Senior Project
Department of Economics

"Immigration in European Nations"

Brandon Palmer
May, 2014

Advisor: *Dr. Francesco Renna*

Abstract

This study looks at factors of migration in Europe. This paper specifically looks into the role freedom has on a person's willingness to migrate to another country. There are many measures of freedom. Financial, business, and monetary freedom are the ones chosen in this analysis. An issue in looking at freedom measures is that one measure will tend to correlate with another. The reason for looking at migration factors in Europe is due to the increasing population age. Another reason for looking at this is to see what Europe can do to increase migration flows as that was a goal of the European Union. These migration factors, or push pull factors, can be looked at to see what a country must do to increase immigrant flow.

Contents

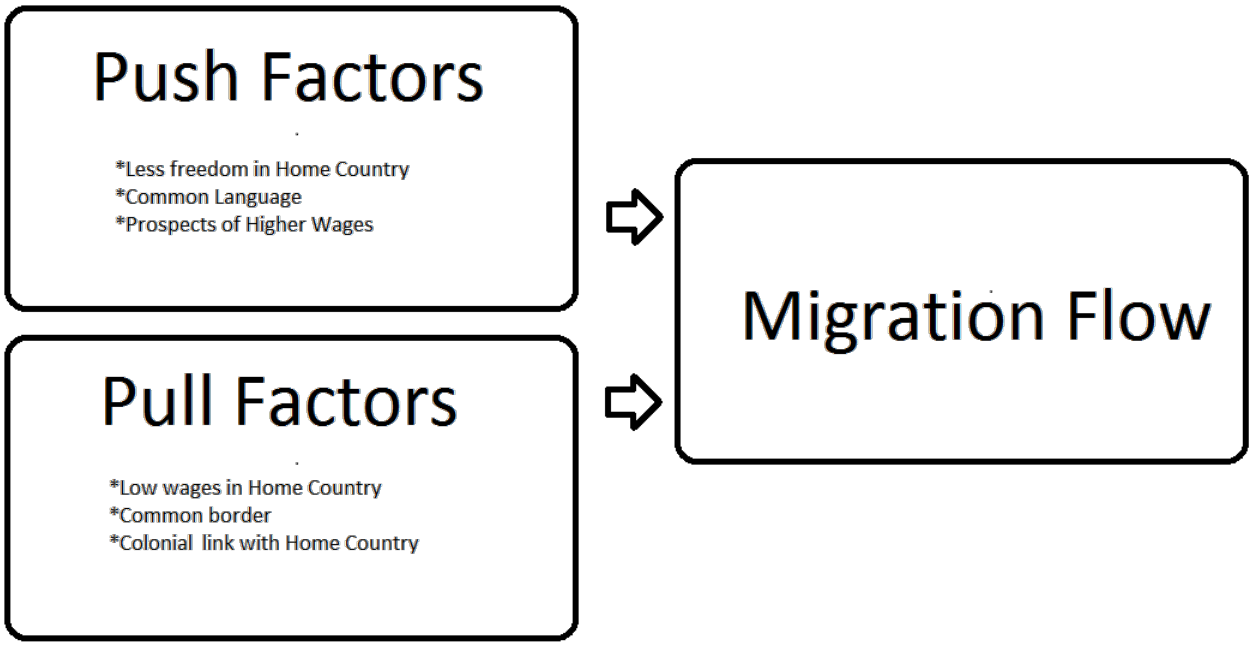
Introduction

At this point in time, European nations are facing an aging populous and are looking for ways to entice immigrants to their nations. They are facing this issue in part by the low birth rates. This is becoming an issue in most developed nations where birth rates have become low enough to threaten social security plans. Many countries social security plans are threatened due to the aging population. Most of these plans are designed so they need a larger, young, pool to draw from to give to the older population. Another motivation in the European Union would be that the union was partially founded in order to increase flow of migration from one country to another.

The objective of this research will be to find out if freedom is a reason for migration flows between countries in the European Union. This will be measured through an extended gravity model, looking to expand upon the work of Raul Ramos and Jordi Suriñach. This paper will further explore the topic by looking at measures of freedom in the year 2011. In this particular case it is looking at business freedom, monetary freedom, and financial freedom.

Measures of freedom can be viewed as possible factors as to why a person would migrate. This is a possible push or pull factor for some citizens in a country. If a person values business freedom, monetary freedom, financial freedom or any other freedoms, they may be inclined to move to a country that shares the same values as they do. Also, if they were to live in a country that does not share their values, those would be contributing push factors for a person to emigrate. As freedom measures increase in the receiving country, one would expect the immigration to increase as well. On the opposite side of that, as freedom measures decrease in a receiving country, it would be likely for that country to see a decrease in immigration.

Theoretical Model Development



Theory in migration states that there are two main forces that cause a person to move from one location to another. These two forces have been given the term push and pull factors. These push and pull factors can be anything from the perspective of higher wages to perceived freedom of the individual. The pull factors would be what would entice a migrant to go to a country. One would expect that a migrant would be likely to move to a country that is sharing a common language, so that will be measured. Distance between countries is also a likely a big factor in why someone would choose a country because they could share some cultural similarities.

In a paper written by Theodore Anderson, in 1956, he discusses push pull factors on migration. His research looks at migration on a metropolitan level. However, this can be viewed in a grander scheme as reasons why a person would chose to move location based on these push and pull factors. Anderson explains that research states migration is a result of socioeconomic

imbalances between communities (Anderson 1956). This theory would be categorized into the push-pull theory. Then there is also belief that total migration can occur out of complex forces centering on the cost of movement and persons available to move (Anderson 1956). This theory would be more alike to the gravitational theory. These two theories previously stated are similar, but have slight differences in them. The two theories can be worked with together as they actually complement each other (Anderson 1956). Both theories seek to find ways to explain migration. The belief that total migration can occur out of complex forces would be looking at other reasons outside of socioeconomic imbalances to explain migration. In Anderson's research, it is found that there are things that cause migration flows such as location, population size, unemployment, and cost of rent. These reasons he researched can be viewed as push and pull factors of migration.

Literature Review

The work entitled "Self-selection and the Earnings of Immigrants" by George Borjas (1988) really starts the groundwork for why migration happens. Borjas was preceded by A.D. Roy who had written that earnings depend on "certain real factors". In his research these factors were various kinds of human skills and techniques used in different occupations. Borjas assumes that this human skill is standardized for the average worker in a nation. He then states that an emigrant may be better or worse off depending on the average income of the area. His research then looks at rates of assimilation based on income. He found that immigrants tended to come from countries due to GNP, income equality, and politically competitive systems.

The next important work "Determinants of European Immigration: a cross-country analysis (Hugo Gallardo-Sejas, Salvador-Gil Pareja, Rafael Llorca-Vivero and Jose A. Martınez-Serrano 2006)", looks at the determinants in immigration in the European countries. Even since

the 1990s immigration has been a major force in Europe. Until this paper evidence of the determinants was scarce due to previously insufficient data. The work in this paper is a quantitative assessment of demographic, geographic, economic, social and cultural fundamentals that drive migration in Europe. The method used is a gravity model with the standard dummy variables such as population, GDP, GDP per capita, distance, language, and adjacency along with their augmented variables ("young" or age, schooling, civil liberties, unemployment, GINI, trade, and welfare). Data of immigration stocks are based on censuses of the countries. Results show both push and pull factors to be important. These push and pull factors are any reasons in which a person would be "pulled or pushed" into migration from one country to another. For example, a person would be pushed from their home country if they are facing less civil liberties or higher unemployment rates. A person would be pulled into a destination country if they perceived a greater quality of schooling or civil liberties in another country. The most important finding was that distance has a clear negative impact on migration.

Anna Maria Mayda's research then expands the topic to that of international migration as a whole. "International migration has recently received a great deal of attention in light of research showing its beneficial effects from an economic development point of view (Mayda 2009)." This paper "empirically investigates determinants – economic, geographic, cultural, and demographic – of bilateral immigration flows (Mayda 2009)." "The host country immigration policy represents the demand side..." Mayda believed she should see pull effects to be of a higher magnitude of being positive for a destination country, if that country's migration policy becomes less restrictive. Immigration data was found from International Migration Statistics dataset for OECD countries. Mayda measures population emigration as being determined on per worker GDP, distance, border sharing, common language, colonial relationship, population age, and

immigration policy. The data shows that a pull factors, such as income opportunities in the destination country or common language, significantly increase the size of emigration rates.

Jack Deward, Keuntae Kim, and James Raymer show that there are migration data discrepancies and work on "harmonizing" the data is available in their migration study of Europe. Also, there is now data from Eurostat due to a project coordinated by the Netherlands. They use their harmonized data to test migration systems theory (MST). "MST is an encompassing perspective, combining elements of neoclassical economics, the new economics of migration, world systems theory, bifurcated labor market theory, and social capital theory (Deward et al 2012)." In short, there are push and pull factors, such as community ties or common language. They then compare migration with many similar measures to that of Mayda's paper. Results were consistent with previous work by Kim and Cohen in 2010 that relational and regulatory ties were most important, also supporting the MST (Deward et al 2012). Those relational ties are things such as common official language and a colonial relationship from the past that would lead to similar regulation in the two countries.

Recent immigration research by Raul Ramos and Jordi Suriñach entitled "A Gravity Model of Migration between ENC and EU" looks more at the area of Europe than previous research. The free movement of workers is one of the main reasons in which the European Union was founded, and is still a goal now, with most countries. The objective of this paper was to analyze past and future trends in ENC-EU bilateral migration flows (Ramos et al 2013). Besides immigration stocks, they look at the traditional variables related to pull and push factors of migration in order to explain migration flows and stocks. The gravity model is used in this study, as these models have been used in previous migration analysis, and prove relatively good performance (Ramos et al 2013). "Our analysis of the long-run determinants of bilateral

migration stocks has permitted us to conclude that demographic, geographical, social/historical and economic factors are relevant both to explain and to forecast migration patterns (Ramos et al 2013)." The article then suggests that indicators of governance and other institutional determinants could be other explanatory variable.

Model Specification

The purpose of this research is to analyze past trends in European bilateral migration flows in the year of 2011. As theory states, there are both push and pull factors that cause migration from one country to another. The initial research states that migration is likely due to how much a person can make, and therefore GDP per capita is investigated. Overall, this research looks to expand on the research Ramos and Suriñach by looking at measures of freedom.

$$lnimm_i = \beta_0 + \beta_1 lngdp_i + \beta_2 lngdp_j + \beta_3 lndist_{ij} + \beta_4 lnpop_i + \beta_5 lnpop_j + \beta_6 contig_{ij} + \beta_7 comlangethno_i + \beta_8 businessfreedom_i + \beta_9 monetaryfreedom_i + \beta_{10} financial\_freedom_i$$

Much of the data found was from the CEPII, a research body in France for research into international economics. The data in this research looks at the year of 2011, in order to get a more recent perspective of push and pull factors in Europe. The CEPII data looked at bilateral measurements between countries.

The $lngdp_i$ would be the GDP of the recipient country, in which one would expect the sign to be positive. This is because an increase in GDP would likely lead someone to move to the location in which there is higher wages. This relates to Borjas research where he states that

immigrants would go to a country with higher GNP. The $lngdp_j$ would then be expected to be negative as it should be a push towards the recipient country.

The variable $lndist_{ij}$ would likely be a negative sign with the fact that a person is less likely to immigrate to a country if it is far away. This could be associated with the fact that relocation costs are high. Another thing associated with distance would be that a person would be further away from family, and many tend to stay near family. Contiguity between countries would be positive for similar reasons why distance would be negative.

The population variables are basically stating that if a country has a large population, they are likely to increase immigration. This is likely because of people wanting to go to a country where they know others are. It could be for many reasons from being able to spread ideas in a business to having a more active social life in the evening. Whatever the case may be, the signs expected for the recipient country “i", would be a positive (pull factor). The home country would be a push factor and be negative.

The freedom variables would be expected to have positive signs. With these variables, I focus more on the recipient country. Where there is more freedom, a person is likely to move. Most people like having freedom, especially when it comes to how business is run and dealing with their personal finances.

In the appendix, there is further explanation of the variables. Tables 2 and 3 list where the data is found and data ranges for the variables listed above. Table 2 further defines each variable in the data set.

For data on immigration stocks, Eurostat data was used. Eurostat looks at the immigrant stock in each country of Europe. Eurostat is a Directorate-General of the European Commission located in Luxembourg. Currently, immigration stocks data is available from 2001-2011.

The countries included in this study are listed in Table 1 of the appendix. Table 2 is a list of variables used, their definitions, and where the data is located. OLS has been used for estimation of models as research has shown that when fixed for destination country leads to the same results.

Empirical Results

OLS results have mostly agreed with the previous research done on this topic. The OLS estimation showed population, GDP, freedom, common language, country size, distance, and being landlocked as significant variables. Table 4 includes the OLS estimations. Some differences worth noting are that my results showed a statistically insignificant result for common language sharing of 9%. Each result has the expected signs, but has conflicting results as to which variables are significant.

The GDP estimate is positive. According to theory, a higher GDP per capita causes a person to immigrate to the country. The data leans close to GDP per capita as being significant, but is not quite there. If it were significant, the data would read, one percent change in GDP per capita leads to a 12 percent change in immigration.

According to OLS, higher current population levels (measured in this case by variables $lnpop11_i$ and $lnpop11_j$) can lead to more immigrant stocks. While this is significant statistically, there is not much that can be done economically with this data. A country may want to

encourage population growth by creating incentives for having children. For every one percent increase in current population, an increase in immigration of 75% occurs.

The common language is surprisingly not significant. One would expect a person would be likely to move to a country where language barriers are lower. However, results seem to show that this is not the case.

The distance variable only ended up significant at the 90 percent level for a one-tail test. That is to say that it is significant, but not as much as some other variables. For every one percent increase in square kilometers, immigration would decrease by 6 percent. Contiguity turns out not to be significant, but is the expected sign.

Financial freedom turns out not to be statistically significant. It is, however, the expected sign. Monetary and business freedom turns out to be largely significant. For every one point increase (in the recipient country) in monetary freedom score, immigration increases by 11 percent. For every one point increase (in the recipient country) in business freedom score, immigration increases by 5 percent.

The OLS has an R^2 of 0.55. That is saying that the data accounts for roughly 55 percent of the model. Current OLS shows that a person is very likely to immigrate to a country that has a larger amount of business and monetary freedom. They also have large t-values to show that they are very significant variables in the model.

Conclusion and Suggestions for future study

Current results show business freedom and monetary freedom are an important factor in immigration. It would be in countries interest to increase these freedom values in order to bring immigrants to their country.

Monetary freedom, described as price stability was the most important of these freedom measures obtained from the Heritage Foundation's values. Countries should aim to prevent inflation and price controls that distort the market. In doing so, a country can boost immigration to their area.

Business freedom would also lead to an increase in 5 percent immigration for every one percent value increase. A country should allow for slightly less stringent regulation on businesses in their country. More specifically, they should allow a person more easily to be able to establish and run an enterprise without interference from the state. Interference from the government could come in many forms of regulation. Government interference could be price floors or ceilings, but even any form of price setting could become an issue.

Overall, it appears as if allowing for more freedoms in a country, it makes immigrants more willing to visit. It would then be in a countries best interest to work towards more free markets and allow for more personal freedoms. By increasing these freedoms, they can then get immigrants, who then could help be used as an income source for social programs.

With this research there was a time frame in which all work had to be completed. With that, there was some work that was left to be done that could have improved the research. Suggestions for future research would be to look more closely at any economic variables, and to run a fixed effects model with dummy variables for the country. Some of the economic variables that would have been interesting to look at would have been unemployment and wage averages. While GDP per capita gives an idea of income, wage averages would likely have been a closer relationship when looking at a person seeking higher wages.

Bibliography

Anderson, Theodore R. (1956). Intrometropolitan Migration: A Correlation Analysis.

Borjas, George. J. (1988). Self-selection and the earnings of immigrants.

DeWaard, Jack, Keuntae, Kim, & Raymer, James. (2012). Migration systems in Europe: Evidence from harmonized flow data. *Demography*, *49*(4), 1307-1333.

Gallardo-Sejas, Hugo, Pareja, Salvador-Gil, Llorca-Vivero, Rafael, & Martínez-Serrano, José A. (2006). Determinants of European immigration: a cross-country analysis.*Applied economics letters*, *13*(12), 769-773.

Mayda, Anna Mayda. (2010). International migration: A panel data analysis of the determinants of bilateral flows. *Journal of Population Economics*, *23*(4), 1249-1274.

Ramos, Raul, & Suriñach, Jordi. (2013). *A Gravity Model of Migration between ENC and EU* (No. 7700). IZA Discussion Paper.

Appendix

Table 1: Countries in Data

Belgium	Italy	Romania
Bulgaria	Cyprus	Slovenia
Czech Republic	Latvia	Slovakia
Denmark	Lithuania	Finland
Germany	Luxembourg	Sweden
Estonia	Hungary	United Kingdom
Ireland	Malta	Iceland
Greece	Netherlands	Liechtenstein
Spain	Austria	Norway
France	Poland	Switzerland
Croatia	Portugal	Former Yugoslav Republic of Macedonia
		Turkey

Table 2: Variable Description

Variable	**Definition**	**Data Location**
lnPOP	Log of Population of country "i" or "j" [7.017, 11.311]	World Bank Development Indicators
lnGDPpc	Log of GDP Per capita of country "i" or "j" [9.130, 11.372]	World Bank Development Indicators
lndist	Log of Distance between two capital cities [1.9, 9.882]	CEPII
business_freedom	Business freedom index from 1-100 with 100 being most free [61.4, 99.7]	The Heritage Foundation

monetary_freedom	Monetary freedom index from 1-100 with 100 being most free [68.6, 87.6]	The Heritage Foundation
financial_freedom	Financial freedom index from 1-100 with 100 being most free [50.0, 90.0]	The Heritage Foundation
contig	Dummy for countries next to each other [0, 1]	CEPII
comlang_ethno	Dummy for 9% of country sharing same language [0, 1]	CEPII
lnimmi	Immigration stocks for the year 2011 of recipient country [7.288, 13.246]	Eurostat

Table 3: Descriptive Statistics

Variable	**Mean**	**Std Dev**	**Min**	**Max**
business_freedom$_i$	81.186	9.903	61.4	99.7
monetary_freedom$_i$	80.037	3.885	68.6	87.6
financial_freedom$_i$	69.310	10.482	50.0	90.0
lnGDPpc$_i$	10.352	0.386	9.371	11.372
lnPOP$_i$	9.244	1.256	7.017	11.311
lnimmi	10.582	1.616	7.288	13.246
lndist$_{ij}$	8.517	0.897	1.900	9.882
lnGDPpc$_j$	10.268	0.451	9.130	11.372
lnPOP$_j$	15.779	1.457	12.672	18.219

$contig_{ij}$	0.015	0.121	0	1.00
$comlang\_ethno_{ij}$	0.061	0.240	0	1.000

Table 4: OLS regression

Dependent Variable: lnimmi

Number of Observations Read	6496
Number of Observations Used	986
Number of Observations with Missing Values	5510

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	10	1425.89321	142.58932	120.75	<.0001
Error	975	1151.32087	1.18084		
Corrected Total	985	2577.21407			

Root MSE	1.08667	**R-Square**	0.5533
Dependent Mean	10.58295	**Adj R-Sq**	0.5487
Coeff Var	10.26808		

Variable	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	-10.25377	1.51907	-6.75	<.0001
$lnPOP_i$	0.74037	0.03078	24.05	<.0001
$lnPOP_j$	-0.00564	0.02393	-0.24	0.8138
$lnGDPpc_i$	0.12799	0.12685	1.01	0.3132
$lnGDPpc_j$	-0.01595	0.07703	-0.21	0.8360
$Lndist_{ij}$	-0.06535	0.04903	-1.33	0.1829
$business\_freedom_i$	0.05200	0.00468	11.11	<.0001
$monetary\_freedom_i$	0.11035	0.00941	11.73	<.0001
$financial\_freedom_i$	0.00450	0.00376	1.20	0.2314
$contig_{ij}$	0.14659	0.15016	0.98	0.3292
$comlang\_ethno_{ij}$	0.11958	0.21139	0.57	0.5718