International Migration within Europe

Applied Econometrics and Economic Modelling
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1 Introduction

While migration is not a new phenomenon, it has an increasing impact on societies and economies in Europe. Many economically developed countries and regions have experienced significant in-migration of people, other regions, particularly in Eastern and Southern Europe, are dealing with the opposite problem. These migration patterns result in considerable regional disparities and are at the root cause of many of the sociopolitical challenges which Europe faces today, such as demographic decline and integration.

Both destination and origin countries experience the effects of migration. While positive for some countries, the so-called "brain drain" is experienced in many relatively less developed counties and could be a factor which plays a negative effect on future economic development, as human capital is one of the driving forces of economic growth. The successful integration into the host society plays and important role for maximizing the opportunities of legal migration.

The following paper tries to examine and analyze the current state and trends of legal migration between European countries (EU and non-EU members [1]) between the years 2008 and 2019. It focuses on migrants within Europe, and does not take into account countries outside the European continent. The paper attempts to make an overview of the significant migrant diasporas and to determine the most attractive and unattractive counties and regions for them. It is organized in three major parts, the first one considers all countries in Europe , the second one only Bulgaria and the third one outlines possible socioeconomic causes for migration.

2 Data

One of the major problems in the analysis of migration is measurement, which arises as a consequence of the different sources of migration data. Most information regarding migration is obtained from population censuses or population registers that report migration data for a given time interval.

The data used in this paper is from the United nations estimates of bilateral migration stocks, Eurostat International Migration database and the Bulgarian National Statistical Institute.

The United Nations, Department of Economic and Social affairs, Population division has published a bilateral matrix of migration with estimated migrants by origin and destination country (International Migrant Stock 2019). [2] The data used is limited only on the international migration from and to European countries.

The net crude rate of migration data is from the Eurostat dataset "Population change - crude rates of total change, natural change and net migration plus adjustment". [3]

Bulgarian migration flows are estimated by the National Statistical Institute, Demographic and social statistics department, International migration by age and sex for the years between 2007 and 2019. [4].

3 Europe. Current state and trends

To study international migration, a clarification in the basic concepts and definitions is needed. *"Immigration refers to the migration of people into a new country for the purpose of establishing permanent residence; an immigrant is a person who enters a new country of permanent residence and crosses an international boundary in doing so... an emigrant is one who migrates away from a country with the intention of establishing a permanent residence elsewhere."*(p.196, 2010, Poston, Population and Society) [5]

Migration stocks are the numbers of migrants living in a country or region at a given point in time. Migration flows are the number of migrants entering or leaving a country or region during a specific period of time.

Net migration is the difference between the inward and outward flows of migration, i.e. in-migrants – out-migrants or immigrants – emigrants.

[1] The countries included in the analysis are:Albania,Austria,Belarus, Belgium, Bosnia and Herzegovina, Bulgaria,Croatia,Czechia,Denmark,Estonia,Finland,France,Germany,Greece,Hungary,Iceland,Ireland,Italy,Latvia,Liechtenstein, Lithuania,Luxembourg,Malta,Montenegro,Netherlands,North Macedonia, Norway,Poland,Portugal,Republic of Moldova Romania,Russian Federation,Serbia,Slovakia,Slovenia,Spain,Sweden,Switzerland,Turkey,Ukraine, United Kingdom, Cyprus in not included in some analyses, due to unavailable data

[2] Link to the UN database: UN data: Migrant Stock 2019.

[3] Link to the Eurostat dataset: Population change dataset 2008- 2018.

[4] Link to National statistical institute dataset: NSI Migration Data 2007-2019

[5] p.196,Poston Jr, D. L.,Bouvier, L. F. (2010). Population and society: An introduction to demography. Cambridge University Press.

The crude rate of net migration, according to the Eurostat Concepts and Definitions database, is defined as the ratio of net migration (including statistical adjustment) during the year to the average population in that year. The value is expressed per 1000 persons. The net migration plus adjustment is calculated as the difference between the total change and the natural change of the population.

3.1 Map of Crude Rate of Net Migration

The following map shows the average crude rate of net migration per one thousand in European countries between 2007 and 2018. An average is taken in order to capture the overall net crude rate of migration.

The map clearly shows that countries in Eastern and Southern Europe are more likely to have a negative net crude rate of migration. Opposed to Western and Northern Europe which have higher numbers. Luxembourg has the highest average net crude rate of migration of 17.0, followed by Malta (14.4) and Switzerland (8.4). Most of the ten ten ranking countries have also highly developed economies.

The lowest average net crude rate of migration has Kosovo(-25), followed by Lithuania(-8.8) and Albania(-8). One possible explanation is the lower standard of living in the emigrant nations (GDP per capita, wages, social conditions, etc.) and the better conditions of living in the immigrant nations.

Counter to my expectations Ukraine (0.2), Bosnia and Herzegovina(0.1) and Serbia(0.4) have a positive average crude rate of net migration. The three countries are non-EU members, which imposes restrictions on traveling and getting working permits. One possible explanation for Ukraine could be that the Annexation of the Crimean peninsula by the Russian Federation in 2014 has caused a wave of Ukrainians leaving the country, but also a reverse wave from Ukrainian migrants returning from Russia. Another explanation could be the historical development and the declaration of independence from the USSR in 1991. Serbia and Bosnia and Herzegovina have a significant stock of emigrants, explained by the armed conflicts, which both countries experienced in the 90s.

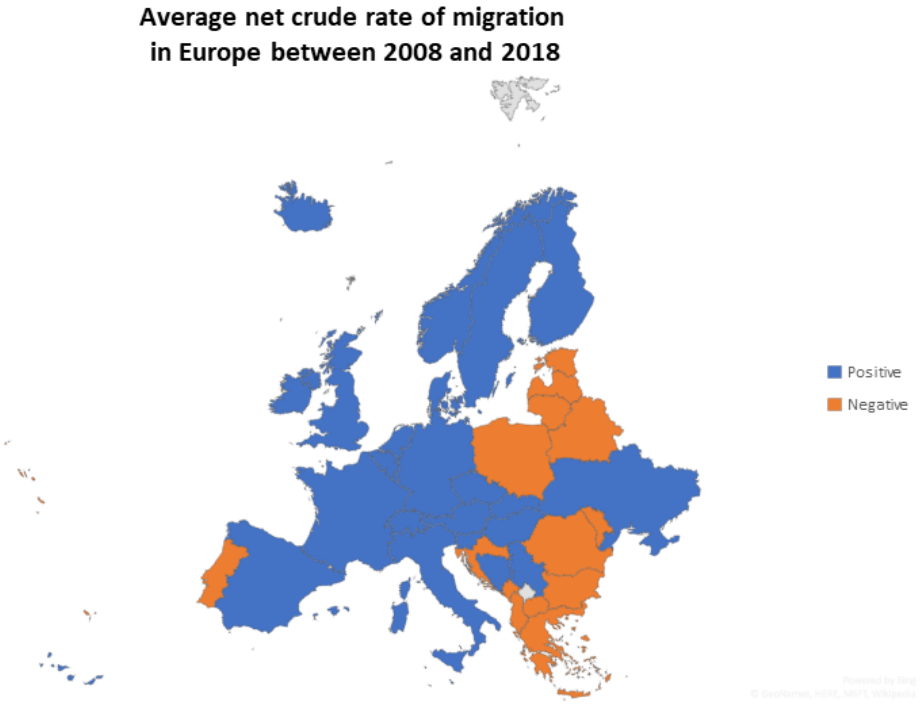


Figure 1: Map of Europe by Average Net Crude rate of Migration.

Country	Luxembourg	Malta	Switzerland	Cyprus	Sweden	Norway	Austria	Iceland	Belgium	Italy	Germany	Denmark	United Kingdom	Liechtenstein
AVG	17.0	14.4	8.4	7.4	7.3	7.2	5.4	5.1	4.6	4.5	4.4	4.1	4.1	4.1
Country	Spain	Finland	Czechia	Slovenia	Netherlands	Turkey	Ireland	Hungary	Ukraine	France	Slovakia	Serbia	Bosnia and Herzegovina	
AVG	2.9	2.8	2.7	2.6	2.5	1.8	1.5	1.4	0.5	0.4	0.4	0.2	0.1	

Country	Poland	North Macedonia	Estonia	Moldova	Belarus	Portugal	Bulgaria	Greece
AVG	-0.1	-0.2	-0.4	-0.4	-0.5	-0.6	-1.2	-1.2
Country	Montenegro	Croatia	Romania	Latvia	Albania	Lithuania	Kosovo	
AVG	-1.5	-1.9	-4.5	-7.7	-8.	-8.8	-25.	

Figure 2: Tables.

3.2 Top ranking countries in Europe by immigrant and emigrant stock

The numbers here refer to the total number (or cumulative "stocks") of migrants born or living in European countries in 2019, not the annual rate of migration (or current "flows") of migrants between European countries.

The Russian Federation has the highest number of emigrants in other European countries with over 5 million people (Figure 3). Ukraine has over 4.5 million immigrants within the European continent, followed by Poland (approx.3.7 million), Romania (approx. 3 million) and Germany (approx. 2.5 million).

Germany on the other hand has the highest number of immigrants from Europe with over 9 million, followed by Russia (approx. 4.8 million), Ukraine(3.7 million), the United Kingdom(3.46 million) and Italy (3.3 million). In order to understand which country experiences the most withdraw of human capital and which the highest gains, we have to look into the net stocks.

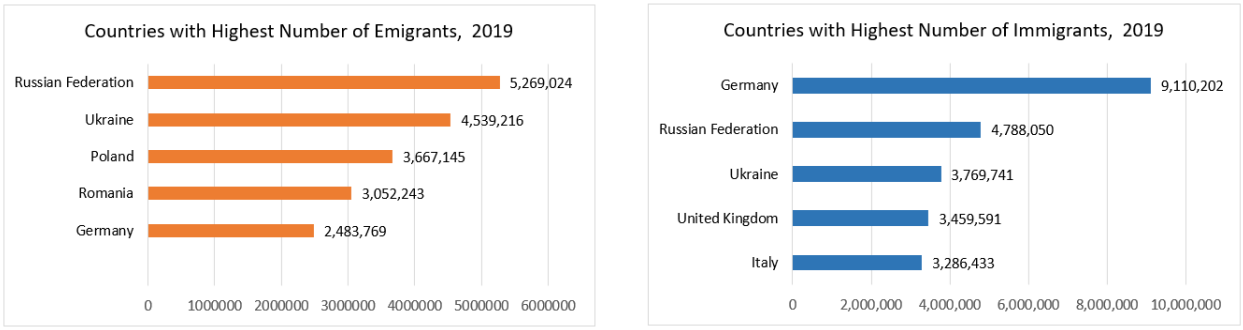


Figure 3: Top ranking countries by immigrant and emigrant stock, 2019, Data source: UN Migrant Stock 2019 database

Regarding the net gain or loss of international migrants within Europe, (Figure 4.) Poland experiences the largest net loss of immigrants during by the end of 2019, with approximately 3 million more emigrants than immigrants, followed by Romania (2.64 million) and Bulgaria (1.3 million).

By the end of 2019, the Germany has a net gain (immigrants minus emigrants)of almost 6.6 million immigrants who originate from other European countries, far surpassing the net gain received by the United Kingdom, the country with the second largest number(2.16 million).France comes next with 1.85 million, followed by Italy (1.582).

The number of emigrants from Bulgaria who live in other European countries in 2019 is estimated to be 1,406,228 according to the UN migrant stock 2019 database, the number of immigrants in Bulgaria who originate from Europe are estimated to be 125,020 people. The numbers do not include in- and out-migration from and to non-European countries.

Country	Poland	Romania	Bulgaria	Portugal	Albania	Turkey	Bosnia and Herzegovina	Republic of Moldova	Ukraine	Russian Federation	Lithuania
Net	-3,062,088	-2,639,725	-1,227,526	-1,131,059	-1,027,818	-935,626	-845,545	-826,298	-769,475	-480,974	-415,183
Country	**North Macedonia**	**Czechia**	**Belarus**	**Croatia**	**Slovakia**	**Latvia**	**Montenegro**	**Finland**	**Estonia**	**Malta**	
Net	-399,406	-363,775	-320,224	-261,101	-120,733	-50,734	-43,480	-33,381	-4,968	-3,083	

Country	Germany	United Kingdom	France	Italy	Spain	Switzerland	Austria	Belgium	Sweden	Netherlands
Net	6,626,433	2,159,051	1,855,290	1,582,255	1,454,928	1,241,578	1,068,392	582,555	543,769	495,623
Country	**Norway**	**Greece**	**Serbia**	**Denmark**	**Luxembourg**	**Slovenia**	**Ireland**	**Hungary**	**Liechtenstein**	**Iceland**
Net	317,898	279,296	262,175	198,235	197,055	149,074	109,184	22,780	20,617	5,503

Figure 4: Net migration(difference between immigrant and emigrant stock), 2019, Data source: UN Migrant Stock 2019 database

3.3 Migration in Europe by destination and origin

To understand the dynamics of migration, a deeper analysis of migration stocks broken down by destination and origin is conducted. The following chord diagrams are helpful to further understand the patterns of migration within European countries. The software used to produce the diagrams is R.

The chords in the diagrams represent the connection between the places of birth (at the base of the chord) and places of residence (at the arrow head of the chord). Direction of the flow is indicated by the arrowhead. The size of the flow is indicated by the width of the arrow at its base.

The width of the base of the chords correspond to the size of the migrant population. Values for the migrant population sizes are from the 2019 revision of the UN dataset.

The first diagram (See Figure 5) is at countries level in order to identify major pattern of migration.(See Figure 12) To highlight the most significant past migrant movements between two countries, it shows those migrant populations which exceed 250 000 people. The highest number consists of Russian immigrants who live in Ukraine, and in the opposite direction from Ukraine to Russia the number of people is 3 269 248. A significant migrant population from Poland (1 784 839), from Turkey (1,531,333)and from Russia(999 162) live in Germany. Other major connectionas are: from Romania to Italy (1 074 382), from Poland to the UK(914 022) and from Belarus to Russia (764 120).

In the second diagram (Figure 6) the numbers are aggregated by region. (See Appendix. Figure 13.) [6]. The region with the most people who have immigrated to other countries is Eastern Europe with overall 22,315,838, respectively to other Eastern European countries- aprrox. 10,461 million, to Western Europe- 6,069 million, to Southern Europe- 3,246 million. and to Northern Europe- 2,538 million.

The region which has received the most immigrants is Western Europe- with 17,666 million., from Southern Europe- 7,909 million, from Eastern Europe 6,069, from other Western European countries - 2,945 million and from Northern Europe 741,570 thousand. It is evident that the most preferred region to immigrate to is Western Europe and the least preferred is Eastern Europe.

These figures represent stocks of migrants, so they reflect past migration flows, but they can also help us to understand future migration patterns. Indeed, existing networks of migrants abroad may be an important pull factor for people who are considering migrating.

[6]The regions are defined as follows: Eastern Europe: Belarus, Bulgaria, Czechia, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, Ukraine
Western Europe: Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Netherlands, Switzerland
Northern Europe: Denmark,Estonia,Finland,Iceland,Ireland,Latvia,Lithuania, Norway, Sweden, United Kingdom
Southern Europe:Albania,Bosnia and Herzegovina, Croatia, Greece,Italy,Malta,Montenegro,North Macedonia, Portugal, Serbia,Slovenia,Spain,Turkey

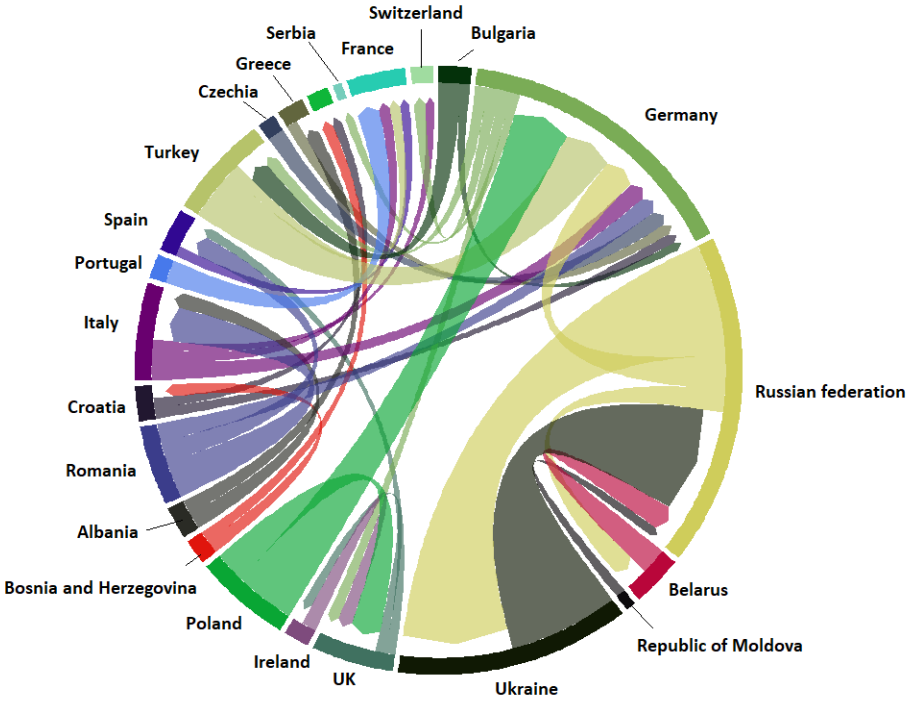


Figure 5: Chord diagram on a country level

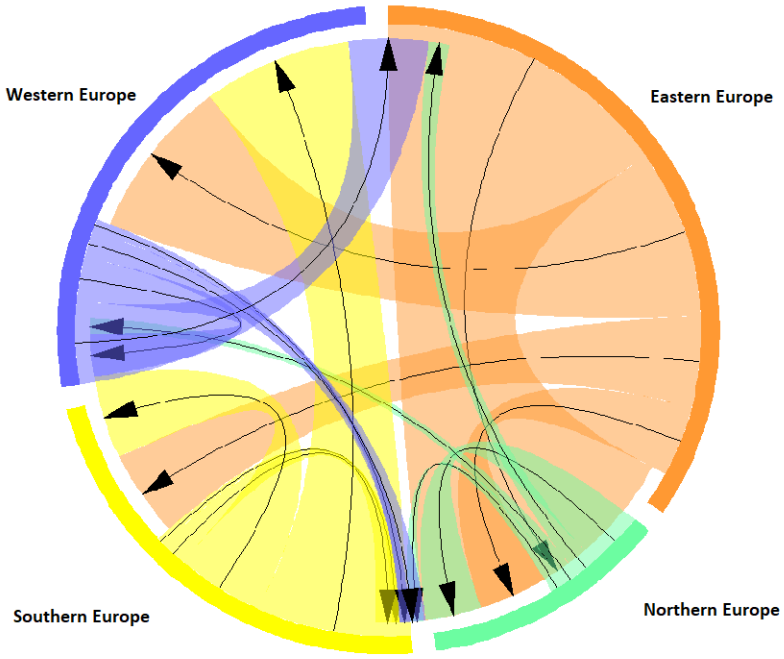


Figure 6: Chord diagram on a regional level

4 Bulgaria

4.1 In- and out migration in Bulgaria. Migrant Stocks

As a result of the historical and socio-econonomical development of Bulgaria, the international migration is usually connected with out-migration. After 1989 and the fall of the communist regime in Bulgaria, free movement of people was allowed across borders which caused a huge wave of emigrants leaving the country. In 1990 the number of emigrant stock was 572,317 (according to UN Migrant Stock dataset),with a predominant part in Turkey 462,767. The high number could be explained due to the specific ethnic and historical past of the country. By 2010, the number rose to 994,839 people and by the end of 2019 it was 1,406,228. The destination countries with highest number of Bulgarians and the countries from which the most immigrants come to Bulgaia could be seen in Figure 7.

Destination country:	1. Turkey	2. Germany	3. Spain	4. Greece	5. Italy	6. United Kingdom	7. Belgium	8. France	9. Netherlands	10. Austria
Number of emigrants	652,900	262,462	121,435	71,043	62,358	37,744	34,769	27,977	25,446	18,572

Origin country	1. Russian Federation	2. Turkey	3. Ukraine	4. United Kingdom	5. Germany	6. Greece	7. Spain	8. Romania	9. Italy	10. North Macedonia
Number of immigrants	31,679	11,702	10,115	9,992	9,334	8,563	7,098	4,556	3,790	3,595

Figure 7: Countries with highest emigrant (top table) and immigrant (bottom table)number for Bulgaria.

4.2 In- and out migration in Bulgaria. Migrant Flows

There is a steady increase in the number of both legal immigrants and emigrants in Bulgaria. Examining the in-migration flows in Bulgaria (Figure 8) shows that there is a peak of in-migration between 2014-2015 and a decline in 2016, followed again by a steady increase in numbers. The peak (26 615 entered the country) could be associated with the migrant crisis in the Middle East and the war in Syria in this period. The men are slightly more than the women, but overall the gender proportions do not differ significantly. The numbers do not include refugees and asylum seekers.

The out-migration flows (Figure 9) in Bulgaria estimate that 37 929 persons changed their current address in Bulgaria with an address abroad in 2019. The upward trend is clear, only interrupted by a significant decrease in 2011 (only 9 519 people). Reliable data source for the years before 2007 was not found. Again, gender differences are insignificant.

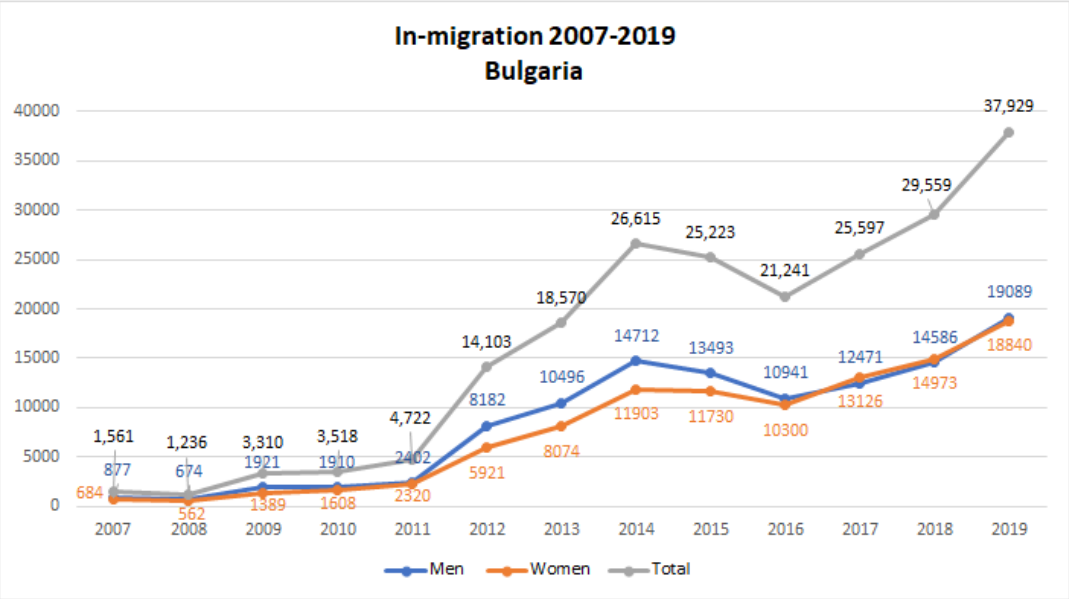


Figure 8: In-migration flows Bulgaria. Data: Bulgarian NSI

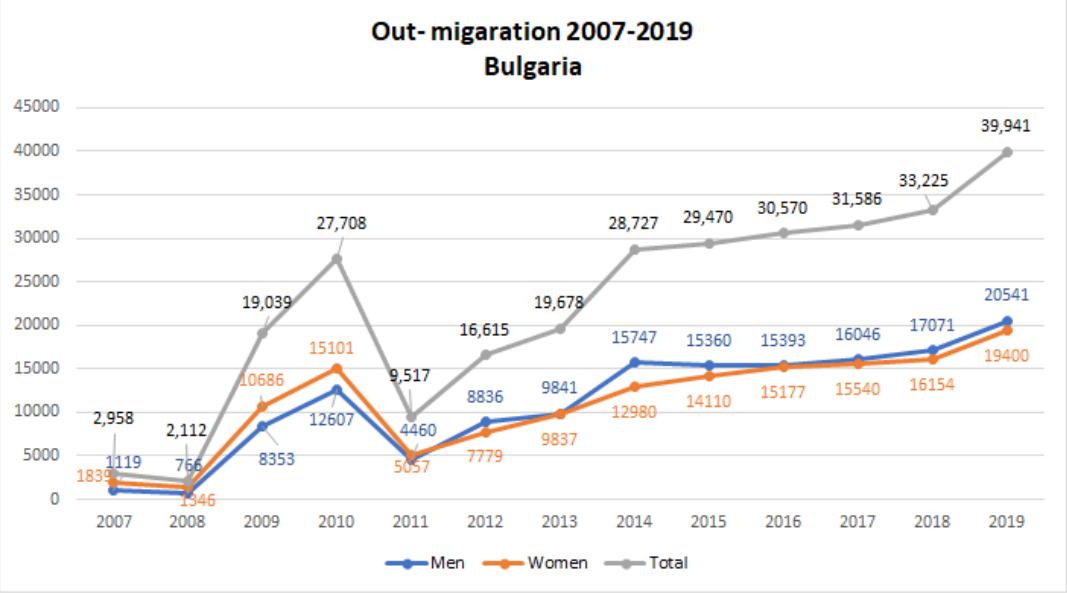


Figure 9: Out-migration flows Bulgaria.

4.3 Age and gender distribution of immigrants and emigrants

Age and gender patterns of migration are are essential for understanding drivers of population change. These patterns are also required for population planning and for designing policies to attract or restrict migration.

In the paper "Model migration schedules" of 1981, Rogers and Castro describe the age patterns of migration. One of their main findings is that: "The age-specific migration rates of populations exhibit remarkably persistent regularities.[7]

The expectations for the age distribution are relatively high rates among infants and young children, who are accompanied by their parents, usually adults in their late twenties. The drivers of migration for young

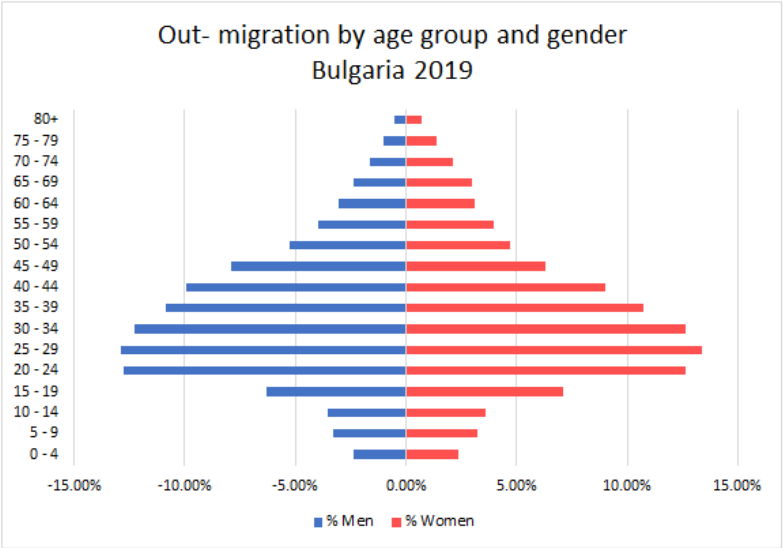
[7]Rogers, A., Castro, L. J. (1981). Model migration schedules. p.2

adults are usually education or work. The mobility of adolescents is expected to be lower but exceeded that of young teens. There after migration rates increased, attaining a high peak at about the age interval 20-30 and then declining monotonically with age to the ages of retirement.

In 2019, the out-migration from Bulgaria shows similar to expectations age patterns. The immigrants who are part of the working age population, i.e between the ages of 20 and 64, make up around 78 % . Those under 20 years are 16% and over 64 are only 6%. A peak between the ages 20 and 34 is observed, followed by a steady decline.

The in-migration age distribution shows a more balanced structure, with people more equally distributed in the age intervals. Such a distinguished peak in migration of young adults is not observed. The age group 20-64 compose roughly 70%, those under 20 years are 16% and the over 64 years age group is 14%. A peak in infants and young children is observed.

Gender differences are negligible in both in- and out- migration, with respectively 50.33% men and 49.67 % women in the immigrant flow and 51.43% men and 48.57% in the emigrant flow.



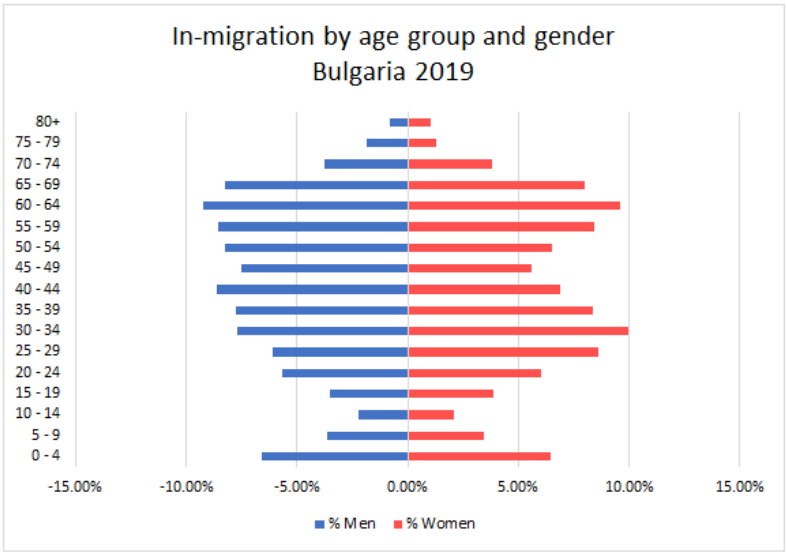


Figure 10: Out- and in-migration Bulgaria by age group and sex.

5 Socioeconomic reasons for migration

Answering the question of what drives international migration is a complex task and an exhaustive theory of the reasons determining migrations is hard to formulate. International wage differences and standard of life, are considered as the main drivers of economic migration. However, these disparities between countries might not be completely decisive in influencing non-economic migrations. Many factors exist which influence the individual to take the decision to leave their country permanently. In the book "The economics of immigration, 2013" [8], a structured model of possible "pull" and "push" factors is represented:

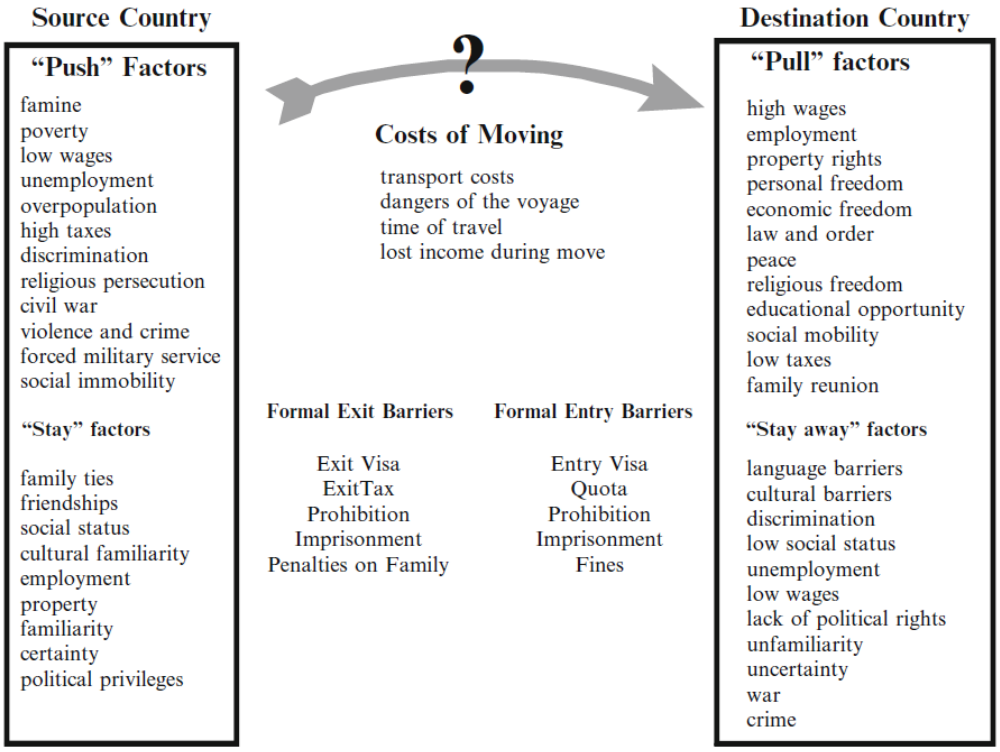


Figure 11: Push and pull factors for the immigration decision.

The observed pattern in Europe corresponds to this model of factors, the preferred regions and countries have higher wages, lower unemployment rate, and more economic freedom, all of which are "pull" factors. The regions and countries which people chose to leave are associated with "push" factors: lower wages, higher corruption rates and more people who live on the poverty line. Other influences which play a significant role are how close geographically are the counties to each other, existing cultural bonds and similar languages.

Existing networks of migrant who share the same origin can also be a strong driving force the so-called network effects. The costs of moving within Europe, especially within the EU are relatively low. Citizens of members states of the European Union do not need an entry visa to permanently work or live in another member state.

Another major factor could be the age structure of a nation. Younger people are more likely to express an intention to migrate and to act on that intention. Current high fertility rates will produce in future a higher number of people who are more likely to migrate internationally than current generations. The main drivers for young people are education and work.

These variables are often interconnected and there is a complex, non-linear relationship between economic development and migration, they reflect stages of socioeconomic development. As a general rule, migration first increases and then decreases with a country's economic development. This is consistent with the mobility transition and migration hump theories [9] which describe an inverse U-shaped relation between migration and development. For instance, low GDP and high fertility levels all describe an early stage of socioeconomic

[8] Bodvarsson, Ö. B., Van den Berg, H. (2013). The economics of immigration. New York, NY: Springer New York.
[9] Zelinsky, W. (1971). The hypothesis of the mobility transition. Geographical review, 219-249.

development, in this case major outflows of emigrants occur to available and attractive foreign destination. As the economy of a country grows, the outflows start to decline and potentially the society experiences a positive net migration.

Factors which result in forced migration, such as armed conflicts, political persecution, diseases, ethnic discrimination , climate change and natural disasters could be quite unpredictable and irregular.

Considering the many drivers of migration contributes to formulating better-informed migration scenarios for the future.

6 Conclusion

Migration has shaped social, political and economic development of the European continent throughout history. This remains true today and will continue to be so in the future with rising number of people choosing to leave their home countries.

In general, the data confirms that the most international migration in Europe is likely to derive from less economically developed countries (Eastern and Southern Europe) and be directed towards high income countries (Western and Northern Europe). The key drivers of are mainly structural, such as the discrepancies in the economic performance, living conditions, wages, age distribution of the nations. Historical and cultural specifics and network effects cannot to be ignored when it comes the specific decision to which country a individual immigrates.

Bulgaria continues to be one of the main emigrant countries in Europe with persistent negative migration rates. This process only deepens the demographic decline and the differences of the living standard compared to more advanced countries in Europe.

Based on what is observed in the past, we can expect that demographic, economic changes and network effects will continue to increase the potential for international migration. Unless less developed countries in Europe succeed in reaching the standard of living and social conditions of prosperous nations, higher levels of international migration should be expected in the future.

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[11] Zelinsky, W. (1971). The hypothesis of the mobility transition. Geographical review, 219-249

7 Appendix

Rank	Origin Country	Destination	Migrant Stock 2019
1	Russian Federation	Ukraine	3,308,515
2	Ukraine	Russian Federation	3,269,248
3	Poland	Germany	1,784,839
4	Turkey	Germany	1,531,333
5	Romania	Italy	1,074,382
6	Russian Federation	Germany	999,162
7	Poland	United Kingdom	914,022
8	Belarus	Russian Federation	764,120
9	Portugal	France	687,530
10	Russian Federation	Belarus	673,880
11	Bulgaria	Turkey	652,900
12	Romania	Spain	622,555
13	Italy	Germany	578,841
14	Romania	Germany	545,759
15	Czechia	Germany	502,609
16	Albania	Italy	475,196
17	Ireland	United Kingdom	442,796
18	Albania	Greece	426,449
19	Bosnia and Herzegovina	Croatia	373,838
20	Germany	Turkey	371,430
21	Germany	Switzerland	363,037
22	Germany	United Kingdom	347,634
23	Italy	France	343,255
24	Bosnia and Herzegovina	Serbia	341,347
25	Turkey	France	327,508
26	Greece	Germany	326,297
27	Croatia	Germany	321,527
28	Spain	France	303,245
29	United Kingdom	Spain	302,020
30	Republic of Moldova	Russian Federation	294,245
31	United Kingdom	Ireland	293,061
32	Croatia	Serbia	287,762
33	Italy	Switzerland	273,918
34	Germany	Austria	264,081
35	Bulgaria	Germany	262,462

Figure 12: Country level Migrant stocks

Rank	Origin Region	Destination Region	Migrant Stock 2019
1	Eastern Europe	Eastern Europe	10,461,770
2	Southern Europe	Western Europe	7,909,869
3	Eastern Europe	Western Europe	6,069,456
4	Eastern Europe	Southern Europe	3,246,366
5	Southern Europe	Southern Europe	3,199,455
6	Western Europe	Western Europe	2,945,996
7	Eastern Europe	Northern Europe	2,538,246
8	Northern Europe	Northern Europe	2,002,939
9	Western Europe	Southern Europe	1,591,877
10	Southern Europe	Northern Europe	1,092,858
11	Western Europe	Northern Europe	956,649
12	Northern Europe	Western Europe	741,570
13	Northern Europe	Southern Europe	582,717
14	Northern Europe	Eastern Europe	489,026
15	Western Europe	Eastern Europe	426,353
16	Southern Europe	Eastern Europe	306,224

Figure 13: Region level Migrant stocks