Research Article

The Relationship Between Global Economic Integration, Human Capital Investments and Corruption in Turkic States

Türki Devletlerde Küresel Ekonomik Entegrasyon, Beşeri Sermaye Yatırımları Ve Yolsuzluk İlişkisi

Türker ŞİMŞEK	**Emine DESTEBAŞI**
Doç.Dr. Tokat Gaziosmanpaşa Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, İktisat Bölümü Öğretim Üyesi,	Tokat Gaziosmanpaşa Üniversitesi, Sosyal Bilimler Enstitüsü, İktisat Anabilim Dalı Lisansüstü Öğrencisi,
turker.simsek@gop.edu.tr	eminedeste1992@gmail.com,
https://orcid.org/0000-0001-7581-7590.	https://orcid.org/0000-0001-7411-0278

Abstract

Globalization is a phenomenon that affects the whole world through political, economic and cultural integration on an international scale. Nowadays, the importance of globalization increases as the impact areas increase. The positive and negative aspects of globalization are still being debated. Globalization, which has a wide range, has its effect in many areas from technology to our thinking. Therefore, the study deals with the economic impact areas of globalization. The aim of this study is to examine the effects of human capital investment and corruption in the context of econometric analysis in the global economic integration process. Selected 5 Turkic States (Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkey) for the 1995-2017 period is analyzed using panel data method. Data are collected annually from the World Bank, Transparency International, Organisation for Economic Cooperation and Development (OECD) and the Heritage Foundation. According to Panel FMOLS (Fully Modified Least Squares Method) test, human capital investments, economic freedom and corruption positively affect global economic integration; One unit increase in labor and population negatively affected global economic integration. It is thought that the policies to be followed in the light of these findings will ensure the effectiveness of the economies of the relevant countries.

**Keywords:** Global Economic Integration, Human Capital Investments, Corruption, Panel Fully Modified Least Squares Method, Turkic States

_Öz_

Küreselleşme, uluslararası ölçekte siyasal, ekonomik ve kültürel bütünleşme ile tüm dünyayı etkileyen bir olgudur. Günümüzde küreselleşmenin etki alanları arttıkça önemi de artmaktadır. Küreselleşmenin olumlu olumsuz yönleri halen tartışılmaktadır. Geniş bir yelpazeye sahip olan küreselleşme teknolojiden düşünce yapımıza kadar birçok alanda etkisini göstermektedir. Bu yüzden çalışmada küreselleşmenin ekonomik etki alanlarıyla ilgilenilmektedir. Bu çalışmanın amacı, küresel ekonomik entegrasyon sürecinde beşeri sermaye yatırımı ve yolsuzluk kavramının etkilerini ekonometrik analiz çerçevesinde incelemektir. Seçilmiş 5 Türk devleti (Azerbaycan, Kazakistan, Kırgızistan, Tacikistan ve Türkiye) için 1995-2017 dönemi ele alınarak Panel veri analizi yöntemi ile analiz yapılmıştır. Veriler Dünya Bankası, Uluslararası Şeffaflık Örgütü (Transparency International), Ekonomik Kalkınma ve İşbirliği Örgütü (OECD) ve Miras Vakfı (The Heritage Foundation) veri tabanından yıllık olarak alınmıştır. Panel FMOLS (Tamamen Değiştirilmiş En Küçük Kareler Yöntemi) testi sonucuna göre, beşeri sermaye yatırımlarının, ekonomik özgürlüğün ve yolsuzluğun küresel ekonomik entegrasyonu pozitif yönde etkilediği; işgücü ve nüfustaki bir birimlik artışın

küresel ekonomik entegrasyonu negatif yönde etkilediği sonucuna ulaşılmıştır. Bu bulgular ışığında izlenecek politikaların ilgili ülke ekonomilerinde etkinliği sağlayacağı düşünülmektedir.

Anahtar Kelimeler: *Küresel Ekonomik Entegrasyon, Beşeri Sermaye Yatırımları, Yolsuzluk, Panel Tamamen Değiştirilmiş En Küçük Kareler Yöntemi, Türki Devletler*

1.INTRODUCTION

The phenomenon of globalization was used for the first time in his article titled "*The distribution and use of world resources*" by the British Economist W. Foter (Karabıçak, 2002, p. 116). "*Globalization*" has emerged as an economic concept. Many activities and relationships are of an international nature. Since the phenomenon of globalization is a process, human relations have been enriched with historical developments. People from different countries come together and take advantage of each other's experiences to exchange goods, services and ideas. Therefore, these experiences emerge from the national scale and emerge as a new thought on an international scale. In other words, globalization emerges in the form of new relations in a universal dimension by crossing the nation-state borders of the capital circulation with the use of political, economic and cultural integration at the international scale, and the use of opinions, ideas, economic developments, and technological changes at the global level. With the shrinking of the world scale, the convergence of the spaces turn into free movement and unlimited competition and the world trade becomes a big market (Balay, 2004, p. 62-63).

It is said to derive its globalization power and effectiveness from economic activities and economic laws. Accordingly, it can be said that the economy is the first dimension of globalization. When the top structural problems such as world politics are taken into consideration after the basic needs of the people, it is seen that the globalization of the political and other structures and the structure of ideas spread globally. The fact that the world becomes a single market with economic globalization means the integration of the economies of the country. In other words, economic globalization refers to the increase in capital and labor flows between countries, the provision of commodity exchanges and the development of economic relations. In addition, the development of economic relations shows that mutual interactions are becoming widespread and intensifying worldwide. Due to the commercial activities intensifying in the process of economic globalization, the increase in international cooperation, dependency and similarity can be shown as one of the most important developments in this process. As commercial relations increase, international relations change, preferences develop, intensify and become mandatory. With the acceleration of globalization, cross-border transactions increase and diversify, and technology is spreading around the world faster. Some organizations and global firms have had a great impact on the spread of international trade. With the concept of globalization, national terms related to capital have started to be called global capital. It is accepted that one of the most important reasons of globalization's spreading in the economic field is Neoliberalist policies and the developing mindset. The expansion of capitalism is associated with an increase in trade and production. Another situation that is effective in increasing the speed of globalization is emphasized that multinational companies increase the spread and take a big role in globalization. Therefore, it is claimed that the capitalist system has deepened rather than expanded. Another change observed on an economic scale is the flexible specialization instead of mass production (Aydemir et al., 2007, p. 268).

The view that provided the first theoretical formation of the concept of economic integration emerged in J. Viner's "*The Customs Union Issue*" published in 1950. In this study, J. Viner seeks to answer the question of whether the customs union is causing a freer trade or a protective trade. Customs unions form the core of economic integration. With economic integration, countries act together to gain an advantage over the economies of third countries. The reasons that push countries into economic integration can be listed as follows: Expanding market, Internal and external economies, Distribution of production factors, increased competition and political reasons (Hephaktan and Çınar, 2011, p. 69). The aim of this study is to examine the relationship between global economic integration, human capital investments and corruption on Turkic states with similar cultural and geographical characteristics and to make some suggestions to

policymakers in these countries. In line with this purpose, econometric analysis will be started after explaining the relationship between global economic integration and human capital, and then the relationship between globalization and corruption. After interpreting the findings obtained in the analysis, the study will be completed with the result section.

2.THE ROLE OF HUMAN CAPITAL IN GLOBALIZATION

Globalization takes human capital out of the idle state of society and reshapes it at a global level through change and transformation. This situation can be explained by global communication and interaction. Firstly, human capital should be used efficiently and effectively in order to ensure material and moral development and to advance society. However, the globalization experienced today is not said to be fully suitable for this situation. Some problems in social development are based on many negative factors such as inequality and inadequate female employment (Kunduracı and Çoşkun, 2009, p. 82-83).

The shift of skilled labor force to underdeveloped and developing countries towards developed countries is one of the negative effects of the globalization process on human capital. This situation increases the qualified workforce difference between countries. In addition, the high share of education and health in developed countries enables them to have a qualified workforce. It should increase the capital investment of the countries in order to prevent brain drains. Developing countries should eliminate the root cause of brain drain and provide the necessary environment for the qualified workforce to remain within the country. Developing countries should ensure that the workforce that supports human capital and ensures country development, such as the continuity of R&D activities, the protection of the rights of people and institutions that develop and invest in products, and the protection of commercial property rights, should remain in the country. Otherwise, it can lose the qualified workforce it has worked to develop to developed countries. Therefore, it leads to increased income inequality and unfair competition among countries (Atik, 2006, p. 27-28).

3.CORRUPTION IN THE GLOBALIZATION PROCESS

With the acceleration of the globalization process in 1970, Neo-liberal thoughts began to spread rapidly. With this current of thought, the idea that the less money the state had, the more corruption would be. Privatization has accelerated in many areas such as health, education, social security and communication. It was shown as a precaution against corruption in the state. But today, when the globalization process is gaining momentum, there is a tendency to increase instead of a decrease in corruption rates. It was observed that the privatization did not decrease the rate of corruption and increased even more. This situation is opened by the increase of bribery opportunities for institutions to change hands during privatization. Therefore, privatization has been the most prominent example of corruption in many countries. While the effects of globalization are felt more in 1980s, it is claimed that corruption attempts spread and emerged in different types. In this period, while the control of public expenditures was targeted, while significant expenditures such as health and education decreased, while the interest and debt increased even more (Gedikli, 2011, p. 172). It is stated that corruption increases in the private sector with the spread of globalization. It is argued that the function of unfair gain increases further with unfair competition, which is the return of the capitalist system. It is stated that trade, which is one of the main benefits of globalization, has led to an increase in corruption (Şahin, 2005, p. 131).

With the spread of globalization, especially in some regions, it is accepted by many countries that it needs to deal with global issues such as security, fight against international terrorism, control of weapons, organized crime, illegal immigration, drug trafficking, human trafficking, anti-corruption and black money. it is important duties fall on regional and international collaborations in this regard (Bayar, 2008, p. 33).

Economic and social disruptions in global markets are challenging the economic and democratic structures of developing countries. It is stated that most of the developing countries face the

problems of these distortions and some of them are struggling. Lack of institutional trust and inadequate laws further fuel this situation (Baldemir et al., 2009, p. 52).

4. LITERATURE REVIEW

When the literature is analyzed in general, it can be seen that the indicators used in the studies vary. The breadth of globalization and economic integration is reflected in the literature. In the literature, the effects of the global economic integration process on economic growth, corruption, economic freedoms and many other issues are mentioned. In the literature that includes the results of the analysis, it is seen that panel data analysis is mostly used. In this context, the literature is summarized chronologically below.

Canpolat (2000) in the study by human capital accumulations in Turkey in 2000's was investigated whether the effect of economic growth. According to the results of his analysis, it was concluded that human capital accumulation positively affected economic growth by 40%. In his study, Tosun (2003) applied an econometric analysis to reveal the factors that determine the level of corruption in 44 countries between 1982-1995. Bureaucratic quality, general government spending, law domination, population growth rate, wages and salaries, inflammation, the share of public expenditures in gross domestic product and economic growth rate are considered as factors that cause corruption. Random Effects Sequence Probit Model was used to analyze the factors that determine corruption. According to the results of the analysis, it was concluded that bureaucratic quality, the share of general government expenditures in gross domestic product, law domination population growth rate were statistically significant in determining the level of corruption. It was concluded that bureaucratic quality, public spending and law dominance increased while the level of corruption decreased. It was also found that the population growth rate increased corruption. Egeli and Egeli (2007) examined the relationship between exports and economic growth, which were carried to the global dimension. In the study, 1995-2005 period was handled for 23 Asian countries. They used panel cointegration analysis method to determine the causality dimension of the relationship between national income and exports. According to the results obtained, it was concluded that there is convergence between the countries under consideration and that the establishment of a common trade area positively affects the welfare of the countries. In the study, China was shown as a commercial center. According to the results of the analysis, it was concluded that foreign trade positively affects the countries under consideration and affects each country differently in terms of density in different sectors.

In the study carried out by Pazarlıoğlu and Altay (2007), the relationship between human capital investments and global competitiveness of countries with great competitive power in the years 2000-2004 was tested with the econometric model. As a result of the analysis, it has been revealed that human capital has an impact on competitiveness through economic indicators. It has been determined that education variable has an impact on determining global competitiveness. Çelik (2009) investigated the impact of the globalization process for selected, developed and developing and underdeveloped countries by considering the human development index and the multi-dimensional globalization index. 1990-2005 was tested using panel data analysis method. According to the results of the analysis, it is obtained that there is an economically meaningful relationship between globalization indexes and human development index in all selected countries. It is concluded that there is a weak relationship between the globalization index and the human development index. It was found that the relationship between the socio-cultural, economic, political and technological globalization index and the human development index is stronger. Nart (2010) made by the study, the process of global economic integration within the Customs Union active role, impact on Turkey's foreign trade is examined. Customs Union has to be put forward by the return of foreign trade panel data analysis to do before and after the agreement with Turkey. When the period after the agreement is examined, it is stated that there is an expansion in the foreign trade volume and structural changes are observed. As the volume of trade increased with changes, it was concluded that the increase in imports was higher than exports, especially in the first years, and there was a decrease in net exports. While the Customs Union brings positive results for EU countries, it has been found that it tries to attract non-EU countries to EU countries. Bayar (2010) attempted to reveal the consequences of corruption in

Turkey related to globalization. In the study, it was observed that with the increase of globalization, that is, Turkey's expansion to the outside, corruption incidents increased. It also concluded that the state's strength in the economy and the state's personnel expenses had no meaningful relationship to corruption.

Incekara and Savrul (2011) discussed economic growth data to examine the effects of globalization on the economic integration process and the economies of the country. Turkey in this study on the economic integration of the commercial economy, were discussed foreign direct investment and innovation trends. According to the study, it was concluded that the European Union could be beneficial in terms of internal economies of Turkey and the Black Sea Cooperation Organization concluded with Turkey will contribute to the foreign trade and foreign direct investment.

Erdem and Tuğcu (2012) by the study, Turkey, Azerbaijan, Kyrgyzstan and Kazakhstan in between employment and economic freedoms have investigated whether there is a direct relationship. In this study conducted for the period 1998-2010, panel data technique was used. According to the results of the panel data analysis, it has been concluded that the increase in total economic freedom in the countries has a positive effect on employment at the total level and in terms of labor force participation rate. According to the research results, Garrett et al. (2011), Nyström (2008), Bjørnskov and Foss (2008) and Feldman (2007), and the analysis made was consistent. Turkey, Azerbaijan, Kyrgyzstan and Kazakhstan between employment and economic freedoms in the country has been concluded that there is a positive relationship. Kayalıdere and Özcan (2014) examined the relationship between budget transparency and economic freedoms to corruption for the period 2006-2012. Firstly, the correlation coefficients of the variables were calculated. In the study, it was concluded that there is a negative and strong relationship between corruption and budget transparency and economic freedoms. The relationship of variables was examined by cross-sectional regression analysis, and it was concluded that as the level of economic freedom and transparency increases, the rate of corruption decreases.

Akıncı et al. (2014), the relationship between the spread of globalization and the economic freedom gaining importance and economic growth were examined. In this study conducted for developed, developing and underdeveloped countries in the period of 1995-2012, panel data analysis technique was used. According to the cointegration analysis findings, it is obtained that there is a long-term relationship between economic freedom and economic growth. According to the results of Granger causality analysis, it is concluded that economic freedoms are the cause of economic growth. As a result, it was concluded that economic freedoms were effective in the economic growth process and accelerated this process. Mercan and Göçer (2014) studies examined the relationship between trade openness, economic growth and inflation, which became widespread with the increase of globalization. In the study conducted for the period of 1990-2010, Central Asian countries (Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) were discussed. According to the results of the study conducted with the help of panel data analysis, the result was that commercial openness is positive and statistically significant on economic growth. It is concluded that trade openness positively affects inflation.

Beşel and Savaşan (2014) studies examined the effects on corruption, which is one of the factors affecting economic growth. Monthly data for the period 1985-2012 were used. structural break in this study for Turkey considers Zivot-Andrews unit root Gregory-Hansen cointegration, and Toda-Yamamoto causality tests are applied. According to the results obtained, it was concluded that there is no cointegration relationship between the variables and there is a one-way causality relationship from economic growth to corruption. In the study conducted by Arslan (2014), the relationship between cultural similarity and international trade in Asian countries was investigated. Pedroni and Johansen and Fisher panel data cointegration analysis was used in this study between 1970-2009. According to the results of the analysis, it is obtained that there is a long-term relationship between cultural similarity and international trade in Asian countries. In addition, it is concluded that cultural proximity affects international trade in the long run. Erkal et al. (2014) applied Panel Border Test Analysis to examine the relationship between corruption and economic growth in OECD and EU countries. In this analysis made for the period of 1995-

2012, it was determined that the coefficient for the variable of corruption index in the long term is positive and significant.

Doğan and Can (2016) investigated the relationship between globalization and economic growth. In order to test whether the benefits of globalization are injured, an analysis was carried out for South Korea in the 1970-2012 period. In the study, in which Engle and Granger cointegration analysis was conducted, it was concluded that the economic, social and whole globalization index is co-integrated with growth. According to the results of the Dynamic Least Squares method, it was obtained that economic, social and all globalization variables positively affect the growth in the long run. As a result of the research, it is concluded that global integration has an economic, social and positive impact on the economic growth of South Korea. Çiçek and Basmihov (2016) examined the relationship between competitiveness integrated into the global economy and comparative advantage in foreign trade. The study deals with cotton and cotton products trade in Central Asian countries. Foreign trade data for the period of 2001-2012 were used. It is stated that 6% of world trade and 11% of cotton exports are realized by Central Asian countries and have a comparative advantage. According to the results of the net trade index analysis, it has been determined that the comparative advantage in the cotton industry in Central Asian countries has weakened gradually and is challenging against global competitiveness. In this sense, it has been concluded that Central Asian countries should be developed in terms of infrastructure and technology in order to compete with global competition and to obtain high quality products. Kelleci et al. (2016), the causal relationship between economic growth and foreign direct investment was investigated in 6 Eurasian countries (Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Turkmenistan). Panel data analysis technique was used to examine the relationship between variables. In this analysis made for the period of 1995-2012, it was found that there is a one-way causality relationship from the economic growth to the foreign capital variable in 6 Eurasian countries. Kamacı (2016) investigated the effects of external debts on economic growth and inflation. Turkey and 6 Central Asian Republics (Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan) 1995-2014 periods were covered in the study. According to the results of Pedroni cointegration analysis, it has been determined that it has a long-term cointegration relationship. A long-term relationship has been found between foreign debt and economic growth and inflation. According to the Granger causality test result, a one-way causality from foreign debt to economic growth has been identified. However, no causal relationship has been found between external debt and inflation. Finally, it is concluded that there is a long-term relationship between foreign debts, economic growth and inflation. According to the results of the analysis, it was concluded that the increase in foreign debts in the countries subject to the study negatively affected economic growth.

Şahin (2016) examined the relationship between economic freedom and economic growth and corruption. 1995-2016 period, the data in this study were taken to Turkey annually. Granger-Causality analysis was applied in the study. According to the results of the analysis; It is concluded that there is a causality between economic growth and economic freedoms. However, it was concluded that there was no causality relationship from economic growth to corruption and economic freedoms. Topal and Ünver (2016), panel co-integration analysis was performed for the Fragile Eight countries using the 2002-2014 period data. In the study, the effects of tax burden, inflation rates on corruption and economic growth rate, human development level and economic freedoms on corruption were examined. According to the panel co-integration analysis results, it was concluded that the tax burden and inflation rates were statistically significant on corruption. In addition, it was concluded that it had a positive effect, while the level of human development and economic freedoms had a statistically significant and negative effect on corruption.

Eren and Çütcü (2018), the relationship between economic growth and globalization was investigated. Turkey in the 1970-2016 period for the study is undertaken and time series method is used. According to the results of the analysis, it was found that there is a one-way causality relationship from economic growth to political globalization and from social globalization to economic growth. Altıner et al. (2018), the effect of 10 major market economies that are effective with globalization on economic growth was examined. In the study using panel data method, the

period of 1990-2015 was discussed. According to the results of the study, it was found that the effect of globalization index and sub-components on economic growth differs from country to country and the effect is low. It is concluded that there is a one-way causality relationship from economic growth to social globalization and from political globalization to economic growth. It is concluded that there is no causal relationship between economic growth and the general and economic globalization index.

5.DATA SET AND ECONOMETRIC MODEL

In the study, selected Turkic states (Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkey) in the process of global economic integration and corruption panel FMOLS method was used to examine the effects of human capital investment. The dependent variable of the regression model is Global Economic Integration, while the independent variable is human capital investment and Corruption Perception Index. The control variables included in the model are unemployment, labor force growth rate, logarithm of the population, Gross Domestic Product per capita and Economic Freedom. It covers the years 1995-2017 and is used in analysis as annual data. The lack of data of some Turkic States in the years before and after these dates has been particularly effective in limiting data, especially the lack of a Corruption Perception Index prior to 1995. The econometric model taken as the basis from the study of Bryant and Javalgi (2016) is included below;

$$GEI_{it} = \alpha_i + \partial_{it} + \beta_{1i}HCI_{it} + \beta_{2i}CORI_{it} + [\beta_{3i}U_{it} + \beta_{4i}LFG_{it} + \beta_{5i}POP_{it} + \beta_{6i}GDP_{it} + \beta_{7i}EF_{it}] + \varepsilon_{it}$$

GEI: Global Economic Integration (Foreign Direct Investment + Exports)

HCI: Human Capital Investment (Education Index + Government Spending on Education)

CORI: Corruption Perception Index

U: Unemployment

LFG: Labour Force Growth Rate

POP: Logarithm of Population

GDP: Gross Domestic Product per capita

EF: Economic Freedom

i=1,...,N represents each country in the panel data analysis; t = 1,..., T represents the time period. The α and ∂ parameters show the probability of country-specific constant effects and deterministic trends, respectively. The parameter ε also refers to estimated residues that represent deviations from the long-term relationship.

Global Economic Integration (GEI) is used as the dependent variable in the analysis, while Human Capital Investment (Education Index + Government Spending on Education) (HCI) and Corruption Perception Index (CORI) are used as the independent variables. In our control variables included in the model, Unemployment (U), labor force growth rate (LFG), logarithm of population (POP), Gross Domestic Product (GDP) per capita and Economic Freedom (EF) are examined.

The data analysis covered the countries of Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkey. The analysis covered a period of 1995-2017 and a 23-year period. Data has been collected since 1995 due to the importance of access to data. The most important reason for this is that the Corruption Perception Index started to be published since 1995. Due to the limited availability of last year data, 2017 is considered to be the last Data year. The data is used in the analysis on an annual basis for each country and each variable.

In this study, foreign direct investment and export rates are obtained from the World Bank database of economic indicators to calculate the dependent variable global economic integration rate. It used the Education Index published by the UNDP (United Nations Development Programme) to determine Human Capital Investment. CORI data is collected from Transparency

International's regularly published Corruption Perception Index. To reflect the level of government spending on education, it used education spending as a percentage of total government spending. Data from the Economic Freedom Index published by The Heritage Foundation is used in the analysis. Rates of unemployment, labour force growth, population and gross domestic product per capita are obtained from OECD and World Bank databases.

6.FINDINGS

The results of the analysis include horizontal cross-section dependence test, auxiliary unit root tests, panel cointegration test and panel FMOLS test results. In the case of horizontal cross-sectional dependence between the series, significant deviations occur in the results of the analysis (Breusch and Pagan, 1980; Pesaran, 2004). Therefore, it is necessary to test the existence of horizontal cross-sectional dependence in series while analyzing. Table 1 below shows the results of the horizontal cross-sectional dependence test of the countries included in the analysis.

Table 1: Horizontal Cross-Sectional Dependence Test Results

Variables	CD-test	p-Value	Mean Joint T	Mean p	Mean abs(p)
GEI	4.715	0.000	23.00	0.25	0.35
CORI	18.397	0.000	23.00	0.99	0.99
U	5.147	0.000	23.00	0.28	0.58
LFG	3.228	0.000	23.00	0.17	0.34
POP	17.678	0.000	23.00	0.95	0.95
EF	13.46	0.000	23.00	0.72	0.72
GDP	4.917	0.000	23.00	0.26	0.28

Notes: under the null hypothesis of sectional independence, CD ~ N (0,1) p - values close to zero indicate that the data are correlated between panel groups.

The *xtcdf* command in the Stata program calculates the CD test used for the horizontal cross section dependence described in Pesaran (2004) and Pesaran (2015) for the list of variables of any length. The Test allows investigation of the average correlation between panel units. Pesaran's (2004) main view of the CD test is that the sum of bidirectional correlations between panel units should be distributed in a standard way. The zero hypothesis in this test, which is used to test horizontal section dependence in the first phase of the analysis, is that "*there is horizontal section independence between units or weak horizontal section dependence*". As the p values approach zero, it should be understood that there is horizontal cross-sectional dependence between panel groups. The zero hypothesis is rejected because the p values in Table 1 are less than 0.05. In other words, it is concluded that there is a horizontal cross-section dependence between the panel units. In this case, second generation unit root tests should be applied instead of first generation unit root tests. Table 2 shows the results of the expanded Dickey Fuller unit root test taking into account the Pesaran horizontal cross-section dependence.

Table 2: Pesaran CADF Unit Root Test Results

		Variables	CADF		Variables	CADF
Level	Constant	GDP	-2.965 (0.654)	First Difference	GDP	-2.784** (0.021)
		GEI	-1.490 (0.753)		GEI	-3.051*** (0.001)
		HCI	-0.855 (0.989)		HCI	-3.978*** (0.000)
		CORI	-1.139 (0.942)		CORI	-3.114*** (0.001)
		U	-2.034 (0.244)		U	-3.093*** (0.001)
		LFG	-1.167 (0.933)		LFG	-3.497*** (0.000)
		POP	-1.842 (0.418)		POP	-3.751*** (0.000)
		EF	-1.808 (0.452)		EF	-3.275*** (0.001)
	Constant + Trend	GDP	-1.734 (0.526)		GDP	-2.499** (0.031)
		GEI	-2.888 (0.064)		GEI	-3.041*** (0.001)
		HCI	-1.682 (0.951)		HCI	-4.073*** (0.000)
		CORI	-1.498 (0.984)		CORI	-3.767 *** (0.000)
		U	-2.324 (0.485)		U	-3.485 *** (0.001)
		LFG	-1.782 (0.918)		LFG	-3.784 *** (0.000)
		POP	-1.667 (0.955)		POP	-3.125 *** (0.001)
		EF	-2.051 (0.394)		EF	-3.084*** (0.001)

The symbols ***, **, * represent 1%, 5% and 10% significance levels, respectively. The values in parentheses indicate the p value.

According to the Pesaran unit root test results, the variables included in the analysis are not stable at level level, but they are stable at both constant and trending level when the first degree differences are taken.

Panel cointegration analysis is performed to test whether there is a long term relationship between the variables. Pedroni cointegration analysis method was used to investigate a long-term mutual relationship between global economic integration, human capital investments and the corruption perception index.

Pedroni (2000) advocates some test suggestions that provide hetoregenicity in cointegration analysis. This test, which allows heterogeneity in the cointegration vector, only allows it to differ between the sections of the dynamic and fixed-effect panel. It also allows it to be different under the alternative. Pedroni tests allow multiple explanatory variables. Allowing heterogeneity of errors across cross section units creates a positive structure, and also diversifies the cointegration vector across different parts of the panel. The Pedroni test is in two different categories. These are cross-sectional and cross-sectional and include the effects of the panel. Seven different cointegration tests are offered. While examining four in-section pooled tests, three other test results are included in the cross-section category (Gülmez and Yardımoğlu, 2012, p. 345). Pedroni panel cointegration test results are given in Table 3.

Table 3: Pedroni Panel Cointegration Test Results

The Null Hypothesis: No Cointegration				
Alternative Hypothesis: common AR coefs.				
	Statistics	**p Value**	**Weighted Statistics**	**p Value**
Panel v-Statistics	-1.133172	0.8714	-2.361671	0.9809
Panel rho-Statistics	1.539828	0.9382	1.020304	0.8462
Panel PP- Statistics	0.203125	0.5805	-3.494166	0.0002
Panel ADF-Statistics	2.009451	0.0222	-4.001275	0.0000
Alternative hypothesis: individual AR coefs. (Cross-section)				
	Statistics	**p Value**		
Group rho- Statistics	2.173774	0.9851		
Group PP- Statistics	2.639722	0.0041		
Group ADF- Statistics	-3.197387	0.0007		

Table 3 examines whether there is a long-term relationship between variables. According to the Pedroni cointegration test, the null hypothesis (there is no cointegration between series) is rejected. There are 7 statistical values developed by 7 Pedroni. As the panel statistics will be considered according to the test results, 4 of these 7 test values are less than 0.05. In other words, since the "*no cointegration*" null hypothesis is rejected by these 4 statistical values, it is concluded that there is a long term relationship between the variables included in the analysis. When evaluated in general, four of the seven tests that constitute both panel and group statistics in the Pedroni cointegration test show that there is a cointegration relationship between the series.

The hypotheses in Bryant and Javalgi (2016) studies where the concept of human capital investment and corruption were tested with panel data analysis during the global economic integration process were created as follows.

H_1: As the perceived level of corruption increases in a developing economy, the level of Global Economic Integration (GEI) in this economy decreases.

H_2: The higher the level of human capital investment in a developing economy, the higher the level of global economic integration in that economy.

H_3: The perceived level of corruption in a developing economy will have a moderate effect on the relationship between human capital investment and the level of global economic integration in this economy.

According to the Variance Development Factor, which was made between independent and control variables, there were no signs of multipolarity. To test hypotheses, OLS regression tests were used only between control variables and all prediction variables. It is stated that corruption is negatively related to GEI in developing countries. For emerging economies in H_2, it was concluded that as the level of human capital investment increases, the degree of GEI increases and H_1 is supported. Standardized H_2 is supported for human capital investment. Based on these results, findings showing that corruption at the country level and human capital investment are important predictors of GEI. Thus strong support was found for both H_1 and H_2. In H_3, it has been suggested that the level of corruption for developing countries will have a moderate impact on the relationship between human capital investment and GEI. In the model created, it has been determined that it has a significant effect on the relationship between human capital investment and GEI. Thus, a strong support was found for H_3 (Bryant and Javalgi, 2016, p. 6).

The hypotheses created in the study are as follows:

H_1: The higher the perceived level of corruption (CORI), the corruption decreases and the level of Global Economic Integration (GEI) is positively affected.

H_2: The higher the level of human capital, the Global Economic Integration (GEI) level is positively affected.

Firstly, in order to test whether there is a multiple linearity problem among the variables included in the analysis, the Variance Inflation Factors method was applied following the study of Voyer and Beamish (2004). In the literature, the presence of VIF coefficients greater than 10 is generally accepted as a sign of serious multiple linearity. However, stricter standards reveal that a VIF level above 5 shows serious multiple linearity (Hair, 2010; Kennedy, 2008; Kutner, 2004).

Table 4: Variance Inflation Factors

Period: 1995 2017		
Number of Observations: 132		
Variables	**Coefficient of Variance**	**VIF Factor**
HCI	0.275472	1.180057
CORI	0.037749	2.278416
EF	0.176411	3.348670
LFG	6.637444	1.123658
POP	5.501304	3.677318
U	1.110619	2.277419
GDP	4.425645	2.456214

When the analysis results in Table 4 are examined, it is seen that the VIF coefficients of the variables are all less than 5. In addition, when the correlation matrix of independent variables is analyzed, there is no correlation between the variables over 0.70. Tabachnick and Fidell (2007) mentioned the idea that there may be multiple linear connections in the correlation matrix if the

correlation between variables is greater than 0.70. As a result, since there is no such finding, no indication of serious multiple linear connection is found as a result of the tests.

Panel FMOLS (Fully Modified Ordinary Least Squares) method was used to see the effect of variables discussed in econometric analysis on Global Economic Integration (GEI). Table 5 shows FMOLS result deviations (in standard fixed effect estimators) caused by problems such as autocorrelation and variance.

Table 5: Panel FMOLS Results

Dependent Variable: GEI Variables	Coefficients	Standard Error	t-statistics	p Value
D(HCI)	0.413822	0.220556	1.876265	0.0612*
D(CORI)	0.099553	0.020991	4.742459	0.0000***
D(U)	-1.165792	0.748206	-1.558117	0.1218
D(LFG)	-2.286951	1.189781	-1.922160	0.0549*
D(POP)	-3.311216	1.474267	-2.246008	0.0265**
D(GDP)	0.788245	0.250054	3.152299	0.0000***
D(EF)	0.000504	0.000251	2.001430	0.0309**
C	4.153450	2.208910	1.880317	0.0625
R-Square	0.618975	**Adjusted R-Square** 0.584047		
LM Test	0.74 [0.61]	**Ramsey Reset** 1.84 [0.46]		**White Test** 1.32 [0.39]

*** ,**, * mean levels of significance of %1, %5 and %10 respectively.

When the panel FMOLS test results are evaluated, it is seen that the CORI (Corruption Perception Index) is between 0 and 10. The approach of CORI towards 10, shows that the corruption rate in the country has decreased and the transparency level has increased. Therefore, as a result of the analysis, it is seen that one unit increase in CORI, ie decrease in corruption, increases the GEI dependent variable by 0.099 units. The CORI variable was positive with the dependent variable and statistically significant at 1% significance level. Kayrak (2006) argues that the increase in corruption events adversely affected integration. In this context, it can be said that the decrease in corruption events will have positive effects on global integration. Lalountas et al. (2011) found a positive relationship between corruption and globalization. This study shows similarity with the analysis result. Koyuncu and Ünver (2017) and Ewoh et al. (2013), they conclude that the increase in corruption rates negatively affects globalization.

HCI variable is positive with the dependent variable and statistically significant at 10% significance level. In other words, it is observed that one unit increase in human capital investments increased dependent variable GEI by 0.41 units. In other words, it can be concluded that human capital investments positively affect global economic integration. Studies to examine the impact of human capital investments on economic growth and globalization argue that human capital investments positively affect economic growth and development. These results of the study show significant similarities with the studies of Sağırlı (2011), Madhavan and Iriyama (2009), Hickman and Olney (2011) and Aleandri and Refrigeri (2013). Especially Kurtz and

Brooks (2011) talk about the positive effects of human capital investments in the global economic integration process.

It is found that one-unit increase in workforce reduced GEI by -2.28 units. Variable LFG is negative with the dependent variable and statistically significant at 10% significance level. In other words, it can be said that the increase in the workforce has a negative effect on the global economic integration process. The variable U is not statistically significant at the end of the analysis. In other words, there is no significant relationship between global economic integration and unemployment rates. These findings are similar to the study by Potrafke (2010).

It is obtained that one unit increase in population decreased GEI -3.311 units. Variable POP is negative with the dependent variable and statistically significant at 5% significance level. In other words, if the population rate increases, it is revealed that global economic integration is negatively affected. Schneider et al. (2011) shows a significant similarity with their work.

As a result of the analysis, a one-unit increase in economic freedom increased GEI by 0.0005 units. EF variable was positive with dependent variable and statistically significant at 5% significance level. In other words, economic freedom turns out to be positive on the global economic integration process. It is concluded that positive developments on economic freedom will positively affect the global economic integration process. Akhter (2004) and Gheorghe and Gheorghe (2008) show significant similarities with their work.

R-square and adjusted R-square values are also sufficient for panel data analysis. LM, Ramsey Reset and White Tests are used to test whether there are structural problems in the model. LM Test is performed to test for the presence of autocorrelation problem. According to the LM Test result, autocorrelation (serial correlation) problem is not found in the model. The Ramsey Reset Test is performed to measure the misidentification problem and compliance in the model. According to the result of this test, it is determined that there is no misidentification in the model, that is, the fit of the model was good. In order to test the presence of variance (heteroskedasticity) problem in the model, White Test is performed. According to the White Test result, it is determined that there is no variance of variance problem in the model. In line with the findings, it is concluded that there are no structural problems in the model as a result of LM, Reset and White tests. In this study, which covers 5 Turkic states for the period 1995-2017, the hypotheses in the study are supported by the findings obtained as a result of the analysis.

Conclusion

Globalization is seen as a new world system that spreads from social life areas to the market economy, from politics to cultural events and is effective in determining living standards. Trade, technology, information exchange etc. It shows its effect in many areas such as. It has an important place in the recent period as it makes the world a small market and brings countries closer together. The phenomenon of rapidly spreading globalization comes to the agenda especially with the economic integration process. It is seen that associations, communities and organizations have increased in the process of globalization and regionalization. It is seen that these communities are in the process of being effective in trade, commodity exchange, foreign direct investments and economic activities and increasing their profits in the economic integration process. In this sense, agreements, summits and meetings emphasize the impact and importance of global economic integration.

While globalization increases the importance of the information society, it also shows that information dominates the market in the new world system. Education in the Loquat system comes to the forefront in terms of rising skill level, self-development and use of talents. It emphasizes the effectiveness of knowledge with analytical thinking, solving problems, being able to synthesize and strong communication. In this context, the policies made, educational institutions established for the production of information and investments can be extremely effective. In order to gain continuity of education, it is necessary to follow technological developments and provide economic and health opportunities. The important point in the rapid spread of information with globalization is that it is advocated that education for the information

society should have a social purpose (Numanoğlu, 1999, p. 343). These developments emphasize once again the importance and effectiveness of human capital investments.

Corruption, economic growth, trust in the state, democracy, global competition and social status can be effective. In countries where corruption is experienced, it is observed that social inequality is experienced by losing trust in the state and law, making inefficient investments by adversely affecting global competition, foreign direct investments not coming to the country and delaying development. In this sense, anti-corruption strategies need to be developed. National, especially international institutions and organizations are needed in the fight against corruption. By providing the necessary conditions and funds, the effectiveness of these organizations can be increased. The international effectiveness of international organizations can play a dominant role in anti-corruption strategies. Therefore, it may be beneficial to provide international cooperation in the fight against corruption. It is also suggested that education and the quality of education have an important function in the fight against corruption. In countries with low literacy rates, high levels of corruption indicate the importance of education. However, in societies where the education level is high, corruption events may also occur. It is argued that the quality of the system should be increased in order to limit bad and negative behaviors while improving human quality through education (Aktan, 2002, p. 218).

Corruption and human capital investments were found to be effective in the global economic integration process in the Turkic states included in the analysis. In this respect, important duties fall to society, social institutions and policy makers in order to prevent corruption and to increase human capital investments. The importance of the education factor appears in the reduction of corruption. In this context, it seems necessary to increase investments in education and follow appropriate policies. Decreasing the incidents of corruption will increase trust in the state while at the same time it will increase the reputation of states in the global position. Effective use of human capital investments can yield positive results in increasing both economic growth and development and country welfare. These 5 selected Turkic states may be more effective in the process of increasing the skilled workforce, improving health conditions and improving educational opportunities, globalization and economic integration. Economic freedom, which is a global value in comparing nations, can be effective in the process of globalization. In this sense, economic freedom can be increased by providing the level of economic development in 5 selected Turkic states. Thus, economic growth can be achieved with a more productive and productive society. Different macroeconomic or socio-cultural variables that have an impact on the global economic integration process can be examined for other country groups.

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The Relationship Between Global Economic Integration, Human Capital Investments and Corruption in Turkic States

Türki Devletlerde Küresel Ekonomik Entegrasyon, Beşeri Sermaye Yatırımları ve Yolsuzluk İlişkisi

Türker ŞİMŞEK	**Emine DESTEBAŞI**
Doç.Dr. Tokat Gaziosmanpaşa Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, İktisat Bölümü Öğretim Üyesi, turker.simsek@gop.edu.tr https://orcid.org/0000-0001-7581-7590.	Tokat Gaziosmanpaşa Üniversitesi, Sosyal Bilimler Enstitüsü, İktisat Anabilim Dalı Lisansüstü Öğrencisi, eminedeste1992@gmail.com, https://orcid.org/0000-0001-7411-0278

Genişletilmiş Özet

Küreselleşme uluslararası ölçekte siyasal, ekonomik ve kültürel bütünleşme ile görüşlerin, fikirlerin, ekonomik gelişmelerin, teknolojik değişimlerin küresel düzeyde kullanılması ile sermaye dolaşımının ulus-devlet sınırlarını aşarak evrensel boyutta yeni ilişkiler biçiminde ortaya çıkmaktadır. Dünya ölçeğinin küçülmesi ile mekânların yakınlaşması serbest dolaşım ve sınırsız rekabet ile birlikte dünya ticaretinin büyük bir pazar haline gelmesini sağlamaktadır (Balay, 2004: 62-63). Küreselleşmenin gücünü ve etkinliğini ekonomik faaliyetlerden aldığı söylenmektedir. Buna göre ekonominin küreselleşmenin ilk boyutu olduğu söylenebilir. Ekonomik küreselleşme ile Dünya'nın tek bir pazar haline gelmesi ülke ekonomiklerinin entegrasyonunu ifade etmektedir. Ekonomik küreselleşme ülkeler arasında sermaye ve emek akışlarının artması, mal alış verişlerinin sağlanması ile ekonomik ilişkilerin gelişmesi anlamına gelmektedir. Ayrıca, ekonomik ilişkilerin gelişmesi dünya ölçeğinde karşılıklı etkileşimlerin yaygınlaştığını ve yoğunlaştığını gösterir. Ekonomik küreselleşme sürecinde yoğunlaşan ticari faaliyetlerden dolayı ülkelerarası karşılıklı işbirliğin, bağımlılığın ve benzerliğin artması bu süreçte yaşanan en önemli gelişmelerden biri olarak gösterilebilir. Ticari ilişkiler arttıkça uluslararası ilişkiler değişmekte, tercihler gelişmekte ve yoğunlaşmakta hatta zorunlu bir hale gelmektedir. Küreselleşmenin ekonomik alanda yayılmasının en önemli sebeplerinden biri Neo-liberal politikalar ve buna bağlı olarak gelişen düşünce yapısı olduğu kabul edilmektedir. Küreselleşme, toplumu ilgilendiren beşeri sermayeyi atıl durumdan çıkartıp değişim ve dönüşüm ile küresel düzeyde yeniden şekillendirmektedir. Bu durum küresel iletişim ve etkileşim ile açıklanabilmektedir. Maddi ve manevi kalkınmanın sağlanması ve toplumun ilerlemesi için öncelikle beşeri sermayenin verimli ve etkili bir şekilde kullanılması gerekmektedir. Ancak günümüzde yaşanan küreselleşmenin bu durum için tam anlamıyla elverişli olduğu söylenmemektedir. Toplumsal kalkınmada yaşanan bazı sorunlar eşitsizlik, kadın istihdamında yetersizlik gibi birçok olumsuz etkenlere dayanmaktadır (Kunduracı ve Çoşkun, 2009: 82-83). Küreselleşme sürecinin hız kazanmasıyla birlikte Neo-liberal düşünceler de hızla yayılmaya başlamıştır. Bu düşünce akımıyla devlet elinde ne kadar az mal olursa o kadar yolsuzluk az olur düşüncesi hasıl olmuştur. Sağlık, eğitim, sosyal güvenlik ve iletişim gibi birçok alanda özelleştirme hız kazanmıştır. Devlet içerisinde yaşanan yolsuzluklara karşı alınan bir önlem olarak özelleştirme görülmekteydi. Fakat küreselleşme sürecinin hız kazandığı günümüzde yolsuzluk oranlarında azalma yerine artma eğilimi görülmektedir. Özelleştirmenin yolsuzluk oranını azaltmadığı daha da arttığı gözlenmiştir. Bu durum özelleştirme yapılırken kurumların el değiştirmesinde rüşvet olanaklarının artması ile

açıklanmaktadır. Bu yüzden birçok ülkede yolsuzluğun en belirgin örneği özelleştirme olmuştur. 1980 yıllarında küreselleşmenin etkileri daha da hissedilirken yolsuzluk girişimlerinin yayıldığı ve değişik türlerde ortaya çıktığı savunulmaktadır. Bu dönemde kamu harcamalarının kontrolü hedeflenirken tersine harcama kalemlerinden sağlık ve eğitim gibi önemli harcamalarda azalma görülürken; faiz ve borçlarda artış olduğu gözlenmiştir (Gedikli, 2011: 172). Küreselleşmenin yaygınlaşması ile özel kesimde yolsuzluğun arttığı belirtilmektedir. Kapitalist sistemin getirisi olan haksız rekabet ile haksız kazancın fonksiyonunun arttığı savunulmaktadır. Küreselleşmenin en temel getirilerinden biri olan ticaretin, beraberinde yolsuzluğu da arttırdığı vurgulanmaktadır (Şahin, 2005: 131).

Bu çalışmanın amacı, küresel ekonomik entegrasyon sürecinde beşeri sermaye yatırımı ve yolsuzluk kavramının etkilerini ekonometrik analiz çerçevesinde incelemektir. Seçilmiş 5 Türk devleti (Azerbaycan, Kazakistan, Kırgızistan, Tacikistan ve Türkiye) için veri temininde sıkıntı yaşanılmayan 1995-2017 dönemi ele alınarak Panel veri analizi yöntemi ile analiz yapılmıştır. Veriler Dünya Bankası, Uluslararası Şeffaflık Örgütü (Transparency International), Ekonomik Kalkınma ve İşbirliği Örgütü (OECD) ve Miras Vakfı (The Heritage Foundation) veri tabanından yıllık olarak alınmıştır. Bryant ve Javalgi (2016) çalışmasından temel olarak alınan ekonometrik model aşağıda yer almaktadır;

$$GEI_{it} = \alpha_i + \partial_{it} + \beta_{1i}HCI_{it} + \beta_{2i}CORI_{it} + [\beta_{3i}U_{it} + \beta_{4i}LFG_{it} + \beta_{5i}POP_{it} + \beta_{6i}GDP_{it} + \beta_{7i}EF_{it}] + \varepsilon_{it}$$

i=1,…,N panel veri analizindeki her bir ülkeyi; t=1,…,T ise zaman periyodunu temsil etmektedir. α ve ∂ parametreleri sırasıyla ülkeye özgü sabit etkilerin olasılığını ve deterministik eğilimleri göstermektedir. ε parametresi de uzun dönem ilişkiden sapmaları temsil eden tahmini kalıntıları ifade etmektedir. Analizde bağımlı değişken olarak Küresel Ekonomik Entegrasyon (GEI) kullanırken bağımsız değişken olarak Beşeri Sermaye Yatırımı (Eğitim İndeksi + Eğitime Yönelik Hükümet Harcamaları) (HCI) ve Yolsuzluk Algılama İndeksi (CORI) kullanılmıştır. Modele dahil edilen kontrol değişkenlerimizde eşitlikte köşegen içerisinde yer alan İşsizlik (U), İşgücü büyüme oranı (LFG), Nüfusun logaritması (POP), Kişi başı Gayrisafi yurtiçi hasıla (GDP) ve Ekonomik Özgürlük (EF) olarak incelenmektedir.

Panel birimleri arasında yatay kesit bağımlılığının olduğu sonucuna ulaşıldığı için birinci nesil birim kök testleri yerine ikinci nesil birim kök testi olan Pesaran CADF testine başvurulmuştur. Test sonucunda analize dahil edilen değişkenlerin birinci derece farkı alındığında durağan hale geldikleri tespit edilmiştir. Pedroni panel eşbütünleşme testi sonuçlarına göre değişkenler arasında uzun süreli bir ilişki bulunmuştur. Modeldeki değişkenler arasında çoklu doğrusallık sorunu olup olmadığını test etmek için, varyans enflasyon faktörleri incelenmiş ve böyle bir problem olmadığı sonucuna varılmıştır. Eşbütünleşme analizinde belirlenen uzun vadeli ilişkinin katsayılarını tahmin etmek için Panel FMOLS yöntemi uygulanmış ve sonuçlar aşağıdaki tabloda gösterilmiştir.

Tablo: Panel FMOLS Sonuçları

Bağımlı Değişken: GEI Değişkenler	Katsayılar	Standart Hata	t-istatistik	p Değeri
D(HCI)	0.413822	0.220556	1.876265	0.0612*
D(CORI)	0.099553	0.020991	4.742459	0.0000***
D(U)	-1.165792	0.748206	-1.558117	0.1218
D(LFG)	-2.286951	1.189781	-1.922160	0.0549*
D(POP)	-3.311216	1.474267	-2.246008	0.0265**
D(GDP)	0.788245	0.250054	3.152299	0.0000***

D(EF)	0.000504	0.000251	2.001430	0.0309**
C	4.153450	2.208910	1.880317	0.0625
R-Kare	0.618975	**Düzeltilmiş R-Kare** 0.584047		
LM Test	0.74 [0.61]	**Ramsey Reset** 1.84 [0.46]		**White Test** 1.32 [0.39]

***,**,* sırasıyla %1, %5 ve %10 anlam düzeyini ifade etmektedir.

Panel FMOLS (Tamamen Modifiye Edilmiş En Küçük Kareler Yöntemi) test sonuçlarına göre beşeri sermaye yatırımları, ekonomik özgürlük ve yolsuzluk küresel ekonomik entegrasyonu olumlu yönde etkilerken; işgücü ve nüfustaki bir birimlik artışın küresel ekonomik entegrasyonu olumsuz yönde etkilediği sonucuna ulaşılmıştır. Bu bulgular ışığında, izlenecek politikaların ilgili ülke ekonomilerinde etkinliği sağlayacağı düşünülmektedir.