

## **Analyzing the impact of Foreign Direct Investment on Unemployment rate in the case of Kurdistan Region of Iraq**

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## 1. Introduction

Market internationalization has changed the world's business environment and transformed multinational corporations' processes and frameworks in modern economy. This causes delivering various consequences for growth of all economies (Balcerzak and Żurek, 2011); particularly for emerging countries, foreign direct investment (FDI) is seen as a fundamental sources of economic growth and modernization (OECD, 2002). Therefore, foreign direct investment (FDI) is seen as an indivisible component of the global economy. It means "a direct investment made by individual or company in another country into a production or business interest, either by directly establishing a business or expanding the operations of an existing business or by buying a company in the target nation. Foreign direct investment consists of mergers and acquisitions, building new facilities, reinvesting profits earned from the operations of the foreign business" (Adeleke, Olowe and Fasesin, 2014)

The importance of FDI inwards does not appear automatically and are not consistently spread across economic sectors of local economies; it lies particularly in long-run investment capital. The advantages of FDI to countries can vary, relying on the economic circumstance and accessibility of resources in countries. Further, the maximizing benefits of FDI for the host country are diverse and significant; for instance, it introduces new technologies, support capital formation, participate in the development of economy's export performance, assist to competing business environment and permit an access to worldwide market. These are fundamental to develop, manufacture, create jobs and reduce poverty. Studies revealed that there is positive correlation between FDI and gross domestic product (GDP); and an increase in FDI will boost the economy (Whyman and Baimbridg, 2006). Nonetheless, if there is not stability in economic and political system of a country (economic crises or war), such expectations would be difficult to achieve.

Investments across states are a strong tool in boosting economic relations between diverse parts of the universe. Regardless of turmoil in the world economy, the international FDI flows had fast enhanced. It exceeded the pre-crisis rate in 2011, getting 1.5 trillion dollar (UNCTAD, 2012). In 2017 the world FDI declined by 23 per cent compared with 2016, from 1.87 trillion dollars to 1.43 trillion dollars. "The decline is in stark contrast to other macroeconomic variables, such as GDP and trade, which saw substantial improvement in 2017". However, the share of international FDI inwards to the developing countries grew in 2017, fascinating 47% of the aggregate, contrasted with 36% in 2016. The drop in developed and transition economies was clearly enormous and accounts for nearly more than one-third to 712 billion dollar, whilst in emerging economies stayed constant. The decline can be explained in part by a fall from high inflows in the preceding year caused by "cross-border mergers and acquisitions and corporate reconfigurations". In addition, tax reforms in the United States, increased tax competition and the prospect of interest rate rises in developed economies can significantly affect global investment patterns, with potentially serious implications for emerging-market currencies and economic stability. An important reduction in the value of such transactions resulted in a decline of 40% in flows in America to \$275 billion and 92 % in the UK to \$15 billion (UNCTAD, 2018).

Accordingly, studying linkage between FDI and labor market of a country is of an increased importance today. This study is significant in the light that, there is not sufficient research on FDI inflow and outflow in general, especially in the relation with labor force in Kurdistan region but this work to the best of our knowledge is the first to examine the correlation between FDI

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capital and unemployment rate in Kurdistan region of Iraq. The main aim of this research is econometrically analyze the influence of foreign direct investment in Kurdistan region for the year of 2006-2018 as well as analyzing the reaction of such variables during economic recession and Islamic State of Iraq and Syria (ISIS) war. To obtain this aim, the paper attempts to answer the following questions: will FDI has significant effect in reducing unemployment rate? Has economic crisis affected the foreign investor's decision making to invest in the region? Has unemployment rate increased during the ISIS War and economic crisis? The rest of the paper structured as follow: next section generally describes the FDI inflow in Kurdistan Region. The literature review is shown in section two. The third part concludes econometrics methodology. Empirical result and discussion is in the fourth section. Finally the research ends up with conclusion and recommendations.

## 2. Foreign Direct Investment in Kurdistan Region

Kurdistan Region is an independent region in the north of Federal Iraq; it borders Iran to the east, Syria to the west and Turkey to the north. As a part of federal Iraq, Kurdistan is seen as a safe haven and an attractive location for many foreign and domestic investors. Likewise, the region's strategic location, population, friendly investment law and lower costs, together with natural resources (gas and oil) make it an outstanding environment for export to the region and universe. Yet, it is evidenced that almost all the goods sold in Kurdistan in the present time are imported goods. The region's local market of about 6 million consumers offers an unambiguous opportunity to manufacture and sell goods and services to establish import (Galbraith, 2003; Torelli, 2016)

In the past decades Kurdistan region has been viewed as a dispossessed and detached place, however, today it opened itself to the globe and a various important evolutions and security have helped such development pattern. Moreover, the stability in the region persists to record enormous economic growth and obtain a higher level of such a growth than other regions in Iraq. For instance, GDP per capita was 50% higher than the rest of Iraq; by 2009 this was 200% higher. Additionally, in 2005-2007 it achieved the highest growth was about 12.7% and 11.5% such a rate stabilizes between 7% and 8% in 2012 (Unegbu and Okanlaown, 2015). The region enjoyed development till the Economic crisis and ISIS war which begun in 2014 but soon after these events economy of Kurdistan start to recover especially at the end of 2017. Besides, the region looks to insist itself as a new considerable investment hub in the Middle East, the safe environment before the latter events has allowed Kurdistan Region Government (KRG) to sign a number of investment contracts with foreign investors, in 2006 the first new oil was drilled in the region and it was the Norwegian energy company (DNO). Furthermore, the self-governing condition authorized on the nation politically and legally has distributed to attract massive multinational corporations. In the last fifteen years, about more than 40 billion dollar of direct foreign investment invested in the oil sector of the region's economy and they came by international companies, Western countries and other bordering countries. Thus, massive foreign direct investment in oil sector naturally create significant effect in attracting international technology, human resource and expansion of FDI into non-oil sectors (shown in table: 1) of Kurdistan region (Unegbu and Okanlaown, 2015; Torelli, 2016).

**Table (1): licenses and capital of FDI according to non oil sectors in Kurdistan region (2006-2018).**

Sector	Licenses	Capital (billion dollar)
Industry	13	1,149,866,824
Housing	13	1,432,990,638
Trade	7	71,550,328
Tourism	4	2,458,72,950
Education	3	137,243,737
Health	2	10,750,000
Agriculture	2	162,500,000
Bank	1	700,000,000
Total	45	3,910,774,477

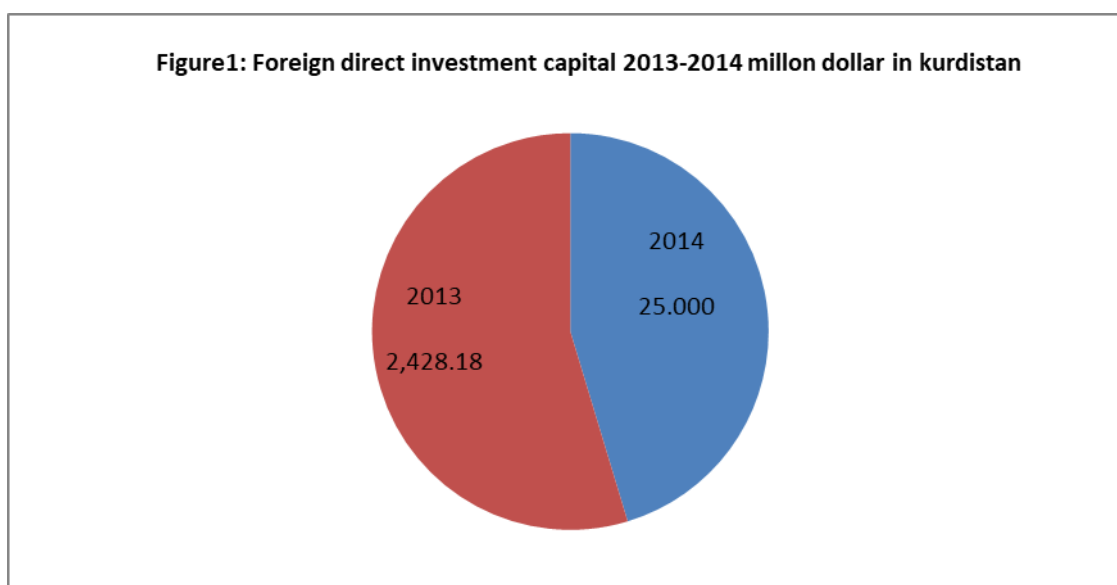
Source: prepared by researchers base on Kurdistan Investment Authority data

In Kurdistan, foreign investments have been spread through various sectors, for example, industry, housing, trade, tourism, education and other sectors. As shown in the table industry and housing sector ranked first in attracting foreign investors compared to other economic sectors. The increasing demand for commercial and residential units motivate great number of foreign investors to invest in construction industry particularly (bricks and cement), this considerably reflected in housing section. Therefore, such sectors have more opportunity to profit compared to other economic sectors.

Even though gas and oil are prospected as a positive contributive factor the foreign investment inflow, some studies believe that natural resources cause political risks in future. They argue that economy with such sources especially middle Esterian countries are unlikely to be safe (Jensen and Young, 2008). Iraq is an example of such nations, which oil and gas are massively advantageous to the economy, but it is poorly governed and subject to conflict and political instability. This status has caused in an ethnic conflict, huge level of corruption, ineffective government, generating unfavorable location for foreign investor's consideration (Alkhouri and Abdul Khalik, 2013; Brown, 2005). Likewise, the more current conflicts between Shias and Sunnis, and the emerging of terror groups namely Islamic State (IS) have deepened the political risk as a result it has negative direct influence on multinational corporation decision concerning investing in regions, so it strongly damaged the Kurdistan economy. Thus, past and current unsettled political process can pose risks for international firms' long-run investment in Kurdistan Region. Despite all the risks correlated in investment in Iraq and Kurdistan region, the latter offers prosperous business opportunities and high rate of revenue for multinational corporations' investment by establishing a transparent and effective policy (Investment Law 4 of 2006). Hence, this has evidently satisfied foreigners to invest in the region. Meanwhile, encouraging higher Multinational Corporations benefit the labor force and economy of Kurdistan Region, since its economy remarkably driven by public sector, 70% of Kurdistan region's labor force is recently

employed by such a sector (Bartnick, 2017).

Furthermore, the economic crisis started in 2014 in Iraq and Kurdistan region followed by severe decline in world oil price and the decrease in budget revenues since oil returns is the main source of federal budget. Such events fairly effect on Iraq economy and Kurdistan region in particular. Further, Kurdistan region built its own oil pipeline to Turkey and started to export autonomously thus cause cutting the share of Kurdistan from the central government budget amounting 17% per year since 2014. Since then, "the quota has been subject to the political consensus that sometimes leads to its release and to its cessation at times"(Al-Mihya, 2017). Hence, the financial resources of Kurdistan has declined effectively for the period from 2014-2017; consequently the purchasing power of the citizens of the region decrease, had negative effect on the magnitude of FDI inflow. As presented in figure below, FDI inflow strongly decreased from nearly 2.4 billion dollar in 2013 to 25 million dollar in 2014 meaning the volume of FDI has lost about 97% in the latter year compared to the previous.



Source: prepared by researchers base on Kurdistan Investment Authority data

### 3. Literature Review

Economic literature presented various macroeconomic variables which were effective to investigate the determinants of FDI; for instance, GDP per capita, Labor forces, wage change, interest rate, exports, financial openness, industrial disputes, country risk, telephone line and other (Bevan and Eastin, 2004; Moosa and Cardak, 2006). The reaction of FDI toward the variables obviously relies on the country feature and specific forms of investment. Therefore, significant numbers of researchers theoretically and empirically analyzed the relationship between macroeconomic variables and the inflow of foreign direct investment by employing countries from around the globe as a sample. For example, for Asia (Lipse, 2000; Zhang, 2001; Karbasi et al, 2005) investigated the correlation between economic growth and FDI. They reveal that economic growth positively affected by FDI. In the case of China, they indicate that FDI boosts economic development more effectively in the coastal area than the inland part. Nevertheless, in some countries case, Xu (2000) found that FDI has negative influence on GDP

development. Additionally, Iamsiraroj and Doucoliagos (2015) investigate the relation between FDI and economic performances. Their result shows that such a correlation is negative. Meaning low economic development is greater opportunities for future revenue since there are enormous amount of natural resources and cheap labor forces countries; this obviously impacts the cost of production input in such nations and would absolutely result in cheaper than developed economies. Hence, this promotes foreign investors to invest in a country with low economic development. Likewise, it is been argued that the role of foreign direct investment in achieving economic development requires contributing: capital formation, human capital development, increasing the competitive level on the local market, the degree of free market and stability in economy and finance of the country (Sarkar, 2007; Salman and Feng, 2009; Misztal, 2010)

Besides, in recent years, the impact of FDI on unemployment rate is comprehensively debated in literature. For instance, A significant number of academics claim that countries with high level of unemployment rates have two fundamental benefits in the perspective of international investors: i. Plenty of available human resource; ii. high possibility to find labor force at lower wage (Blanchard, 2011). Nonetheless, it is suggested in literatures that countries with high rate of unemployment is not favorable location in the view of foreign investors, and it is a signal of macroeconomic disequilibrium. They perceive the country as an inappropriate place to future investment (Brozen, 1958). Despite the above arguments the reaction of labor market changes according to the country and the sample period.

Ajaga and Nunnekamp (2008) investigated the long-run relationships between inward FDI and unemployment rate for the USA. They reported positive effects of the inward foreign direct investments on the employment level. For the same country, Javorcik et al (2011) indicates a positive relationship between labor migrations and FDI level by investigating the presence of the migrants in the USA and the USA FDI in migrants' countries of origin. Balcerzak and Zurek (2011) econometrically examine the impact of foreign direct investment and unemployment rate in Poland for the period 1995 to 2009. In the study VAR model was conducted based on quarterly data. The result proves that there is interdependency between the variables, meaning high FDI inflow will increase job opportunities but the positive influence of FDI tend to be rather short term. However, Velnampy et al (2013) found that in short-run FDI does not have significant effect on economic growth and labour market of SriLankan. While, in long-run, both unemployment rate and economic development crucially are affected by foreign direct investment. Further, they found effective correlation between economic growth and labor force.

Strata, Alexandru and Paul (2015) examine the short-run casual relation between unemployment rate and inflow of FDI in the latest thirteen member of the European Union. Based on T-Y procedure econometrical methodology is used for annual data of 1991-2012. The main finding of the analysis is that there exists a casualty relation running from FDI inflow towards unemployment rate in four states of the sample study, namely Hungary, Malta, Bulgaria and Estonia. In the case of Romania, the Czech Republic and Slovakia, casual relation from unemployment rate towards FDI inward was found, while for the remaining countries granger causality correlation was not found.

In the case of European Union countries namely: Germany, the UK, France and Spain Seyf (2000) applies linear and non-linear regression model for a sample of 401 Japanese firms who invest in such countries, and examines the relationship between job creation and FDI. The findings represented negative relation between variables but the level of reaction was different

among the countries. For example, it is found that the same volume of FDI in German can reduce unemployment rate more than other countries under the research. Spain, the UK and France come next respectively. Furthermore, researcher concludes that considering the unemployment rate in EU countries, the influence of FDI is not considerable especially if it is only few firms focused.

By applying numerous econometric techniques both Karlsson et al (2009) and Vacaflares (2011) analyzed the relation between FDI and economic growth in China and a group of Latin American countries respectively. The result of both study reveal positive and significant impact of FDI on employment growth. It means increasing the level of FDI will result in creating job within foreign firms as well as indirect influence on employment in domestic corporations.

By using empirical analysis of the time series data for 1998-2015 in Jordan, Haddad (2016) investigating the influence of FDI on the labor market and economic growth. The study result concludes that even FDI is not only factor to reduce unemployment rate in Jordan, it has negative and crucial impact on it; but positive impact on economic growth. Therefore, the finding of the examination proves that unemployment rate in Jordan will decrease by (0.009%), when FDI increase by (1%) and in the meantime GDP grow by (1.219). Likewise, Shaar, Hussain and Halim (2012) found similar results for Malaysia when they examined the reaction of unemployment rate towards FDI changes, for the period 1980 to 2010. The result from the ordinary least square indicated a negative relationship between the variables. Meaning one percent rise in foreign direct investment reveals 0.009 percent decline of unemployment rate. In their research Johnny et al (2018) found negative and insignificant relation in Nigeria when they empirically tested the interdependence between foreign direct investment, capital formation and workforce for the period (1980-2015). Yet, the correlation is positive and remarkable for capital formation and unemployment rate.

In contrast, some believe that there is not any interdependency between FDI and unemployment rate; for instance, Chen and Ku (2000) and Chang (2006) analyzes the dynamic interrelationships between FDI, economic growth, exports and unemployment rate in Taiwan for different sample periods. The results reveal that FDI has advantageous to domestic firms and trade, but does not have relation with job creation in host country. Further, the studies found that economic growth can crucially encourage export expansion and then reduce unemployment rate. Similarly, (Aktar and Ozturk, 2009; Hisarciklilar et al, 2009) claim that FDI inflow cannot reduce unemployment rate in Turkey, when they analyzed the relationship between FDI, unemployment rate for the years of 2000-2007.

Researchers were interested in finding the magnitude of financial crisis effects on FDI flows examined the correlation between such variables. Their finding confirmed the fact that financial crisis had a robust influence on FDI. Moreover, the economic crisis started in 2008 had a stronger impact on FDI flows, compared to past crisis (Dornean, Vasile and Oaneac, 2012; Dornean and Oanea, 2013; Poulsen and Hufbauer, 2011). In addition, by utilizing a semiparametric Generalized Partial Linear Model (GPLM) regression technique Ucal et al (2010) investigated whether to what extent the inflow of FDI is influenced before and after the occurrence of a financial crisis in 148 emerging nations for the period 1995 - 2007. The results demonstrate that FDI inflows decrease in the year of post-crisis and increase in pre-crisis year hit the country. The outcomes are supported by the World Association of Investment Promotion Agencies, which anticipates a 15% decline in FDI in 2009 because of the last financial crises. In 2008, FDI to Turkey and India decreased 40% and decreased 20% in China. In contrast, some academics for

example, Buchanan et al, (2012); Jensen, (2003) and Wint and Williams, (2002) argue that during recessions cost of labor and capital is no high, this probably causes improvement in the cost structure of the firm, and then motivate foreign investors to invest in a location where has high level of profit. Athukorala (2003) tested the reactions of FDI toward the financial crisis of East Asia. In the research, policy and overall investment environment are analyzed in five crisis-hit nations (Korea, Indonesia, Malaysia, Philippines and Thailand). The results declared that during the crisis foreign direct investment was comparatively stable element of foreign capital. Al-Mihya (2017) researched the effect of economic crisis of 2014 on FDI inflow in Kurdistan region. He claims that while security stability and local governments' investment policy remove difficulties to attract foreign and private investors to invest their capital in the region's sectors. The economic crisis which were significantly caused by the oil price decline in 2014 and cutting the share of the region from the federal budget, become considerable factor to decrease the volume of FDI in Kurdistan.

Moreover, there are papers who argue that political stability is a significant and incentive factor to influence multinational companies' decision to invest in an economy. "The fact itself that an economy is characterized by stability leads to the rational conclusion that it is also characterized by a strong economy at the time being, and there is not a high risk of decreasing this stability. Thus, under this theory, economic growth reflects a high economic power for a country, which tends to attract foreign capital" (Balasubramanyam, 2001). Therefore, political instability is a senior concern for the evolution of efficient FDI policies. For instance, Sulaiman, and Mollick (2009) empirically looked the attitude of FDI flows towards human capital (literacy rate), economic freedom (political rights and civil liberties) and the incidence of war, for 29 countries of Sub-Saharan African countries from 1980 to 2003. The result of the analysis exhibits that all variables are critical determinants of FDI; high literacy rate has significant and positive influence on the flow of FDI, and a rise in FDI inward will improve economic freedom. However, FDI is negatively affected by War events in Sub-Saharan African countries. Likewise, Naude and Krugel (2007) emphasize that the continuation of military and armed conflicts make critical obstacle to economic performance of Africa.

Even though there is not adequate works on such a topic in the region sample of this study, Unbegun and Okanlawon (2015) empirically analyzed the reaction of non-oil sectors of Kurdistan Region of Iraq towards FDI capital for the period (2005-2015). Their aim was to compare the magnitude of FDI between Kurdistan Region and the rest of Iraq. The result of the paper represents that there are important disparities in the figure and volume of FDI between the two nations, however, amount of FDI capital inflows is not largely different between the sectors, and in another word almost all their economic sectors significantly captured the foreign investors' attention. Yet, there are further area and business opportunities to attract foreign investors. The authors recommend that in order to encourage more foreign investors into the region's sector, particularly towards the banking sector, Kurdish government should embark on fiscal Cashless policies.

#### 4. Data and Descriptive Statistics

To apply the models in this study, annual data for the period from 2006 to 2018 is employed. Since the year of 2018 is not finished, half year data is used for only this year. Foreign direct investment capital was collected from Kurdistan Investment Authority, whilst Unemployment [jzsb.univsul.edu.iq](http://jzsb.univsul.edu.iq)

rate was gathered from various publications of region's report. Moreover, in the presence of financial crisis and ISIS war, the variable is examined. Economic crisis and the ISIS are a dummy variable that takes the value 1 in the years of their existence, zero otherwise on an observation basis. The data was analyzed through the SPSS software. Besides, to stabilize the data, all variables converted in to natural logarithms.

#### 4.1. Methodology

This research applies empirical analysis to evaluate the impact of foreign direct investment (FDI) on the unemployment rate (UER) in Kurdistan region for the period 2006-2018; as well as the interdependency between the two previous variables and (Ec) and (ISISW).

To achieve the aim of the study, a linear regression model was formulated as follow:

$$UER = f (FDI, EC, ISISW)..... (1)$$

The model is employed into the below equation:

$$\ln UER_t = \beta_0 + \beta_1 \ln FDI_t + \beta_2 \ln EC_t + \beta_3 \ln ISISW_t + U.....(2)$$

Where:

$\beta_0$  = Intercept

$\beta_1, \beta_2$  and  $\beta_3$  = slope (measure the effect of the independent variables on the dependent variable)

FDI t = Foreign Direct Investment in period t.

UER t = Unemployment Rate in period t.

ISISWt = ISIS war is a dummy variable, taking 1 for the year 2014, 2015, 2016, 2017 and 0 otherwise.

EC<sub>t</sub> = Economic crisis is a dummy variable, taking 1 for the year (2014-2018) and 0 otherwise

U = Random Error

The Model measure the impact of FDI, ISIS war and economic crisis on the unemployment rate.

Therefore, to analyze the interrelation between the variables and the reaction of dependent variable towards independent variables, different econometric analysis tools have been employed in this study as follow:

##### 4.1.1. Ordinary Least Square (OLS)

Ordinary Least Square (OLS) is a statistical technique commonly named linear regression. It can estimate the correlation between single or multiple independent variables. In this research it is utilized to illustrate how much endogenous variables influence exogenous variable (Greene, 1981).

##### 4.1.2 Unit root test

We started our analysis by examining the presence of a unit root test in the series. Even though, there are many statistical methods in all models to conclude that the data series is not stationary for all variables, in this study, Augmented Dickey-Fuller (ADF) (Dickey and Fuller 1981) is the most popular and significant tests to be conducted. All variables will be tested in the

log levels. Further, if the test shows a variable is non-stationary, meaning that it is significant in terms of p value and has unit root (Gujrati, 2004)). However, the data are not in the position of unit root if the test presents the significant level in terms of p value (Shaari, Hong & Shukeri, 2012).

#### 4.1.3. Co-integration

Co-integration test is a significant empirical model to check if there is long-run linear relationship conducting Johansen co-integration method, and reveal whether there is a tendency of existence of a co-integration relation between two data series (Johansen, 1988).

#### 4.1.4. Granger causality test

The granger causality model is a statistical approach to determine whether historical information of a variable is useful in predicting another (Granger, 1969). In such a hypothesis, if a particular variable  $Y_1$  "Granger-cause" a particular  $Y_2$ , afterwards, past values of  $Y_1$  should contain knowledge which helps to forecast  $Y_2$  in addition to the information is being contained in previous values of  $Y_2$ . □

#### 4.2. Empirical Results:

In this subsection the result of econometric methods are presented as follows:

**Figure 2: Time series plot of unemployment rate in Kurdistan region (2006-2018).**



Figure (2) displays graphical description of unemployment rate data in this research. In the time the unemployment rate was varied between 6% in 2006, 14% in 2014 and 13.5% in 2016. It can be seen on the graph that such a rate is the lowest in 2011 comparing the analyzed period, while in 2014 has the highest rate this is probability because of downwards of economic growth which resulted in the war event as well as economic crisis in the region.

**Figure 3: Foreign Direct Investment Capital in Kurdistan Region from (2006-2018).**

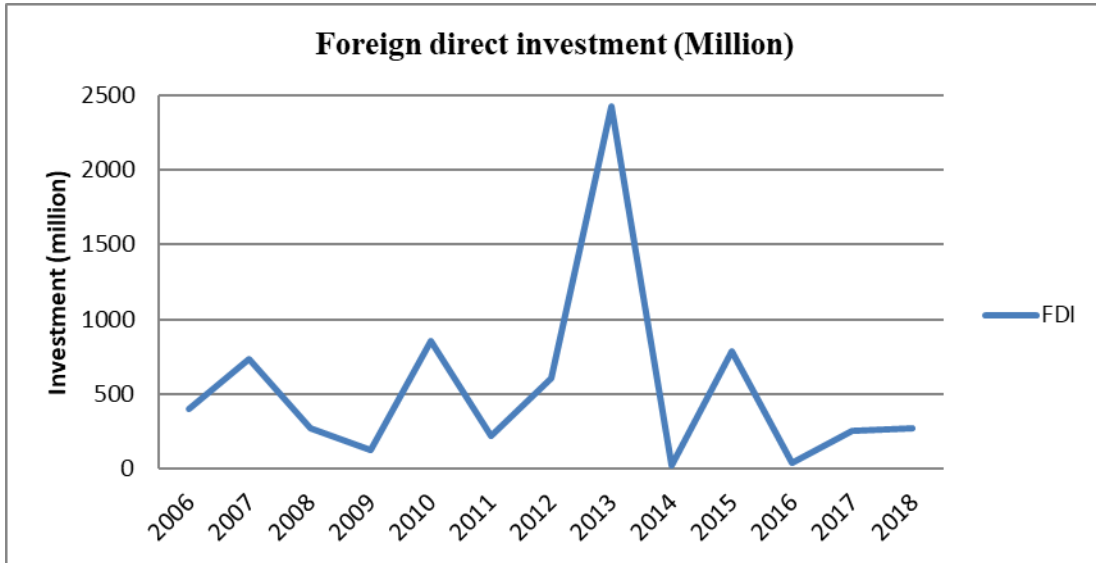
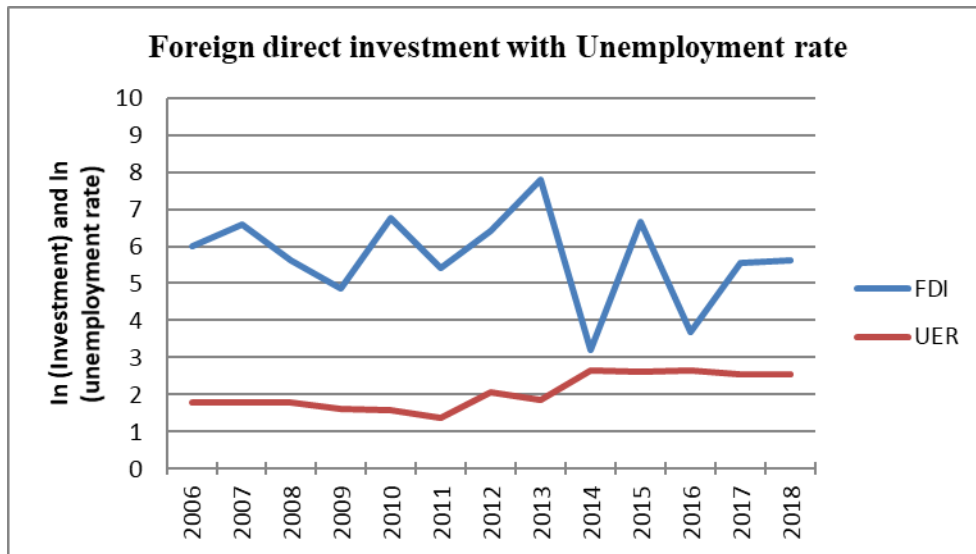


Figure (3) presents the changes that occurred in the volume of foreign direct investment of the investigated period. It is viewed that in 2006 Kurdistan region's market was new for foreign investors; therefore, there were no many multinational companies. Due to some factors such as (high level of corruption, low skilled labor, economic and political instability and others) the magnitude of FDI was not high in the region especially in non-oil sectors; however, the graph illustrates increase value of FDI, particular in during 2012 and 2013 it registered the highest volume and sharp decrease in 2014.

**Figure (4): Time path for the log of FDI and Unemployment rate in Kurdistan Region (2006-2018).**



In figure (4) the interrelation between foreign direct investment and unemployment rate for the period of (2006-2018) in the Kurdistan region of Iraq. The result reveals that there is not significant interdependency between such variables in the region; this is probably because of requesting high wages and low productivity labor forces; as well as low development of infrastructure and economy.

**Table (2): Unit Root test result**

Variable	Model Selection	ADF Statistics(t)	Mackinnon Critical value (T)	Result of hypothesis testing H0: $\delta = 0$ (non-stationary) H1: $\delta \neq 0$ (Stationary)	Decision
FDI	With trend	-5.293182 Lag (4)	(-4.1219, -3.144, -2.713) (1%, 5%, 10%) level	$ t  >  T $	Stationary
UER	With trend	-4.7228 Lag (2)	(-4.200, -3.175, -2.728) (1%, 5%, 10%) level	$ t  >  T $	Stationary

Table (2) summarized the result of the Augment Dickey Fuller (ADF) unit root test. It shows that unemployment rate is stationary at level; while FDI is stationary in the difference. Meaning that there were an evidence to reject the null hypothesis (H0= Unit root exists) because the (t) statistics of ADF test were greater than the critical value at levels of significance (1%, 5%, 10%); nonetheless, the alternative hypothesis can be accepted ( $H_1 \neq \text{Unit root exist}$ ).

**Table (3): Results of Johansen Co-integration test**

Series Lags interval	LN_FDI LN_UER 1 to 1					
	Likelihood ratio (LR)	Critical value (5% level of significant)	Hypothesized No. of CE(s)	Comparison between LR and CR	P-value	Result
	23.28195	15.49471	None**	LR > CR	0.0034	Co-integration
	0.446631	3.841466	At most 1	LR < CR	0.4234	No Co-integration
<b>Maximum Eigenvalue</b>						
	22.83532	14.26460	None**	LR > CR	0.0043	Co-integration
	0.446131	3.841466	At most 1	LR < CR	0.5432	No Co-integration

(\*\*) is denoted the rejection of the hypothesis at 5% (p-value= 0.05) level of significance.

Table (3) demonstrates the result of Johansen test, it shows there are two co-integrating equation existing between the dependent and independent variables. This presents that there are short-run correlation between the variables.

**Table (4): Granger Causality tests result**

Null Hypothesis		F-statistic	Prob.
LN_UER	LN_FDI	9.63243	0.0134
LN_FDI	LN_UER	1.78187	0.2469

Table (4) demonstrates the result of Granger causality method. As can be observed from the table that unemployment rate dose granger causes FDI, since its p-value is less than the critical value of (0.05). Differently, FDI does not granger cause unemployment rate, meaning that the previous changes in the value of FDI capital had no influence on unemployment rate since p-value greater than the common alpha 0.05?

**Table (5): Regression Analysis**

Variable	LN_UER UER = f (FDI, EC)						
	Coefficient	Std. Error	t-Statistic	Prob.	R square	F-test	Prob.
C	1.788278	0.500145	3.575520	0.0050	0.6565	9.5591	0.0047
LN_FDI	0.006054	0.080129	0.075550	0.9413			
EC	0.794756	0.209241	3.798283	0.0035			
LN_UER UER = f (FDI, ISISW)							
C	1.537242	0.288296	5.332169	0.0003	0.8866	39.1237	0.000
LN_FDI	0.031969	0.045605	0.700989	0.4993			
ISISW	0.904027	0.112977	8.001864	0.000			

Table (5) illustrates the Ordinary Least Square results for the variables concluded in this study; it shows that both ISIS war and economic crisis have significant effect on labor forces. Meaning one percent change in Economic crisis and ISIS war leads (79%) and (90%) change in unemployment rate respectively. However, there were no statistically significant relationship between unemployment rate and foreign direct investment because the p-value was greater than the common alpha 0.05.

Overall, the consequences present that the R square (R<sup>2</sup>) coefficient of the regressions indicating that the variables (ISIS war, economic crisis, foreign investment) used as a determinant of unemployment rate. Moreover, the result of F-statistics explains the total significance of the regression were highly significant at the 1% level.

**Conclusion**

In the aim of contributing the existence literature, the paper has empirically examined the interdependence between FDI capital and unemployment for the period 2006-2018. It has additionally analyzed the reaction of previous variables towards economic crisis and political instability, particularly ISIS war in Iraq and Kurdistan region. Therefore, to capture the questions answers and be ensured with the results, various econometric tools are used; such as Ordinary Least Square (OLS), Unites root, Johansen Co-integration and Granger Causality analysis. The result of OLS shows that unemployment rate and FDI were significantly affected by economic crisis and ISIS war, while the relation between FDI and unemployment rate is in short term. Result of this paper is supported by the study of (Strata, Alexandru and Paul, 2015) who examined the short-run casual relation between unemployment rate and inflow of FDI in the latest thirteen member of the EU. In four states of the sample study, namely Hungary, Malta, Bulgaria and Estonia, only in short run FDI influence on unemployment rate. However, (Aktar and Ozturk, 2009; Hisarcikilar et al, 2009) did not find significant correlation in Taiwan.

In order to intensify massive foreign direct investment and to affect the reduction of unemployment problem, government should play key role in concentrating their effort to design attractive policies. Yet there is investment law in the region, the weakness and strength of the law is not examined; hence, it has not been largely effective in productive –inflow FDI as well as enhancing employment. Government should pay more attention to motivate foreign direct investment in banking sector; as it is underlined in section two that foreign investors have invested in all most all the sectors, but in banking it is not high. In Kurdistan most human capitals are not qualified and lacking experienced but not satisfied with low wage, therefore, there is not much job opportunity to provide them. So attempts should be taken to modernize wages to reflect the level of education, skills and capabilities of the workforces. Additionally, training program to enhancing quality of labor is really necessary, with focusing on political and economic stability. In short, short and long terms plan are needed, with incentive supervision of such plan. Further studies will include different macroeconomic variables for example, (GDP growth, and exports) as well as conduct various econometric methods with employing quarterly data.



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