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**ANNOTATION**

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**Foreign Direct Investments and its Impact on Unemployment – case study of Libya**

**ANNOTATION**


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**Abstract**

This thesis examines and explores the Libyan doing business conditions in relation to foreign direct investments in all economic sectors.

The most important task of this thesis is to quantify the inflow of foreign direct investments and its impact on employment in Libya, their impact on economic growth and the impact of foreign direct investments on exports volumes. The thesis conclusions will contain recommendations regarding the implemented policies and procedures which can be beneficial in improving the business environment which enables the attraction of additional foreign direct investments.

The main aim of this thesis is to examine the impact of foreign direct investments on employment in Libya and to fulfill this aim there is a need to identify the main determinants that determine the evolution of employment and jobs creation in Libyan economy. Based on these calculations and conclusions of the research, certain economic measures and recommendations will be suggested. The contribution of the dissertation should therefore be based on econometric techniques that we will be able to discover the scope and potential opportunities for economic and employment policies in Libya.

**Key Words:** Libya, Foreign Direct Investment, Unemployment, Crude oil.

**Abstrakt**

Tato doktorská práce analyzuje libyjské obchodní podmínky v souvislosti s přímými zahraničními investicemi ve všech hospodářských odvětvích.

Hlavním cílem této práce je kvantifikovat příliv přímých zahraničních investic a jejich dopad na zaměstnanost v Libyi, jejich dopad na hospodářský růst a vliv přímých zahraničních investic na objem vývozu. Závěr práce bude obsahovat doporučení ohledně prováděných politik a postupy, které mohou být prospěšné při zlepšování úrovně podnikatelského prostředí, které umožňuje příliv dalších přímých zahraničních investic.

Hlavním cílem této práce je prozkoumat vliv přímých zahraničních investic na zaměstnanost v Libyi. Korelace mezi proměnnými FDI, HDP a zaměstnanosti byla vypočtena s použitím korelačního koeficientu mezi všemi výše uvedenými proměnnými.

Práce ukazuje, že i přes četné překážky a nedostatky související s obchodními podmínkami se libyjská vládě relativně podařilo přilákat přímé zahraniční investice. Práce též ukazuje, že mnoho zahraničních investorů opustilo libyjský trh kvůli potížím v souvislosti s obchodními podmínkami v této severoafrické zemi. Studie také ukazuje, že existuje mnoho problémů, kterým čelí tvůrci politik s cílem reformovat podnikatelské prostředí tak, aby bylo atraktivní pro přímé zahraniční investice.

**Klíčová slova:** Libye, přímé zahraniční investice, nezaměstnanost, ropa

**Introduction**

Libya is located in the North African region and has very suitable geographical location to European and Middle Eastern countries. Libya is bordered by the Mediterranean Sea to the north, Algeria and Tunisia to the west, Egypt to the east, Chad and Niger to the south and Sudan to the southeast. Libya with an area of almost 1.8 million square kilometers is the fourth largest country in Africa. Libya has the tenth largest proven oil reserves in the world. The largest city Tripoli is located in the western part of the country and has over one million inhabitants. The largest economic city in Libya is Misurata and this city is located in the north Middle of Libya. The population of Libya in 2005 was estimated by the United Nation almost 6 million and according to the UN the annual population rate of change was expected to be 2.4%. The UN estimated that more than 80% of the population lived in urban areas. The division of economic sectors is as follows; industry 58.3%, services 39.7% and agriculture 2.0%.

Until the 1960s, Libya was one of the poorest countries in the world. During that time GDP per capita was around USD 40. But after the discovery of crude oil in 1959, the economic situation was dramatically changed. Nowadays, crude oil, crude oil products and natural gas accounted for almost all the value of Libyan exports. Until the 1960s, more than 80% of the population as involved in agriculture and animal husbandry. In 2000, however, only less than 20 % of labor force was engaged in this sector. Currently, agriculture, forestry and fishing represent only 5% of Libyan gross domestic product. Libya is highly dependent on crude oil revenues which contributes as mentioned above to all export earnings and over half of gross domestic

product. Since Libya is a small country with huge oil revenues, Libya has the highest nominal per capita GDP in Africa. Libya is an OPEC significant member and holds the largest proven reserves in Africa followed by Nigeria and Algeria. More than 80% of proven reserves are locate in the region Sirte which is responsible for more than 90% of the country's production. The crude oil sector is dominated by the state – owned National Oil Corporation, along with smaller subsidiaries. Oil income accounts for almost 95% of export earnings, 75% of government revenues and over 50% of GDP.

**Aim and Objectives**

The main aim of this thesis is to examine the impact of foreign direct investments on employment in Libya and to fulfill this aim there is a need to identify the main determinants that determine the evolution of employment and jobs creation in Libyan economy. Based on these calculations and conclusions of the research, certain economic measures and recommendations will be suggested. The contribution of the dissertation should therefore be based on econometric techniques that we will be able to discover the scope and potential opportunities for economic and employment policies in Libya.

The complexity of the economic situation in Libya demonstrates the impossibility of fully applying the traditional tools of economic optimization and investment policy. Therefore, it must be carried out relevant research that reveals what tools are for the Libyan economy optimal and sustainable. OLS model implementation and the results should reveal the mentioned economic determinants and then open a corridor for possible recommendations and economical solutions. Subsequently, it can be specifically focused on the

OLS model and the process of its implementation, which can be defined as an intermediate aim of the dissertation.

**Research Questions and Hypotheses**

The most important task of this thesis is to quantify the inflow of foreign direct investments and its impact on employment in Libya, their impact on economic growth and the impact of foreign direct investments on exports volumes. The thesis will attempt to evaluate the benefits of foreign direct investments to Libyan economy. The research examines whether they bring benefits such as the transfer of know-how, the transfer of new technologies, the introduction of new procedures and the improvement of labor force. In addition the research attempts to evaluate whether Libyan business environment is appropriate to attract foreign direct investments. The thesis conclusions will contain recommendations regarding the implemented policies and procedures which can be beneficial in improving the business environment which enables the attraction of additional foreign direct investments.

This research is built to examine the impact of foreign direct investments on employment in Libya by answering the following research questions:

Which factors stand behind the rate of employment in Libya?

Which are the main factors that determine the creation of GDP in Libya?

What is the extent of inflation influence on employment development?

Within the research the following hypotheses will be accepted or rejected by using econometric tests.

$H_1$: There is a relationship between employment rate in Libya and the formation of gross domestic product.

$H_0$: There is no relationship between employment rate in Libya and gross domestic product.

$H_2$: There is a relationship between employment rate in Libya and net foreign investments.

$H_0$: There is no relationship between employment rate in Libya and net foreign direct investments.

$H_3$: There is a relationship between employment rate in Libya and inflation rate.

$H_0$: There is no relationship between employment rate in Libya and inflation rate.

**Research Methodology**

This research is based on the annual data of FDI inflow, GDP and employment during the period 1999-2014 in Libya. The database will regarding FDI inflow into Libya, GDP from OECD statistics, data regarding employment from the International Labor Organization's (ILO) database and using database of Index Mundi Database.

In the dissertation is used classical econometric model of least squares, which is called OLS. The analysis is based on the time series, which are the variables that are observed at a certain time. They are arranged with a predetermined time interval. In our analysis is used year period. It is very important to calculate the exact chronological order. In the time series analysis it must

therefore not be any shifting of the observed values, for example, it is not possible to arrange monthly or quarterly data to annual data.

The model would then contain a mistake of the first order. In the model we are working with time series, which is stochastic and before we calculate it, we are able to say that it is stationary. This means that if the variance and the mean are constant in time, the value of the covariance between two time variables is dependent on the distance, then, there is a delay between time periods and not and not particular placement in time series . This weak request of stationarity is sufficient for our calculations.  In calculation the stationarity test will be used. We will use Dickey-Fuller test. In the OLS model this test will be expressed by calculating the coefficient φ.

$$\Delta y_t = (\varphi - 1)y_{t-1} + \varepsilon_t$$

$$\Delta y_t = \alpha + (\varphi - 1)y_{t-1} + \varepsilon_t$$

$$\Delta y_t = \alpha + \beta.t + (\varphi - 1)y_{t-1} + \varepsilon_t$$

The third equation in testing must include a time trend, which is indicated in the equation as a parameter β.t. coefficient φ contains the appropriate mistake known as the industry standard SE.

$$t = \frac{(\varphi - 1)}{SE(\phi)}$$

Further, in the test the numerical test result of the hypothesis φ-1 is displayed. For the alternative hypothesis it is valid that φ-1 <0.  If $t$ is greater than the critical value, the null hypothesis is rejected. It means that the time series is stationary.

For the purposes of determining heteroscedasticity it will be used White's test. It is a general test of heteroscedasticity and it based on the principle of Lagrange multipliers. We need not to work with any special assumptions about the shape of heteroscedasticity and it which is the range of variance around the plotted function. White's test can be used wherever it is impossible to predict which of the independent variables affect changes in the variance of random components of the model.

The general registration is:

$$\hat{\sigma}^2 = (T - k)^{-1}\left(\sum_{t=1}^{T} e_t^2\right)^{-1}$$

If there is no heteroscedasticity in the model is identical to the equation model. Otherwise, the estimate will vary. White's test is based on the number of observations. For the correct indication of heteroscedasticity it is necessary that the number of observations was higher than 10. The use of the test is possible, in spite that there are small deviations from the normal distribution.

OLS model and tests (DF test and test DW) are used for the reasons of accuracy of results using Gretl. In traditional Western economies almost always there is interdependency between monitored macroeconomic indicators. That is why we can quantify the relationship between employment and GDP growth, foreign direct investments and rising prices (price inflation). It is obvious that GDP growth affects employment since the creation of wealth means creating new jobs, for example in financial sector or IT services. It is a logic economic relationship in traditional western economies. Is this relationship valid also in the Libyan economy?

**Results and Interpretation**

The result of calculating of the first OLS model, says that there was no statistically significant correlation between employment, GDP and foreign direct investments. Employment between 1999 and 20014 was in the interval from 55, 5% to 56% Unemployment since 1999 constant around 30%. If we wish to identify the major determinants of employment and economic growth in Libya, then we have to expand the econometric model and include the price of oil. According to the calculation based on our model, the main determinant of GDP growth is the price of crude oil.

The calculation and figures show that the impact of oil prices was reflected at least in 2011 and 2014, where in 2008, 2012, and 2010 was a significant influence of crude oil. From the model it is seen that in recent years crude oil prices were not the main determinant of GDP growth, the reason for this phenomenon is the fact that after the fall of the regime different rival groups were selling crude oil on black market. Thus, the revenue from such sales was not reflected in statements published in the official statistics.

**Limitation and possible solutions of the study**

The estimation model includes only variables such as GDP, inflation, investment and employment. In addition, the regression is made based on annual data which does not take in to account the seasonality and fluctuation with in the year. Therefore, it would be reasonable the included variables not to have an impact on employment. This is further exacerbated because the main driving sector in the Libyan economy that is oil price is not included. Further, if Libya is financially integrated with the world

market not taking interest rate and exchange rate would have similar effect. Hence, incorporating oil price, interest rate and exchange rate would be valuable in improving the estimation. Further, using interpolation the frequency of data can be changed from low to high frequency data and estimate the finding. However, when we are interpolating we have to take a serious look in to the Libyan economy and its seasonality. This is because the wrong interpolation could lead us in to erroneous findings.


## Conclusion

The dissertation work has focused on foreign direct investments and their relationships with the Libyan economy. It attempted to answer the questions regarding the relationships between foreign direct investments, the increase in price levels, the economic growth represented by the changes in GDP and their impact on unemployment in Libya. The study has conclusively answered the objectives of the study. The study has deeply examined the structure of Libyan economy and its sectors. The study can conclude that the economic sectors in the Libyan economy have different tasks, history and importance. They show huge differences between each other. Some of them play crucial role regarding GDP creation and formation. The different role of sectors determines the main macroeconomic indicators in this economy. Because of this fact, the Libyan economy depicts a very specific economy. This fact is obvious when we compare this economy with industrialized economies. Libya has a very specific economy even we compare this economy with its neighbor or when we compare it with crude oil producers

economies. The main role is played by crude oil sector. This sector actually has changed the face of Libya from the start of extracting of crude oil which was in 1959. The sector has changed the economic performance of Libya and mainly its commodity structure of foreign trade. From this study it is very obvious that there is a significant relationship between crude oil sector and foreign trade, mainly exports. Oil export revenues account for more than 96% of Libya's hard currency earnings. Crude oil sector offers opportunities to every actor n the Libyan economy. In other words this sector is responsible for opportunities and at the same time for challenges and struggle of some actors. The main determinant of GDP per capita is crude oil as well. The crude oil sector accounts for more than two third of GDP. Revenues coming from the trade with this commodity coupled with a small population give this country one of the highest per capita GDP in Africa. When we have examined any macroeconomic relationship in the Libyan economy at the end we have finished in crude oil sector. The main obvious phenomenon is the relationship between crude oil prices and the Libyan GDP. GDP of Libya fluctuates and its fluctuations reflect and mirror the fluctuations of crude oil prices. This fact is also reflected in the performance of external trade. The crude oil exports have more that 95% share in total exports. This number can tell us a lot about the structure, the sectors and the external relationships of this economy. The price of crude oil was the main determinant of the Libyan export revenues. The price of crude oil and crude oil sector also were the main factors which influence the inflow of foreign investments and even they were the main determinants of the formation and type of foreign direct investments to Libya. From the analysis it is clear that inflow of investments and the growth of fixed capital formation were adversely influenced by the downturn

in crude oil prices or crude oil exports. This situation was more than obvious during the periods of difficulties, for example in the year 1982 or during the eighteenth. On the other hand during the boom time (1973 till 1981) or after 1999, Libyan economy was benefiting from the increase of crude oil prices. This strong relationship between exports and crude oil prices was reflected in the second part of trade. This relationship highly influenced imports structure, size and financing of imports. The commodity structure of imports and territorial structure of Libyan partners have been strongly influenced by crude oil structure and its performance. Crude oil sector played the first and main role in financing of imports. In certain case the buyers of crude oil were also the suppliers of Libyan imports. The fluctuations in crude oil prices and exported quantities due to geopolitical situations have subsequently changed the share of Libyan foreign trade in global trade. The Libyan trade with crude oil has been many times affected by global issues or by its membership in associations associated with the extracting or supply of crude oil such as OPEC. Crude oil was behind the Libyan huge and largest water transportation all over the world. This project transports more than five million cubic meters of water per day across the Libyan Desert to the north area of the county.

**Recommendations**

-   Libyan government should make its investment climate more attractive for foreign direct investments by the means of wide and deep reforms regarding its regulatory and institutional framework. The government should streamline the bureaucratic procedures. In this aspect the government should

know that political risk is one of the most important determinants of foreign direct investments that is why the government should concentrate on security, political stability and legal frame work in Libya.

- Libyan government should conduct profound reforms of the financial and banking system in Libya to provide the needed service for foreign investors and economic actors.

- Libyan government should fight with corruption since it has series of socio-economic impacts. In many cases it raises transaction costs and uncertainty in Libyan economy.

- The Libyan economy suffers from the lack of qualified human resources. The Libyan nation is a small nation and the system of education had many difficulties in the past. This issue can be solved by opening the economy and by involving the economy in more of economic integration within the Arab league or with the African neighbors.

- There is a crucial need for economic diversification and Libyan government should work on that urgently. The reform of the economy should be done deeply and profoundly, since the need of restructuring the economy is urgent. The government should encourage private sector and non-crude oil productive sectors such as industry, agriculture and the sector of services. The diversification of Libyan economy is a key issue and one of the most important solutions to reduce unemployment and the country dependency on imports.

- The Libyan economy is very closed and centralized economy; it needs more of liberalization and more of involvement in the global economy.

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