that FDI contributed to the creation of new opportunities of employment in Tanzania during the period 1990 – 2008.

For Schemerer (2012), the use of data of 20 OECD countries to find out the impact of foreign investment on employment, revealed that the FDI had decreased the unemployment rate in the host-country during the period 1980 – 2003.

The bulk of the empirical researches mentioned above are consolidating the existence a beneficial impact of FDI on employment in the host-countries. To illustrate the current finding, Nucu (2011) raise the point that FDI inflows contributed in creating jobs and in financing new projects in the host-country. According to the author, the foreign investment plays a vital role and is considered as a catalyst of economic development in many countries, and especially in Central and Eastern European countries.

2 – Methodology:

The present paper is an attempt to determine the impact of FDI on employment in KSA, during the period 1991 – 2012. The pattern focused on annual data about foreign investment and unemployment of youth. The empirical investigation relies on estimating the possibility of causality, long-run and short-run relationships between FDI and employment.

2 – 1 – The method of estimation:

The conducted model to analyze the effect of FDI on employment is estimated through 2 steps:

- The identification of the long run relationship between FDI and employment, in accordance with the cointegration approach in econometrics.
- The determination of the short run relationship between foreign investment and employment, and thus to determine if the labor is market is efficient to absorb opportunities.

For the long run relationship, representing the effect of foreign investment on unemployment, it is described in the following equation:

\[ Unemployment_t = \alpha + \beta FDI_t + \varepsilon_t \]

2 – 2 – Data:

The major contribution of the survey relied on conducting an empirical research that utilized the following variables:

- Unemployment: it is measured by the unemployment of male youth in KSA.
- FDI: is the share foreign direct investment by GDP (%).

All the data utilized in the current empirical investigation are collected from the World Bank database: World Development Indicators 2014.
2 – 3 - The Cointegration approach:

In econometrics, the cointegration approach assumes that some non-stationary variables could be associated with a linear relationship in long run. We consider that 2 variables are in equilibrium but in long-term, if they share the same stochastic features, they should be non-stationary in level but stationary in first difference, under such conditions, variables are called integrated at first order.

In econometrics, 2 variables are cointegrated, if 2 conditions are fulfilled in the empirical investigation:

- The 2 variables are integrated of first order.
- The Johansen test bears out the cointegration relationship.

The empirical investigation to examine the equilibrium relationship between 2 variables as the case of the paper, is in accordance with the recent approach of the cointegration theory. The empirical research conducted through the present survey focused on the following methodology:

1. Diagnostic tests:
   - Unit root tests: The unit root tests is built to determine if the variables included in the pattern are non-stationary. It provides the probability that the variable is a random walk.
   - Granger causality tests: The test authorizes the researcher to identify the dependency relationship between two variables, it relies on solid scientific foundations. The test provides the probability if the first variable affects the second.

2. Cointegration test:
   - Johanesen Cointegration test: The Johanesen cointegration test is conducted to determine the number of cointegration relationships, unlike the Engle Granger methodology. The test of Johansen also provides the coefficients of the equilibrium equation associating two non-stationary variables.

3 – Empirical research:

The present paper puts emphasis on the essence of the long run relationship between FDI and unemployment. The main framework of the empirical investigation is in accordance with the methodology discussed above. The cointegration approach utilized in the survey to determine the nature of the link associating foreign investment to unemployment in KSA.

1- Unit roots tests:

In the beginning, applying the diagnostic tests for the data about KSA through the unit roots tests, authorized us to denote that the variables: FDI and Unemployment are non-stationary. The results of unit roots tests through utilizing Dickey-Fuller tests are summarized in the following table:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Intercept</th>
<th>Trade and intercept</th>
<th>none</th>
<th>First difference Intercep</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>-2.06</td>
<td>-2.69</td>
<td>-1.58</td>
<td>-3.6**</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
<td>(0.25)</td>
<td>(0.11)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>Unemployment</td>
<td>-2.36</td>
<td>-2.94</td>
<td>-1.44</td>
<td>-4.62***</td>
</tr>
<tr>
<td></td>
<td>(0.16)</td>
<td>(0.17)</td>
<td>(0.14)</td>
<td>(0.002)</td>
</tr>
</tbody>
</table>

Table 1: Dickey Fuller tests about non-stationarity of data.

The tests of unit roots bare out that the aggregates used in the current survey, are non-stationary in level. But, they become stationary when making the first difference, it means that FDI and unemployment in KSA are integrated at first order.

It authorized to confirm the fulfillment of the first necessary condition to apply the cointegration approach between the 2 aggregates of the empirical research. The results of unit roots are in accordance with the econometric background that made up the basis of the current survey.

---

1 Numbers between parentheses are p-value and not t-students. ** means stationary at 5% and *** means stationary at 1%.
2 – The causality test of Granger:
The test of Granger allowed to determine if there is a relationship of dependency between two variables. For the case of the present empirical research, applying the test on the variables, allowed us to infer that FDI causes unemployment and unemployment did not cause FDI. The table 2 puts forward the findings of the granger test applied on FDI and unemployment in KSA.

<table>
<thead>
<tr>
<th>Null hypothesis</th>
<th>Observations</th>
<th>F-statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI does not granger cause unemployment</td>
<td>20</td>
<td>6.87</td>
<td>0.008</td>
</tr>
<tr>
<td>Unemployment does not granger cause FDI</td>
<td>20</td>
<td>1.17</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Table 2: the granger causality test.

From the content of table 2, it arose obviously that FDI has a significant impact on unemployment in KSA, through rejecting the null hypothesis at more than 99%, it argued that FDI does not cause unemployment.

3 – The Cointegration test:
The present paper relied on applying the test of cointegration, in accordance with the Johansen methodology.
Utilizing the results of the trace test of Johansen, it enabled to conclude the existence of solely one long run relationship at 10%. Although, using the maximum Eigenvalue test of Johansen test, it authorized to denote the presence of a significant relationship of long run at 5%.

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace statistic</th>
<th>0.05 Critical value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.59</td>
<td>19.24</td>
<td>20.26</td>
<td>0.0687*</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.113</td>
<td>2.28</td>
<td>9.16</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Table 3: Trace test output of Johansen cointegration test.

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace statistic</th>
<th>0.05 Critical value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.59</td>
<td>16.95</td>
<td>15.89</td>
<td>0.03**</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.113</td>
<td>2.28</td>
<td>9.16</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Table 4: Rank test output of Johansen cointegration test.

The Johansen cointegration contributed to bear out the presence of a long run relationship between FDI and unemployment. The test provided a strong evidence focusing on solid scientific foundations, confirming that FDI affected unemployment in KSA.

- The long run relationship:
The results describing the long-run relationship between FDI and unemployment, the following link is represented in the following table:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-3.95</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
</tr>
<tr>
<td>FDI</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>(0.028)</td>
</tr>
</tbody>
</table>

Table 5\(^2\): the long run relationship between Unemployment and FDI in KSA.
The findings of the empirical research regarding the identification of the long run relationship between FDI and unemployment in KSA, bear out the harmful impact of foreign investment. The results obtained seem to be controversial with the economic literature, FDI is assumed to stimulate the creation of jobs and not to increase unemployment in host-country.
Although, it arose from the findings of the empirical research conducted in the survey that foreign investment increased unemployment in KSA, during the period 1990 - 2012.

- The short run relationship:
To determine the appropriate relationship between FDI and unemployment in short run, we should estimate the ECM\(^3\) of the model presented below, using the first differences of the variables:

\(^2\) Numbers between parentheses are standard errors.
\(^3\) ECM : Error Corrected Model.
<table>
<thead>
<tr>
<th>Variables</th>
<th>D(Unemployment)ₜ</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.09 (-1.35)</td>
</tr>
<tr>
<td>D(FDI)ₜ</td>
<td>0.1** (2.59)</td>
</tr>
<tr>
<td>Residual t₋₁</td>
<td>-0.39*** (-2.98)</td>
</tr>
<tr>
<td>Durbin Watson test</td>
<td>2.2</td>
</tr>
<tr>
<td>Fisher test</td>
<td>0.003</td>
</tr>
<tr>
<td>R²</td>
<td>47%</td>
</tr>
</tbody>
</table>

Table 6: the short run relationship between FDI and unemployment in KSA.

The negative impact of foreign investment to harm unemployment is omnipresent in the short-run also. The Fisher test enabled us to denote that the ECM model is statistically significant in overall and the DW test showed that there is no autocorrelation between errors of the model.

**Interpretation:**

Reviewing the content of the table 5, it arose the harmful impact of foreign investment on employment in KSA. According to the findings, an increase of 1% percent in the FDI (as share of GDP) is associated with a rise of 0.09% in the unemployment in KSA.

In fact, it seems that the FDI inflows in Saudi Arabia have increased joblessness. The review of the theoretical background consolidated the contribution of foreign investment for creating jobs and technology diffusion, the FDI is assumed to increase the opportunities for Saudi youth to find an appropriate occupation.

The positive impact on unemployment in long run could be explained by the nature of the foreign investment. In fact, a big share of FDI inflows are not a labor intensive industries. As an example, we could argue the example of some high technology investments. The present argument is in accordance with the findings of Noorbakhsh et al (1999)⁴, the authors stressed that: “Between 1980 and 1990, the share of capital and technology intensive industries in FDI rose faster in developing countries.”

Also, the high flexibility of the Saudi labor market to import labor from outside the kingdom, gave the opportunity for the investor to utilize more competent and more skilled workers with less wages. It encouraged them to use foreign labor from Asia or Arabic countries than to hire Saudi workers. According to Chen, T.J. et al (2005)⁵, the authors raised a similar argument to illustrate the rise of unemployment in gulf countries due to the flexibility to labor importing. The author stressed: “Countries that contemplate importing labor from outside may face the same opposition”.

In addition, we could underline the rigidity of wage for Saudi workers, fixed by the Saudi ministry of labor, as encouraging the foreign investors to hire non Saudi workers. Therefore, it arose that the governmental intervention on the labor market has stimulated the import of labor from outside by foreign investors. The review of the paper of O'Sullivan, A. et al (2011)⁶ allowed us to underline their argument: “Labor market rigidities, which discourage firms from expanding employment even in expansionary economic periods, play a role in the high unemployment levels for MENA”.

From the content of table 6, showing the short-term relationship between FDI and unemployment, it arose a disequilibrium equal to 39% at the Saudi market labor in short run. The big level equals to 39% is the difference between supply and demand on the labor market, it indicates the high inefficiency of the Saudi labor market in the economy. In addition, the harmful impact of foreign investment on unemployment in KSA is not limited on the long run, every percent of FDI (as a share of GDP) is joined with a rise of 0.1% in the unemployment in short-term.

---

⁴ Noorbakhsh, F., Paloni, A. & Youssef A. (1999), Low wages or skilled labour? Prospects for foreign direct investment in developing countries, *Department of Economics, University of Glasgow.*


Conclusion:
The present survey is an attempt to shed the light on the nature of the relationship between foreign investment and unemployment in KSA in long run and short run. It made up the aim of the issue debated in the present survey.

The empirical evidence conducted in the current paper, relied on strong foundations and remains in accordance with a solid scientific approach. The findings consolidated the negative impact of FDI on KSA. The research also enabled us to denote the high economic inefficiency of the labor market because of the rigidity of the wages of Saudi workers and the labor importing policies.

In contrast with the theoretical background assuming that foreign investment has positive impact on the economic growth spillover in host-country. The previous point seems to be spurious, depending on the contribution of some variables that played pivotal role to embody such effect, for example: the efficiency of the labor market, ability to facilitate the innovation diffusion and the technology transfer.

In the last few years, the Saudi government increased its intervention on the labor market to enhance its efficiency, through implementing some restrictions on labor. The Saudi government decided to limit the labor importing (quotas) and to restrict the ability for foreigners to change occupation. The impact of such policies on enhancing the efficiency of the labor market, will be the real highway for FDI to reduce unemployment in KSA.

References