The role of macroeconomic factors in enhancing foreign direct investment: Cases of Kazakhstan and Uzbekistan

Laura Kuzakhmetova

KIMEP University, Kazakhstan

Correspondence: lkuzakhmetova@gmail.com

Abstract

For developing countries such as Kazakhstan and Uzbekistan the amount of FDI is crucial for economic growth. This article studies the effect macroeconomic factors potentially bring to inflow of FDI into Kazakhstan and Uzbekistan during 2005-2023 through the Panel-Corrected Standard Errors (PCSE) regression approach in STATA software. The considered macroeconomic factors (being independent variables) are GDP, population number, labor force participation rate, share of tax revenue in GDP, openness to trade and inflation. Surprisingly, inflation levels and openness to trade do not bear any significant impact on FDI inflows and the only positive correlation with FDI inflow was identified for GDP and previous FDI inflows. Other remaining macroeconomic factors bring negative effects to FDI inflows in terms of Kazakhstan's and Uzbekistan's economies. However, as this study is based on a limited time horizon, the generalization of the results may be problematic due to data constraints and the possibility of considering other variables, such as political stability and regulatory quality. Further research should extend the time span, consider industrial spheres for investments and incorporate additional macroeconomics factors to further build on the knowledge of FDI drivers in Central Asian economies. Similar studies were conducted for other countries and some of them for Central Asian economies, but these papers are based on more prior periods allowing my study to fill the gap for the first quarter of the 21st century.

Keywords: FDI; Central Asia; investment; macroeconomic factor; business environment; GDP

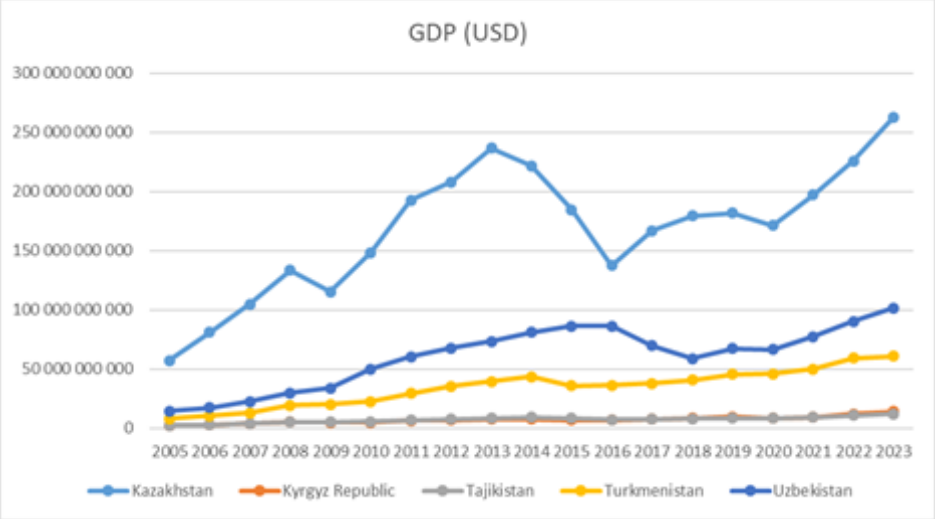
1. Introduction

1.1. General Background of the Region

Kazakhstan and Uzbekistan are parts of the broader region which also includes three other countries which are Kyrgyzstan, Tajikistan and Turkmenistan - all five countries form a region called Central Asia. The economic activity of the whole region is mostly focused on agriculture as well as on mining in Kazakhstan due to its abundance with natural resources.

Considering the countries' GDP, Kazakhstan is definitely a leader of the region where its latest available GDP for the year 2023 equaled almost USD 263 million, which is more than twice as much as Uzbekistan's GDP equaling to per circa USD 102 million in 2023. The GDP for the year 2023 of the remaining three countries altogether equals approximately USD 87 million. The graphic representation of the GDP for Central Asian countries is presented in Figure 1 below.

Figure 1. GDP of Central Asian economies is USD



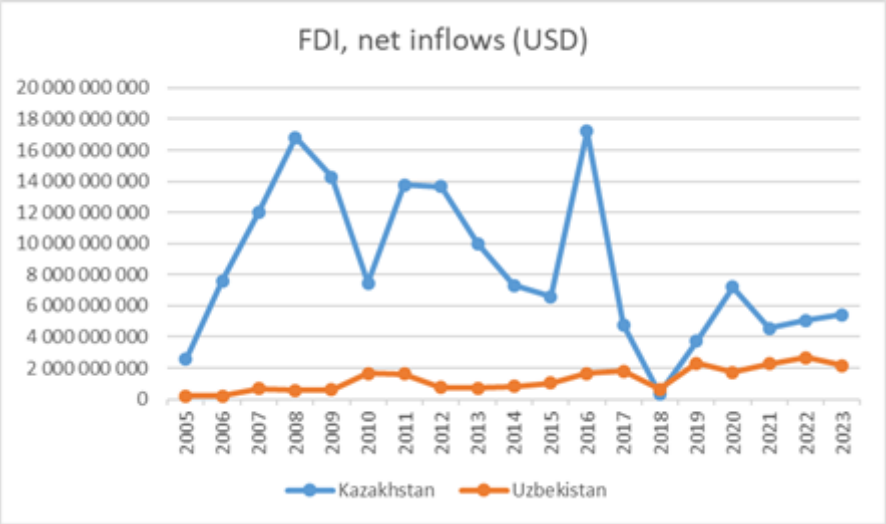
Source: World Development Indicators, World Bank.

As the sum of Kazakhstan's and Uzbekistan's GDP for the latest available period provides more than 80% GDP of the whole region as well as those two are the main drivers of the region only those two jurisdictions are considered for the purposes of this research.

1.2. FDI Background for Kazakhstan and Uzbekistan

Both jurisdictions are part of the "Middle Corridor" which is also known as the Trans-Caspian International Transport Route, which is the shortest way of linking China with Europe. Both countries attracted foreign investments since they obtained independence from the Soviet Union in 1991. Figure below shows the amount of FDI inflows into Kazakhstan and Uzbekistan during the period of this study which is from 2005 to 2023 (19 years).

Figure 2. Amount of FDI net inflows in Kazakhstan and Uzbekistan from 2005 to 2023



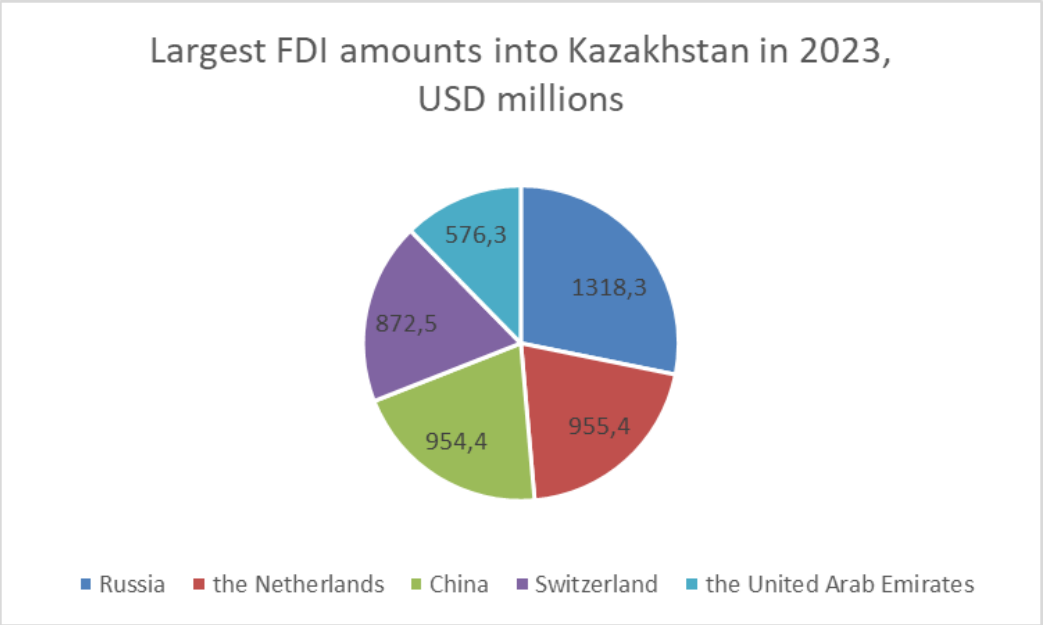
Source: World Development Indicators, World Bank.

Foreign Direct Investment (FDI) is an investment by a firm or individual in one country in a business enterprise in another country. Usually, FDI implies the acquisition of a significant or majority shareholding in a foreign company through the establishment of operations. The Organisation for Economic Co-operation and Development (OECD) (2001) has defined FDI as a type of cross-border investment where the investor exercises strategic control or influence, which is usually achieved by exercising 10% or more of the voting rights in a company.

For decades both republics followed a centrally planned economy and after gaining independence transferred to a market-oriented way. As such, Kazakhstan's GDP is significantly affected by foreign direct investment, especially for sectors such as mining, manufacturing and energy (Katenova, 2018). Also, FDI benefits Kazakhstan through improvement of its socio-economic environment, develops infrastructure and boosts employment (Petrov, A. V., Baynova, M. S., & Jiaerheng, J., 2022). Whilst for Uzbek economy, attraction of FDI boosts its export-oriented industries, such as natural gas and cotton (Sobirov, 2021).

During the last couple of decades plenty of western investors came to Central Asian countries in order to initiate large investment projects. Providing Kazakhstan's abundance of natural resources, it is considered to be an attractive place for foreign investors. According to the World Bank, for the last 19 years Kazakhstan received more than USD 160 million of investment from foreign jurisdictions. For the year 2023 National Bank of Kazakhstan highlights the following jurisdictions as the largest investors in the economy of Kazakhstan: Russia, the Netherlands, China, Switzerland and the United Arab Emirates which have respectively invested USD 1 318.3 million, USD 955.4 million, USD 954.4 million, USD 872.5 million and USD 576.3 million. While the total FDI in Kazakhstan in 2023 resulted in USD 3 364 million.

Figure 3. Largest FDI amounts into Kazakhstan in 2023, USD millions



Source: National Bank of Kazakhstan

For Uzbekistan the total FDI in 2023 equals USD 838.13 million which is almost 25% of the amount of FDI in Kazakhstan. Unfortunately, no similar official statistics with division by countries were found in relation to Uzbekistan, but according to Lloyds Bank (2024) the largest investors in Uzbekistan are China, South Korea, Russia, Kazakhstan, and Turkey.

FDI is a very important factor in the economic development of developing countries such as Kazakhstan and Uzbekistan. Developing countries often have limited domestic capital to undertake many large projects which could potentially bring additional revenue. FDI is a critical source of foreign capital that can help meet investment needs, especially in the infrastructure, manufacturing and technology sectors. Foreign investors can also decrease unemployment levels through their business activities. Indirectly FDI brings the hosting countries closer to the international markets.

FDI integrates both Kazakhstan and Uzbekistan into the global economy and it is vital for their development within the global arena. However, investment in the Central Asian region bears certain risks. Economy of Kazakhstan heavily relies on the energy sector leading to economic instability when oil prices fluctuate (Katenova, 2018). From the very beginning, corruption and weak governance are challenging Kazakhstan, impacting the business decisions (Petrov et al., 2022). Geopolitical risk escalated recently due to the giant ground border with Russia. Sobirov (2021) mentioned that in Uzbekistan investors frequently face the red tape, where it takes a long time to pass through obligatory administrative procedures to obtain licenses, approvals or permits.

Use of different regulatory tools is able to boost investor's interest in the considered economies

so that the investor could earn higher margins, and the jurisdiction would gain the economic, social or other benefit from the desired foreign investment.

1.3. Kazakh and Uzbek official FDI Attraction Strategies

Kazakhstan

Kazakhstan has an official website for foreign investors stating that the country is located strategically between Europe and Asia providing it a special advantage. This particular location enables direct access to the major markets of Central Asia, China and Eurasian Economic Union (which consists of Armenia, Belarus, Kazakhstan and Russia). Another competitive advantage of Kazakhstan which could potentially attract foreign investors is its abundance with natural resources, the country includes nearly all elements of periodic table. Additionally, country's huge territory and relatively mild climate enriches its agricultural development.

Kazakhstan's government officials are interested in attraction of foreign investors and for these purposes' government provides investors with comprehensive support in the form of fiscal (tax exemptions, subsidies, grants, free economic zones and other initiatives) and non-fiscal (infrastructure, land-plot) incentives.

Moreover, at the end of 2024 Kazakh government has approved a concept of investment policy until the year 2029. The plan is to rise the investment in fixed assets to 23% of GDP, attract at least USD 150 billion FDI and establish FDI net inflow at the level of at least 2% of GDP annually. Government also believes that maintenance of a "Register of problematic issues and complaints from investors" will improve the effectiveness of investor feedback.

The following critical points are mentioned in the governmental plan for investment attraction:

- AIFC (Astana International Financial Centre) should be used for solving court disputes;
- improvement of the efficiency of the state support measures through consideration of industry and regional specifics;
- introduction of reciprocal obligations for investors such as export orientation, job places creation and other similar obligations;
- development of road maps to export goods resulting from huge industrial projects;
- the possibility of introducing a mechanism for reimbursing expenses for providing infrastructure for investment projects through tax deductions;
- the infrastructure for the effective functioning of the SEZ (Special Economic Zones) will be fully provided. It is planned to reorganize inefficient SEZs into industrial zones, optimize permitted types of activities and introduce counter obligations for SEZ residents;

- to stimulate lending from commercial banks, a set of fiscal concessions will be developed, including differentiated corporate income tax rates. It is planned to continue integrating the credit bureau and state information systems to improve the borrower assessment system;
- legislation on the securities market will be brought into line with ESMA (European Security and Markets Authority) standards for attracting foreign capital.

The Government of Kazakhstan has shown a strong adhesion to investment driven economic growth through listed initiatives and policies. Since the beginning of 2024, the Investment Headquarters has analyzed 88 investment projects which are worth about USD 45 billion, which shows that the country is aggressive in its effort to attract both domestic, and foreign capital. Also, the National Digital Investment Platform, to support and facilitate investment projects, has been developed and has already facilitated the registration of 755 projects which are in line with Kazakhstan's digital transformation strategy in the investment facilitation process. These efforts are in line with the government's broader economic agenda of enhancing industrial diversification, infrastructure development and sustainable growth through FDI and private sector engagement. By using digital tools and structured investment mechanisms, Kazakhstan is working to enhance its status as a regional investment hub and offer a transparent and efficient environment for investors.

Uzbekistan

Public sources also noted claims of Uzbek President made at the end of 2024, where investment level in eight regions and cities of the country remains low and investment levels in some industries decreased comparing to 2023. The Uzbek government has an ambitious aim to almost double country's GDP by 2030, as well as attract investments worth USD 100 billion. Government officials comment that the task is not simply to increase the volume of financing, but to improve the quality of investments attracted so that every dollar serves to increase the industrial potential of the country, creates high-quality jobs, increases export volumes, and, accordingly, contributes to the budget for the implementation of ambitious programs to modernize our social and basic infrastructure.

1.4. Statement of the Problem

As studied by Lee, Kang and Lee (2024) in terms of FDI inflows developing economies are more dependent on economic factors (GDP, trade, share of natural resources in GDP and real effective exchange rate) for FDI inflows, whilst for developed economies the role of social factors (infrastructure, human capital, innovation, globalization) is more significant. Considering the results of this study as well as the fact that both Kazakhstan and Uzbekistan are developing economies, it was decided to get the understanding which macroeconomic factors significantly affect the FDI inflows into two driving countries of the Central Asian region during 2005-2023?

As such, in 2020 Ashurov, S., Abdullah Othman, A. H., Rosman, R. Bin, & Haron, R. Bin tested

how significantly FDI of the previous year, total debt services, trade openness, labor force, total tax rate affected the FDI inflow into Central Asia during 1990-2017. They revealed that GDP, labor force, total debt services, total tax rate are positively significant, and trade openness does not bear any importance for FDI.

Meanwhile Azam (2010) classified FDI into two theories - microeconomic and macroeconomic. Azam, M. checked the influence of GDP size, official development assistance and inflation on FDI inflows in Armenia, Kyrgyzstan and Turkmenistan during 1991-2009. As a result, inflation brought a negative effect on FDI, while other two indicators appeared positive. Sumner (2005) has investigated how FDI benefits the poor and whether it has relation to income inequality. His study supports that generally FDI leads to economic growth. However, FDI increases a gap between the rich and the poor as skilled workers are more likely to be employed in FDI projects and at the same time it can negatively affect the income growth of the poor. He argues that some other research did not find a link between poverty levels and FDI and it often depends on the counties' policies and perception of government officials towards external FDI. As FDI is a popular tool for economic growth both for developed and developing economies, the effects it brings has been studied for many years. Some research agrees with its positive effect, some state that it brings no significant effect. It seems that the results differ based on the sample and periods considered. Different countries apply different approaches towards FDI treatment, and some might treat it in a precautionary manner and set certain limitations for the foreign investors.

Kazakhstan and Uzbekistan are developing economies which take investors' attention to the region. This research focuses on the significance of macroeconomic factors affecting FDI in the region for the last couple of decades.

2. Theoretical framework of FDI

FDI is a relatively old and well-studied phenomenon in the economy. Different theories have been developed to explain the determinants of FDI. Still, FDI is determined by different factors across different economies and determination factors might change over time.

2.1. Dunning's Eclectic Paradigm

Among the most prominent is Dunning's Eclectic Paradigm which analyzes FDI attractiveness through the prism of OLI framework (Ownership, Location and Internalization). Ownership refers to possessing intangible assets which is hard to be duplicated, and which can be transferred at low cost bringing high profits. Location refers to maintaining comparative advantage via utilizing host country's geographical advantages such as market size, resources abundance, transportation costs, labor cost and other factors. In terms of Internalization entity considers the value of domestic performance with possibility of foreign outsource (Sharmiladevi, 2017).

2.2. Gravity Model of FDI

Another key framework is the Gravity Model of FDI which is an economic framework based on the work of Newton where gravity is where the model's name comes from. Just as gravity between any two objects depends on their masses and the distance between the two, this model suggests that flows of FDI between two countries is a function of independent variables of these countries and the distance between them. The Gravity Model implies that FDI flows are a function of the size of the economy (in terms of GDP and population) and the level of economic distance between the two countries (e.g., regulatory barriers, institutional quality). As per FDI, gravity model assumes that particular FDI flows depend on certain variables, such as geographical distance, corruption, culture, language, religion, neighboring countries and other potential homogeneous variables. As such, the research of Dorakh, A. (2020) investigated the relationship between 39 OECD states and FDI attractiveness during 1991-2017, where 6 countries are new to the EU. For this purpose, FDI gravity model was estimated with OLS regression of panel secondary data through a partial equilibrium approach. The results demonstrated positive correlation between GDP and FDI and thus FDI inflows into EU states on average are greater by 23%, while within gravity theory FDI inflows and distance are negatively correlated. Previously, in 2016 Morris, S., & Palakh, J. conducted an analysis of FDI determinants using gravity model for 160 countries considering GDP, population, per capita income, revealed comparative advantage index, 5-year GDP growth rate, R&D expenditure as percentage from GDP, export of natural resources as percentage from GDP, import of natural resources as percentage from GDP, Fisher index differential, distance, common language, colonial linkage, OECD group, EU group, Eurozone group and unemployment rate. This research resulted in variables relating to the gravity model that appeared significant and explained almost half of the variation in the OFDI stock. Thus in this case gravity model is the dominant explanation of FDI.

2.3. FDI Institutional Theory

One more approach is Institutional Theory where FDI is affected by the country's institutional environment, including effective legal framework, political stability, fiscal and investment policies, regulatory clarity. This viewpoint argues economic factors and strengthen influence of institutional factors on FDI flows. On the example of Canadian economy Mahmood, N., Shakil, M. H., Akinlaso, I. M., & Tasnia, M. (2019) tested the influence of institutional factors on FDI inflows. The Canada has been chosen as after the global financial crisis this country showed positive economic trend and none of its banks failed. As expected, the research showed significant positive relationship between FDI and institutional quality. Another group of researchers consisting of Peres, M., Ameer, W., & Xu, H. (2018) checked the influence of institutional quality on FDI both for developed and developing nations on the sample of 110 countries from 2002 to 2012. GDP per capita, lagged FDI, market size, infrastructure positively affect FDI flows, while WTO membership has no significant effect for both types of countries. Despite of the choice of Canada because of it financial stability in the previous study by

Mahmood, N., Shakil, M. H., Akinlaso, I. M., & Tasnia, M. (2019) this paper notes that financial crises bring significantly negative effect for developed and developing countries.

2.4. Macroeconomic Stability Theory

In contrast to Institutional Theory, Macroeconomic Stability Theory is considered. Macroeconomic stability is known as a basic condition for economic growth and investment attractiveness with the lack of excessive variations in economic indicators such as inflation rates, exchange rates, fiscal balances, and interest rates. Mundell, R. A. (1957) explained FDI through the prism of open economy, where determinants are exchange rate, interest rate and capital mobility also known as IS-LM-BP model, where IS curve is goods market (aggregate demand), LM is money market (equilibrium of money supply and demand) and BP is balance of payments curve (trade balance and capital flows)).

Consideration of these theoretical perspectives offer a basis for examining significance of macroeconomic variables – population, inflation, GDP, trade openness, labor force participation rate, and tax revenue – on FDI inflows in Kazakhstan and Uzbekistan using a Panel-Corrected Standard Errors (PCSE) regression model.

3. Literature review

This section is dedicated to the review of the publications, articles and research of other authors on similar or related topics, including: FDI and macroeconomic variables importance, research approaches already applied, and the results other researchers had already obtained.

3.1. Difference in approaches for studying FDI inflows into developing and developed countries

Amount of FDI inflow into developing countries might be determined by a variety of economic, social, political and other factors which either attract or deter potential investors. A research of Paul, J., & Feliciano-Cestero, M. M. (2021) overviewed 50 years of FDI by different multinational enterprises over the world. This paper summarizes 500 frequently cited (more than 500 times) papers published during the period 1980 until 2020 and more than half of articles belong to the period between 2007 to 2020. The most commonly used independent variables included GDP, export, outflow FDI, import, inflation and gross capital formation (listed in ascending order). Majority of studies (57.73%) used publicly available secondary data as it is relatively easily accessible in order to conduct ordinary least squares regression (OLS). Other statistical methods used include co-integration analysis, cross-sectional analysis, Granger Causality test and Vector Autoregression (VAR).

A recent study, mentioned earlier, by Lee, S. J., Kang, S. J., & Lee, S. (2024) tested the influence of economic, institutional and social factors of FDI inflow. The authors used secondary data from 1996 until 2019 for 178 countries through pooled OLS estimation with consideration of country and year dummies as well as fixed effects and random effects. Authors mentioned that most of FDI was targeted at the developed world, but FDI into developing

countries is also rising and demonstrates less volatility. As a result, economic factors such as GDP, trade, share of natural resources in GDP and real effective exchange rate affect FDI inflows in developing economies, but social factors such as infrastructure, human capital, innovation, globalization are more significant for developed economies.

Saini, N. and Singhania, M. (2018) conducted research on FDI determinants through a GMM approach comparing developed economies with developing ones on the basis of 20 countries for the period 2004-2013. The results revealed that efficiency score play vital role in both developed and developing countries, economic freedom variable appeared significant for developed economies only, total factor productivity variable showed negative relationship with FDI, signaling that the level of expertise both types of economies is not enough to produce the required level of output. For developing economies, the most significant variables for FDI attraction are efficiency coefficient, capital formulation and trade openness. Interestingly, that the crisis dummy negatively relates to FDI for developed countries and bear no effect for developing countries.

Martinez-Vazquez, J., Zhang, L., & Goodspeed, T. (2011) also noted distinction in FDI approaches for 28 developed and 25 developing countries through the prism of taxation, infrastructure and business environment policies during 1984 (if unavailable 1995/1996 were used) to 2002. For the country type (developed and developing) researchers used a dummy variable and for the control determinants population, GDP, unemployment rate and exports (where the latter is also lagged to consider potential endogeneity) were used. The results showed that taxation is more critical for developed countries while poor governance and infrastructure decreases FDI inflows in both countries' categories, meaning that government officials of developing countries should emphasize overall governance and infrastructure policies and de-emphasize taxation approach for FDI attraction, while government officials of the developed countries should thoroughly consider the taxation methods they apply.

3.2. Recent research on FDI determinants in developing economies and particularly in Central Asian countries

FDI is a well-known tool of economic development in developing economies. FDI attraction is able to accumulate additional capital, advance existing technologies, increase employment rates and bring other economic benefits. Recent papers on FDI have emphasized key determinants of FDI inflows as macroeconomic stability, institutional quality, infrastructure development and trade openness. These are the latest findings in the field of FDI research, which are described in the table below:

Table 1 Overview of the most recent research papers about FDI flows for developing countries

Author(s)	Title of the paper	Period of study	Examined countries/ region	Methodology applied	Variables considered	Results and conclusions
Grosse, R., Trevino L.J. (2005)	New Institutional Economics and FDI Location in Central and Eastern Europe	1990-1999	13 Central and Eastern Europe	Standard OLS models, least-squares dummy variable models, and random effects GLD models	• FDI • corruption in government • rule of law • repatriation restrictions • EBRD index • number of bilateral treaties • private sector share in GDP • inflation • index of political risk • exchange rate • GDP	Institutional factors tend to dominate for FDI flows, where investment treaties, repatriation rules, degree of enterprise reform stimulate FDI whilst high corruption levels demotivate FDI inflows
Bhandari, B. (2007)	Effect of Inward Foreign Direct Investment on Income Inequality in Transition Countries	1990-2002	Eastern Europe and Central Asia	OLS corrected for heteroscedasticity and fixed effects	Dependent – Gini coefficient Independent categories: • macroeconomic • government policy • demographic • transition of political and social institutions • structure of the economy • country dummies • trend	FDI does not affect development or income inequality, but FDI inflows statistically affected separate determinant wage income inequality, while reducing capital income inequality
Azam, M. (2010)	Economic Determinants of Foreign Direct Investment in Armenia, Kyrgyz Republic and Turkmenistan : Theory and Evidence	1991-2009	Armenia, Kyrgyz Republic and Turkmenistan	Simple linear regression model in log form has been used and the method of LS	• FDI • market size • official development assistance	Positive effects of market size, official development assistance on FDI and negative effect of inflation on FDI
Lokesha, B.K.,	Determinants of Foreign	Not applicable	India	Not applicable	• FDI	Depending on the type of FDI

Author(s)	Title of the paper	Period of study	Examined countries/ region	Methodology applied	Variables considered	Results and conclusions
Leelavathy, D.S. (2012)	Direct Investment: A Macro Perspective				• Policy framework • Market size and GDP • Economic stability • Political factors	significance of specific determinants changes, where socio political stability determinant applies to all types of FDI, but other determinants may not be able to explain all FDI types.
Doytch, N., Eren, M. (2013)	Institutional Determinants of Sectoral FDI in Eastern European and Central Asian Countries: The Role of Investment Climate and Democracy	1994-2008	Eastern Europe and Central Asia	Dynamic Blundell-Bond "system" GMM estimator	• FDI segregated by sectors: services, agricultural, manufacturing • real GDP per capita • real GDP growth rate • investment profile • gross secondary school enrollment • natural resources rent share per GDP • real exchange rate	For agricultural and manufacturing FDI quality of human capital and institutional quality matters; state of democratic accountability also positively affects the inward FDI for these two sectors of economy; endowment with natural resources also raises agricultural and manufacturing FDI
Paswan, N.K. (2013)	Investment Cooperation in Central Asia: Prospects and Challenges	1990s-2010	Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Turkmenistan)	Not applicable	Not applicable	Kazakhstan took a dominant power of FDI flows and potentially will become a business hub of the whole Central Asian region due to its location, relatively better transportation systems and stability
Sun, F. (2014)	The dual political effects on Foreign Direct Investment in developing	1970-2005	124 developing countries and emerging market economies	Panel corrected standard errors (PCSE) analysis	• FDI • freedom index • polity score • (inflow and outflow)/GDP	FDI of different types differently affect democracy, as some FDI is pro-democracy and other FDI is pro-authoritarian

Author(s)	Title of the paper	Period of study	Examined countries/ region	Methodology applied	Variables considered	Results and conclusions
	countries				• stock/GDP • logged GDP/capita • growth rate • inflation • urbanization • trade	
Dua, P., Gard, R. (2015)	Macroeconomic determinants of Foreign Direct Investment: Evidence from India	1997 (q3) – 2011 (q3)	India	Cointegrated VAR with exogenous variables	• market size • macroeconomic stability • credit worthiness • trade openness • infrastructure • labor cost • domestic returns • exchange rates • FDI flows received by other host countries • foreign output and foreign interest rates	Major macroeconomic variables such as higher domestic returns, depreciating exchange rate, better infrastructure bring positive effect of FDI flows in India. Also, global increase of FDI into emerging countries decreases FDI inflows to India
Revilla, M. L. D. (2016)	Cross-country econometric study on the impact of fiscal incentives on FDI	1996-2012	5 ASEAN countries (Indonesia. Vietnam, Malaysia, Thailand, Philippines)	5 panel data regression models, of which 2 are fixed effects models and 3 are random effects models	• FDI • market attractiveness (GDP per person employed) • tax levels (effective average tax rate) • population growth • infrastructure • investment climate • governance	Market attractiveness and infrastructure increases FDI, while tax and population growth negatively relates to FDI and no significant relation between governance indicators and FDI
Kosztowniak, A. (2016)	Verification of the relationship between FDI and GDP in Poland	1992-2012	Poland	Vector Error Correction Method impulse responses and variance decomposition analysis	• domestic capital • labor • foreign capital • expenditure on information and telecommun	FDI inflows are more attracted by GDP rather than effect of FDI on economy's growth

Author(s)	Title of the paper	Period of study	Examined countries/ region	Methodology applied	Variables considered	Results and conclusions
					ication technologies	
Kumari, R., Sharma, A.K. (2017)	Determinants of foreign direct investment in developing countries: a panel data study	1990-2012	20 developing countries from South, East and South-East Asia (but Republic of Korea and Taiwan Province of China excluded due to data unavailability)	fixed effect model and random effect model) with the help of Hausman test	• FDI • market size/GDP/growth rate • trade openness • infrastructure • inflation • interest rate • research and development • human capital	Market size is the most vital determinant of FDI inflow. Further, fixed effect estimation reveals that other factors such as trade openness, market size, human capital, interest rate are significant coefficients.
Katenova, M. (2018)	Foreign Direct Investment and Gross Domestic Product in Kazakhstan	1994-2016	Kazakhstan	Regression analysis	GDP as independent and FDI as dependent	FDI positively and significantly affects GDP
Ikpesu, F., Vincent, O., Dakare, O. (2019)	Growth effect of trade and investment in Sub-Saharan Africa countries: Empirical insight from panel corrected standard error (PCSE) technique	2000-2016	35 countries in Sub-Saharan Africa	Panel corrected standard error (PCSE)	• GDP per capita • trade (openness, export and import as corresponding shares of GDP) • investment • control variable (rule of law, regulatory quality, population growth, real exchange rate, life expectancy at birth, inflation, government effectiveness)	Export negatively affects the region, while import and trade domestic investment correlate positively
Ashurov, S., Othman, A.H.A., Rosman, R.B., Haro R.B. (2020)	The determinants of foreign direct investment in Central Asian region: A case study of	1990-2017	5 Central Asian countries (Tajikistan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan)	Fixed and random effects and pooled OLS, GMM system	• FDI (previous year) • GDP • labor force • trade openness • tax	Significantly positive relationship between FDI and GDP, FDI and labor force, FDI and total debt services, FDI and

Author(s)	Title of the paper	Period of study	Examined countries/ region	Methodology applied	Variables considered	Results and conclusions
	Tajikistan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan (A quantitative analysis using GMM)					tax Insignificant positive relationship FDI and trade openness
Sobirov, F. (2021)	Foreign Direct Investment in Uzbekistan	2007-2017	Uzbekistan	OLS	• FDI • market size • population growth • exchange rate • inflation	Population growth and market size affect FDI inflow statistically significant
Emako, E., Nuru, S., Menza, M. (2022)	Determinants of foreign direct investments inflows into developing countries	1996-2019	53 developing countries	Driscoll and Kraay model and Factor Analysis	• FDI • per capita GDP • total population • labor force • foreign inventories • share of total natural resource rent in GDP • fixed telephone subscribers • openness • rate of inflation • increases in nominal exchange rates • voice and accountability • likelihood of the government being overthrown by violence and politically motivated terrorism • government effectiveness	According to Driscoll and Kraay model, factors such as natural resource wealth, corruption control, inflation, tariffs and currency rates do not influence FDI inflows; factors such as human capital, per capita GDP, market size, existence of minimum wage laws, labor force, openness of the economy, geographical location, infrastructure development, foreign official languages, political stability, regulation quality, voice and accountability are crucial. Factor Analysis revealed that institutional elements such as political stability and regulatory quality affect FDI inflows into developing economies.

Author(s)	Title of the paper	Period of study	Examined countries/ region	Methodology applied	Variables considered	Results and conclusions
					• country's regulatory quality • rule of law • control of corruption • dummy variable for port nearby • minimum wage • official language	

Over the last five years only a limited number of studies have been conducted on the effects of FDI in the Central Asian region. Although the importance of FDI for promoting economic development and regional cooperation has been rising, most academic attention has been paid to other regions such as Southeast Asia and Eastern Europe. This lack of research on Central Asia is a significant missing piece of the literature, specifically in relation to the role of macroeconomic determinants of FDI inflows. To fill this gap, the present study aims to contribute to the literature by examining the macroeconomic drivers of FDI in Kazakhstan and Uzbekistan, thus offering practical suggestions for scholars and policymakers on how to make the region more attractive to investors.

3.3. Methodologies used for FDI Research

A number of studies have employed various regression techniques to analyse the determinants of FDI chosen according to the research objectives. For panel data analysis capturing both cross-sectional and time series data regular Ordinary Least Squares (OLS), Fixed Effects (FE), Random Effects (RE), Panel-Corrected Standard Errors (PCSE) and Generalized Method of Moments (GMM) are some of the most commonly used methods which are suitable for addressing major problems specific to panel data.

FE models are designed to control for time-invariant unobserved heterogeneity by taking the difference of individual specific effects and thus are useful when such effects are related to the explanatory variables. On the other hand, RE models make the assumption that these individual specific effects are uncorrelated with the regressors and hence are more efficient when this assumption is valid. PCSE estimation is recommended for use in the presence of heteroscedasticity and cross-sectional dependence, especially when the study involves large and diverse panels. Whilst GMM technique is very important in dynamic panel data models where endogeneity, autocorrelation, and the persistence of the dependent variable are of major interest. In addition to these approaches, some studies have employed the gravity model which is a common tool in FDI literature to analyze the role of economic size and geographical distance as determinants of investment.

The frequent application of these methods indicates their effectiveness in eliminating biases and enhancing the statistical inferences in panel data context. Below is an overview of research papers based on GMM and PCSE approaches as the most applicable ones for the considered dataset.

3.3.1 Generalized Method of Moments (GMM)

Wu, J. Y., & Hsu, C. C. (2008) examined the sample of 62 countries if economic growth which arises from FDI during 1975-2000 depends on absorptive capacities, specially - initial GD, volume of trade and human capital. Both LS and GMM regression approaches revealed that FDI itself plays a significant role in economic growth. Besides this, authors used a threshold model which showed that a country benefits from FDI when it reaches a certain level of development, human capital and initial GDP as well as has progressive absorptive capacity.

A quantitative study of FDI determinants in Central Asia through GMM was also conducted by Ashurov, S., Abdullah Othman, A. H., Rosman, R. Bin, & Haron, R. Bin in 2020. Authors mention that the use of GMM was suggested by Arellano and Bond in 1991, Arellano and Bover in 1995, Blundell and Bond in 1998. GMM verifies if FDI time series data correlates with the past information, i.e. the presence of the dynamic effect. As mentioned earlier, authors revealed that GDP, labor force, total debt services, total tax rate are positively significant and trade openness does not bear any importance for FDI.

Naanwaab, C., & Diarrassouba, M. (2016) also referred to GMM as advised in the late 20th century for data of 137 countries for the 15 years period from 1995 until 2010. Again, authors mention that GMM treats for potential endogeneity and controls for the presence of unobserved country specific effects. In this paper FDI is determined by economic freedom and human capital in middle- and high-income countries. For low-income countries human capital appeared to be more significant in FDI attraction.

Doytch, N., & Eren, M. (2012) also noted applicability of GMM rather than pooled OLS and fixed effects approaches, where the former is not accounting for dynamic effect where the country evolves over time and potential endogeneity of data, while the latter adjusts values to their average over time and at the same time removes long-term trends of data. GMM is designed to capture long-term and short-term challenges and ensures more reliable results. The results were distributed among FDI inflows into agricultural, manufacturing and services sectors in Eastern Europe and Central Asian countries during 1994-2008. Results showed that institutional profile of the country and endowment with natural resources matters in agricultural and manufacturing FDI inflows.

3.3.2 Panel-corrected standard errors (PCSE)

Ikpesu, F., Vincent, O., & Dakare, O. (2019) examined PCSE techniques for investment and trade growth through macroeconomic, human capital and institutional variables for sub-Saharian African countries during 2000-2016. According to the authors, PCSE was used as it is free from autocorrelation, and it is less sensitive to outlier estimates. Control independent

variables were trade and investment as a percentage of GDP. Results show that both openness to trade and domestic investment lead to regional economic growth.

Besides PCSE Magalhães, M., & Africano, A. P. (2007) applied feasible generalized least squares (FGLS) and robust OLS to test the relationship of trade and FDI in Portugal during 1995-2000. All three methods showed a positive relationship between FDI and a country's trade balance.

In 2016 Shakib, H. considered whether corruption discourages FDI inflows for 48 countries of South and South-East Asia, Latin America and the Caribbean as well as Africa during 1998 to 2014 through PCSE regression approach as well as RE and FGLS. As expected, the findings demonstrated the negative relation between FDI and corruption for all three estimation methods, where decrease in the level of corruption increases confidence of the investors.

PCSE was also applied by Sun, F. (2014) to test the effect of FDI on democracy in 124 developing economies from 1970 to 2005. Democracy was measured by the civil liberty index and Freedom House's political rights, while FDI was measured by share of annual GDP. The results demonstrated the effect on democracy varies depending on the FDI type (pro-authoritarian, pre-democracy, etc.). Overall FDI effect in aggregate showed a negative relationship, but investment from developed countries showed positive effect on democracy but still results vary among regions.

4. Methodology

This section discusses the research methodology used to explore the effect of macroeconomic factors on foreign direct investment (FDI) in Kazakhstan and Uzbekistan during 2005-2023. The research uses a quantitative approach and panel data regression to analyze the relationship between a row of macroeconomic factors and FDI.

4.1 Research Design

This research is based on a quantitative approach to examine the relationship between macroeconomic factors and FDI into Kazakhstan and Uzbekistan for the period 2005-2023 (which is almost 20 years). The source of data used for this research includes the World Bank.

The period of research was chosen as 2005-2023 for being important in the economic growth of Kazakhstan and Uzbekistan as both states have gone through major economic changes to attract FDI (Paswan, 2013). For example, both countries made changes in corporate tax policies, trade barriers, and working conditions during this time, thus making it convenient to determine the success of such policies.

The general purpose was to examine the relationship between FDI inflows (dependent variable) and macroeconomic factors such as total population, inflation rate, GDP measured in USD, trade openness calculated as a relation of sum of import and export relative to GDP, labor force participation rate and share of tax revenue in relation to GDP (independent variables). Bhandari (2007) and Appiah-Kubi et al. (2021) used similar factors for testing the level of FDI inflows

in their research. Population is used as a measure of the market size (along with GDP as discussed below) as Kazakhstan's population is almost twice as small as the one in Uzbekistan. It is an actual number of people which leads to the conclusion that larger populations are more attractive to FDI because they imply both numerous workforce and customers.

Inflation indicates price stability and thus reflects the general level of macroeconomic stability. Foreign investors are generally put off by high inflation as it brings uncertainty and higher production costs, while low inflation is considered to be favorable to investment. Annual percentage changes in the Consumer Price Index (CPI) were used. GDP in constant USD is the most common representation of the size of a country's economy. FDI is more likely to flow to larger economies because of their relative ability to sustain large investments and purchase products.

Openness to trade is defined as the sum of a country's exports and imports as a share of its GDP, and it captures the degree of a country's engagement with the global economy. Most foreign investors are likely to prefer countries that are more open to trade because this facilitates the exchange of goods, services and capital. Labor force participation rate is the share of the working-age population (15–64 years) in the labor force that is employed or actively looking for work. A higher rate indicates more people in the working population, which is important for foreign investors who require an abundant labor force. Share of tax revenue in relation to GDP shows how the government is able to raise revenue from taxation as a percentage of the economy overall. Higher shares mean that a higher portion of the economy is taxed. While high tax revenues may discourage FDI by increasing the costs of operation, they also indicate the government's capacity to raise funds for development of physical and social infrastructure that are important for business.

All computations were done in STATA software, a statistical software for econometric modeling, data visualization, and diagnostic testing.

4.2 Regression Approach

Out of the total of seven variables three were in numerical format and four were expressed as percentage. For the purpose of improvement of values interpretation numerical values were transformed into natural logarithm. Natural logarithm allows interpreting variables as elasticities. In other words, it reflects the influence of dependent variable given a one percent change in independent variable. Such an approach helps to avoid situations where large numerical values overshadow percentage values making the model inappropriate.

Further, with the purpose to get accurate results different ways of regression modelling were tested based on the p-value significance taking into account time and dynamic effects. P-value assists with determining whether the relationship between variables is statistically significant. The smaller the p-value (e.g. less than 0.05), the higher chance that the relationship between dependent and independent variables is unlikely to be random. Consideration of time and dynamic effects was also necessary to understand how the dependent variable of FDI evolves

over time and how its past values influence current outcomes. As such, Lag value of the dependent variable FDI was taken and as a result time dummies for the years 2019-2021 (due to global pandemic COVID-19) were introduced to capture time specific effects and mitigate its effects on the model.

This study uses the Panel-Corrected Standard Errors (PCSE) regression approach for analysis since it offers relatively more accurate and precise estimates, especially in the case of panel-specific heteroscedasticity and autocorrelation. This method is commonly used for dealing with the traditional problems of heteroscedasticity, which is a problem of varying variance across entities, and autocorrelation, where errors are correlated over time, in panel data analysis. The model includes PCSE to obtain unbiased and efficient standard error estimation, which makes the regression results more accurate. As a result, this methodological choice is relevant to the characteristics of the dataset because it provides a more detailed analysis of the macroeconomic factors affecting FDI inflows. Additionally, in order to test for multicollinearity among the independent variables, Variance Inflation Factor (VIF) was performed in the regression analysis. All the VIF values are less than the cutoff point of 5, thus indicating that multicollinearity is not an issue in this study. In econometric analysis, a value of VIF > 10 is often taken as an indication of severe multicollinearity while 5 < VIF < 10 is worth examining further. Consequently, since the calculated VIF values in this study are within the tolerable limit, it can be recommended that the independent variables do not have a high level of linear dependence. This makes the estimates of the coefficients reliable and robust, and hence allows a better understanding of the effects of macroeconomic factors on FDI in Kazakhstan and Uzbekistan.

The regression model is expressed as follows:

$$Y(FDI) = \beta_0 + \beta_1(LPOP) + \beta_2(INF) + \beta_3(LGDP) + \beta_4(LTRD) + \beta_5(LF) + \beta_6(TAXREV) + \mu, \text{ where} \quad (1)$$

Y(FDI) - natural logarithm of FDI (dependent variable)

β_0 - constant / intercept point representing base level FDI without any external influence

β_1(LPOP) - natural logarithm of total population for each year during 2005-2023

β_2(INF) - inflation rate for each year during 2005-2023

β_3(LGDP) - natural logarithm of GDP for each year during 2005-2023

β_4(LTRD) - openness to trade rate (sum of a country's exports and imports as a share of its GDP) for each year during 2005-2023

β_5(LF) - labor force participation rate for each year during 2005-2023

β_6(TAXREV) - share of tax revenue of GDP for each year during 2005-2023

μ - residual/error term representing variability of FDI not explained by considered independent variables

5. Results

This section describes the results of the study. The discussion about the dataset used in the study starts with descriptive statistics, which provides information about mean, standard deviation, and minimum and maximum values of the key variables. After that, this research conducts a correlation matrix analysis to determine the link between the chosen macroeconomic variables and FDI. Finally, the results of regression analysis are reported with the emphasis on the PCSE model to assess the impact of the macroeconomic factors on FDI in Kazakhstan and Uzbekistan.

5.1 Descriptive Statistics

Descriptive statistics usually identify variations, patterns and outliers (if any). The table below demonstrates the statistical characteristics of mean, standard deviation, maximum and minimum.

Table 2 Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
LFDI					
-.	38	21,66966	1,254316	19,14898	23,56956
L1.	36	21,65386	1,28301	19,14898	23,56956
LPOP	38	16,96431	0,281697	16,5861	17,38932
LGDP	38	25,24398	0,737735	23,38405	26,29406
TAXREV	28	0,116314	0,039009	0	0,182578
LF	38	0,637175	0,065632	0,5562	0,7112
TRD	38	0,632176	0,161405	0,291923	0,977625
INF	38	0,104927	0,033672	0,051957	0,175242

The table above depicts that for most variables the number of observations is 38 (36 for lagged dependent variable), except for the TAXREV variable which is 28 due to the lack of information for the years 2005-2009 for both Kazakhstan and Uzbekistan. Also, there is a quite large spread around the minimum and maximum values of TAXREV from 0% to 18.258% since the World Bank data indicated the share of tax revenue to GDP is 0% for 2010 and 2023 which is unlikely to be the case.

Mean value is estimated as the sum of all observations divided by its number. It estimates the measure of central tendency.

Standard deviation shows how strong variables vary around the mean value. High standard deviation means that the data is spread around the mean, while low standard deviation means that data is close to the mean value. For the interpretation of standard deviation its percentage share from the mean value was considered. As such, the lowest standard deviation appears for LPOP showing almost no deviation, fairly stable deviation for LGDP, LFDI and LF and moderate level of deviation for TAXREV, TRD and INF.

5.2 Correlation of Variables Consideration

Correlation analysis identifies relationships between variables and detects issues with multicollinearity (if any).

Table 3 Correlation Analysis

		L.						
	LFDI	**L1**	**LPOP**	**LGDP**	**TAXREV**	**LF**	**TRD**	**INF**
LFDI	1							
L1.	0,6573	1						
LPOP	-0,6929	-0,72	1					
LGDP	0,6802	0,7098	-0,8752	1				
TAXREV	0,1125	0,2077	-0,2437	0,2223	1			
LF	0,704	0,731	-0,9892	0,9166	0,1989	1		
TRD	0,5632	0,5732	-0,5287	0,5477	0,0786	0,5775	1	
INF	-0,3158	-0,3461	0,5481	-0,5534	-0,1324	-0,5461	-0,1184	1

For correlation results a point 1 indicated perfect positive correlation, while (-1) vice versa - perfect negative correlation.

LFDI and lagged FDI reveals strong correlation with most variables except TAXREV, INF and moderate correlation with TRD - GDP, labor force participation rate, openness to trade boost FDI; inflation and number of populations negatively affect FDI. LPOP displays negative correlation with all variables where the strongest ones are labor force participation rate and GDP. Higher amount of population negatively affects all considered macroeconomic factors. LGDP demonstrated the highest correlation with labor force participation rate, moderate positive correlation with openness to trade and modest negative correlation with inflation and the weakest correlation with tax revenue. Growth of GDP is associated with lower inflation and greater share of working people. TAXREV shows two positive (LF and TRD) and one

negative weak correlation (INF). Interestingly, collection of taxes by the government slows down inflation. LF moderately correlates with TRD and INF, the former being positive and latter negative values. Labor force participation rate increases jurisdiction's openness to trade and reduces inflation. TRD expresses weak negative correlation with INF - trade policies operate independent of inflation.

5.3 Regression Results

The empirical results of how each of the considered macroeconomic factors affect FDI inflows.

Table 4. Overview of model significance

Prais–Winsten regression, correlated panels	**corrected standard errors**	**(PCSEs)**
Group variable: ID	Number of obs =	28
Time variable: YEAR	Number of groups =	2
Panels: correlated (balanced)	Obs per group:	
Autocorrelation: panel-specific AR(1)	min =	14
	avg =	14
	max =	14
Estimated covariances = 3	R-squared =	0,983
Estimated autocorrelations = 2	Wald chi2(10) =	52,84
Estimated coefficients = 11	Prob > chi2 =	0

The table below displays the grouping, observation number and estimated R-squared highlights that the considered model explains 98.3% of the FDI inflows which is a very strong fit making the model reliable. Wald chi2(10) tests overall model significance and 52.84% confirms that considered independent macroeconomic factors explain FDI inflows. P-value of 0 shows the model significance at the 0.01 (1%) level.

Table 5. Results of PCSE Regression Analysis

LFDI	**Coefficient**	**std. err.**	**z**	**P>z**	**[95% conf.**	**interval]**
LFDI						
L1.	0,610797	0,243835	2,5	0,012	0,132889	1,088705
LPOP	-12,4416	5,135517	-2,42	0,015	-22,507	-2,37612

LFDI	Coefficient	std. err.	z	P>z	[95% conf.	interval]
LGDP	1,445905	0,863085	1,68	0,094	-0,24571	3,13752
TAXREV	-5,51239	3,09697	-1,78	0,075	-11,5823	0,557564
LF	-54,8745	25,71143	-2,13	0,033	-105,268	-4,48106
TRD	-0,04701	1,678241	-0,03	0,978	-3,3363	3,242282
INF	6,863329	4,463604	1,54	0,124	-1,88517	15,61183
_IYEAR_2021	0,532093	0,474952	1,12	0,263	-0,3988	1,462981
_IYEAR_2020	0,651031	0,483044	1,35	0,178	-0,29572	1,597781
_IYEAR_2019	2,008387	0,670803	2,99	0,003	0,693638	3,323136
_cons	217,6905	89,55022	2,43	0,015	42,17526	393,2057

Considering the estimated coefficients of independent variables along with their p-value only one is significant at 1% level - dummy for the year 2019, meaning that FDI inflows in 2019 were significantly higher than in other years. Three variables are significant at 5% level - Lagged FDI, LPOP and LF, meaning that past FDI inflows strongly influence current FDI, larger number of populations decreases FDI inflows and high labor force participation rate leads to smaller FDI inflows. Two independent variables - LGDP and TAXREV became significant at 10% level - larger economies are more attractive for GDP and higher share of tax revenues in GDP appear unattractive for FDI inflows. Remaining four variables which are openness to trade, inflation and dummies for 2020 and 2021 appear insignificant for the model.

6. Conclusions

This research studies whether general macroeconomic factors influence the amount of FDI inflows in Kazakhstan and Uzbekistan during 2005-2023. These two countries were selected as among five Central Asian countries these two experience the highest GDP levels being the largest economies of the region. The period from 2005 until 2023 was chosen for data availability and during this period two states experienced major economic changes after gaining independence. Independent variables such as past FDI inflows, number of populations, GDP amount, share of tax revenue in GDP, labor force participation rate, openness to trade and inflation were considered. Having tested different regression approaches, the Panel-Corrected Standard Errors (PCSE) regression approach was chosen as it explains 98.3% of the FDI inflows and if assessed through significance of the p-value model is considered accurate. Natural logarithm of numeric values was taken to bring variables into a single format allowing running a model. Also, dynamic and time effects were considered and thus lag value of FDI was taken and as a result time dummies for the years 2019-2021 (due to global pandemic COVID-19) were introduced.

The obtained results demonstrate that size of the economy measured in GDP, past FDI inflows

as well as population, labor force participation and tax revenues are the most significant determinants of FDI inflows into Kazakhstan and Uzbekistan during 2005-2023, while inflation and openness to trade does not bear significant impact on the model. Insignificance in inflation might signal that investors are interested in short-term projects in Kazakhstan and Uzbekistan rather than long-term ones which can be destabilized by price fluctuations. This result corresponds to recent paper of Emako et. al (2022) and at the same time contradicts the results of Azam, M. (2010) where high inflation levels negatively affected FDI flows. Lack of significance in the results for openness to trade highlights investors' interest in domestic market rather than exports.

GDP is the only positive factor leading to increase of FDI inflows along with the rise of the overall country's economy. Highly positive influence of market's size estimated in GDP correlates with other studies for developing economies produced by Katenova (2018) and Ashurov et. al (2020) and it is generally recognized that a higher GDP enhances a country's attractiveness for FDI. However, population growth, lifts in labor force participation and tax revenues negatively impact the model and rise in these factors reduce the FDI inflows. Interestingly, population growth and labor force participation exhibit negative correlation with FDI inflows. Typically, larger population is associated with broader consumer base and expanded labor market, which are generally favorable conditions for the investors. However, in the case of Central Asia demographic expansion does not necessarily create more attractive investment climate. This could potentially be explained by low literacy rates, uncompetitive labor force in the global arena and a lack of proficiency in international languages and essential professional skills. This finding corresponds with one revealed by Revilla M. L. (2016). The latter variable flows out of the former one, where Central Asia possibly has low labor productivity and thus higher rate of population participating in the labor market does not bring investor attractiveness, as foreign firms consider not only availability of the labor force, but its quality, productivity and flexibility. Whilst negative relation of FDI and tax revenues can be explained by tax competition theory, where higher income tax burdens discourage foreign investors from entering the market.

References

Ashurov, S., Abdullah Othman, A. H., Rosman, R. Bin, & Haron, R. Bin. (2020). The determinants of foreign direct investment in Central Asian region: A case study of Tajikistan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan (A quantitative analysis using GMM). *Russian Journal of Economics, 6*(2), 162–176. https://doi.org/10.32609/J.RUJE.6.48556

Azam, M. (2010). Economic Determinants of Foreign Direct Investment in Armenia, Kyrgyz Republic and Turkmenistan: Theory and Evidence. *Eurasian Journal of Business and Economics, 3*(6), 27–40. https://doi.org/10.1080/09765239.2010.11884929

Bhandari, B. (2007). Effect of Inward Foreign Direct Investment on Income Inequality in Transition Countries. *Journal of Economic Integration*, 22(4), 888–928. https://doi.org/10.11130/jei.2007.22.4.888

Dorakh, A. (2020). A gravity model analysis of fdi across eu member states. *Journal of Economic Integration*, *35*(3), 426–456. https://doi.org/10.11130/jei.2020.35.3.426

Doytch, N., & Eren, M. (2013). Institutional determinants of sectoral FDI in Eastern European and Central Asian Countries: The role of investment climate and democracy. *Emerging Markets Finance and Trade*, *48*(SUPPL.4), 14–32. https://doi.org/10.2753/REE1540-496X4806S402

Dua, P., & Garg, R. (2015). MACROECONOMIC DETERMINANTS OF FOREIGN DIRECT INVESTMENT: EVIDENCE FROM INDIA. *The Journal of Developing Areas*, 49(1), 133–155.

Dunning, J. H. (1988). The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions. *Journal of International Business Studies*, *19*(1), 1–31.

Emako, E., Nuru, S., & Menza, M. (2022). Determinants of foreign direct investments inflows into developing countries. *Transnational Corporations Review, 15* (1), 72-85. https://doi.org/10.1080/19186444.2022.2085497

Grosse, R., & Trevino, L. J. (2005). New Institutional Economics and FDI Location in Central and Eastern Europe. *Management International Review*, *45*(2), 123–145.

Ikpesu, F., Vincent, O., & Dakare, O. (2019). Growth effect of trade and investment in Sub-Saharan Africa countries: Empirical insight from panel corrected standard error (PCSE) technique. *Cogent Economics and Finance,* *7*(1), 1-13. https://doi.org/10.1080/23322039.2019.1607127

Katenova, M. (2018). Foreign Direct Investment and Gross Domestic Product in Kazakhstan. *International Journal of Economics, Business and Management Studies*, *5*(1), 40–45. https://doi.org/10.20448/802.51.40.45

Kosztowniak, A. (2016). Verification of the relationship between FDI and GDP in Poland. *Acta Oeconomica*, *66*(2), 307–332. https://doi.org/10.1556/032.2016.66.2.6

Kumari, R., & Sharma, A. K. (2017). Determinants of foreign direct investment in developing countries: a panel data study. *International Journal of Emerging Markets*, *12*(4), 658–682. https://doi.org/10.1108/IJoEM-10-2014-0169

Lee, S. J., Kang, S. J., & Lee, S. (2024). Economic, social and institutional determinants of FDI inflows: A comparative analysis of developed and developing economies. *Transnational Corporations Review*, *16*(3), 1-8 ~~200074~~. https://doi.org/10.1016/j.tncr.2024.200074

Lloyds Bank plc (2024). Uzbekistan: Investing in Uzbekistan. Retrieved 29 January 2025, from

Lloyds Bank plc official website https://www.lloydsbanktrade.com/en/market-potential/uzbekistan/investment#:~:text=The%20main%20countries%20investing%20in,(data%20Ministry%20of%20Investment).

Lokesha, B. K., & Leelavathy, D. S. (2012). Determinants of Foreign Direct Investment: A Macro Perspective. *Indian Journal of Industrial Relations, 47*(3), 459–469.

Magalhães, M., & Africano, A. P. (2007). A Panel Analysis of the FDI Impact on International Trade. Retrieved from http://www.eeg.uminho.pt/economia/nipe/documentostrabalho.php

Mahmood, N., Shakil, M. H., Akinlaso, I. M., & Tasnia, M. (2019). Foreign direct investment and institutional stability: who drives whom? *Journal of Economics, Finance and Administrative Science*, *24*(47), 145–156. https://doi.org/10.1108/JEFAS-05-2018-0048

Martinez-Vazquez, J., Zhang, L., & Goodspeed, T. (2011). Public Policies and FDI Location: Differences between Developing and Developed Countries. *FinanzArchiv / Public Finance Analysis, 67*(2), 171–191. https://doi.org/10.1628/001522111x588736

Morris, S., & Palakh, J. (2015). Determinants of OFDI: An Empirical Analysis of OECD Source Countries using Gravity Model. *Indian Economic Review, 50*(2), 243–271.

Mundell, R. A. (1957). International Trade and Factor Mobility. *The American Economic Review* (Vol. 47, Issue 3, pp. 321–335). https://doi.org/10.1111/j.1475-4932.1969.tb00198.

Naanwaab, C., & Diarrassouba, M. (2016). ECONOMIC FREEDOM, HUMAN CAPITAL, AND FOREIGN DIRECT INVESTMENT. *The Journal of Developing Areas, 50*(1), 407–424.

Organisation for Economic Co-operation and Development. (OECD) (2001). Corporate tax incentives for foreign direct investment. (4), 125.

Paswan, N. K. (2013). Investment Cooperation in Central Asia: Prospects and Challenges. *India Quarterly, 69*(1), 13–33. https://doi.org/10.1177/0974928412472101

Paul, J., & Feliciano-Cestero, M. M. (2021). Five decades of research on foreign direct investment by MNEs: An overview and research agenda. *Journal of Business Research, 124*(February 2020), 800–812. https://doi.org/10.1016/j.jbusres.2020.04.017

Peres, M., Ameer, W., & Xu, H. (2018). The impact of institutional quality on foreign direct investment inflows: evidence for developed and developing countries. *Economic Research-Ekonomska Istrazivanja*, *31*(1), 626–644. https://doi.org/10.1080/1331677X.2018.1438906

Petrov, A. V., Baynova, M. S., & Jiaerheng, J. (2022). Features of Russian and Chinese Direct Investments in Kazakhstan. *Spatial Economics,* *8*(1), 148–167. https://doi.org/10.14530/SE.2022.1.148-167

Revilla, M. L. D. (2016). Cross-country econometric study on the impact of fiscal incentives on FDI. *Econstor - PIDS Discussion Paper Series*, 2016–17. Retrieved from http://hdl.handle.net/10419/173538

Saini, N., & Singhania, M. (2018). Determinants of FDI in developed and developing countries: a quantitative analysis using GMM. In *Journal of Economic Studies* (Vol. 45, Issue 2). https://doi.org/10.1108/JES-07-2016-0138

Sharmiladevi, J. C. (2017). Understanding Dunning'S Oli Paradigm. *Indian Journal of Commerce & Management Studies*, *VIII* (3), 47–52. https://doi.org/10.18843/ijcms/v8i3/07

Sobirov, F. (2021). Foreign Direct Investment in Uzbekistan. *Eurasian Journal of Academic Research, 01*(04), 194–200. https://doi.org/10.37547/ejar-v03-i02-p2-77

Sumner, A. (2005). Is foreign direct investment good for the poor? A review and stocktake *Development in Practice, 15*(3–4), 269–285. https://doi.org/10.1080/09614520500076183

Sun, F. (2014). THE DUAL POLITICAL EFFECTS OF FOREIGN DIRECT INVESTMENT IN DEVELOPING COUNTRIES. *The Journal of Developing Areas*, *48*(1), 107–125.

Wu, J. Y., & Hsu, C. C. (2008). Does foreign direct investment promote economic growth? Evidence from a threshold regression analysis. *Economics Bulletin, 15*(12), 1–10