

ANALYSIS OF INTERNATIONAL STUDENT MOBILITY FROM TURKEY VIA ERASMUS+ PROGRAM

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Abstract

The purpose of this study is to explain the factors affecting the student flow from Turkey to different countries which takes place by means of Erasmus+ program in 2015 with the gravity model. The variables reflecting the economical size of the countries and the variable representing the distance between Turkey and the country visited were added to the gravity model formed and the statistical significance of the model was tested. Moreover, at which level the student potential which wanted to have an education with Erasmus+ was affected by the quality of the visited country's universities, visited country's having a Mediterranean climate, its foreign language's being English and its being an OECD country were analyzed as dummy variables.

Keywords: Gravity model, Erasmus+ program, international student mobility.

Erasmus+ Programı ile Türkiye'den Gerçekleşen Uluslararası Öğrenci Hareketliliğinin Analizi

Özet

Bu çalışmanın amacı 2015 yılında Türkiye'den Erasmus+ programı ile farklı ülkelere gerçekleşen öğrenci akımını etkileyen faktörleri çekim modeli yöntemi ile açıklamaktır. Çekim modeline, ülkelerin ekonomik büyüklüklerini yansıtan değişkenlerin yanısıra Türkiye ile gidilen ülke arasındaki uzaklığı belirten değişken eklenerek modelin istatistiksel anlamlılığı test edilmiştir. Ayrıca Erasmus+ programı ile eğitim almak isteyen öğrenci potansiyelinin, kukla değişkenler olan gidilen ülkenin

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üniversitelerinin niteliği, akdeniz iklimine sahip olması, ana dilinin İngilizce olması ve OECD ülkesi olması durumlarından ne düzeyde etkilendiği incelenmiştir.

Anahtar Kelimeler: Çekim modeli, Erasmus+ programı, uluslararası öğrenci hareketliliği.

Introduction

The concept of internationalization which has had a deep effect on higher education from the beginning of the twenty-first century is a multifaceted process integrated with the purposes, functions, and admission of higher education. Cross-border education which has been in the center of higher education is one of the key factors of internationalization.¹ The international dimension means that besides the fact that it is basically open to program countries, in fact it means that it is open to all other world countries with certain restrictions.²

The tendency for the higher education services to become international between the universities from the end of the 1980s in developed countries has shaped not only with the exchange of the faculties and the students but also with answering the needs of the rapidly globalizing economy. It was made with the internationalization of the curricula of the universities.³

Students who went abroad for education have become one of the most important components of international trade with the recognition of education's being a part of the trade and its being included in the discussions about globalization.⁴ Recognition of the enormous potential of overseas markets for a series of education services by governments themselves besides educational institutes has caused the education exports of some developed industrial economies to multiply and increase.⁵ A continuous increase is

¹ Jane Knight, "Cross-border Higher Education: Issues and Implications for Quality Assurance and Accreditation," *Report: Higher Education in the World 2007* (2007): 134.

² Vesife Hatisaru, "A Review on Turkey's Participation in Erasmus+: The Case of Strategic Partnerships and Knowledge Alliances," *Ankara Review of European Studies* 16, No 2 (2017): 69.

³ Paul Bennell and Terry Pearce, "The Internationalisation of Higher Education: Exporting Education to Developing and Transitional Economies," *International Journal of Educational Development* 23, No 2 (2003): 215.

⁴ Kurt Larsen; John P. Martin; Rosemary Morris, "Trade in Educational Services: Trends and Emerging Issues," *World Economy* 25, No 6 (2002): 851.

⁵ Bennel and Pearce, "Exporting Education to Developing and Transitional Economies," 215-216.

observed in the number of the students who went to different countries for education in the world. The yield of the increasing international student mobility to the economy every year increases the competition in this field both in the level of the country and the academic institutions.⁶ Factors that can be associated with international education such as tuition fees, living expenses, kinship relations of the countries, expertise in foreign languages, academic achievements of universities, visa procedures and employment opportunities affect the decisions of students who are interested in applying to a particular education institution.⁷

The international student mobility started to continue its activities as ERASMUS (European Community Action Scheme for the Mobility of University Students) as a life-long learning program, beginning from 1987.⁸ The Erasmus Program is one of the first initiatives which applies the base of the Space for Higher Education and which lies in the heart of the Bologna Process.⁹ Erasmus was one of the pioneers and the most important representatives of humanism. Because of this reason, his name was thought as a name suitable for the program because of his contributions to the unification of Europe under a single roof of science and art and its effect on the educational philosophy of its age.¹⁰

In consequence of the success and getting famous of the Erasmus Program, names of all programs which were supported by the European Commission between 2014-2020 were gathered under the name of Erasmus+. The Erasmus+ Program is the general name of the roof program which was started to be applied from 1st January 2014 and which contains supports for different age groups and target audiences in the fields of young and sport. The

⁶ Gökçen A. Olcay and Vesile A. Nasır. "Internationalization in Higher Education: A Look at the Years 1999-2013 from the Perspectives of the Countries with the Most International Students and Turkey," *Yükseköğretim ve Bilim Dergisi* 6, No 3 (2016): 289.

⁷ Faruk Levent and Özge Karaevli, "Uluslararası Öğrencilerin Eğitimine Yönelik Politikalar ve Türkiye için Öneriler," *Journal of Educational Sciences* 38 (2013): 102.

⁸ "Turkish National Agency, Erasmus Programme Mobility Statistics 2010-2011." Accessed: August 7, 2018, http://www.ua.gov.tr/docs/halkla-ili%C5%9Fkiler/erasmus_istatistikleri.pdf?sfvrsn=0.

⁹ González, Carlos Rodríguez; Mesanza, Ricardo Bustillo and Mariel, Petr. "The Determinants of International Student Mobility Flows: An Empirical Study on the Erasmus Programme." *Higher Education* 62, No 4 (2011): 414.

¹⁰ "Turkish National Agency Erasmus+ Programme." Accessed: July 25, 2018, <http://www.ua.gov.tr/programlar/erasmus-program%C4%B1>.

supports for school education, higher education, vocational education, adult education and supports for youth continue within the Erasmus+ Program like the previous programs and in addition, grant support is provided for the projects in the field of sport. The program also intends to offer more effective tools which encourage collaboration among different sectors, in compliance with the Europe 2020 Strategy targets.¹¹

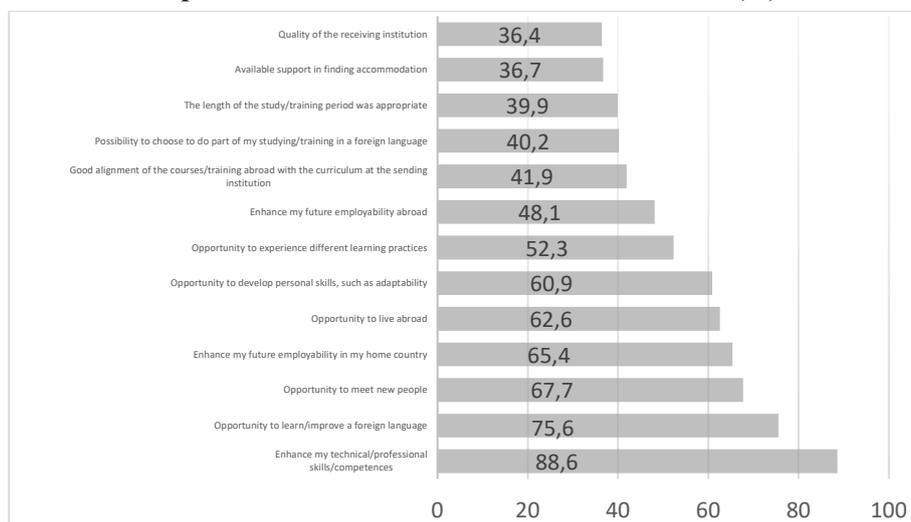
The Erasmus+ Program has a structure which is based on the opportunity for the students who have education at graduate and post-graduate levels to actualize a definite part of their education at universities in different countries other than their own countries. It is also a structure which contains student exchange among universities with universities in different geographical areas of the World. Thus, the Erasmus+ Program attracts attention as the program which enables both the development of international relations and the intercultural interaction, developing the quality of education.¹²

According to Turkish National Agency Impact Analysis Report (2017)¹³, the learners who participate in the project state that their main objective is to increase their technical/vocational skills. When asked about the reasons for participation in the Erasmus+ mobility activity, as shown in Graph 1, 88.6% of the learners specify the option to increase their technical/vocational skills/competencies. The rate of learners who take into account foreign language learning is 75.6%. A large majority (60.9%) of the participants indicate that they participate in the Erasmus+ mobility program in order to assess the opportunity to improve their personal skills such as adaptation.

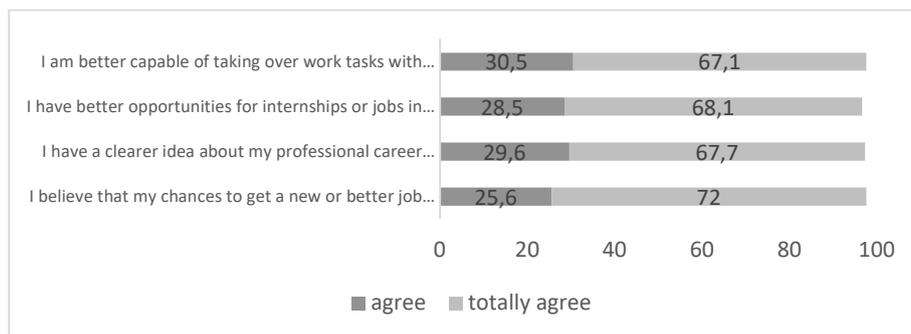
¹¹ Turkish National Agency, "Impact Analysis Report," Accessed: August 13, 2018, http://www.ua.gov.tr/basin_odasi/yay%C4%B1nlar/raporlar.

¹² Ayşen Özkan and Selin Mutdoğan, "Erasmus Programı'nın Tasarım Öğrencilerinin Yaşam ve Eğitimlerine Katkısı," *The Online Journal of Design Art And Communication* 8 No 2 (2018): 154.

¹³ Turkish National Agency, "Impact Analysis Report," Accessed: August 13, 2018, http://www.ua.gov.tr/basin_odasi/yay%C4%B1nlar/raporlar.

Graph 1. Main Motivations for Education Abroad (%)¹⁴

Graph 2 shows that the mobility program has significant positive effects on learners' employment and career expectations. 97.6% of the learners (I agree + I totally agree) believe that their mobility experience has increased their chances to find a new job. While the percentage of participants whose career goals are clearer is 29.6%, the percentage of those who totally agree with this idea is 67.7%. 68.1% declare that their options for finding a new internship in their home country have definitely increased.

Graph 2. The Impact of the Mobility Action on Future Career Goals¹⁵

¹⁴ "Impact Analysis Report."

¹⁵ "Impact Analysis Report."

When the positive aspects of the Erasmus+ Program for the students who come are analyzed, intercultural contraction is the first, elimination of the prejudices is the second and experiencing different education methods is the third. When the positive aspects of the Erasmus+ Program for the students who go are analyzed, gaining a universal point of view and individual achievements are the first, language practice is the second. Gaining a universal point of view is regarded as the most positive contribution the program brings from the point of the students who went abroad.¹⁶

The number and the geographical area of the countries to collaborate increasingly grow with the Erasmus+ Program. According to it, collaboration can be made with 28 EU countries (Germany, Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Cyprus, Croatia, the Netherlands, the United Kingdom, Ireland, Spain, Sweden, Italy, Latvia, Lithuania, Luxemburg, Hungary, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Greece), the program countries which are not EU members (Norway, Iceland, Liechtenstein, Macedonia, and Turkey). This countries can fully take part in all the Actions of the Erasmus+ Programme: The other countries can take part in certain Actions of the Programme, subject to specific criteria or conditions.¹⁷

After the introduction of this study where the international student mobility from Turkey to different countries actualized with the Erasmus+ Program in 2015 is explained with the gravity model, the literature summary about the previously made studies is presented in the second part. In the third part, the model estimated and the method used are introduced. In the fourth part of the study, the analysis results and the comments are included and in the last part, a general evaluation is made and the article is concluded making proposals.

¹⁶ Çağlayan Dinçer; Berna Aslan and Ayşegül Bayraktar. "Ankara Üniversitesi Erasmus Koordinatörlerinin Erasmus Programına İlişkin Görüşleri." *Eğitim Bilimleri Fakültesi Dergisi* 50 No 2 (2017): 210-211.

¹⁷ Turkish National Agency, Erasmus+ Program Guide. Accessed: October 1, 2018, http://ec.europa.eu/programmes/erasmus-plus/sites/erasmusplus/files/files/resources/erasmus-plus-programme_guide_en.pdf.

I. Literature

While many studies about the analysis of the factors affecting the international student mobility were found in the literature search made, it was determined that there were a limited number of studies centered on Turkey.

Zheng analyzed the priorities of the international student mobility, all factors through the push-pull model based on the gravity model separating them into “pull” and “push” categories. The “push factors” refer to the characteristics of the countries which motivate and force the international students to go to countries other than their own countries. There is the welfare of the economy of the country, its population and higher education capacity (especially in developing countries) among the “push factors.” The “pull factors” indicate certain characteristics of the country which pulls the foreign student entrances. These characteristics include geographical and cultural closeness, common language, exchange rate, migration and visa regulations of the host country, and the government policies such as scholarships and educational aid.¹⁸

Mazzarol and Soutar observed that socially and economically strong countries supported the students in their countries to be international students while they were analyzing the factors determining the international students’ country choices. The attractive aspects of the countries come into play in the countries which these students will choose. Thus, the institutions which want to attract international students should make their marketing and promotion in a sophisticated way and verify their quality claims.¹⁹

Altbach considers that the students are “pushed” from their own countries by factors such as the insufficiency of education and employment opportunities and political instability. They were “pulled” towards the targets with certain educational opportunities. According to him, their international education choices form this way and he considers it as something essential.²⁰ Li and Bray concluded that pulling and pushing factors were the external forces which affected the choices and behavior of the students but personal

¹⁸ Ping Zheng, “Antecedents to international student inflows to UK higher education: A comparative analysis,” *Journal of Business Research* 67, No 2 (2014): 137-138

¹⁹ Tim Mazzarol and Geoffrey N. Soutar, “Push-pull factors influencing international student destination choice,” *International Journal of Educational Management*, 16 (2002): 82-83.

²⁰ Philip G. Altbach, “Globalisation and the university: Myths and realities in an unequal World,” *Tertiary Education & Management* 10, No 1 (2004): 14.

characteristics such as the student's decisions, socio-economical situation, age, sex, academic talent, and motivation were among the affecting factors.²¹ Cantwell, Luca and Lee discussed the developing countries' role of not only as countries which send international students but also as countries attracting international students. Moreover, they emphasized the political economy in the increase in the student flow to a developing country and international student mobility.²²

Mc Mahon analyzed the flow of students from 18 countries to the world, especially the United States with a statistical research and emphasized the importance of basic economic factors, variables about education and political areas in the students' country choices.²³

Polat and Arslan actualized with 228 international students in Gebze Teknik University and Kocaeli University, they analyzed the factors the students at the higher education institutions in Turkey paid attention to while they were choosing a university in a country other than their countries. In consequence of the research, they concluded that educational quality, scholarship opportunities, characteristics of the city the university is in, recognition of the university and the academic staff, department choice and the recommendations of the acquaintances were effective.²⁴

Sa, Florax, and Rietveld searched the determinants of university entrance for high school graduates in the Netherlands in 2000, they concluded that distance and accommodation fees had an interceptive effect on the student mobility. However, regional opportunities had a positive impact on the student mobility rather than the educational quality of university programs.²⁵

²¹ Mei Li and Mark Bray, "Cross-border flows of students for higher education: Push-pull factors and motivations of mainland Chinese students in Hong Kong and Macau," *Higher Education* 53 No 6 (2007): 793-794.

²² Brendan Cantwell; Sandra G. Luca and Jenny J. Lee, "Exploring the Orientations of International Students in Mexico: Differences by Region of Origin," *Higher Education*, 57 No 3 (2009): 350

²³ Mary E. McMahon, "Higher Education in a World Market," *Higher Education* 24 No 4 (1992): 465.

²⁴ Soner Polat and Yaser Arslan, "Uluslararası Öğrencilerin Üniversite Seçimini Etkileyen Etmenler," *Journal of Higher Education/Yükseköğretim Dergisi* 7 No 2 (2017) : 96-97.

²⁵ Carla Sa; Raymond JGM Florax and Piet Rietveld, "Determinants of the Regional Demand for Higher Education in the Netherlands: A gravity model approach," *Regional Studies* 38 No 4 (2004): 389.

Bessey analyzed the international student migration to Germany which has been one of the most important target countries for international students worldwide with the gravity model and indicated that distance had a negative impact on the international student flow as something similar to the other studies. He concluded that the per capita income of their countries was not important for the students to go to different countries and the number of the student migration from countries which were not politically free was quite low.²⁶ González, Mesanza ve Mariel determined the factors affecting the university and country choices of the students included in the international student mobility taking advantage of the Erasmus program with the gravity model. They found the size, language, climate, life costs, distance, and the educational status of the country they would go and the university quality as the determinants.²⁷

Bouwel ve Veugelers (2013) analyzed the international student mobility at higher education level among 31 European countries and they concluded that the higher education quality of the countries had a positive and significant impact in attracting the students. However, at the same time, this situation originated from the deficiencies of the educational opportunities in the students' own countries.²⁸

Beine, Noël ve Ragot analyzed the factors they considered in the country choices of international students having education in 13 OECD countries, mostly from different countries. They concluded that the influence of the network, house prices and the quality of the university to choose affected the international student potential. However, registration fees did not have a significant effect on it.²⁹

Mol and Timmerman determined the determinants of student mobility actualized in Europe based on Austria, Belgium, Italy, Norway, Poland and the United Kingdom and they remarked that the students' motivation, social

²⁶ Donata Bessey, "International Student Migration to Germany," *Empirical Economics* 42 No 1 (2012): 347

²⁷ González; Mesanza and Mariel, "An Empirical Study on the Erasmus Programme" 417.

²⁸ L. Van Bouwel and R. Veugelers, "The determinants of student mobility in Europe: the quality dimension," *European Journal of Higher Education* 3, No 2 (2013): 172-190.

²⁹ Michel Beine; Romain Noel and Lionel Ragot, "Determinants of the International Mobility of Students," *Economics of Education Review*, 41 (2014): 52.

circles, and resumes were quite important in their decision and university choice stages.³⁰ Abbott and Silles (2016) analyzed the international student mobility during the 2005-2011 period and they verified that the existence of distance and a common language was quite strong in explaining the bilateral student flows. Besides, they determined that the time zone differences were statistically significant and they had a great effect in terms of economics in determining the international student flows.³¹

II. Materials and Method

The aim of this study is to explain the factors affecting the student flow from Turkey to different countries which takes place by means of Erasmus+ program in 2015 with the gravity model. In this article has been studied with 29 countries (*Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom*).

The gravity model is the model which measures the economic flows between different geographical locations with the size and geographical distance of the locations and the additional variables which can differ according to the analyzed topic.³² The gravity model, which was formed on the basis of foreign trade relations, is frequently used in subjects such as international trade, capital flows, migration, tourism and the global trade potentials are searched. In this study, the international student mobility which is a part of the foreign trade is analyzed with the gravity model approach. The theoretical base of the gravity model which is frequently used in explaining the trade between two countries and formulated in the equation number (1) is derived from physics.

³⁰ Christof Van Mol and Christiane Timmerman, "Should I stay, or should I go? An analysis of the Determinants of Intra-European Student Mobility," *Population, Space and Place* 20 No 5 (2014): 476-477.

³¹ Andrew Abbott and Mary Silles, "Determinants of International Student Migration," *The World Economy*, 39 No 5 (2016): 632-633.

³² Gönül Dinçer, "The Gravity Model in International Trade Theory," *Ekonomik Yaklaşım*, 24 No 8 (2014):3.

Newton's "Universal Law of Gravity" indicates that the power which pulls two objects depends on the sizes of the objects and the distance between them.³³

$$F_{ij} = G \frac{(M_i \times M_j)^\alpha}{D_{ij}^\gamma} \quad (1)$$

F_{ij} , represents the gravity force between the objects, M_i , represents the mass of the object i , M_j , represents the mass of the object j , D_{ij} , represents the distance between the two objects, G represents the gravitational constant.

The gravity model approach which takes the trade flow between the countries inversely proportional to the distance between them and directly proportional to the economic size was first adapted to the field of economics by Tinbergen (1962) and later by times (1963) in order to analyze the international relations.³⁴ Linnemann expanded the gravity model with the new explanatory variables he added.³⁵ The economic bases of the gravity model were developed more in consequence of the studies conducted by Anderson (1979), Bergstrand (1985), Helpman (1985) and Deardorff (1995).³⁶

In this study the cross-section data of the students who went to different countries from Turkey with the Erasmus+ program in 2015 and the data about countries they went were used. The equation number (1) was reformulated with the addition of the explanatory variables used in the study and the shape below was obtained.

³³ Pascal Achard, "The Regulation of International Air Cargo Services," PhD Thesis *Groupe d'Economie Mondiale, Sciences Po*. 2009.

³⁴ Jan Tinbergen, "An Analysis of World Trade Flows," *Shaping the World Economy* 3 (1962); Pöyhönen, Pentti. "A Tentative Model for the Volume of Trade between Countries," *Weltwirtschaftliches Archiv*, 1963.

³⁵ Hans Linnemann, "An Econometric Study of International Trade Flows" *Amsterdam: North-Holland Publishing Co.*, 1966.

³⁶ James, E. Anderson, "A Theoretical Foundation for the Gravity Equation," *The American Economic Review*, 69 (1979); Jeffrey, H. Bergstrand, "The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence," *Review of Economics and Statistics*, 67 (1985); Elhanan, Helpman, "Imperfect Competition and International Trade: Evidence From Fourteen Industrial Countries," *Journal of the Japanese and International Economies* 1(1987); Alan V. Deardorff "Determinants of Bilateral Trade: Does Gravity Work in a Neoclassic World?" *National Bureau of Economic Research Working Paper 5377*, (1995).

$$ESP_{ij} = \alpha_0 \frac{(GDP_i \times GDPP_i)^\alpha (GDP_j \times GDPP_j)^\beta}{DIST_{ij}^\gamma} \quad (2)$$

In the equation number (2), ESP_{ij} represents the number of the students who went to different countries from Turkey with the Erasmus+ Program. GDP_i and $GDPP_i$ respectively represent the Gross Domestic Product and the Gross Domestic Product per capita values of the countries the students went. GDP_j and $GDPP_j$ respectively represent the Gross Domestic Product and the Gross Domestic Product per capita values of the students' own countries, $DIST_{ij}$; represents the distance between the capital of the country the students went and the capital of Turkey and α_0 represents the constant value.

Since the $(GDP_j \times GDPP_j)$ variable does not change from the country where trade is made from to the other countries, these variables have no power for explaining the international trade volume.³⁷ In the model number (2), the $(GDP_j \times GDPP_j)$ variable was excluded from the model because it represented the 2015 economical size of Turkey which was the own country of the students who went with the Erasmus+ program. It did not change for different countries. The equation number (3) was accessed.

$$ESP_{ij} = \alpha_0 \frac{(GDP_i \times GDPP_i)^\alpha}{DIST_{ij}^\gamma} \quad (3)$$

Some dummy variables which were thought to be affecting the number of the student who went from Turkey with the Erasmus+ program were added to the gravity model. The dummy variables added to the model are given below.

D_1 ; "THE (Times Higher Education)"³⁸ variable which determines the quality of the university

D_2 ; Countries with Mediterranean climate

³⁷ Jaap Wilhelm Bernard Bos and M. M. Van De Laar, "Explaining Foreign Direct Investment in Centra and Eastern Europe: An Extended Gravity Approach," 2004; Fatih Kaplan, "Türkiye'nin Meyve ve Sebze İhracatı: Bir Çekim Modeli Uygulaması." *Journal of Yaşar University* 11 No 42 (2016).

³⁸ "Times Higher Education World University Rankings (THE)" are the worldwide performance tables that evaluate research universities by the missions like teaching, research, knowledge transfer and international outlook. Accessed: October 8, 2018. <https://www.timeshighereducation.com/world-university-rankings/methodology-world-university-rankings-2018>.

D_3 ; Countries whose native language is English

D_4 : OECD countries

In the model, the countries with the characteristic indicated with the dummy variables are coded with 1 and the others are coded with 0. When the determined gravity model algorithm determined after the dummy variables are included is taken and linearized, it changes into the shape below;

$$\log ESP_{ij} = \log \alpha_0 + \alpha_1 \log(GDP_i) + \alpha_2 \log(GDPP_i) - \alpha_3 \log(DIST_{ij}) + \sum_{i=1}^4 \theta_i D_i + e_i \quad (4)$$

The data containing the numbers of the students who went from Turkey to 29 different countries with the Erasmus+ program in 2015 were taken from Turkish National Agency³⁹, the data of the GDP_i variable were taken from the World Bank Database⁴⁰ and the data of the $DIST_{ij}$ variable were taken from www.mapcrow.info.⁴¹

The GDP per capita representing the market size and the market potential of the country is used as the explanatory variable in the gravity model together with the GDP value whose economical size is accepted by everybody. The GDP per capita variable is calculated by dividing the GDP value of the country into the population.⁴²

III. Findings

The regression analysis of the data of this study was made with IBM SPSS 24 (Statistical Package for the Social Sciences) package software. The analysis results of the model founded separately for each dummy variable is indicated in Table 1.

³⁹ "Turkish National Agency," Accessed: July 25, 2018, <http://www.ua.gov.tr>.

⁴⁰ "World Bank Open Data," Accessed: July 18, 2018, <http://data.worldbank.org>.

⁴¹ "Distance Calculator Between Cities," Accessed: July 19, 2018 <http://www.mapcrow.info>.

⁴² Anna Golovko, "Çekim Modeli: Avrasya Ülkelerinin Dış Ticareti," *paper presented at the annual meeting EconAnadolu: Anadolu Uluslararası İktisat Kongresi*, 2009.

Table 1. Gravity Model Analysis Results

Variables	I		II		III		IV		V	
	Coefficients	t-values	Coefficients	t-values	Coefficients	t-values	Coefficients	t-values	Coefficients	t-values
α_0	-9.296**	-2.490	-8.059**	-2.200	-9.220**	-2.616	-10.393**	-2.758	-2.141	-0.579
$\log(GDP_i)$	0.991*	7.741	0.890*	6.541	1.021*	8.383	0.968*	7.609	0.876*	7.895
$\log(GDP_j)$	-1.922*	-5.277	-1.995*	-5.651	-2.167*	-5.939	-1.896*	-5.279	-2.161*	-6.986
$\log(DIST_{ij})$	1.103***	1.850	1.220**	2.112	1.345**	2.337	1.303**	2.150	0.678	1.334
D_1			1.318***	1.732						
D_2					-0.772**	-2.010				
D_3							-0.787	-1.328		
D_4									1.752**	3.522
R^2	0.722		0.753		0.762		0.741		0.817	
D-W	21.649		2.326		2.110		2.243		2.561	
F-value	8.300		18.285		19.222		17.173		26.746	

$p = *0\%1, **0\%5, ***0\%10$

In this paper, the determinants of student flows from Turkey to different countries via Erasmus+ program in 2015 were examined with the gravity model. The statistical interpretations of this model that includes the variables that reflect the economic size of the countries, the distance variable and the dummy variables were obtained as follows.

According to the analysis results of the gravity model, the number of the students who went abroad from Turkey with the Erasmus+ program in 2015 was affected by the GDP of the country chosen in a statistically significant way on the positive direction. It was affected by the GDP per capita of that country in a statistically significant way but on the negative direction contrary to what was expected. Although the coefficient of the GDP per capita variable is generally found positive in the related literature, the mentioned coefficient's being negative in the studies conducted for some underdeveloped countries originates from that country's preferring to export to richer countries as its per capita income increases.⁴³ Since the countries with higher per capita income are thought to be richer and their living conditions are thought to be more expensive, it has a reducing effect on the number of the students who went from Turkey. The variable of distance is statistically significant but it has a positive direction contrary to what is expected. Zheng analyzed the international student flow to the United Kingdom and found the impact of the variable of distance statistically insignificant and he emphasized that globalization and economic integration between the countries would decrease the impact of the geographical distance in international student flows.⁴⁴ As for

⁴³ Golovko, "Avrasya Ülkelerinin Dış Ticareti" 2009.

⁴⁴ Zheng, "A comparative analysis," 139.

this study, the distance variable's being found positive originates from the study's not being based on a model such as product trade or forced migration and it indicates that the distance between the countries does not have a dissuasive effect on the international student mobility.

When the impact of the dummy variables on the model was analyzed, it was seen that the "THE" variable which was the quality indicator of the universities worldwide was statistically significant and had positive sign as expected. This result indicates that the students want to spend their international study periods in the best universities. The Mediterranean climate of the country the students went was found statistically significant but had negative sign. When the countries whose official language was English was added to the model, it was found statistically insignificant. This result originates from the high level of English speaking in European countries even in countries whose native language is not English. It indicates that the students can comfortably go to countries whose native languages are not English. The OECD countries variable was found statistically significant and positive. When the R^2 variables were regarded, it was seen that the variables explained the change in the potential of the students who went abroad from Turkey with the Erasmus+ program at a good rate. Moreover, because of the model's observation number's being less than 50, the Shapiro-Wilk statistics was controlled and it was observed that the data dispersed normally.

Conclusion

The Erasmus+ program, which is an important step of the internationalization process in higher education, is very important in the students' having education in different countries and knowing different cultures and having a universal point of view. The technological developments which accelerate with globalization today have made the opportunities of having an international education easier and more accessible for the students. Students who have the opportunity to become international student with Erasmus + program or various programs have an important experience in their life. The contribution of this experience to their development is an indisputable fact. It is clear that the self-confidence of the students living in this process has improved and they have been more courageous in becoming an international individual throughout their life. The process of being international student will contribute considerably to individuals when they have completed their university education and they are in the process of

finding employment or shaping their career plans. In this study where the factors affecting the university students in Turkey on their going to different countries with the Erasmus+ program, the GDP variable reflecting the economic level of the country preferred by the students affected them in a statistically significant and on the positive direction. The GDP per capita variable reflecting the economic level of the country preferred by the students affected them in a statistically significant but on the negative direction. The last point technology reached in transport with the impact of globalization indicates that the distance between the countries is no longer important for the individuals. Moreover, among the dummy variables, it was concluded that the "THE" variable which was the indicator of the university performance was statistically significant and had positive sign. The country's having a Mediterranean climate was found statistically significant but it had negative sign contrary to what was expected. The official language's being English was found statistically insignificant. In conclusion, it is expected that this study which highlights the students' processes of having an international education and the factors which affect them positively and negatively in this process is expected to make a contribution to the studies to be made in this field in the advancing processes. Moreover, the related institutions' increasing their support and giving an opportunity for more individuals to develop themselves in this journey in which the students open to the world for having an education and becoming universal individuals is quite important in the name of both Turkey and the youth's future. In this study, the results obtained with cross-section analysis are interpreted and it is possible to expand this study using panel data analysis.

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