

**BRAIN DRAIN IN TURKEY:
AN INVESTIGATION ON THE LEADING MOTIVES OF SKILLED MIGRATION¹**

Asst. Prof. Hasan Ađan KARADUMAN²
Elif OBAN³

ABSTRACT

Migration has recently gained importance in emerging economies. This study is mainly elaborated on international movements of skilled labor in Turkey. 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. 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. 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

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² Yıldız Technical University Faculty of Economics and Administrative Sciences Department of Economics

³ Yıldız Technical University Faculty of Economics and Administrative Sciences Department of Economics, MA in Economics

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 explains international movements of individuals. It refers to the movements of factor of production (labor) from one region to another in an economic approach. 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.

An individual who migrates is 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 can be find out. 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.

1. A REVIEW OF LITERATURE ON MIGRATION AND BRAIN DRAIN

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).

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.

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).

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.

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. 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. 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. 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.

1.1. 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).

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. 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. 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).

1.2. 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).

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. 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. 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).

However, push and pull effects are assumed symmetrical in Sjaastad's 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). Additionally, 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.

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 . 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. If and only if the expected net gain in the destination is higher than earnings in the origin, an individual can migrate (Etzo, 2008). 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.

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 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 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.

1.3. 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).

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).

2. BRAIN DRAIN IN TURKEY

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. 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).

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. 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. 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%.

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). 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. 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. 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. Although the highest increase in high-educated migrant stock is experienced in Germany between 2000 and 2010, 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.

3. DATA AND METHODOLOGY

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.

3.1. Subject and The 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.

3.2. 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. 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 based on (Güngör, 2003). 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.

4. RESULTS

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.) are 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 are evaluated. Then, their intent of return and the main motives behind this decision are considered, and some arguments on skilled individuals' leaving and return process are given. At the end of the research, it can be deduced which factors were dominant while they had decided to leave.

Birthplace of the majority of 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. 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.

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. The percentage of female participants who are between 25-29 years is 32 percent, and 20% is the rate for the males.

According to age-gender analysis, 57% of participants are female, and the rate of the male is 41%. The genders of 3 people are not proclaimed by themselves, on purpose. 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. Single participants overweigh the married participants. The total number of married participants is 45 with 29 women and 16 men. 34 spouses are Turkish, 4 of them are American, 2 spouses are German, and the rest of them are from different countries. 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 liberal arts, sciences,

or both. The percentage of participants with a Master degree is 47, and those with a Ph.D. is 11 (Table 1).

Table 1: Education Levels

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

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. In fact, Germany is not one of the most popular countries for Turkish skilled migrants in 2010; 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.

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. The natural sciences overweigh social sciences in terms of disciplines. The sum of fields such as engineering, science, information technologies is higher than the number of social sciences and humanities.

68% of participants surveyed stated that they are working in the destination while 54% of those surveyed stated that they previously worked in Turkey. 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.

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. 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.

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.

4.1. Push 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.

According to statements of participants, lack of a working environment to fully implement the expertise of knowledge, job dissatisfaction, insufficient occupational conditions or unsatisfactory working environment 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. 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 plays an important role in the decision to leave. In addition, corporate relationships and hierarchical structure causing unrest in working life are other factors highly rated by 37% of participants as important at the highest level.

Mean of the political reasons is 3.91, which is the highest percentage of importance rated by participants. 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 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 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 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 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 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 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.

4.2. Pull Factors

Independence, and reliability of the judicial system and institutions 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 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 is a significant factor for 70% of participants. Moreover, the geographical proximity to major science centers or business environment 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 are very important for 57% of participants. This factor is significant for participants as much as job opportunities 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 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 is not also above the prior expectations. 38% of the 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, social ties and networks at the destination, and Turkish people in the institution at the destination 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.

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.

4.3. Interpretation of The Leading Motives Behind Current 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. 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 overt 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. The evaluation of three main reasons behind return intentions was asked from participants. Political, economic or 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. 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.

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.

In summarize, primary motives are political and sociocultural factors for negative intentions and private circumstances for neutral and positive intentions. 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. 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.

CONCLUSION

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.

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.

Last but not least, most of the participants surveyed comment that the education system is the primary issue in Turkey. Furthermore, uncertainty is another prominent interpretation regarding the concerns of Turkey.

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