FOREIGN DIRECT INVESTMENT AND UNEMPLOYMENT

EVIDENCE FROM THE REPUBLIC OF MACEDONIA

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Abstract

The aim of this paper is to analyze the relationship between unemployment and foreign direct investment (FDI) in the Republic of Macedonia. FDI is one of the explanatory variables, which also includes corruption, population size and inflation. Relationship assessment among variables is made by multiple linear regression analysis, using annual data for the period from 1999-2013. According to the empirical results it is concluded that FDI did not have statistically significant impact on the decrease of the unemployment. The impact of the inflation on unemployment is inverse, which means that increased inflation will reduce the unemployment in the economy. Also, reducing the corruption will contribute to the unemployment decrease as corruption had significant impact on the decrease of the unemployment.

Keywords: foreign direct investment, unemployment, inflation, corruption, population size

INTRODUCTION

One of the most important problems in the developing countries is the unemployment. In recent years, the researchers are focusing on determining the relationship between unemployment and economic growth, investment and other factors. The economic crises which have started in 2008, brought serious concerns about high unemployment rate and negative economic growth

that are evident not only in the developing countries, but also in the developed ones. Therefore lot of studies have in consideration and evaluate the effects of undertaken measures for reducing the unemployment.

There are a lot of discussions about how foreign direct investment may be a possible solution in unemployment reduction and economic growth. Foreign direct investment enhances private investments, encourage the creation of new jobs, transfer of knowledge and technological skills of the labour force and generally boosts economic growth in host countries.

A lot of research has been undertaken in an attempt to measure the extent to which foreign direct investments affects economic growth and reduce unemployment. Empirical evidence are confirming the positive effects of foreign direct investment and unemployment. Here we must underline the conclusions that the positive influence on economic growth is depending on the structure of the FDI. FDI that increase the export in the host country, and relay on highly qualified labor force are welcomed in the developing countries. Positive vibrations on unemployment can't be expected only by increasing the FDI. Significant part of the unemployed persons in the Republic of Macedonia are highly educated people, which is a worrying problem in most of the developing economies.

The main goal of the research is to evaluate the influence of the foreign investments, corruption, population size and inflation on the unemployment in the Republic of Macedonia. The interest for that analyses came for several reasons: first, the process of globalisation has increased the stock and movements of FDI in the world especially in the development countries. Thus, for developing countries, FDI became an important source of funding. Second, FDI effects on economic growth and unemployment are main objective in a lot of studies. The findings of these analyses are quite contradicting. Some assume beneficial effects resulting from FDI on economic growth and reducing unemployment, while others claim that FDI hinders economic growth and did not create new jobs. Third, most of the studies are conducted for the developed countries and for the SEE economies, because they share economic and cultural characteristics. The primary objective of this paper is to empirically evaluate the impact of the foreign direct investment on the unemployment, taken into the consideration with the population size, inflation and corruption in the Republic of Macedonia.

REVIEW OF EMPIRICAL LITERATURE

Many authors investigate the relationship between the FDI and unemployment. Some of the researchers consider the effect in specific economy (one single economy), while others use panel regressions for several countries. There are evidence for developed countries and recently for the developing countries.

Pavlos Stamatiou and Nikolaos Dritsakis (2014) are using several econometric models to evaluate the impact of the FDI on unemployment and economic growth in Greece. Analysis include annual time series data from the 1970 to 2012. The results confirm long run relationship among the examined variables. The VECM Granger causality results indicated both in the short and in the long run a strong unidirectional causality between economic development and foreign direct investment. The results of the study show that in the long term an increase of 1% of growth will cause an increase of 0,23% of FDI approximately, while a decrease in unemployment by 1% will cause an increase of 0,27% of the FDI. These results are more encouraging in the short term because an increase of 1% of growth will cause an increase of 0,36% of FDI. The analysis of equitation of FDI in the short run and in the long run shows that an increase of FDI will increase growth and will reduce unemployment.

Shaari , Mohd Shahidan, Hussain, Nor Ermawati, Halim, Mohd Suberi bin Ab. (2012), examine the relationship of FDI on the unemployment rate and economic growth in the Malaysia using annually data from 1980 till 2010 and the ordinary least squares method to analyze the data in this study. Findings indicate that FDI helped reduce the unemployment rate and increased the gross domestic product (GDP). A 1% increase in FDI caused a decrease of 0.009% in unemployment and an increase of 1.219% in GDP. These findings are highly important in policy formulation and implementation.

Nayyra Zeb, Fu Qiang and Muhammed Suhail Sharif (2014) use multiple regressions analysis to examine the effect of selected variables on unemployment in Pakistan, among which one of them are FDI. The study covers the period from 1995 to 2011. The results confirm that FDI play a significant role for the unemployment reduction in Pakistan. The coefficient of FDI was found having significant negative relationship with the dependent variable unemployment. If FDI increases then unemployment will decrease. One unit increase in FDI leads to 2,75 units decrease in unemployment.

The study of Sri Lanka (Velnampy, Achuchuthan, Kajananthan 2013) investigate the impact of foreign direct investment on economic growth and unemployment. According to the research questions and objectives of the study, researchers constructed three research models. In the first model, FDI is considered as the independent variable and economic growth is viewed as the dependent variable. The second model evaluate the economic growth as independent variable and its dependency from unemployment. The most relevant model for our study is the model three, where the independent variable FDI and dependent variable unemployment are taken. Data on the FDI, economic growth and unemployment are from the 1990 to 2011. The statistic results from the third model indicates that there is a long relationship between FDI and unemployment at five percent significant level.

Ismail and Latif (2009) studied the interrelationships among FDI, exports, unemployment and GDP by using VAR technique of variance decomposition and impulse response function for the period of 2001:1 to 2007:4 in Turkey. The study found that FDI does not have any impact on unemployment rate in Turkey.

The paper "Foreign Direct Investment and Employment Creation in Pacific Island Countries: An empirical study of Fiji" by Jayaraman and Singh (2007) have investigated the relationship between employment and foreign direct investment for Fiji, through a multivariate modeling strategy by including GDP. Econometric study was conducted for the 30 year period. The results show unidirectional long run causality running from foreign direct investment to employment and unidirectional causality running from foreign direct investment to GDP in the short-run.

METHODOLOGY

For the purpose of the paper we have conducted empirical analyses using multivariate regressions in which the unemployment is dependent variables, which is described with the foreign direct investment, corruption, population size and inflation.

Relationship assessment among variables is made by multiple linear regression analysis, using annual data for the period 1999-2013. The time series data for this period are methodologically compatible and comparable, so the variables that are used in the regression are the most appropriate, which allows drawing valid conclusions. The calculations of statistical parameters are obtained using the software package XLSTAT 2014.

The model constructed for regression analysis has the following expression:

$$Ln(Unemp) = \beta_0 + \beta_1 Ln(CORR) + \beta_2 Ln(FDI) + \beta_3 Ln(INF) + \beta_4 Ln(POPS) + Ln(Ut)$$

Where,

UNEMP – Number of Unemployed;

CORR – Corruption, Corruption Perception Index;

INF   – Inflation;

POPS – Population Size;

G   – Government Expenditures (% of GDP)

β_0 – Free article;

$\beta_1 ..... \beta_4$ – Coefficients to be evaluated;

Ut – Stochastic article

The Republic of Macedonia in the previous decades was facing the problem of high unemployment. The data for the unemployed people are in the range of 32,7% in the 1999 to 29,2% in 2013 (State Statistical Office of the Republic of Macedonia, Labour Force Survey). The data presented in the table below refers to the economic growth rate, employment and unemployment rate in the Republic of Macedonia considering the period from 1999 to 2013. In the Republic of Macedonia there are the periods of positive economic growth. However, the economic growth does not always cause positive changes in the employment.

Table 1. Economic growth rate, employment rate and unemployment rate in the
Republic of Macedonia, 1999-2013

Year	Economic Growth Rate	Employment Rate*	Unemployment Rate**
1999	4,3	40,2	32,7
2000	4,5	40,3	32,5
2001	-3,1	42,6	31,1
2002	1,5	40,4	32,4
2003	2,2	38,5	37,1
2004	4,7	36,8	37,4
2005	4,7	37,9	37,6
2006	5,1	39,6	36,3
2007	6,5	40,7	35,2
2008	5,5	41,9	34,0
2009	-0,4	43,3	32,3
2010	3,4	43,5	32,2
2011	2,3	43,9	31,6
2012	-0,5	44,0	31,2
2013	2,7	46,0	29,2

* Employment rate is calculated as participation of the employed (15-64) in the working-age population (15-64) ** Unemployment rate is calculated as participation of the unemployed (15-64) in the labour force (15-64)

Source: State Statistical Office of the Republic of Macedonia, Labour Force Survey, no. 2.4.06 (1999), no.2.4.1.03 (2000), no.2.4.2.08/410 (2002), no.2.4.3.13/453 (2003), no.2.4.5.02/494 (2004), no.2.4.6.07/531 (2005), no.2.4.8. 06 (2007), no.2.4.9.12/632 (2008), no.2.4.10.04/651 (2009), no.2.4.11.09/692 (2010), no.2.4.12.11/727 (2011), no.2.4.10.04/651 (2012), no. 2.4.14.04/779 (2013), Statistical Yearbooks 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013., Statistical Review National Economy and Finance, 3.4.14.04/793 (2014), Gross Domestic Product - New Release no. 3.1.14.06 (2014); National Bank of the Republic of Macedonia, Quarterly Report - Statistical Appendix IV/2009, IV/2010, IV/2011, IV/2012, IV/2013 and IV/2014
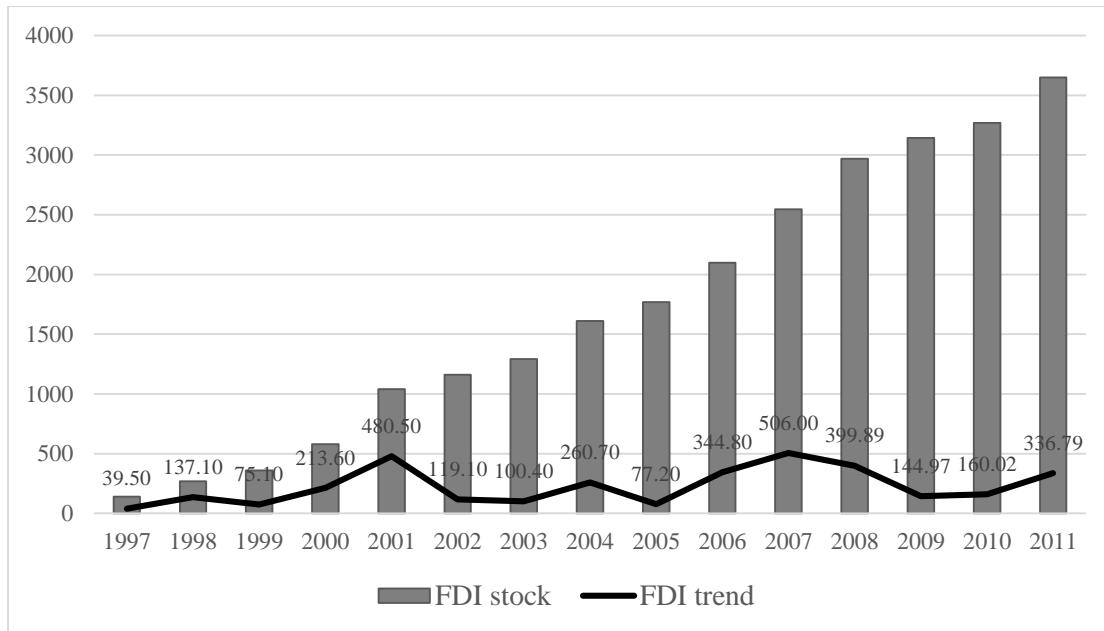
As a result of the military conflict in 2001, the period of positive economic growth was terminated. The economic growth rate in 2001 was negative (-3,1%). From 2002 till 2008 the period of economic recovery has followed. The rate of economic growth varies from 1,5 % in 2002 to 6,5% in 2007. This is the highest rate of economic growth that was realized in the Republic of Macedonia in the period from its independence until today.

Moreover, a special interest for consideration arises the employment rate. The aforementioned dynamics of the economic growth rate cause very small and insignificant changes in the employment rate in the Republic of Macedonia. The positive increase in the employment rate is evident in 2001, which started slowly to decrease in the following years (40,4 % in 2002, 38,5% in 2003 and 36,8 in 2004). After five years of continuous economic growth period, the employment rate have started to increase. The highest level of employment in the past period is achieved in 2013 (46,0)%.

Basic prerequisites for attracting foreign direct investments are: political and macroeconomic stability of the country, favorable business environment, infrastructure development and credibility of government policy. The use of restrictive monetary and fiscal policy in recent years has enabled the achievement of macroeconomic stability in the Republic of Macedonia. But this stability does not bear economic growth. The last financial and global crisis caused recession in the whole world. Increased inflation rate and jobless growth disturbed the established macroeconomic stability, and that made Republic of Macedonia more risky country for foreign investors. Political instability is another important factor that discourages FDI. Republic of Macedonia pays special attention to establish a better business environment. Special government measures are made to ensure favorable conditions for foreign investors. These measures include: institutional framework for investors, providing well developed infrastructure network and a lot of legal and fiscal advantages.

Apart of previously mentioned terms and undertaken measures to attract foreign investors the FDI inflow in the country is still low. Compared to the other countries in the group of transition economies, the Republic of Macedonia is ranked in the group of countries with the lowest inflows and outflows of FDI (UNCTAD World Investment Report 2013: 91-94). The range of the inflows and outflows of FDI, for the period 2006-2012 is below 0,5 billion $ 20 (UNCTAD World Investment Report 2013). The situation with FDI in the Republic in Macedonia showed as stock and trend is presented in the figure 1.

Figure 1 Stock and movements of FDI in the Republic of Macedonia
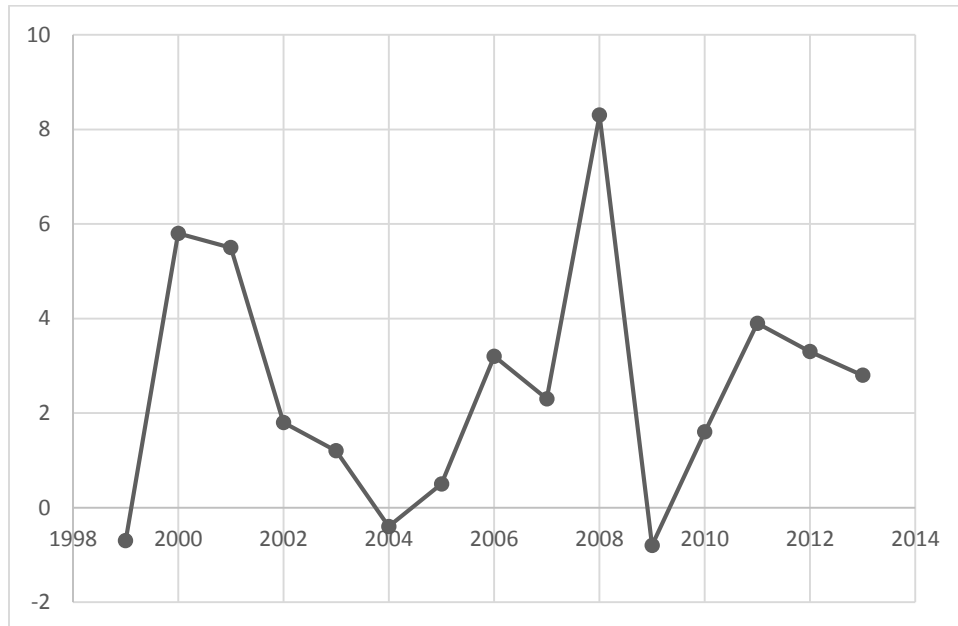in million €

Source: National Bank of the Republic of Macedonia

FDI is one of the independent variables in the multiple regression, which will evaluate the impact of FDI on the unemployment in the Republic of Macedonia. Investments whether domestic or foreign, increase the physical capital goods in the economy. Thereby, increased potential levels of GDP allow higher real GDP to be realized and to increase the employment. The theoretical logic suggests a positive impact of foreign direct investment and economic growth and unemployment. FDI positively affects the economy by increasing the productivity and efficiency, as well as the level of physical and human capital, then by increasing the competition, by creation of new jobs and directly by decreasing the unemployment rate. Also, allows technology transfer and encourages innovative activity and research. However, empirical research does not always confirm the above-defined positive determination. Therefore, we can confidently assume that FDI will show positive influence on the unemployment in the Republic of Macedonia.

The rate of inflation was decreased from 128.3% in 1994 to 15.7% in 1995. The downward trend in the rate of inflation continued to decline until 1998 (-0.1%) and 1999 (-0.7%), when the economy felt the depressive effect of deflation. In 2000 it was increased to 5.8% and for the next period decreased to -0.4% in 2004. The highest value was recorded in 2008 by 8.3%. From 2011 the CPI records low levels and in the 2013 is 2.8%. Figure 2 shows the movement of the rate of inflation in the country in the period 1999 to 2013.

The effect of inflation in the economy can be simultaneously positive or negative. The increasing rate of inflation is the sign that economy reach the positive growth while the low level of inflation is opposing with the employment. According to the previous data for the inflation, we predict that the inflation will have negative impact on the unemployment in the Republic of Macedonia.

Figure 2 Rate of Inflation (Consumer Price Index) in the Republic of Macedonia

Source: Ministry of Finance of the Republic of Macedonia, htpp://finance.gov.mk; National Bank of the Republic of Macedonia

Another variable that we consider in this research is the corruption. Corruption is a serious problem particularly in the government and lower level of authority. Having in mind the definition of corruption as dishonest actions that destroys people's trust in the person or group or fraudulent conduct by those in position of power such as managers or government officials typically involving bribery, estimating the impact on unemployment is the challenge. We use the data for the Corruption Perception Index that measures the perceived level of corruption in the public sector. The data are from Transparency International who calculates this index and ranks countries from highly corrupt (0 and closes to 0 index) and low corruption and clean (100 and nearly to 100). The highest corruption index is expected to have positive impact on unemployment and inversely.

Table 2 Symbols, description and expected sign of the variables in the regression

Symbol	Description of the explanatory variable	Expected sign in the regression
CORR	Corruption Perception Index	-
FDI	Foreign direct investment (in million euros)	+/-
INF	Inflation Rate (Consumer Price Index)	+/-
POPS	Populations Size (million people)	+/-

Note: "+" represents positive attitude, "-" a negative attitude, "0" and "+ and -" are theoretically ambiguous relationship with the dependent variable

Evidence for the score of the corruptions in the Republic of Macedonia is low and it varies from 2.3 in the 2003 to 4.4 in 2013, which ranks the country from 106 to 64 place in the rank lists with other countries. So, the corruption is real problem that will assures the negative impact on unemployment in Macedonia.

Population size is the most relevant variable for the unemployment. Considering the population size we became familiar with the trend of increasing the population. This statistics give us the number of people that are our independent variable. We assume positive impact on the unemployment in Macedonia. The description and expected sign of the variables in the regression are shown in the table 2.

EMPIRICAL RESULTS

The calculation of the lin-log model is made with multiple linear regressions using the software package XLSTAT, 2014. The database used in the regression consists of annual data for the period 1999 to 2013, for the Republic of Macedonia. They are provided by primary and secondary data sources from the State Statistical Office, National Bank of the Republic of Macedonia, Ministry of Finance, Transparency International as well as the database for the Republic of Macedonia from International Monetary Fund.

In estimating the parameters of statistical analysis model the method of least squares is used with the assessment. Significant assumptions that should be considered in the interpretation of the regression parameters are multicollinearity, heteroscedasticity and autocorrelation statistical errors.

The analyses starts with conducting the unit root test for the variables. Augmented Dickey Fuller test result shows that series for unemployment, corruption and foreign direct investments were non-stationary and the risk for rejection the null hypotheses (there is a unit root for the series) for the unemployment series was 73,27%, for corruption 93,44% and FDI series 92,29%. The results are presented in the table 3.

Table 3 Augmented Dicky Fuller unit root test results (XLSTAT output)

Variables	Tau (observed values)	Tau (Critical Values)	P-value
Ln(UNEMP)	-1,331	-0.155	0,733
Ln(CORR)	-0,061	0,109	0,934
Ln(FDI)	-0,423	-0,155	0,922
Ln(INF)	-3,290	0,109	0,123
Ln(POPS)	-6,474	-0,082	0,004

The transformation of data with first difference, at 5% level of significance, does not overcame the problem of stationary. According to this, it was necessary non-stationary variable series to be transform using the Box-Cox transformation methodology.

Another relevant aspects for the data is the presence of the multicollinearity between variables. The test was performed on the transformed data and the results of the VIF parameter are in the range that shows that the regressions coefficient are moderately correlated, (VIF is in the range of 1 to 5), except for the population size (VIF-6,056). Heteroskedasticity was not evident.

The value of $R^2 = 0,800$ is satisfying condition for accepting the results as reliable, which means that independent variable unemployment in our model predict 80% of the variation in the dependent variable. Durbin-Watson test (DW= 2,735) did not show the presence of autocorrelation. The conclusion of the summarized results of the regressions are presented in the table 4.

Table 4 The results from the regression

Variables	Coefficient	Standard Error	t-statistic	Pr > |t|
Intercept	-9,683	9,925	-0,976	0,385
Box-Cox Ln(CORR)	-0,014	0,007	-1,851**	0,138
Box-Cox Ln(FDI)	0,067	0,041	1,619	0,181
Box-Cox Ln(INF)	-0,004	0,002	-1,937**	0,125
Box-Cox Ln(POPS)	0,832	0,687	1,212	0,292
R-Squared	0,800			
Adjusted R-Squared	0,601			
Durbin-Watson Statistic	2,735			

Note: *, ** and *** show significant at 1%, 5% and 10% levels respectively

The equation has the following form:

Ln(UNEMP)=-9,68-1,37E-02*Ln(CORR)+6,71E-02Ln(FDI)-4,10E-3*Ln(INF)+0,83*Ln(POPS)

From the results we get the confirmation of the theoretical statements for the impact of the inflation on the unemployment. This relation is inverse, which means that increased inflation will reduce the unemployment in the economy. In our regressions, the inflation, according to the 5% level of statistical significance shows statistical relevance. It is that increasing the inflation rate for 5% will decrease the unemployment approximately for 0,4 percentage point.

The results for the corruption, also confirm the theoretical assumption. In the economy where the corruption is evident, tackling unemployment is particular challenge. Corruption indicator for the Republic of Macedonia in the analyzed period ranks the country among highly corrupted economies. This circumstances additionally exacerbated the problem of unemployment. Corruption does not allow the labor market to function in the normal market conditions and the employment is subject to corrupt activities. Logical thinking is that reducing the level of corruption is going to overcome this problem. Therefore, all measures and actions of reduction and overcoming the problem of corruption is desirable and favorable impact on reducing the unemployment. Results of the regression confirm such claims. Reducing the corruption for 5% will decrease the unemployment around 1,4 (0,014) percentage points.

According to the results of the regression our hypothesis that FDI have positive impact and are statistically important for decrease the unemployment in the Republic of Macedonia cannot be confirmed. The impact of FDI to unemployment are not statistically significant. It means that, unemployment is influenced by other factors significantly. Economic growth takes the prominent role to reduce the unemployment. And also FDI is not in the striking position to influence the economic growth and to decrease the unemployment in the Republic of Macedonia.

This can be explained with the fact that in the period from 2009 to 2013, FDI have the largest share in the service sector: 54.83% in 2009, 51.54% in 2010, 47.75% in 2011, 48.09% in 2012 and 47.37 in 2013, while in the manufacturing sector, the share of FDI is around 35% (National Bank of the Republic of Macedonia Statistics). Most of the FDI in Macedonia are in the highly profitable sectors like telecommunications, banking, insurance, and distribution of electricity. They employ highly skilled workforce. So far their presence does not significantly affect the unemployment decrease. The results from the regressions indicate that in the observed period (1999-2013) FDI did not create sufficient new jobs. Macedonia should focus on attracting FDI in sectors that produce goods and services with high added value, and which will be competitive on foreign markets. That will increase the competitiveness of the economy and

will positively effect on increasing the export, GDP and employment. Also, we consider that supporting and encouraging the domestic investments can significantly boost economic activity and growth.

CONCLUSION

Macroeconomic indicators in the Republic of Macedonia are confirming that the higher economic growth rates are realized in terms of the investments increase. Regarding the limited financial capital in the country in the last decade, the attention of the economic policy creators was focused on the increase of the foreign direct investments, as one of the main preconditions to achieve more dynamic economic growth. Basic prerequisites for attracting foreign direct investments are: political and macroeconomic stability of the country, favorable business environment, infrastructure development and credibility of the government policy. However, the relation between FDI and unemployment is not easy to be determined by policy makers.

In this paper we consider the impact of FDI as one of the explanatory variables on the unemployment in the Republic of Macedonia. Other variables that were taken in considerations are corruption, population size and inflation. Relationship assessment among variables is made by multiple linear regression analysis, using annual data for the period 1999-2013 year. The calculations of statistical parameters are obtained using the software package XLSTAT 2014.

The results from the regressions are showing that the population size did not show statistical significance. The results for the corruption and inflation confirm the theoretical assumption for the impact on unemployment. The increase of the inflation rate for 5% will decrease the unemployment approximately for 0,4 percentage point, while the decrease of the corruption for 5% will contribute to the unemployment decline for around 1,4 percentage points.

The results from the study show that the impact of the FDI on unemployment is not statistically significant. It means that, unemployment is more influenced by other factors. Economic growth takes the prominent role to decrease the unemployment. However, FDI is not in the striking position to influence the economic growth and to decrease the unemployment in the Republic of Macedonia. It may refer to the fact that FDI inflows have a positive impact in the labor market, but didn't create sufficient new jobs. The theoretical background, as well as the positive effects in some countries, are showing that the green investments in the high-tech industries will stimulate the economic growth on long term. So, attracting this type of FDI inflows, should be priority of the Republic of Macedonia's investment policy.

The conclusion would be that the measures of the macroeconomic policy should be directed toward increasing FDI in the high added value sectors, but also toward fostering and

encouraging domestic investments, which are important assumptions for economic growth and creation of new jobs.

The ideas for future research can be focused towards analysis of the sectors in which the FDI are mostly directed, as well as on analyzing the structure and the scope of the employment in all sectors of FDI in the Republic of Macedonia. The results from this further research should confirm whether the politics for encouraging FDI in certain sectors is the appropriate strategy to boost economic activity and to increase the employment in the Republic of Macedonia as a developing country.

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