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IMPACT OF FOREIGN DIRECT INVESTMENT ON THE ECONOMIC GROWTH: THE CASE OF COMMONWEALTH OF INDEPENDENT STATES

УТИЦАЈ СТРАНИХ ДИРЕКТНИХ ИНВЕСТИЦИЈА НА ЕКОНОМСКИ РАСТ: ЗАЈЕДНИЦЕ НЕЗАВИСНИХ ДРЖАВА

Summary: *Economic theory suggests that free capital flows increase the efficiency of the resource allocation, and stimulate economic growth. Foreign direct investment (FDI) is seen as a kind of cure for all economic problems in countries that do not have a sufficient level of accumulation for starting economic growth. In this paper we will investigate the impact of FDI on economic growth in Commonwealth of Independent States (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan and Ukraine) for the 2000-2015 period. Our assumption is that increase in FDI inflow will have positive impact on economic growth. The analyisis was carried out using the ARDL (Pooled Mean Group/AR Distributed Lag Models). This model is particularly convenient in a situation where all variables are stationary at different levels. The results shows strong and positive impact of FDI on economic growth.*

Keywords: *foreign direct investment, economic growth, structure of foreign direct investment.*

JEL classification*: F21, F63*

Резиме: *Економска теорија сугерише да слободни токови капитала повећавају ефикасност алокације ресурса, те стимулишу економски раст. На стране директне инвестиције (СДИ) се гледа као на врсту „лијека" за све економске проблеме у земљама које немају довољан ниво акумулације за покретање привредног раста. У овом раду ћемо истраживати утицај СДИ-а на економски раст земаља Заједнице независних држава (Јерменија, Азербејџан, Бјелорусија, Казахстан, Киргистан, Молдавија, Русија, Таџикистан и Украјина) за период 2000-2015. године. Наша претпоставка је да раст прилива СДИ-а има позитиван утицај на економски раст. Анализа је извршена примјеном ауторегресивног дистрибутивног модела са временским помаком – ARDL (Pooled Mean Group/AR Distributed Lag Models). Овај модел се примјењује у ситуацијама гдје су варијабле стационарне на различитим нивоима. Резултати истраживања указују на јак и позитиван утицај СДИ-а на економски раст.*

Кључне ријечи: *стране директне инвестиције, економски раст, структура страних директних инвестиција.*

JEL класификација: *F21, F63*

1. INTRODUCTION

The lack of domestic accumulation to finance investments is a common characteristic in the beginning of the transition process of all transition countries. Without the inflow of foreign capital, the development of domestic production capacity was not possible, and transition countries paid considerable attention to creating the investment environment to attract foreign investors.

Economic theory suggests that free capital flows increase the efficiency of the resource allocation and accordingly stimulate economic growth. International financial organizations, policy makers and most economists treats FDI as a kind of cure for all economic problems in the fast-growing economies, and their positive impact on the economic growth is implied. The efforts of many countries to attract more FDI confirm this fact, while many empirical studies have not yet confirmed the existence of a positive relationship between FDI inflows and economic growth (Mencinger 2003; Umeora 2013; Stanisic 2008).

Foreign direct investments are a form of cross-border investment where a resident country has control or significant influence over the management of a company which is a resident of another country. In practice it is possible, and it is the situation where the influence or control can be achieved with less than 50% or 10% of the shares (IMF 2009). There are several forms of investing capital in

the form of foreign direct investment: (1) the establishment of completely new economic entity in the territory of another country (green - field); (2) the investment in existing facilities through merger and aqusition; and (3) capital investment in the form of joint ventures with local investors from the host country (joint venture) (Miljkovic 2008).

As we noted above, the link between FDI and growth is subject to intense debate among economists. The economists who argue that FDI has a positive effect on economic growth, point out not only the fact that FDI contributes directly to the host country's capital stock but, on the fact that technology and knowledge transfer (spillover effects) may actually help narrow gap between the rich and the poor countries. When FDI comes to the host country (in specific business) that firm receives competitive advantage due to the usage of new knowledge, experience, ways of production and management.

However, there are some economists that argue that FDI does not accelerate growth. Some economists suggest that FDI can have negative impact on economic growth in host countries trough repatriation of profit, "market stealing effect", rising income inequality and exhausting resources (Kherfi 2005; Menlyk et al. 2014). The relationship between FDI and growth has been analyzed on Central European (CE) and Southeastern European (SEE) countries, but there is a very little empirical work on the impact of FDI on growth in CIS countries. The aim of this paper is to contribute to the economic literature by investigating impact of FDI on economic growth in this group of countries. The CIS countries we are analizing in this paper are: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan and Ukraine. The period of analysis is 2000–2015.

The paper is arranged as follows. The first part of the paper describes the international flow of FDI, the second section provides the overview of the previous research. The third part of the paper refers to the research methodology and collecting data. The fourth part contains the results of the econometric analysis. The final part presents the conclusions.

2. GLOBAL AND REGIONAL FLOWS OF FOREIGN DIRECT INVESTMENT

Until the 1970s, about 65% of the total international capital flows are realized in the form of movement of international credits (Miljkovic 2008). In the time between Second World War and first oil crisis, the FDI has become the dominant form of foreign capital inflow. FDI growth slows during the 1970s and 1980s. High investment activity of Japanese companies in the second half of the 1980s, and multinationals from the US, Europe and South East Asia after the 1990s, lead to significant growth in global FDI. Global FDI flows are growing rapidly in the second half of the 1990s as a result of the intensification of mergers and acquisitions between companies of industrial countries. The recession in the early 21st century is causing the drop in FDI, but again FDI grew until the global economic crisis of 2008, also due to the intensification of international mergers and acquisitions (Pugel 2016). The most significant growth in global FDI inflows in the period 2000–2015 was recorded in 2006 compared to 2005. The global economic crisis of 2008 caused drastic drop in FDI. Recovering from the crisis leads to a gradual increase in FDI flows. However, global FDI flows are still below the level in relation to the pre-crisis period, as shown on graph 1.

In the early 1990s, FDI flows into developing countries increased dramatically. The demand growth, low production costs and economic reforms have attracted significant FDI in a small number of developing countries in South and East Asia and Latin America (Pugel 2016). The share of developing countries in total FDI inflows since then has gradually increased, with some fluctuations during the period from 1998 to 2013. In 2014, of the total FDI inflow, about 55.5% were in developing countries, and the first time FDI flows into developing countries achieved over 50% of the total FDI inflow. However, already in 2015, developed countries return status of the largest recipient of FDI with amount of 54.62% of the total inflow. In 2015, FDI inflows to the transition countries reached the lowest level in the observed period (2006–2016), amounting to only 2% of total world FDI inflows. The cause is, of course, the decline of FDI inflows to Russia. In 2016 FDI inflow to transition countries increased significantly compared to 2015, almost to average amount for the observed period 2006-2016, which is 70,9 billions of USD.

Chart 1. FDI inflows in the period 2006–2016 (in billions of $)
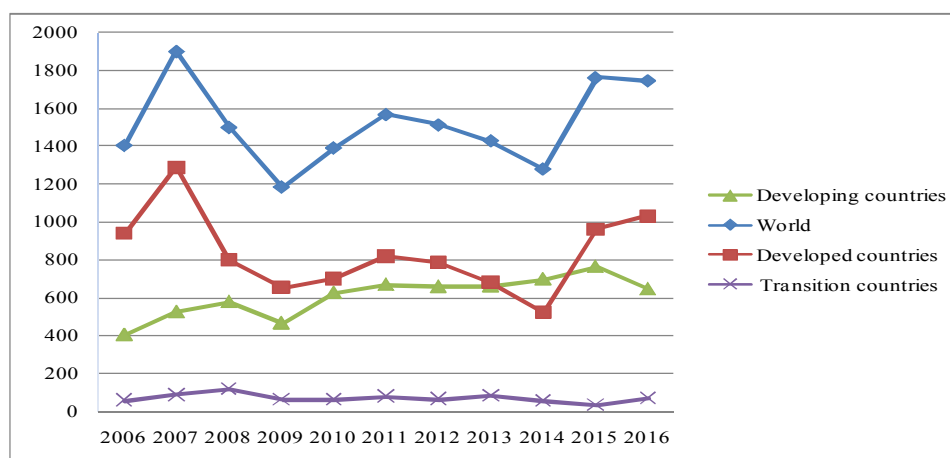
Source: UNCTAD, World Investment Report 2016, WIR Series

Of all the regions the crisis in 2008 has most reduced inflows FDI in countries that currently have the "status of transition countries". In 2009 compared to 2008, FDI inflows to this group of countries were reduced from 116.2 to 70.49 billion US dollars, or about 39.3%. This drop is dominantly influenced by drastic drop FDI in CIS countries, more precisely in Russian Federation and Ukraine. However, it is fact that record level of FDI inflow to the CIS countries in 2008 and drastic drop in 2009 are not the consequence of the crisis in 2008 at all. Large FDI inflow in Russian Federation in 2008 was driven mainly by large investments in the liberalized power generation industry, as well as in the automotive and real estate industries. The bulk of FDI in this country continued to be in natural resource-related projects (extraction, as well as oil and gas refining). Finally, it can be concluded that the global economic crises, which was at its peak in 2009, stopped optimistic inflow FDI in this Russian Federation and the whole CIS region.

Table 1. FDI inflows by regions and countries ($ billions)

Region / economy	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
World	1402,1	1 902,2	1 497,8	1 181,4	1 388,8	1 566,8	1 510,9	1 427,2	1 277,0	1762,2	1 746,23
Developed countries	940,3	1 289,5	801,9	654,4	699,9	817,4	787,4	680,3	522,0	962,5	1 032,37
Europe	604,7	879,7	349,2	439,2	431,7	478,1	483,2	323,4	306,0	503,6	532,99
European Union	546,1	830,1	318,6	390,5	384,9	425,8	446,5	319,5	292,0	439,5	566,23
Other developed Europe	58,6	49,6	30,6	48,7	46,7	52,2	36,7	3,9	14,0	64,1	-33,24
North America	297,4	332,8	367,9	166,3	226,4	269,5	231,5	283,3	165,1	428,5	424,83
Other developed countries	38,2	77,0	84,8	48,8	41,8	69,8	72,6	73,7	50,9	30,4	74,55
Developing countries	403,0	525,5	578,5	465,3	625,3	670,1	658,8	662,4	698,5	764,7	646,03
Africa	34,6	50,3	57,7	54,2	43,6	47,8	55,2	52,2	58,3	54,1	59,37
Asia	293,3	357,1	379,9	324,3	412,4	426,7	409,6	431,4	467,9	540,7	442,66
Latin America and the Caribbean	73,6	116,7	138,1	84,2	167,1	193,3	190,5	176,0	170,3	167,6	142,07
Okeania	1,5	1,4	2,7	2,5	2,2	2,3	3,6	2,8	2,0	2,3	1,92
Transition countries	58,82	87,23	117,40	61,74	63,60	79,27	64,79	84,50	56,46	34,99	68,02
Southeastern Europe	6,56	9,11	8,03	6,27	4,60	7,89	3,61	4,76	4,58	4,83	4,58
CIS	51,10	76,36	107,80	54,81	58,19	70,34	60,27	78,79	50,14	28,81	61,78
Georgia	1,17	1,75	1,56	0,66	0,81	1,05	0,91	0,95	1,76	1,58	1,66

Source: UNCTAD, World Invertment Report 2016, WIR Series

3. OVERVIEW OF PREVIOUS RESEARCH

In the economic literature there exist numerous studies on FDI, which essentially can be divided into two groups. The first group of studies is based on the country related factors which can increase the FDI inflow. The second group of studies has in its focus the effects of FDI on the individual economic performance, with a particular focus on the economic growth. In this paper we will analyze the effect of the FDI inflow on the hosts country economic growth.

Relatioship betwen FDI and economic growth is very complex by itself. Extensive literature about the impact of the FDI on economic growth showsa lot of different research approaches. The main difference arises from the answer to the key question: is the impact of the FDI on economic growth of the host country (always) positive and statistically significiant? The first problem arrises from the fact that there are a lot of variables which can affect the economic growth besides the FDI. Campos and Kinoshita (2002) argue that reason for this problem is that theory treats FDI and technology transfer as sinnonyms, while in most countries and regions of the world FDI encompasses an array of arrangements that go well beyond pure technology transfer. According to Stiglitz (2004) one of the reasons why FDI does not always stimulate economic growth lies in the privatization process. J. Stiglitz considers that countries wealth decreases if incomes from privatisation are spent on individual consumption rather than on investments. He does not ignore the possibility that privatization of state-owned enterprises with a loss can increase efficiency, but it does not have to be a rule everywhere. Research conducted on a sample of 69 developing countries for the period 1970–1989 have shown that FDI has a positive impact on economic growth. Due to the impact of FDI on technology transfer, the authors emphasize the positive impact of FDI on economic growth compared to domestic investments. However, analysis has shown that the utilization of the positive effects of FDI requires an adequate level of development of human resources that will be able to use modern technology (Borensztein et al. 1995).

Alfaro (Laura Alfaro) has conducted a research on the 47 countries for the period 1981–1999. She finds that investments in various economic sectors in the host country have a different impact on economic growth. FDI directed to the primary sector has a negative impact, while FDI focused in the manufacturing sector has a positive impact on economic growth. The impact of FDI in the services sector on economic growth was ambiguous, and the study did not give a uniform conclusion on the effect of investments in this sector (Alfaro 2003). The survey, which covered the period 1980–2003 on the sample of 79 countries, analyzed the factors that affect the utilization of the positive effects of FDI on economic growth. Research has shown that FDI has a stronger positive impact on economic growth if the labor force in the country has a higher level of education, if the country is more open, if the financial markets are more developed, if the rate of population growth is lower and if the soil is less risky (Vo and Batten 2006). Analysis of the impact of FDI on economic growth in the case of 125 countries for the period 1980–2010 showed that FDI has a positive impact on economic growth, but the impact varies depending on the level of development of the host country. FDI has a positive impact on economic growth in case of developing countries than in developed and less developed. The survey also showed that the higher the degree of economic freedom (economic freedom index) indicates the positive impact of FDI on economic growth, investment and that directly has a positive impact on economic growth from foreign portfolio investment (Tintin 2012).

There are numerous studies on the impact of FDI on macroeconomic performance in the transition countries. The most numerous researches are alvailable about impact FDI on economic performance in Central and Eastern European countries, followed by research related to Southeastern European countries. The rare research have investigated impact FDI in CIS countries.

Jože Menciger, in the survey conducted in 2003 analyzed the impact of FDI on macroeconomic performance in the period from 1994 to 2001 in eight transition countries (Hungary, Czech Republic, Slovakia, Poland, Estonia, Latvia, Lithuania and Slovenia) and noted the negative impact of FDI on economic growth, except in Lithuania. The author explains the negative impact of FDI on economic growth, assuming the unfavorable structure of FDI. The FDI is not predominantly related to investments, but they are directed to consumption and imports (Mencinger 2003).The analysis on the influence of FDI on growth in the transition countries based on the sample of 17 countries has shown that FDI has a statistically significant impact on growth (Lyroudi et al. 2004). A study carried out in 2005 included the Central and Eastern European countries. The positive impact of FDI on economic growth was recorded in countries that are in the process of accession to the EU, while the impact of

FDI on economic growth in countries that are not in the process of accession to the EU was statistically insignificant and negative (Kherfi and Soliman 2005).

Panel Analysis for the period 1992-2012 in Central and Eastern European countries analyzed the decomposed impact of FDI on economic growth. It analyzed, separately, impact of FDI in the form of mergers and acquisitions, and greenfield investments. The author concludes that both forms of FDI have a positive impact on economic growth. Also, analysis indicates that a certain threshold of education is required in order for new technologies, training programs and other advantages brought by transnational corporations to be successfully absorbed (Mockevičius 2014). Analysis for the period 2005-2012 also confirmed the positive impact not only of direct investment but also of portfolio investment in Central and Eastern Europe on the economic growth (Albulescu 2015). A survey in 10 transition countries of Central and Eastern Europe in the period 2000–2013 has determined not only the existence of a direct positive impact of FDI in the manufacturing sector on economic growth, but also a substantial indirect contribution of FDI to economic growth in transition countries through knowledge spillovers (Silajdzic and Mehić 2015). A higher level of technological development and innovation in the transition countries are associated with better economic performance because it means greater absorption capacity of the country in terms of acquiring new knowledge that FDI often involves. Also, the positive impact of FDI on economic growth in the countries of Central and Eastern Europe was found in a more recent study, which covered the period 2000-2012 (Hlavacek and Ben-Domaska 2016).

Numerous studies have been aimed at analyzing the impact of FDI on economic growth in the SEE countries. Analysis, carried out in 2008 using correlation analysis for the period 1997–2006, has not found the existence of interdependence between these two variables (Stanisic 2008). The Author concludes that the cause can be found in the transition process itself. Due to structural reforms in these countries, there is a decline in production and employment in inefficient domestic firms. This can neutralize or even outweigh the positive effect of FDI on economic growth. Jurica Šimurina's research has confirmed the positive relationship between FDI and economic growth, but this relationship was not statistically significant (Bogdan 2009). Research that analysed SEE countries for the period 1990-2011 (Estrin and Uvalic 2013) found a positive impact of FDI to gross fixed capital formation and restructuring of firms in the privatization process. The authors also point to the shortcomings of the privatization process, given that there was no adequate restructuring of companies due to the small share of FDI that are focused on the manufacturing sector. Authors emphasize that due to inadequate structure of investment, companies in the region were not able to integrate into the global value chain, so exports has insufficiently increased, with an unfavorable structure which is dominated by products of lower phases of processing.

The recent analysis that included six SEE countries explored the impact of FDI inflows to the country individually and to the whole region. The results show that FDI plays a key role in creating a capital base for the financing of production, except that the results are better in Macedonia, Serbia and Croatia, in relation to Albania and Bosnia and Herzegovina. In Slovenia, on the other hand, economic growth is financed primarily by domestic investments. If the region is analyzed as a whole, the author concludes that FDI has a positive impact on economic growth (Apostolov 2016).

In the alvaible literature, researches about the impact of FDI in CIS countries are rare. Campos and Kinoshita (2002) in their study tested the efects of FDI on growth in 25 Centraland Eastern European and former Soviet Union transition countries between 1990 and 1998. Therefore, this investigation included some of CIS countries (Armenia, Azerbaijan, Kazakhstan, Kyrgyztan, Tajikistan, Turkmenistan, Uzbekistan Belarus, Ukraine and Russia). Using five different model specifications, the study found a positive and significant impact of FDI on economic growth. Jude and Levieuge (2013) examined the effect of FDI on economic growth conditional on the institutional quality of recipient countries. The study covered 94 developing countries including five CIS countries: Armenia, Azerbaijan, Belarus, Kazakhstan and Ukraine. The results analysis, over the period 1984-2009, has shown that FDI alone had no significant effect on growth but institutional quality had a moderating impact on FDI that in turn influences economic growth. Analysis of Azam and Ahmet (2014) covered the period 1993-2011 and found that FDI has positive and statistically significant effect on economic growth only in case of Armenia, Azerbaijan, Tajikistan and Turkmenistan. Researchers emphasize that this results confirms that some of CIS either have not reached a level of economic stability where FDI matters or they possess enough domestic savings that outweighs the need for foreign flows in promoting economic growth (Azam and Ahmet 2014; Jude and Levieuge 2013).

4. METHODOLOGY AND DATA

This paper explores the impact of foreign direct investment on economic growth in the nine CIS countries. CIS countries, which are the subject of the analysis are: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan and Ukraine. The period of analysis is 2000−2015.

Data for the analysis include data for each country during a certain analysis period. Panel data is the most apropriate for this analysis because it allows the inclusion of data for N cross-sections (countries, households, firms and ect.) during T time periods (months, quarters, years). Because of the possibility of including more countries in the analysis, with the possibility of respect for the specificity of the time series of each country, this analysis has gained great popularity. Basic classification panel model is static and dynamic models. Dynamic panel models, as opposed to static, are characterized by the presence of a lagged dependent among the regressors (Asteriou and Hall 2016). A number of methods have been developed within two groups of panels. Which method is adequate for the analysis depends on the length of the time series and the number of countries subject to the analysis, their relationships, as well as from the results of unit root test. In this paper, we will apply the relatively new panel ARDL (Auoregressive Distrubuted Lag) model.

Analysis of the impact of FDI on economic growth implies estimation regression equation, in which dependent variable is inflow of FDI, as a percentage of GDP and one of independent variable is economic growth, measured as a GDP growth at constant prices. In order to get a reliable estimation of impact of FDI on economic growth, it is necessary to include a number of other controling variables that could have an impact on the economic growth according to previous reseach.

Table 2. Explanation of the variables, the method of measurement, data sources

Variable	Type of variable	The method of measurement	Data source	The variable used in research
Economic growth, GDP gr (growth rate)	Dependent	GDP growth at constant prices	World Bank – World Development Indicators	Mencinger,2003; Mervar, 2003; Lyroudi et all., 2004; Bogdan, 2009;
GDP per capita	Independent	GDP per capita in $	World Bank – World Development Indicators	Carkovic and Levine, 2002; Vo&Batten, 2006; Khordagui & Saleh, 2013; Silajdzic & Mehić, 2015;
The inflow of foreign direct investment, FDI	Independent	FDI, net inflow, in% of GDP	World Bank – World Development Indicators	Carkovic and Levine, 2002; Mencinger, 2003;Lyroudi et all., 2004; Alfaro, 2003; Vo & Batten, 2006; Bogdan, 2009;
Gross fixed capital formation, INV	Independent	Gross fixed capital formation in % of GDP	World Bank – World Development Indicators	Alfaro, 2003; Mencinger, 2003; Vo & Batten, 2006;
Total government expenditure, GOV	Independent	Government spending as% of GDP	IMF – World Economic Outlook	Alfaro, 2003; Bogdan, 2009; Khordagui& Saleh, 2013;
Inflation, INFL	Independent	Inflation in %, average consumer prices	IMF – World Economic Outlook	Carkovic and Levine, 2002; Alfaro, 2003; Mervar, 2003
Credit growth	Independent	Growth of domestic credit to private sector (in % of GDP)	World Bank – World Development Indicators	Carkovic and Levine, 2002; Alfaro, 2003; Vo & Batten, 2006;
Institutional quality, INSTQ (POLST, REGQ, RLOW, CORUP, GOVEF)	Independent	Separate Worldwide Governance Indicators in five areas	World Bank	Khordagui&Saleh, 2013

The assumption of the analysis is that the inflow of FDI has a positive impact on economic growth in the analyzed countries, in accordance with the theoretical assumptions and the results of previous research. The same assumption applies to gross fixed capital formation (investment). Larger investments mean higher economic growth, while investments have not only direct but also indirect impact (multiplier) on economic growth (Čenić–Jotanović 2010).

The variable GDPPC is expected to have a negative sign, indicating that the larger the initial GDP per capita will slow the rate of growth, whereas the smaller the initial real per capita GDP the faster the rate of growth. This is in line with the catch-up theory, or the convergence theory (Khordagui and Saleh 2013). Theoretical attitudes about the impact of government expenditure on economic growth are divided. Bearing in mind specificity of transition countries, where final consumption (most commonly the imported products) dominates more in the government expenditure in relation to the government investment, we assume that the government consumption has a negative impact on the economic growth. Inflation, as measured by the average annual percentof change influences the cost of the average consumer acquiring a basket of goods and services. Most of transition countries have been affected with hiperinflation period and high uncertainty which is caused by highinflation. We assume that higher inflation in CIS countries means high uncertainty and smaller GDP growth, i.e. expected sign of coefficient of this variable is negative. Growth of domestic credit to private sector is a mesurement of financial development. Greater financial development mean greater corporation's ability to financing their development and greater households ability to finance their consumption and investment. We expect that higher financial development accelerates economic growth.

Institutional quality is measured using the World Governance Indicators, compiled by Kaufmann et al. The World Governance Indicator is used in disaggregation - each of its components is tested individually. These 5 variables are political stability (POLST), government effectiveness (GOVEF), regulatory quality (REGQ), rule of law (RLAW), and control of corruption (CORUP) (Each of these variables is measured on a scale from -2.5 to 2.5; a higher value indicating better performance (Khordagui&Saleh, 2013). We assume that higher instututional quality means a better environment that stimulates economic growth.

5. RESULTS

5.1. Descriptive statistics

The highest GDP growth rate (geometric rate) in the period 2000-2015 was recorded in Azerbaijan (9.89%), followed by Tajikistan (7.69%) and Kazakhstan (7.26%). The lowest GDP growth rate was in Ukraine, caused by sharp drop in 2009 (-15,14%) because of the Global economic crisis and in 2014 (-6.55%) caused by the civil var. The highest volatility of GDP, measured by the standard deviation, in the analyzed period had Azerbaijan, where the average deviation from the average GDP growth rate was 9.86, followed by Ukraine and Armenia. Azerbaijan had the highest growth rate and also had the highest volatility of economic growth. The lowest rate of economic growth was recorded in Ukraine, while most stable economic growth was in Tajikistan. In economic literature, the volatility of GDP is often considered as a measure of uncertainty. Higher volatility in GDP means more economic uncertainty (Pablo Dapena 2006, 4).

Table 3. Descriptive statistics of the growth rate of GDP in the period 2000-2015

Stat.	GDP_ARM	GDP_AZE	GDP_BEL	GDP_KAZ	GDP_KGZ	GDP_MDA	GDP_RUS	GDP_TJK	GDP_UKR
GeoMean	6.78	9.89	5.31	7.26	4.30	4.55	3.98	7.69	2.06
Median	7.04	7.31	5.64	8.20	4.66	6.38	4.92	7.45	4.21
Maximum	14.81	34.50	11.44	13.50	10.92	9.40	10.05	10.60	11.80
Minimum	-14.15	0.09	-3.89	1.16	-0.90	-5.99	-7.82	3.90	-15.14
Std. Dev.	7.22	9.86	4.30	3.53	3.51	4.11	4.64	1.73	7.44

Source: IMF – World Economic Outlook and authors' calculations

The highest average net FDI inflow amounted to 17.53% of GDP in the observed period was achieved in Azerbaijan. In this country, FDI inflows had the greatest fluctuations. Highest net FDI inflow in Azebeijan was in period 2002-2006, an average of 39.42% annually. The year with record

inflow of FDI was 2003, the inflow was 55% of GDP. The lowest inflow and lowest volatility of FDI had Russia, folowed by Belarus.

Table 4. Descriptive statistics net FDI inflows (% of GDP) in the period from 2000 to 2015.

Stat.	FDI_ARM	FDI_AZE	FDI_BEL	FDI_KAZ	FDI_KGZ	FDI_MDA	FDI_RUS	FDI_TJK	FDI_UKR
Mean	5.45	17.53	2.40	8.12	5.33	5.69	2.35	4.02	3.93
Median	5.58	7.93	2.37	7.77	5.10	4.26	2.47	2.67	3.72
Maximum	8.79	55.08	6.70	13.01	11.57	12.18	4.50	13.10	9.06
Minimum	1.69	2.46	0.71	2.18	-0.17	2.48	0.49	-0.64	0.64
Std. Dev.	1.98	17.31	1.62	3.69	3.77	3.10	1.24	4.27	2.20

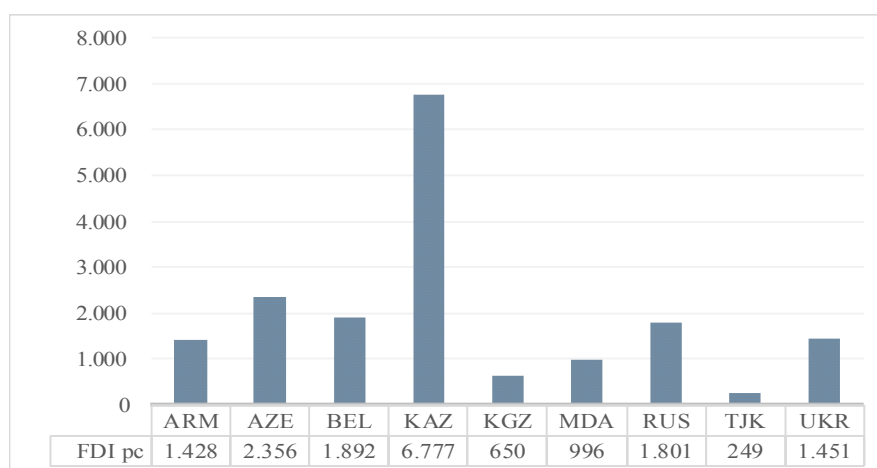Source:World Bank – World Development Indicatorsand authors' calculations

The amount of FDI inflows per capita is the best indicator for comparing the performance of the country in attracting foreign capital in the previous period. Kazakhstan has the highest amount of FDI per capita amounted to 6,777 US dollars, followed by Azerbaijan (2,356 US dollars) while the lowest amount (249 US dollars) was recorded in Tajikistan. The descriptive statistics for the rest of variables are presented in table 5.

Table 5. Descriptive statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
GDPPC	3585.084	2185.299	15543.70	139.1091	3728.889	126
FDI (%	6.261206	4.189624	55.07777	-0.63675	8.032853	126
INV	23.62537	22.14523	57.70911	7.421252	8.049558	126
GOV	32.62889	31.83500	58.71000	18.39000	8.894124	126
INFL	11.18113	7.913500	61.13300	-0.261	10.52354	126
CRED	26.88697	22.21197	90.57267	3.829011	18.32404	126
REGQ	33.91825	37.07000	61.61000	3.430000	14.77633	126

Source: authors' calculations

Chart 2. FDI per capita in 2015 (stock, in $)

	ARM	AZE	BEL	KAZ	KGZ	MDA	RUS	TJK	UKR
FDI pc	1.428	2.356	1.892	6.777	650	996	1.801	249	1.451

Source: World Bank – World Development Indicators; UNCTAD – World Investment Report and authors' calculations

5.2. Econometrics

In order to determine the appropriate tests to analyze the impact of FDI on economic growth, it is necessary to determine whether the series of data analyzed variables are stationary. Since the panel models are a combination of the "cross-country" analysis and time series analysis, panel models are inherent problems typical for the non-stationary time series. Using non-stationary data can lead to spurious regression, or to the wrong conclusion that there is interdependence of variables even though

it is an independent process. Testing stationarity and verification of the order of integration of the variables is performed using the unit root tests. In this paper, panel unit root tests was conducted using the 5 tests: Levin, Lin, and Chu (LLC), Breitung, Im, Pesaran, and Shin (IPSW), and the ADF - Fisher, and PP - Fisher tests. If at least 3 tests indicate that variable in level has not unit root, we can conclude that those variable integrated order of I(0). If variable has unit root at level, we test for unit root at 1st difference.

Table 6. Results of the unit root test

Variable	Level	1st difference	I(d)
GDP gr	no unit root		I(0)
GDPPC	unit root	no unit root	I(1)
FDI (%GDP)	no unit root		I(0)
INV (%GDP)	unit root	no unit root	I(1)
GOV (%GDP)	unit root	no unit root	I(1)
INFL	no unit root		I(0)
CRED (%GDP)	unit root	no unit root	I(1)
REGQ	unit root	no unit root	I(1)

Source: authors' calculations

Most of the tests of the unit root (table no. 6) show that most of variables are stationary in the level of I(1), i.e. have unit root. In this paper we will apply the relatively new panel ARDL (Auoregressive Distrubuted Lag) model proposed by Pesaran (1997) and Pesaran and Shin (1990). Models provides an effective estimation of both long and short-term effects on the basis of panel data series that include a relatively large number of observation units and time instances, provided that the analyzed variables are of the same or different level of integration, but lower than I(2). The form of the dynamic ARDL (p, q) model was defined by Paseran and Shin (1990):

$$y_{it} = \sum_{j=1}^{p} \lambda_{ij} y_{i,t-j} + \sum_{j=0}^{q} \delta_{ij} x_{i,t-j} + \mu_i + \varepsilon_{ij}$$

Where i represents the number of observation units i =1,2,....,N; t represents the number of time instances t =1,2,....,T; x_{it} is vector of independent variables of dimension k ×1; λ_{ij} is coefficient of lagged dependent variable; μ_i is parameter that determines the specific effects of the group or observation unit. Trend and other fixed regressors can be added in the model. The results of the analysis are presented in table (7).

Table 7. The impact of FDI on economic growth in the CIS countries (2000-2015)

Dependent variable GDP gr		
Long run Equation		
	Coef.	p value
FDI (%GDP)	0.383202	0.0000
INV (%GDP)	-0.166609	0.0000
GOV (%GDP)	0.463891	0.0000
INFL	-0.213905	0.0000
CRED (%GDP)	-0.119929	0.0000
REGQ	0.099309	0.0000
Short run Equation		
	Coef.	p value
COINTEQ01	-0.813510	0.0061
dFDI (%GDP)	0.082761	0.7101
dINV(%GDP)	0.748455	0.0768
dGOV(%GDP)	-1.021476	0.0050
dINFL	0.096534	0.4879
dCRED (%GDP)	-0.378240	0.2236
dREGQ	-0.310854	0.2852
Fixed regressors		
GDPPC	-0.001218	0.0637
Residuals stationarity	I(0)	

Source: authors' calculations

FDI has positive and statistically significant impact on the economic growth in CIS countries at the significance level of 1%. Higher FDI means higher economic growth (GDP).

The greater surprise is the negative and statistically significant impact of investment share of GDP on economic growth. This situation is possible if in a country is dominated by unfavorable investments structure, i.e. investments in bureaucracy and government. The investments share of GDP can have a negative impact on GDP growth if transition and privatization processes were not implemented efficiently. Assuming that investment share of GDP is growing as a result of an increase in investment activity, these investments could be used only for amortization of existing facilities, and therefore the capital stock would remain the same. And finally, if investment share of GDP has a positive growth rate, it does not have to be a result of increased investment activity. The growth of the investment share of GDP can be a consequence of investment stagnation, and decrease in GDP, which, therefore results in the positive growth rate of investment share of the GDP.

Government consumption has statistically significant, positive impact on economic growth in CIS countries, at a significance level of 1%. Bearing in mind that government consumption in less developed countries (which dominate in this group of countries) is predominantly consumption-oriented, this result is not surprising. A lot of employees in government institutions mean a lot of salary expense, which leads to a higher consumption and, higher GDP. In a situation of undeveloped domestic production, it will result in a high import. If domestic production is undeveloped, other types of government expenditure also stimulate import and foreign production instead of domestic. Inflation has a negative impact on economic growth. Transition countries have a negative, hyperinflationary experience in the beginning of transition process. In order to deal with inflationary pressures, most of the transition countries at the beginning of transition process have pegged their currency to a stable currency such are German mark (later the Euro), US dollar or basket of currencies. Therefore, price stability is essential for the economic growth of CIS countries, and this result is in line with our expectations and economic nature of transition countries.

Credit growth has statistically significant, negative impact on economic growth in CIS countries, at a significance level of 1%. Similar as investments, the credits were not used for increasing entrepreneurial activity, or for an increase of facilities. It is possible that the majority of credit has been used for unproductive investments.

Regulatory quality is essential precondition for growth of the facilities, i.e. for the growth of investment activity. Therefore, it is not a surprise that this variable has a positive and statisticaly significant impact on GDP growth.

The variable GGDPPC is fixed and it has a negative impact on GDP growth.

In assessing the effects of FDI on economic growth, one important concern is the possibility of reverse causality, namely that fast growing CIS countries may attract more FDI. We test directly for reverse causality by conducting Granger-causality tests. The results are shown in table 8. Based on test results we reject hypotesis that FDI does not cause the GDP, which implies acceptance of the opposite hypothesis, i.e., that FDI affects economic growth. Applying Granger causality test we have proven, once again that FDI has impact on economic growth in CIS countries. Also, we can not reject hypotesis that GDP does not cause FDI. A non-rejection of the hypothesis that economic growth does not cause FDI implies that we can not adopt the oposite hypothesis that economic growth affects FDI i.e. reverse causality is rejected.

Table 8. Panel Granger Causality test

Pairwise Granger Causality Tests
Sample: 2000 2015
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
GDP does not Granger Cause FDI	135	0.41601	0.5201
FDI does not Granger Cause GDP		11.6407	0.0009

Source: authors' calculations

6. CONCLUSION

Policy makers and most economists treat FDI as a kind of cure for all economic problems in the fast-growing economies, and their positive impact on the economic growth is implied. The efforts of many countries to attract more FDI confirm this fact, while many empirical studies have not yet confirmed the existence of a positive relationship between FDI inflows and economic growth. In this paper, we analyzed the impact of FDI on economic growth in Commonwealth of Independent States (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan and Ukraine) for the period 2000-2015.

Descriptive analysis has shown that the highest GDP growth rate in the period 2000-2015 was recorded in Azerbaijan, followed by Tajikistan and Kazakhstan. The lowest GDP growth rate was in Ukraine, caused by the sharp drop in 2009 because of the Global economic crisis and in 2014, caused by the civil war. Azerbaijan had the highest growth rate and also had the highest volatility of economic growth. The highest average net FDI inflow amounted to 17.53% of GDP in the observed period was achieved in Azerbaijan. In this country, FDI inflows had the greatest fluctuations. The lowest inflow and lowest volatility of FDI had Russian Federation, followed by Belarus. The amount of FDI inflows per capita is the best indicator for comparing the performance of the country in attracting foreign capital in the previous period. At the end of 2015, Kazakhstan has the highest amount of FDI per capita amounted to 6,777 US dollars, followed by Azerbaijan (2,356 US dollars). The lowest amount (249 US dollars) was recorded in Tajikistan.

In this paper, analysis was carried out using the ARDL (Pooled Mean Group/AR Distributed Lag Models). Model has shown that higher FDI has positive and statistically significant impact on the economic growth in CIS countries at the significance level of 1%. Higher FDI means higher economic growth (GDP). In order to check for reverse causality, we used Granger-causality tests. The results of Granger causality test show that there is no reverse causality and once again confirmed that FDI affects economic growth.

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