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Econometric Analysis to Examine the Relationship between Unemployment and Macroeconomics Aggregates. Evidence from Kosovo

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Abstract

Unemployment is considered one of the most challenging economic problems in Kosovo. In fact, the very high unemployment rate is also the primary economic problem of the country. The purpose of this study is to analyze the correlation and the impact of macroeconomic aggregates in Kosovo's unemployment. Specifically, this study utilized macroeconomic aggregates as follows: Gross Domestic Product, Foreign Direct Investment, Exports, and Inflation. To prove this relationship, based on the theoretical literature, the econometrical model was constructed with multiple regressions analysis based on the Ordinary Least Square (OLS) method, utilizing secondary data from World Bank Indicators for the time period of 2001 till 2018 The paper concludes that in Kosovo, for the time period under consideration (2001–2018), the link between unemployment and economic growth is significant and the results show that 1% growth of Gross Domestic Product will lower the unemployment rate by 1.7%. Also, the results of the regression model show that the relationship between Export and Unemployment rate is significant, namely the increase in Export by 1% will reduce the Unemployment rate to (1,154) while the relation between Foreign Direct Investment and Unemployment rate results negative as growth for 1% of Foreign Direct Investment will increase the Unemployment rate to 1.25. Meanwhile, the results between unemployment and inflation showed an unsatisfactory and insignificant relationship between them.

Keywords

Unemployment, economic growth, macroeconomic variables, gross domestic product, inflation, foreign direct investments, exports

JEL Codes: E60; O11

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1. Introduction

Unemployment is the most drastic form of social inequality and has severe consequences for social and economic stability. As a general social phenomenon, unemployment is prevalent in all countries of the world, so many states have been forced to take various measures and policies to reduce the high rates of this phenomenon in order to ensure social stability. States with high unemployment are characterized by numerous economic costs and social tensions, and social instability deficiencies.

There are many factors that affect unemployment. The main factor that can affect unemployment is economic growth. It is commonly believed that the link between unemployment and economic growth is presented by Okun's Law. Theoretically, a high rate of economic growth could reduce unemployment. Inflation rate is another important factor affecting unemployment. Although the Philips Curve shows a negative association, some studies have found a positive, negative or insignificant relationship between the two variables. Other indicators of macroeconomic stability that may affect unemployment are exports and foreign direct investment. According to economic theory, these two variables have a negative relationship with unemployment, and in general export and foreign direct investment are expected to have a positive impact on the increase in the employment rate thus lowering the unemployment rate. In the case of foreign direct investment, the economic and social effects also depend on investor motivation and business investment strategy.

Furthermore, there is a trend of studies linking unemployment to these macroeconomic variables and other variables at the macroeconomic level. Therefore, considering the importance of these macroeconomic indicators, this paper will examine the possible relationship between the unemployment rate and the macroeconomic variables (Gross Domestic Product, Inflation, Exports, and Foreign Direct Investment) in Kosovo. Exploring this link is important to see how the interconnections between these aggregates in Kosovo stand, in order to take measures to mitigate this high unemployment rate and get a better picture of the real social costs of unemployment The main purpose of this research paper is to investigate the determinants of the unemployment rate during the period 2005-2017 in Kosovo. This study empirically examines the impact of macroeconomic variables on economic growth including: Gross Domestic Product (GDP), Inflation, Exports, Foreign Direct Investment. The main hypothesis include: H_1: Gross Domestic Product Growth Has Positive Impact on

Unemployment Rate H_2: There is a direct relationship between macroeconomic variables and unemployment rate. H_3: Foreign Direct Investment has a negative impact on the unemployment rate. H_4: Export growth has a positive effect on lowering the unemployment rate.

2. Literature review

Gross Domestic Product is the result of the work (economic activities) of a country's economy in the sphere of production and consists of all the goods produced and the various services that it performs within a given year or period of time, thus according to productivity criterion GDP represents the value of final products and services produced in a country's economy over a given period of time (Limani, 2013). One of the public policy perspectives, as the main driver of the unemployment rate, is the pace of economic growth. Economic growth is one of the most important indicators of a healthy economy. One of the biggest impacts of a country's long-term growth is that it has a positive impact on national income and employment levels. labor and employment increase, and this increase improved the standard of living.

As the economy grows, it has a significant impact on employment growth and employment growth plays a major role in economic growth (William, 2005) Different economists give different opinions on the ratio of economic growth and other variables but mostly most studies present a negative relationship between unemployment and economic growth. The negative link between unemployment and economic growth is also shown by Okun's Law, which shows that when the growth rate is above the trend rate of 2.25%, the unemployment rate drops. In particular, for every 1% real GDP growth over the one-year trend growth rate, the unemployment rate drops to 0.5%. Solow (1995) developed the neo-classical theory of economic growth and made a major contribution to understanding the factors that determine the rate of economic growth, and according to him growth comes from the addition of more capital and labor inputs and also from ideas. and new technologies. The Solow model believes that a steady increase in capital investment increases the rate of growth only temporarily, because the ratio of capital to labor increases. However, the marginal product of additional equity units may fall and so an economy turns into a long-term growth path, with real GDP growing at the same rate as labor growth, plus a factor to reflect productivity improvement. A steady path of state growth is achieved when production, capital, and labor are ever increasing at the same rate.

Neoclassical economists believe that to increase the rate of economic growth trend requires an increase in labor supply and a higher level of labor and capital productivity. Differences in the pace of technological change between countries also explain many of the variations we see in growth rates. strongly support Okum's law (Lee, 2000). However, in some studies the economic growth did not affect the reduction of the unemployment rate. Herman (2012) in his study examined the relationship of economic growth on Romanian unemployment for 1990–2010 and concluded that economic growth has no impact on employment. However, the importance of economic growth is enormous and would assist Kosovo in various macroeconomic objectives such as reducing unemployment, reducing poverty, improving public services, and improving the quality of life in general. Many researchers have dealt with the study of unemployment as well as its relation to economic growth and other macroeconomic variables. Various studies have mainly discussed the link between unemployment and economic growth, and most of them show a negative relationship between unemployment and. Economic growth. Farsio & Quade (2003) empirically explored the relationship between unemployment and GDP using quarterly data for the United States over a twenty-year period. Using a simple regression, the authors determined that the unemployment rate has a significant and negative effect on economic growth, however, the coefficient estimate is much lower than Okun's estimate. They showed that changes in unemployment can lead to changes in production in the opposite direction.

Moreover, they argued that although many factors cause changes in production, unemployment is most evident because it has a direct impact on production. To a greater extent, many researchers believe that a reduction in the unemployment rate should increase production of goods and services.

Lee (2000) conducted the research for 16 countries of the Organization of Eastern Caribbean States (OECS), in his study that supported Okun's law, testified to the existence of a strong relationship between economic growth and unemployment. The data sample generally supported the validity of the Okun law in terms of statistical significance in parameter estimates, and as a result of its analysis and findings it is concluded that there is a cointegration between unemployment and growth variables.However, estimates of Okun's law vary widely across countries and regions, and some studies have found no significant relationship between unemployment and economic growth. Moosa, (2008) examined the relationship between economic growth and unemployment in four Arab countries. To estimate the correlation between unemployment and economic growth from 1990 to 2005 in four Arab countries Algeria, Egypt, Morocco and Tunisia. One of the biggest problems in Arab countries is unemployment, and especially in non-oil producing countries. The research describes that unemployment in these countries is not cyclical unemployment caused by the recession in the economy, but by other factors such as the high cost of doing business and the fact that people do not have the skills for existing jobs. Moosa

estimates there is no link between unemployment and economic growth, which means Okun's law turns out to be statistically insignificant. Also, this research shows that the economic growth rate does not interpret unemployment problems in these four countries.

Singh (2018) examined the impact of inflation on GDP and unemployment rate in India. Based on data obtained from secondary sources for the time period 2011-2018, the final results of the study concluded that inflation had a negligible impact on GDP and unemployment, and that the correlation was negative. The correlation between unemployment and inflation was found to be insignificant, as well as between GDP and unemployment, with a negligible value of 0.196. Therefore, his research came to the conclusions that inflation has a role to play, but for GDP and unemployment are considered insignificant levels in the macroeconomic factors of the Indian economy. Resurreccion, (2014) analyzed the relationship between unemployment and inflation as well as economic growth in the Philippines. This was an in-depth study for the period 1980-2009. To investigate the issue of unemployment, as an additional explanatory variable, the age dependency ratio was also introduced, which is based on the premise that a high age dependency ratio would result in lower unemployment. Also, the OLS econometric model was used to test the hypotheses in this study, while the "White" and "VIF" tests were used to test for the different variations and the correlation between the variables. This study also confirms Okun's Law and Philips' Curve, finding that unemployment is negatively related to inflation and economic growth. In addition, this study found that the age dependency ratio is positively related to unemployment, albeit a non-significant relationship.

Whereas, Jie (2010) has estimated the relationship between the unemployment rate and the inflation rate, following the defined Phillips curve model. In his study, using valid parameter models to analyze the trend of dynamic change in output prices, he found that there was a significant relationship between the unemployment rate and the inflation rate in China as Phillips' short-run curve, and that the coefficients of the inflation rate response to the economic growth rate are positive, which means that the impact on the economic system mainly comes from aggregate demand. Khan & Senhadji (2001) analyzed the effect of the inflation threshold on economic growth for 140 industrialized and developing countries using the nonlinear theatrical method. Using the dataset from 1960 to 1998, they predicted an inflation threshold, in order to achieve the desired growth rate, of 1 to 3 percent for industrialized countries, and 7 to 11 percent for developing countries. The low inflation outlook for sustainable growth is strongly supported by this study. Khan & Chhapra (2016) analyzed the impact of GDP and macroeconomic variables on Pakistan's economic growth, using data from 30 years of Pakistani economy, namely 1983-2012. This research determined the effects on GDP performance in Pakistan using unemployment, inflation, foreign direct investment (FDI), and import prices of goods and services. In the research study different statistical techniques were applied, as well as five SEM models to evaluate causal relationships.

The findings of the study resulted in GDP being negative with a significant p-value, which means that GDP indicates a long-term relationship with unemployment, inflation, FDI, and imports; however, in the short run unemployment, inflation, FDI and imports have an impact on GDP. Whereas, Azmi (2013) has examined the empirical link between GDP and unemployment, interest rate and government spending in Malaysia for a time period of 30 years, from 1981 to 2010, using secondary data from the World Bank and the. Central Bank of Malaysia. He also analyzed the relationship between these macroeconomic aggregates, using the multiple regression method, taking GDP as the dependent variable, while unemployment, interest rate and government spending as independent variables. The underlying argument of this study revealed that the unemployment rate is negatively correlated with GDP, while government spending is positively correlated with GDP also inflation, interest rate and exchange rate.

Doğan (2012) examines the effect of macroeconomic variables on unemployment in Turkey. To investigate the effects of macroeconomic variables, this study used the autoregressive vector model (VAR), using quarterly data, for a period of 10 years, from 2000 to 2010. The final results of this study indicate that economic growth, export and inflation reduce unemployment. On the other hand, shocks to exchange rates, interbank interest rates and money supply increase unemployment. Agnello and Sousa, (2009) investigate the role of high inflation coupled with economic problems for GDP deficit ratio and financial instability. They found that these variables are primarily responses to economic problems for the community, as these variables mainly increase unemployment. They used the GMM estimator for dynamic linear panel data models, and a sample of 125 countries for the time period 1980 to 2006. The results show that the effect of the fiscal deficit is in association with the high inflation rate.Also, the finding in their study was that higher volatility of the public deficit is usually associated with higher levels of political instability as well as less democracy. In addition, they also concluded that economic growth, with the help of mobilizing economic resources, supports corrective steps for the development and control of inflation and unemployment.

3. Methodology of research

The econometric model - the least squares method was used for this study. The Ordinary Least Square Regression (OLS) is the simplest method for analysis and is an approximate estimator of the conditional mean of the dependent variable when we have one or more independent variables.OLS - for was first introduced by the French mathematician Legendre (1805) and the term 'Regression' was introduced by Galton and subsequently validated by Pearson, namely known for the law of universal regression of human length. To test the importance of macroeconomic evidence utilizing the STATA software program. In the following we will interpret the data and their source to follow the regression analysis and findings.

3.1. The data and source

The data used for the realization of the econometric model are secondary data obtained from the World Bank Indicators for Kosovo for the time period 2005-2017. The modified and adapted multi-factorial econometric model in this study aims to test the hypotheses using the Stata software program. The statistical data will also help to calculate and compare numerical information, and to present this information and comparisons in the form of graphs. Secondary data obtained from the World Bank Indicators for Kosovo are also presented through graphs. The data are taken for the macroeconomic variables we are considering: unemployment, gross domestic product, exports, foreign direct investment and inflation. Based on the economic importance of the data and the validity of the variables we have constructed the econometric model where for the dependent variable we have set the unemployment rate and the independent variables have determined the macroeconomic aggregates.

3.2. Econometric model OLS

Table 1. The independent variables in the model

Independent variables in the model	TYPE OF RELATIONSHIP
▪ Gross Domestic Product (GDP)	▪ Inverse (Reverse)
▪ Export	▪ Inverse
▪ Foreign Direct Investment	▪ Direct vs. Inverse
▪ Inflation	▪ Inverse

Source: Author's udapted regression model

The econometric model represents an abstraction of reality. In the simple regression model we have the dependent variable and an explanatory variable including the random error which implies all other factors that may affect the dependent variable but are not taken into account in the model. Dependent variable = Constant + explanatory variables + error term, On the left side of the equation is the dependent variable and on the right side of the equation are: a) Constant; b) Explanatory variables and c) error Term

$$\gamma_i = \beta_0 + \beta_1 X1 + \mu_i \quad (1)$$

In our concrete case we have constructed a multifactorial regression model which takes the form:

$$\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_{3+} \dots \beta_n X_n + \mu \quad (2)$$

From the data we have available in the research the econometric model takes the folowing form:

$$\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_{3+} \beta_4 X_4 + \mu \quad (3)$$

In our concrete case we have constructed the multivariate regression model: From the data available in the research, the econometric model takes the form of: When we replace the variables we used in our model we create the following equation:

$$Unempl.rate = Constant\beta_0 + \beta_1 GDP + \beta_2 FDI + \beta_3 Export_{+} \beta_4 Inflation + \mu \quad (4)$$

4. Empirical results

Based on econometric testing using the STATA software program we will interpret the results in the below section. And by substituting the results from our model then the equation takes the following form:

$$Unempl.rate = 58.99973 - 1.695574\ GDP + 1.255588\ FDI - 1.154765\ Export\ -.2137462 Inflation + \mu \quad (5)$$

In the table below are the data and results we have derived from our multi-factor model through the Stata program and will then interpret the findings.

Table 2. Results of the multi-factor model using OLS method, Coefficient of dettermination R

Number of onservation	11
F (4,6)	14.50
Prob > F	0.0031
R-squared	0.9062
Adj R-squared	0.8437
Root MSE	29.153

Source: Author's calculations through the Stata program

Regarding the results obtain from STATA program we can coclude that the model is significant with R – square 0.9062 that means that the independent variables explain the dependet variable in this econometric regression model. The determinant coefficient R means that the model is significant and over 90% explains the influence of the independent variables on the dependent variables.Based on the findings from the Stata software program on the multiple econometric model we evaluate the significant and highly significant model with the Adjusted R – squared 0.8437.

Table 3. Results of the multi-factor model using OLS method, importance of variables in the model

Unemployment rate	Coef.	Std.Err.	t	P>|t|	[95% Conf. Interval]
GDP	|-1.695574	.7201566	-2.350	.057	.0665857
FDI	|1.255588	.46169942	.720	.035	.385326
EXPORT	|-1.154765	.2367257	-4.880	.003	-.5755181
Inflation	|-.2137462	.3763498	-0.570	.591	.7071485
_cons	58.999.736	.6882828	.820	.00042	.36537

Source: Author's calculations through the Stata program

We will evaluate variables based on p-value. The model shows that the independent variable GDP with p - value 0.057 fulfills the relevance criterion required, ie p - value less than or equal to 0.05. Interpreting the independent variable in this case implies that an increase of one percent of GDP in Kosovo will cause the unemployment rate to fall by (1.695574). The independent foreign direct investment variable is significant in the model and explains the dependent variable with p-value = 0.035 which implies an increase of one percent of foreign direct investment will cause an increase in the unemployment rate by 1.255588. These regressed findings, though contradictory to economic theory, since FDI is generally expected to have a positive impact on the employment rate excatly FDI increase the employment rate thus lowering the unemployment rate. From the regression results we find that FDI growth raises the rate of unemployment even further and this as a result of the automation of jobs, robotics and innovation that FDI carries into the economies of developing countries. Other studies have found similar findings.

The concluding results of Mucuk & Demirsel (2013) analysis of Argentina, Chile, Colombia, Philippines, Thailand, Turkey and Uruguay showed that FDI increases unemployment in Turkey and Argentina, while decreasing it in Thailand. Many analysts support the theory that Foreign Direct Investment Increases Equity net and create jobs in the expanding industries. Also, even when looking at the quality of employment, FDIs pay higher salaries and have higher productivity. However, FDI, on the other hand, can have negative effects as acquisitions can result in rationalization and loss of employment. Also, reliance on imports or relocations of existing firms can result in job losses and an increase in the unemployment rate. Therefore, knowing these negative effects of foreign direct investment also explains the findings of our analysis and results in the case of Kosovo, because these causes and effects may affect FDI resulting in job losses and rising unemployment rates. Whereas, the independent export variable is significant with a p-value of 0.030 which implies a one percent increase in exports will affect the unemployment rate decrease by (1.154765).

Our findings are also supported by a lot of research done by different researchers since theoretically the increase in exports lowers the unemployment rate. Such results also had the authors we reviewed in empirical literature such as Doğan (2012) and (Gaston & Rajaguru, 2013). Inflation as an independent variable in the model is not significant with p - value 0.591 therefore we do not interpret the same. Similar results have been found by previous researchers in relation to the unstable relationship of inflation to unemployment. Singh b.(2018), concluded that inflation has a role to play, but for GDP and unemployment are considered insignificant levels in the macroeconomic factors of the Indian economy. Similar results were also shown by our regression analyzes of inflation with unemployment in Kosovo, which was a non-significant relation to GDP and unemployment.

Table4. Correlations Analysis between Macroeconomic Variables

	Unemploymnet rate	GDP	FDI	Export	Inflation
Unemploymnet rate	1				
GDP	0,2304	1			
FDI	0,698	0,484	1		
Export	-0,852	-0,451	-0,52	1	
Inflation	0,265	-0,066	0,513	-0,072	1

Source: The data was processed by the author himself based on the regression data - the STATA program

The table shows the correlations between the variables under consideration including unemployment rate, gross domestic product, foreign direct investment, export and inflation. The correlations estimate the power of the linear relationship between two (and only two) variables. The correlation coefficients range from -1.0 (a perfect negative correlation) to 1.0 (a perfect positive correlation). Narrow correlation coefficients take values from -1.0 to 1.0, The closer to 1.0 the stronger the correlation. The closer a correlation coefficient gets to zero, the weaker the relation between the two variables.

The relationship between the unemployment rate and the gross domestic product is positive and this is explained by the positive correlation coefficients of 0.2304. The relationship between the unemployment rate and foreign direct investment is positive and strong. This is explained by the positive correlation coefficient reaching 0.6989. Unemployment rate and export,the correlation according to the correlation results is negative and takes the value (0.852).The relation between unemployment and inflation based on the correlation coefficient is positive 0.265. Gross domestic product and foreign direct investment, the relationship is positive based on the correlation coefficient of 0.484. Gross domestic production and export are negatively correlated regarding Pearson Correlation -0.451. Gross output. domestic and inflation are also negatively correlated to -0.066. Foreign direct investment in relation to export has negative causal relation in Pearson correlation value (0.515) Foreign direct investment in relation to inflation have strong positive correlation based on coefficient export and inflation are negatively correlated and the coefficient takes the value (0.072).

4.1. Macroeconomics indicators for Kosovo under years

In this section of the paper are presented main macroeconomics aggregates for time period 2001-2018 for Kosovo using secondary data from World Bank Indicators.

Figure 1. Inflation, GDP deflator (annual %)

Source: The data is obtained from World Bank Indicators for Kosovo under years http://dataworldbank.org, author's calculation

Secondary data obtained from World Bank Indicators show that inflation in Kosovo has had various positive and negative fluctuations during the time period 2001-2018. The highest inflation rate is recorded in 2004, at 12.98 percent. In 2015 inflation was 0.20 percentage, showing increasing trend for time period from 2016 till 2018. In 2016 the infation was 0.44; in 2017 it was up to 1.37 percentage, in 2018 the inflation was decreased exactlly at 1.01.Noted that Kosovo does not have its own currency, and uses the Euro currency, so the lack of monetary policy control is one of the main factors behind Kosovo's inflation rate fluctuations and trends.

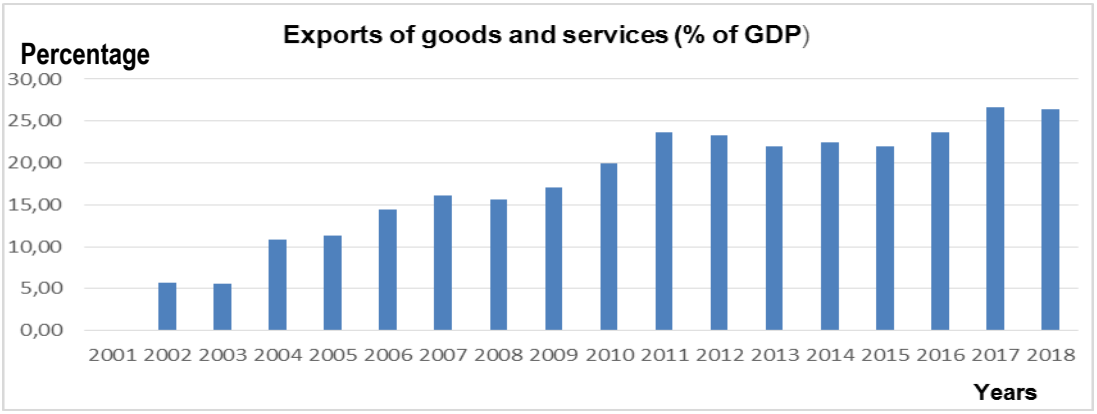

Figure 2. Exports of goods and services (% of GDP)

Source: The data is obtained from World Bank Indicators for Kosovo under years http://dataworldbank.org, author's calculation

From the above chart we can see that Exports in Kosovo have also increased over the time period under consideration exactly for time period 2001 -2018. During this period, the highest growth of exports of goods and services as a percentage of Gross Domestic Product was in 2017 with 26.6 percent. Exports were low in 2002 due to the war in Kosovo and then gradually began to increase. Compared to 2016, where exports were 23.7 percent, in 2017 there was an increase exactly the exports was at 26.6 percentage adn in 2018 riched at the 26.43 percentage. Therefore, based on these data we can say that exports have had positive trend from 2002-2018.

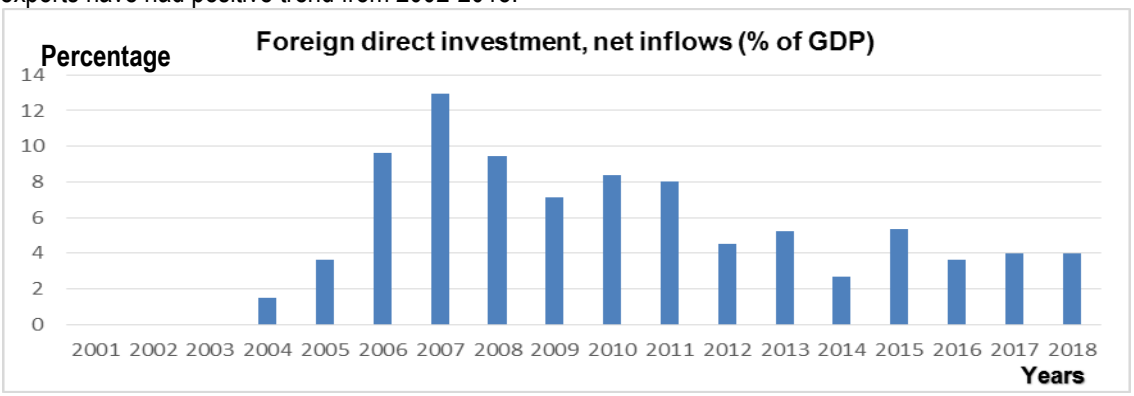

Figure 3. Foreign direct investment, net inflows (% of GDP)

Source: The data is obtained from World Bank Indicators for Kosovo under years http://dataworldbank.org, author's calculation

From the World Bank Indicators for Kosovo, we also obtained data on foreign direct investment for the time period 2004-2018. In 2004 the foreign direct investment is at 1.5 percent - the lowest rate for the time period under consideration. In 2007, foreign direct investment increased at 12.97 percent and this ih the highest rate under the time period of consideration. From 2007 the trend in average is decreasing when in 2018 the rate of Foreign Direct Investment as a percentage of GDP was 4.01.

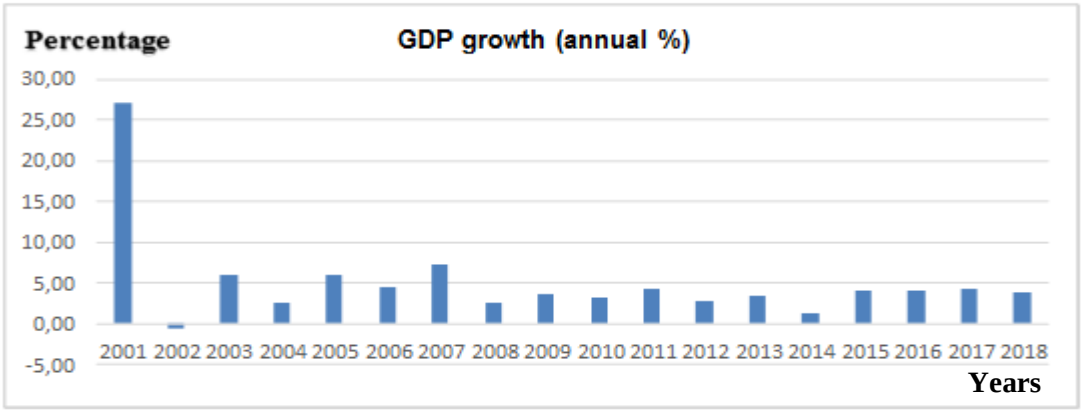

Figure 4. GDP growth (annual %)

Source: The data is obtained from World Bank Indicators for Kosovo under years http://dataworldbank.org, author's calculation

The above graph shows the trend of GDP rates in Kosovo for the time period from 2001 to 2018. Since the end of the Kosovo war, reconstruction efforts have been aimed at putting the Kosovo economy on the path of development. Progresses in reconstruction, macroeconomic stability and the establishment of public institutions have been able to improve economic activity since 2001. GDP growth reached 26.97 percentages in 2001, and since then there has been an average growth of 4.03 percent. The main macroeconomic indicators show that economic activity in Kosovo during 2017 increased, and real GDP growth in 2017 was 4.23 percent higher than in 2016. After rising 26.97 percent in 2001, by for time period 2002-2018 in 2017 it had the highest growth in 2007 of 7.29 percent and in 2018 the GDP growth of Kosovo was decreased at 3.81.

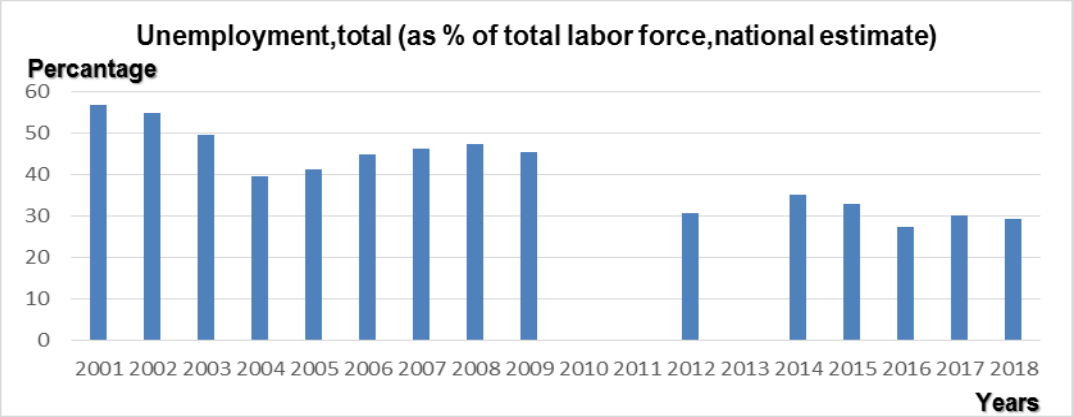

Figure 5. Unemployment, total (as % of total labor force, national estimate)

Source: The data is obtained from World Bank Indicators for Kosovo under years http://dataworldbank.org, author's calculation

From the chart above, for the time period 2001-2018 we can see that unemployment rate has had decreasing trend. In 2001 the unemployment rate was 57 % as a percentage of total labor force by national estimate. From 2001 till 2018 there is a decreasing trend of unemploymnet rate in case of Kosovo. In 2008 Kosovo had a very high unemployment rate with an average rate of 48% and a sharp decreasing trend at 2018 when unemploymetn rate was 29%.

Based on our final results, we can see that in Kosovo during this period, economicgrowth,exports, and inflation have a negative relationship with unemployment, while a positive relationship with foreign direct investment. Looking at this link we can recommend that Kosovo should stimulate economic growth through various economic policies and promote the export of local products to meet the needs of a growing population and reduce low unemployment rates. As far as our findings show that increasing FDI increases the unemployment rate further, such strategies should be undertaken in addition to investments that are mainly the result of automation of jobs, robotics and innovation, to be applied even more. foreign direct investment that mainly increases the labor force. Whereas the insignificant link between inflation and unemployment is explained by the fact that Kosovo does not have its own currency. The lack of monetary policy control by the CBK is a major impediment to investment promotion and economic development. CBK monetary policy control could have a stronger impact on inflation and stimulate investment. From all of the above we can say that it is extremely important to improve government employment policies so that they are as efficient and effective as possible, and policies for investing in education and in various professional training of human capital in order to alleviate unemployment. Thus, we proposed some policy implications and recommendations as references for future researchers. In addition, future researchers may include more macroeconomic variables or other factors that may influence the unemployment rate, for further judgment, in order to find the most effective solutions for reducing the high unemployment rate and for a greater economic growth.

5. Conclusions and recommendations

Unemployment is and will remain one of the most important issues of a country's economy. The main concern of any macroeconomic policy is to lower the unemployment rate and to have economic growth, so these two indicators play a vital role in the economic performance of any country. Contributing to high unemployment rates are: low exports, high inflation, the level of foreign direct investment, labor market policy shortcomings, etc. Given that a high unemployment rate can have a long-term contribution to low GDP, and can also lead to increased crime, violence, and political instability, the relationship between macroeconomics aggregates and employment therefore needs a systematic approach. While many studies have assessed the impact of unemployment on a country's macroeconomic status, the purpose of this paper was to present precisely the relationship and impact of macroeconomic variables on Kosovo's unemployment. Based on the econometric model, using the multiple regression least squares method, using secondary data obtained from World Bank Indicators for Kosovo for the period 2005-2017, our empirical analysis gives us an estimate of the impact and relationship between

unemployment and macroeconomic variables (gross domestic product, foreign direct investment, export and inflation). Our results show a negative relationship between unemployment and economic growth, which findings are also in line with Okun's law. In the case of Kosovo for a 1% increase in GDP, the unemployment rate drops by 1.70%. unemployment and exports appear to be in an inverse relationship, and our findings show that with exports increasing by 1%, the unemployment rate drops by 1.15%.

Concerning the correlation between unemployment and inflation, our findings are also consistent with the Phillips curve which predicts a negative relationship between unemployment and inflation, but this relationship is insignificant. Therefore, we conclude that inflation has a role to play, but for unemployment is considered to be an insignificant level of Kosovo's macroeconomic factors. On the other hand, foreign direct investment has a positive relationship with the unemployment rate in the Republic of Kosovo, with foreign direct investment increasing by 1%, the unemployment rate increases by 1.26%. Based on our final results, we can see that in Kosovo during this period, economic growth, exports, and inflation are negatively correlated with unemployment, while foreign direct investment has a positive relation with it. Looking at this link we can recommend that Kosovo should stimulate economic growth through various economic policies and promote the export of local products to meet the needs of a growing population and reduce low unemployment rates.

As far as our findings show that increasing FDI increases the unemployment rate further, such strategies should be undertaken in addition to investments that are mainly the result of automation of jobs, robotics and innovation, to be applied even more. foreign direct investment that mainly increases the labor force. Whereas the insignificant link between inflation and unemployment is explained by the fact that Kosovo does not have its own currency. The lack of monetary policy control by the CBK is a major impediment to investment promotion and economic development. CBK monetary policy control could have a stronger impact on inflation and stimulate investment. From all of the above we can say that it is extremely important to improve government employment policies so that they are as efficient and effective as possible, and policies for investing in education and in various professional training of human capital in order to alleviate unemployment. Thus, we proposed some policy implications and recommendations as references for future researchers. In addition, future researchers may include more macroeconomic variables or other factors that may influence the unemployment rate, for further judgment, in order to find the most effective solutions for reducing the high unemployment rate and for a greater economic growth.

References

Agnello, L. & Sousa, R., (2009). *The determinant of public deficit volatility,* s.l.: European Central Bank Working paper series.
Azmi, F. B., 2013. An empirical analysis of the relationship between GDP and unemployment, interest rate and government spending. pp. 89-112.
Doğan, T. (2012). Macroeconomic variables and unemployment: The case of Turkey. *International Journal of Economics and Financial Issues,* 2(1), pp. 71-78.
Farsio, F. & Quade, S., (2003). An empirical analysis of the relationship betëeen GDP and unemployment. *Humanomics,* 19(3), pp. 1-6.
Gaston, N. & Rajaguru, G., (2013). How an export boom affects unemployment. *Economic Modeling,,* pp. 343-355.
Herman, E., (2012). The Influence of the Economic Growth Process on Romanian Employment. *Economics and Applied. Informatics,* Vol. 18 (1, 5–12).
Jie, C., (2010). The Trend of the dynamic change in "Output-price" Phillips Curve in the transformation period of our country.. *Economic Survey.*
Khan, M. & Senhadji, S., (2001). Threshold Effects in the Relationship betëeen Inflation and Growth. *IMF Staff Papers,* 48(1), pp. 1-21.
Khan, S. & Chhapra, I., (2016). Analysis of GDP and Macroeconomic Variables on Economic Growth of Pakistan. *Journal of Management, Business and Economic Research,* 11(1), pp. 2-9.
Lee, J., (2000). The Robustness of Okun's Law: Evidence from OECD Countries.. *Journal of Macroeconomics,,* 22(2), pp. 331-356.
Lee, J., (2000). The Robustness of Okun's Law;Evidence from OECD Countries. *Journal of Macroeconomics,* 22(2), pp. 331-356.
Moosa, I., (2008). *Economic growth and unemployment in Arab countries: Is Okun's law Valid.* Cairo- Egypt, Proceedings of the International Conference on the Unemployment Crisis in the Arab Countries, pp. 1-19.
Mucuk, M. & Demirsel, T., (2013). The Effect of Foreign Direct Investments on Unemployment: Evidence from Panel Data for Seven Developing Countries. *Journal of Business, Economics and Finance,* 2(3), pp. 53-66.
Resurreccion, P. F., (2014). Linking Unemployment To Inflation and Economic Groëth : Toëard a Better Understanding of Unemployment In The Phillipines. *sian Journal of Economic Modelling,* A, 2(4), pp. 156–168.
Singh, R., (2018). Impact of GDP and Inflation on Unemployment Rate: A Study of Indian Economy in 2011-2018. *International Journal of Management, IT & Engineering,* Vëllimi i 8, pp. 329-340.
Solow, R., (1995). A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics,* Vol. 70(No. 1), pp. 65-94.
William, S., (2005). Examining the relationship between employment and economic growth in the ten largest state. *Southwestern Economic Review,* pp. 3-23.
World Bank (2019, Apr 15). World Development Indicators. Retrieved from World Bank website: http://dataworldbank.org