REPUBLIC OF TURKEY
YILDIZ TECHNICAL UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
MASTER OF ARTS PROGRAMME IN ECONOMICS

MASTER'S THESIS

BRAIN DRAIN IN TURKEY: PUSH AND PULL EFFECTS

ELİF ÇOBAN
16729002

THESIS SUPERVISOR
Dr. Öğr. Üyesi HASAN AĞAN KARADUMAN

İSTANBUL
2019

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Thesis is approved by unanimity vote of the committee.

	Title Name Surname	Signature
Thesis Supervisor	: Dr. Öğr. Üyesi HASAN A. KARADUMAN	.....
Committee members :	Dr. Öğr. Üyesi Tuna Abdullah DİNÇ	.....
	Doç. Dr. Şeref BOZOKLU	.....

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ABSTRACT

BRAIN DRAIN IN TURKEY: PUSH AND PULL EFFECTS

Elif ÇOBAN
June, 2019

Migration among countries, which stems from economic, social and political and individual-specific differences, has also brought some questions about the interpretation of these movements. Especially, migration in emerging economies has been the subject for many studies with different approaches over time. This study is mainly elaborated on international movements of skilled labor in Turkey. Highly skilled migrants in the context of the international movement of labor are also treated as consumers or investors of human capital in addition to suppliers of labor. In this study movements of the skilled human capital, which takes a role as a factor of production in understanding the different levels of prosperity and income among countries in the new growth theories, has been discussed with the scope of the "brain drain". As an integral part of international migration, the brain drain originated from the developing countries leads to deterioration in the source economy while high-skilled immigrants improve productivity and innovation in the destination country. Current data including competitiveness, attractiveness and fragility indexes of brain drain in Turkey have been analyzed in order to compare the countries attracting brain drain and identify the factors affecting the decision-making process of choosing host countries. A sample of 148 Turkish citizens with tertiary education residing abroad is chosen to conduct a survey about the underlying motives for leaving the origin country and choosing the destination country. By comparing 27 countries in which participants reside with reference to the source country, the leading motives affecting the decision of highly skilled migrants have been investigated. After the detailed descriptive analysis of the cross-sectional survey data, the push and pull factors in the light of "stay" or "go" decision are discussed.

Keywords: international labor migration, human capital, skilled migration, brain drain

JEL codes: F22, J61, 01

ÖZ

TÜRKİYE'DE BEYİN GÖÇÜ: İTİCİ VE ÇEKİCİ ETKİLERİ

Elif ÇOBAN
Haziran, 2019

Ekonomik, sosyal ve politik ve bireye özgü farklılıklardan kaynaklanan ülkeler arasındaki göç, bu hareketlerin yorumlanması hakkında bazı soruları da beraberinde getirmiştir. Özellikle, gelişmekte olan ekonomilerdeki göç zaman içinde farklı yaklaşımlarla yapılan birçok araştırmaya konu olmuştur. Bu çalışma, ağırlıklı olarak, Türkiye'deki vasıflı emeğin uluslararası hareketlerine odaklanmaktadır. Emeğin uluslararası hareketi bağlamında değerlendirilen yüksek vasıflı göçmenler, emek tedarikçisi olmalarının yanı sıra beşeri sermaye yatırımcısı veya tüketici olarak da değerlendirilmektedir. Bu çalışmada, yeni büyüme literatüründe ülkeler arasında farklı refah ve gelir seviyelerinin anlaşılmasında üretim faktörü olarak rol oynayan yetenekli insan sermayesinin hareketleri "beyin göçü" kapsamında tartışılmıştır. Uluslararası göçün ayrılmaz bir parçası olarak, gelişmekte olan ülkelerden kaynaklanan beyin göçü kaynak ekonomisinde bozulmaya yol açarken, yüksek vasıflı göçmenler hedef ülkede üretkenliği ve inovasyonu artırmaktadır. Türkiye'deki beyin göçünün rekabetçiliği, çekiciliğini ve kırılganlık indekslerini içeren güncel veriler, beyin göçünü çeken ülkeleri karşılaştırmak ve ev sahibi ülke seçiminde karar alma sürecini etkileyen faktörleri belirlemek amacıyla analiz edilmiştir. Yurt dışında ikamet eden yükseköğrenime sahip 148 Türk vatandaşının menşe ülkesinden ayrılmasının ve varış ülkesini seçmesinin temel nedenleri ile ilgili bir anket yapmak için seçilmiştir. Katılımcıların bulundukları 27 ülkeyi kaynak ülke referansı ile karşılaştırarak, yüksek vasıflı göçmenlerin kararını etkileyen ana nedenler araştırılmıştır. Yatay kesit anket verilerinin detaylı tanımlayıcı analizinden sonra, "Kalmak" ve "Gitmek" kararını etkileyen itici çekici faktörler tartışılmıştır.

Anahtar Kelimeler: uluslararası emek göçü, beşeri sermaye, vasıflı göç, beyin göçü

JEL Kodları: F22, J61, 015

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İstanbul; June, 2019 Elif ÇOBAN

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LIST OF ABBREVIATIONS

CAST	Conflict Assessment System Tool
CSOs:	Civil Society Organizations
FFP:	Fund for Peace
FSI:	Fragile State Index
IDPs	International Displaced Persons
IMD:	Institute for Management Development
IMF:	International Monetary Fund
IOM:	International Organization for Migration
LDCs:	Least Developed Countries
MENA:	Middle East and North African countries
NGOs:	Non - Governmental Organizations
OECD:	Organisation for Economic Co-operation and Development
PISA:	Programme for International Student Assessment
UAB:	The United Arab Emirates
TOKTEN:	Transfer of Knowledge Through Expatriate Nationals
TUBITAK:	Scientific and Technological Research Council of Turkey
UK:	The United Kingdom
UN:	United Nations
UNDP:	United Nations Development Program
UNESCO:	United Nations Educational, Scientific and Cultural Organisation
USA:	The United States of America
YYEGM:	Directorate General for Higher and Foreign Education

1. INTRODUCTION

Migration is an old phenomenon as much as human history. People have been leaving their existing homelands since prehistoric times with the idea of having better conditions. Individuals or groups of people migrate, temporarily or permanently, due to diversified reasons ranging from better economic opportunities to civil and political right. The movements are characterized by two dimensions: emigration is the process of leaving a region in order to live permanently in another one, and immigration is the act of someone moving to live in a different country to reside (Glossary, IOM, 2011).

Migration can be examined in two main parts: the first is the short-term movements with moving temporarily for such as seasonal work. The second is the long-term internal and international migration because of the reasons such as higher income, better career, schooling-education opportunities, civil and political rights or personal safety (escaping a war, violence). In this context, a forced migration that happened as a result of compulsory situation (such an exile, violence or war) is not the scope of this study. Therefore, this study will elaborate the flow of people who cross national boundaries rather than internal migrants since international migration has a more appreciable effect on "brain drain" and the economic reasons of voluntary migration of high-skill and educated people who are seeking better opportunities.

Migration will be used to explain international movements of individuals. It refers to the movements of factor of production (labor) from one region to another in an economic sense. However, individuals do not take part in the economy as only a factor of production. In addition to the supply of labor, the individuals moving to another region are consumers as well as investors of human capital. Hence, the notion of human capital is attributed to the stock of skilled workers, and they are represented by individuals with tertiary education residing in another country in this study. Their arrival has an impact on demand for all factors of production. Especially, human capital has played a crucial role - as a factor of production - in understanding the different levels of prosperity and income among countries in the growth literature (Romer P. M., 1986, 1987; Lucas Jr, 1988). Besides, the new ideas and knowledge,

which are the key factors to economic growth and development, are sometimes originated by these movements. (Bodvarsson and Van den Berg, 2013, p. 4). In this context, the knowledge and qualified human capital transferring by migration are examined under the title of "brain drain".

In this process, some questions need to be clarified such as who migrates? If there is a relatively high proportion of highly skilled people who have the intent to leave the country, it should be asked why those people migrate. Thus, the individual and spatial factors behind this movements should be investigated. Then, the economic consequences of the human capital movements that intend to reach better opportunities can be discovered.

The first part of the study consists of theoretical approaches to reach a better understanding of international migration on an economic basis. Firstly, this study will try to see how the models of the economic theory of migration evolved from the 1800s to the 1970s' early migration models. An individual who migrates will be examined by classifying according to his/her status to figure out which variables are effective to determine the volume and directions of the flows of interest. Then, the determinants of migration and implicit tendencies of individuals will be found out.

After examining dynamics of international migration, the following parts of the study will mention about movements of skilled individuals whose labor force for another country with the scope of brain drain is examined and the main approaches about effects of brain drain will be considered. These movements will be described by interpreting the behavior of individuals with tertiary education. Some descriptive statistics will be given to understanding the distribution of these skilled immigrants in the world and comparing destination countries to Turkey.

The last part of the study that describes methodology and data collection is about a survey on the brain drain from Turkey. A survey is conducted to investigate leading motives of individuals with tertiary education who decided to move to another country, and the survey includes personal and demographic information of 148 participants who attended to questionnaire process. The survey aims to detect participants' major motives to leave and the push and pull effects on migration with a rating system. Consequently, some broad comments about the motives behind the decision process

have been deduced. In light of the statements, some policy recommendations are mentioned to retain technical and intellectual human capital in host country.

2. A REVIEW OF LITERATURE ON MIGRATION AND BRAIN DRAIN

This part will provide an overview of theoretical approaches toward migration and show up the classification of the existing theories emphasizing two main stages as the initiation of the migration process and the spread of migration. Although the available theories try to demonstrate the phenomenon of migration by considering different approaches, there isn't a certain migration theory that explains the whole process due to the complex and multi-dimensional structure of movements because of it contains economic, political, socio-cultural, environmental, psychological and other factors.

Migration theories are classified based on different perspectives such as a level-based analysis that referred to micro, macro and meso-level (Hammar, Brochmann , Tamas and Faist, 1997; Faist, 2000), the subject-based analysis dividing migration as initiation and perpetuation (Massey, et al., 1993; Kurekova,2001; Arango,2000), and selected migration theories by disciplines of science are presented in the discipline-based analysis (Bijak, 2006; Hagen-Zanker, 2008) **(Figure 1).**

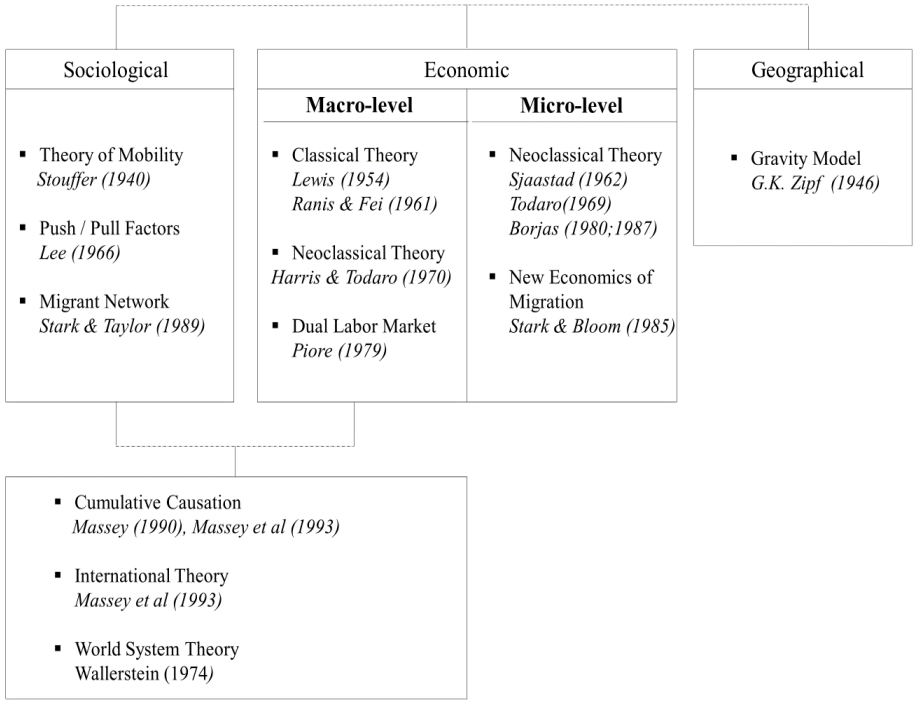


Figure 1: Interdisciplinary analysis

Source: Bijak, J. (2006). Forecasting International Migration: Selected theories, models, and methods. **Warsaw, Poland: Central European Forum for Migration Research***;*
Hagen-Zanker, J. (2008**). Why do people migrate? A review of the theoretical literature**. Maastricht: MPRA Paper No. 28197; and *own elaboration*

A paper published by Massey et al. (1993) reviewed the system of migration systematically. This study was prepared with a motivation to explain the beginning and the international spread of migration. The aim of the study is to provide a solid basis for empirical evaluations and to provide a basis for a comprehensive migration theory. Due to the complex and multi-conceptual nature of the migration process, there is no definite and single theory explaining the migration movements. These theories examine different assumptions together and try to clarify the phenomenon of migration. With this motivation, migration can be examined classifying under the titles of "Initiation of migration" and "Perpetuation of migration" **(Figure2).**

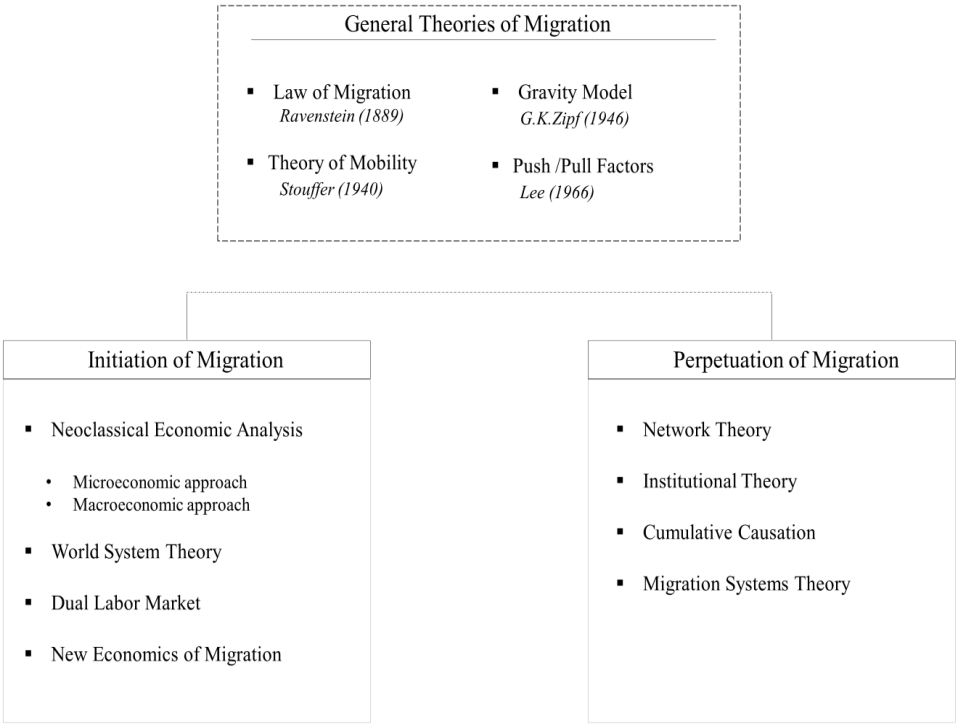


Figure 2: Subject-based analysis

Source: Massey, D. S., et al. (1993, September). Theories of International Migration: A Review and Appraisal. **Population and Development Review,** *19*(3), 431- 466;

Arango, J. (2000). Explaining Migration: A critical view. **International Social Science**, *52*(165), 283-296;

Kurekova, L. (2011). Theories of migration: Conceptual Review and Emprical Testing in The Context of The EU East-West Flows. **Interdisciplinary Conference on Migration** (pp. 6-9). Economic Change, Social Challenge., and *own elaboration*

In Adam Smith's famous work – Wealth of Nations (1776), migration is explained with wage rates that change from one place to another. Wage rates vary more than the prices of goods, and regional wage differentials that exceed the price of goods provide the opportunity for arbitrage. According to Smith, this imbalance in the labor market is the main reason behind migration. He emphasizes that immigration is not as intense as the trade because of direct and indirect costs that constitute an obstacle. These costs include relocation expenses, abandonment of pension rights and domestic assets, psychological costs. He expresses this in his words "*Man is of all sorts of luggage the most difficult to be transported."*

Hence, he underlines that direct and indirect migration costs are higher relative to gains and on account of this, the significant international wage dispersions emerge from low levels of migration (Smith, 2006).

Afterward, Ravenstein performed an empirical study in 1889, in addition to his work with the same name in 1885 and published "Laws of migration." Ravenstein (1889) expresses that none of the unpleasant reasons (such as law, taxation, climate, social surroundings, and compulsion) are effective more than material respects on producing currents of migration.

According to Ravenstein, migration occurs mainly due to economic reasons. The study based on British census data includes some generalizations about migration, and most of them are valid even today. These generalizations can be summarized as follows (Ravenstein, 1889; Grigg, 1977, pp.42):

a) Migrants commonly prefer to move large centers of commerce and industry which nearby themselves. There is an inverse relation between distance and volume of migration.
b) The major movements occur from rural to urban. Those living in rural areas have more tendency to migrate towards the centers. These urban areas are appealing with regard to be located in the centers of industry and trade.
c) Cities grow gradually with long-distance migration from rural areas. Population gap between urban and rural rises step by step with proceeding migration.
d) A large wave of migration creates a counterbalancing counter-wave. Emigrating from somewhere and immigrating to somewhere is inversely related to each other.
e) Women are more likely to migrate than men in the short distance; however, male workers are more likely to migrate to long distance. Individuals in the working age groups have greater propensity to migrate.
f) The volume of migration increases parallel to improvements in transport technologies.

In addition to the distance emphasized in early migration theories, Stouffer, an American sociologist, discussed migration in terms of the intervening opportunities. He asserted the inverse proportion of the intervening opportunities by using data from

the 1940 census on intercity migration in Cleveland to show if there is no certain relationship between mobility and distance. The hypothesis reveals that there is a direct relationship between migration and opportunities, not between migration and distance. He emphasizes that the distance component must be included in the analysis with push-pull effects while trying to explain the migration mathematically. The attractiveness of cities to an immigrant is related to the intervening opportunities of cities that are closer. His model claims that the number of migrants is directly proportional to the opportunities at the destination while it is negatively related to intervening opportunities between the origin and destination (Stouffer, 1940, pp. 846-856). In his modified model, the concept of "competing migrants" was added to the model using data of two different cities (Stouffer, 1960).

Besides, the gravity model for migration was developed in 1940s inspired by Newton's law of gravity. Distance and population size are in the model as the main determinants of migration. It can be seen that these variables also emphasized in Ravenstein's laws of migration. Since the risk and cost will increase with distance due to the lack of information about labor market conditions, the volume of migration and distance are inversely related to each other (Bauer and Zimmermann, 1999).

According to model, the volume of migration is positively related with population and inversely proportional to distance. The distance between origin and destination country is a proxy for the cost of migration. Long distance and volume of migration have inversely related with each other (Zipf, 1946), and the volume of migration rises when population rate increase in host or origin country (Chiswick and Miller, 2014).

A simple representation of the model:

$$M_{ij} = \frac{GP_iP_j}{D_{ij}} \qquad (1)$$

P: population rate, D_{ij}: distance between origin and destination, G: constant variable

An extended form of the gravity model in the following form:

$$M_{ij} = \frac{GP_i^{\beta_1} P_j^{\beta_2}}{D_{ij}^{\alpha}} \qquad (2)$$

The extended model is written in a double-log form in equation 3 for using empirical research and it is designed to capable on including other explanatory variables.

$$lnM_{ij} = ln\,\beta_0 + \beta_1\, ln\, P_i + \beta_2\, ln\, P_j + \beta_3\, ln\, D_{ij} + \beta_4\, ln\, Y_i + \beta_5\, ln\, Y_j + \cdots + \epsilon_{ij} \qquad (3)$$

The modified model **(3)** is widely used in the 1960s and allows for examining a lot of explanatory variables can be used by empirical research such as income (is represented by Y in the extended form), unemployment, urbanization rate, public expenditure, and taxation and many other factors (Greenwood, 2005).

Everett Lee explained the migration decision in 1966 based on push-pull factors and emphasized the importance of the positive and negative impact of individuals on their exit and destination points. In addition, the obstacles encountered in the migration process are included in the decision process. According to this approach, push and pull factors are inverse of each other, and negative factors in the origin push people to emigrate. On the contrary, positive factors in the destination pull immigrants (Lee, 1966) In addition to the positive and negative situations, it can exist cases in which individuals describe neutrality. For example; a region with a genuine education system for parents with young children can be considered attractive (a pulling factor for destination), while this is not important for parents without children (Özcan, 2017). People decide to migrate by taking into consideration these effects as encouraging and discouraging factors (Bodvarsson and Van den Berg, 2013).

Bauer (1994; 1999) and Zimmermann (1999) explain the concept of push-pull migration in a diagram with the aggregate demand (AD) and supply curves (AS). Briefly, this economic approach examines migration with the inflow of workers. In

this context, pull-migration is defined with domestic factors affecting AD, and push-migration is affected by domestic or international factors having an impact on AS.

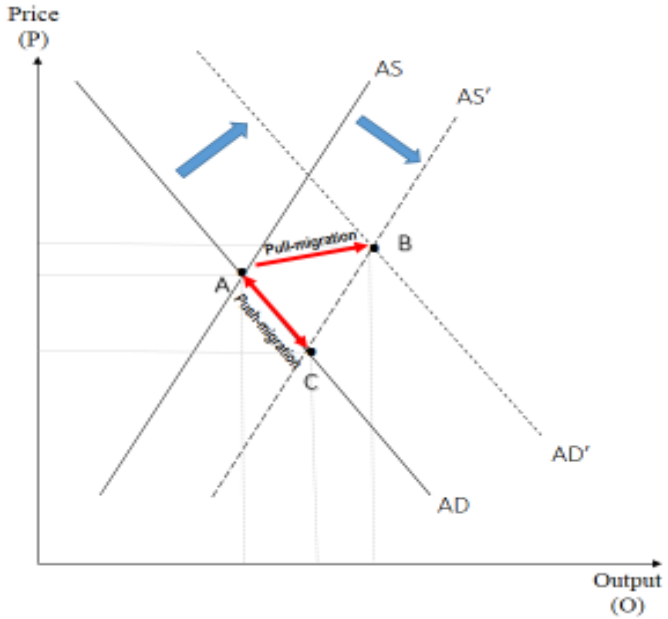


Figure 3: Push and Pull migration and the economy

Source: Zimmermann, K. F. (1994). European Migration: Push and Pull. **World Bank Economic Review**, 8(suppl_1), 313-342.

According to **Figure 3**, if the aggregate demand in the receiving country increases from AD to AD', output and prices (or wages) rise. In this case, immigration is a factor holding inflation down, and it brings with further increase in output. Thus, as a result of the increase in aggregate supply and a shift from AS to AS', pull migration occurs from point A to point B. On the other hand, it is seen that the effect of push migration if the inflow comes true without a change in demand. Push migration can emerge as a result of an upward movement of the supply curve from point C to A due to a supply shock as well as a downward shift in the supply curve from point A to C.

The preferable economic conditions in the receiving regions are seen in various factors such as unemployment, income earnings, working conditions, and job opportunities, social security benefits create push-migration. The demographic determinants (such as age, family size) of the working population have an effect on labor supply decisions of migrants (Bauer and Zimmermann, 1999).

In this study, the positive and negative factors that are effective in migration decision and migration process are classified as follows (Lee, 1966):

i. Factors of origin
ii. Factors of destination
iii. Costs and obstacles
iv. Personal factors

Although migrants have more knowledge about the factors of the origin, it is not the same for the area of destination. In this situation, some lack of knowledge or uncertainty always exist in the process of the reception of migrants in the new area. On the other hand, these factors are perceived differently depending on the stage of the lifecycle of an individual. For instance, while employment opportunities can be the main purpose for younger individuals, climate and good quality health care might be preferred by elderly individuals (Lee, 1966). Furthermore, the tendency to migrate in a certain range of the life cycle is increasing (Goss and Paul, 1986). The process of decision-making shapes with the balance of negative and positive incentives **(Figure 4).**

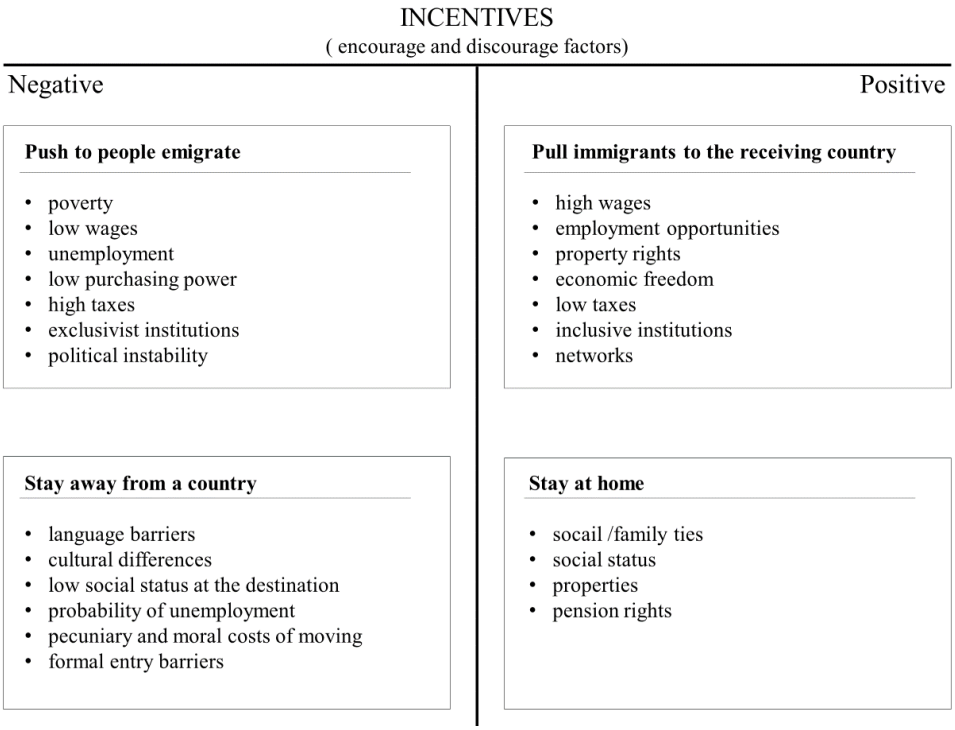


Figure 4: Push & Pull Factors

Source: Lee, E. (1966). A Theoy of Migration. **Demography**, 3(1), 47-57.; Bodvarsson, Ö. B., and Van den Berg, H. (2013). **The Economics of Immigration: Theory and Policy**; and, own elaboration

Additionally, "the intervening obstacles" have a decisive role in final decision to move, such as the distance between origin and destination mentioned frequently or transportation difficulties and expenses. Despite the migration volume and intervening obstacles are negatively related to each other, Lee argues that the effect of intervening obstacles varies from one to another. In this context, personal factors involving individuals' personal properties, awareness, social ties, and cultural environment affect migration decisions depending on the perception of individuals (Lee, 1966). Some personal factors that influence on migration:

- Age and experience
- Educational attainments
- Occupational status
- Employment status
- Gender
- Race
- Marital status
- Family size

Age is one of the most consistent variables when analyzing the migration movements. According to the human capital model, older people are less likely to migrate due to smaller expected lifetime gain (Bauer and Zimmermann, 1999). Mostly, young people have more tendency to migrate rather than older ones. In the fact that the reason for older people is less mobile is that they have higher moving costs because of their settled family ties and accumulation assets. On the other hand, human capital that was improved by the time has a positive effect on the adaptation process in the destination (Goss and Paul, 1986).

Education directly affects migration because of that it increases human capital and the ability of the migrants. So, the implicit risks of migration reduce with an increased ability. A higher level of education means that rise in the probability of finding a job in the destination region. As a response to an increase in probability, people may decide to migrate like it can be seen in Harris and Todaro's contributions. Since the education level increases the probability of finding a job and reduces the risks partly, the high-skilled workers are more likely to move (Bauer and Zimmermann, 1999).

In addition to education level, *occupational status* has also a positive impact on the mobility of individuals. Nevertheless, this statement is not applicable if an occupation requiring location-specific capital or it is limited to a given area, such as farm owners (Becker, 1975). *Employment status* have two different effect on moving decisions. Firstly, unemployed people may tend to move to another region for finding a new job in a depressed economic period. However, people may not be able to bear the costs of migration. Therefore, we can encounter weak or mixed results when using employment status as an explanatory variable of migration decisions (Shields and Shields, 1989).

The impact of *gender* and *race* on migration differ in terms of culture and circumstances. Therefore, they are not consistent explanatory variables and concluding a certain impact may not be a useful approach. Firstly, race yields mixed results depending on different circumstances even if it is correlated with other personal characteristics such as income, education etc. Moreover, some cases such as mass migration, racial extermination (genocide) should be interpreted particularly.

Migration is a very human phenomenon. Hence, we cannot explain it without getting in touch with cultural traits. The roles of *gender* differ from region to region and from society to society. Since women are considered as daughters, mothers, wives and sisters in some cultures, it is expected that they remain attached to their families. On the other hand, a man can be more likely to migrate[*] to long distance in patriarchal societies since a man is considered as a breadwinner in the family (Bodvarsson and Van den Berg, 2013). However, we can define the rising participation rate of women in the phenomenon of migration as the feminization of migration. Women now behave more independently, and their status does not depend on their position in the family or patriarchal authority. (48% of all immigrants are women.) (Glossary, IOM, 2011).

In addition, a study about emigrants from the MENA (Middle East and North African) countries has investigated whether emigrants self-select on cultural traits. As a result of Gallup World Poll data, they found that aged between 15 and 30 single women who intend to emigrate to OECD (Organisation for Economic Co-operation and Development) and high-income countries are significantly less conservative. Besides, their gender-egalitarian views are effective in decision making (Docquier, Tansel, and Turati, 2017).

Distinction between individual and family (or household) is viewed as a sociological approach rather than economic. However, *marital status* and *family size* of a migrant gain importance because they affect the costs of moving directly and indirectly. Family ties include opportunity costs of other family members in addition to the greater transfer payments and additional costs. Losing job seniority and returns, an unemployed spouse can be considered as one of these costs. For instance, households in which the spouse with a white-collar profession are more mobile (Lichter, 1980). In addition to that, Mincer (1978) also approaches to migration decisions as signifying the effects of the family ties in the context of the probability of migration, employment, earnings, and integration of the family members. From this point of view, single individuals are more likely to migrate than married ones. Migration is less probable for families with working wives and this effect is stronger when she is more educated. For two-earner families, women have a greater probability of unemployment rather

[*] As mentioned in (Ravenstein, 1889).

than men. Consequently, if the gain of one family member compensates loses of the other family members, then a family might migrate.

2.1. Initiation of International Movements

The main motivation is understanding the key elements of the economic theory of migration to obtain a comprehensive outline. In an economic perspective, international migration can be interpreted as mobility of a worker who moved in order to attend the labor force in another place in substitution for their own country. In this context, the theories under the four main titles will try to clarify the decision-making process of migration and the main economic motivations behind the initiation of migration.

(1) According to the neoclassical economists, the migration movements originate from the differences in wages and in labor market conditions between countries. Migration somehow reflects geographical differences in terms of the demand and supply of labor markets. The costs of migration also affect movements. The migration process is perceived as an individual decision to maximize utility. (2) The new economic theory interprets other market conditions in addition to the labor market conditions. It also establishes a relationship with families' income and production activities and their migration decisions. Household decisions which have effects on the process are examined in four subtitles. These subtitles are the crop-insurance market, futures market, unemployment insurance, and capital market. (3) Dual labor market theory refers larger perspective rather than micro-individual scale. Structural inflation, motivational problems, economic dualism, demography of labor supply are researched thoroughly in this approach. (4) World system theory treats the migration process as a result of globalization. It signifies economic and ideological links existed in the capitalist world economy (Massey, et al., 1993).

Although these theories have different approaches from each other, their common effort aims to clarify the migration process. Instead of describing them as different methods, they should be internalized as parts of the whole. In practical terms, the different theories present perspectives to empirical analysis and create steps for more extended migration theories.

2.1.1. Neoclassical Economic Analysis

The neoclassical economy specifies differences in the wage and labor market conditions between countries. Briefly, migration occurs due to the geographical differences in the demand and supply of labor. This theory can be debated under microeconomic and macroeconomic approaches. The macroeconomic approach tries to explain labor migration during the economic development period while microeconomic approach emphasizes individual decision-making to maximize utility (Massey, et al., 1993). When the people are asked why they migrate, the answer refers to micro models signifying on the migration decision process. On the other hand, if the question is about the direction of migration movements, it points out for macroeconomic models specifying spatial characteristics that determine the migration flows and aggregate flows of migrants. But it should not be forgotten that even if there is a theoretical distinction between micro and macro models, individuals' behavior affects the aggregate utility function (Etzo, 2008).

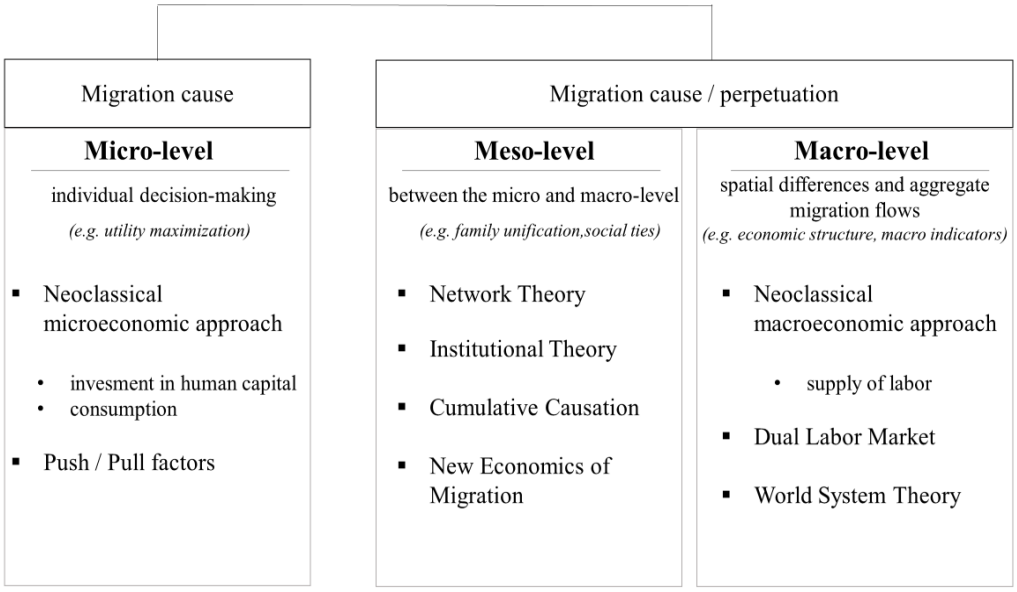


Figure 5: Level-based analysis

Source: Hammar, T., Brochmann, G., Tamas, K., and Faist, T. (1997). International Migration. **Immobility and Development.**

Faist, T. (2000). The Volume and Dynamics of International Migration and Transnational Social Spaces, **A Review of Dominant Theories of International Migration**. and *own elaboration*

2.1.1.1. Macroeconomic Approach

Migration is defined as a consequence of geographical discrepancies with the conditions about the supply and demand of labor in the neoclassical macroeconomic approach. The macroeconomic approach points out the relationship between migration and the macro variables that are characterized with spatial differences, the classical models deal with migration as an equilibrating process or mechanism that lessens differences across country and regions. This convergence may imply a homogeneity degree on wages, per capita income, unemployment or labor force. On the other hand, some concepts are not likely to equalize easily in reality (such as currency, government or institutions) (Etzo, 2008).

Lewis (1954) and Ranis and Fei (1961) have studied contemporary problems under the condition of internal migration movements between rural and urban. They debate migration in the context of economic development with the transfer of labor. According to their approach, migration movements come from the difference of earning and employment in between rural-agricultural and urban-industrial sector. Lewis identifies places where labor is abundant relative to capital and he neglects the marginal productivity of labor (zero or negative) in the overpopulated places. He assumes that labor supply is unlimited, and wages are at the subsistence level. This minimum level is associated with growing agricultural production with capital accumulation. A rise in agricultural production represses subsistence level. When capital accumulation reaches population growth, wages tend to rise above the subsistence level. Thus, in an open economy, labor movements can compensate the decrease in shares of profits in the industrial sector. In the end, wages turn back to subsistence level by labor migration. So, their theories include the geographical distance as a proxy for the costs of the movement as determinants of the international wage differences (Massey, et al., 1993).

Hicks (1963, pp. 76) indicated that wage differentials are the main motivation behind migration movements. Firstly, the movements show up itself from the low-wage country to the high-wage country. In the wake of this motion, wages fall in places where labor supply increases and they rise in the country where labor supply falls. In consequence, labor flows occur from labor-abundant to labor-scarce country, and wage differences reflect the cost of migration arise.

Hereby Shields' labor-flow model shows that labor moves from the low-wage country to the high-wage one (Shields and Shields, 1989):

$$M_{ij} = \beta_{ij}(W_j - W_i) \qquad (3)$$

In this **equation (4),** a relationship between labor movements and wage divergence are explaining.

M_{ij} : # of people who migrate from i to j.

β_{ij} : obstacles to migrate (i.e. distance).

If the indirect and direct costs (represented by β_{ij}) are higher relative to gains, migration levels decline, and wage dispersions emerge between i and j as mentioned above.

Migrants as suppliers of labor

Where migrants come into prominence as suppliers of labor, migration flows are considered as a consequence of disequilibrium in the market. In the simplest version of a labor-flow model, the response to move to the higher wage area continues until the wage rate is equalized across regions (Bodvarsson, Simpson , and Sparber, 2015).

On the other hand, regional differences in wage perpetuate themselves for an indefinite length of time because of the vicious cycles due to regional differences in skill, age, sex, and education. Income levels of same age, education level, sex, skill, and occupation can be used with cost-of-living differentials to achieve a comparative analysis between regions. Thus, this obtained relative real value (income or wage) must be compensatory for the cost of moving. The cost of moving is straight related to geographical proximity. Hence, distance is one of the most explanatory variables in the classical migration models. As the distance increases, the financial and moral costs incurred along the risk and uncertainty increase, too. In here, previous migrants or stock of migrants between regions can have an impact on reducing risk and uncertainties (Shields and Shields, 1989).

Since migration movements are considered as a response to market failures in this model, regional employment differentials can play an important role in the decision of moving. Employment opportunities have a crucial role as much as wage differentials

on attracting migrants. It is expected that labor moves from high to low unemployment areas. In the light of these explanations, the model is represented as:

$$M_{ij} = \beta_1 w_i + \beta_2 w_j + \beta_3 u_i + \beta_4 u_j + \beta_5 D_{ij} \qquad (4)$$

M_{ij} : is the number of people who migrate from *i* to *j*.

w_i : wage level in the origin.

w_j : wage level in the destination.

u_i : unemployment level in the origin.

u_j : unemployment level in the destination.

D_{ij} : distance between origin and destination.

Even if the labor-flow models can meet neoclassical expectations about seeking the highest return, it is difficult to explain the differences between individuals with these models. Also, the models do not provide for time factor in the decision process. They elaborate on equilibrating the labor market (Shields and Shields, 1989).

Jerome (1927) contacts a relation between labor markets and migration flows. Firstly, he argues that immigration is driven by the change in domestic wages and the differences of real earnings. It states that differences in distance between countries and regions are less influential on the migration decisions rather than labor market conditions and a two-way causality is implied.

Kuznets and Rubin (1954) argue that politics and macroeconomic conditions are influential on migration costs by emerging from the contribution of Jerome. In the long term, per capita GDP and migration move along parallel with the business cycle (Chiswick and Miller, 2014).

2.1.1.2. Microeconomic Approach

According to the existing microeconomic theories built on the idea of rationality assumption, the factor of production (labor in this context) is naturally seeking the best place for the maximum utility. Migration arise in the need of maximizing the benefits and conditions that you have in the current. Consequently, the decision to migrate is about compensation of costs against higher benefits.

However, emigrants face some internal and external costs in this decision-making process. These costs are relocation cost, cost of living, cost of adaptation to a new

culture (learning a new language), adaptation to labor market conditions, psychological costs of leaving folks and friends behind. The models based on the cost-benefit calculation of rational individuals expect a positive net return from a migration movement. The size of the difference of expected benefits determines the international migration volume. In other words, people migrate for the expected higher return if labor market opportunities in a country compensate for costs of resettlement or if characteristics of an individual (such as education, experience, language skills) increases the probability of having a job in the host country (Massey, et al., 1993).

Migrants as investors in human capital

Migration is sometimes an investment decision in human capital for an individual who needs to maximize the current benefits and conditions. Human capital model is a more general form of the labor-flow model emphasized by the aggregate market conditions, however, it includes both aggregate and individual migration decisions. Potential migrants decide to move according to net present value. When determining the net present value, expected future value and costs of migration are discounted. Regional aggregate data can be divided into its component parts (such as age, sex, education, skill, work experience etc.) to achieve relative measurement. On the other hand, the regional aggregates (average employment and wage level data) may not completely explain differences between current residents and immigrants such as employment and earning possibilities. Earnings of recent migrants may differ from both previous migrants and nonimmigrants in the destination. Rather than thinking that migration is a one-time investment, it should be analyzed in a dynamic framework. As a supplement to labor-flow models, human capital models can be accepted dynamic since they include the time factor. Besides, migrants may invest on their human capital through migrating. Hence, investment activities in human capital may occur simultaneously. This situation can be interpreted as a difficulty in separating different types of investment (Shields and Shields, 1989).

In addition to the labor movement, capital flow in countries includes human capital flow, and it can take place in the opposite direction of international labor flow. Immigrants are considered heterogeneous in terms of skill and ability; namely, a low-skilled worker migrates to labor-scarce countries because of wage differences, while a high-skilled worker can prefer capital-low countries that provide more earning. This movement arises from the fact that the rates of return to human capital are different

from the wage rates. Thus, international migration is a type of investment for human capital and individuals move their knowledge and skills to a place where they can provide more utility (Massey, et al., 1993).

Human capital investment is the main determinant of migration flow, direction, volume, and composition. People decide to migrate according to their costs and expected returns. The costs are mainly caused by differences between origin and host. These differences can be income opportunities, political conditions, policies that incentive migration. The theory of migration should include these key elements that influence human capital investment, in addition to the direction of migration, the volume of migration and structure of migrants. Though the emphasis on the internal migration, according to Chiswick and Miller (2014) domestic and international migration is similar to each other in an aspect to the final purpose of migrants. In both cases, individuals aim to maximize their benefits on human capital investments.

However, there are several entry barriers resulting in different costs across international boundaries. (Such as visas, work permits, different employment conditions). In this situation, immigrants will breast harder conditions and it leads to significant variation in their economic conditions. Immigrants who find themselves in a foreign environment experience an assimilation process before participating in the workforce. This process includes adapting to the host country's cultural, political and economic processes (learning a foreign language). The level of integration of immigrants affects labor force participation positively (Borjas G. J., 1989). With the rapid adaptation of migrant workforce, the contribution to economic growth is observed. But, in the opposite case, the immigrants are negatively affected by ethnic wage differentials and increasing costs (Borjas G. J., 1994).

Migration is effectively an investment decision, and a migrant is assumed as an investor who decides considering his/her returns to human capital regarded as labor income (Bodvarsson and Van den Berg, 2013). Sjaastad states that migration is a decision with the connection between labor income and investment in human capital. He emphasizes that migration is influenced by different reasons other than income maximization. According to him, migration occurred at the end of a discrepancy in the net present value of earnings between the source and destination country. Migration decision is a human capital investment problem in which the potential migrant evaluate the costs and benefits of migrating. It equates distance as a proxy for migration costs,

also this model includes other uncountable costs like psychological, adaptation costs in addition to countable costs such as expenses of transportation and accommodation (Sjaastad, 1962).

The model is formulated as:

$$\pi \quad = \sum_{t=1}^{T} \frac{W_t^d - W_t^o}{(1+i)^t} - \sum_{t=1}^{T} \frac{CL_t^d - CL_t^o}{(1+i)^t} - C(D, X) \qquad (6)$$

In this **equation (6)**, net present value (PV) π, earnings per period W, cost of living index CL, discount rate i, cost of migration function C, the distance between countries D, and vector of any other determinant of migration cost X. The indicial notation d and o represent destination and origin regions. When we calculate π, we subtract the total costs from the total benefits (migration gains) and adjust the net profit with the discount rate. Here, we may include the costs of *X* that cannot be measured. Adjusting migration benefits occur from earnings gap per period in two countries. The cost structure consists of the cost of living index differences between destination and origin country in addition to the destination and other vectors of costs in T periods. Potential migrants decide to move when π is positive. However, the non-monetary gains (such as regional amenities or public goods) do not take part in the model.

Sjaastad's model has a simplified structure and it is also important to emphasize its critique and shortcomings. Firstly, it is a single period model, not a dynamic one. Whereas the decision of migration is a process changing based on depending on life-cycle (Polachek and Horvath, 2012). Individual's age is a crucial variable in moving decisions and older individuals are less likely to migrate out of depressed regions.

Secondly, push and pull effects are assumed symmetrical in the model. Migrants are more sensitive to push effect which improves income opportunities in their origin countries. For instance, an improvement in a destination country does not always dominate deterioration in an origin country. Presumably, an individual chooses to stay his/her own country while push and pull effects are balanced. Furthermore, the unit of analysis based on perfectly informed individuals can be expanded with family ties and remittances in which migrants send money to other people in the origin (Bodvarsson, Simpson, and Sparber, 2015). Personal and family characteristics can be involved in a migration investment decision in addition to the time factor (Shields and Shields, 1989).

In Sjaastad's model it is assumed that migrants will be employed in the destination. However, migrants may face a long waiting period to be hired in a destination country. Harris and Todaro (1970) added P(t) to the model for explaining uncertainty about job-seeking process. Thus, P(t) represents the probability of finding a job and it can be referred to as the employment rate in the destination at time t. When it is assumed that the individual is a risk-neutral, then an individual decides to migrate iff:

$$\sum_{t=1}^{T} P(t).\ \frac{w_t^d}{(1+i)^t} - \ C(D,X) > \sum_{t=1}^{T} \frac{w_t^o}{(1+i)^t} \qquad (7)$$

Under the scope of Harris - Todaro expected utility approach, a higher wage in a country with high unemployment do not provide enough motive to migrate for an individual. The left part of the **equation (7)** represents PV of the expected net gain in the destination and the right part is PV of income in the origin. If and only if the expected net gain in the destination is higher than earnings in the origin, an individual can migrate (Etzo, 2008).

The model of Harris and Todaro does not assume full employment. Their work considers unemployment while they examine the rural-urban migration. The present value of the future income of the migrant is included in the model by using the economic variables. Furthermore, the education level of the potential migrants and their knowledge of costs have added to the model as a variable to explain the probability of finding a job in the host country. In a country where the market economy is not well-developed, marginal substitution of labor between both sectors is equalized through shadow prices[†]. The equilibrium is the point where urban wages are equal to the marginal productivity of the rural labor. It is obvious that migration movements will cease in this circumstance (Harris and Todaro, 1970).

The migration is also identified with the skills of migrants from an origin country. Borjas' approach is closely related to Sjaastad's migration model and the types of human capital investment models of international migration. It is assumed that differences in average returns of human capital between origin and destination are related to the propensity to migrate. However, Borjas (1987; 1991) adds some

[†] It is the state's pricing method in public (or semi-public) goods and services. In countries where market economy is not sufficiently developed, prices are obtained by equalizing to marginal cost.

innovations about the characteristics of immigrants versus nonimmigrants. The approach developed by Borjas (1987) states that the distribution of human capital among countries has an impact on the movement. The general framework of the Borjas' model is that individuals are not only characterized by distance, population size, and demographic features. But also, they are diversified by their personal factors, abilities, skill, and talent. Thus, those factors have an impact on determining the migration flows.

According to this approach, high- skilled workers are more likely to migrate if the difference between the expected earnings exceeds the gain of less-skilled. In this circumstance, the relative gains depend on *returns to skill*. For instance, in a sending country with an inefficient earning distribution, high-skilled workers are more likely to migrate. Borjas supports this argument with empirically. In this model, few skilled workers prefer to migrate to Germany and Sweden where the country has relatively insufficient income distribution while high-skilled workers migrate to the US with an expected of greater relative returns to skill (Lalonde and Topel, 1997, pp. 805).

As the welfare of the country improves, individuals and households become able to overcome the costs of migration, so, migration levels rise. Although the neoclassical approach examines the determinants of migration sensitively, it exhibits a static approach and ignores the market failures. Also, it accepts that individuals are homogenous and have full-knowledge (Kurekova, 2011).

As a result, the high skill level of a migrant increases the probability of finding a job in the destination according to the human capital approach (Bauer and Zimmermann, 1999). In addition to Sjaastad's model which considers non-monetary gains in human capital approach, Becker (1975) also points out that the net present value can be maximized with respect to education, training, and migration. It is clear that migration is a way of investment in human capital.

The migrant as a consumer

When the migrant is considered as a consumer, some factors have a pulling effect on his/her decision. Countries that have more inclusive institutions, property rights, political stability, dependable legal system, competitive and open markets can be given as an example of these pulling effects.

As well as income opportunities, each location offers the individuals different consumption patterns, regional amenities, nonmarket goods and services. The better regional amenities attract migrants naturally. To maximize utility as a consumer, private goods, public goods, and non-produced regional amenities can take part in the utility function. (Shields and Shields, 1989).

The concept of social capital, introduced by the sociologist James S. Coleman in the 1990s and later popularized by Robert Putnam, reveals that the characteristics of the social structure and the relationships between individuals in society increase the economic performance. Putnam has made a sound theoretical contribution by measuring the effects of social norms in the Emilia - Romagna region in Italy, and he founds that there is a correlation between actors' relations, solidarity organizations and the region's enrichment. In recent years, the conceptualization is frequently used for modeling the relationship between the economic performance of the companies and the social pattern in their places. (Putnam, 1993).

Hotchkiss and Rupasingha (2018) determined how individual social capital affects migration decision with nonpublic data from the Social Capital Community Benchmark Survey and Current Population Survey. They found that individuals are more likely to have moved to a community with higher social capital levels. Hence, the higher levels of social capital act as positive pull-factor amenities. On the other hand, the importance of amenities are different among regions and countries.

Surely, amenities vary from country to country. Migration occurs between amenity-rich and amenity-poor regions. The concept of migration is examined by taking into consideration of demand for amenities like free and democratic society, a fair judicial system, cultural acceptance, a permissive environment which contains the freedom of expression. As a result, new sets of interregional wage, rent and price differentials emerge to compensate differentials. The demand-base equilibrium models assume that market is clear and earnings differences across regions can be permanent (Bodvarsson and Van den Berg, 2013). In addition to the demand for amenities, another approach extends it to public goods such as educational system, quality health care, and transportation etc. This approach links with Tiebout hypothesis that supports people move from one region to another due to differences in the quality of public goods (Tiebout, 1956).

On the contrary of traditional labor-flow models that depend on disequilibrium perspective before 1980s, Greenwood debates the lack of human capital approach and points out equilibrium models. These models assume that migration movements evolve with respect to migrants' consumption decisions. They adjust their consumption to continuous changes in incomes, prices, the supply of goods and services, their utility functions in addition to other amenities such as better climate conditions, cleaner air (Greenwood, 1997).

Polachek and Horvath (2012) argued migration as a life cycle decision considering consumption demand models of migration with domestic characteristics. The model tries to indicate life-cycle preferences of individuals and locational characteristics. These characteristics can change according to the life cycle of migrants. For instance, younger people may decide to migrate due to career opportunities and high income, while older people may prefer to migrate in the view of healthcare or a good climate. Since there are multiple stages in a person's life, migration is the multiple processes that include life-cycle decision rather than a one-time investment decision.

The demand-driven equilibrium models are not used largely to explain international migration because of the higher costs of international migration. But some supportive factors on trade barriers, transportation, and mobility costs, integration, ratification of immigration agreements between countries can imply more applicable equilibrium models for international migration.

The micro-level models, which depend on utility maximization through the maximizing of income, ignore other reasons and effects such as family reunification, the relative approach of purchasing power effect, seeking for more attractive and prosperous culture, amenities, public goods, and non-tradable goods (Bodvarsson and Van den Berg, 2013).

2.1.2. New Economics of Migration

The most distinguishing feature of the new approach is that decisions are taken by the larger groups of the people who have social ties to each other rather than the decisions taken by the immigrant alone. These groups (households, families) try to minimize risks in labor market as well as maximize income (Stark and Bloom, 1985).

Based on the life-cycle saving hypothesis of Modigliani and Brumberg (1954), human capital investment, insurance regulations and intergenerational transfers (migrant

remittances) are considered within the framework of households' demand. In addition to the aim of maximizing income, they lean to migration for portfolio diversification with an emphasis on risk-aversive behavior (Rosenzweig and Stark, 1997).

Moreover, households send workers abroad to reduce relative poverty. Another contribution of the new migration economics is that it has a socioeconomic relative effect in addition to the fixed value effect of income. Individuals don't migrate only due to obtaining absolute wealth and welfare, but also they migrate to improve their position in a reference community. So, the relative deprivation, which is the difference between median earnings in the origin, brings up migration decision. An increase in the income of wealthy households causes relative poverty while the poor ones do not change. This concept, which also arises from market failures, encourages the sending of workers to abroad in order to increase the relative income (Stark and Bloom, 1985). The model implies that the movement can pass from a high-income country to a low-income country if the benefit of reducing relative poverty is high enough.

The core feature of this model is that the household tries to hedge risk through diversification. According to the new economic theory of migration, family members decide to migrate response to a lack of risk-hedging and various market failures in such as crop insurance markets, future markets, unemployment insurance, and capital markets. In developed countries, household incomes are secured by private insurance or government programs; however, in emerging or low-income countries, these systems are not sufficiently developed or they are difficult to access. Such conditions create strong pressure on international migration decision. We can evaluate these failures mentioned above in four parts (Massey, et al., 1993).

- In crop insurance market cases where the product insurance does not exist, a person who will remit is encouraged to migrate to guarantee the household income.
- In developed countries, there are futures markets in which investors bear the risk of being under the guaranteed price of the product. But in countries where access to this system is not available, immigration offers an opportunity, especially to workers in the agricultural sector, against price fluctuations.
- When economic conditions deteriorate and one of the family members is unable to work by losing job or disability, if a country does not protect

households with reformative policies such as insurance or disability programs, family members are encouraged to migrate overseas to provide income.

- Households who seeking to increase the efficiency of their assets by investing need to savings or borrowing channels. In these conditions, there is a need for a productive banking system. In many developing countries, these channels are underdeveloped and do not provide enough confidence. Besides, to receive credit, collateral is presented as a prerequisite. For the poverty-stricken households, money sent by a migrant family member is an important investment source.

Depending on the exchange rate between the source and destination, the remittances also have a positive impact on migration decision. If the exchange rate appreciates in the currency of the destination country, it will soar the benefit of the migrant (Chiswick and Miller, 2014). If the incomes of a family in the origin country increase with remittances coming from destination countries, it also rises relative incomes in the origin and finally more people might decide to migrate, the volume of migration rises (Massey, et al., 1993).

2.1.3. Dual Labor Market Theory

The dual labor market theory considers social context and specific attributes of the available jobs for migrants, instead of income maximization. It is mentioned a dual sector in the labor markets of post-industrial societies which come out from large-scale, capital-intensive and rationalized production. The primary sector is defined as a sector with regular, secured and high wage while jobs in the secondary sector represent irregular, insecure with low earnings. In this way, the key factor of migration movements is the demand for labor and labor recruitment (Piore, 1979,229).

According to this approach, international migration is due to the internal and permanent labor needs of the developed nations. In other words, the pulling effect in the host countries is more influential than the pushing effects of the source country. This systematic and chronic need for foreign workers arises from the four basic qualities of industrial economies (Massey, et al., 1993).

(1) *Structural inflation*: A wage increase for low-wage workers for employers would include a wage increase to be made to all employees

proportionally. This is the result of the wage hierarchy arises from social expectations. Employers tend to employ migrant workers who will accept low wages during periods of a labor shortage.

(2) *Motivational problems:* Professional hierarchies are critical for workers' motivation and work for status. Immigrants, at least in the beginning, do not feel this need and are preferred by employers for this reason.

(3) *Economic dualism*: Workers in the capital-intensive primary sector display a tendency to professionalize and unionize. When the economy getting worse, there are costs such as severance pay, and unemployment benefits that employers must pay to dismiss workers in the primary sector. However, workers in the labor-intensive secondary sector are a variable factor in production and can be easily removed from the workforce. The demand in the secondary sector is generally supplied by immigrants (for ex: non-qualified workers).

(4) *The demography of labor supply*: The reduced participation of women and young people in the secondary sector, because of rising career goals and status expectation by expanding formal education, increase demand for immigrants in the primary sector.

2.1.4. World Systems Theory

According to the theory based on sociological approach developed by the contributions of Wallerstein (1974), the origin of international migration is explained by the dynamics of the global world. As a matter of course, capital accumulation forces capitalist countries to search for new low-cost labor in addition to new raw materials. Thus, the least economically developed countries (LDCs) and developing countries create a mobile population that tends to migrate abroad. In this context, migration waves are centered by following global market economies in Western Europe, North America, Oceania, and Japan and these movements are spreading inevitably due to the expanding circle of capitalism. In this process of spreading, as well as the financial and ideological links established with the central economies, the transport and communication links promote the movement of people towards global cities by reducing the cost of movement. In short, international migration follows the economic,

political and ideological organization of an expanding global market rather than wage and employment opportunities.

Export in manufacturing and agriculture is an important factor of foreign direct investment flow from developed countries to developing or undeveloped countries. It can corrupt traditional work structures and this situation creates an incentive to migrate. Hence, capital and labor mobility are interconnected to each other unequivocally. This theory has been criticized for it cannot be tested empirically (Kurekova, 2011). But the indicators such as cultural proximity, language, trade relations, communication and transportation sufficiency, and the frequency of movements can be empirically tested (Massey, et al., 1993).

2.2. Perpetuation of International Movements

International movements emerge due to some individual and spatial characteristics that include variables which determine the intensity and the directions of the migration flows as aforementioned. However, these movements might have been spread because of different conditions independent from the motivations of the decision. The new conditions that emerged after the beginning of migration movements are put forth as independent variables of migration. The spread of immigrant networks, the support of institutions for the development of international mobility, and the social reflection of the changes in the working life of the host country are cumulatively affecting this process. Following the decision-making process, this part will present an overview of the spread of migration and existing approaches about the perpetuation of movements with the reception of migrants.

The researchers address the spread of movements under the three main approaches. These three approaches are about the reception of migrants in a host country and they try to figure out the sustainability of movements. The first one is the network theory that points out declining costs and risks. The other is the institutional theory that includes NGOs (Non-Governmental Organizations) and CSOs (Civil Society Organizations). The last one is the cumulative causality theory that tries to explain the economic and social internal dynamics of the host country (Massey, et al., 1993).

2.2.1. Network Theory

Network approach adds a dynamic dimension to the process of migration (Massey D. S., 1990; Massey, et al., 1993; Bauer and Zimmermann, 1999). Migrant networks represent ties among current migrants, former migrants, and host community. International movements increase if the ties shared with the host community are strengthened by social relations (such as friendship, relatives etc.). As Arango (2000) defined, the migration network represents a set of ties between current immigrants and their relatives, friends, connections. The newcomers can provide some support from those networks on sharing information, financial support, accommodation, and employment opportunities and so on.

Migration networks and the arising diaspora are expressed as a form of social capital. Hence, they have an influence which determines the volume of movements and destination of migration. *"Migration is a process that both depends on and creates social networks."* (Vertovec, 2002).

The main motivation behind the network theory is the net expected value of migration accompanied by lower risk and the declining cost of movement. First-comer immigrants confront different risky situations and they undertake more costs. However, the migrants who have a network in a host country can accommodate these new situations more easily. This provides them a chance for adaptation to host country's labor market in addition to the social life. Migration for the first outbound wave is a much costlier process and these costs are reduced due to the familiarity established through social networks over time. In the following process, friends and relatives reduce the cost of the next migration and expand the migration volume. Migrant networks also make international migration very attractive in terms of risk diversification. If immigration networks are well developed, migration becomes a reliable source of income. Immigrants who benefit from the hidden obligation of relatives and friends also greatly increase the likelihood of adapting to the labor market. Therefore, each new immigrant reduces the cost of subsequent migration, and when the number of network connections (social ties with the migrant stock in the host country) reaches a critical threshold, the movements become sustainable (Massey, et al., 1993). Since the lowered costs and risks by networks, the movement process can become a self-perpetuating. On the other hand, this process diminishes and stabilizes due to the decreasing wages in the destination in time (Bauer and Zimmermann, 1999).

2.2.2. Institutional Theory

Institutions also play an integrating role on the adaptation of migrants to the economy and social life in the host country. Those institutions which have effort about the regulation of migration process target to eliminate encountering obstacles about mismatch among a large amount of migrant and limited employment opportunities immigrant visas in the emerging countries. As well as profit-seeking organizations, many NGOs and CSOs shoulder the load for counseling, social services, legal advice, and awareness to contribute to creating an effective migration policy framework for both migrants and receiving countries (Massey, et al., 1993).

The regional consultative process carried out in non-binding forums where government, NGOs, and international organizations come together to discuss immigration issues (I.O.M., 2011) can serve as an example to the function of institutions. According to a report which was published by UN in 2016 with 67 countries and 227 organizations, US is on the top with 58 organizations on the list of CSOs to attend the high-level meeting of the General Assembly to address large movements of migrants. Other countries respectively; The United Kingdom of Great Britain and Northern Ireland have 16, and Nigeria has 10 organizations (UN Refugees and Migrants, 2016).

2.2.3. Cumulative Causation

Migration process depends not only on fixed income growth but also on income increases in reference groups. Families with a low level of income distribution experience a relative deprivation. The increase in relative income growth through migration increases income inequality and promotes migration (Stark, Taylor, and Yitzhaki, 1986). An increase in the income of wealthy households causes relative poverty. This concept, encourages the sending of workers abroad in order to increase the relative income (Stark and Taylor, 1989).

Migration is a selective process based on increased human capital and productivity, but the reduction of risks and costs due to network formation reduces this selectivity over time. The persistence of migration leads to the reduction of human capital and productivity in migratory regions, while it triggers capital accumulation and growth in the host country (Greenwood, 1997).

Given this imbalanced human capital flow and the imbalances in income distribution, it creates a labor market structure in which the stronger demand is for high and low skills, but the weaker demand for the middle-skill. The less-educated locals are not willing to earn low wages and work in a lower occupational status. This creates a demand for immigrants. The high-educated locals and skilled immigrants dominate the high wage jobs at the top of the occupational distributions. Local workers with intermediate education remain stuck in increasingly to weak middle-class jobs. The cumulative causality requires panel data set. This theory involves several variables in combining feedback between individual behavior and community structure. These hard-to-measure variables (culture, values, and normative practices) need to be estimated longitudinally for causality (Massey, et al., 1993).

2.2.4. Migration Systems Theory

The migration systems theory examines migration in terms of political and economic relations rather than as a physical phenomenon. Therefore, geographical proximity (distance) is not considered as an explanatory variable. Instead, the central regions of one or several groups of countries are mentioned. In particular, the migratory regions are included in this multi-system and they are involved in a migration process by adopting different migration systems as a result of political instability, economic uncertainty, and social change (Massey, et al., 1993).

According to this theory, movements between the origin and destination country contribute to change the economic, social, cultural and institutional structure. Individual-based micro models and macro approaches including spatial context and aggregate variables have been associated with the process to clarify the mutual link between migration and development. For instance, remittances and network have an impact on both economic and social change (De Haas, 2010).

2.3. Brain Drain

This part will provide an overview of the brain drain literature – which is a branch of the migration literature. The issue of brain drain is not very different in terms of the historical progress of international movements. These movements have accelerated after the Second World War, especially after the mid-1960s, and this term have been debated in the literature by Adams (1968), Bhagwati (1976), Johnson (1965;

1967;1968), and Patinkin (1968). After this period, a trend was experienced towards advanced countries from developing countries. As a result of these movements after the 1960s, it was seen that the largest brain drain was received by the US, Canada and Australia, primary countries which have immigration policies geared towards attracting human capital (Cervantes and Dominique, 2002).

Brain drain can be defined as international migration of well-educated and skilled individuals in the origin country due to some reasons (such as lack of employment or better opportunities etc.) (I.O.M., 2011). It has been found that well-educated individuals usually tend to migrate rather than individuals with little or no education. Individuals with tertiary education are more likely to participate migration activities since the education level increases the probability of finding a job and reduces the risks partly. Scientists, engineers, physicians, health professionals, and other highly trained professionals create the notion of brain drain as migrating from a developing country to the industrialized country to have better conditions (Carrington and Detragiache, 1998)

The literature on the brain drain is broadly shaped around two main approaches: "Internationalist" and "Nationalist" paradigms. Basically, this distinction arises from the diverse perspectives about the effects of skilled migration. Some approaches internalize a beneficial and more individualistic view about skilled migration in the internationalist context while the other opinions state that these movements create unfavorable consequences for developing source countries.

2.3.1. Internationalist Paradigm

The internationalist paradigm or in other words the cosmopolitan liberal position acts with an individual-based and a positive view while evaluating the effects of skilled migration. The main motivation behind this view is that international mobility is beneficial for all economies including source countries. Because skilled migration provides a positive effect on the output by contributing to increasing productivity. International mobility can be seen such as an equilibrating mechanism to allocate resources across borders efficiently due to the relocation of them to regions that make better use of their skills increases their productivity, and this has a positive effect on world output (Johnson, 1968). According to the cosmopolitan liberals, migration of skilled labor is affected by the factors of demand and supply in the labor market. This

view bases on neoclassical approaches expressing equilibrating mechanism which puts forth factors of production flow from relatively abundant regions to relatively scarce regions.

Harry Johnson, one of the representatives of the internationalist view, states that the mobility of individuals is a necessary process for allocation of resources efficiently. In the light of an idea of individual welfare, this process based on freedom of movement to improve their welfare and individual's gain provided by migration does not include any social cost to the world including the source country. He considers that the movements aiming the private gains are independent of national ties so that the talents among countries can be allocated efficiently. According to Johnson, brain drain is a term that first emerged in The United Kingdom (UK) - especially from the National Health Service and the migration of professional people in universities to North America. International movement and specialization increase efficiency in production using human capital. The moving of international skills allowing creativity to increase has a positive effect on living standards all around the world. (Johnson, 1965; 1967; 1968).

Grubel and Scott (1966), other advocates of the cosmopolitan approach, assert that negative impact of skilled migration is compensated by feedbacks and remittances of skilled labor. They support that mobile human capital can provide higher world income by increasing marginal productivity.

2.3.2. Nationalist Paradigm

Contrary to the ideas of cosmopolitan liberals, the nationalist paradigm adopts a more conservative approach. The term of "brain drain" which involves movement from one country to another of individuals with a high degree of education is a selective process, that is, it consists of a relatively large percentage of people with sufficient intellectual capacity to make the adjustment to a new way of life. The migration of individuals with a high degree of education (skilled workers) brings about worse situations for the LDCs (Least developed countries) with low levels of human capital. Since it's difficult to compensate skilled human capital, the loss of highly skilled individuals through brain drain is detrimental especially to LDCs (Patinkin, 1968).

According to Patinkin cited in Ellerman (2004), countries' own human capital and resources must be used to prevent economic and political instability and reach well-

being. In other words, the brain drain expresses the one-way movements of highly skilled labor from developing to developed countries, hence this labor flows are only beneficial to rich or industrialized countries (Adams, 1968).

The migration of skilled human capital to developed countries is a cost not only due to deteriorating output and productivity but also in terms of additional financial costs through education expenses. Losing human capital also means a waste of resources. Countries also suffer from non-return investments in education as well as the loss of valuable human resources. Those losing technical and intellectual human capital do not benefit from the positive economic return created by the contributions of skilled labor (Commander, Kangasnieni, and Winters, 2004).

Besides, the world system theory **(section 2.1.4)** supports that the migration of skilled and highly educated human capital is harmful to the development of LDC because of the unequal trade between poor and rich country. Since the investment of skilled labors is afforded by the poorer origin country, the brain drain is interpreted such as a subsidy for developed and rich countries (Massey, et al., 1993).

In summary, the nationalist paradigm states that brain drain is devastating for the developing countries and LCDs while the internationalist paradigm sees this process as the efficient reallocation of human resources.

3. BRAIN DRAIN IN TURKEY

To reach a better understanding the phenomenon of the brain drain Turkey, the tendencies in the world about the movements of high-educated people are descriptively analyzed in detail.

Firstly, the key statistics about the demographic structures of migration in the world are presented. According to IOM, *migration* is defined as crossing an international boundary or displacement within a state. Although there is no internationally recognized definition of *migrant* in the literature, the term of migration includes an individual who migrates voluntarily to have better financial and social conditions. The whole immigrants who reside in a state in a given time are defined as *migrant stock.* The total number of migrants arriving in the country and the total number of exits or departures of migrants from a country gives the *total volume of migration*. The difference between total inbounds and out bounds is expressed as *net migration* (Glossary, IOM, 2011). The individuals who attend the labor market in a foreign country are called as a *migrant worker*.

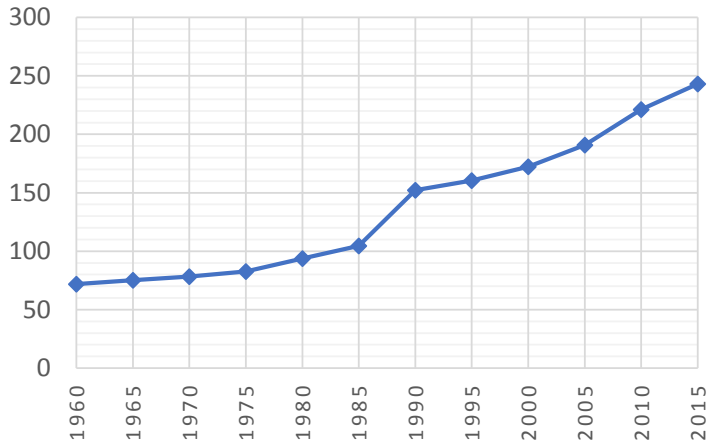


Figure 6: Migrant stock (million people)

Source: Worldbank (2019), World Development Indicators (Last Updated: 04/24/2019)

While the migrant stock in the world was 71 million in 1960, this rate rose up to about 245 million at the end of 2015. By the end of 2017, the international migrant stock reached up to almost 258 million which equates to 3.3 per cent of the global population. (UN, 2017; The UN Migration Agency, 2018). It can be seen that these movements accelerated after the 1960s due to a variety of reasons (**Figure 6**). Especially in this period, the increased industrial production has created a labor demand in labor-scarce countries. As a result, the developed countries have satisfied their needs for the labor from the developing ones and LDCs by receiving immigrants (Johnston, 1991).

Table 3. 1: International migrant stock, percentage and median age by regions

	Number		percentage		median age (years)	
REGION	**2000**	**2017**	**2000**	**2017**	**2000**	**2017**
Africa	14.800.000	24.650.000	1.8	2.0	27.6	30.9
Asia	49.198.000	79.587.000	1.3	1.8	36.5	35.1
Europe	56.314.000	77.895.000	7.7	10.5	41.1	42.6
L.A. and Caribbean	6.579.000	9.508.000	1.3	1.5	38.8	35.8
N. America	40.352.000	57.664.000	12.9	16.0	38.4	44.7
Oceania	5.360.000	8.411.000	17.2	20.7	44.6	43.9
WORLD	172.603.000	257.715.000	2.8	3.4	38.0	39.2

Source: UN. (2017). **Population Division**. Trends in International Migrant Stock: The 2017 Revision. United Nations, Department of Economic and Social Affairs.

Table 3.1 above gives information about international migrant stock, the density of immigrants by looking at the percentage of immigrants in that region and median age. A large amount of migrant stock in the world has accumulated in Asia with almost 80 million. Between 2000 and 2017, the highest increase in international migrant stock is observed in Asia. Then, Europe and North America follow it, in turn, with 79.5 million and 57.6 million. In spite of the least migrant stock, Oceania has the most density-high immigrant population, and 20 percent of its population has consisted of foreign-born people. The median age of immigrants has slightly changed in years. In 2017, the median age was equal to 39 and 14 percent of the international migrant was below 20 years old. However, the total immigrants have highly increased from 2000 to 2017. During this period, the international migrant stock grew by an average of 2.3 percent, and it was equal to more than 3 percent of the total population of the world in 2017.

Table 3.2 below illustrates migrant stock, percentage and median age of immigrants in the countries. In 2017, The United States of America (USA) is the leading country with over 50 million migrant stock. At the same year, Russia and Germany are about 12 million. The United Arab Emirates (UAB) has the greatest density of migrant with 88.4 percent. It means that almost 9 in 10 people are immigrants in UAB.

Table 3. 2: International migrant stock, percentage and median age by major countries

	Number (thousand)		percentage		Median age (years)	
	2000	**2017**	**2000**	**2017**	**2000**	**2017**
USA	34.814	49.777	12.3	15.3	37.5	44.7
Russian Federation	11.900	11.652	8.1	8.1	40.4	44.5
Germany	8.993	12.165	11.0	14.8	39.8	43.4
India	6.411	5.189	0.6	0.4	50.7	45.6
France	6.279	7.903	10.5	12.2	46.3	48.2
Ukraine	5.527	4.964	11.3	11.2	46.9	49.1
Canada	5.512	7.861	17.9	21.5	45.5	44.6
Saudi Arabia	5.263	12.185	25.3	37.0	31.8	32.9
United Kingdom	4.730	8.842	8.0	13.4	40.1	37.4
Australia	4.386	7.036	23.0	28.8	45.8	44.4
Pakistan	4.182	3.398	3.0	1.7	42.0	43.0
Kazakhstan	2.871	3.635	19.1	20.0	45.7	38.9
Iran	2.804	2.699	4.2	3.3	29.1	30.2
China, Hong Kong SAR	2.669	2.883	40.1	39.1	47.9	46.1
United Arab Emirates	2.447	8.313	77.6	88.4	30.7	33.8
Italy	2.122	5.907	3.7	10.0	34.6	39.2
Jordan	1.928	3.234	37.8	33.3	21.6	21.0
Israel	1.851	1.962	30.8	23.6	51.9	47.8
Japan	1.687	2.321	1.3	1.8	33.1	34.3
Spain	1.657	5.947	4.1	12.8	33.4	39.7
Argentina	1.540	2.165	4.2	4.9	49.9	42.9
Turkey	1.281	4.882	2.0	6.0	33.7	32.6
Thailand	1.258	3.589	2.0	5.2	26.1	33.5
Kuwait	1.128	3.123	55.0	75.5	28.4	34.6
Greece	1.112	1.220	10.0	10.9	32.4	42.4
South Africa	1.002	4.037	2.2	7.1	36.4	33.7

Source: UN. (2017). **Population Division.** Trends in International Migrant Stock: The 2017 Revision. United Nations, Department of Economic and Social Affairs.

In Turkey, the migrant stock has increased over 3 million in 17 years, it was 4.9 million in 2017, and the density of migrant has risen from 2% to 6%. The median age of immigrants in Turkey decreased between the years and it is below the average of the world. Additionally, the net migration in the last 5 years (immigrants minus emigrants) is 1.5 million. It means that more than 3.4 million of people have been left Turkey since 2012 according to UN (2017).

Some countries have immigrants with a high level of education more than other countries. **Figure 7** and **Table 3.3** shows both in absolute terms and as a percentage of the population in highly skilled category that remains in the destination country. The distribution of high educated international immigrants around the world has been shown in **Figure 7**. According to the figure and the dataset between 1980 and 2010 (Brücher, Capuano, and Marfouk, 2013), The US is the primary country with more than 8 million high educated immigrants, and this number equals to almost 40 percent of the immigrants in the country. In addition, Canada has the largest density of high skilled immigrants. More than half of immigrants in Canada have a tertiary education level. Australia is the third preferred country for migrants who have a high education level. The UK, Germany, and France are other major countries that have higher educated immigrants.

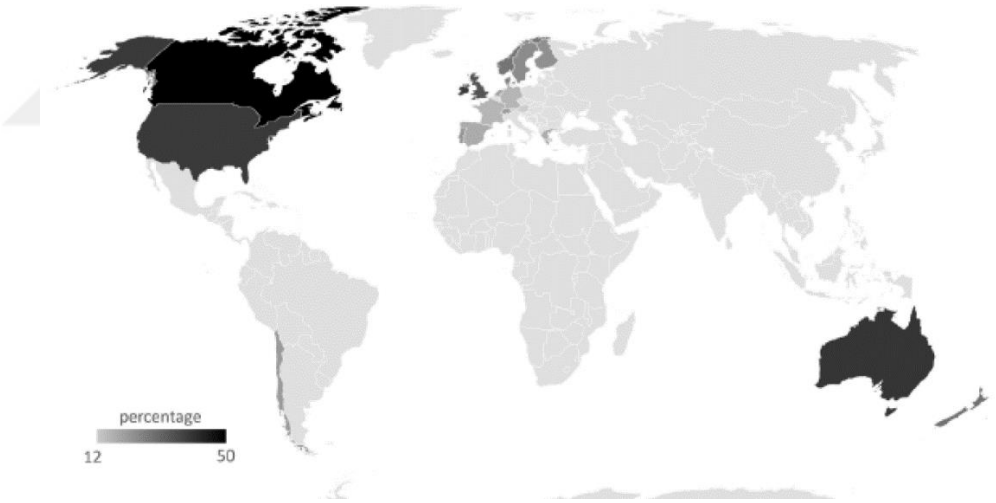


Figure 7: % of highly educated international immigrant, by destination in 2000

Source: Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: **insights from a panel-dataset 1980-2010**, mimeo

The number of highly educated immigrants in 2010 increase more than 5 million in the US, which is 42 percent of immigrants in the country. In Canada, the number of migrants reaches 4.5 million, which is equal to 68 percent of immigrants. The remarkable change in the number of skilled migrants between 2000 and 2010 was observed in Germany. The number of highly educated immigrants increase almost four-fold and the density of high skilled immigrants rise from 16% to 61% (**Table 3.3**).

Table 3. 3: Number and percentage of highly educated immigrants

	2000		2010	
United States	8.219.935	39.62	13.748.573	42.48
Canada	2.451.434	50.84	4.518.489	68.16
Australia	1.640.780	40.26	2.305.619	49.70
UK	1.243.027	34.83	2.486.624	48.89
Germany	795.226	16.26	3.147.546	61.13
France	608.385	16.09	1.065.286	22.62
Spain	302.463	18.81	1.272.114	26.05
Switzerland	265.013	21.97	291.199	21.94
Netherlands	236.014	20.13	376.220	25.68
Sweden	195.837	24.02	377.089	33.20
New Zealand	180.381	29.30	293.232	35.56
Chile	179.411	21.12	378.213	24.62
Greece	137.140	18.69	323.619	28.51
Portugal	107.831	22.85	176.328	24.14
Austria	103.239	12.65	169.331	16.70
Ireland	102.725	39.78	258.469	49.75
Denmark	64.767	26.07	90.621	24.82
Norway	63.747	28.66	158.351	36.68
Luxembourg	22.917	19.83	28.420	22.65
Finland	21.466	23.79	47.753	25.36

Source: Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and I nternational migration: **insights from a panel-dataset 1980-2010**, mimeo

In addition, total migrant stock from Turkey in 2010 is more than 2 million, the percentage of highly educated migrants from Turkey is 12 (Brücher, Capuano, and Marfouk, 2013). **Figure 8** shows the movement of highly educated human capital from Turkey between 1980 and 2010. Highly educated migrants flow from Turkey is more than 250 thousand in 2010, while it is about 70 thousand in 1980. The trend of movements accelerates after 2000. The rate of highly educated human capital flows from Turkey increases by 5 percent between 2000 and 2010.

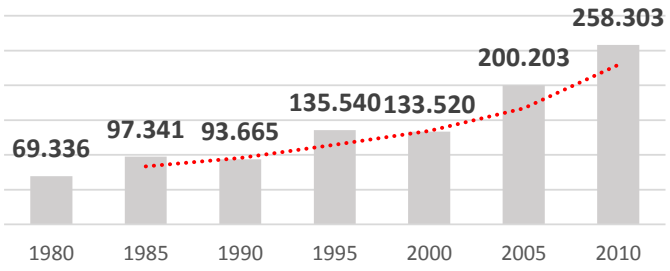


Figure 8: Highly educated human capital flight from Turkey

Source: Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: **insights from a panel-dataset 1980-2010**, mimeo

The total immigration stock from Turkey is 2 million in 2010. As a matter of fact, the number of high-educated migrants is more than 250 thousand, which is 12% of the total migrant stock from Turkey. **Figure 9** represents the distribution of highly educated human capital from Turkey by destination. Percentage of highly educated Turkish citizens in the USA with 57% of the total migrant stock in 2000. This rate increases by 65% in 2010 and is followed by Canada with 60%. In brief, North America attracts immigrants high skilled, and the total Turkish migrant stock in the world have increased by 5 percent in 10 years.

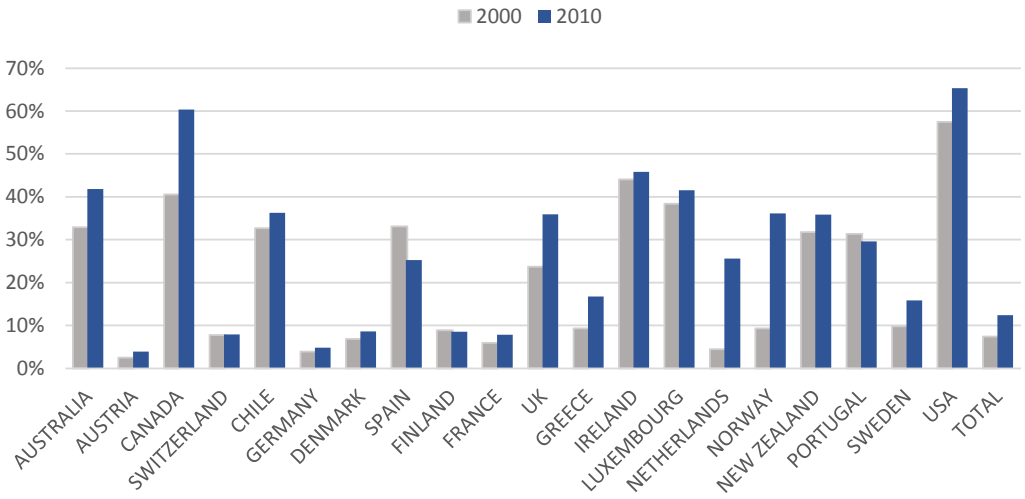


Figure 9: % of highly educated migrant stock from Turkey, by destination

Source: Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: **insights from a panel-dataset 1980-2010**, mimeo

Although the highest increase in high-educated migrant stock is experienced in Germany between 2000 and 2010 **(Figure 10)**, the percentage of highly educated Turkish citizens in Germany changes slightly. Additionally, the biggest increase in highly educated migrant stock from Turkey has observed in the Netherlands, Canada, and Norway over for ten years.

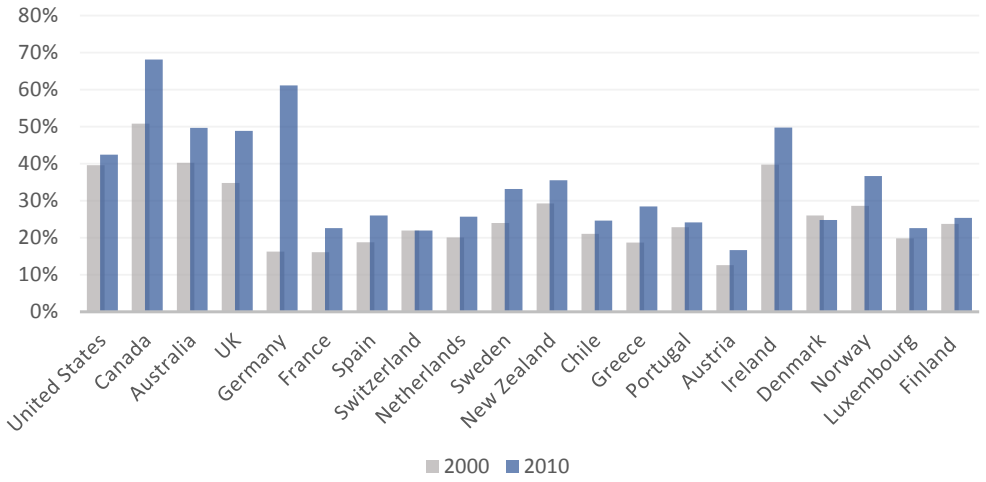


Figure 10: Percentage change of high-educated migrant stock by destination

Source: Brücker H., Capuano, S. and Marfouk, A. (2013). Education, gender and international migration: **insights from a panel-dataset 1980-2010**, mimeo.

3.1. Tertiary Education in Turkey

According to the latest data, the enrollment rate in tertiary education by 19-year old is 52% in the same age group. The rate of people with tertiary education is 60% in total. 58 percent of men and 62 percent of women in Turkey have tertiary education level. The distribution of gender in the tertiary education is almost half by half between men and women in Bachelor or equivalent level, while men get ahead with 53.5% in Master degree and with 53.7% in doctoral or equivalent level. Tertiary student inflow was only 1.3% of students enrolled in 2016. The average rate of students enrolled in Europe is 8.7% in the same year (OECD, 2018).

Figure 11 displays the change in percentage of tertiary graduates by fields. The field of business has been the most preferred field for 10 years, and the higher increase has occurred in this field. Social sciences, natural sciences, and engineering have decreased for 10 years. The enrollment of social sciences has been reduced by almost half in a decade. On the other hand, the rate of tertiary graduates in health and arts has increased.

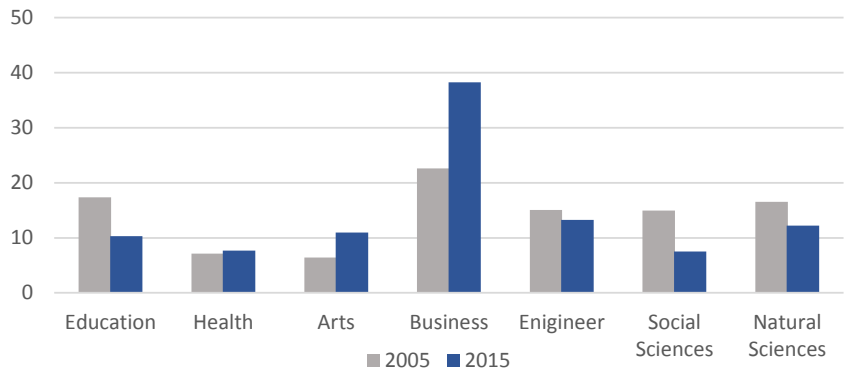
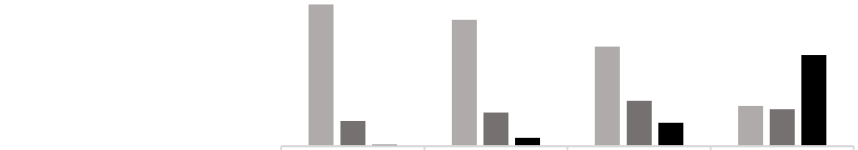


Figure 11: Tertiary graduates in Turkey by field, % change

Source: OECD (2019), Tertiary graduates by field (indicator**). data.oecd.org/students/tertiary-graduates-by-field.htm** (Accessed on 07 May 2019)

Looking at the distribution of individuals with tertiary education by occupation in 2015, it can be seen that tertiary graduates are taken a place in the skilled occupations. The rate of tertiary graduates in the skilled occupations is more than the sum of the individuals with non-tertiary education level. However, tertiary graduates cannot be seized on by semi-skilled occupations. While the rate is 14% in semi-skilled white-collar occupations, this rate decreases by 5% in the blue-collar occupations. Individuals with secondary education are dominantly high in labor attainment in the occupations that do not need high skills **(Figure 12).**



	Elementary	Semi-skilled blue collar occupations	Semi-skilled white collar occupations	Skilled occupations
Below upper secondary education	84	75	59	24
Upper secondary or post-secondary education (non-tertiary)	15	20	27	22
Tertiary education	1	5	14	54

Figure 12: Share of population by occupation in Turkey, 2015

Source: OECD. Stat, https://stats.oecd.org/ (Data extracted on 16 May 2019)

By the year of 2018, the total number of mobile students abroad is 44.471. The USA and the UK are the most preferred hosted countries for Turkish students. They are followed by some countries such as Bulgaria, Austria, France, Italy, Canada, the Russian Federation, and Switzerland. Also, 87.903 students have been hosted by Turkey. Most of the students are from Azerbaijan, Syrian Arab Republic, Iran, Iraq, and Afghanistan (UNESCO, 2018).

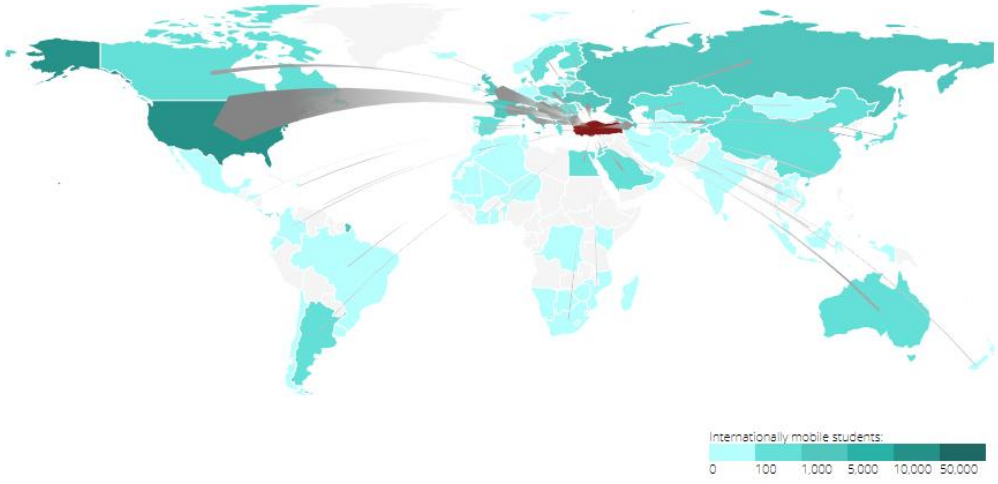


Figure 13: Mobile students from Turkey with tertiary education, 2018

Source : UNESCO (United Nations Educational, Scientific and Cultural Organisation), **http://uis.unesco.org/en/uis-student-flow**

3.2. Assessment of Durability (FSI index)

The FSI (Fragile State Index) produced by FFP (Fund for Peace) is a ranking system which measures the durability of 178 countries based on an analytical approach. Twelve key indicators and more than a hundred sub-indicators are taken as a base of measurement of scores. Looking at the meaning of scores, it is interpreted as the lower scores are better for countries. It means that a higher score indicates a worsening and instability in a country. Measurements are calculated in a system calls CAST (Conflict Assessment System Tool) produced by FFP to analyze fragility of countries with data collected from 11,000 sources worldwide. The qualitative and quantitative indicators are evaluated under the titles of social, economic, political and military indicators (FFP, 2014).

The first category is about the balance and cohesion in the country, and it refers to using security tools and the inconvenient situations in the country. The economic indicators point out unbalanced growth and development in addition to poverty. The last determinant of the economic indicators, which is human flight and brain drain, express the migration of the skilled and educated population from a country. State legitimacy, adherence to the rule of law and human rights are rated under the political indicators. The fourth indicator is associated with demographic pressures and movements of the population such as mass migration of displaced people and refugees. The last indicator evaluates independence and freedom of the countries (FFP, 2017).

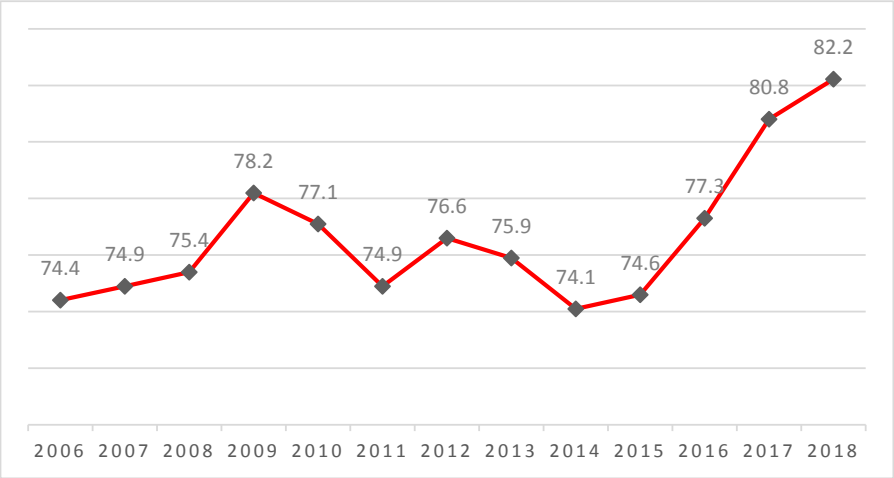


Figure 14: Total scores of Turkey by year

Source: FFP. (2017). **FSI index and CAST Framework Methodology**,The Fun for Peace.

Each indicator is measured by using a scale with 1 to 10. While durability is signified by low points, fragile and unstable indicators are rated by high scores. It means that high scores and low ranks in the index denotes worsening situations (FFP, 2014).

Figure 14 above shows total FSI scores of Turkey by year. The best year for Turkey with 74 points is 2014. After 2014, the fragility of Turkey adopts an increasing trend. The average score in 12 years is 76.7 and the largest number of scores comes from bad cohesion and political situations. This determinant reaches to the maximum score in 2017 and 2018. Another indicator that leads strongly to vulnerability is fractionalized elites in the country. This indicator rated by 9 which means the weak opposition and a large number of turnovers for political elites. The third major fragile indicator is about demographic issues mainly caused by refugees and IDPs (International Displaced Persons) in Turkey by the end of 2017 (**Table A.1**).

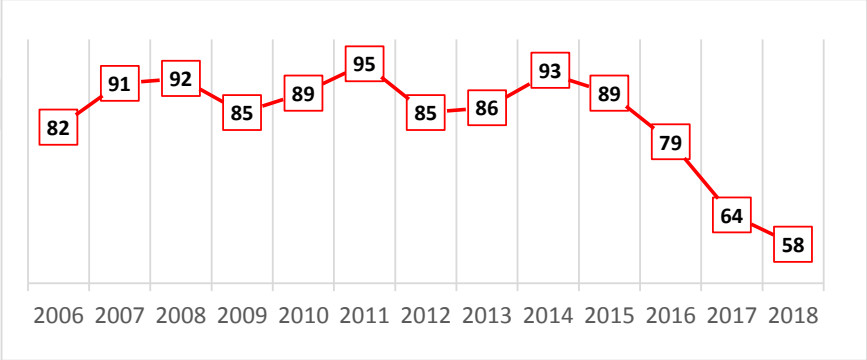


Figure 15: Rank of fragility Index of Turkey

Source: FFP. (2017). **FSI index and CAST Framework Methodology**. Washington, D.C.: The Fun for Peace.

According to the latest dataset, Yemen, Somalia, South Sudan, and Syria are the most vulnerable countries. Finland, Norway, Switzerland, Denmark, Australia, Iceland and Canada are at the end of the list of fragility index among 178 countries. Those countries have approximately 20 points on average. Turkey is ranked 59th with 80 total scores in 2019 (FFP, 2019).

Figure 15 and **Figure 16** depicts year on year changes of fragility index of Turkey. Turkey is ranked 82nd at the beginning and vulnerability of it increases up to 2009. By the year 2011, Turkey have had an improvement, and it is seen that one of the biggest breaks are experienced. After 2014, the trend of Turkey starts to deteriorate and fragility is getting increase during the last 5 years.

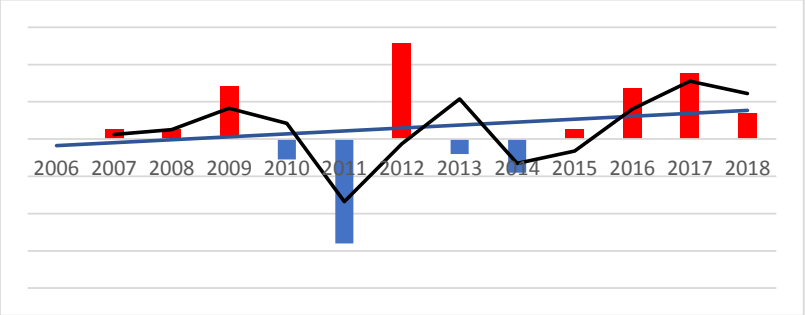


Figure 16: Year on year changes of fragility index of Turkey

Source: FFP. (2017). **FSI index and CAST Framework Methodology**. Washington, D.C.: The Fun for Peace.

Figure 17 compares the total scores of human flight and brain drain between 2006 and 2018. Human capital is one of the economic indicators and human flight and brain drain are evaluated by 5 points during the first 4 years. By the following 6 or 7 years, an improvement in scores is observed in human capital and brain drain in Turkey. After 2016, with is the lowest score, skilled and educated human capital flow is going up. Although human flight and brain drain is one of the better indicators for Turkey, compared with the other indicators, and it is measured 4.4 on average, it has an increasing tendency in the last two years to nearly 5 points. This means that brain drain is increasing in severity and it is not balanced with brain gain.

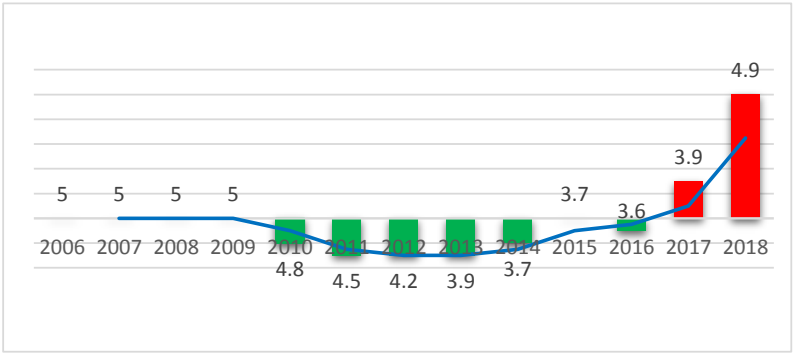


Figure 17: Year on year changes of fragility on Human Flight and Brain Drain

Source: FFP. (2017). **FSI index and CAST Framework Methodology**. Washington, D.C.: The Fun for Peace.

3.3. Competitiveness and Attractiveness (IMD Talent Ranking)

In today's modern economy changing and developing with new technologies consistently, attracting and retaining a skilled, educated workforce is crucial to compete with other countries and achieve long-term prosperity. IMD (International Management Development) Talent Ranking 2018 report, assessing how 63 economies develop and retain highly-skilled professionals evaluates the performance of the countries, based on three factors. These factors are investment-development, appeal, and readiness.

The first factor, investment-development, includes the resources committed to training domestic human capital. The second one, appeal factor, evaluates the rate of attractiveness for local and foreign talent. The other factor, readiness, values the quality of skill and adequacies.

By looking at the previous publications of the report, it can be said that the most successful countries are North European economies. With the highest level of investment in education and quality, Switzerland in the first and Denmark in the second position firmly lead the ranking for the last five year. They are followed by Norway, Austria, and the Netherlands. Then, the top ten of the talent ranking is completed by Canada, Finland, Sweden, Luxembourg, and Germany. Turkey performs below average and is ranked 51st in 63 countries. The overall score of Turkey in 2018 is 45.94 out of 100. (IMD, 2018)

3.3.1. Investment-Development

The determinants of the investment in and development of domestic talents are:

- Education expenditures in total
- Education expenditures per student
- Teacher ratio per student (primary and secondary level)
- Job training
- Female labor force
- Health infrastructure

Denmark, maintaining its position in the last year, is in the first with 97.96 points, followed by Austria (91.76) and Norway (85.59). Turkey is ranked 58th with 28.46 points, worse than 6 points compared with 2017.

The best performance of Turkey is health infrastructure and, is ranked 28th. It is evaluated at 6.58 out of 10. On the other hand, the female labor force is the most problematic determinant on investment and development of Turkey. It is only 32 percent of the total labor force and, is ranked 57th in 63 countries. Last but not least, employment training which is a high priority in companies is ranked 52nd with 5 points out of 10.

3.3.2. Appeal

The appeal factor evaluates the rate of attractiveness for local and foreign talents. Attracting highly-skilled professionals is not only dependent on the wealth of the country but also associated with indicators of social development as well as the quality. The determinants are:

- Cost of living index
- Attracting and retaining
- Worker motivation
- Brain drain
- Life quality
- Highly-skilled foreign personnel
- Wages in services professions
- Wages of management
- Income tax rate
- Security and property rights

Switzerland with 100 points is followed by the USA and Canada. It can be observed that there is more than 15 points between Switzerland and the USA, the nearest competitor. Especially, the USA has advantages of remunerations and brain drain to attract highly-skilled professionals. Total value of appeal in Turkey is 43.16 points, and it is ranked in 50^{th}, which is a lower rank when compared to last year. The quality of life and foreign highly-skilled personnel are the weakest determinants of Turkey. Both determinants are ranked 51^{st} in 63 countries. Moreover, brain drain is 3.92 out of 10. That's why the value of the appeal factor is low due to well-educated high skilled people don't prefer Turkey.

3.3.3. Readiness

The last factor is about the availability of skills and competencies in the talent pool. The determinants detecting by taking into consideration of quality and adequacies are:

- Expansion in labor force
- Rate of skilled labor
- Financial management
- International experience
- Adequacy of senior managers
- Adequacy of education infrastructures
- Language skills
- Student mobility (inbound)
- Appraisal of the education system –PISA

In addition to the success in the appeal factor, Switzerland is again in the top of the list with 90.90 points. Then, the top 3 has been completed by Singapore and the Netherlands with around 85 points. Turkey is ranked 48th with 40.99 points. Readiness factor that Turkey has the best rank improved 3 points compared to last year. The biggest effect comes from the change in the labor force and Turkey is 4th on labor force growth in 2018. On the other hand, the educational system is one of the worst ranks. Overall average of determinants associated with education (such as the educational system, science in schools, university education) is 3.1 out of 10. Also, Turkey is 47th among 63 countries according to PISA which is a system measuring the quality of educational (IMD, 2018).

Figure 18 depicts the change in talent ranking of Turkey by years. From 2014 to 2018, the brightest factor of competitiveness and attractiveness is the readiness factor. Even if it had deteriorated in 2017 with the other factors, still Turkey's best performance is observed in the readiness factor. 2017 is the worst year for readiness and appeal factor and the overall. Appeal and readiness are worsening while investment and development are the same. Looking at overall factors in Turkey, it has declined to 51st in talent ranking since 2014. Additionally, it can be clearly seen that investment and development have a bad effect on talent ranking. In fact, even if appeal and readiness factors show slight improvement after 2018, investment and development are worsening.

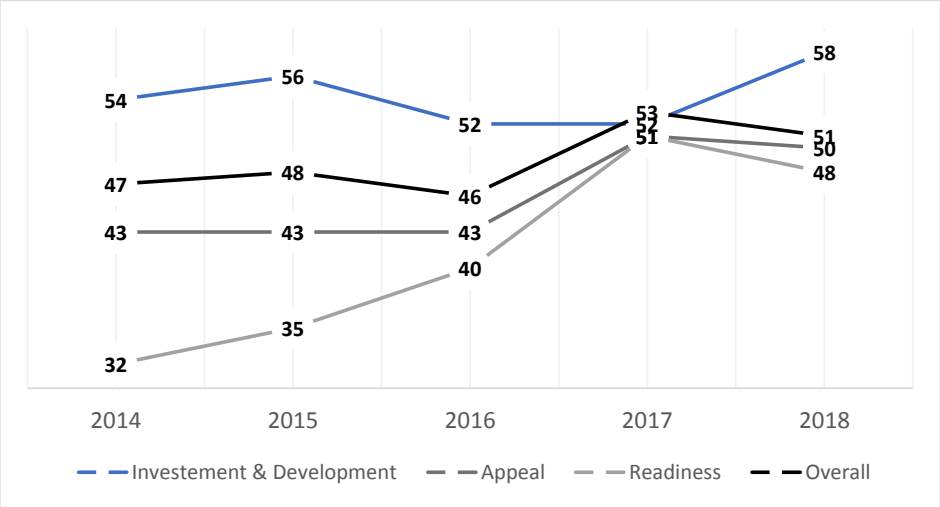


Figure 18: Talent ranking of Turkey, by years

Source: Institute for Management Development (IMD). (2018, November). **IMD World Talent Ranking**. Retrieved from IMD World Competitiveness Center: https://www.imd.org/wcc/world-competitiveness-center-rankings/talent-rankings-2018/

4. ANALYSIS OF SURVEY RESULTS

To determine the push and pull factors in Turkey, a survey is conducted. Turkish citizens with tertiary education residing abroad have been selected as a sample and their leading motives on leaving are investigated. There is no distinction between the professions of individuals who participate in the survey and their receiving countries. In addition, individuals with at least an undergraduate level were selected as a sample group to clarify the distinction between brain drain and labor migration. So, individuals with no bachelor degree are out of sample.

The last part of the study consists of the main findings of the conducted survey, which include the individuals' demographic and personal information, educational attainments, and their main tendencies to migrate detected with a rating system.
Firstly, demographic results (birthplace, origin region, distribution of age and gender, marital status, education attainments, etc.) will be presented. After the general characteristics of participants, their status at the labor market and distribution of their earnings, details about their professions, migrants' network, their consideration of the push-pull factors, and their social and corporate life will be evaluated. Then, their intent of return and the main motives behind this decision are going to be considered, and some arguments on skilled individuals' leaving and return process will be given. At the end of the research, it can be deduced which factors were dominant while they had decided to leave.

4.1. Subject and purpose of the study

The purpose of the research is to detect principal reasons behind the migration of highly educated individuals and professionals. Therefore, this study aims to find answers particular questions about the individual factors of the propensity to migrate and the spatial characteristics which determine migration flows.

The subject of this study is about Turkish citizens with tertiary education residing abroad and the leading motives behind the highly skilled human capital flow from

Turkey. It includes their educational and working life, main motives to work abroad, destination routes, institutions in which they work currently, fields of activity in the institutions, labor conditions, tendencies to return, and their opinions about brain drain in Turkey.

4.2. Sampling method

The sampling method represents the stage of gathering survey data. Having been selected a sample group from the target population, it has been used the snowball technique as a method of sampling.

Snowball sampling, one of the non-probability sampling techniques, has been widely used in qualitative analysis and this method which allows interacting with the sample group through networks. A communication network provided by this method makes possible to reach people who have the same characteristics as each other (Biernacki, 1981). It is named as a snowball effect due to representatives of the sample group grow rapidly via chains like a rolling snowball. Additionally, technological development in forms of communication leads to accelerating considerably data gathering process.

4.3. Survey design and methodology

It is aimed to reach individuals who attend to brain drain activities from Turkey in different regions and countries of the world. So, the population of research has been consisting of Turkish citizens with tertiary education in different countries. Since the whole population consists of a number which is reachable, no sample size is determined before. In this research, a survey which aims to reach individuals directly as a method of collecting data is used. It is not established any preliminary hypothesis in the study. The research is designed with an explorative intent.

A questionnaire form is prepared by considering the subject, purpose, and features as based on the information system below includes:

- Personal details,
- Demographic information,
- Fields of study and professions,
- Working life and earnings,
- Evaluation of the factors affecting their decision to leave Turkey,

- Rating of the factors that affect their decision to choose the destination country,
- Comparison of Turkey and the destination country,
- Ongoing relationships with Turkey and the adaptation process
- Current social life
- Intent to return Turkey and leading motives behind this decision

In the light of these data, some variables are determined. These are age, gender, marital status, the nationality of the spouse, occupation, fields of study, education levels, working status in the receiving countries and Turkey, the distribution range of earnings, factors that push people to emigrate, and factors that pull people to receiving country.

After the questionnaire form was prepared, it is sent to the high educated participants who left Turkey. The questionnaire form is prepared based on an internet survey (Appendix II), designed for the purpose of collecting data on leading motives of Turkish students and professionals, and link address (https://forms.gle/1gtu4LWnLtf7B9Yx9) of the questionnaire form is shared with the participants via e-mail, direct message or social media pages which include Turkish diaspora. Also, immigrant groups of specific professions on social media sites which are created to provide networks for immigrants, acquaintances of skilled migrants in Turkey are chosen as a way to reach the target population.

In the preparation process of the questionnaire form, Güngör's (2003) Ph.D. thesis, named as "Brain drain from Turkey: An Empirical Investigation of The Determinants of Skilled Migration and Student Non-return", and Pazarcık's (2010) Master's thesis, named as "The Phenomenon Of Brain Drain and A Study on the Turkish Social Scientists Who Work in Universities of USA" are taken as a base.

4.4. Demographic Results

Firstly, the descriptive analysis of some analyses of the participants' demographic information, birthplace, origin, age, gender, marital status, education attainments, spouse, and parental details are given.

4.4.1. Birthplace and Origin

As shown in **Table 4.1**, the birthplace of the majority of the participants is Turkey and only 3 people were born abroad. Two of them were born in Germany and the other is from Norway. Some of the major birthplaces are İstanbul, İzmir, Ankara, and Antalya. Also, 48 percent of participants were born in Marmara in Turkey, is followed by the regions of Aegean and Central Anatolia (**Table A.2).**

Table 4.1: Birthplace and geographical region

birthplace	Freq.	
Turkey	145	
other	3	
Total	148	
		Percent
Aegean	25	17
Black Sea	14	10
Central Anatolia	24	17
Eastern Anatolia	2	1
Marmara	70	48
Mediterranean	8	6
Southeast Anatolia	2	1
Total	145	100

On the other hand, most of the participants are from the Marmara region.70 percent of individuals are from İstanbul, which is the major origin. The second one is Ankara with 12 percent (**Table A.3**).

Table 4.2: Origin geographical region

origin	Freq.	Percent
Aegean	13	9
Central Anatolia	21	14
Marmara	113	76
Mediterranean	1	1
Total	148	100

4.4.2. Age and Gender

Age is one of the important factors to investigate the movement of individuals. The minimum age of participants attending the survey is 22, while the maximum is 59. The mean is around 29 years old. The largest range of age, with 52% of the total population, cumulates over between 25 and 29 years old (**Figure 19**). The percentage

of female participants who are between 25-29 years is 32 percent, and 20% is the rate for the males. (**Table A.4)**

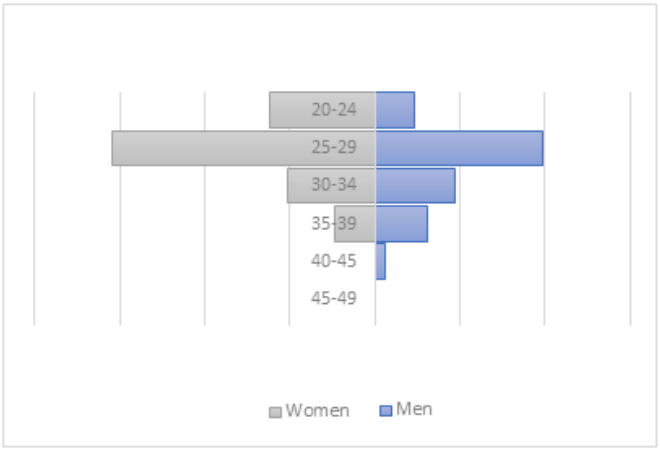


Figure 19: Distribution of age and gender

According to age-gender analysis, 56% of participants are female, and the rate of the male is 41%. The genders of 3 people are not proclaimed by themselves, on purpose. (**Table A.6**).The minimum and the maximum ages when they decided to leave are 18 and 57. The mean participants' arrival age is around 25, and the largest range distributes between 23 and 26 years old (**Table A.9**).

4.4.3. Marital Status

According to the result of the survey, 70 percent of individuals are single, thus single participants overweigh the married participants. The total number of married participants is 45 with 29 women and 16 men (**Table 4.3**). 34 spouses are Turkish, 4 of them are American, 2 spouses are German, and the rest of them are from different countries (**Table A.7**). 18 married and 2 single participants have declared that they have children.

Table 4.3: Marital status by gender

	Female	Male	Other	Total
single	55	45	3	103
married	29	16	0	45
Total	84	61	3	148

4.5. Educational Attainments

Since the main purpose of the research is to detect principal reasons behind the migration of highly educated individuals, the educational attainments for the participant of the survey has been limited with Bachelor degree at least.

42 percent of participants have a bachelor's degree which is awarded for an undergraduate course or program in either the arts, sciences, or both. The percentage of participants with a Master degree is 46.5, and those with a Ph.D. is 11 (**Table 4.4).**

Table 4.4: Educational levels

	Freq.	%	Cum.
Bachelor	62	41.89	41.89
Master	69	46.62	88.51
Ph.D.	17	11.49	100.00

Looking at the educational attainments of parents, it can be seen that 46% of the parents have a Bachelor degree. On the other hand, there are 2 illiterate and 2 literate people, while the percentage of parents with primary level education is 15, and parents with high school level are 31 **(Table 4.5).**

Table 4.5: Education level of parents

		Educational level of father							
		Illeterate	Literate	Primary	High school	Bachelor	Master	Ph.D.	Total
Educational level of mother	Illeterate	0	1	0	1	0	0	0	2
	Literate	0	1	0	0	1	0	0	2
	Primary	0	0	12	6	4	4	0	26
	High school	0	0	1	24	16	6	1	48
	Bachelor	0	0	0	5	42	8	0	55
	Master	0	0	0	0	3	3	2	8
	Ph.D.	0	0	0	0	3	0	4	7
	Total	0	2	13	36	69	21	7	148

For most spouses, education level is tertiary level at least, except one person with high school. 22% of spouses have Master degree, and the percentage of spouses with doctorate level is 13 **(Table 4.6).**

Table 4.6: Education levels of spouses

Education level	Education level of the spouse: High school	Bachelor	Master	Ph.D.	Total
Bachelor	1	18	4	0	23
Master	0	5	5	3	13
Ph.D.	0	5	1	3	9
Total	1	28	10	6	45

4.6. The Destination Countries

Considering the share of highly educated human capital from Turkey in the world, it can be observed that there is a similar tendency in the survey results. The distribution of countries is tolerably similar to a panel dataset in 2010. The USA, Canada, Australia, the Netherlands, and North European countries are the major options for highly educated skilled individuals (Brücher, Capuano and Marfouk, 2013).

The most popular destinations are Germany and the USA for participants (**Table A.10)**. In fact, Germany is not one of the most popular countries for Turkish skilled migrants in 2010 (**Figure 10**); however, almost half of the participants migrates to Germany. The remaining destinations are dominated by the USA, the UK, and the Netherlands, and they share nearly a quarter of the total participants.

4.7. Fields of Study and Professions

Providing from OECD indicators for tertiary education, the distribution of the main tertiary graduates by fields of education is classified in 9 categories. The highest number of participants have graduated from social sciences, business and law, and the second major education field is engineering, manufacturing and construction. Also, the distribution of fields in survey have resemblance to main characteristics of tertiary education in Turkey (**section 3.1**) (OECD, 2019).

Social sciences, business, and law include the graduates from business administration, economics, political science, psychology, sociology, and law. Engineering, manufacturing, and construction is a field comprising all of the engineering (not only civil engineers but also computer, software and other engineers), and architecture.

Science, mathematics, and computing consists of natural and applied sciences (biology, physics, neuroscience, genetic, etc.). Fields such as finance, marketing, public relations, and international relations are classified in general programs. Information and communication technologies include fields about management information systems such as media and communication, computer science or information security. History, fine arts, literature, and language departments are evaluated under the same title in humanities, language, and art. Medicine and nursing are defined in health instead of the service sector. Finally, fields about cultivation, agriculture, and veterinary are in the last category.

Table 4.7: The formal education completed, by fields

	Freq.	**%**
Social sciences, business and law	47	32.0
Engineering, manufacturing and construction	38	25.6
Science, mathematics and computing	18	12.1
General programs	17	11.5
Information and communication technologies	12	8.1
Humanities, language and art	9	6.0
Health	6	4.0
Agriculture and veterinary	1	0.7
	148	100.00

Table 4.7 shows the participants by their fields of education. According to the questionnaire, social sciences and business have the highest proportion. Looking at the total proportions, this rate is distributed among economics, political science and sociology almost equally. The second highest proportion belongs to engineering with 22% of total participants. This category contains several kinds of engineering, but the dominant one in the category is software engineering. After engineering and economics, molecular biology and genetics is the third major field of education among participants (**Table A.8**).

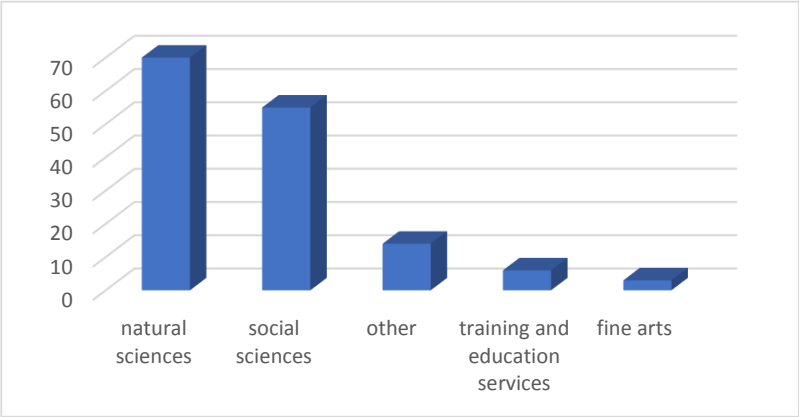


Figure 20: The formal education completed, by disciplines

However, it can be seen that the natural sciences overweigh social sciences in terms of disciplines in **Figure 20**. The sum of fields such as engineering, science, information technologies is higher than the number of social sciences and humanities.

4.7.1. Labor Participation and Characteristics in Turkey

54% of those surveyed stated that they previously worked in Turkey. The minimum experience is less than 1 year, and the maximum is 15 years. The main activities of the participants before they migrate are as follows.

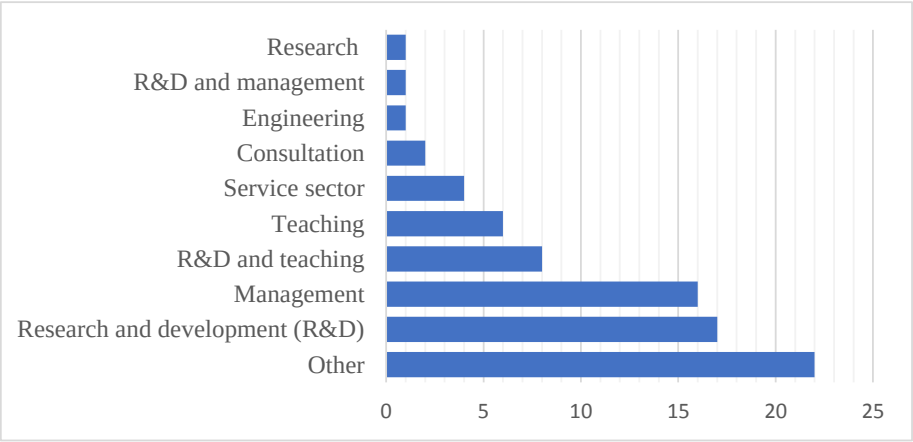


Figure 21: Major activities in the origin

The main activities of the working group at the origin are depicted in the **Figure 21**. Other professions consisting predominantly of selling and marketing are the main activities of the participants. Also, most of the participants work as a specialist, analyst

and some of them work in free-lance jobs. Research-development and management are the second and third activities of the working group respectively.

4.7.2. Labor Participation and Characteristics in the Destination Country

68% of those surveyed stated that they are working in the destination (**Table A. 12**). The mean of the experience period of the working group is slightly more than 2 years. The minimum experience is less than 1 year, and the maximum is 9 years. The main activities of the participants in the destination can be listed as follows in **Figure 22**:

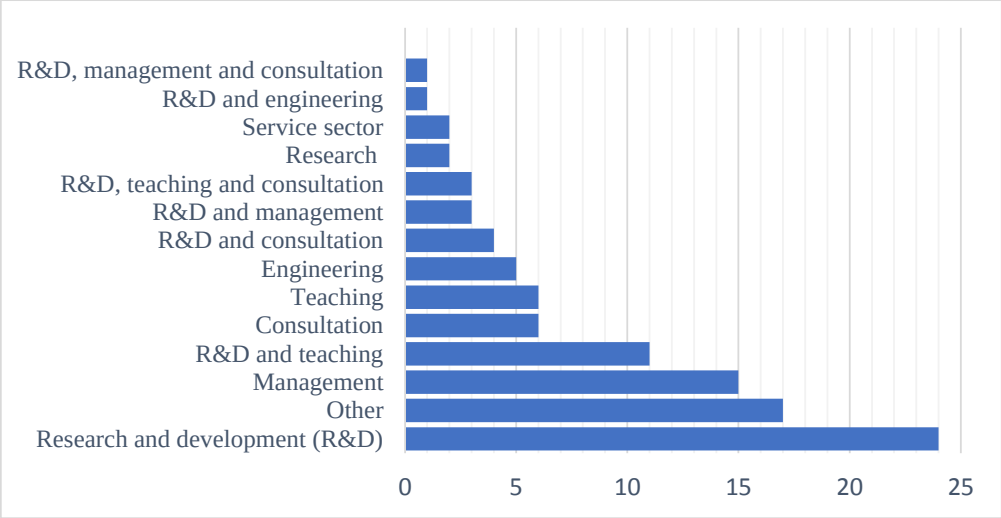


Figure 22: Major activities in the destination

When compared the major activities in a job between Turkey and the destination, it can be seen that R-D activities are the major activity in the destination. In addition to the increasing participation of the labor force by 80%, skilled workers are also handling more activities at the same time in the destination countries. For instance, R-D are mostly sustained together with other activities. This can be helpful in creating an idea about the labor market characteristic in other countries.

4.8. Wages of Participants and Income Range

Table 4.8 demonstrate that 78 people previously working in Turkey is represented by at least 10 percent for each income range, except 2 people who have income under 1.000 TL. The percentage of the highest income range, which is above 10.000TL, is 11.5 % of the total participants who had worked in Turkey. The income of half of the total participants is more than 4.000 TL per month.

Table 4.8: Earnings of the participants previously worked in Turkey

	Freq	Percent	Cum
0-1000 TL	2	2.56	2.56
1000 - 1500 TL	11	14.10	16.66
1500 - 2500 TL	10	12.82	29.48
2500 - 4000 TL	16	20.51	50.00
4000 - 6000 TL	17	21.79	71.78
6000 - 10000 TL	13	16.67	88.45
10000 TL+	9	11.54	100.00
Total	78		

62 people who didn't work in Turkey participate in labor power after migrating. The percentage of the highest income range, which is above $10.000, is 3.5 % of the total participants working in the destination. 70% of the total working group earn less than $3.000. The highest density of income range is detected between $1.000 and $3.000 **(Table 4.9)**.

Table 4.9: Earnings of the participants working in the destination country

	Freq	Percent	Cum
100 - $500	17	12.14	12.14
500 - $1000	26	18.57	30.71
1000 - $3000	54	38.57	69.28
3000 - $5000	31	22.15	91.42
5000 - $10000	7	5.00	96.42
$10000+	5	3.57	100.00
Total	140		

34 spouses out of 45, which is 75% of spouses, state that they are working (**Table A.11**). The observed major range of income is the same for spouses, between $1.000 and $3.000 in **Table 4.10**. An increasing trend is seen towards $1.000 - $3.000. 50% of spouses earn more than $3.000.

Table 4.10: Earnings of working spouses

	Freq	Percent	Cum
100 - $500	0	0	0.00
500 - $1000	2	5.88	5.88
1000 - $3000	15	44.12	50.00
3000 - $5000	6	17.65	67.65
5000 - $10000	10	29.41	97.06
$10000+	1	2.94	100.00
Total	34		

4.9. Main purpose of leaving

The main decision to leave for the participants surveyed are associated with the desire to have better education, seeking for better job and income opportunities, learning a language and other private, voluntarily or involuntarily reasons.

Most of the statements about leaving indicate education attainments with 57% of participants. Having better job and occupational purposes is the second main purpose. The rate of purposes about private or other circumstances is 10%. Learning a language is the least common decision to leave.

In addition to that, almost half of the participants state that they had a social network in the destination country before they left.

4.10. Push and Pull Factors

Push and pull factors are inverse of each other. While negative factors in the origin push people to emigrate, positive factors in the receiving countries pull immigrants to the destination. Some push and pull factors are previously determined to clarify the leading motives behind the decision to leave. The participants surveyed define their tendencies by using a 1 to 5 scale rating as up to importance. 1 refers to the least important motives and 5 is the most important ones.

4.11. Rating of the factors in the survey

The content of the numeric system, 1 to 5, rated by participants to depict which factors are mainly important on their decision to leave Turkey and their reasons to choose the country they currently reside in shown as follows:

(1) Not important,
(2) Less important,
(3) Important,
(4) Very important,
(5) Important at the highest level

The definition of push factors' abbreviations is given below:

PUSH1	Lack of training programs
PUSH2	Pecuniary dissatisfactions
PUSH3	Working environment / occupational dissatisfactions
PUSH4	Insufficient facilities (equipment, laboratory, library, work environment etc.)
PUSH5	Promotion opportunities and merit rate
PUSH6	Advancement opportunities at work
PUSH7	Corporate relationship
PUSH8	Proximity to major science centers / business environment
PUSH9	Lifestyle preference
PUSH10	Political reasons
PUSH11	Compulsory military service (for male participants)

Table 4.11: Push factors

Variable	Obs.	Mean	Std. Dev.	Min	Max
PUSH1	148	3.331081	1.435168	1	5
PUSH2	148	3.459459	1.467926	1	5
PUSH3	148	3.959459	1.244735	1	5
PUSH4	148	3.141892	1.419064	1	5
PUSH5	148	3.912162	1.298503	1	5
PUSH6	148	3.540541	1.357160	1	5
PUSH7	148	3.614865	1.347831	1	5
PUSH8	148	3.290541	1.420230	1	5
PUSH9	148	3.331081	1.458676	1	5
PUSH10	148	3.912162	1.418676	1	5
PUSH11	62	2.935484	1.687670	1	5

Considering the descriptions and **Table 4.11** above, and **Table A. 13,** the lack of a working environment to fully implement the expertise of knowledge, job dissatisfaction, insufficient occupational conditions or unsatisfactory working environment (PUSH3) are the major factors, with 3.95 on average, on the decision-making process of leaving Turkey. %20 of participants state that it is less or not

important. Nevertheless, occupational factors are important at the highest level for 45% of participants with tertiary education level.

70% of the participants indicate that declining merit rates and promotion opportunities (PUSH5). They clearly state that they cannot promote on a job or be deserved praise or reward unless they are a special part of society. Besides, for more than half of the participants, the absence of rapid advancement opportunities at work (PUSH6) plays an important role in the decision to leave. In addition, corporate relationships and hierarchical structure causing unrest in working life (PUSH7) are other factors highly rated by 37% of participants as important at the highest level.

With the highest percentage of importance rated, mean of the political reasons (PUSH10) is 3.91. It has similar trends with promotion opportunities and merit rate. Also, political reasons come into prominence in comments of participants in the last part of the survey. Almost half of participants who have comment consider government policies in a disapproving way. 52% of participants state that political reasons are important at the highest level on creating a common trend of the decision to leave.

For 35% of total participants, pecuniary dissatisfaction and seeking for a better income (PUSH2) are important at the highest level with 3.45 on average. Another factor as important as pecuniary dissatisfactions, with the same mean 3.33, is lifestyle preferences (PUSH9) of destination countries. They also have similar tendencies with pecuniary factors. For 33% of participants, social life opportunities of a country where they live in or dissatisfactions of social life in Turkey is important at the highest level on the decision to leave. It displays that social life is important as much as pecuniary and income opportunities according to the participants surveyed.

For the 28% of the participants, the inadequacy of training programs (PUSH1) is important at the highest level of decision to leave Turkey. The mean of the factor is 3.33 and attaining better education is an important factor to migrate for half of the participant.

Geographical proximity to major science centers or business environment and closely following up trends and improvements (PUSH8) is highly important for the 30 percent of participants and mean of the factor is 3.29 out of 5.

With 3,14 mean, the insufficiency of facilities in Turkey (PUSH4) is less dominant than other push factors whereas this is important at the highest level for a quarter of participants. Especially for some participants having professions which requires a laboratory, equipment, and special environment, it is important to fulfill these occupational needs to retain technical and intellectual human capital.

The last factor associated with compulsory military services (PUSH11) in Turkey has a minimum effect on male participants' decision process. Although it is important at the highest level for 19 participants in 66, 42% of male participants state that military services are less important on the decision to migrate. This factor might be less important due to the highly educated men are not required full-time attendance to the military system in Turkey. The definition of pull factors' abbreviations is given below:

PULL1	Education and training possibilities
PULL2	Income opportunities / pecuniary satisfaction
PULL3	Job opportunities / sufficient facilities
PULL4	Promotion opportunities and merit rate
PULL5	Proximity to major science centers / business environment
PULL6	Turkish people in the destination / institution (familiarity)
PULL7	Social ties (spouse/partner, family, relatives etc.)
PULL8	Network
PULL9	Lifestyle preference
PULL10	Quality / inclusiveness of health system
PULL11	Quality / inclusiveness of education system
PULL12	Independence and reliability of judicial system / institutions

Table 4.12: Pull factors

Variable	Obs.	Mean	Std. Dev.	Min	Max
PULL1	148	3.871622	1.257794	1	5
PULL2	148	3.445946	1.300360	1	5
PULL3	148	3.540541	1.316449	1	5
PULL4	148	3.331081	1.316502	1	5
PULL5	148	3.621622	1.342175	1	5
PULL6	148	1.824324	1.238367	1	5
PULL7	148	2.594595	1.585812	1	5
PULL8	148	2.013514	1.399643	1	5
PULL9	148	3.554054	1.439406	1	5
PULL10	148	2.439189	1.331085	1	5
PULL11	148	3.898649	1.348922	1	5
PULL12	148	3.905.405	1.346.893	1	5

Considering the descriptions and **Table 4.12** above and **Table A.14**, independence, and reliability of the judicial system and institutions (PULL12) have the greatest impact on attracting the individuals with tertiary education. Almost half of the participants express that adherence to the rule of law and human rights are important at the highest level on taking a decision for choosing a country.

The second pull factor for participants is the quality and inclusiveness of education system (PULL11) in addition to the provided diverse education and training programs. A country which has the most appropriate and qualified program for their professions and fields (PULL1) is a significant factor for 70% of participants. Moreover, the geographical proximity to major science centers or business environment (PULL5) and a country closely following up trends and improvements attract skilled human capital. Thus 60 % of participants has declared that this is significantly related to their decision process.

Social life opportunities in the destination and lifestyle preference or sympathy to current lifestyle (PULL9) are very important for 57% of participants. This factor is significant for participants as much as job opportunities (PULL3) in the destination. The mean of social life preferences and sufficient environment for a job is closely each other with 3.55 on average.

The mean of income opportunities or pecuniary satisfaction (PULL2) with 3.44 has been below the prior expectations. 46% of participants have evaluated pecuniary satisfactions by less than 4. This can be interpreted as for highly skilled participants, income opportunities or pecuniary factors are less important than social and occupational reasons.

Looking at the push effect of the promotion opportunities and merit rate with 3.91, this factor (PULL4) is not also above the prior expectations. 38% of participants state that advancement opportunities at work is less important. Still, the characteristics of business life and progress possibilities for the merit-based promotions have an impact on participants' decision with 3.33.

Quality or inclusiveness of health system (PULL10), social ties and networks at the destination (PULL8), and Turkish people in the institution at the destination (PULL6) are factors that have evaluated less than 3. The close relationships with source country or familiarities are not highly rated by participants, and these factors assessed with less

than 2. Almost 60% of participants state that familiarity and networks are not important while choosing a destination country.

Based on the perpetuation theories, institutions and associations formed by Turkish also do not play a heavy role for high-skilled migrants. In addition to that, nearly half of them had a social network in the destination country before they left.

Furthermore, the standard deviation indicates how much of the data is close to the average. If the standard deviation is small, the data are distributed near the average. Conversely, if the standard deviation is large, the data are distributed in places far from the average. If all values are the same, the standard deviation is zero. Standard deviations are small in the results; therefore, the data distribute closely to average (**Table 4.11**, **Table 4.12**).

The total average of push factors equals to 3.55, nearly is rated very important, while the mean of all pull factors is 3.16. Push factors in Turkey overweigh pull factors provided by destination. The effect of negative factors pushing people to leave Turkey is more pronounced than the effect of negative factors in the destination pushing people to stay in Turkey.

Lastly, 85% of participants think that policies pursued by Turkey encourage individuals with a high skill level to leave the country while 65% of participants report that opportunities provided by destination encourage individuals to migrate to that country. It means that more participants believe that the encouragement of Turkey is more effective in decision of high skilled individuals.

4.12. Comparative Analysis of Turkey and destinations based on questions

The comparison of Turkey and destination countries and the result of numeric system used to measure the determined concepts will be presented here. The content of the numeric system, 1 to 3, rated by participants to compare some economic and social concepts between Turkey and country in which participants currently reside in shown as follows:

(1) Worse,
(2) Neither worse nor better (neutral),
(3) Better

Table 4.13: Some concepts compared between two countries

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Standard of living	148	2.574324	.6607686	1	3
Working environment and conditions	148	2.689189	.5575865	1	3
Job satisfaction	148	2.662162	.5660948	1	3
Cooperation and corporate relations	148	2.608108	.5670683	1	3
Social relationships	148	1.966216	.7323018	1	3
Social life	148	2.290541	.7759425	1	3

Table 4.13 and **Table A. 15** include evaluations of the above results. The most satisfying concept for participants is the environment in which they work and working conditions. 73% of participants state that working conditions in the country in which they currently reside is better than in Turkey.

With the evaluations of 67% of participants, they have a better standard of living conditions in the destination. Job satisfaction has been rated by 2.66. 71% of the total participants state that they have been pleased with their current jobs. The rate of participants who positively evaluate corporate relationships and hierarchical structure in the country they currently live is 65%. Although participants have declared that they have a satisfying social life in the destination, their social relationships (with friends, colleagues, neighbors, acquaintance, etc.) are worse than Turkey on average. Additionally, 80 percent of the participants stated that the wages and social rights are sufficient in the country they currently reside (**Table 4.14**).

When asked to participants "How attitude and image of Turkey and Turkish people on the international scale affect your current life in the destination?" Half of them express that it affects negatively. Also, 46% of participants indicate that those attitudes don't affect their daily life. On the other hand, only 4 people declare that they come across positive attitude due to Turkey's image in the international arena.

The rate of participants faces different attitudes and behaviors in their social or working environment (wage, promotion, participation in projects, etc.) due to being an immigrant is 26%, and 22% of those face discriminations in terms of wages and social rights in the country they currently reside in. On the other hand, the rate of participants who think that wages and social rights are sufficient is 81%. 70 percent of total

participants surveyed don't have any investment (such as real estate, deposits, shares, etc.) in Turkey (**Table 4.14**).

Table 4.14: The questions concerning discrimination, investment, wages, and social rights and encouragements in the destination

Variable		Freq.	%
Do you encounter different attitudes and behaviors in your social environment or working environment due to being a foreigner or an immigrant?	no	68	73.91
	yes	24	26.09
Do you think wages and social rights sufficient in your country?	no	28	18.92
	yes	120	81.08
Do you think you are discriminated against in terms of wages and social rights within the country you currently reside in?	no	114	77.03
	yes	34	22.97
Do you have any investment in Turkey?	no	103	69.59
	yes	45	30.41
Do you think the policies pursued by Turkey encourage individuals with a high skill level to leave the country?	no	21	14.19
	yes	127	85.81
Do you think the policies pursued by destination countries encourage individuals with a high skill level to migrate to the country?	no	52	35.14
	yes	96	64.86

4.13. Return intentions

The intention of participants to return is measured in two way. The initial intention is their previously thought when they had first arrived on the destination and the second is about their current intentions of returning to Turkey or their returning plans in the future.

Table 4.15: Initial and current intentions

The first intention	Current intention: negative	neutral	positive	Total
negative	50	8	3	61
neutral	15	23	5	43
positive	11	13	20	44
Total	76	44	28	148

Table 4.15 reflects the participants' thought about a return to Turkey concentrating on intentions in different times. Initial intentions are about decision taken by participants when they arrived and the second intentions refer to current decision taken for the future. Negative return intentions refer not to return, neutral intentions represent undecided participants, and positive intentions include the over tendencies to come back to Turkey.

Intentions of 93 participants stay the same, number of undecided participants are also almost same. On the other hand, negative intentions increase from 61 to 76 and positive intentions decrease to 28. While 41% of participants state that they will not come back to Turkey at the beginning, this rate has gone up to 51% currently. Although neutral participants change a little, positive intentions turn to negative intention as time elapses **(Table A.16)**.

4.14. Interpretation of the leading motives behind current return intentions

Two major reasons for 59 participants who have negative intent to return are political with 22 response and sociocultural with 15. The common factor between negative and neutral intentions is private issues which are the second major factor in total before sociocultural reasons.

The evaluation of three main reasons behind return intentions was asked from participants. Political, economic/pecuniary, and sociocultural are expressed respectively as the reasons to stay in the destination by participants with negative intentions. Undecided participants state that their main motives are about private, political and occupational issues. Last, private reasons are strongly influential rather than others for participants having a return plan in the future.

In summarize, primary motives are political and sociocultural factors for negative intentions and private circumstances for neutral and positive intentions (**Table A. 17).** The secondary factors are economic and pecuniary for both negative and neutral intentions while motives of positive intentions do not put forward any dominant reasons except private ones (**Table A. *18***) For the participants having negative intentions, the important reasons for third-degree motives are economic and sociocultural. Occupational factors have a slight impact on positive intentions to return. (**Table A. 19).**

4.14.1. The impacts of the visit frequency and investment on return intentions

The content of the numeric system, 0 to 3, rated by participants to state their frequency of visiting Turkey shown as follows:

(0) Never
(1) Rarely
(2) Once a year
(3) Several times a year

While most participants visit Turkey several times a year, others prefer to go to Turkey at least once a year or rarely. 8 people state that they never visit Turkey since they arrived. As can be seen in **Table 4.16,** it cannot be detected any meaningful relationship between frequency of visit and return intentions. Participants usually visit Turkey several times a year even if their return intentions are negative or vice versa.

Table 4.16: Frequency of visit and return intentions

		intents of return			
		negative	neutral	positive	Total
frequecy of visit	0	4	3	1	8
	1	10	1	1	12
	2	21	12	6	39
	3	41	28	20	89
		76	44	28	148

Although 45 participants surveyed state that they have a kind of investment (such as real estate, deposits, shares, etc.) in Turkey, this situation has no impact on their decision to come back to Turkey. 24 out of 76 participants having negative return intentions have an investment in Turkey. So, there is no sound relationship between investment decisions in Turkey and return intentions (**Table 4.17**).

Table 4.17: Investment decisions and intents

intents of return	investments in Turkey: no	investments in Turkey: yes	Total
negative	52	34	76
neutral	36	8	44
positive	15	13	28
	103	45	148

5. CONCLUSION REMARKS

The migration of highly skilled individuals directly results in low levels of human capital for developing countries. Since it is difficult to compensate skilled human capital, the loss of highly skilled individuals through brain drain seems highly detrimental to an origin country. The human capital and productive resources of countries must be used to prevent economic and political instability and reach to overall well-being. The migration of skilled human capital to the developed countries is a cost because of the deterioration in productivity level in origin countries.

Some programs within the scope of the policy implications are aimed at attracting skilled workforce and retaining technical and intellectual human capital in the origin countries. TOKEN (Transfer of Knowledge through Expatriate Nationals), implemented by UNDP, (United Nations Development Program) is a worldwide example of these programs. This program aims to contribute to the development of the country by individuals with high skill in their major fields. By inviting experts, Turkey benefits their consultancy services in the major fields such as physics, electricity, telecommunications, and computer science. In 1993, nearly 450 experts, most of them from the USA, contributed this program (Kurtuluş, 1999). In addition, some currant government policies try to change the direction of brain drain to brain gain. To accelerate the rate of the brain gain. TUBITAK (Scientific and Technological Research Council of Turkey) conducts a program, called "International Leader Researchers". This program includes not also native researchers but also foreigners. In the scope of the program, huge amounts of subsidies are provided to individuals or institutions who will study in eight main determined fields (Tersine beyin göçü için proje, 2018). Also, within the executed programs for higher education attainment, nearly 1000 students every year funded by Ministry of Education and the council of higher education to complete graduate or doctoral degree education level abroad. This scholarship program has a requirement refunding by service, in this way this program aims to

prevent brain drain by retaining technical and intellectual human capital (YYEGM, 2019).

The policies should be considered as convenient to the characteristic of migration flows to prevent brain drain. The policies aiming to prevent brain drain and retain skilled human capital in Turkey advance in two ways concentrating on a skilled workforce and students with tertiary education. However, human capital flows should not just be seen as the movement of production factor. The statement of that migrants are only investors of human capital is an insufficient approach. Because migrants also consider the social and political atmospheres where they currently live as the existing motives to migrate.

By looking at the outcomes of the questionnaire and motives of high skilled individuals, it can be said that brain drain does not arise from a few limited reasons. It has a large range of reasons related to economic, social, political and occupational aspects. However, some reasons stand out as primary on the decision of leaving for Turkish participants surveyed. Those can be summarized as political and occupational reasons respectively. By contrast with the dual labor market approach, it is found that the pushing-effect of source country (Turkey) are more influential than the pulling effects in the host countries.

Individual's intents of return are going down in time. Positive intents to return are changing to a negative one while neutral intents are staying almost the same. On the other hand, undecided people state that occupational dissatisfaction and working environment are the main reasons for their decision. Technical and intellectual human capital does not migrate only due to pecuniary opportunities and better labor market conditions. In addition, most of the participants point out the deficiencies in the working environment. These concerns are mainly about the advancement opportunities, merit-based promotion, and institutional structure.

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APPENDIX

Appendix I

Table A.1: FSI index

Year	Total	Security Apparatus	Factionalized Elites	Group Grievance	Economy	Economic Inequality	Human Flight and Brain Drain	State Legitimacy	Public Services	Human Rights	Demographic Pressures	Refugees and IDPs	External Intervention
2006	74,4	6,4	6,9	7,3	4,1	8,6	5,0	6,1	5,7	5,0	7,2	6,1	6,0
2007	74,9	6,7	7,1	7,4	4,7	8,7	5,0	6,1	5,4	5,1	6,9	5,8	6,0
2008	75,4	6,7	7,5	7,6	4,6	8,2	5,0	6,0	5,2	5,5	6,7	6,2	6,2
2009	78,2	7,0	7,8	7,7	5,3	8,0	5,0	6,5	5,3	6,0	6,8	6,6	6,2
2010	77,1	7,4	7,8	8,0	5,8	7,8	4,8	6,0	5,4	5,5	6,3	6,3	6,0
2011	74,9	7,4	7,5	8,3	5,5	7,4	4,5	5,9	5,7	5,2	5,9	6,0	5,6
2012	76,6	7,7	7,5	8,6	5,6	7,1	4,2	6,2	6,0	5,3	6,0	6,5	5,9
2013	75,9	7,9	7,3	9,0	5,3	6,8	3,9	5,9	5,5	5,5	5,7	7,4	5,6
2014	74,1	7,4	7,3	9,0	5,3	6,5	3,7	6,0	5,2	5,9	5,4	7,1	5,3
2015	74,6	7,7	7,3	9,0	5,0	6,2	3,7	6,3	4,9	6,4	5,5	7,5	5,0
2016	77,3	7,8	7,6	9,5	4,8	5,9	3,6	6,6	4,6	7,4	5,1	8,8	5,6
2017	80,8	8,3	9,1	10,0	4,6	5,7	3,9	7,6	4,4	7,7	4,9	9,2	5,4
2018	82,2	8,0	9,1	10,0	4,5	5,4	4,9	7,7	4,9	7,8	5,2	9,3	5,4
MEAN	76,6	7,4	7,7	8,6	5,0	7,1	4,4	6,4	5,2	6,0	6,0	7,1	5,7

Table A.2: Birthplace

birthplace	Freq.
Adana	4
Afyonkarahisar	1
Ankara	13
Antakya	1
Antalya	6
Ardahan	1
Artvin	1
Aydın	1
Balıkesir	1
Bilecik	1
Bolu	2
Burdur	1
Bursa	3
Çanakkale	3
Çorum	1
Diyarbakır	1
Edirne	2
Erzurum	1
Eskişehir	4
Gümüşhane	1
Hatay	1
İstanbul	54
İzmir	18
Kocaeli	1
Kırklareli	1
Manisa	2
Muğla	1
Ordu	1
Rize	1
Sakarya	1
Samsun	4
Sivas	1
Tekirdağ	1
Uşak	3
Van	1
Yalova	2
Yozgat	1
Zonguldak	2
Germany	2
Norway	1
Total	148

Table A.3: Origin city

origin	Freq.	Percent	Cum.
Ankara	18	12.16	12.16
Antalya	1	0.68	12.84
Bursa	3	2.03	14.86
Eskişehir	1	0.68	15.54
Kayseri	1	0.68	16.22
Kocaeli	4	2.70	18.92
Muğla	2	1.35	20.27
Sakarya	1	0.68	20.95
Çanakkale	2	1.35	22.30
Çorum	1	0.68	22.97
İstanbul	103	69.59	92.57
İzmir	11	7.43	100.00
Total	148	100.00	

Table A.4: Age

age	Freq.	Percent	Cum.
22	2	1.35	1.35
23	4	2.70	4.05
24	17	11.49	15.54
25	15	10.14	25.68
26	20	13.51	39.19
27	13	8.78	47.97
28	13	8.78	56.76
29	15	10.14	66.89
30	10	6.76	73.65
31	5	3.38	77.03
32	7	4.73	81.76
33	4	2.70	84.46
34	4	2.70	87.16
35	3	2.03	89.19
36	5	3.38	92.57
37	2	1.35	93.92
38	4	2.70	96.62
39	2	1.35	97.97
42	1	0.68	98.65
45	1	0.68	99.32
59	1	0.68	100.00
Total	148	100.00	

Table A.5: Age and gender

age	gender F	M	O	Total
22	2	0	0	2
23	2	2	0	4
24	13	4	0	17
25	9	4	2	15
26	10	10	0	20
27	5	8	0	13
28	8	5	0	13
29	13	2	0	15
30	5	5	0	10
31	2	3	0	5
32	5	2	0	7
33	2	2	0	4
34	1	3	0	4
35	1	2	0	3
36	2	3	0	5
37	1	1	0	2
38	2	2	0	4
39	1	1	0	2
42	0	1	0	1
45	0	1	0	1
59	0	0	1	1
Total	84	61	3	148

Table A.6: Range of age and gender

agedist	Freq.	Percent	Cum.
22-24	21	14.19	14.19
25-29	78	52.70	66.89
30-34	29	19.59	86.49
35-39	17	11.49	97.97
40-45	2	1.35	99.32
55-59	1	0.68	100.00
gender	**Freq.**	**Percent**	**Cum.**
F	84	56.76	56.76
M	61	41.22	97.97
O	3	2.03	100.00
Total	148	100.00	

Table A.7: Nationality of spouses

s_nationality	Freq.	Percent	Cum.
Indonesian	1	2.22	2.22
American	4	8.89	11.11
Ethiopian	1	2.22	13.33
German	2	4.44	17.78
Norwegian	1	2.22	20.00
Rumanian	1	2.22	22.22
Russian	1	2.22	24.44
Turkish	34	75.56	100.00
Total	45	100.00	

Table A.8: Professions

profession	Freq.	Percent	Cum.
Analyst	1	0.68	0.68
Architect	3	2.03	2.70
Art	3	2.03	4.73
Biology	3	2.03	6.76
Business Administration	5	3.38	10.14
Communication	1	0.68	10.81
Computational Biology	1	0.68	11.49
Computer Science	2	1.35	12.84
Cryptography and information security	1	0.68	13.51
Cultural Analysis	1	0.68	14.19
Economics	15	10.14	24.32
Energy Analyst	1	0.68	25.00
Engineer	34	22.97	47.97
English Language and Literature	2	1.35	49.32
English teacher	2	1.35	50.68
Finance	1	0.68	51.35
German teacher	1	0.68	52.03
Graphic Designer	1	0.68	52.70
History	1	0.68	53.38
Human Resources	1	0.68	54.05
International Relations	3	2.03	56.08
International Relations and Trade	1	0.68	56.76
International Trade	1	0.68	57.43
Journalist	1	0.68	58.11
Law	2	1.35	59.46
Literature	1	0.68	60.14
Management Information System	3	2.03	62.16
Marketing	1	0.68	62.84
Media and Communication	1	0.68	63.51
Medicine	6	4.05	67.57
Molecular Biology and Genetic	10	6.76	74.32
Neuroscience	1	0.68	75.00
Officer	1	0.68	75.68
Physics	2	1.35	77.03
Political Science	7	4.73	81.76
Product Design	1	0.68	82.43
Property Management	1	0.68	83.11
Psychological counseling and guidance	1	0.68	83.78
Psychology	2	1.35	85.14
Public Administration	1	0.68	85.81
Public Relations	2	1.35	87.16
Scholar	1	0.68	87.84
Social Sciences	1	0.68	88.51
Sociology	9	6.08	94.59
Software Engineer	4	2.70	97.30
Student	1	0.68	97.97
Sustainability Management	1	0.68	98.65
Vet	1	0.68	99.32
other	1	0.68	100.00
Total	148	100.00	

Table A.9: Arrival age

arrival age	Freq.	Percent	Cum.
18	6	4.05	4.05
19	7	4.73	8.78
20	3	2.03	10.81
21	4	2.70	13.51
22	5	3.38	16.89
23	14	9.46	26.35
24	25	16.89	43.24
25	22	14.86	58.11
26	17	11.49	69.59
27	6	4.05	73.65
28	9	6.08	79.73
29	5	3.38	83.11
30	7	4.73	87.84
31	3	2.03	89.86
32	3	2.03	91.89
33	3	2.03	93.92
35	2	1.35	95.27
36	4	2.70	97.97
38	1	0.68	98.65
40	1	0.68	99.32
57	1	0.68	100.00
Total	148	100.00	

Table A.10: Destination

destination	Freq.	Percent	Cum.
Australia	2	1.35	1.35
Austria	1	0.68	2.03
Bulgaria	2	1.35	3.38
Canada	5	3.38	6.76
Denmark	1	0.68	7.43
Ethiopia	5	3.38	10.81
Finland	3	2.03	12.84
France	3	2.03	14.86
Germany	66	44.59	59.46
Ghana	1	0.68	60.14
Hungary	1	0.68	60.81
Ireland	1	0.68	61.49
Italy	1	0.68	62.16
Japan	1	0.68	62.84
Kazhakhstan	1	0.68	63.51
Lebonan	1	0.68	64.19
Macedonia	1	0.68	64.86
Netherland	8	5.41	70.27
Norway	2	1.35	71.62
Russia	6	4.05	75.68
Slovakia	1	0.68	76.35
Spain	3	2.03	78.38
Sweden	1	0.68	79.05
Switzerland	1	0.68	79.73
Tailand	1	0.68	80.41
UK	6	4.05	84.46
USA	23	15.54	100.00
Total	148	100.00	

Table A.11: Status of spouses

status at origin	Freq.	Percent	Cum.
not working	69	46.94	46.94
working	78	53.06	100.00
Total	147	100.00	

Table A. 12: Status at destination

status at destination	Freq.	Percent	Cum.
not working	48	32.43	32.43
working	100	67.57	100.00
Total	148	100.00	

Table A. 13: Push factors

		Freq.	Percent	Cum			Freq.	Percent	Cum
PUSH1	1	26	17,57	17,57	PUSH7	1	13	8,78	8,78
	2	15	10,14	27,70		2	22	14,86	23,65
	3	33	22,30	50,00		3	29	19,59	43,24
	4	32	21,62	71,62		4	29	19,59	62,84
	5	42	28,38	100,00		5	55	37,16	100,00
PUSH2	1	23	15,54	15,54	PUSH8	1	21	14,19	14,19
	2	19	12,84	28,38		2	26	17,57	31,76
	3	25	16,89	45,27		3	34	22,97	54,73
	4	29	19,59	64,86		4	23	15,54	70,27
	5	52	35,14	100,00		5	44	29,73	100,00
PUSH3	1	11	7,43	7,43	PUSH9	1	23	15,54	15,54
	2	9	6,08	13,51		2	22	14,86	30,41
	3	24	16,22	29,73		3	35	23,65	54,05
	4	35	23,65	53,38		4	19	12,84	66,89
	5	69	46,62	100,00		5	49	33,11	100,00
PUSH4	1	26	17,57	17,57	PUSH10	1	18	12,16	12,16
	2	24	16,22	33,78		2	11	7,43	19,59
	3	38	25,68	59,46		3	14	9,46	29,05
	4	23	15,54	75,00		4	28	18,92	47,97
	5	37	25,00	100,00		5	77	52,03	100,00
PUSH5	1	14	9,46	9,46	PUSH11	1	22	35,48	35,48
	2	9	6,08	15,54		2	4	6,45	41,94
	3	20	13,51	29,05		3	11	17,74	59,68
	4	38	25,68	54,73		4	6	9,68	69,35
	5	67	45,27	100,00		5	19	30,65	100,00
PUSH6	1	16	10,81	10,81					
	2	19	12,84	23,65					
	3	32	21,62	45,27					
	4	31	20,95	66,22					
	5	50	33,78	100,00					

Table A. 14: Pull factors

		Freq.	Percent	Cum			Freq.	Percent	Cum
PULL1	1	12	8,11	8,11	PULL7	1	61	41,22	41,22
	2	11	7,43	15,54		2	16	10,81	52,03
	3	22	14,86	30,41		3	21	14,19	66,22
	4	42	28,38	58,78		4	22	14,86	81,08
	5	61	41,22	100,00		5	28	18,92	100,00
PULL2	1	16	10,81	10,81	PULL8	1	83	56,08	56,08
	2	20	13,51	24,32		2	24	16,22	72,30
	3	32	21,62	45,95		3	13	8,78	81,08
	4	42	28,38	74,32		4	12	8,11	89,19
	5	38	25,68	100,00		5	16	10,81	100,00
PULL3	1	16	10,81	10,81	PULL9	1	22	14,86	14,86
	2	13	8,78	19,59		2	13	8,78	23,65
	3	42	28,38	47,97		3	29	19,59	43,24
	4	29	19,59	67,57		4	29	19,59	62,84
	5	48	32,43	100,00		5	55	37,16	100,00
PULL4	1	18	12,16	12,16	PULL10	1	51	34,46	34,46
	2	21	14,19	26,35		2	27	18,24	52,70
	3	39	26,35	52,70		3	39	26,35	79,05
	4	34	22,97	75,68		4	16	10,81	89,86
	5	36	24,32	100,00		5	15	10,14	100,00
PULL5	1	15	10,14	10,14	PULL11	1	16	10,81	10,81
	2	18	12,16	22,30		2	10	6,76	17,57
	3	27	18,24	40,54		3	16	10,81	28,38
	4	36	24,32	64,86		4	37	25,00	53,38
	5	52	35,14	100,00		5	69	46,62	100,00
PULL6	1	90	60,81	60,81	PULL12	1	15	10,14	10,14
	2	23	15,54	76,35		2	9	6,08	16,22
	3	15	10,14	86,49		3	24	16,22	32,43
	4	11	7,43	93,92		4	27	18,24	50,68
	5	9	6,08	100,00		5	73	49,32	100,00

Table A. 15: Comparison between Turkey and destination

Variable		Freq.	Percent	Cum.
Standard of living	1	14	9,46	9,46
	2	35	23,65	33,11
	3	99	66,89	100,00
Working environment and conditions	1	7	4,73	4,73
	2	32	21,62	26,35
	3	109	73,65	100,00
Job satisfaction	1	7	4,73	4,73
	2	36	24,32	29,05
	3	105	70,95	100,00
Cooperation and corporate relations	1	6	4,05	4,05
	2	46	31,08	35,14
	3	96	64,86	100,00
Social relationships (with friends, colleagues, neighbors, acquaintance etc).	1	42	28,38	28,38
	2	69	46,62	75,00
	3	37	25,00	100,00
Social life	1	29	19,59	19,59
	2	47	31,76	51,35
	3	72	48,65	100,00

Table A. 16: Return intentions

1 intent of return

return	Freq.	Percent	Cum.
negative	61	41.22	41.22
neutral	43	29.05	70.27
positive	44	29.73	100.00
Total	148	100.00	

2 intent of return

return	Freq.	Percent	Cum.
negative	76	51.35	51.35
neutral	44	29.73	81.08
positive	28	18.92	100.00
Total	148	100.00	

Table A. 17: The primary reasons of intentions

main reasons of 2	2 intent of return			
	negative	neutral	positive	Total
adaptation	0	2	1	3
economic / pecuniary	6	5	2	13
education of child	0	1	0	1
judicial independence	0	1	0	1
lack of merit	1	0	0	1
living standards	0	1	0	1
obligation	0	0	1	1
occupational	8	6	1	15
political	22	3	3	28
private	3	10	10	23
quality of life	1	0	0	1
social	2	0	0	2
sociocultural	15	3	4	22
uncertainty	1	0	0	1
Total	59	32	22	113

Table A. 18: The secondary reasons for intentions

reason_2	2 intent of return			
	negative	neutral	positive	Total
adaptation	0	0	1	1
economic / pecuniary	15	6	2	23
merit decrease	0	1	0	1
occupational	9	5	1	15
political	12	5	0	17
private	5	2	5	12
social	3	1	2	6
social pressure	0	1	0	1
sociocultural	10	1	1	12
Total	54	22	12	88

Table A. 19: The third-degree reasons for intentions

reason_3	2 intent of return			Total
	negative	neutral	positive	
economic / pecuniary	13	3	1	17
educational	1	0	0	1
occupational	3	2	2	7
political	5	4	0	9
private	2	1	0	3
social	0	1	0	1
sociocultural	11	2	1	14
uncertainty	1	1	0	2
Total	36	14	4	54

Appendix II

Anket Formu

Bu anket formu, "Beyin Göçü Olgusu Üzerine Bir Araştırma" konulu bir yüksek lisans tezine veri tabanı oluşturmak amacıyla hazırlanmıştır. Vereceğiniz cevaplar kesinlikle başka bir amaç için kullanılmayacaktır.

ANKETE KATILIM SAĞLAYABİLMENİZ İÇİN EĞİTİM DÜZEYİNİZİN EN AZ LİSANS MEZUNU OLMASI VE YURT DIŞINDA İKAMET EDİYOR OLMANIZ GEREKMEKTEDİR.

Zaman ayırdığınız için teşekkür ederiz.

Yıldız Teknik Üniversitesi - Sosyal Bilimler Enstitüsü
Dr.Öğr.Üyesi Hasan Ağan KARADUMAN
Elif ÇOBAN

İletişim: elifcoban92@gmail.com

* Gerekli

1. **Doğum yeri** *

2. **Yaş** *

3. **Bulunduğunuz ülke** *

4. **Cinsiyet** *
   Yalnızca bir şıkkı işaretleyin.
   - ◯ Kadın
   - ◯ Erkek
   - ◯ Diğer

5. **Eğitim düzeyiniz** *
   Yalnızca bir şıkkı işaretleyin.
   - ◯ Lisans
   - ◯ Yüksek Lisans
   - ◯ Doktora

6. **Mezun olduğunuz bölüm/ Mesleğiniz / uzmanlık alanınız** *

7. **Annenizin eğitim düzeyi** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Okur-yazar değil
- ◯ Okur-yazar
- ◯ İlkokul
- ◯ Lise
- ◯ Lisans
- ◯ Yüksek Lisans
- ◯ Doktora

8. **Babanızın eğitim düzeyi** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Okur-yazar değil
- ◯ Lisans
- ◯ İlkokul
- ◯ Ortaokul
- ◯ Lise
- ◯ Yüksek Lisans
- ◯ Okur-yazar
- ◯ Doktora

9. **Çocuğunuz var mı?**
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

10. **Medeni durumunuz** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Bekar *16. soruya geçin.*
- ◯ Evli *11. soruya geçin.*

Eşinizin Bilgileri

11. **Eşinizle aynı ülkede mi ikamet ediyorsunuz?**
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

12. **Eşinizin uyruğu**

13. **Eşinizin Eğitim Düzeyi**
Yalnızca bir şıkkı işaretleyin.

- ◯ İlkokul
- ◯ Lise
- ◯ Lisans
- ◯ Yüksek Lisans
- ◯ Doktora

14. **Eşinizin Çalışma durumu**
Yalnızca bir şıkkı işaretleyin.

- ◯ Çalışıyor
- ◯ Çalışmıyor *16. soruya geçin.*

15. **Eşinizin aylık ortalama kazancı**
Yalnızca bir şıkkı işaretleyin.

- ◯ 100$ - 500$
- ◯ 500$ - 1.000$
- ◯ 1.000$ - 3.000$
- ◯ 3.000$ - 5.000$
- ◯ 5.000$ - 10.000$
- ◯ 10.000$ +

16. **Herhangi bir işte çalışıyor musunuz?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Çalışıyorum
- ◯ Çalışmıyorum *Bu bölümdeki son sorunun ardından, 20. soruya geçin.*

17. **Aylık ortalama kazancınız**
Yalnızca bir şıkkı işaretleyin.

- ◯ 100$ - 500$
- ◯ 500$ - 1.000$
- ◯ 1.000$ - 3.000$
- ◯ 3.000$ - 5.000$
- ◯ 5.000$ - 10.000$
- ◯ 10.000$ +

18. **Ne kadar zamandır bu işte çalışıyorsunuz?**

19. **Şu anda çalıştığınız kurumda, aşağıdakilerden hangisi ya da hangileri temel faaliyetiniz?** *
Uygun olanların tümünü işaretleyin.

- [ ] Araştırma -Geliştirme
- [ ] Öğretim
- [ ] Yöneticilik
- [ ] Danışmanlık
- [ ] Diğer: _____

20. **Türkiye'de bulunduğunuz süre boyunca hangi şehirde ikamet etmekteydiniz?**

_____

21. **Şu anda bulunduğunuz ülkeye ne amaçla geldiniz?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Dil öğrenmek
- ◯ Eğitim almak
- ◯ Çalışmak
- ◯ Diğer

22. **Şu anda bulunduğunuz ülkeye kaç yaşında geldiniz?** *

_____

23. **Şu anda bulunduğunuz ülkeye gelmeden önce burada bir tanıdığınız/arkadaşınız/akrabanız/yakınınız ikamet etmekte miydi?**
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

24. **Türkiye'de herhangi bir işte çalışıyor muydunuz?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet *25. soruya geçin.*
- ◯ Hayır *28. soruya geçin.*

25. **Türkiye'de çalıştığınız kurumda, aşağıdakilerden hangisi ya da hangileri temel faaliyetiniz?**
Uygun olanların tümünü işaretleyin.

- [ ] Araştırma- Geliştirme
- [ ] Öğretim
- [ ] Yöneticilik
- [ ] Diğer: _____

26. **Türkiye'de aylık ortalama kazancınız ne kadardı?** *
Yalnızca bir şıkkı işaretleyin.

- 1.000 TL ve altı
- 1.000 TL - 1.500 TL
- 1.500 TL - 2.500 TL
- 2.500 TL - 4.000 TL
- 4.000 TL - 6.000 TL
- 6.000 TL - 10.000 TL
- 10.000 TL +

27. **Ne kadar süre bu işte çalıştınız?** *

Türkiye'den ayrılma kararınızı etkileyen unsurlar bağlamında aşağıdaki ifadeleri değerlendiriniz.

(1) çok az önemli ya da önemli değil, (2) az önemli, (3) önemli, (4) çok önemli, (5) en üst düzeyde önemli

28. **Uzmanlaşmak istenen alanda yeterli düzeyde eğitim programının olmaması** *
Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
çok az önemli ya da önemli değil	◯	◯	◯	◯	◯	en üst düzeyde önemli

29. **Maddi tatminsizlik** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

30. **Uzmanlık bilgilerini tam olarak değerlendirecek çalışma ortamının olmaması/iş tatminsizliği** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

31. **Kurumsal alt-yapı yetersizlikleri araç, gereç, laboratuvar vs olmaması** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

32. **Çalışma yaşamında başarılı olanları ödüllendirmedeki yetersizlikler / liyakatin olmaması** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

33. **Çalışma yaşamında hızlı ilerleme olanaklarının olmaması** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

34. **Çalışma yaşamında huzursuzluk veren insan ilişkileri** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

35. **Büyük bilim merkezleri ve/veya iş çevreleri ile ilişkinin az olması** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

36. **Sosyal yaşamdaki tatminsizlikler** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

37. **Siyasi nedenler** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

38. **Askerlik (kadın katılımcılar bu soruyu geçebilirler.)**
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

Şu anda yaşadığınız ülke ve çalıştığınız kurumu seçme yönündeki kararınızı etkileyen unsurlar bağlamında aşağıdaki ifadeleri değerlendiriniz.

(1) çok az önemli ya da önemli değil, (2) az önemli, (3) önemli, (4) çok önemli, (5) en üst düzeyde önemli

39. **Uzmanlık/ilgi alanına en uygun kalitede programa sahip olması.** *
Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
çok az önemli ya da önemli değil	◯	◯	◯	◯	◯	en üst düzeyde önemli

40. **En tatminkar maddi olanağın verilmesi.** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

41. **İş olanaklarının fazlalığı.** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

42. **Çalışma yaşamında/meslekte hızlı ilerleme şansı** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

43. **Büyük bilim merkezleri ve/veya iş çevreleri ile yakın ilişkiler** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

44. **Kurumdaki Türklerle ilişkinin olması** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

45. **Sosyal ilişkilerin rolü (Eş/ilişki durumu vb.)** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

46. **Tanıdık, bağlantı vb. o ülkeye girebilme ve bir süre yaşayabilme olanağı** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

47. **Şu anda bulunulan ülkenin yaşam tarzına yakınlık hissedilmesi** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

48. **Şu anda bulunulan ülkedeki sağlık hizmetlerinin kalitesi ve kapsayıcılığı** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

49. **Şu anda bulunulan ülkedeki eğitim sisteminin kalitesi ve kapsayıcılığı** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

50. **Yargı sisteminin/ kurumların bağımsızlığı ve güvenilirliği** *
Yalnızca bir şıkkı işaretleyin.

1	2	3	4	5
◯	◯	◯	◯	◯

Türkiye ile şu anda bulunduğunuz ülkeyi kıyasladığınızda;

(1) daha kötü, (2) ne daha iyi ne daha kötü (3) daha iyi

51. **Şu anda aldığınız ücret ile sağladığınız yaşam standardını, Türkiye ile karşılaştırdığınızda şu anki durumunuz;** *
Yalnızca bir şıkkı işaretleyin.

	1	2	3	
daha kötü	◯	◯	◯	daha iyi

52. **Çalışma ortam ve koşullarını, Türkiye ile karşılaştırdığınızda şu anki durumunuz;** *
Yalnızca bir şıkkı işaretleyin.

1	2	3
◯	◯	◯

53. **Alanınızla ilgili olarak, çalıştığınız ülkedeki çalışma ve araştırma ortamını Türkiye ile karşılaştırdığınızda durum;** *
Yalnızca bir şıkkı işaretleyin.

1	2	3
◯	◯	◯

54. **Yaşadığınız toplumdaki iş arkadaşları-üstler, ile ilişkileri Türkiye ile kıyasladığınızda, şu anki durumunuz için hangi yargıyı seçerdiniz?** *
Yalnızca bir şıkkı işaretleyin.

1	2	3
◯	◯	◯

55. **Yaşadığınız toplumdaki komşu, arkadaş ve tanıdıklar ile ilişkileri Türkiye ile kıyasladığınızda, şu anki durumunuz için hangi yargıyı seçerdiniz?** *
Yalnızca bir şıkkı işaretleyin.

1	2	3
◯	◯	◯

56. **Yaşadığınız toplumdaki sosyal yaşamı Türkiye ile kıyasladığınızda, şu anki durumunuz için hangi yargıyı seçerdiniz?** *
Yalnızca bir şıkkı işaretleyin.

1	2	3
◯	◯	◯

57. **Sosyal çevrenizde ya da çalışma ortamınızda (ücret, yükselme, projelere katılım vb. konularda) yabancı/göçmen olmaktan ötürü farklı tutum-davranışlarla karşılaşıyor musunuz? Karşılaşıyorsanız bu farklı tutum davranışları belirtiniz.**

58. **Bulunduğunuz ülkede ücret ve sosyal hakları yeterli buluyor musunuz?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

59. **Bulunduğunuz ülkede ücret ve sosyal haklar bakımından bir ayrımcılığa maruz kaldığınızı düşünüyor musunuz?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

60. **Yaşadığınız ülkede Türklerin oluşturduğu derneklerden birine ya da bir kaçına üye misiniz?**

61. **Türklerin ve Türkiye'nin yarattığı imaj bulunduğunuz ülkedeki yaşantınızı etkiliyor mu?**
Yalnızca bir şıkkı işaretleyin.

- ◯ Olumlu etkiliyor
- ◯ Olumsuz etkiliyor
- ◯ Hayır, etkilemiyor

62. **Türkiye'de yatırımınız/ yatırımlarınız (Gayrimenkul, Mevduat, Hisse senedi vb.) var mı?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

63. **Türkiye'ye ne kadar sıklıkla gidiyorsunuz?**
Yalnızca bir şıkkı işaretleyin.

- ◯ Yılda birkaç kez
- ◯ Yılda bir kez
- ◯ Nadiren
- ◯ Gitmiyorum

64. **Şu anda bulunduğunuz ülkeye ilk geldiğinizde, Türkiye'ye dönme niyetiniz var mıydı?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır
- ◯ Kararsızdım

65. **Şu anda ya da ileriki planlarınızda Türkiye'ye dönme niyetiniz var mı?** *
Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır
- ◯ Kararsızım

66. **Bir önceki soruda yanıtınıza dayanak olan sizce en önemli üç nedeni önem sırasına göre belirtiniz.(mesleki etmenler, sosyo-kültürel etmenler, ekonomik etmenler,siyasal etmenler,kişisel/ailesel etmenler, diğer)**

67. **Sizce, Türkiye'nin izlediği politikalar göz önüne alındığında, Türkiye'de devlet, beyin göçünü teşvik ediyor mu?** *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

68. **Bulunduğunuz ülkenin beyin göçünü kendine yönlendirme konusunda teşvik edici bir takım politikalara sahipolduğunu düşünüyor musunuz?** *

Yalnızca bir şıkkı işaretleyin.

- ◯ Evet
- ◯ Hayır

69. **Sizce Türkiye'nin en büyük sorunu nedir?**

_____

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CURRICULUM VITAE

Name and surname: Elif ÇOBAN

Place and Date of Birth: Kastamonu / 26.02.1992

E-mail Address: elifcoban92@gmail.com

Education:

Yıldız Technical University
Graduate School of Social Sciences
Master of Arts Program in Economics (English)
2016 – Present (3.14 / 4.00)

İstanbul University
Faculty of Economics
Department of Economics (English)
2010 – 2015 (2.59 / 4.00)

Çanakkale Milli Piyango Anatolian High School
2006 – 2010