

## **QUALIFIED VERSION OF MIGRATION: BRAIN DRAIN**

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### **—Abstract—**

Though globalization suggests an international exchange of people besides goods and capital, developed countries often tended to put forward some restrictions on the migration of workers from developed countries. However, there has been an increase in skilled international migration especially during the last two decades. Skilled international migration or brain drain points out the emigration of educated and highly skilled workers. It seems that, in general, developing or underdeveloped countries experience the negative consequences of the brain drain and suffer from the decreases in their human capital. The paper explains the phenomenon of skilled international migration, or brain drain, and summarizes the main global trends in this area.

**Key Words:** Migration, Brain Drain, Globalization

**JEL Classification:** F<sub>22</sub>, J<sub>0</sub>, J<sub>2</sub>, J<sub>6</sub>

### **1. INTRODUCTION**

Many thinkers have made a lot of studies in order to analyze the reasons and the results of migration and firstly in 1885 Ravenstein systematically stated the reasons of migration as nine titles in his article named 'Laws of Migration'. Developing economic and social life brings new rings and new dimensions to migration problem. While developed countries which had needed skilled labour force before were making ceremonies for such people's coming, they began to see them as the reason of the problems and faults after the stability and change in the economic structure. Emigrants today form the main theme of the discourses of many Western politicians.

Global competition increasing internationally and development of information-based economic structure have caused the needs of skilled labor force to increase in the new process. On the other hand, decrease in labor force growing old of the developed countries' populations makes and the deficit of the skilled labor force in available labor force demand gives the opportunities from less-skilled emigrants to the skilled.

### **2. DEFINITION of the BRAIN DRAIN**

According to the estimations of the UN and World Bank, although world's labor force demand will increase more than two times up to 2050, it is estimated that the populations of developed Western countries, especially European countries will decrease but the populations of developing countries like India will increase substantially. Demands of the companies on skilled labor force have been changing into 'war on talent, battle for brain power' of the competition in global labor markets (Rüdiger, 2008: 9). Migration of skilled people has been developing since 1930s and firstly it has been put forward with the British scientists' going to the United States (Skeldon, 2005: 5; Quaked, 2002: 155). Realizing that economic development needs education and increase

in human capital supply is the main determinant of economic growth in long term has increased the interest on brain drain (Adams, 2003: 1). Brain drain includes educated people and it has not been decided on which people are included in.

By the means of 'The manual on the Measurement of Human Resources' (1995) and 'Canberra Manual' and the studies of OECD and European Commission, it has been aimed to provide the standardization of data on human resources in the field of science and technology and professions and skills have been classified. In Canberra Manual, it is stated that technical people who necessitate engineering in information based economies and important quality in search and development should be defined in Science and Technology professions. This definition is very narrow scaled and includes the professions businessmen, teachers, health service providers; however, creative classes such as authors and artists are ignored (IOM, 2008: 53). As there is no conceptual unity on who are included in brain drain, any theory on brain drain has not been realized. At first, skilled migration was thought to be realized in order to maximize the gains of invests that ones having formal education are searching more favorable job. However, such an approach does not include deficits, discriminations, institutional factors in labour sector and micro problems resulting from informal education. Macro based structural Marxist approach bases prosperity differences between the center and neighbour countries on the discriminations of gender, race and class. The third approach includes individuals, structural and institutional parts (Iredale, 1999: 91). The diversity of migration that the skilled realize has made developing of theory very confusing. But, the movement of highly skilled labor force can be titled as individual and organizational.

A highly skilled person realizes his migration process individually or via an organization. Realizing migration process in order to have better conditions, the individual sometimes can catch some expected opportunities. He can be forced to work in very different areas out of his skills. For example; a graduate Indian knowing English proficiently and going to Stockholm (Sweden) can be a taxi driver and engineers can work as marketers (Quaked, 2002: 156). And it causes brain waste. The ones emigrating under an institutional roof have the least possibility to meet social problems when going places needed, have better wage and promotion conditions compared with their countries, do not meet institutional barriers and have easier integrations (Peixoto, 2001).

In order to decrease the disadvantages of skilled labor force to the country's economy, countries such as South Africa and Jamaica are searching to demand damages from developed countries with the aim of limiting brain drain and decreasing the loss of skilled labor force. On the other hand, it is seen that countries like Indian and the Philippines form agencies to market the labor force they have (Martin, Abella and Kuptsch, 2006: 70). And these people shown as skilled employee can be seen working on other jobs illegally after taking the working license. For example; there may be extreme incident that in October 2000, Atlanta based 'Deep Sai Consulting Inc. took H-1b visa for only 20 of 43 programmers coming from India and lost the rest and INS named them as 'white collar alien smuggling' (Martin, Abella and Kuptsch, 2006: 68). Despite the increasing demand on the highly skilled, migration policies of developed countries are very limiting. So it causes companies to meet problems on employing emigrants.

**Table 1: Access to a Foreign Labour Pool**

Direct Job Competition	No restrictive immigration laws	Restrictive immigration laws	Indirect job Competition
	All companies have a global human resource strategy	Offshore outsourcing	
	Immigration of workers with a specific skills set/occupation	Imports of products and services	

**Source:** Rüdiger Katerina (2008) Towards a Global Labour Market? Globalisation and the Knowledge Economy, June, the work foundation.

Although migration is an actual issue for developed countries, while world's trade volume increases more than seven times between 1975 and 2005, increase in emigrant number worldwide was only 2,5% in the same period. However, world trade had shown a sudden increase since 1960s and between the years 1989 and 1998, the GDP increased 3,2% on an average and the world trade increased 6,7% since 1990s and in 2030 it is estimated that the trade of goods and services in global trade will reach 27 trillion dollars. For the last twenty years, FDI (Foreign Direct Investment) increases 10% annually (Rüdiger, 2008: 14). While global movement of goods, services and capital is increasing rapidly, movement of labor does not show the same development.

As developing countries are canceling the preventions of goods, services and capital within GATS (The General Agreement on Trade in Service), they want the preventions of people's service presentations to be cancelled. Within GATS, the management of movement of skilled people is provided via multi-side agreements and within Mode 4, temporary movement of employees in services sector is provided in order to meet the needs of labor force. Skilled employees are aimed to be circulated continuously and people going to serve have days off less than ninety days. Declaring the economic and social differences between countries, developed countries oppose freer movement of labor within these agreements. So they are out of global labor.

### **3. POLITICAL CHANGE for INCREASING DEMAND and ATTRACTION to HIGHLY SKILLED**

The policies of the countries that want to attract highly skilled people change from time to time considering the changing conditions. While there had been no obstacles for the factors such as physical capital, skilled and non-skilled labor force in international area, the countries taking and giving migration benefited from this situation mutually until the beginning of the 20<sup>th</sup> century. But in the following years, migration policies of countries and governments had changed and become limiting for the approaches on non-skilled labor force and migration of highly skilled employee was encouraged considering the economic needs and growth factor (Thomas, 1968: 29). In this change process, the USA began to change Migration Law on attracting the highly skilled labor force much earlier than the other countries. Scientists and Highly skilled people had the opportunity to emigrate via Migration Law 1965. Signing the relevant law, the President Johnson said 'The ones going to contribute to this country, its power, strength and ideals are going to be accepted first.' The fact that the USA generalized the migration from the European emigrants to the whole increased the highly skilled migration into this country.

Only the 2,6% of emigrants into the USA in the years between 1907-1923 and the 16,9% of the emigrants coming in the years 1947-1965 (2,208 of 372.000 emigrants) include the highly skilled but this rate increased to 22% in 1965 (Thomas, 1968: 33). 2,489,478 of 6,881,218 people declared to have migrated from developing countries to the USA until 1990 were graduated from at least (or more) (Carrington and Detragiache, 1998: 15-16). The USA began to practice H1B visa in order to attract the skilled and educated in 1990. The USA has become advantageous over the other countries, following the leaping and innovative policies.

In the process of information society and global market, demand on skilled labor graduated from college has increased for the past 25 years. Considering the increase in the highly skilled in Western countries, the increase in developing countries is two times more (Rüdiger, 2008: 38). So, job opportunities in developed countries and unbalance between increase in less-skilled labor force and demand increase the demand on such people. While there were 2,3 million researchers in OECD countries in 1990, the number reached 3,6 million in 2002. But, in order to reach Lisbon aims of the EU, it is needed to add 700000 researchers up to 2010. According to the estimation for the EU by European Center for Development, it is put forward that between the years 2006-2015, more than 13 million jobs will be occur and 12,5 millions of it will be highly skilled (Rüdiger, 2008: 19-21). The European Commission predicts that EU will have highly skilled labor force deficit in the sectors of engineering and computer technology and will need about 20 millions of highly skilled emigrants in the next twenty years (Rüdiger, 2008: 38). It is estimated that the USA will need 800000 nurses up to 2020 only in the health sector (Skeldon, 2005: 20).

So, in the recent years, the UK, France, Ireland, Germany, Canada and Australia, taking the most skilled labor force, have changed the admission systems. These changes are generally on temporary works. France realized some regulations in 1998 to make migration of scientists easier and brought some opportunities for highly skilled to get in the country, obtain working license for one year, combine family. But, despite this regulation, France is behind the USA, UK and Germany. The UK provides the ones who get the conditions of point system and find job when they are studying to stay in the country. Denmark, the Netherlands and Sweden practice tax reduction (the Netherlands reduces 30% for ten years). These opportunities can cause chaos in a country. Romania has made tax practice for the IT employees who want to work there. But, this caused chaos between IT employees and the others (Quaked, 2002: 160). Ireland gives working license to the person who finds job in its companies (Mahroum, 2001: 31-32). Germany gives working and domicile license (for five years) for engineers and IT managers via Green Card application. The countries taking migration can limit yearly in order to preserve labor force in international labor market. Germany stipulates for highly skilled specialists such as engineers to provide at least 85.000 € for a year. The other European countries classify the highly skilled specialists considering the sectors (such as IT experts or nuclear specialists) (Rüdiger, 2008: 17).

McLaughlan and Salt's (2002) studies on ten countries taking migration, the change in practices of these countries has been put forward and has classified these practices (p.5):

- i) "Work permit regulations and procedurs have been simplified in order to facilitate entry of highly skilled migrants, largely as a result of employer pressure (Netherlands, France, Norway).

- ii) Strategies often address specific shortages (IT related -France, Germany, Netherlands, Ireland, Canada, Australia, USA, Denmark and health related -Norway, Denmark, Ireland, Netherlands).
- iii) Schemes are part of wider policies to (Encourage participation of existing foreign workers–Denmark; encourage return of highly skilled emigrants–Ireland and develop training programmes for indigenous workers, especially those who are unemployed–Germany, Netherlands).
- iv) Facilitate access to the labour market for spouses of highly skilled migrants (Canada).
- v) European schemes are largely temporary with possibilities for permanent residence (excluding Germany).
- vi) Australia and Canada have permanent skilled migration entry routes with several specific schemes.
- vii) Australia, the US and, to a lesser extent Canada, have rapidly growing temporary programmes”.

Papademetriou (2003) has classified the methods of employing skilled and educated people and Australia, Canada, New Zealand and the USA. Employment based admissions: they are worked at the works that cannot be filled by the native employees. In the needed areas, deficit is aimed to be compensated immediately. While the US practices the permanent labor force policy to all the highly skilled, Australia and New Zealand practice to some areas. Canada, however, gives temporary working license on the employment base to the poorly and highly skilled. Labor market testing: government identifies labor market segments and fills in those jobs with skilled foreigners. Talent accrual approach: aims to admit the best and brightest. Filtration systems: include temporary working admission for some jobs or filling the positions of highly skilled by the students and giving permanent domicile permission to them. The countries taking migration are in the process of policy making in regional institutionalization as members other than policy making as single.

**European Union (EU):** EU is not successful over the other countries as it cannot show the flexibility of attracting highly skilled foreigners. In result of assessments by EU Commission, it has been defined that highly skilled labor force has some obstacles. These are (European Commission, 2003: 223): Regulating conditions and bureaucracy; institutional factors, economic factors, information providing, the fame of universities and research centers, culture and language factors, attraction of general life standards of the host country and geographical position.

The EU, which cannot develop single migration policy making other than for asylum seekers, has begun to work on single migration policy making in admitting 3<sup>rd</sup> countries’ citizens and ‘Blue Card’ practice is aimed to be realized. The president of European Commission Jose Manuel Barroso declared in 2007 that they needed to practice ‘Blue Card’ in a short time if they wanted to be competitive in information based economy (Cerna, 2008: 20). Single standards have been aimed so that people who are going to apply for the card can obtain the right of working in EU countries provided that they have acceptable diploma and 3-year experience. These attempts have some resistances in some countries. While France, Spain and Italy are supporting, the Czech Republic refuse the movement of new member states’ citizens. Some countries think that via this

card migration from African countries can be excessive. The German Conservatives think that it will cause the unemployment of millions of EU citizens. Socialists, however, think that this application will open some legal ways and will contribute to the free movement of employees in Europe (Cerna, 2008: 3-19). In May 2009, member states of EC Summit accept a single practice on admission of highly skilled and definition of their rights via Blue Card. Expire day of Blue Card can change from one to four years and can be renewable. The card owner can obtain the right of going another member state and work there after 18 month staying in a EU state. And they can have the same working conditions, organization, real estate and education rights with the member state citizens. In order to practice 'Blue Card', the necessary regulation must be realized in two years. EU is trying to fix its disadvantageous position over the US and Canada.

***North American Free Trade Association (NAFTA):*** NAFTA, founded by the US, Canada and Mexico in the 1<sup>st</sup> of January, 1994, does not form a common market for labor force despite the easiness of businessmen's temporary entrances. Every state is independent in preserving the permanent employment and practicing migration policies. So, NAFTA does not include the attempts of regulation and adjustment of qualities as EU. While there are some comforts for skilled labor force, there is a hard inspection process (Iredale, 1999: 103-104). The article 1603, chapter 16 of NAFTA Agreement regulates permanent entrance of skilled people in the fields of business, management, public health, security and national security. When necessary, skilled people can obtain 1 or 3 years of temporary working license.

***Australia and New Zealand Closer Economic Agreement (ANZCERTA):*** ANZCERTA economic collaboration agreement came into force in 1982 between Australia and New Zealand, which are members of Community of English Nations. There are no obstacles between these states about the movement of people (Iredale, 1999: 104).

***The Asia-Pacific Economic Cooperation (APEC):*** APEC, which was founded in 1989, has 21 member states. Aiming to develop trade between members, the foundation does not include a regulation on skilled people. The businessmen of the member states take a special 'Business Travel Card' (ABCT) in order to make the movement easier. This certificate, given by national authorities of member states, is given for three years and its multiples. It provides to make two or three months staying easier in APEC states. But the owner of this card does not give working permission of the wage that native employees take (Martin, Abella and Kuptsch, 2006: 81). Employment of skilled people in companies of member state is realized in GATS Mode 4. APEC includes very different countries. While there are rich states attracting skilled employees most such as the US, there are poor states like Viet Nam. And the fact that there are states like Russia and China, which compete for the political power with the US makes nearly impossible to develop single policies on the other areas other than abolishing the trade obstacles.

***The Caribbean Community (CARICOM):*** CARICOM, established between Trinidad and Tobago resembles, resembles EU model of labor mobility. CARICOM later turned to a structure with fifteen members after the joinment of the other countries of the region. It includes the constitution of single market without a political integration and the unimpeded transition of goods, labor and services between boundaries. It works to provide the harmony of labor markets and for the harmonization of labor standards (IOM, 2009). In the regional corporation agreements, it's seen that member countries has made regulations to abolish the obstacles in the way of labor with

their equivalent collocuters or they try to apply them. But, in the constitutions where countries of different growthness levels takes place, application in the scope of GATS mode 4 is carried for the labor force even if it is qualified. Even the countries who has realized the free movement of labor in themselves could not apply a single policy about the acceptance of skilled workers to gain advantage in the global competition. But with the Blue Card application, they has decided to carry out an application which can minimize the qualified human force competition between themselves.

#### 4. DIMENSIONS of BRAIN DRAIN

The global distribution of immigrant stock is between the regions South-North, South-South and North-North. Besides data which can show the dimensions of brain drain caused by high qualified labor force does not exist, in some countries, statistical data which shall show that is not taken or published. The countries which allow immigrants most are US, OECD and Arab Gulf countries. Gulf countries do not give any data about the characteristics of immigrants. US and European Countries applies different criterions during calculations. US suggests land/citizenship criteria. For example, little children of an immigrant coming from Mexico is not described as immigrant. Immigrants can be catogarized according to their education status. The number of the ones entered illegally is not known. The data of OECD countries are deficient in three sides when compared with US applications (Adams, 2003: 7-11): 1) the education status of immigrants is not known( for example, the education status of Turks in Germany is not known? If 40% of Turks in USA has taken tertiary education, is the rate same for the ones in Germany?) 2) immigrant children born in US are defined as US citizen. In OECD countries they are classified according to the ethnical origin. The children of a Turkish family borned in Germany is defined as immigrant. It impedes to give the real number. 3) while US takes 50 countries that gives migration into account in the calculation, OECD countries takes notice of only the 15 countries which they take migration most. This makes it harder to compare the countries giving migration in different criterion.

**Table 2: Estimates of the Brain Drain from Africa: Emigration Rates for Tertiary Educated, 2000**

	Percentage of nationals with university education living abroad, 2000
>50	Cape Verde, Gambia, Seychelles, Somalia
25-50	Angola, Equatorial Guinea, Eritrea, Ghana, Guinea, Bissau, Kenya, Liberia, Madagascar, Mauritius, Mozambique, Nigeria, Sao Tome and Principe, Sierra Leone
5-25	Algeria, Benin, Burundi, Cote d'Ivoire, Cameroon, Chad, Comoros, Congo, DRC(formerly Zaire), djibouti, Ethiopia, Gabon, Guinea, Malawi,Mali, Mauritania, Niger, Morocco, Rwanda, South Africa, Senegal, Sudan, Swaiziland, Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe
<5	Bostwana, Lesotho, Burkina Faso, Central African Republic, Egypt, Libya, Namibia

**Source:** Kapur Devesh and John McHale (2005) The Global Migration of Talent: What Does it Mean for developing Countries? Center for Global development October 2005, p.3.

The number of immigrants from the devolving 60 countries to US and OECD countries is estimated according to the estimations by Carrington and Derragiache (1998). According to this( p. 15-23): 2,489,478 of 6, 881, 218 (36%) immigrants who were in US in 1990 were set forth to be tertiary aducated. It's determined that the 59% of the profesionally skilled immigrants are from Asia Pasific, 4% from Africa, 26% from countries of North America, 11% from countries of South America. It's seen that the ones coming from Middle America countries shows difference when comperad with the growing countries and the level of secondary education is higher than tertiary

education, the countries which has low population condese like Guyana and Jamaica have lost a big rate of qualified human force with migration. Most of them migrates to US.

There is labor force more than 3 billion in the world but there is not a reliable data about how many of these are professional. According to UN, 105 millions of 175 millions immigrants are in the industrialized countries. Half of the citizens of industrialized countries supposed to be in labor force and the immigrants have the same qualifications. It means that 52 million immigrant are in labor force: 40 billion (75%) of these are from the growing countries. How many of these immigrants have the professional adequacy? If more than 20% of the labor force of industrialized countries are of professionals(Professional credentials, a bachelor degree or more) ,it means that 94 millions of 470 millions are Professional. Thus, if we adapt the same rate to the immigrants, it shows that 8% of immigrants who come from growing countries are professional. This means that 9% of the professional labor force of industrialized countries consists of immigrants. But it is not known that how many of the professional labor force of 2,5 billions of growing countries consists of professionals. If 4% of the workforce of these countries consists of professionals, it meets 101 million people. In this situation, professional immigrants constitutes 9% of the professionals in industrialized countries. If the professionals in growing countries constitutes 2% of labor force, growing countries have 50 millions professional labor force. This means professional immigrants represents 16% of growing countries. Both ways of estimation shows that professionals of growing countries are more than the simple workers ( Martin, Abella and Kuptsch 2006: 55-56).

Flow of international highly skilled people to countries with high income has risen in the last years. The migration of the highly skilled ones to OECD countries has risen in the rate 46% between the years of 1990-2000. In the international mobility, % 35 of it are immigrants born in Asia, 34% are from Europe origin, 23% are from North America, Latin America and Caribbean, and 7% are from Africa (IOM, 2008: 51,54). Science and engineering has risen from 7.6% (1970) to 15% (1997) by showing increase more than three multiple in US. According to the last data, the number of foreigners in the field of science and engineering in US has reached to 3,3 millions (16% of total) and 2,5 millions of these consists of the ones who has come from devolving countries( Leipziger, 2008, 1). Rudiger (2008) suggests that this number has increased between 2000-2001 much more.

From the beginning of 1990s, migration to Canada has decreased and this is caused by the change which gives importance quality and selectivity with a regulation in the migration law. While the rate of highly skilled ones in the immigrants who came to Canada was 25% in 1993, it has risen to 38% in 1995 (Salt, 1997: 12). It's revealed that between 1989-1996 50.578 people entered to Canada as a result of the migration in the categories Administrator, Health Services, Science man/ engineer and 48.607 people scolded from Canada (DeVoretz, 1999: 23).

When compared with European countries, according to estimations of European Comission 1,72% of total highly skilled labor force which are employed in US, Australia and Canada consists of the ones who has come out of EU. In 2000, 7.5% of total population consisted of foreigners and 9,2% of 40,5 millions foreigners were high skilled ones (Rudiger, 2008: 39). While US and Canada take the most of immigrants from Asian countries, most of the migration that European countries take are from European Countries. Japan and Republic of Korea (South) take migration from other Asian countries (IOM, 2008: 56).

**Table 3: Number of Employed Professional and Technical Migrants in OECD Countries: 2000–2001**

Countries	Thousands	Countries	Thousands
The United States	4,103	Netherlands	244
Canada	918	Italy	234
United Kingdom	715	Switzerland	178
Australia	659	Spain	166
France	557	Other Countries	920
Germany	496		

**Source:** Adapted from Rüdiger 2008.

UK is the country which has the highly skilled foreign labor force between the European countries. France and Germany follow it. Although it is one of the economically dominant countries of EU, Germany comes after other countries. It's seen that Germany wants to gain advantage of this negative situation with Gren Card application. Italy does not seem succesfull about this subject even it has a strong structure economically. When looked to the regional position, countries which takes place in mediterranean basin have a proportionally low structure. On the other side, the historical characteristics of the countries where this people are present densely should be emphasised. The colonialist applications and languge sharing (its being official or widespread) of the countries like UK, France impact the mobility of this countries and asist them to be attraction sites. Although Spain had colonies and language widespread, its being far from the regions which will effect positively causes the migration turn to North America countries from this region.

One of the important sources of brain drain is the foreign students who come to these countries for education and live this countries after the education. Espacially, major European and English speaking countries have implemented designed their policy for attract foreign students (IOM, 2008: 57): i) Facilitating student admission poicies. ii) Student outreach and university marketing programmes. iii) Providing for easier transition from student to worker status (especially science and engineering).

OECD countries includes 85% of the foreign students in high education. Between the years 1998-2004, number of foreign students reached to 2,7 millions by increasing. More than 2/3 (66%) of the students present in OECD countries in 2004 werw from foreign countries. This shows that flow of students is from South to North. Five countries in the tendency to North includes 58% of total number of students. 22% of all students in the world are in US, 11% in UK, 10% in Germany, 9% in France, 6% in Australia. English is the official language in five countries except from Germany and France. First ten countries in the list of the countries which have most students includes 75% of all students (IOM, 2008: 106).

According to the analysis of OECD (2007), the number of students from OECD countries in New Zealand, the Czech Republic and Korea have increased in important rates. The number of students in South Europe, Ireland, Australia, France the Netherlands and Japan have also increased. Only the number of foreign students in Turkey decreased. China, India and Korea constitutes an important source. 60,000 of these are in Germany, Japan, Morocco and France. While most of the European students are in European countries, most of the students from Asia and other regions of the world prefer OECD countries. Exceptions of this rule are UK and Brasil and they take and

send students in same rates. Reason of the change in the mobility and preferences of students is the means that the countries they want to go provide for students. Right of residence which is provided for the students who fulfill their education increases the demand to this countries. Japan gives right to life and right to work to those who complete education. 11% of the students who have fulfilled education in Australia and 6% in Canada have got the right of residence. 1/ 3 of the ones in Canada hope to get residence and citizenship right.

**Table 4: Numbers of Foreign Students in the main Host Countries, 2004**

Countries	Numbers	Countries	Numbers	Countries	Numbers	Countries	Numbers
USA	572,509	Denmark	17,162	S. Africa	49,979	Lebanon	13,930
UK	300,056	Kyrgyzstan	16,249	Belgium	44,304	Cuba	13,705
Germany	260,314	Portugal	16,155	Spain	41,734	Hungary	12,913
France	237,587	Jordan	17,816	Italy	40,641	Ireland	12,698
Australia	166,955	Ukraine	15,622	Sweden	36,456	Norway	12,392
Canada	132,982	Turkey	15,298	Switzerland	35,705	S. Arabia	12,199
Japan	117,903	Czech Rep.	14,923	Austria	33,707	Korea Rep.	10,776
Russian Fed.	75,786	Macao SAR	14,627	Malaysia	30,407	Romania	9,730
N. Zealand	68,904	Greece	14,361	Netherlands	21,259		

**Source:** Adapted from IOM, 2008: 107.

It's seen that 50% of the students taking doctorate education wanted to stay in US (1990) according to the results of the study done to determine the rate of the foreign doctorate students who wanted to live in US after the education. (Science and Engineering 2002: 2/30-36). This number has risen to 72% in 1999 and 50% of them accepted the job offers that they took. The rate of the students who went back to their countries (1999) was 10% for countries like China, India, 38% for Taiwan, 41% for Turkey. Rate of returning in countries which have middle level of income is higher. While students from the countries with high level of income turn back to their countries after a while, students from the countries with lower level of income extend the time of staying or stay permanently.

## **5. POSSIBLE IMPACTS to EACH SIDE**

Some impacts are seen on the countries left or gone in the mobility of highly skilled human force.

### **5.1. Economic Effects on Immigration Country**

Important advantages are provided with labor mobility. According to a study, it's suggested that yearly contribution of liberalization on the mobility of 3% of labor in OECD countries to global prosperity is about 150 billion dollars (IOM, 2009). Whether it is evaluated or not, highly skilled person who go to a foreign country upon a request contributes positively to the production or service of this country.

It is mentioned that in Germany, 165,000 highly skilled jobs are unemployed and it causes a loss of 18.5 millions Euro (0,8 percent of GDP) in the GDP of Germany that the 65,000 other jobs can not be employed periodically (Rudiger 2008: 35). Highly skilled human force add economic value to the country that they are present.

When these people are in working conditions where they can show their experiences and improve themselves, they make positive additions to the countries where they are from the point of improving technology, production, services and ar-ge studies. This people also contributes by creating new working areas and providing employment as enterprisers. In the studies of Duke University and University of California at Berkeley in US in 2006, it is found that at least 25% of the places of employment in the field of sciences and technology are established by immigrants. It's revealed that these bussinesses provide employment for at least 450,000 people and their endorsement reaches to 52 billion dollars (27% of biotech companies in New England have been established by foreigners and their endorsements are 7,6 billion euros) (Economic Contributions, 2008). When looked at immigrants generally, it is seen that they contributed to the budget by paying 300 billion dollars tax in 2005, they benefited from less services than the tax they paid, contribution of immigrants to social security service reached to 450 billion dollars. Because the age profiles of immigrants are young, it is supposed that they will contribute to social security system in the future (Do Immigrants Pay, 2008).

## 5.2. Various Effects on Emigration Countries

*Supply Side:* A country that loses its human force capital has an economic value as a result of the production factor naturally decreasing. Because they will be deprived of employment activities, they will be deprived of tax income and they will be deprived of expenditure of the income. If they stay in their countries, do they have the economic potential enough to create sufficient employment opportunity? According to the neoclassic economic growth, economic growth can slow down in a country that loses human force whether it is skilled or not. But, if sufficient opportunities are not provided when skilled ones stay in their country, they can not contribute to economy and there will be brain waste because this force is inactive. Enough investments should be done to use these people who have skills productively. They can contribute to economy only in this circumstances.

Different claims have been set forth in the discusses related to brain drain. Schiff (2005) suggests that brain drain does not have much effect on prosperity and growth and has less effect that it is supposed to have according to the studies on brain drain recently. It is mentioned that brain drain does not have much effect on countries of which the population density is high, but countries with low population density have more losses causing from brain drain because propulsive reasons of migration is felt more densely in these countries (Beine, Docquier and Schiff, 2008). In another study of Beine, Docquer and Rapoport (2003), it has been revealed that countries where brain drain rate is low have been effected positively from this situation. It is supposed that negative effect is more in the countries which meet brain drain including 5% or more of population and 20 % or more of highly educated.

When we look at the ideas suggested in the discusses, we see that there are different determinations. It is suggested that investments have finished in South Africa because of the lack of skilled human force (Quaked, 2002: 155). Although this country loses 2000 human force in the field of science and technology every year, skilled labor force reached from 1,64 million in 1996 to 2,51 million in 2002. But, in the same time, unemployment rised from 9% to 16,5% (Skeldon, 2005: 21). In spite of migration, increase in human force stock is provided but unemployment have increased in the same time. So, it does not show the fact to claim that migration has direct effect on

economic growth. For example, because the doctors in South Africa do not want to work in the rural areas of their countries (Skeldon, 2005: 22; Martin, Abella and Kuptsch, 2006: 71), the shortage of doctors and health personnel is filled by Cubans. 80% of doctors in rural areas consist of Cubans. The fact of migration makes some countries gain advantages, but it creates problems for some. While nurse migration creates a problem in Jamaica, it is a strategy of exporting human force and an important number of nurses are educated to export nurse (Quaked, 2002: 157; Kapur and McHale, 2005: 3).

*The role of diaspora in fostering transfer of knowledge, technology and remittances:* It is possible to turn brain drain to brain force. When the highly skilled ones that have migrated turn back permanently or temporarily, they have a positive effect on the development of their country in some technologic areas by contributing to skill, capital and technology transfer. China, Taiwan, India and South Korea can be given as examples. Immigrants born in India working in IT sector in US assist in its being an exporter country in IT sector by providing the flow investment, technology and information. Diaspora helps growing local industry and global research network improve in institutional level (Armenian and Argentinean diasporas have met limited success. Colombia's CALDAS diaspora created with government support, was initially successful collaboration and Exchange program with research in Europe and North America in the 1990s). Some banks support this type of projects (in Mexico, Argentina, Chile, Brazil, and the Republic of Korea) (Leipziger, 2008: 3-5). Those who return strengthen the present information with a good education and job experiences.

Money that the immigrants transfer to their country constitutes important input for the economy of the country. They contribute positively to close the inequality of payment balance, decrease poverty and grow of GDP. But the share of the highly skilled ones of the ones who send money should not be exaggerated. The tendency to send money is much more in low skilled ones than highly skilled ones. The possibility that highly skilled ones stay permanently with their families is high. Because they adapt to the community they are in easily. Highly skilled ones are more active in the areas of investment, business partnership. (IOM, 2008: 67, 336).

The most reliable information for money transfers by immigrants is provided by IMF (International Monetary Fund) correctly. No other institution takes and publishes official records. This data includes the ones who work officially (Adams, 2003: 4). 60% of all transfers go to growing countries (Quaked 2002). Growing countries which are aware of this monetary source try to apply economy policies which shall provide suitable exchange rate and stable growing to increase the input of worker exchange (Martin, Abella and Kuptch, 2006: 74). Because, in the situation of instability, immigrants prefer keeping their money in the country they are in rather than their homeland (Turkey could not show the success expected in attracting the accumulation of workers abroad).

Exchanges sent to country create new job opportunities by strengthening expenditure structure. According to the studies, with the factor effect of every 1 dollar, an increase of 2-3 dollars in GDP is observed. Those whose family are in agricultural areas head to mechanization in production with the extra income they provide and create new employment areas for more production. Thus, the country that have economic loss via migration gets support with the money transferred. In this

way, migration set up a new adjustment (Martin, Abella and Kuptsch, 2006: 74). Money that immigrants send to their country is more than FDI going to these countries.

*Promote to democracy:* Immigrants leave their countries not just because of demographic and economic reasons but because of the lack of main rights. Lack of highly skilled human force weakens the improvement of democratic rights in that country. Improvement of democracy and main rights have a positive help intellectuals stay in their country. Diaspora can play an active role in the improvement of freedom of expression via institutional organizations.

## **6. GENERAL ASSESSMENT: WHAT SHOULD BE DONE?**

It is impossible to prevent brain drain which is defined as the help of riches to the poor. But some measures should be taken to control this migration at least partially and to reduce the inequality between the sender growing countries and industrialized countries.

i) *Return should be encouraged:* the easiest way to meet the highly skilled and experienced human force that a country needs for growing is to provide the return of the brain force migrated to their country. For this, opportunities in that country should be improved. For example, new job opportunities should be created for the ones who have gone because of the lack of employment. According to IOM (2008), there are many skilled Indians who left their country because of the lack of employment in the field of IT. 30,000- 40,000 skilled people have returned to their country after the employment opportunities have increased with the help of increasing local and foreign investments in IT sector and because of the strict visa control in US.

Besides employment opportunities, economic and social conditions should be improved. Mexico has decided to give assurance of working in universities (PhD researchers) for a year and give loan for their researches to draw the students and researchers back with CONACYT programme. Cost of 2100 researchers who came back to their country between the years 1991-2000 reached to 57 million dollars. Colombia provided financing reached to 25,000 dollars per year for two years for 120 students who were taking education abroad and donated 25—50% of this financing to the ones who returned with COLFUTURO programme. But, it is worried that low skilled ones will return with this type of applications and highly skilled ones will stay (Leipziger, 2008: 2).

ii) *Provide skilled labor force circulation between sides:* cultural interchange programmes should be widespread as it is in US. US educates foreign scientists to National Institutes of Health for the doctoral programmes. These return to their countries and work there after they make researches in US (Quaked, 2002: 161). This application in field of health can be extended to other fields. Thus, skilled worker of a growing country can have the chance of researching, applying and improving in suitable working conditions. But countries with high technology may not prefer transfer of this advantaged positions in an easy way with the worry that this application in the field of health can provide technology transfer in the sectors like IT and communication (or strategic).

iii) *Taxation:* Bhagwati suggests that migration countries tax the differences between the earnings of immigrants in their own country and in foreign countries. But, because it is difficult for the sender country to tax its citizen who is abroad, he suggests that migration countries gather taxes from immigrants and send these taxes to their own country. Eritrea that gained independence from Ethiopia applies a policy aimed at its citizens abroad buy land from Eritrea and tax 2% rate of their

income to renew their passports. US excise 80,000 dollars of the first income of its citizens working abroad from taxation. This means that Americans who work abroad do not have tax debt (Martin, Abella and Kuptsch, 2006: 123). With taxation, income transfer will be provided and pay inequality rising from development will be reduced partially. But it is beyond doubt that there is difficulty in applying this successfully.

iv) *Monetary aid for the country of emigrant*: The most important problem of developing countries is insufficiency of capital which can realize investment. Developed countries can increase investments, business and production by transferring money. These countries increasing revenue level will contribute to world trade and both sides will benefit from that.

v) *Technology transfer*: (peaceful) developed technologies can contribute to production in developing countries via transfer. So, developed countries can make their investments in these countries profitable via single investments.

vi) *More importance for education*: The number of highly skilled people can be increased by investing more for education. And the opportunities of employing skilled labor force can be increased by giving importance to the professions needed by labor force market.

Compensating the prosperity differences between developing and developed countries can be possible with the practice of long term rational policies. It is not considered to be possible to change global inequality into absolute equality. But, what is important is to be able to decrease the number of the people who live in poor life standards.

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