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The Impact of Foreign Direct Investment on Post-Soviet Union Countries Economic Growth Evidence in Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic

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Abstract

Foreign direct investment is an essential source of external money for emerging Central Asian nations that have limited access to appropriate capital. This article studies the influence of foreign direct investment and economic development on post-Soviet Union chosen nations from 1993 to 2017 using panel data. I utilized ordinary least squares (OLS) regressions. The empirical study is carried by utilizing yearly data on GDP growth and other factors from 1993 to 2017. As a result, we can conclude that the independent variables foreign direct investment, inflation, export, government spending, and unemployment rate are all significant to explain GDP growth because their corresponding p-values of the t-statistic are less than 5% and thus have an influence on GDP growth in selected Central Asian countries. These results have ramifications for policymakers, the government, and investors. The study had two specific goals: to determine whether or not there is a long-run relationship between foreign direct investment and economic growth, and to investigate whether or not there is a causal relationship between foreign direct investment and economic growth in these primarily selected Central Asian countries.

Keywords Foreign direct investment, post-Soviet Union, on economic growth such as Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic countries.

Резюме

Прямые иностранные инвестиции являются одним из основных источников внешнего финансирования для развивающихся стран Центральной Азии, которые имеют очень ограниченный доступ к достаточному количеству капитала. В исследовании рассматривается этот документ, целью которого

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является изучение влияния прямых иностранных инвестиций и экономического роста на отдельные страны постсоветского пространства за период 1993-2017 гг. С использованием панельных данных. Я использовал простую регрессию по методу наименьших квадратов, и эмпирический анализ проводился с использованием годовых данных о росте валового внутреннего продукта и других переменных за периоды с 1993 по 2017 год. Из этого мы можем сделать вывод, что независимые переменные прямые иностранные инвестиции, инфляция, экспорт, государственные расходы и уровень безработицы имеют важное значение для объяснения роста валового внутреннего продукта, поскольку соответствующие им p-значения t-статистики составляют менее 5 процентов и, таким образом, влияют на рост валового внутреннего продукта в отдельных странах Центральной Азии. . Эти выводы имеют практическое значение для политиков, правительства и инвесторов. Исследование было основано на двух конкретных целях, которые включают существующую долгосрочную взаимосвязь между прямыми иностранными инвестициями и экономическим ростом, а также исследование существования причинно-следственной связи между прямыми иностранными инвестициями и экономическим ростом в этих, в частности, отобранных странах Центральной Азии.

Ключевые слова: прямые иностранные инвестиции, постсоветский Союз, экономический рост, такие как Таджикистан, Туркменистан, Узбекистан и Кыргызская Республика.

Абстракт

Сармоягузории мустақими хориҷӣ яке аз сарчашмаҳои асосии маблағгузории беруна барои кишварҳои дар ҳоли рушдёбанда дар Осиёи Марказӣ мебошад, ки ба миқдори кофии сармоя дастрасии хеле маҳдуд доранд. Таҳқиқот ин мақоларо ҳадафи омӯзиши таъсири сармоягузории мустақими хориҷӣ ва рушди иқтисодӣ ба кишварҳои пасошӯравӣ дар давраи солҳои 1993-2017 бо истифода аз маълумоти панелӣ мебошад. Ман регрессияи оддии хурдтарин -ро истифода кардам ва таҳлили эмпирикӣ бо истифода аз маълумоти солона дар бораи афзоиши маҷмӯи маҳсулоти дохилӣ ва дигар тағирёбандаҳо дар давраи солҳои 1993 то 2017 гузаронида шуд. Аз ин хулоса баровардан мумкин аст, ки тағирёбандаҳои мустақил сармоягузории мустақими хориҷӣ, маҷмуи маҳсулоти дохили, таваррум, содирот, хароҷоти давлатӣ ва сатҳи бекорӣ барои тавзеҳ додани афзоиши маҷмӯи маҳсулоти дохилӣ аҳамияти калон доранд, зеро арзишҳои дахлдори онҳо аз 5 % камтаранд ва аз ин рӯ ба афзоиши маҷмӯи маҳсулоти дохилӣ дар кишварҳои дар мисоли Тоҷикистон, Туркманистон, Узбакистон ва Ҷумҳурии Қирғизистон интихобшудаи Осиёи Марказӣ таъсир мерасонанд. . Ин бозёфтҳо оқибатҳои амалиро барои

сармоягузорон фаро мегиранд. Таҳқиқот ба ду ҳадафи мушаххас асос ёфтааст, ки робитаи дарозмуддати мавҷуда байни сармоягузориҳои мустақими хориҷӣ ва рушди иқтисодиро дар бар мегирад ва инчунин таҳқиқи мавҷудияти робитаи сабабӣ байни сармоягузориҳои мустақими хориҷӣ ва рушди иқтисодӣ дар ин кишварҳои дар мисоли Тоҷикистон, Туркманистон, Узбакистон ва Ҷумҳурии Қирғизистон интихобшудаи Осиёи Марказиро дар бар мегирад.

Калидвожаҳо: Сармоягузориҳои мустақими хориҷӣ, баъд аз пош хурдани Иттиҳоди Шӯравии оид ба рушди иқтисодӣ дар мисоли Тоҷикистон, Туркманистон, Узбакистон ва Ҷумҳурии Қирғизистон.

1. Introduction

Foreign direct investment is defined as an international venture in which an investor resident in the home economy gains a long-term influence on managing a partner company in the host country by the International Monetary Fund and the Organization for Economic Cooperation and Development. Such long-term influence should be expected when voting shares or rights owned by a multinational corporation account for at least 10% of a foreign firm's total voting rights. Weinberger and Contessi (2009). Foreign direct investment can also be observed from the standpoint of the host country, which records its foreign direct investment inflows, other liabilities, and other liabilities in the balance of payments, or from the standpoint of the domestic economy, which records them as foreign direct investment asset classes. Furthermore, the European Union's 2013 report on international trade and foreign direct investment states that globalization impacts the economy via external commerce in products and services, financial flows, and the movement of people linked with cross-border economic activity.

Furthermore, there are two primary sources of trade statistics: -the first is international trade in goods statistics, which provide highly detailed information on the value and quantity of international trade; and -the second is a balance of payments statistics, which record all of an economy's transactions with the rest of the world.

Following the dissolution of the Union of Soviet Socialist Republics (USSR) in the early 1990s, various investment possibilities in former Soviet Union nations arose. Previously, these countries were in a planned economy, were industrialized, and had relatively inexpensive but well-educated labour, although at varying degrees. The transition era started almost concurrently in these nations, with varying inherited institutions, reform pathways, income levels, and beginning circumstances. Furthermore, during the transition era, foreign direct investment was an essential source of managerial skills and contemporary technology for reorganizing local industries and firms.

In 1991, all Central Asian nations gained independence. Many parallels in the earliest circumstances demonstrate their shared history, geographic proximity, and culture. For more than 70 years, they were all part of Soviet Union nations. They are all geographically landlocked. However, there are differences in population size, historical production specialty, neighbors, land sizes and scenery, and natural resource endowment. Kazakhstan, for example, has the most land area, borders China and Russia, and has more vital road and rail links between these two nations. It is rich in oil, gas, metals, and agricultural land. Tajikistan is the second smallest nation in Central Asia; combined with Kyrgyzstan, and they form the lesser Central Asian territory in terms of population and area — they also have hilly terrains, as well as mountainous borders with Afghanistan and China. Uzbekistan has an enormous population, significant natural gas reserves, and ideal cotton-growing conditions compared to these two nations. Turkmenistan is likewise rich in natural gas, although it is lightly inhabited.

Most Central Asian nations rely on natural resources, and the region's exports are highly concentrated on a few core items whose prices are dictated by global markets. Because of this commodity concentration, the economies are sensitive to oil price volatility and too exposed to global commodity market trends. Since the dissolution of the former Soviet Union, Turkmenistan, Uzbekistan, and the Kyrgyz Republic have implemented considerable legislative changes to attract foreign direct investment into their energy industries. Turkmenistan has been the most successful in attracting international investment of the three nations. However, all three republics confront substantial obstacles and constraints in furthering the development of oil and gas infrastructure.

Tajikistan receives the least foreign direct investment. The dynamics of foreign direct investment inflows into Uzbekistan have also slowed in 2015-2016. From 1993 to 2017, foreign direct investment inflows were variable in all four nations.

Natural resources located in these countries

Tajikistan	Turkmenistan	Uzbekistan	Kyrgyz Republic
Mining	Oil and gas	Processing of oil and gas	Services
Link	Processing of oil and gas	Chemical industry	Metallurgy
Financial services	Chemical industry	Oil and gas	Processing of oil and gas

Another main receiver of foreign direct investment in industries is local service markets in all Central Asian nations. Real estate operations, commerce, banking, construction, and communications are examples of these. These industries account for a disproportionately actual GDP in Kyrgyzstan and Tajikistan, both of

which lack significant hydrocarbon reserves. Several foreign direct investments are coming into the Kyrgyz Republic and Uzbekistan in processing sectors such as machine-building, food industry, and textile industry. Except for a hydroelectric power project in Tajikistan and near air and rail transit in Uzbekistan, energy and transportation facilities get a modest foreign direct investment. Mechanisms for public-private partnerships in the area are still in their infancy. Agriculture receives little or no investment in any of these nations.

The European Union (EU), the Russian Federation, and China, Central Asia's primary economic partners, are significant investors. However, the amount to which they are present varies. The Russian Federation, China, and Gulf countries are the largest sources of foreign direct investment in Turkmenistan's economy; however, in the other three countries, its role is much smaller, and only China, which ranked first in Tajikistan from 2005 to 2015, and Russia, which ranked second, are vital investors. China is the largest investor in Tajikistan, Kyrgyzstan, and Uzbekistan, with a considerable stake in both countries.

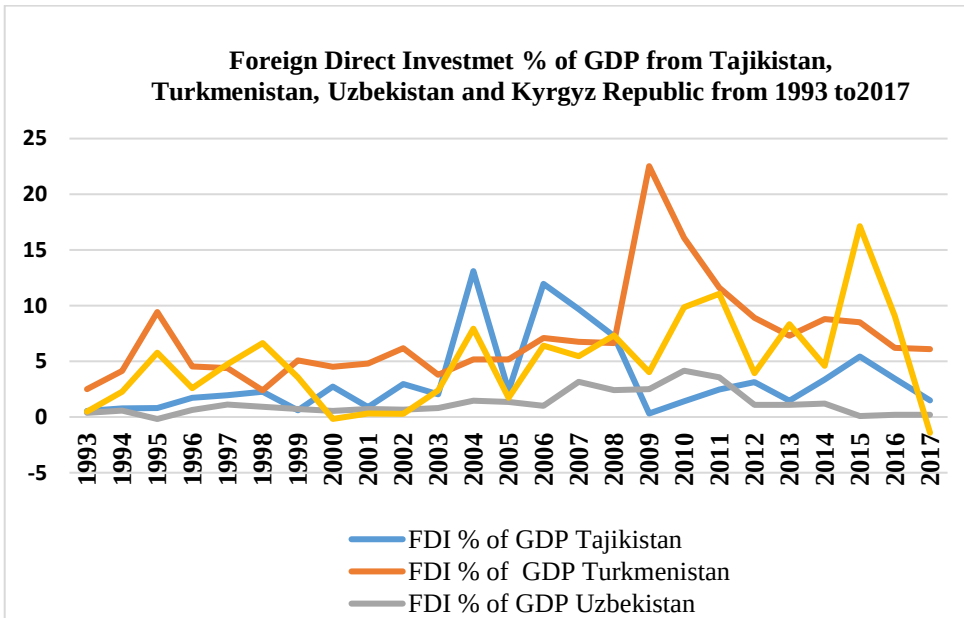

Figure 1 Source: World Bank Foreign Direct Investment for selected countries

The above findings in Table 1 and Figure 1 indicate the trend of foreign direct investment from 1993 to 2017. In 1993 the minimum value of the foreign direct investment was 0.55 % of gross domestic product for Tajikistan, 2.48 % of gross domestic product for Turkmenistan, 0.36 % of gross domestic product for Uzbekistan,

and 0.49 % of gross domestic product for the Kyrgyz Republic. While the maximum value of foreign direct investment % of gross domestic product) is calculated as 1.50 % of gross domestic product for Tajikistan, 6.09 % of gross domestic product for Turkmenistan, 0.19 % of gross domestic product for Uzbekistan, and -1.41 for the Kyrgyz Republic in 2017. There has been a steady increase in foreign direct investment % of (gross domestic product) values over the past 25 years. This means that the economic growth of Central Asian countries has seen fluctuating trends for the last 25 years.

1.1 Problem statement

Central Asian nations have the following challenges in attracting foreign direct investment: a lack of infrastructure for a free market economy, isolation from the process of economic integration, and fundamental reliance on one another. It is critical, particularly in Central Asian nations where foreign direct investment is significant. Furthermore, they are opposed based on the two previously presented hypotheses of seizing the hand an assisting hand. However, the majority of studies have shown the validity of both views. According to theory, corruption has varied consequences on different nations.

Some Central Asian countries, such as Turkmenistan, have attracted considerable sums of foreign direct investment; these economies are among the world's top investment destinations. Other countries (Tajikistan, Uzbekistan, and the Kyrgyz Republic) have had less success attracting foreign direct investment. Foreign direct investment in Central Asia is turbulent and does not seem to follow economic cycles; its dynamics are determined more by the timelines for significant investment projects.

One of these four nations is developed, while the others are developing. The impacts of corruption on chosen nations are equivocal, as seen by the graphs in the study background for each country from 1993 to 2017. Each graph demonstrated that corruption and foreign direct investment had positive and negative connections over the studied period.

Although no nations demonstrated a consistent link, the levels of corruption in all examined countries did not change significantly over the study period. This makes it less probable that the same amount of corruption will negatively impact foreign direct investment throughout the time. As a result, this research may infer that a positive or negative association between corruption and foreign direct investment exists in four Central Asian nations.

1.2 The objective of the study

The general objective of this study is to examine the relationship between foreign direct investment inflows and economic growth in four selected Central Asia, Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic countries from the year 1993 to 2017. While the specific objectives are:

- Findings the impact of foreign direct investment on economic growth in four selected Central Asia countries.

- This paper is aimed to find out whether foreign direct investment has a significant effect on the gross domestic product of understudy countries.

1.3 Specific objectives

Specifically, this study intended to:

Investigate the long-run relationship between foreign direct investment and economic growth in selected Central Asian countries. Examine the existence of the causal relationship between foreign direct investment and economic growth in selected Central Asian countries.

1.4 Research questions

- What impact does foreign direct investment have on economic growth in four selected Central Asian (Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic) countries?

- What is the impact of other included explanatory variables (Inflation, Export, Government Spending, and Unemployment Rate) in the model on the gross domestic product in understudy economies?

1.5 Statement of Hypotheses

The study's key arguments were summarized into the following hypotheses, and the analysis was conducted based on expectations

H0: Foreign direct investment has no impact on the GDP.

H1: Foreign direct investment has a considerable negative / positive impact on GDP.

H0: Inflation has no impact on GDP.

H1: the amount of inflation (I) has a considerable positive/negative influence on GDP.

H0: Export does not affect GDP growth in Central Asian nations' economies.

H1: The number of exports has a positive/negative influence on GDP growth in the Central Asian select nations' economies.

H0: Government spending does not influence GDP growth in Central Asian select nations' economies.

H1: Government spending has a considerable positive/negative influence on GDP growth in Central Asian select nations' economies.

H0: Unemployment does not affect the Central Asian economies' GDP growth.

H1: The unemployment rate has a positive/negative influence on GDP growth in the Central Asian chosen nations' economies.

1.6 The Importance of Research

This research examines the effect of corruption on foreign direct investment in four Central Asian countries (Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic). Foreign direct investment and economic development in these nations have a link; nevertheless, the relationship has altered through time. Thus, panel data analysis will be used to assess if the host country's corruption has a positive, negative, or insignificant role in attracting foreign direct investment inflows.

Furthermore, this research broadens the model of foreign direct investment's influence on economic development in Central Asia's chosen nations by including other important factors that affect GDP growth, such as foreign direct investment, inflation, export, government expenditure, and unemployment rate.

2. Empirical literature

There are several studies conducted by many researchers concerning foreign direct investment and economic growth. Their findings show that there is still confusion about the exact impact of foreign direct investment on economic growth in the countries under study. Whiles some conclude there is a positive relationship, others find a negative relationship. Therefore, this study seeks to review some of these studies relevant to my study to examine the impact of foreign direct investment and economic growth using data from four different countries (Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic) spanning 1993-2017.

In domestic economic literature, most studies analyze the effects of foreign direct investment in the Central Asian county's economy at the macroeconomic, regional, and sectoral levels and develop practical recommendations for policies to attract such investments in Central Asia. Are the work of E. V. Balatskoy, V. V. Bocharov, S. V. Voronina, V. p. Evstigneeva, S. M. Kadognikov, D. A. Koichueva, R. R. Lepshokova, F. M. Topsakhalovoe, P. Fischer, and others.

For example, according to Anochiwa Lasbrey, Michael Enyoghasim, Agbanike Tobechi, Nkechi Uwajumogu, Basil Chukwu, and Ololo Kennedy, (2018),

foreign direct investment plays a critical role in accelerating a host country's economic growth, particularly in developing and Organization for Economic Cooperation and Development countries. The articles evaluated provide a decent representative of various empirical efforts over the last three decades. It investigates the link between FDI and economic development from 1980 to 2018. The outcome is varied but substantially biassed toward a considerably beneficial impact of foreign direct investment on economic development [p.309-318].

Evidence Mulatie Chanie (2017) discovered, in this empirical investigation, a positive and statistically significant influence of foreign direct investment on economic development in Ethiopia, but with a size that is lower than the relative impact of domestic capital investment on economic growth. Recent research suggests that African nations, particularly Ethiopia, have seen a considerable rise in foreign direct investment inflows. Furthermore, foreign direct investment has been seen as a critical source of capital inflows and economic development enhancers. As a result, the primary goal of this work is to empirically explore the influence of foreign direct investment on economic development using a simultaneous equation econometric model and the ordinary least square (OLS) estimate approach using time-serious data from 1974 to 2014. Furthermore, to attract this foreign direct investment, Ethiopia made certain moves toward liberalising trade and macroeconomic regimes and proposing some measures targeted at enhancing the regulatory frameworks for foreign direct investment. [p.58301-58306]

Ergin Akalpler and Hemn Adil (2017) examined the influence of foreign direct investment on economic development using Singapore as a model nation. Between 1980 and 2014, the researchers used a Vector Error Correction Model using World Bank data statistics. The findings provide significant evidence that there is no long-run link or causation between gross savings, foreign direct investment, trade, and gross fixed capital creation. However, negative correlations were established between the gross domestic product and gross savings and between the gross domestic product and foreign direct investment and international trade. In contrast, gross fixed capital accumulation was shown to be favourably connected to economic growth. [3 pages 208-215]

Ronald K. and S. Wakyereza (2017) discovered that foreign direct investment has a negative impact on economic growth in Uganda. While the short-run impulse response indicates that tourism will have a negative impact on economic growth, the long-run impact becomes positive but de minimis. As a result, processes must be implemented to make Uganda a more appealing tourism destination than other areas. The study's main goal is to assess the effect of foreign direct investment on economic development, employment, and poverty reduction in Uganda. [4 p.38-48] Formalized paraphrase

Najabat Ali and Hamid Hussain (2017) discovered that foreign direct investment positively affects economic growth. Foreign direct investment is often a critical driver of global economic integration. The present article seeks to examine the influence of foreign direct investment on Pakistan's economic development. The research makes use of time-series data from 1991 to 2015. To evaluate data, the research use correlation and multiple regression analysis approach. They discovered that foreign direct investment had a beneficial influence on Pakistan's economic development. [p.163-170]

Emmanuel Isaac John (2016) discovered that foreign direct investment had a favourable and considerable influence on the gross domestic product. It was also discovered that the exchange rate had a positive but non-significant influence on GDP. Thus, the study determined that foreign direct investment had a beneficial influence on economic development in Nigeria, as opposed to the conclusions and beliefs of certain scholars and other stakeholders that foreign direct investment has a detrimental effect on Nigeria's economic growth. There have been disagreements on the impact of foreign direct investment on the host country's economy. While some researchers believe there is a good impact, others believe there is a detrimental effect. Against this context, this research investigated the impact of foreign direct investment on Nigerian economic development. The research included the years 1981 to 2015. [p. 250-265] Formalized paraphrase

Keho and Yin (2015), for example, studies of foreign direct investment, exports, and economic growth: some African evidence Between 1970 and 2013, the research looked at the link between foreign direct investment, exports, and economic development in 12 Sub-Saharan African nations. The multidimensional technique to joint integration developed by Johansen was used, and the findings show that these three variables are integrated into 10 nations. According to his research, economic development has a long-term favourable influence on foreign direct investment in five nations. In the four nations, exports are favourably related to foreign direct investment. Granger's test results are also inconsistent among nations. The findings reveal a short-term bi-directional causal link between foreign direct investment and GDP and a unidirectional causal association between GDP and exports in Ghana. There is a bidirectional causal relationship between foreign direct investment and exports in Benin. Exports in Benin, the Democratic Republic of the Congo, and Gabon are driven by GDP. Foreign direct investment is the driving force behind exports in Côte d'Ivoire and Kenya. GDP and exports drive foreign direct investment in Benin, Burkina Faso, Gabon, and Senegal in the long run. In Cameroon, Cote d'Ivoire, and South Africa, there is a bidirectional causal relationship between foreign direct investment and GDP. At the same time, in the Democratic Republic of the Congo, there are a bidirectional causal link between foreign direct investment, GDP, and

exports. There is a bidirectional causal link between Ghana's GDP and exports and Kenya's foreign direct investment. [p. 209-219] Formalized paraphrase

3. Data And Methodology

The study has examined panel data for 25 years, from 1993 to 2017. To test the three hypotheses, multiple regression analysis was conducted using gross domestic product growth as the dependent variable, foreign direct investment, Inflation, Export % of gross domestic product, Government Spending % of gross domestic product, and unemployment as the five independent variables.

3.1 Model Specification

This study describes a model that includes variables that indicate the distinctive appeal and qualities of Central Asian nations such as Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic.

The model explores the link between foreign direct investments and a subset of Central Asian nations from 1993 to 2017. The dependent variable, GDP growth, was calculated as a function of the following independent variables: foreign direct investment, inflation, exports, government spending, and unemployment rate. This assertion is stated in functional terms as follows:

Gross domestic product growth =F(foreign direct investment, Inflation, Export, Government Spending, and Unemployment Rate) -- (1)

The ordinary least square (OLS) linear regression equation based on the above functional relation is;

$Y= \alpha 0+ \alpha 1x1 + \alpha 2x2 + \alpha 3x3 + \alpha 4x4+ \alpha 5x5+\mu$ ---------- (2)

The equation can further be written in econometric and linear form as;

Gross domestic product = $\alpha 0+\alpha 1$ Foreign direct investment + $\alpha 2$ Inflation + $\alpha 3$ Export + $\alpha 4$ Government Spending + $\alpha 5$ Unemployment Rate +μ ---------- (4)

Where;

α_0 = intercept

μ = error term

The model was logged to break them into a smaller digit and avoid the problem of large numbers.

***Log Gross domestic product growth-1 = α0+Logα1* Foreign direct investment + *Logα2 Inflation + Logα3 Export + Logα4 Government Spending + Logα5 Unemployment Rate +μ* ----- (5)**

The priority expectations are *α1>0 α2, >0, α3> 0, α4> 0, α5> 0, and, 0 α6> 0* which means we expect a positive relationship between the dependent variable and the independent variables.

4. Empirical, Results, and Interpretation

The part includes the response rate, descriptive statistics, and data correlation analysis. The section also analyses the study findings and offers the regression model results.

4.1 Data analysis and presentation of findings

The empirical outcomes of our regressions are presented in this portion of the study paper. It is also vital to provide precise explanations and interpretations of the results. This section examines the relationship between foreign direct investment and economic development in a sample of 25 Central Asian provinces from 1993 to 2017, including Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic. The principal regression model was covered in the preceding section. Nonetheless, we will evaluate alternative regression models to avoid producing misleading findings.

4.2 Descriptive Statistics Interpretation

Descriptive statistics were used to describe the acquired data in terms of mean, standard deviation, maximum and lowest values.

Table 1. The Summary of Descriptive Statistics

Variables	Mean	Std.Dev	Min	Max	Obviations
years	2005	7.247431	1993	2017	N = 100
overall		7.359801	1993	2017	n = 25
between		0	2005	2005	T= 4
within					
Ln GDP Growth	4.246935	7.335731	-21.3	16.5	N = 100
overall		6.071215	-15.97125	10.00304	n = 25
between		4.250912	-12.14919	15.01819	T= 4
within					
Ln FDI GDP	.4158536	.4930316	-1.002669	1.352637	N = 100
overall		.241275	-.1512418	.7633198	n = 25
between		.4320076	-1.060581	1.303837	T= 4
within					
Ln Inf	1.08148	.3022731	.4313638	1.625621	N = 100
overall		.2571816	.7518007	1.565047	n = 25

between		.1650182	.6395202	1.418303	T= 4
within					
Ln EX GDP	1.564397	.2428177	.9566486	1.994581	N = 100
overall		.1403379	1.2740065	1.746734	n = 25
between		.1996561	1.163841	1.914541	T= 4
within					
Ln GS	1.166887	.1240488	.8645111	1.389875	N = 100
overall		.0478197	1.063721	1.268454	n = 25
between		.1174636	.8756078	1.3467	T= 4
within					
Ln UR	.8429222	.1820092	.3986343	1.098644	N = 100
overall		.0566452	.6892614	.9179151	n = 25
between		.173251	.5206136	1.043411	T= 4
within					
Country	2.5	1.123666	1	4	N = 100
overall		0	2.5	2.5	n = 25
between		1.123666	1	4	T= 4
within					

Source: Research Findings

Results of Table 1 shows the average Gross domestic product of 4.246935 with maximum and the minimum Gross domestic product being 16.5 and -21.3. The result also shows that the standard deviation of the Gross domestic product is 7.335731 from 100 observations.

The findings indicate that the average foreign direct investment is .4116632 with minimum and maximum values of -1.002699 and 1.352637, and the standard deviation of the foreign direct investment is .4897186 from 100 observations.

The findings indicate that the average inflation is .4116632 with minimum and maximum values of .4313638 and 1.625621, and the standard deviation of the inflation is.305198. The findings indicate that the average export is 1.564397 with minimum and maximum values of .8645111 and 1.389875, and the standard deviation is .1240488.

The findings indicate that the average Government Spending is 1.166887 with minimum and maximum values of .8645111 and 1.389875, the standard deviation of the Government Spending is .1240488. The findings indicate that the average Unemployment Rate is .8429222 with minimum and maximum values of .3986343 and 1.098644, the standard deviation of the Unemployment Rate is .1820092.

Table 2. The result of panel regression Random-effects generalized least squares (GLS)

Random-effects GLS regression		No. of Obs=100				
Group variable: country1		No. of groups=4				
R-sq: within=0.4902		Obs per group min=25				
Between=0.0933		avg=25.0				
Overall=0.3547		Max=25				
		Wald chi2(5)			= 5167	
Corr (u_i, Xb) =-0 (assumed)		Prob> chi2			= 0.0000	
GDP Growth	Coef.	Std. Err	z	P>|z|	95% Conf	Interval
LnFDIGDP	.303438	1.608585	0.19	0.850	-2.849331	3.456207
LnINF	-10.44917	2.412614	-4.33	0.000	-15.17781	-5.720532
LnEXPGDP	-2.672542	2.994767	-0.89	0.372	-8.542177	3.197094
LnUR	5.295284	3.715089	1.43	0.154	-1.986155	-12.0067
LnGOVSP	-22.79329	5.503463	-4.14	0.000	-33.57988	-12.0067
_cons	41.73591	10.04439	4.16	0.000	22.04928	61.42255

sigma_u | 0

sigma_e | 4.7290221

rho | 0 (fraction of variance due to u_i)

Source: Research Findings

The finding in table 2 indicates a positive relationship between foreign direct investment and economic growth the

R-sq within	**Between**	**Overall**
0.4902	0.0933	0.3547

Findings of table 13 indicate that the R-square within and between is 0.4902 and 0.0933. However, the table shows that the overall R-sq is 0.3547, which indicates that the independent variables in the study explain 49% of the dependent variable, the rest 51% is unexplained by the independent variables in the study, which indicates that further study is required for other independent variables to fulfil the 51% variables unexplained by the independent variables in the study.

According to the result, we can see that the foreign direct investment coefficient value is .303438and the standard deviation is 1.608585. The coefficient value of foreign direct investment shows a positive value and does not significantly affect the gross domestic product growth of Central Asian countries. So, we accept the null hypothesis, i.e., foreign direct investment positively affects gross domestic product growth of the Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic countries economy.

From the above table, we can see that the coefficient value of inflation is -10.44917and the standard deviation is 2.412614. The coefficient value of inflation shows the negative value, and it significantly affects the growth of gross domestic product of Central Asian countries at1% significant level. So, we accept the null hypothesis, i.e. Inflation has a negative effect on gross domestic product growth of the Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic countries economy.

The coefficient value of export is -2.672542, and the standard deviation is 2.994767. The coefficient value of export shows a negative value and does not significantly affect the growth of gross domestic product of Central Asian countries. So, we accept the null hypothesis, i.e. Export has a negative effect on gross domestic product growth of the Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic country's economy.

We can see that the coefficient value of government spending is -22.79329, and the standard deviation is 5.503463. The coefficient value of government spending shows the negative value, and it significantly affects the growth of gross domestic product of Central Asian countries at a 1% significant level. So, we accept the null hypothesis, i.e., government spending negatively affects gross domestic product growth of Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic country's economy.

From the above table, we can see that the coefficient value of unemployment is 5.295284, and the deviation is 3.715089. The coefficient value of the Unemployment Rate shows a positive value and does not significantly affect the growth of gross domestic product of Central Asian countries at a 1% significant level. So, we accept the null hypothesis, i.e. Unemployment rate has a positive effect on gross domestic product growth of Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic country's economy.

Finding of the result from panel regression Random-effects GLS Model

Positively and Significant	**Negatively and significantly**
Foreign direct investment positively but not significant	Inflation negatively and significant
Unemployment Rate positively but not significant	Government Spend negatively and significant
Export positively but not significant	

The result of panel regression Fixed-effects (within) regression

Fixed-effects (within) regression	No. of obs=100
Group variable: country1	No. of groups=4

R-sq: within=0.6040		Obs per group min=25				
Between=0.4893		avg=25.0				
Overall=0.1235		Max=25				
		F (5.91)			= 27.76	
Corr (u_i, Xb) =-0.7957		Prob>F			= 0.0000	
LnGDP Growth	Coef.	Std. Err	t	P>|t|	95% Conf	Interval
LnFDIGDP	2.779412	1.376878	2.02	0.046	.0444129	5.514412
LnINF	-6.311012	2.190764	-2.88	0.005	-10.6635	-1.960128
LnEXPGDP	-5.700768	2.699452	-2.11	0.037	-11.0629	-.3386377
LnGOVSP	-27.44613	6.471933	-4.24	0.000	-41.30183	-14.59043
LnUR	48.36406	9.067802	5.33	0.000	30.35198	66.37613
_cons	10.09487	13.65049	0.74	0.461	-17.02015	37.20989

sigma_u | 9.7851333

sigma_e | 4.7290221

rho | .81065803 (fraction of variance due to u_i)

F test that all u_i=0: F (3, 91) = 20.91 Prob > F = 0.0000

Source: stata output

Source: Research Findings

The finding in table 3 indicates a positive relationship between FDI and economic growth the

R-sq within	Between	Overall
0.6040	0.4893	0.1235

Table 13 indicate that the R-square within and between is 0.6040 and 0.4893. However, the table shows that the overall R-sq is .01235, which indicates that the independent variables in the study explain 60.4% of the dependent variable, the rest 39.6% is unexplained by the independent variables in the study, which indicates that further study is required for other independent variables to fulfil the 39.6% variables unexplained by the independent variables in the study.

We can see that the foreign direct investment coefficient value is 2.779412, and the standard deviation is 1.376878. The coefficient value of foreign direct investment shows a positive value, and it significantly affects the gross domestic

product growth of Central Asian countries at a 5% significant level. We accept the null hypothesis, foreign direct investment positively affects gross domestic product growth of the Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic countries economy.

We can see that the coefficient value of inflation is -6.311012, and the standard deviation is 2.190764. The coefficient value of inflation shows the negative value, and it significantly affects the growth of gross domestic product of Central Asian countries at1% significant level. We accept the null hypothesis, i.e. Inflation has a negative effect on gross domestic product growth of the Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic countries economy.

The coefficient value of export is -5.700768, and the standard deviation is 2.699452. The coefficient value of export shows the negative value, and it significantly affects the growth of gross domestic product of Central Asian countries at a 5% significant level. We accept the null hypothesis, i.e. Export has a negative effect on gross domestic product growth of the Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic country's economy.

The coefficient value of government spending is -27.44613, and the standard deviation is 6.471933. The coefficient value of government spending shows the negative value, and it significantly affects the growth of gross domestic product of Central Asian countries at a 1% significant level. We accept the null hypothesis, i.e., government spending negatively affects gross domestic product growth of Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic country's economy.

The coefficient value of unemployment is 48.36406and the deviation is 9.067802. The coefficient value of the Unemployment Rate shows a positive value, and it significantly affects the growth of gross domestic product of Central Asian countries at1% significant level. We accept the null hypothesis, Unemployment rate has a positive effect on gross domestic product growth of Central Asian Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic country's economy.

Finding of the result from panel regression Fixed-effects (within) model

Positively and Significant	**Negatively and significantly**
Foreign direct investment positively and significant	Inflation negatively and significant
Unemployment Rate positively and significant	Export negatively and significant
	Government Spend negatively and significant

Table 4. The result of the correlation

	Year	lnGDP	LnFDI	LnInf	Ln Export	LnGS	Ln UR
Year	1.0000						
LnGDP G	0.5467* 0.0000	1.0000					
LnFDI	0.2604* 0.0089	0.2651* 0.0077	1.0000				
Ln INF	-0.7447* 0.0000	-0.4657* 0.0000	-0.4132* 0.0000	1.0000			
Ln Export	-0.4154* 0.0000	-0.0829 0.4123	0.2743* 0.0003	0.2272* 0.0230	1.0000		
LnGS	-0.0979 0.3326	-0.3369* 0.0006	-0.3535* 0.0003	0.0083 0.9350	-0.3696* 0.0002	10000	
LnUR	0.1133 0.2617	0.0879 0.3846	-0.3438* 0.0005	-0.0264 0.7943	-0.3398* 0.0005	0.2021* 0.0437	1.0000
Country	0.0000 1.0000	0.0322 0.7508	0.5273* 0.0000	-0.1127 0.2643	0.3002* 0.0024	-0.6544* 0.0000	-0.5412* 0.0000

4.3 Correlation analysis

The above table shows that foreign direct investment and gross domestic product growth has a positive relationship, when foreign direct investment increased by 0.2604*, the value of gross domestic product also increased by 1 and when foreign direct investment decreased by 0.2604* at the same amount the value of gross domestic product also decreased.

Inflation and gross domestic product growth have a negative relationship, when inflation increased by -0.7447* the value of gross domestic product decreased by 1 and when inflation decreased by -0.7447* at the same amount as the value of gross domestic product also increased.

Export and gross domestic product growth have a negative relationship i.e., when export increased by -0.4154* the value of gross domestic product decreased by 1. When inflation decreased by -0.4154* at the same amount, the value of gross domestic product also increased.

Government Spending and gross domestic product growth have a negative relationship i.e., when government spending increased by -0.0979, the value of gross domestic product decreased by 1. When government spending decreased by -0.0979 at the same amount, the value of gross domestic product increased.

Unemployment Rate and gross domestic product growth have a positive relationship i.e. when the unemployment rate increased by 0.1133, the value of gross domestic product also increased by 1, and when the unemployment rate decreased by 0.1133 at the same amount, the value of gross domestic product also increased.

5. Conclusion and summary of the study

Based on the study's result, we concluded that foreign direct investment positively and significantly affects the economic growth of selected post-Soviet Union countries. Well, inflation is a negative and significant effect on the economic growth of selected countries. According to the study, export is positively and significantly influent on the economic growth of selected countries. When we see the government spending, it is negatively and significantly influencing the economic growth selected of post-Soviet Union countries. At last, the independent variable, the unemployment rate, is positively and significantly affects the economic growth of the selected post-Soviet Union countries such as Tajikistan, Turkmenistan, Uzbekistan, and the Kyrgyz Republic.

This research studied the location-specific impact of foreign direct investment to understand better how economic growth may attract foreign direct investment and acquire capital and technology. The examined determinants are based on previous research and economic theories. This study examined the impact of foreign direct investment on post-Soviet Union countries (namely Tajikistan, Turkmenistan, Uzbekistan, and Kyrgyzstan) for 1993-2017. The main reason was to analyze how foreign direct investment affects economic growth on post-Soviet Union's collect those countries. The dependent variable is gross domestic product growth, and other variables independent foreign direct investment, Inflation, Export % of gross domestic product, Government Spending % of gross domestic product, and unemployment were used in this paper as the main impact of foreign direct investment. However, foreign direct investment was divided into a gross domestic product with advanced economies, developing economies, and a whole.

Moreover, this study focused its primary attention on the impact of foreign direct investment to see how it can affect economic growth. Other variables have been selected as a control variable and based on previous empirical research, in which these variables showed significant results. The ordinary least squares (OLS) panel regressions methodology was used to find which independent variables were essential to gross domestic product growth-dependent variable. The results show that both

advanced and developing economies were highly significant for gross domestic product. Moreover, Inflation, Export, Government Spending, and Unemployment rates were also important determinants for a gross domestic product. However, I found that foreign direct investment positively affects economic growth in selected Central Asian countries. The selected variable for infrastructure suggested is not consistent.

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