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THE EFFECTS OF FOREIGN DIRECT INVESTMENTS ON EXPORT PERFORMANCE IN CENTRAL ASIAN COUNTRIES

It is recognized in the economic literature that foreign direct investment (FDI) has many potential impacts on countries. These include; FDI's capital, production and management knowledge will bring new technologies, increase competitiveness and productivity in the national industry, increase the amount of low-cost and high-quality products, facilitate trade in goods and services, positively affect export performance, accelerate economic growth and positively contribute to employment. It can be deemed to contribute. For this reason, countries try to attract investment from foreign countries by improving the investment climate in order to benefit from foreign direct investments. In this context, Central Asian countries (Kazakhstan, Kyrgyz Republic, Turkmenistan, Tajikistan and Uzbekistan) have started to implement various reforms and incentive policies to attract foreign capital after gaining their independence. The main purpose of this study is to investigate the effect of foreign direct investments directed towards Central Asian countries on exports, with reference to the effects of foreign direct investments on international trade. For this purpose, it has been tested with the panel data method using the quarter data of the Central Asian countries for the period 2000-2019. The study is expected to contribute to the economics literature on Central Asian countries.

Key words: foreign direct investment, Central Asian countries, exports, panel data analysis.

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Шетелдік тікелей инвестициялардың Орталық Азия елдеріндегі экспортқа әсері

Экономикалық әдебиеттерде шетелдік тікелей инвестициялардың елдер үшін көптеген ықтимал әсерлері бар деп қабылданады. Елге келетін шетелдік инвестициялар өндірістік және басқарушылық ақпараттарды, жаңа технологияларды әкеледі, ұлттық өнеркәсіпте бәсекелестік пен өнімділікті жоғарылатады, арзан және сапалы өнім көлемін арттырып, тауарлар мен қызметтер саудасын жеңілдетеді. Бұл экспорт көрсеткіштеріне жағымды әсер етеді, экономикалық өсуді жеделдетеді және жұмыспен қамтуға оң ықпал етеді. Осы себепті елдер тікелей шетелдік инвестициялардан пайда табу үшін инвестициялық климатты жақсарту арқылы шетелдерден инвестицияларды тартуға тырысады. Осы тұрғыда Орталық Азия елдері (Қазақстан, Қырғызстан, Түрікменстан, Тәжікстан және Өзбекстан) тәуелсіздік алғаннан кейін шетелдік капиталды тарту үшін түрлі реформалар мен ынталандыру саясатын жүргізе бастады. Зерттеудің негізгі мақсаты – тікелей шетелдік инвестициялардың халықаралық саудаға әсеріне сүйене отырып, Орталық Азия елдеріне бағытталған шетелдік тікелей инвестициялардың экспортқа әсерін зерттеу болып табылады. Осы мақсатта панельдік деректерді талдау әдісімен Орталық Азия елдерінің 2000-2019 жылдар аралығындағы тоқсандық мәліметтерін қолдана отырып сыналды. Зерттеу Орталық Азия елдеріне қатысты экономикалық әдебиеттерге үлес қосады деп күтілуде.

Түйін сөздер: тікелей шетелдік инвестициялар, Орталық Азия елдері, экспорт, деректерді панельдік талдау.

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Влияние прямых иностранных инвестиций на экспортные показатели стран Центральной Азии

В экономической литературе признается, что прямые иностранные инвестиции имеют множество потенциальных последствий для стран. Иностранные инвестиции, поступающие в страну, приносят производственную и управленческую информацию, новые технологии,

повышают конкуренцию и производительность в национальной промышленности, увеличивают количество недорогих и высококачественных продуктов и облегчают торговлю товарами и услугами. Это положительно повлияет на показатели экспорта, ускорит экономический рост и положительно повлияет на занятость. По этой причине страны пытаются привлечь инвестиции из-за рубежа путем улучшения инвестиционного климата, чтобы получить выгоду от прямых иностранных инвестиций. В этом контексте страны Центральной Азии (Казахстан, Кыргызская Республика, Туркменистан, Таджикистан и Узбекистан) начали проводить различные реформы и политику стимулирования для привлечения иностранного капитала после обретения независимости. Основная цель этого исследования – изучить влияние прямых иностранных инвестиций, направляемых в страны Центральной Азии, на экспорт, исходя из влияния прямых иностранных инвестиций на международную торговлю. Для этого он был протестирован методом панельных данных с использованием квартальных данных стран Центральной Азии за период 2000-2019 гг. Ожидается, что исследование внесет вклад в экономическую литературу по странам Центральной Азии.

Ключевые слова: прямые иностранные инвестиции, страны Центральной Азии, экспорт, анализ панельных данных.

Introduction

Economic globalization has gradually increased and strengthened economic ties between countries. With globalization, countries have begun to be open to foreign trade and capital movements. Another important dimension of globalization in economic terms has manifested itself as the globalization of production through foreign direct investments (FDI). FDI, which has become an important tool for the elimination of capital shortage for developing countries that do not have sufficient capital accumulation, has also gained importance for increasing employment in the host country, eliminating problems in the balance of payments and technology and infrastructure development, and countries and infrastructure facilities to attract more FDI to their own countries.

After gaining their independence, the Central Asian countries, (Kazakhstan, Kyrgyz Republic, Turkmenistan, Tajikistan and Uzbekistan) their economic structures and inadequate investment capabilities, which were re-arranged during the transition to the market economy, pushed these countries to provide foreign capital and they implemented various reforms in order to get a share from the cake shared by developed countries in the world. Depending on the policies implemented and the natural resource wealth of the countries, the economic growth performances of the Central Asian countries follow a different course from each other (Syzdykova, 2018: 88). On the other hand, there are significant differences in the amount of FDI flowing into these countries. These countries apply various incentives to attract foreign investments from abroad in order to maintain their economic development.

This interest in FDI has also led to significant increases in academic studies dealing with FDI. While some of the studies on FDIs dealt with the effects of FDI on the economy of the country where the investment is made (Pegkas, 2015; Hassan, 2020), other studies have examined the causes of FDI (Pham and Wongsurawat, 2020; Dorakh, 2020). Studies focusing on the effects of FDI have focused especially on the economic growth of the investing country, employment and wage level, technology level, foreign trade and its effects on the balance of payments. Likewise, in studies investigating the causes of FDI, the market and population sizes of the countries where more investments are made, the richness of production factors such as raw material opportunities, capital and technology level and labor force, the differences in the legal regulations applied in countries (in areas such as tax, environment and bureaucracy), its proximity to markets, its commercial openness to the world economy and so on. It has been tried to draw attention to the elements.

The purpose of this study is to examine the relations between FDI and exports in different Central Asian countries, with both FDI entries and export performances and production structures in recent years. In the empirical part of the study, panel data analysis was carried out considering the period between 1995-2019. For this purpose, the study has been shaped under 4 main headings after the introduction. In the following title of the study, the macroeconomic outlook and export performances of the Central Asian countries are evaluated. In the second chapter, the relations between FDI and exports are discussed in a theoretical and empirical framework. In the title of data and methodology of the study, the panel data analysis methods that will be used after transferring the variables and data sources are intro-

duced. Under the title of empirical findings of the study, the results obtained from the analyzes will be given and the findings obtained in the last part of the study are evaluated.

Macroeconomic Outlook of Central Asian Countries and their Export Performance. The Central Asia region is located at the crossroads of the Middle East, South Asia, China and Russia. The term "Central Asia" was used for the regions that remained in Asia during the Tsarist Russia period. After the dissolution of the USSR in 1991, five independent republics were established in Central Asia. These countries are Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan. Central Asian countries have a multi-perspective and dynamic development, an important geo-strategic importance, largely natural resources, great energy potential and a young population. Central Asian countries have an area of 4 million km2 and a total population of around 70.2 million (Syzdykova, 2018). Table 1 below contains information on the basic macroeconomic indicators of the Central Asian countries.

Table 1 – Main Macro Economic Indicators of Central Asian Countries

	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
Population (million people)	18,1	6,2	8,9	5,8	32,4
GDP (billion dollars)	162,9	75,7	71,5	37,9	49,7
GDP growth (% per year)	4.10	4.58	7.62	6.50	5.30
GDP per capita (dollars)	9030,3	1220,4	801,0	6586,6	1533,8
Total reserves (billion dollars)	30,7	21,7	12,9	-	26,8
Exports of goods and services (million dollars)	55907,2	2570,1	1129,2	8940,8	5850,8
Imports of goods and services (million dollars)	42942,0	5079,2	2764,8	5543,1	10170,8
Inflation (% per year)	7.44	3.18	6.00	6.17	5.7
Foreign direct investment (million dollars)	4634,9	94,7	141,3	2314,3	96,1
Unemployment (%)	4.90	6.89	10.74	3.69	4.97
Source: World Bank data, 2019					

Among the Central Asian countries, Uzbekistan is the most populous country in terms of population, and the total population of this country is 32.4 million people. It is seen that the country with the highest GDP is Kazakhstan with 162.9 billion dollars. Considering the average national income per capita; Again, Kazakhstan is the country with the highest per capita national income with 9030 dollars per capita. This country is followed by Turkmenistan, Uzbekistan and Kyrgyzstan, respectively. With a national income of 801 dollars per capita, Tajikistan ranks last.

In Table 2, the structure of GDP in Central Asian countries and the main products in their exports are given. Considering the structure of the GDP, the share of the industrial sector in the GDP is 32% in Kazakhstan, 31% in Turkmenistan and 30% in Uzbekistan, while it remains below 30% in Kyrgyzstan and Tajikistan. Kazakhstan and Turkmenistan economy is predominantly concentrated in the energy sector. 68% of Kazakhstan's exports consist of petroleum, petroleum products and natural gas. The share of petroleum products in Turkmenistan's total exports is 81%. As can be seen from Table 2, among the Central Asian countries, the country with the highest share of agriculture in GDP structure is Tajikistan. As a matter of fact, approximately 10% of the country's total exports consist of cotton yarn. On the other hand, raw aluminum is the leading product exported by Tajikistan with a share of 58.4%.

Table 2 – GDP and Export Structure in Central Asian Countries

	Agriculture (%)	Industry (%)	Services (%)	Major products in exports (as% of total exports)
Kazakhstan	4.43	32.00	57.45	Petroleum and natural gas (66.09%), Metals (12.9%), Chemicals (6.4%), Food products (4.2%)
Kyrgyzstan	12.33	26.46	50.38	Precious metals and stones (40.2%), Chemicals (18%), Mineral products (16.3%), Textile (7%)
Tajikistan	20.38	27.24	42.25	Aluminum (58.4%), Cotton Thread (9.9%) Electricity (6.3%)
Turkmenistan	10.43	31.09	49.21	Petroleum products (81%), Agricultural products (10%) Industrial products (7%)
Uzbekistan	17.32	30.05	42.47	Gold (40%), Natural Gas (10.37%), Pure cotton yarn (6.5%), Radioactive Chemicals (4.1%)
Source: World Bank data, 2020				

Literature Review

The main differences between developing and developed countries are the scarcity of capital stock, insufficient domestic savings, lack of qualified workforce to develop and use advanced technology, lack of knowledge and opportunity to market their products abroad, and insufficient foreign exchange revenues. However, FDI provides capital inflow to the country it goes to, brings its own technology, production, management and marketing knowledge with it, plays a positive role in closing the foreign currency deficit of the country, can export more easily thanks to its external connections and thus can make a significant contribution to the development of the country's exports (Sakyi and Egyir, 2017; Mohanty and Sethi, 2019). For this reason, developing countries that want to make their economic growth faster and more stable see FDI as a good solution tool in this regard. It is predicted that FDI will mediate technology transfer and increase economic growth permanently (Jayachandran & Seilan, 2010). Technology increase will bring along an increase in production and exports. Technology and free foreign trade will support economic growth. Export and FDI will contribute to economic stability by relieving exchange rate pressure.

If FDIs come to a country for the purpose of searching for resources and / or efficiency such as labor and raw materials, the foreign company may sell the products it will produce cheaply to the world markets with the cost advantage it will get in that country and cause the country's exports to increase. In such a situation, FDIs can increase their exports by (i) increasing domestic capital, (ii) enabling the export of new products and technology transfer, (iii) facilitating access to new and large foreign markets, and (iv) increasing the qualifications of the workforce and improving technical and management skills can lead to an increase. It is accepted that FDI will support economic growth and exports more than domestic companies. Because FDIs work more efficiently than domestic companies with their high technology, qualified management staff and technical staff, universal experience in production and marketing, large production scale and wide marketing network (Sekuloska, 2018; Okechukwu et al., 2020). On the other hand, FDIs may negatively affect the export of the invested country. For example, FDIs can (i) lead to a decrease in domestic savings and investments, (ii) cause a low level of technology transfer or are not suitable for the factor endowment of the invested country, (iii) target the domestic markets of the invested country, (iv) the potential to become an exporter. and (v) prevent the emergence of dynamic comparative advantages of the country in the future due to the heavy use of raw materials and cheap labor by the foreign firm (Zhang, 2006). As a result, in the light of this information, since the relations between FDI and exports will differ depending on the nature of FDI (horizontal and vertical investment), it is not possible to make definitive judgments about these relationships.

The differences in the theoretical explanations on the subject have led to an intensive empirical analysis of the relationship between FDI and exports in recent years. In empirical studies examining the causality relationship between FDI and exports, different results have been obtained. Zhang and Felmingham (2001) found a two-way causality relati-

onship between FDI and exports in the Chinese economy and Pacheco-Lopez (2005) in Mexico. Sultan (2013) found a one-way causality relationship from FDI to exports in the Indian economy. Similarly, a recent study by Mohanty and Sethi (2019) examined the relationship between export and FDI in India, over the time 1980–2017 by using ARDL)-bound testing co-integration approach and found that the insignificant negative impacts of FDI on real exports in long run but not in short run. The study concluded there is a unidirectional causal relationship existing between the variables where FDI has a Granger cause to export. Constant and Yaoxing (2010) examined the effects of FDI on exports and economic growth for the Ivory Coast, with data for the period 1980-2007, using boundary test and Granger causality analysis methods. As a result of the analysis, it has found a one-way causality relationship from FDI to export. He also concluded that FDI and exports have a significant impact on economic growth. In addition, it has achieved a causality relationship from FDI to export in the long run.

Pramadgani, et al. (2007) and Jayachandran and Seilan (2010) could not find a causal relationship between FDI and exports in the Chinese economy. Anwar and Nguyen (2011a) investigated the effe-

cts of FDI on net exports in 19 countries, including Vietnam, for the period 1990-2007, by dividing it into 3 sub-periods, using the gravity model based on panel data method. While the effect of FDI on net exports was insignificant during the whole time, it turned out to be significant and positive after the Asian crisis, and it was concluded that FDI increased exports and imports. Anwar and Nguyen (2011b) examined the effect of FDI on exports in the Vietnamese economy in terms of horizontal and vertical connections. It has been determined that FDI increased the country's exports by both its own exports and by positively affecting the exports of domestic companies.

Bhasin and Paul (2016) analyzed the relationship between exports and FDI in 10 Asian countries with a panel causality test for the period 1991-2012. According to the findings, while a causality relationship from export to FDI was determined in the long term, a causality relationship from FDI to export could not be found. In the short run, no causality relationship was observed between exports and FDI. Table 3 contains the findings of some studies that deal with the relationship between FDI and exports with various econometric methods.

Table 3 – Summary of existing empirical studies

Author (s)	Countries	Results
Doyle (1998)	Ireland	FDI ↔ EXP
Jun and Singh (1996)	Thailand, Ecuador, Portugal and Greece	EXP → FDI
	Singapore	FDI → EXP
	Colombia, Costa Rica, Egypt, Malaysia, Mexico and Nigeria	FDI ≠ EXP
Zhang and Song (2000)	China	FDI → EXP
Zhang and Felmingham (2001)	China	FDI ↔ EXP
Pacheco-Lopez (2005)	Mexico	FDI ↔ EXP
Dasgupta (2007)	India	FDI → EXP
Pramadgani vd. (2007)	China	FDI ≠ EXP
Jayachandran and Seilan (2010)	China	FDI ≠ EXP
Altıntaş and Öz (2010)	Turkey	FDI ↔ EXP
Yılmazer (2010)	Turkey	FDI ≠ EXP
Constant and Yaoxing (2010)	Ivory Coast	FDI → EXP
Harding and Javorcik (2012)	105 developed and developing countries	
	low and middle income countries	FDI → EXP
	some developing countries and developed countries	FDI ≠ EXP

Author (s)	Countries	Results
Bhasin and Paul (2016)	10 Asian countries	EXP → FDI in the long run; FDI ≠ EXP in the short run
Chang et al.(2017)	China	FDI ≠ EXP
→, ↔, and ≠ indicate the unidirectional causality hypothesis, Bidirectional hypothesis, and neutral hypothesis, respectively.		
Note: compiled by authors		

It is not possible to reach a universal result based on the findings of the studies given in Table 3. Although the obtained findings show that FDI positively affects the exports of the invested countries, some studies have found opposite relationships and some others have found insignificant relationships. This diversity of findings in the empirical literature arises from the differences in the countries considered, the variables used, the period considered, the nature of the FDI and the analysis methods discussed. The main motivation for this study is to contribute to the literature using the example of Central Asian economies and the latest data.

Methodology

In this study, the effect of FDI on the export performance of Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan) has been investigated. After these countries gained their independence, in order to ensure the growth rate of their economies in the process of adapting to the free market system, they produced a number of economic policies and tried to make legal regulations during the transition period in order to attract foreign investments as foreign finance. In this context, it is the main purpose of this study to investigate empirically to what extent the FDI entering these countries affects export performance.

In the study, data on foreign direct investment was used as the ratio of FDI to GDP for each country. Export refers to the ratio of the total export amount of each country to the GDP of each country. Apart from this, in addition to FDI as independent variables, the ratio of imports to GDP of each country and per capita GDP data are also included in the model. Data on GDP used in the study are from the Interstate Statistical Committee of the Commonwealth of Independent States (http://www.cisstat.com/), export and import data from the Trade Map database (https://www.trademap.org/), Data on FDI was obtained from the United Nations Conference on Trade and Development (UNCTAD) electronic data distribution system (http://unctad.org/en/Pages/Home.aspx).

The model equation used in the study is as follows:

$$EXP_{it} = \alpha_{it} + \beta_{1it}fdi_{it} + \beta_{2it}gdp_{it} + \beta_{3it}imp_{it} + \varepsilon_{it}$$

$$i = 1,2,3,4,5; \; t = 1995, \dots 2018$$

(1)

where *exp* is export, *fdi* is foreign direct investment, *gdp* is gross domestic product, *imp* is import ε_{it} refers to the term stochastic error. In the above equation i = 1,…, denotes 5 countries and t = 1,…, t time period. Stata 11.0 econometric package program was used in the analysis, using Panel data estimation method.

Panel data regression model was used as an econometric method in this study investigating the effect of FDI on exports in Central Asian countries. Panel data is created by combining the time series of economic individuals with the cross-sectional dimension. Panel data analysis can generally be shown as follows (Baltagi, 2005: 11):

$$Y_{it} = \alpha + X'_{it}\beta + u_{it} \; i = 1, \dots, N; \; t = 1, \dots, T$$

(2)

where, i – refers to individuals, firms, countries, while t indicates time. In this context, i represents the cross-sectional size while t represents the time series dimension. Yit – i refers to the dependent variable value of the cross-section unit at time t, a constant, Xit – k explanatory variables, and uit the error term.

In panel data analysis, equations based on more than one variable are estimated with least squares. Statistical information can also be obtained between groups of variables and between time periods. Two models can be used to reveal this information. The first of these is the Fixed Effects Model or the Least Squares Model with Dummy Variables, which assumes that individual effects are related to Xi. The second is the Incidental Effects Model, which accepts that individual effects are not related to Xi (Greene, 2003: 287-299).

One of the assumptions on which the estimation results presented by the pooled least-squares model are based is the admission that there is no difference between the cross-section (N) data matrices. In other words, this model estimates a common constant term for all horizontal sections (a common constant for countries) (Asteriou, 2006: 369). In the model, which can be represented with the pooled least squares equation, the data of all countries are collected in a pool without dummy variables reflecting the specific effects of each horizontal section (country or group) and the effects of the independent variables on the dependent variable are investigated.

Analysis Findings. Cross Section Dependency Test results. Firstly, cross section dependency was checked with LM tests in the study. Testing the cross sectional dependency is important in choosing the unit root tests to be applied. Because there are two generations of unit root tests, first generation unit root tests can give incorrect results in case of cross sectional dependency between series.

Three LM tests were applied to check the cross-sectional dependence. One of these, LM1, was developed by Breusch Pagan (1980). Other LM tests are LM2 and LM tests developed by Pesaran (2004). The results obtained from the LM tests are shown in Table 4. The null hypothesis for LM tests is that there is no cross-sectional dependency.

$$EXP_{it} = \alpha_{it} + \beta_{1it}fdi_{it} + \beta_{2it}gdp_{it} + \beta_{3it}imp_{it} + \varepsilon_{it} \qquad (3)$$

Table 4 – Cross Section Dependency Test Results

Variables	CD_{LM1}	CD_{LM2}	CD_{LM}
exp	476.56**	16.88**	-2.97
fdi	356.89*	10.39**	3.7***
gdp	395.86**	11.02**	-3.9*
imp	409.65***	13.09***	4.01**
Notes: 1) * and *** show that the null hypothesis is rejected and the significance level of 10% and 1% respectively; 2) Critical values are taken from Pesaran '(2006) Table C. Critical values at 1%, 5% and 10% significance level are -4.96, -4.00 and -3.55, respectively.			

As can be seen from Table 6, the null hypothesis that argues that there is no cross-sectional dependency has been rejected, so there is a cross-sectional dependency among the Central Asian countries in the selected series. Considering that the economies of the countries today are in close relationship with each other, it is a realistic approach that the countries that make up the panel are affected by a shock coming to one of the countries.

Panel Unit Root test. Since there is a cross sectional dependency in the series used in the study, the second generation unit root test, which takes this into account, was applied (Table 5). Pesaran's CADF test was used for this type of analysis. Pesaran (2007) proposed a simple method to eliminate the correlation between units instead of estimating factor loads. Instead of a unit root test based on taking the difference from the estimated common factors, he added the

cross section averages of the lagged levels and first differences of the individual series as factors to the DF or ADF regression. Therefore, in this method, the extended version of the ADF regression with lagged cross-sectional means is used, and the first difference of this regression eliminates the inter-unit correlation. this test has been named "cross section widened Dickey Fuller (CADF)".

Table 5 – CADF Unit Root Test Results

	exp		fdi		gdp		imp	
	Cadf Stat	Lag	Cadf Stat	Lag	Cadf Stat	Lag	Cadf Stat	Lag
Kazakhistan	-8.06**	1	-6.65**	1	-2.7*	2	-2.8**	3
Kyrgyzstan	-1.87**	1	-5.78***	1	-2.888	5	-4.60**	2
Tajikistan	-2.47**	2	-3.81*	3	-5.85***	1	-8.13*	4
Turkmenistan	-3.33*	1	-4.04**	5	-3.37*	3	-3.76	2
Uzbekistan	-5.4***	1	-5.29***	1	-4.732**	1	-2.09**	2
Panel	-4.32**		-4.87**		-4.193**			

Notes:
1) The constant term and trend are included from the determenistic components;
2) *, ** and *** show that the null hypothesis is rejected and the significance level of 10%, 5% and 1% respectively;
3) Critical values are taken from Pesaran (2006) Table C. Critical values at 1%, 5% and 10% significance level are -4.96, -4.00, and -3.55, respectively;
4) Lag lengths were chosen according to the Schwarz information criteria.

As a result of the unit root test, it is seen that the level values of the series both on individual country basis and throughout the panel are stable and carry an I (0) process.

Hausman Test Results. In the Hausman test conducted to determine the suitable model for analysis, H0: "The random effects model is suitable". In order to apply the Hausman test, both the fixed and the random effects model must be estimated separately (Table 6).

After the fixed and random effect models are estimated, Hausman test statistics can be calculated based on the difference between the variance covariance matrices of these two model estimators (Table 7).

Table 6 – Estimation of the Fixed and Random Effects Model

	Fixed Effect Model				Random Effect Model			
	Coefficient	Standard error	t statistics	Possibility	Coefficient	Standard error	Z statistics	Possibility
fdi	0.6301	0.2492	2.89	0.002	0.5653	0.1024	5.52	0.000
gdp	0.2093	0.4688	2.29	0.023	0.0379	0.0517	0.73	0.234
imp	0.3089	0.1094	2.75	0.006	0.5573	0.0709	7.79	0.000
R^2	0.8634				R^2	0.8912		
F	109.12			0.0000	W	616.30		0.000

Note – compiled by authors

Table 7 – Hausman Test Results

Chi-square Statistics	Possibility
26.78	0.0000

As can be seen from the results in Table 7, the value of Hausman test statistic is 26.78 and it is statistically significant at 1% significance level. According to these results, the H0 hypothesis stating that "there is no relationship between the independent variables and the error term" was rejected and the use of fixed effects model was deemed appropriate in the analysis. The estimation results of the model are included in Table 8.

When the findings in Table 8 are evaluated, it is seen that the model is significant in terms of F statistic and probability value. In addition, it is seen that the power of the independent variables together to explain the dependent variable is 76%. It is seen that FDI and IMP variables except GDP in the model are significant at the 10% significance level. Accordingly, when a 1% increase in FDI occurs, exports increase by 0.16%, while a 1% increase in imports increases exports by 0.22%. On the other hand, it is seen that the relationship between the GDP variable and exports is insignificant.

Table 8 – Test Results of Fixed Effect Model

	Coefficient	Standard Error	t-statistics	Probability
LGDP	0.7481	0.4634	1.61	0.121
LFDI	0.1689	0.0547	1.99	0.009
LIMP	0.2287	0.1845	1.78	0.029
R^2	0.7657			
F	101.36			0.0000

According to the findings, FDI affects exports positively in Central Asian countries. In this context, it is possible to talk about the high impact of FDI towards the countries of the region on exports, and the contribution of FDI to exports in these countries. Coinciding with theoretical expectations, it can be said that FDI is predominantly export-oriented in Central Asian countries. Another variable that positively affects exports in Central Asian countries is imports, and it is clearly seen that the degree to which it affects exports is high. As a result, it is possible to mention that the export structure of these countries is highly dependent on imports. In addition, considering the import of intermediate and capital goods of foreign investors in the import structure of these countries can be effective in revealing the effect of FDI on exports. The only independent variable that does not have a significant effect on the dependent variable in the model is GDP per capita. This result shows that the production structures of Central Asian countries should be transformed to contribute to exports.

Conclusion

After gaining independence from the Former Soviet Union, Central Asian countries made it the main target to attract FDI. Because choosing this model has been one of the inevitable ways in order to transition to a market economy and to process the natural resources they have. The fact that countries such as Kazakhstan, Turkmenistan and Uzbekistan are rich in oil and natural gas made these countries attractive for FDI compared to other countries in the region. In this study, based on the effect of FDI on international trade, the effect of FDI on exports for 5 countries in the Central Asia region has been analyzed for the period 1995-2019. Export, FDI, GDP per capita and import data were used annually as dependent and explanatory variables in the analysis. According to the empirical findings obtained, FDIs affect exports positively in Central Asian countries. In general, the finding that FDI affects exports positively in Central Asian countries, it is believed that countries in the region, especially countries that face constant foreign trade deficit such as Uzbekistan, Kyrgyzstan and Tajikistan, can benefit more from FDI in order to gain a more advantageous position in foreign trade. is an important finding supporting. In this context, it is important for policy makers in these countries to design the investment environment of the country in accordance with foreign investors and to shape economic policies in this direction. Thus, one of the main recommendations of this study is to prefer export-oriented FDI in foreign investments towards Central Asian countries.

One of the variables that positively affects exports in Central Asian countries is imports.

In addition, the import coefficient was found to be the highest among other independent variables. Thus, it is concluded that exports in these countries are highly dependent on imports. On the other hand, the fact that the coefficient of gross domestic product per capita is statistically insignificant does not allow an assessment of the effect of growth performance on exports in Central Asian countries. This result also reveals the need to revise the production structures of Central Asian countries in a way that will contribute to exports.

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