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Original scientific paper

## MACROECONOMIC DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN NORTH MACEDONIA-EMPIRICAL ANALYSIS

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### Abstract

This paper aims to provide an empirical investigation of macroeconomic determinants of Foreign Direct Investments. This study is selected only three factors that have an impact on the economy in general and the same factors aimed at empirical studies variables in macroeconomic factors in particular – Gross Domestic Product, Inflation and Exchange Rate (Mkd/Euro) on Foreign Direct Investment in North Macedonia. The using data, based on quarterly data, over the period 1997 to 2020, according to the National Bank of North Macedonia. We employ time series techniques to answer our research objectives. The findings suggested that macroeconomic variables like GDP, inflation, exchange rate have a significant positive impact on FDI inflows in the case of North Macedonia.

*Keywords:* Foreign direct investment, macroeconomic indicators, cointegration.

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### 1. Introduction

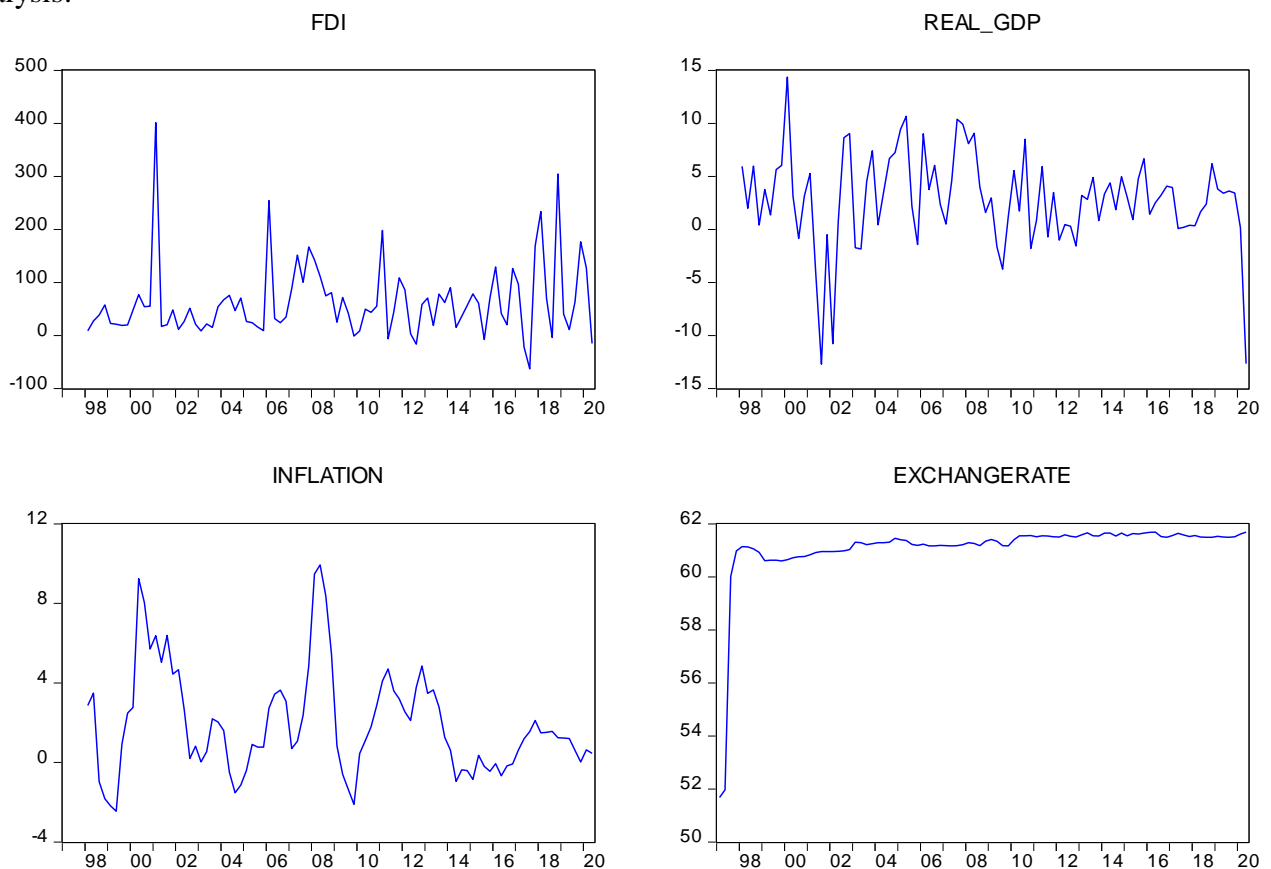
Foreign direct investments (FDI) are one of the main factors for the economic growth of the country, especially for developing countries. Governments of the states with middle economic growth have applied politics to attract foreign investments, for that reason sometimes and the economic growth depends on the investments, who should be from inter investments and foreign investments. And in the other hand, the focus of foreign countries and foreign companies, while deciding the potential area of investment, has been on FDI in the host country's industrial sector, financial service sector, or its infrastructure. The important thing about FDI is that would support economic growth bringing new technologies, increase employment, and from the competition in the market will increase the quality of the products and services. The purpose of liberal policy has been attracting more investment for the maximization of human capital formation – for a long time, integrating into international markets, promoting enterprise development, increasing high-quality services and products, entering new technologies, and helping to grow the economy in the country. Countries of West Balkan, such as North Macedonia, depend on small businesses with local capital and foreign investments. There are so many reasons, one of most important is customs policy. The world's most dominant trade arrangements are for free trade, not customs unions. (Carsl, 2009). North Macedonia in this case has a different position, like other countries in West Balkan. For this reason, some foreign investments move away after investing in the market. Despite this position, North Macedonia is waiting for political change in the region, especially for

a free capital market, or a customs union, before UE integration. This will help North Macedonia and other regional countries to attract more investment. North Macedonia has established the potential and strength for investment from foreign investments. The sector in the economy that has had foreign investment is in the financial sector, services sector, construction sector, industrial sector, telecommunication, and energy.

This study intends to empirically evaluate the explanatory role of the macroeconomics variables for affecting FDI inflows in North Macedonia, to identify how macroeconomics imbalances affect the foreign direct investments inflows in the country and what corrective measures could be taken to improve foreign direct investments inflows in the country for overall economic growth.

North Macedonia has passed periods with good perspectives in economics, but and the same time has been facing bad moments. Two bad moments about the economic perspectives were, in 2001 the period of conflict in North Macedonia, for this reason, foreign direct investments have had considerable declines.

Under the graphs we can see the variables and their variations used in the time of period of analysis:



**Figure 1.**

Graphic 1 –represents the movement of foreign direct investment during the period we have studied and here we notice that in 2001 there was an increase in foreign direct investment more and the level falls in 2002, then again, we have an increase in 2005 and 2006, this trend of movements continues until 2017 where we have the largest decrease in foreign direct investment because of political instability in the country.

Graphic 2 – presents the gross domestic product during the study period, where there is a higher increase in 2000 and 2001 there is a drastic decline in the gross domestic product, then the movement trend is observed to decrease and increase and in 2020 again we have a drastic decline of gross domestic product.

Graphic 3 – The inflation shown in graphic 3 is observed in two years of high inflation growth, that of 2001 as a result of the ethnical conflict in the country and 2008 as a result of international financial crises, then there is a decline and there is an average of the inflation movement.

Graphic 4 – the exchange rate is presented in an increase at the moment of 2000 when the currency was changed from the German mark to the Euro and here a break of the curve is noticed, then the trend has been fixed, because North Macedonia this corresponds to the period of an exchange rate peg regime of the Denar with the Euro ( initially with the Deutch Mark ).

## **2. Literature Review**

All over the time while having worked on this research paper all details of our research we have based on data collection from relevant institutions. Studies show that foreign direct investment flows to the region /country like North Macedonia, in general, has political stability, good fiscal policies for interest of foreign investments (Razin, 1996). Other authors concluded that economic indicators have a more powerful effect on foreign investments than political indicators (Marin, 2012). At the same time FDI will affect and in GDP of the country, contributing to growing GDP and in taxes policy, especially in developing countries (Smolenski, 2014). Many analysts attributed this to macroeconomic instability that was prevalent at that juncture, namely the high rate of inflation and the volatility in the exchange rate of the South Africa Rand (C.E. Moolman, 2006). Another author (Masih, 2014) identifies any related macro – variables besides the level of inflation that the authorities should focus on, to enhance the amount of FDI inflow to South Africa. Other authors have discussed the effects of inflation on FDI in transition and developing countries, especially in our region, like in the Croatia situation (Ivanović, 2015), or effects of inflation in FDI in Albania (Madani, 2018). Also, there are several studies that study FDI and GDP, for the example case of India, the results showed that the different economic policies of the respective countries had a role to play in explaining the difference in the quantum of the flow and there is an association between FDI and GDP (Sengupta, 2018). FDI plays a vital role in the economic growth of any country. The past decades found the significant and positive impact of FDI on GDP in the host country. Pakistan's Literature is evident that the inflow of FDI in Pakistan is not so significant, but has relatively increased since Pakistan has adopted market-oriented policies. This study has the motive to find the relationship between FDI and GDP and also to see the impact of trade policies on FDI role. Moreover, FDI stimulates human resource development through training, education, technology transfer, more employment, and other spillover effects on the host country's economy. In short, these finding describes that Pakistan Economic Growth capacity depends upon its ability to attract FDI and degree of FDI impact on GDP depends upon its trade policy regime that is Export Promotion policy (Nadeem Iqbal, 2013). Also, there are many studies that analyze the exchange rate at FDI, for example, FDI theory based on exchange rate analyses the relationship of FDI flows and exchange rate changes. The existing literature has conflicting issues, with some studies supporting the significant relationship whilst others reject it. The direction of the relationship between FDI and exchange rate also varies with some findings showing a positive effect of exchange rate on FDI and other findings suggesting a negative effect. The objective of the FDI, cost reduction and FDI as a tool for exchange rate risk are some of the explanations behind

the issue. (Jaratin Lily, 2014). Kok and Ersoy (Ersoy, 2014) analyzed 25 developing countries including North Macedonia and concluded that size attracts the FDI.

Niaz et al. (Niaz, 2016) also found a positive association between GDP and FDI and negative reports between inflation and FDI. These indicators of FDI can contribute and to the integration of North Macedonia in the EU and other economic unions that can help North Macedonia. (Giplin, 2001). In the situation of methodology and econometric reports (Ahmad, 2003) We have used the Ordinary Least Square method which has to give us regression analysis to measure the strength and significance of reports. (A.H.Studenmund, 2005).

### 3. Data and Methodology

This study is an empirical analysis using secondary and quarterly data from 1997 q1 to the year 2020 q2. Data reports have been taken from the National Bank of North Macedonia.

**Table 1.** The variables used in the analysis are defined in the following table:

FDI	Direct investments, net flow in million Euro
GDP	Real GDP growth
INF	Consumer price index, 2005=100
EXRATE	Exchange rate (EUR/MKD)

For examination of the impact of macroeconomic indicators as determinants of FDI, we have the basis of a review of the literature and the methodology adopted for such studies internationally, all the dependent and independent variables for this study are measured through taking the natural log of the actual data mentioned secondary sources. The predicted reports between the studied variable FDI and other variables GDP, Inflation and Real Exchange Rate can be mathematically expressed: in  $FDI = \beta_0 + \beta_1 \ln GDP + \beta_2 \ln INF + \beta_3 \ln EXRATE + \text{Error Term}$

Discussing the FDI and its impact on the economy is the main reason for this study. The basis of the review of literature may be concluded that foreign direct investments inflows are dependent on various economic, political, and social factors. How said before, this study is focused on economic factors in general and on macroeconomic factors. In this study are selected only three factors that have an impact on the economy and the same factors aimed to empirical studies analyze variables – GDP, Inflation, and Exchange Rate on foreign direct investment in North Macedonia.

This study uses both descriptive and inferential statistics to analyze and evaluate the results. Descriptive statistics have been used to know the structural properties of data that have been used in this study. Pearson Correlation is used for correlation analysis to know the direction of reports between variables that have in this study. The Ordinary Least Square method is used for regression analysis to measure the strength and significance of reports. (A.H.Studenmund, 2005). Then in this study is using Dickey–Fuller test statistics and Philip Peron unit root test. (Ahmad, 2003). Johansen Juselius Cointegration we have used for co-integration to find out if variables that we have used are integrated in the same order.

**Table 2.** Summary Statistics

Variabl es	Mean	Media n	Maximu m	Minimu m	Std. Dev.	Skewness	Kurtosi s	Jarque- Bera	Probabili ty	Observati on
FDI	62.69	47.76	401.28	-62.97	70.57	2.12	9.27	215.21	0.000000	90

GDP	2.81	3.14	14.37	-12.72	4.45	-0.84	5.70	37.81	0.00000	90
Inflation	1.93	1.25000	9.940000	-2.46	2.640319	1.008877	3.970129	18.79682	0.000083	90
Exrate	61.31	61.38500	61.69000	60.60000	0.295311	-0.82886	2.776382	10.49264	0.005267	90

Source: Author's calculations

The above descriptive statistics (Table 2) show the descriptive properties of studied variables over the period 1997q1 to 2020 q2.

#### 4. Empirical Findings

The correlation matrix above (Table 3) shows that foreign direct investments are positively correlated to all variables like GDP, Exchange rate, and inflation. It indicates the presence of integration in the market, and it may be due to the high inflow of capital in the economy. The lower level of correlation of inflation attracts more opportunities for foreign companies to invest in the market of North Macedonia.

**Table 3** Correlation Matrix

	FDI	GDP	INF	EXRATE
FDI	1.00	0.22	0.20	0.25
GDP	0.22	1.00	-0.03	-0.08
INF	0.20	-0.03	1.00	-0.25
EXRATE	0.30	-0.76	-0.24	1.00

Unit Root test was conducted on the collected data to check the stationarity of data since the last square technique gives reliable results if the data is stationary. For this purpose, two tests are applied namely Augmented Dickey-Fuller ADF and Philip Peron (PP) to test the data stationary. The results of ADF showed that all variables are nonstationary at the level and at the first difference, hence the PP test was used. The results of the PP test indicated that all variables become stationary at the first difference with intercept, trend, and none.

**Table 3.1** Unit Root Test – Augmented Dickey Fuller

Variables	Augmented Dickey Fuller (At level)			Augmented Dickey Fuller (First difference)		
	Intercept	Trend Intercept	None	Intercept	Trend Intercept	None
FDI	-2.894716	-3.461686	-1.944619	-2.897223	-3.465548	-1.944811
GDP	-2.894332	-3.461094	-1.944487	-2.898145	-3.466966	-1.944915
INF	-2.897678	-3.465548	-1.944862	-2.897678	-3.466248	-1.944862
EXRATE	-2.893589	-3.45995	-1.944404	-2.893589	-3.45995	-1.944404

**Table 3.2** Unit Root Test – Philip Peron

Variables	Philip Peron (At level)			Philip Peron (First difference)		
	Intercept	Trend intercept	None	Intercept	Trend intercept	None
FDI	-2.894332	-3.461094	-1.944487	-2.894716	-3.461686	-1.94453
GDP	-2.894332	-3.461094	-1.944487	-2.894716	-3.461686	-1.94453
INF	-2.894332	-3.461094	-1.944487	-2.894716	-3.461686	-1.94453
EXRATE	-2.892879	-3.458856	-1.944324	-2.89323	-3.459397	-1.944364

Johanson Cointegration Test is used to test cointegration among series of variables. The results show null hypothesis rejection at 5% significance. The log-likelihood Ratio also satisfied the cointegration equation at a 5% significance level. The assumption which is used in this cointegration test is intercepted with no trend and vector autoregressive (VAR) with the linear deterministic trend.

**Table 3.3** Johansen co Integration Test

Observation				
Series	FDI, GDP, INF, EXRATE			
Lags 1 to 2				
Eigen Value	likelihood Ratio	5% critical value	1% critical value	hypothesized no.of.CE
0.4118	86.804	27.584	47.856	None
0.2139	40.631	21.131	29.797	At most1
0.1903	19.685	14.264	15.494	At most2
0.0150	1.318	3.841	3.841	At most3

The ordinary Least Square technique is used for time series data to test the strength and significance of the explanatory variables against the dependent variable. The results significantly disclosed that the value of the coefficient of GDP, inflation, and exchange rate is positive and significant at 1% level, hence it can be concluded that all three variables are positively associated with the dependent variable FDI – foreign direct investments. So, any increase in the three variables would cause an increase in FDI, so government should focus on stabilizing these variables to attract more foreign direct investments into the country to support the economic growth of the state.

**Table 3.4** Least Square Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1448.342	1552.519	-0.932898	0.3535
GDPREAL	3.731318	1.627097	2.293237	0.0243
INFLATION	6.319398	2.822027	2.239312	0.0277
EXCHANGERATE	24.27447	25.29234	0.959756	0.3399
R-squared	0.102607	Mean dependent var		62.69244
Adjusted R-squared	0.071303	S.D. dependent var		70.57698
S.E. of regression	68.01427	Akaike info criterion		11.32074
Sum squared resid	397831	Schwarz criterion		11.43184
Log likelihood	-505.4332	Hannan-Quinn criter.		11.36554
F-statistic	3.277735	Durbin-Watson stat		2.002319
Prob(F-statistic)	0.024824			

## 5. Conclusion and recommendations

This paper aims to provide an empirical investigation of macroeconomic determinants of Foreign Direct Investments. This study is selected only three factors that have an impact on the economy in general and the same factors aimed to empirical studies variables in macroeconomic factors in particular – Gross Domestic Product, Inflation and Exchange Rate (Mkd/Euro) on Foreign Direct Investment in North Macedonia. Various other economic variables along with other noneconomic variables like political, legal, and social factors could also affect the FDI in North Macedonia. This study is restricted to identify the impact of only three selected core economic indicators that have been mostly found in the early literature. The findings suggested that macroeconomic variables like GDP, inflation, exchange rate have a significant positive impact on FDI inflows in North Macedonia. Hence to improve the rate of FDI inflows in the country for augmenting the overall economic growth, the government must pay more emphasis to the stability of monitoring of the explanatory variables cautiously. GDP of North Macedonia has a significant effect on FDI therefore there should be more effort to maintain and increase the growth rate of GDP. It will help the government to attract foreign investors to North Macedonia for the growth of the economy as a result. Moreover, the government should also monitor and control the rate of inflation, as it also affects the overall FDI inflows in the country. Similarly, there is a need for a stable exchange rate in North Macedonia which may augment FDI inflow in North Macedonia. There is a need for consistent financial policies followed by the succeeding governments, to encourage and enhance the confidence of foreign investors. Likewise, trade policy should be framed out to create a lucrative environment for prospective investors. Moreover, proper provision of communication networks, logistics support, energy supply, law and order prevalence, and security assurance should be ensured to attract more foreign investors.

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