



Academic year 2014-2015



Master's Degree in Economics of Globalisation and European Integration

**Migration towards Europe and the “welfare magnet”:
“Determinants of Turkish Migration to EU-15”**

Master dissertation

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Submission date	September 2015

Acknowledgment

I would like to express my sincerest thanks to prof. Claire Naiditch for her guidance, support, patience and valuable recommendations.

Declaration of authorship

I, Kristýna Jedličková hereby declare that the thesis Migration towards Europe and the “welfare magnet” was written by myself and that all presented results are my own, unless stated otherwise. The literature sources are listed in the Literature Review section.

Prague, September 30th, 2015

.....
Signature

Key words

Migration, welfare magnet, public social spending, inflows of migrants, EU's migratory policy, European welfare system, Turkish welfare system, Turkey, EU-15, gravity model, fixed effect, random effect, Hausman test, country specific fixed effect, time specific fixed effect.

Abstract

The purpose of this thesis is to analyse which factors drive migration from Turkey towards Europe and whether the welfare benefits play a major role in the decision making process.

The analysis is based on a gravitation model of migration in log-log form. The FE and RE methods were employed as estimation techniques and the Hausman test enabled to distinguish them. The present problem of heteroscedasticity was solved by adjusting the model with robust standard errors. The most important determinants appear to be individual's income which immigrants can earn in the states of the EU-15 and welfare benefits provided by the EU-15. The number of acquisition of citizenship, as a proxy for migration policy of countries the EU-15, plays also important role. The limitation of the model is that the rest of the variables are not statistically significant and therefore we do not consider them as important determinants.

List of Abbreviations

EU	European Union
UK	United Kingdom
WWII	Second World War
IMF	International Monetary Fund
WB	World Bank
TL	Turkish lira
U.S.	United States
NLSY	National Longitudinal Survey of Youth
ID	Identification card
GDP	Gross Domestic Product
PPP	Purchasing Power Standards
FE	Fixed effects
RE	Random effects
OLS	Ordinary Least Squares
RNIM	Research Network on International Migration
(F)GLS	(Feasible) Generalized Least Squares

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Introduction

In public debates the topic of the migration is one of the most controversial. For many years, there was a fear that immigrants take jobs and lower wages of native workers. However, in recent years the fear has extended beyond the labour market, and due to growth in the welfare state and benefits, also into the social spending. The potential migrants and the migratory policy in the destination country can be determined by the generosity of welfare state. The fear concerning immigration and welfare benefits can be based on two basic assumptions. Either people are afraid that immigrants use welfare benefits in larger number than natives or that immigrants can be attracted by states which are generous in these welfare benefits (Barrett, 2012).

International migration has become an increasing concern for EU citizens in the last two decades mainly due to the political changes in migration policies and patterns. However, the increase in migration flows into Europe started after WWII especially in the 1960s when Germany and Netherlands with guest-workers programmes tried to satisfy the growing demands of Western European economies with cheap labour from Turkey and South Europe. The migration policies of France and UK were based on attracting people from their former colonies. The fall of the Berlin wall and the gradual enlargement of the European Union have made migration even easier. The effects of increasing migration were analysed by academics and policy makers and the role of generous welfare transfers in attracting migrants is one of the most discussed. On the one hand, ageing European population and need of cheap labour workforce implies that Europe will need to attract new workers in order to overcome insecure future in these fields. On the other hand, there will always be fear of native population that migrants abuse the welfare system and profiting from its benefits as well as the problems with cultural integration of migrants in destination countries (Péridy, 2005).

Migration is one of the major issue in the relationship between Turkey and European countries. Organized migration from Turkey to Europe started in 1960s when Turkey and Germany (subsequently Austria, Belgium, France, the Netherlands and Sweden) signed a bilateral agreement on labour recruitment. Nowadays, there are around 4 million Turks in all EU and the biggest diaspora are in Germany and in the Netherlands (Elitok & Straubhaar, 2012). The major part of the Turkish community in EU is permanently residing and has obtained the citizenship of the country of living. Family reunification and the relatively high

birth-rate are the main reasons for increase of Turkish community over last decades. The fact of the hypothetical Turkish EU accession raised many questions regarding its advantages and disadvantages in many fields, also in the field of migration (Turkey has already applied formally for the EU membership and the negotiation rounds started in 2005).

The purpose of this paper is to analyse whether welfare benefits provided by EU influence Turkish people to migrate there and what are the main determinants of Turkish migration to EU.

I have decided to divide the dissertation into three chapters. In order for readers to have a clear and complete picture about what a welfare state is and how it can attract immigrants, the first part deals with the theoretical background and summarizes stylized fact about migration from Turkey to EU. The first chapter gives a brief overview of EU's migration policy and compares the welfare systems of the EU-15 with Turkish one. The history and trends of migration from Turkey to EU are included as well as the impact of those immigrants on the European labour market. The aim of the second chapter is to give a background to the applied part by presenting the literature overview and theoretical model which is based on the literature review. The dissertation largely follows a number of studies which have been already made in the field of welfare magnets and migration. The third chapter is devoted to the applied analysis using a gravity model. The estimation is made on a sample of the first 15 countries of the European Union over the period since 2000 to 2012. For these purposes, unbalanced panel data is used, which enables to control for fixed time effects and country-specific fixed effect. The preliminary expectations are, that welfare benefits will be one of the variables which has significant and positive impact on migration flows and will attract migrants from Turkey together with the level of income, which Turkish people can get in the destination. However, the evidence from the literature is mixed, and due to the lack of empirical literature on Turkish migration, the final model will determine the real trends. The results from the models are presented in the end of this chapter.

1. Stylized Facts

1.1. The EU Migration Policy

The increasing and aging population of Europe has contributed to an increased awareness concerning the need for immigrants. This demographic factor, together with the various welfare regimes, has provoked increased debate about immigration in European society. Especially, since 2014 the topic of migration from Africa have been daily debated in media and among European policy makers. The first steps in migration policy were taken in 1970s when an intergovernmental network called TREVI was established. The aim of this group was to strengthen the cooperation among police sectors and assist the European countries in combatting terrorism. However the main point in the European migration policy was The Amsterdam Treaty (1999) in which the policy makers of member states promised to develop common migration policy. The EU's immigration policy places priority on organized legal immigration based on the labour-market needs of each State , on family unification, highly skilled workers and integration. The EU has a common asylum policy, but the labour-migration policy is different from state to state (International Organization for Migration, 2009).

The migration policy includes both intra- and extra-European population movements. It can be said that the EU has not internal borders. EU citizens can travel (and work) to any other country without the need to show a passport or ID¹. Third country nationals do not qualify. When EU members ratified in 1985 the Schengen Agreement, the cooperation on migration and asylum policy began. The EU's migration agenda contains several fields. The first one is legal migration which includes permanent and temporary labour migration, family reunification, education and training and permanent residence. The next is illegal migration from economic and security point of view. The third one is the cooperation with the countries of origin and it also includes the integration policy which is connected with the migratory one. Even though the incentives of the asylum applicants and the applications for family reunification are not considered as primary economic, the number of accepted people from third countries plays important role on European labour markets. On the contrary illegal migration is mostly motivated by economic factors and the fact that illegal immigrants cannot be legally employed contributes to increased shadow economy including the human

¹ Except Bulgaria, Ireland, Cyprus, Romania and the UK

trafficking and other crimes. The term of A Common Immigration Policy for Europe has been used since signing of The Treaty of Lisbon. The policy concerning immigration and which represents the issue of asylum is called Common European Asylum System.

1.2. European Welfare State

The social support system is one of the most important ideals of the European Union and it has been an important element of European identity. There is a shared idea among EU member states that state is responsible for its citizens. Under the EU's generous welfare system, the model and level of benefits vary from country to country, however in general Europeans enjoy free health care, long-term unemployment support, sound maternity and child care benefits (Beardsley, 2010). Welfare state is a set of organised state interventions aiming to guarantee the provision of a minimum level of services to the population by a social system (protection). It is a redistribution of resources from more advantaged to less advantaged individuals. Among instruments of welfare state are social assistance and unemployment, health and other benefits which provide a help for those, who cannot normally participate in the socio-economic life of the state. The resources for welfare spending come from taxes and premiums, thus it is clear that the shift of these resources is from richer to poorer citizens. In the case of pensions, the redistribution works across generations – benefits for the retired individuals come from those, who are still employed and have some income. In some cases, such as with unemployment benefits, people pay a premium to hedge against the possibility to be unemployed. As it has been already mentioned, the welfare provision can vary from state to state. A main example in literature is difference between the EU and the U.S., when European spending on all part of welfare (with the exception of health expenditures) is much higher than the US one. The differences between particular welfare systems is the result of political choices which come from different historical backgrounds, social preferences and voting systems of these states.

If there had been no migration in this world, the redistribution of resources through taxes and benefits would have occurred just among the native citizens of the particular state. Nevertheless, nowadays, in the world which is globalized, migration, especially in developed countries, is an inherent phenomenon with rising trend. This fact brings about two questions, because immigrants are part of a country's population and welfare interventions are transfer to them as a compensation for unfavourable situation. The first one wonders whether

the immigrants have the “right” to receive welfare benefits and the second one is whether they fully contribute through taxes to support the host country’s welfare system. The public perception of immigrants in developed countries is more or less that they take more than what they pay and that they decide to migrate to countries with more generous welfare systems. The European opinion survey held in 2009 showed that 51% of people think that immigrants contribute less in taxes than they benefit from health and welfare services (Eurobarometre 71, 2010). Another widespread concern is that high welfare benefits provided to immigrants could reduce their level of participation in the labour market. On the contrary, when the benefits are too low immigrants can end up being socially and economically pushed aside and negative perceptions of them among natives could result of their lower integration and lead to social tensions (Giulietti, 2014).

The origins of European welfare state can be traced back to the period after WWII, when the establishment of some social framework reflected the baby boom, cheap energy and a desire to catch up with living standards enjoyed in the United States (Charlemagne, The Economist, 2011). The main objective of the social system in the EU is to create an equal society by ending poverty, guaranteeing substantive human rights, essential services and an income that can help every individual to live in dignity. The main pillars of European Social Model are:

- **Increased Minimum Rights on Working Conditions** including fighting against distorted competition, promoting equal opportunities between men and women, and improving health, safety and democracy in the workplace.
- **Universal and Sustainable Social Protection Systems** with a strong base in social solidarity. Even though the European Commission has claimed that the member states should decide about their social protection and pension systems in accordance with the subsidiarity principle², there are a number of references to and provisions on social protection such as universal social protection (at least to a certain extent) to reach all citizens without discrimination of any kind and solidarity ensured between different groups in society.
- **Inclusive Labour Market** are a priority of the EU and basic feature of European Social Model. The EU has adopted several goals in active labour market policy and the member states can freely determine the policies in order to achieve these goals. Their results

² The principle of subsidiarity aims at determining the level of intervention that is most relevant in the areas of competences shared between the EU and the Member States.

evaluated each year by the European Council which can make public recommendations to states which do not fulfil common goals. Labour markets are also expected to generate fair wages and decent living standards and Lisbon Strategy pushed forward the objective of ‘more and better jobs’.

- **Strong and Well-Functioning Social Dialogue** has evolved into a shared governance process at Community level since the Amsterdam Treaty. It is an important feature at Community level as well as in individual member states because over the years it has become a means in making progress in social areas. It covers many more areas, social as well as economic and political, in which the social partners may be included. Social dialogue can ensure that the social partners can contribute to avoiding gaps between what is discussed at higher levels and the microeconomic and social realities.
- **Public Services and Services of General Interest** are underlined in the Treaty of Lisbon and include services of general interest in the EU such as electricity, gas and transport as well as the right of every citizen to have an access to these essential services.
- **Social Inclusion and Social Cohesion** guided by the principle of ‘solidarity’ means not to leave any group of citizens out of the European construction. This implies significant social protection and social inclusion programmes in EU member states (Vaughan-Whitehead, 2015).

The social system of European countries differ from state to state, however there are three functions of the welfare state, which are used in modern capitalism and are represented in European countries in different ways. The first function is *Social investment* used for efficient function of the economy through expenditures in education, healthcare and pensions. The second one is *Income redistribution* which requires equal distribution of wealth or income for social and political stability. It includes social assistance and healthcare without insurance, family benefits or pension rights. The last one is called *Horizontal redistribution* and it is connected with lifetime incomes. This means that middle-aged individuals are taxed and that their money will be returned later on by pension scheme. This category also includes unemployment benefits.

Because different European states focus on different aspects of the welfare model, it has been identified that there are four distinct social models in Europe – the Nordic (the social democratic), Anglo-Saxon (liberal/social democratic), Mediterranean and the Continental (conservative). *The Nordic* model has the highest level of social

insurance. This model requires high taxes and high levels of employment. It characterised by high standard of living and citizens have confidence in their public system. We can find this model in Denmark, Norway, Iceland, Finland and Sweden. *The Continental model* is similar to the Nordic one, however it is characterised by higher level of expenditures to pensioners and unemployed. It has wide range of benefits, with social insurance as the principal feature of organization and distribution of benefits and it is typical for Austria, France, Germany or Belgium. *The Anglo-Saxon* model in the UK and Ireland is characterised by relatively lower level of expenditures. Benefits tend to be mean-tested, only the medical services are universal. The financing is a mix of contribution and taxation. *The Mediterranean model* has been developed later than the previous ones. It is similar to the conservative regime. It is the model with the lowest share of expenditures and is strongly based on pensions and a low level of social assistance typical for countries as Italy, Spain, Greece and Portugal. In addition, “*the management of the redistribution is often non-transparent and in some cases is heavily subsidized by taxation in clientelistic form*” (Balwdin- Edwards, 2002, p. 6).

Large differences exist among EU member states in the level and composition of social expenditures. For instance, about 60% of Italy’s expenditures went to pensions and at the same time Italy provided just nearly 10% of public spending to income support, involving unemployment insurance benefits as well as active labour market policies. In Denmark, Finland and Sweden these patterns are reversed. They spend relatively high resources on income support (between 24% and 29% of total social expenditures) while spending on pensions was (compare to Italy) low (from 27% to 29%) (Giulietti, 2014). Table 1 shows the different roles of welfare systems in single countries of the EU-15.

Table 1: Public social expenditure, % GDP, 2011

	2011			
	Health	Unemployment	Family	Net public social expenditures
Austria	6.7	0.9	2.7	22.8
Belgium	8	3.6	2.9	25.7
Denmark	6.7	2.2	4	23.4
Finland	5.7	1.7	3.2	22.6
France	8.6	1.6	2.9	27.9
Germany	8	1.2	2.2	23.7
Greece	6.6	1.1	1.4	22
Ireland	5.8	2.7	3.9	20.7
Italy	7	0.8	1.5	23.6
Luxembourg	5.8	1.1	3.6	18
Netherlands	7.9	1.5	1.6	20.7
Portugal	6.3	1.2	1.2	22.2
Spain	6.8	3.5	1.4	24.5
Sweden	6.7	0.4	3.6	22.5
United Kingdom	7.7	0.4	4	21.4

Source: OECD (2011)

Large differences exist among EU member states in the level and composition of social expenditures. Looking at the data, it seems that the biggest spenders are France, Belgium and Germany, followed by Scandinavian countries. The differences are also in the different structure of the expenditures. As it is clear from the Table 1, Spain or Ireland provide much higher level of benefits for unemployed than already mentioned Germany or Nordic countries. Traditionally, the highest level of assistance for families is in Scandinavian countries.

1.3. Turkish Welfare Regime

The European Union had undoubtedly a great influence on Turkish social policy and in the literature the Turkish social system is often compared to the 'South European' one. However, today's society in Turkey can be characterised by the socio-economic consequences

of high level of unemployment, urbanization and increasing life expectancy. The traditional mechanisms of welfare seem to show a growing inability to protect Turkish citizens from the challenges of modern society. The social security is not perceived by political decision makers as a main responsibility of the state. Without more political awareness of issues of social policy, future may lead to a higher and higher number of citizens exposed to the poverty and illness (Grütjen, 2008).

The development of the welfare state in Turkey started in the period after WWII, when countries in the Middle East remained way behind developed countries. The change began in the 1970s when these countries profited from the oil prices and especially Turkey faced high rates of urbanization and structural changes in its economy. Middle East countries caught up with the levels of per capita income or education of the developed world. First Constitution in 1924 brought the introduction of the concept of citizenship. In the year 1961 there was a new Constitution including important features of social policy and Turkey was proclaimed as a 'welfare state' (with the welfare rights on social security, education and housing and as well the right of workers in the workplace such as collective bargaining). In the 1980s the social policy in Turkey was changed from inward-looking economic regime to outward-looking, market-orientated economy driven by financial liberalization even though in this period Turkey was going through instability and economic imbalances. The programs and structural agreements arranged by the IMF and the WB together with the uneasy relation of Turkey and the EU and following accession negotiations formed the social security system and labour market in Turkey (Aybars and Tsarouhas, 2010).

As it is already mentioned, Turkish welfare provision has a lot in common with the Southern European model. A short summary of the Southern European model includes low levels of public social expenditure, reliance on the family for social welfare provision and low levels of female employment as a fact of strong male breadwinner culture. Provision of services is fragmented and inconsistent with an important role of patronage and clientelistic practices (Aybars and Tsarouhas, 2010). The biggest resemblance with Turkish welfare regime is an importance of the family as a main institution of welfare. Turkish families try to protect their members from social risks as much as they can and this fact is supported by the state, which does not have much responsibilities for those social services which are provided to families. Secondly, clientelism is a constant picture of public policy. Furthermore the state's social provisions are often unequal. While some groups of individuals are covered

by social legislation, workers in the informal market are unprotected. The only possibility for this group to benefit from state's social security is to be co-insured by a means-tested social assistance scheme. For example, 41% of people above the age 65 years are eligible to receive pension, while 22% are entitled to a means-tested minimum pension and 37% have no right to receive pension at all. Social protection outside of social insurance system consists basically of the care for the poorest and benefits in the form of in-kind help. In addition, many social services are provided outside the social insurance system through other organization providing services and assistance to women, children or disabled (with the cooperation of the Ministry of Health). However, to conclude that Turkish social system is part of the Southern European one would not be correct. Turkish social policy is not so large as that of EU member states. Public expenditure in Turkey in year 2013 was recorded as 12,5% of Turkish GDP while Southern European countries spent around 26% of their GDP in the same year (OECD, 2015). Thus the difference is mainly in expenditure on benefits payments which are negligible in areas such as a child or unemployment benefits. The biggest part of social protection expenditure in recent years went to the pensions (Table 2). The recent steps in reform taken by Turkish government reflects its focus on the pension, reducing expenses by cutting benefits, rising retirement ages and establishing more universalistic health care and shows a more targeted approach on social policy may be forthcoming (Grütjen, 2008).

Table 2: Turkish distribution of expenditures on social protection by type of benefits

	2007	2008	2009	2010	2011	2012	2013
Total social protection benefits	95 819	110 896	131 692	145 383	167 876	190 843	215 924
Health care	32 047	38 864	46 543	48 323	54 770	59 047	65 859
Disability	2 280	2 737	3 789	4 552	5 763	6 794	7 798
Pensions	45 498	52 891	63 236	71 725	80 119	91 805	104 139
Survivors	11 470	11 504	11 399	13 875	18 895	22 414	25 587
Family/children	2 803	2 946	3 418	3 681	4 599	5 669	6 738
Unemployment	604	722	1 883	1 852	1 903	2 395	2 616

Source: Turkish Statistical Institute, 2015

1.4. Turkey – EU Migration: Background

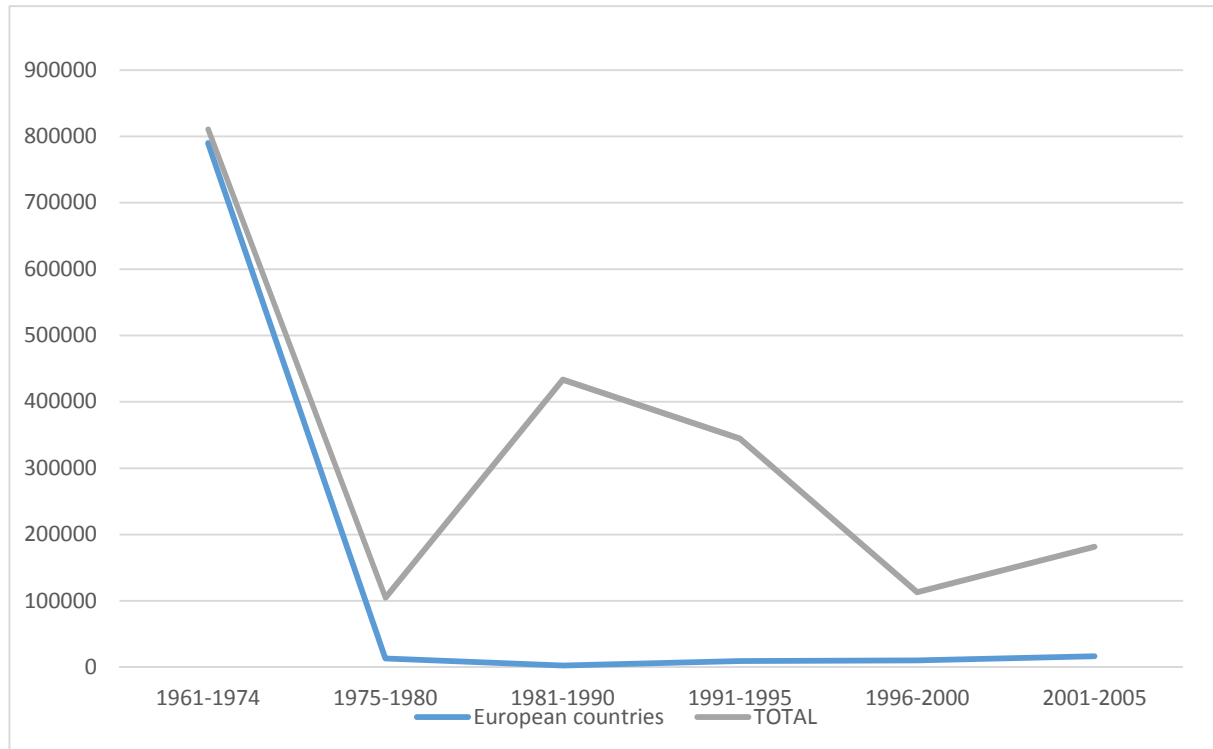
It is not surprising that migration from Turkey to EU is debated in period of membership negotiations. The common view of European society is that Turkish immigrants have difficulties with integration in Europe. Besides, with the increasing fear from Islamism, which arose after year 2001, made Turkish-related migration issues topic of debate in EU. However, Turkish migration (as migration towards Europe in general) can offset demographical problems of aging European population and pressure on labour market by inflow of new workers. Migration-related problems concerning Turkey's possible accession to EU have implications in economic, social and demographic structures of the EU (İçduygu, 2011).

1.4.1. Historical Background

Thanks to its key location, Turkey has always been an important path for large migration movements. Located at the geographical intersection of East and West and with both Mediterranean and Black sea costs, Turkey has become a country of emigration, immigration and transit migration (Elitok & Straubhaar, 2012). In the post-war era, Turkey was known as a country of emigration. Since the 1960s there have been large numbers of Turks who migrating to Western Europe, especially to Germany, because of the agreement between Turkey and Germany signed in 1961 that allow recruiting Turkish guest workers in German companies. Similar agreements were signed in the following years with other European countries such as France, Belgium or the Netherlands. Foreign workers were required to make up for labour shortages arising from several reasons (as construction of 'Berlin Wall', changes in the German school system, changes in the age composition of the working population) (Völker, 1976). The Turkish government assumed that remittances and return of workers with new skills would boost economic and job growth of the country. The peak of Turkish labour migration was between the years 1968 and 1973 when in Germany there were 15 million Turkish workers (working especially in agriculture) and remittances of these workers amounted to 5% of Turkish GDP. In recent decades, the types of emigration of Turks to the EU area had been mainly family-related and asylum-track migration. However, over the past two decades trajectory of migration from Turkey to EU is declining as presented in Figure 1. In 2010, the number of migrants to Turkey exceeded for the first time the number of people migrating from Turkey: the country is slowly becoming a 'migrant-receiving' one. In addition, it also plays a role as a 'transit' country for those who migrate from North Africa

and the Middle East to the EU (Turkey has become an even more important transit country after the Arab Spring which has led to the emigration of Syrians) (Martin, 2012).

Figure 1: Migration from Turkey to Europe in comparison to the total emigration from Turkey (1961 – 2005)



Source: Turkey: Country and Research Areas Report (2014)

1.4.2. Turkish Migration Policy

The migration policy of Turkey has changed significantly since the beginning of 2000s with the goal of satisfying the EU membership criteria. The most important step in these changes was the promulgation of the Law of Foreigners and International Protection which was approved by the Grand National Assembly in 2013. It introduced a new institutional and legal framework for migration and asylum. It is also a positive sign towards the EU that Turkey makes efforts to establish a functional migration system similar to EU standards, managing both legal and irregular migration to Turkey, including humanitarian migration. However, there are still three critical issues which are not in conformity with the EU. First, Turkey does not recognize the status of refugees to persons who are not from European countries. Without a guarantee of full-membership, Turkey is reluctant to eliminate this geographical limitation from the fear it will become a buffer zone or a kind of a ‘dumping ground’ for the EU. Secondly, thanks to steady economic growth, Turkey has become

a magnet for people from neighbouring regions, which create a fear of EU society of the migration of third-nationals using Turkey as a transit country. Because Turkey has a visa-free policy with some of its neighbours like Syria, Iran or Lebanon, the EU puts pressure on Turkish border management, especially after the crisis in Syria. Additionally, Turkish migration policy has been created to stress nation building with the intention of establishing homogenous identity. Therefore, immigrants are seen as a threat to Turkish and Muslim identity. The EU requirements in political liberalisation strain the state's traditional concept of national identity (İçduygu & Elitok & Göker & Tokuzlu, 2013). In sum, the changes in migration management and asylum are part of country's Eu-ization, which might be defined as *"the process of construction, diffusion, and institutionalization of formal and informal rules, procedures, policy paradigms, styles, 'way of doing things' and shared beliefs and norms to a European model of governance, caused by forms of cooperation and integration in Europe"* (Bulmer and Radaelli 2011, p. 4). The degree of these processes depends on negotiations between Turkey and the EU.

1.5. The impact of Turkish Migration on the European Labour market

One of the most important economic factor behind the migration decisions is the labour market situation in sending and receiving countries. According to the World Bank unemployment rate in the last three years rose to 11%³ in Turkey. In 2012, there were more than 70% unemployed people in rural areas (mostly agricultural sector)⁴. The high unemployment rates contribute to the decision to migrate. Lack of employment opportunities and low earnings (average annual gross earning in Turkey is 19 694 TL, which is approximately 6 824 euros) in Turkey are the main triggers of migration. In addition, the structure of the markets of Turkey and the EU are significantly different. Agriculture still plays an important role in Turkish economy while Europe shifted away from the primary sector and traditional manufacturing towards services. Therefore, it is possible to suggest, that majority of immigrants from Turkey come from rural areas and with lower level of education.

³ The World Bank data

⁴ United Nations data

The globalization of the world economy and increasing interconnection of labour markets has definitely impacted flows of international migration. European countries are importing unskilled foreign labour to fill the shortages especially in agriculture or health care (for instance in the UK). However, one of the four goals for economic competitiveness represented in Lisbon Strategy (2010) is a ‘knowledge – based economy’. The main factors which can contribute to successful ‘knowledge - based economy’ are abilities, skills and competence of workers. Therefore, there is a need for attracting highly skilled workers by high-quality educational system, positive attitude towards innovations and returns to skills.

During the last decades, the skill composition of Turkish migrants in EU is mostly unskilled. However, one of the reasons for decreasing current flows of migrants from Turkey can be the fact that European countries have put in place skill requirements. They have become more selective and started to seek mostly skilled foreign workforce to respond to specific shortages and to retain their international competitiveness. There is still demand for low-skilled workers, however, mostly in labour intensive industries with lower wages (cleaning, catering, etc.). Recent studies showed that Turkish firms in Brussels are often lead by university graduates, young entrepreneurs and this can show the trend of increasing educational levels in Turkey. The capability of Turks to be self-employed in European countries, is one of the recent trends. It has begun as an alternative employment for many first-generation guest workers who wanted to ensure future jobs for family members. The rates of self-employed Turks in Germany are represented in Table 3. However, there is no proof that Turkish skilled workers are complementing the current population pattern in the EU (Oğuz, 2011).

Table 3: Development of self-employment rates of natives and foreign-born in Germany

	GERMANY		
	1992	1999	2004
Native	8.2	10.5	10.7
Foreign born	7.3	8.6	8.7
/from Turkey	3.8	4.9	7.1

Source: Liebig, T. (2007)

2. Theoretical part

In the following section, an overview is given of the literature focussing on this topic. First, the literature concerning the welfare state and immigration is listed. This topic has already been covered in numerous economic papers. The empirical evidence is mixed and often suggests that decisions to migrate are not based on welfare benefits even if immigrants use the welfare system more intensively than the native population (Giulietti, 2014). No paper nor empirical evidence covers the link between Turkish emigration and welfare states. Subsequently, the second part deals with theoretical model, which forms the basis of the empirical part.

2.1. Related literature

There is a lack of empirical papers covering migration patterns into the EU⁵, however literature concerning migration into the U.S. is more frequently elaborated. Additionally, as Péridy (2005) argues, some studies do not take into account new developments in the theory of migration. These developments include three additional determinant of migration which are important especially with respect to the EU. The first one is the attraction by the welfare magnet itself which relies on fact that immigrants choose the destination country according to the level of public assistance. The second one is the impact of migration costs on the choice of destination countries connected with the so-called border effect developed in the field of international trade. The last factor are policy regulations such as quotas or resident permits.

The main contribution in the field of the welfare magnet comes from the work of Borjas (1999) who investigated whether location choices made by migrants are influenced by the dispersion in welfare benefits across the states of the U.S.. His models form the basis of the empirical works. Borjas notes that the magnet hypothesis has several dimensions. Firstly, it could be possible that immigrants are attracted by welfare programs offered by the U.S. otherwise they would not migrate there. Secondly, the system of social help for those who fail to secure employment discourage unemployed migrants from returning to their source country. Thirdly, major differences in the generosity across states can affect location choice of immigrants and therefore induce a rise of fiscal burden on more generous

⁵ With the exception of some studies of particular European countries (Péridy, 2005).

states. However Borjas claims that there has been little systematic study and empirical evidence of these magnetic effects. He supposes that migration decisions are led by income-maximizing behaviour thus immigrants could choose the country where social assistance is the highest. His model covers the location of immigrants in terms of generosity of welfare systems across the states as well as in terms of the return to skills. People born in the U.S. (natives) face relatively high fixed costs of migration from their home state to another one. Thus the existing welfare benefits do not attract most of them since the costs to move can be too high. In other words they are 'stuck' in the state where they were born. These costs are not relevant for immigrants who have chosen to bear the cost of moving; for them, the choice between states is then costless. Therefore, they tend to live in the state with high level of welfare benefits. The model shows a number of predictions, mainly the fact that low-skilled migrants are more clustered in generous states than natives. The empirical analysis shows that a high number of immigrant households receiving welfare benefits are clustered in California, the state with the highest benefits. Thus the analysis confirms that "immigrant welfare recipients are more likely to be geographically clustered than immigrants who do not receive welfare and are also much more clustered than natives" (Borjas, 2009, p. 635). In sum, the hypothesis that differences in welfare benefits across states create magnetic effects on immigrants is consistent with the empirical evidence, which is however relatively weak (because the statistical significance of the results is often very low).

Levine and Zimmerman (1995) take another approach to the topic and they look at internal US migration. The pattern of their study are poor single women with children compared to the pattern among other poor households. They use microdata from the US National Longitudinal Study on Youth between the years 1979 and 1992. The research is based on two facts. Firstly, welfare benefits vary across states and secondly, the greater variation in benefits across states, the more incentive potential welfare recipients have to move. They use 'treatment and control' framework where higher benefits should attract the treatments, but not the controls and they compared the propensity to move across the groups which are more likely (treatment) or less likely (controls) to use the benefits. Poor women with children are the treatment group. However, they find little evidence that those women are more likely to move to states with higher welfare benefits and they suggest that welfare-induced migration is not a widespread phenomenon

In addition to the Levine and Zimmerman (1995) a dynamic model was created by Kennan and Walker (2009) who provide a more systematic analysis to the problematic of migration decisions of women who are eligible to receive AFDC. They use same panel data as Levine and Zimmerman (1995)⁶. The framework is based on the fact that the decision to migrate is actually a job searching problem and the presence of a two-dimensional ranking of locations (some places have high wages, while some have high welfare benefits which can be used as a fallback option for those who migrate). The main finding is that income differences can help explain the migration decisions of young women who use welfare benefits, but large differences in levels of benefits do not provide strong incentive to migrate.

Brücker and al. (2002) use a similar theoretical model compared to Borjas, but applied on European countries. Their model shows that low-skilled migrants are more likely to move to states with higher welfare benefits. However, they also find that migration location decisions are influenced by other factors such as the presence of ethnic groups. Brücker and al. estimate whether immigrants are more likely to be recipients of welfare benefits than citizens of the EU (natives) and also whether the generosity of welfare benefits across states is correlated with differences in use of benefits between immigrants and natives. They use European Community Household Panel (1994 – 1996) to analyse the relative rates of welfare receipt for non-EU immigrants in 11 countries of the pre-2004 EU. They focus their results on unemployment benefits and find that immigrants are more likely to receive unemployment benefits in countries such Denmark, the Netherlands, France, Austria and Finland. Therefore we can say that the results are positive, however not on high significance levels.

De Giorgi and Pellizari (2009) cover as well the question whether the generosity of welfare benefits can influence location decisions of migrants. These authors use data for the 15 countries of pre- enlargement Union from The European Community Household Panel dataset covering the period from 1994 to 2001. The sample is restricted to individuals aging between 15 and 55 when they arrived to their destination. In the analysis, measures of the unemployment rates are included, as well as real wages and benefit levels in each destination country for the year in which each individual settled at his/her destination. Furthermore a set of destination country dummy variables were created, such as control

⁶ NLSY

of specific characteristics as the strictness of laws (in destination country) and four time period dummy variables. The results suggest that the generosity of the welfare state can determine location choices of immigrants across EU countries. However, the authors admit that the effect is small and less important than labour market conditions such as unemployment rate or wage effect which effect is ten times bigger than the effect of social benefits on location. They argue that the main issue is to measure to what extent the variation in welfare benefits among European countries will generate distortion in the flows of migration. They show that these distortions can be large enough to reduce potential benefits of migration in Europe and propose a harmonization of welfare regimes across the EU.

Razin and Wahba (2011) take a look at how the welfare magnet can influence of the skill composition of immigrants, highlighting differences between skilled and unskilled workers. The main aim of their paper is to analyse the role of mobility restrictions on shaping the effect of the welfare state. The research is applied on 14⁷ old EU members, Norway and Switzerland. Freedom of movement in these countries is a fundamental right which the EU member states have recognized. In contrast, the mobility into those states from non-EU countries is restricted. Their work uses this difference to test the differences between free and policy-restricted migration. In a free migration regime (migration is freely open to citizens of other countries), low skilled migrants who are attracted to generous welfare benefits will be more likely to arrive. High-skilled workers will have to pay higher taxes in these countries and therefore choose other destination countries. If a country is generous and it implements a restrictive migration regime, citizens of this country know that an inflow of low-skilled immigrants will lead to an increase in welfare drawing and thus to higher taxes. Therefore citizens will choose the migration regime where only high-skilled immigrants are allowed to come to the country, because they will share the burden of the welfare system with them and lower taxes of residents. The result is that the welfare magnet hypothesis is valid only in a situation of free movement.

As already mentioned, Péridy (2005) highlights the importance of “new” variables and his empirical model is the basis for the theoretical model of this thesis. The aim of his work is to analyse the migration trends into the EU. He claims that the decision to migrate does not depend only on earning difference between the destination and the source country

⁷ Luxembourg excluded.

or welfare benefits but also on different migration costs. He divides these costs into two groups. Direct costs include factors such as geographical distance and border effect (differences in the cost of living, differences in languages or costs of crossing the national border). Indirect costs involve differences between unemployment rates abroad and at home and absence of business ties. The next important factor which can have an impact on migration flows are policy regulations measured as the number of delivered residence permits or the level of quotas. In the empirical model he uses data for emigration rates to 18 EU countries from 67 other countries over a period of ten years (1995 – 2005). He points out that his new variables, as well as traditional ones, have as significant impact on the explanation of migration flows to the EU. In addition, the results show migration flows to the EU are inversely related to the education level in foreign countries. *“This result is in contradiction with the current need of the EU labour markets, which require an increasing number of skilled migrants”* (Péridy, 2005, p. 23).

2.2. Theoretical background and model specification

The theoretical model presented below is consistent with the developments mentioned previously and takes into account direct and indirect migration costs. The model applies the econometric methods used by Péridy (2005) who claims that the decision to migrate depends on the earning difference between a destination and a source country and that expected future income come from wage or welfare transfer. We also rely on the methodology of Warin and Svaton (2008) who estimate a gravity model. Gravity models are one of the oldest ones and use macroeconomic data. They are based on Newton's laws of physics and are useful tools for many fields. According to these models, migration is directly related to push and pull factors⁸ in the destination place and the source country and inversely related to the distance between them (Bunea, 2012).

In general, the probability of migration of individuals depends on three main factors. As mentioned above, migration depends on expected future income in destination and source countries; it has an economic component (wage) and social component (welfare tariff). Migration also depends on unemployment rates in the destination and source countries which is proxy of the individual probability of finding a job and gives information on the labour

⁸ See Appendix 1.

markets in these countries. The last determinants are migration costs (direct and indirect). Thus we can put these factors simply in the formula:

$$M_{f,h} = (W_f + T_f) - (W_h + T_h) - C_{fh} \quad (1.)$$

In the equation, $M_{f,h}$ is migration flow from the source country h to the destination f . W_f and W_h stand for wages of individual respectively in the foreign and home countries. Thus, $M_{f,h}$ increases with country f 's income and decreases with country h 's income. T_f and T_h denote welfare benefits transferred by each country to individuals, regardless of whether they were born in the country or not. The migration flow between countries h and f increases with the welfare benefits differential between f and h , in other words, when the welfare benefits in country f are higher than in country h , migration between two countries rises. C_{fh} reflects direct and indirect costs which are same for all individuals in both countries. It can be said that each individual is willing to migrate when the expected earnings in destination⁹ are higher than the earnings in the source country¹⁰ without the migration costs (Péridy, 2005, p. 9).

For the estimation, I constructed the following model according to the above equation, the theory of gravity models and the literature:

$$\begin{aligned} INFLOW_{ijt} = & \alpha + \beta_1 WB_{it} + \beta_2 WB_{jt} + \beta_3 GDP_{it} \\ & + \beta_4 GDP_{jt} + \beta_5 UNEMPL_{it} + \beta_6 UNEMPL_{jt} + \beta_7 AGE_{it} + \beta_8 AGE_{jt} \\ & + \beta_9 DIST_{ij} + \beta_{10} PROXLNG_{ij} + \beta_{11} STOCK_{ij,t-1} + \beta_{12} POLICY_{jt} + \varepsilon_{ij,t} \end{aligned} \quad (2.)$$

where the dependent variable $INFLOW_{ijt}$ is the annual immigrant inflows from country i to country j at time t . However, some authors use migration stock as a dependent variable. Brücker and Schröder (2005) claim that there is a long run equilibrium between stock and its explanatory variable and therefore they recommend to use stock of migrants rather than flows of migrants. On the contrary, trade gravity models use as a dependent variable trade flows (imports and exports) rather than stock of trade, therefore I have decided to use flows as a dependent variable in the empirical model. Turning to the independent variables, welfare benefits per capita provided in the source country are WB_{it} variable and should be negatively correlated with the inflows of migrants, while welfare benefits provided in the destination

⁹ $(W_f + T_f)$

¹⁰ $(W_h + T_h)$

country WB_{jt} , which should be positively correlated with the influx of immigrants. GDP_{it} and GDP_{jt} denote GDP per capita (PPS expressed in relation to the EU-15) and serve as a proxy for individual's income both in source and target country. According to the standard migration theory GDP_{jt} variable should be positively correlated and GDP_{it} negatively correlated with the inflows of immigrants. Unemployment rate in the source country $UNEMPL_{it}$ should be positively correlated with the dependent variable while $UNEMPL_{jt}$, unemployment rate in the host country, is expected to be negatively correlated with the dependent variable, since unfavourable conditions of the labour market in the host country should decrease inflows of migrants. AGE_{it} stands for the age structure of country i . The proxy for this variable is the share of people younger than age 15, because migration must rise with the share of young people. The age structure of the destination country AGE_{jt} should be negatively correlated with the migration inflows. $DIST_{ij}$, represents the distance between countries i and j and it should diminish inflows of migrants, because it raises the cost of migration. $PROXLNG_{ij}$ denotes the proximity of languages of both countries. In literature, there is mostly used dummy variable which equal to zero when two countries speak the language and unity otherwise, however in the case of European languages and Turkish this method does not make a sense and therefore the variable is represented by index of the proximity of languages. The lagged variable of stock (the stock of migrants from the origin country i already resident in the host country j at time t) of migrants ($STOCK_{ij,t-1}$) represents a proxy for human network between these countries. It may be expected that such a variable depends on stock of migrants from the source country who are already settled in the destination and according to the literature should be positively correlated with the immigrant inflows. Next independent variable $POLICY_{jt}$ stands for destination country's migration policy. However, it is difficult to measure an appropriate policy variable since each EU member states have own migration policies and in addition sometimes policy varies according to the status of migrants (refugees, asylum seekers, students etc.). Péridy (2005) includes two policy variables in his model. The first one corresponds to the total number of residence permits deliver by each destination country and the second one corresponds to a dummy variable which is equal to one for migration flows within the destination country and zero for migration across borders of destination. The empirical model in this dissertation uses the first option, however it uses a number of acquisition of citizenship. From the logic is clear that the higher number of issued acquisition of citizenship, the higher inflows of immigrants. ε_{ijt} is the error term.

3. Empirical part

3.1. Data

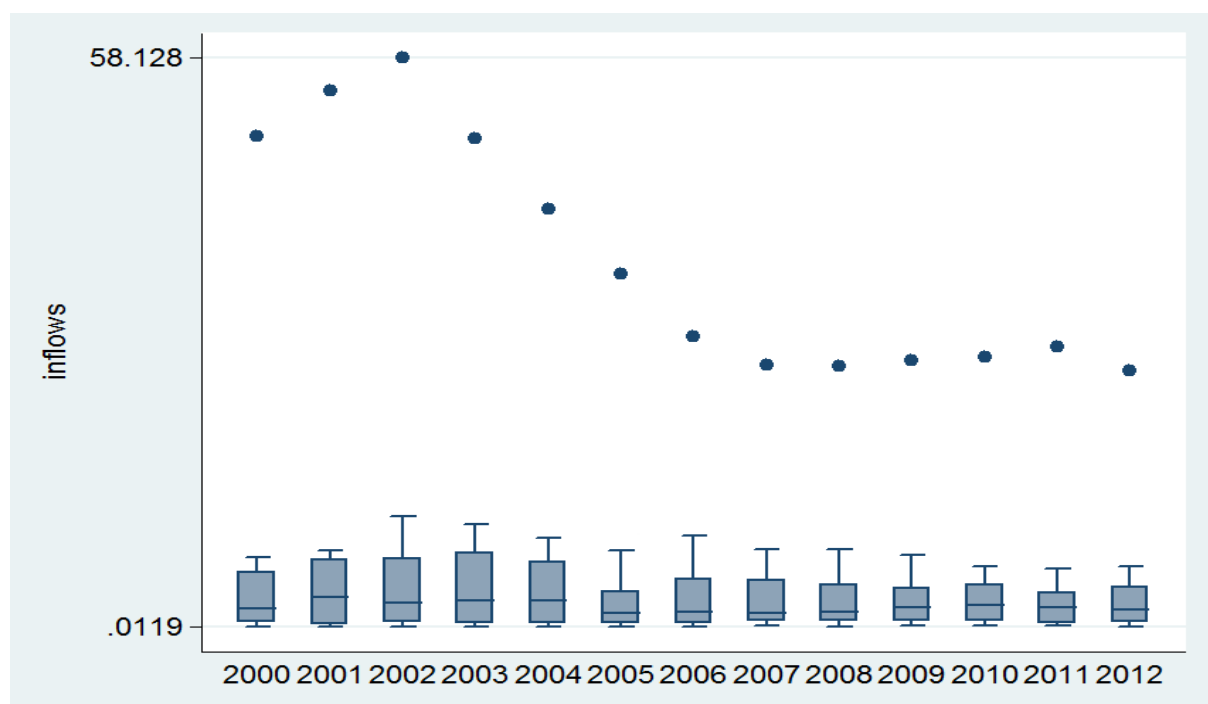
The aim of this dissertation is to study inflows of migrants from Turkey to the EU-15. Thus, the country sample used in my research consists of the first 15 members of the EU in the period from 2000 to 2012. The members of the EU-15 (in alphabetic order) are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the UK. In general, data required for the estimation of migration models can be easily found and collected from multiple references¹¹. Unfortunately, in the case of Turkish migration, some values are missing¹². Summarized statistics of the data are documented in Appendix 2.

Data covering the inflows of Turkish people to the EU-15 were obtained from the International Migration Database (OECD). This database provides annual data on migration flows and stocks in OECD countries. However, the data about Turkish migration are not available for all countries of the EU-15. Unfortunately, there are missing values for Greece and Portugal and there is no other database which could cover those values. In figure 2. we can see that migration from Turkey to the EU-15 has a declining trend, as previously mentioned. The peak of immigrant flows was in 2002. A possible explanation can be that the European labour market was by this time overcrowded plus the companies had started to more and more outsource their activities which lead to a decrease in job opportunities throughout the EU. Years around 2008, when the financial crises started, faced sharp decline.

¹¹ Most of the data were collected on Eurostat and OECD databases.

¹² Missing values represent approximately 4% from the complete dataset. We can find missing values mainly for variables inflows and the stock of migrants.

Figure 2: Boxplot of Inflows of migrants from Turkey to the EU-15 (year specific)



Source: Author, STATA

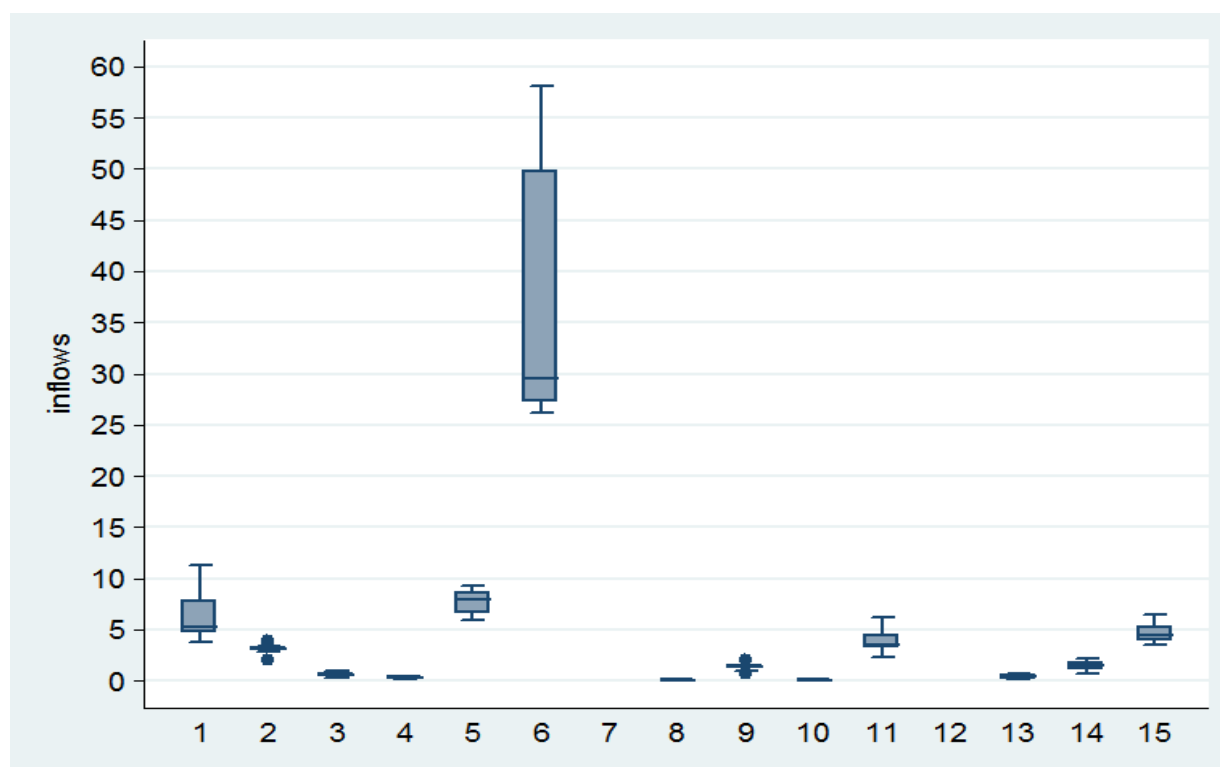
Figure 3 shows the level of inflows¹³ of Turkish migrants across European countries over the given period. The numbers on the x-axis represent countries of the EU-15¹⁴. It is evident that there is existence of an outlier. Germany (6) has the biggest inflows of Turkish migrants following historical facts.¹⁵ Austria (1), France (5), Netherlands (11) and the UK (15) follow Germany.

¹³ Represented in thousands.

¹⁴ 1-Austria, 2-Belgium, 3-Denmark, 4-Finland, 5-France, 6-Germany, 7-Greece (missing data), 8-Ireland, 9-Italy, 10-Luxembourg, 11-Netherlands, 12-Portugal (missing data), 13-Spain, 14-Sweden, 15-the UK

¹⁵ Agreement between Turkey and Germany signed in 1961.

Figure 3: Boxplot of Inflows of migrants from Turkey to the EU-15 (country specific)



Source: Author, STATA

Immigration stock values in countries of the EU-15 have been collected from the same database as the inflows and some values were added from the International Migration Databases developed by the Research Network on International Migration. The dataset provides information on the structure of immigration in 20 OECD countries for the years 1980-2010 over 5 years intervals. Nevertheless, few values remain empty since no data was available.

Data covering the Welfare benefits were found in the Eurostat database of social protection benefits. Social protection includes intervention of public bodies intended for individuals and households in order to relieve them from the burden of defined sets of risks and needs. Welfare benefits consists of transfers in cash or in kind.

Data for GDP were collected from the Eurostat databases. GDP per capita often serves as an indicator of living standards in different countries. As mentioned in chapter 2.2.

the GDP per capita in PPS¹⁶ expressed in relation to the EU-15 average set to equal 100 as a proxy for individual's income. Data expressed in a common currency eliminates the differences in price levels between countries and allows meaningful volume comparisons of GDP between countries (Eurostat, 2014).

Unemployment rates were also obtained from the OECD database. Unemployment rate is the number of unemployed people as a percentage of the labour force. Unemployed people are defined as those who do not have a job, but who are able to work and have taken active steps to find work in the last four weeks (OECD, 2015).

The age structure of population expressed in the share of people younger than age 15 was collected from Eurostat database and completed from data provided by the Turkish statistical office (for Turkish values).

Data for geographical distances was found in a CEPII GeoDist dataset which includes different measures (in kilometres) of bilateral distances between country pairs in the world. In this empirical research, data on distance were calculated by the great circle formula, using latitudes and longitudes of the most important cities/agglomerations (in terms of population) (Mayer and Zignago, 2011).

Index of proximity of languages was obtained from eLinguistics internet site. Proximity is expressed as a value between 0 and 100, where 0 stands for same languages and 100 is the biggest possible distance between languages. Most proximities of the sample are between 70 and 80, which indicates that Turkish language is very remotely related to European languages.

As mentioned in Section 2.2., the migration policy can be measured by the total number of acquisition of citizenship issued in each EU-15 country. Data have been collected from the Eurostat database of acquisition of citizenship.

¹⁶ “PPS is the technical term used by Eurostat for the common currency in which national accounts aggregates are expressed when adjusted for price level differences using PPPs” (Eurostat, Glossary: Purchasing power standard (PPS), 2014)

3.2. Methodology

To understand what exactly drives Turkish migration towards the EU-15 and whether welfare benefits are the most important factors in this decision, the data was analysed by application of fixed and random effects panel data estimation techniques.

First attempts to study gravity models employed cross-sectional data, however, cross-sectional data do not allow for capturing a time variant effect. In case of migration, cross-sectional data fail to explain what may be a reason to increasing numbers of immigration arriving to a particular country. Panel data differ in two dimensions, across countries and across annual observations. They are more informative than simple cross sections or simple time series and the estimation is therefore more efficient (less collinearity, more variability and more degrees of freedom). Therefore, most of the existing literature on gravity models uses panel data. Researchers often apply a logarithmic transformation before estimating the model (Bobková, 2012). According to Warin and Svaton (2008), I use a log-log form of the equation presented in the theoretical model:

$$\begin{aligned} \ln INFLOW_{it} = & \alpha + \beta_1 \ln WB_{it} + \beta_2 \ln WB_{jt} + \beta_3 \ln GDP_{it} \\ & + \beta_4 \ln GDP_{jt} + \beta_5 \ln UNEMPL_{it} + \beta_6 \ln UNEMPL_{jt} + \beta_7 \ln AGE_{it} + \beta_8 \ln AGE_{jt} \\ & + \beta_9 \ln DIST_{ij} + \beta_{10} \ln PROXLNG_{ij} + \beta_{11} \ln STOCK_{i,t-1} + \beta_{12} \ln POLICY_{jt} + \varepsilon_{ijt} \end{aligned} \quad (3.)$$

In the panel dataset, some variables evolve through time and some do not (time-variant and time-invariant variables). For instance, in my model some variables like distance or proximity of languages are time-invariant. To apply the traditional fixed effects estimation method, all these variables will be omitted during the regression.

3.2.1. Pooled OLS

Pooled OLS is a simple benchmark to more sophisticated models. The gravity model can be estimated OLS techniques under the assumption that the variance of the error is constant across observations (homoscedasticity). Therefore, the assumption is made that the unobserved effect α_i ¹⁷ is uncorrelated with x_{it} in order to estimate β_i and other parameters. To apply this assumption to the model, we should keep in mind that there are also other factors which can influence migration from Turkey to the EU-15 (such as cultural

¹⁷ α_i captures all unobserved, time-constant factors which affect y_{it} .

and historical relations between Turkey and the destination country, European countries, weather or openness of European people to migrants) which are not correlated to our dependent variables as distance, GDP or welfare benefits.

$$y_{it} = \beta_1 x_{it1} + \beta_2 x_{it2} + \dots + \beta_k x_{itk} + v_{it}, \quad t = 1, \dots, T$$

$$v_{it} = a_i + u_{it}^{18}$$

Using pooled OLS when the error term is correlated with unobserved variables leads to omitting variable bias which is also often called the heterogeneity bias. The bias appears as a consequence of a violation of the zero mean assumption. Furthermore, it must be kept in mind that even if a_i is uncorrelated with all explanatory variables in all time periods, the pooled OLS standard errors and statistical inference may not be precise, since these ignore serial correlation in the composite error. When using estimation of fixed and random effects, it is just informative to compute also the pooled OLS estimates. (Wooldridge, 2009).

3.2.2. Fixed Effects

“A pooled OLS estimator that is based on the time-demeaned variables is called the fixed effects (FE) estimator” (Wooldridge, 2009, p. 482). The FE estimator uses a transformation to remove the unobservable effect a_i . The original unobserved model is

$$y_{it} = \beta_1 x_{it1} + \beta_2 x_{it2} + \dots + \beta_k x_{itk} + a_i + u_{it}, \quad t = 1, 2, \dots, T.$$

The term $a_i + u_{it}$ is composite error¹⁹ and is constituted by two terms. The first term is the time invariant variable a_i which represents an unobservable individual effect of each item of interest (for instance country or year). The second term, the stochastic disturbance u_{it} is called the idiosyncratic error and represents unobservable factors that change over time and affect y_{it} .

The β -coefficients can be estimated by OLS. The FE allows for an arbitrary correlation between a_i and the explanatory variables in any time period, which is the main difference in comparison to random effects. Hence, the required assumption is made that the subjects of interests and their variances are identical. In addition, for this reason, explanatory variables

¹⁸ Composite error, where a_i is an unobserved effect and u_{it} is idiosyncratic error which represents unobserved factors that change over time and affect y_{it} . Composite error is “the sum of time-constant unobserved effect and the idiosyncratic error” (Wooldridge, 2009, p. 836).

¹⁹ In the composite error there are factors which are not covered in the model or they are hard to measure, for example weather, family members which are already settled in destination or openness to migrants.

which are constant over time for all i drop from the estimation. In practice, the Fixed effect is more appropriate to use when the relation between observable characteristics and unobservable is more likely to be systematic. The assumption is made that the fixed effect a_i is correlated with the variable set and represents some unobservable characteristic which cannot be captured by the observable variables. For instance, in case of migration, one may argue that people are willing to migrate rather to country that is more culturally diverse. It raises a question whether openness to migration/cultural diversion is correlated with GDP or rate of unemployment in that country and consequently, whether the FE or RE should be employed (Wooldridge, 2009).

3.2.3. Random Effects

To introduce random effect, it may be useful to compare it with already described FE. On the one hand, using RE one will obtain more precise standard errors and thus RE is said to be efficient on the other hand, RE requires uncorrelated explanatory variables with the unobservable effects. The RE assumptions include the same assumptions as for the FE estimator²⁰ plus the assumption that a_i is independent of all explanatory variables in all time periods.

$$Cov(x_{itj}, a_i) = 0, \quad t = 1, 2, \dots, T; j = 1, 2, \dots, k.$$

The reason why RE is efficient is that unlike pooled OLS and FE, RE are estimated by (F)GLS ((feasible) generalized least squares). The FE estimator subtracts the time averages from

the corresponding variable, whereas the RE transformation subtracts a fraction of that time average which depends on the number of periods and on the standard deviations of a and u .

The transformed equation is:

$$y_{it} - \lambda \bar{y}_i = \beta_0(1 - \lambda) + \beta_1(x_{it1} - \lambda \bar{x}_{i1}) + \dots + \beta_k(x_{itk} - \lambda \bar{x}_{ik}) + (v_{it} - \lambda \bar{v}_i).$$

This equation can be estimated by OLS, however, the disadvantage is that parameter λ is never known in practice²¹. It can be shown, that RE is in fact linear combination of pooled OLS

and FE, where the weights depend on a variance of the composite error terms. The value

²⁰ See Appendix 3.

²¹ But it can be estimated.

of the estimated transformation parameter $\hat{\lambda}^{22}$ indicates whether estimates are likely to be close to the pooled OLS or the FE estimates. When the variance of idiosyncratic part of the composite error is high, RE and FE tend to be the same. In case of λ close to 1, the RE estimator is very similar to FE one (Wooldridge, 2009).

3.2.4. Hausman Test

In many cases, researchers apply both FE and RE and subsequently test them for statistically significant differences in the coefficients on the time-varying explanatory variables. To decide whether FE or RE is the more appropriate model for the specific purpose and dataset, researchers run Hausman test. It is stated by the following hypothesis:

$$H_0: Cov(a_i; x_{it}) = 0 \forall t$$

$$H_A: Cov(a_i; x_{it}) \neq 0 \text{ for at least some } t^{23}$$

Under the null hypothesis the correlation between unobservable effects and explanatory variables is zero and consequently, both RE and FE are consistent. The alternative hypothesis assumes a non-zero correlation coefficient. As a result, under the alternative hypothesis only the FE is consistent. Moreover, if the null hypothesis is not reflected and both FE and RE are believed to be consistent, RE is more efficient. (Wooldridge, 2009).

3.3. Estimation

In this chapter, the econometric results are presented. Before any econometric estimation technique is applied, the different assumptions should be verified. Thus, the first part of the chapter carries out several preliminary tests. The second part describes the results obtained with the chosen model.

3.3.1. Preliminary tests

In order to make sure that data and model do not suffer from any assumption violation, it is needed to test the studied data. The most common econometric problems when analysing gravity models are serial correlation and heteroscedasticity. In this particular thesis, I will be

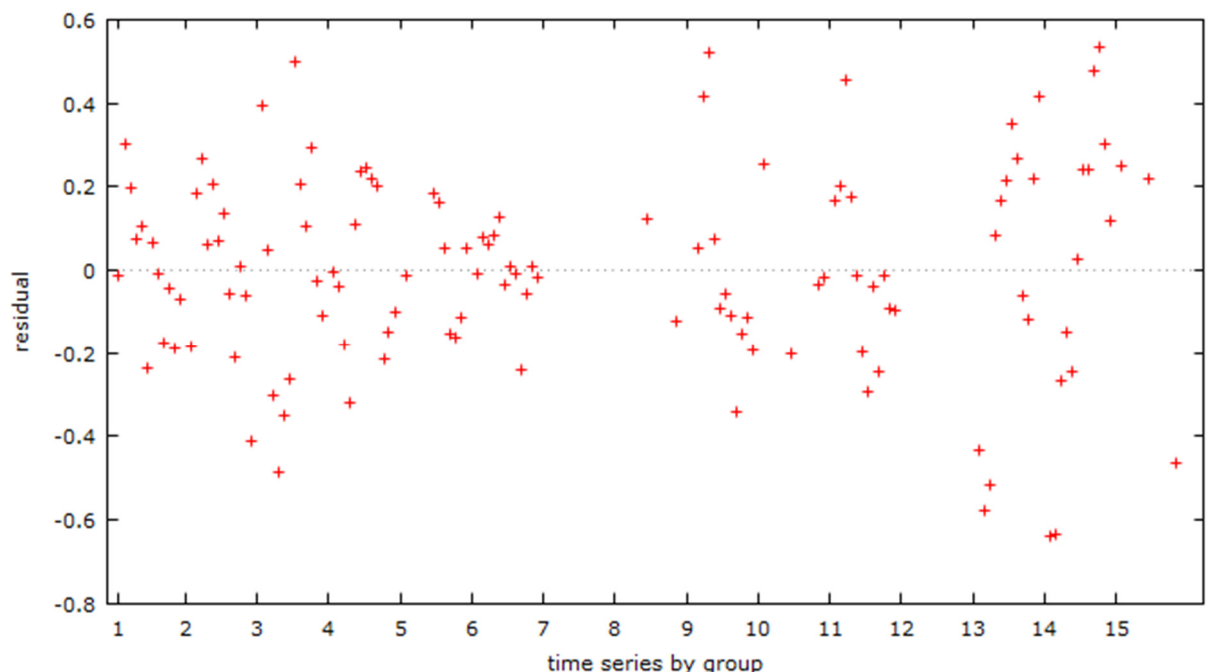
²² $\hat{\lambda} = 1 - \left[\frac{\hat{\sigma}_u^2}{\hat{\sigma}_u^2 + \hat{\sigma}_{\alpha}^2} \right]^{\frac{1}{2}}$

²³ To apply this hypothesis to the model it means whether dependent variables can be correlated with factors as cultural and historical relations of Turkey and countries of the EU-15, weather or openness to migrants.

assuming linear relationship between the variables in log form, which allows me to run mentioned methods of estimations.

When heteroscedasticity occurs in a model, it is still possible to get unbiased estimates. However, standards error is inaccurate. That causes problem with hypothesis testing since the estimates can be more or less significant than they really are and we might draw wrong conclusion. There are numerous tests available which might be applied in order to test heteroscedasticity. One way of checking the heteroscedasticity is to plot fitted values against residuals. Studying the below figure (Figure 4)²⁴, we can detect heteroscedastic tendency.

Figure 4: Variance of residuals



Source: Author, GRETL

In order to test this hypothesis of presence of heteroscedascity, Wald statistics has been applied. The Wald's test null hypothesis was rejected at 1% significance level, which means that there is an overwhelming evidence of heteroscedasticity in my data. One option and the most common one how to overcome the problem of heteroscedasticity is to use White's method of robust standard errors. That method corrects for the bias in standard errors.

²⁴ Figure 4. shows the relationshipp between residuals nd fitted values from the FE model.

The model is said to suffer from multicollinearity if there are two or more explanatory variables that are highly correlated. The similarity in trend of the independent variable can be a reason for multicollinearity. A straightforward way of testing multicollinearity is by generating the covariance matrix. The values were obtained at Turkish GDP and Turkish welfare benefits (0.79), policy and welfare provided by the EU-15 (0.75), and diaspora and welfare benefits provided by the EU-15 (0.63). Such values are not close enough to one (which means perfect correlation), therefore I do not consider multicollinearity to be a problem.

Serial correlation (or autocorrelation) indicates, that the idiosyncratic errors have to be uncorrelated over time. Serial correlation appears when a current value of variable depends on its own lagged observations. If the model fails to implement the information, the autocorrelation pattern is likely to hide/project into idiosyncratic errors. As a result, the errors are autocorrelated and the variance-covariance matrix has no longer zero off-diagonal. Consequently, the estimation is not efficient. The most common way to test for serial correlation is Durbin-Watson statistics. The value of the statistics in the model is 0.70, thus there is no need to consider the estimates to suffer from significant serial correlation.

3.3.2. Model Analysis

Employing the Hausman test, we can strongly reject the null hypothesis of RE and FE being the same as the p-value is 0.000. In other words, there is a reason to believe that RE is inconsistent estimator and thus FE is preferable even though it is not efficient. Unfortunately, variables such as distance and language had to be omitted, because of a perfect collinearity with the intercept.

Firstly, we need to create dummy variables which are equal to unity each time a particular country appears in the dataset. In other words, one dummy variable for Austria, another for Belgium, another for Denmark, etc. Secondly, we create year specific dummy variable to see possible shocks in migration flows in the given period of time. A clear distinction between country-specific and time effect enables to determine how the decision-making of individuals evolves in time and how it differs between countries.

The preliminary tests showed that the coefficient's standard errors in the logarithmic model cannot be estimated by the usual method for calculation of standard errors, because of the invalid statistical characteristics. The model is then estimated with heteroscedasticity robust standard errors.

Results presented in Table 4 are estimated from the model with country specific FE. The model explains around 44.13% of variation in inflows²⁵. Although the F-test of joint significance suggests to reject the null as p-value is 0.000. In addition, there are many variables that appear to be insignificant.

²⁵ Adjusted R².

Table 4: Results of Country specific FE estimator with robust standard errors

ln_Inflows	Coef.	Robust Std. Err.	p-value
ln_WB_EU	1.651421**	.4920443	0.001
ln_WB_T	-.68437***	.3487889	0.052
ln_GDP_EU	2.194796***	.9835751	0.028
ln_GDP_T	.0968101	.3423478	0.778
ln_Unempl_EU	-.0280277	.1245525	0.822
ln_Unempl_T	.3232048	.2445466	0.189
ln_Age_EU	-1.395402	1.563162	0.374
ln_Age_T	.6377706	1.679612	0.705
ln_Diaspora	.1229116	.1899157	0.519
ln_Policy	.3467422*	.075249	0.000
Constant	-15.44528	10.8809	0.159

($\alpha = 0,01$)* ($\alpha = 0,05$)** ($\alpha = 0,10$)***

Source: Author, STATA

The effect of welfare benefits on inflows is positive and confirms the hypothesis that immigrant's decision making depends on the level of benefits present in a destination country. Furthermore, the variable is statistically significant, thus when welfare in EU rises by one percent, inflows from Turkey rise by 1.65%.

Turkish welfare benefits have, as expected, statistically significant negative impact of 0.68 % on inflows.

Considering that GDP can be used as a proxy for individual's income, the result of the estimation lead to the fact that with the higher level of income in the EU-15, the inflow of migrants is rising. The coefficient is as well statistically significant. However, in the case of Turkish level of income, the result is theoretically unexpected, however the variable is not statistically significant.

According to the theoretical predictions, the rest of variables in the model have the expected sign and thus, they have theoretically a correct impact on migration flows. Nonetheless, their statistical significance is not very high.

A second model is augmented with time dummy variables to avoid potential shocks during a given period. Including the time dummies to the model did not introduce any significant changes of the estimates, however the p-values decreased and therefore, most of the variables are significant.

The model explains more than half of the variation in inflows with adjusted R^2 of 45.19%, which is not highly convincing but it is the highest value of adjusted R^2 from all estimated models. The joint p-value of 0.0000 is convincing and as well as the p-value for welfare benefits provided by the EU-15 (which is variable of our main interest). However, the drawback of the model is the number of insignificant variables of several independent variables (see Table 5).

Table 5: Results of Time specific FE estimator with robust standard errors

ln_Inflows	Coef.	Robust Std. Err.	p-value
ln_WB_EU	2.154284*	.5241691	0.000
ln_WB_T	-1.18254	1.01082	0.2450
ln_GDP_EU	2.722463***	1.021658	0.009
ln_GDP_T	-8.23790	5.46933	0.1354
ln_Unempl_EU	.0966142	.1358175	0.479
ln_Unempl_T	2.08456	2.02466	0.3058
ln_Age_EU	-3.086911	1.671426	0.068
ln_Age_T	-8.5016	7.0733	0.3055
ln_Diaspora	.1972784	.1917786	0.306
ln_Policy	.3285102*	.0760458	0.000
Constant	-11.25339	5.700913	0.051

($\alpha = 0,01$)* ($\alpha = 0,05$)** ($\alpha = 0,10$)***

Source: author, STATA

Welfare benefits of the EU-15 have, as expected, positive impact on migration flows from Turkey to the EU-15. To be specific when welfare in EU is higher by one percent, inflows rise by 2.15%. Subsequently, when individual's income in the EU-15 rises by 1% then migration from Turkey rises by 2.72% which also corresponds to predicted assumptions. Both values are even more significant than in previous model.

However, the coefficient of unemployment does not correspond to predictions, because the value is positive whereas the theory would say it should be negative. Nevertheless, the p-value is not significant enough, thus the estimated value is not so reflective.

Age structure in the EU-15 influences Turkish migration in a negative way, which is in accordance with the prediction. Thus, when a share of younger people in the states of the EU-15 (the share of people who are younger than 15 years old) rises by 1%, then migration to the EU-15 decreases by 3%.

Diaspora of Turks already settled in countries of the EU-15 (lagged stock of migrants) is in accordance with predictions, however the p-value is quite high and therefore we can say it is insignificant.

The migration policy of European countries is important role as well, as expected theoretically. When a destination country's migration policy rises by 1% (when number of issued resident permits rises by 1%) then immigration from Turkey to the EU-15 rises by 0.32%. The value is significant and together with welfare benefits has the biggest impact on inflows of Turkish migrants to the EU-15.

Regarding to the estimated values of time dummy variables, there was no evidence of huge shocks between given years. Therefore the results are not relevant and they are not presented in the table.

In both final models, welfare benefits provided by states of the EU-15 have significant effect on inflows of immigrants from Turkey. We can say that public social spending in the EU-15 together with individual's income play the most important role for Turks in the decision to migrate. Thus, the results meet the preliminary expectations about the estimation

of the model. Both models have broadly speaking similar results and both find that the European welfare magnet plays significant role in decision to migrate for Turks.

Conclusion

The thesis has analysed the role of welfare benefits in the decision to migrate from Turkey to countries of the EU-15. It provides empirical evidence on the determinants of migration decision of Turks to the EU-15. Using gravity model methodology, I confirmed the preliminary expectations that public social spending in the EU-15 is a significant variable in accordance with the welfare magnet theory. The analysis was performed by application of several estimation types, however the models with country specific FE and time specific FE have brought the most significant results. I applied the traditional estimation technique based on log-log model with robust standard errors to avoid heterocedasticity. The dataset includes the first 15 members of the EU from 2000 to 2012.

As expected from the theoretical model, the country-specific welfare benefits are important determinants of migration from Turkey to the EU-15. Together with the individual's income in the European countries they serve as the most significant variable and the higher they are, the higher migration flows into the EU-15 from Turkey. The destination's country policy regulations are particularly important in explaining the migration flows from Turkey to the EU-15. The EU migration policy, determined by the number of residents permits afforded to foreign people, represents a significant variable for the explanation of Turkish migration flows into the EU-15.

However, the rest of the variables did not show statistical significance in determining the migration inflows. The variables which did not fulfil the theoretical expectations are the Turkish individual's income²⁶ and unemployment in the EU-15²⁷. In both cases we can suggest that the opposite determinants²⁸ are more important for people. Therefore people from Turkey decide to migrate according to European level of income and unemployment rate in home country plays more important role than the fact that unemployment rate in the EU-15 can be even higher. The surprise in the results was that human networks do not impact migration flows from Turkey. As mentioned in section 1.4., migration from Turkey to EU is declining from the 80s and some Turks are moving back from European countries to Turkey (Glazar and Strielkowski, 2012). In addition, we can observe an increase in the number of highly qualified professionals and university graduates moving to Europe (Kirisci, 2003).

²⁶ Country specific FE estimator.

²⁷ Time specific FE estimator with higher significance than in country specific FE estimator.

²⁸ EU-15 individual's income and unemployment in Turkey

Thus, the suggested reason why diaspora no longer influences the decision to migrate is that Turks put more weight to the level of their earnings or the type of job they can find, than the presence of Turkish communities in the destination country which might facilitate integration. European and Turkish age structure do not have impact on inflows of Turkish migrants as well. A possible reason for this result can be the fact that Turkey is not so far from Europe and traveling costs are rather limited. Therefore not only young people will migrate, but also people who are still in working age which can find a better job in the EU-15.

The omitted variables are one of the limitations of this study. Conducted research would have a more explanatory value if all the data would be available for all countries of the EU-15. In addition, the data should contain some additional information, such as type of complete education Turkish migrants, which would lead to a division between skilled and unskilled workers. It would be also useful to have other non-European²⁹ countries in the dataset, to examine whether Turks are not willing to migrate to other countries from other reasons than welfare benefits.

The issue of migration is currently a vibrant topic among European policy makers. However, the case of Turkish migration is a little bit different from current flows of migrants into the EU. Turkish labour force is important part of labour markets in the EU, especially for countries as Germany and Netherlands. This thesis can be a base for future research which can assess the extent to which Turkish migrants take up welfare benefits and if they are more likely to take them up than natives.

²⁹ The easiest would be to add Tukey's neighbours to the analysis.

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Appendices

Appendix 1: Migration pull and push factors

		Pull factors	Push factors
Demographic		<ul style="list-style-type: none"> • Population growth • High fertility 	
Geographic		<ul style="list-style-type: none"> • Distance • Common border 	
Social, and cultural	historical	<ul style="list-style-type: none"> • Human rights abuses • Discrimination based on ethnicity, gender and religion 	<ul style="list-style-type: none"> • Family reunification • Diaspora migration • Freedom from discrimination • Common language • Colonial relationship
Economic		<ul style="list-style-type: none"> • Poverty • Unemployment • Low wages • Lack of basic health and education 	<ul style="list-style-type: none"> • Prospects of higher wages • Potential for improved standard of living • Personal or professional development
Political		<ul style="list-style-type: none"> • Conflict, insecurity, violence • Poor governance • Corruption 	<ul style="list-style-type: none"> • Safety and security • Political freedom

Source: Ramos and Suriñach, 2013

Appendix 2: Summary statistics (2000-2012)

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>ln_INFLWS</i>	163	.3348391	1.858935	-4.431217	4.062647
<i>ln_WB_EU</i>	195	11.53871	1.24593	8.368462	13.574
<i>ln_WB_T</i>	195	10.6831	.470666	9.882201	11.344
<i>ln_GDP_EU</i>	195	.2702637	.811349	-.3676564	2.416092
<i>ln_GDP_T</i>	195	-.1360249	.3987218	-1.17811	.2638555
<i>ln_UNEMPL_EU</i>	195	1.922066	.4330232	.5905572	3.210328
<i>ln_UNEMPL_T</i>	195	2.315758	.1737962	1.870959	2.640868
<i>ln_AGE_EU</i>	195	2.823553	.1162708	2.580217	3.086487
<i>ln_AGE_T</i>	195	3.320656	.0621027	3.230804	3.404525
<i>ln_DIST</i>	195	7.587837	.4121913	6.329211	8.082333
<i>ln_PROXLNG</i>	195	1.850872	.7483241	0	2.639057
<i>ln_l_STOCK</i>	141	3.007973	2.253759	-2.244316	7.600169
<i>ln_POLICY</i>	190	9.912508	1.500008	6.206576	12.22405

Source: Author, STATA

Appendix 3: Assumption for Fixed and Random Effects

	Fixed Effects	Random Effects
1.	Linearity in parameters For each i the model is: $y_{it} = \beta_1 x_{it1} + \beta_2 x_{it2} + \dots + \beta_k x_{itk} + a_i + u_{it}, \quad t = 1, \dots, T$ Where the β_j are the parameters to estimate and a_i is the unobserved effect.	
2.	Random sampling We have a random sample from the cross section.	
3.	No perfect collinearity Each explanatory variable changes over time (for at least some i), and no perfect linear relationship exists among the explanatory variables.	
4.	Strict exogeneity For each t, the expected value of the idiosyncratic error given the explanatory variables in all time periods and the unobserved effect is zero: $E(u_{it} \mathbb{X}_i, a_i) = 0.$	
5.	Homoscedasticity $Var(u_{it} \mathbb{X}_i, a_i) = Var(u_{it}) = \sigma^2$ for all $t = 1, \dots, T$	
6.	No serial correlation For all $t \neq s$, the idiosyncratic errors are uncorrelated (conditional on all explanatory variables and a_i): $Cov(u_{it}, u_{is} \mathbb{X}_i, a_i) = 0$	
7.	Normality Conditional on \mathbb{X}_i and a_i , the u_{it} are independent and identically distributed as Normal($0, \sigma_u^2$).	

Source: Wooldridge, 2009