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Christina Benita Wilke / Monika Wohlmann (Eds.)

On Migration and Immigration
Policy in Europe

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FOM Hochschule
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Preface

The third volume of our publication series of the KCV Competence Center of Applied Economics at the FOM University of Applied Sciences examines the topic of international migration from both a theoretical as well as an empirical perspective.

The KCV bundles the research activities of academics working at the FOM in the field of economics and therefore covers a broad spectrum from micro- to macroeconomic research as well as from theoretical to empirical research. In addition to selected research papers by FOM professors and lecturers as well as our FOM students, this series also includes contributions on current social issues, which we explain using economic theories and models in a generally understandable way for interested readers from politics, science, and practice (cf. the first volume on the economic effects of the Covid-19 pandemic). This series also intends to provide a forum for discussion: The contributions cover the plurality of economics as a science. Each contribution represents the opinion of the author and does not in principle reflect the opinion of the editors or the university.

Migration movements are attracting increased attention, not least since the refugee crisis in 2015. In a globally connected world, migratory movements of workers are part of everyday life. Despite economic advantages, this can lead to conflicts and tensions in both the countries of origin and destination. In this paper, the author highlights the migration trends of recent years and provides an overview of the most important theoretical explanations for migration. Furthermore, advantages and disadvantages for countries of origin and destination are investigated, followed by a reflection of today's migration policy of the European Union. Overall, the paper provides a comprehensive overview of selected important aspects of the current migration debate.

Essen, September 2021

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Abstract

To which countries do people migrate? What role does income play in drawing migrants to certain countries? This essay attempts to answer these questions. It also presents a comprehensive overview of migration theories as well as world-wide trends in migration. Shrinking populations in high-income countries indicate that a demand for migrants exists. Empirical data on 155 countries shows that migration to a specific region can be explained as a function of income or per capita gross domestic product (GDP) of this country. It establishes the direction of flow of migrants from low-income to high-income countries. Regulating the demand for and supply of migrants together in the European context requires government intervention in the form of a more comprehensive, legal and unified migration policy.

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List of Abbreviations

GDP	Gross Domestic Product
ILO	International Labor Organization
ISCED	International Standard Classification of Education
OLS	Ordinary least squares
PPP	Purchasing power parity
TFEU	Treaty on the functioning of the European Union
UNESCO	United Nations Educational Scientific and Cultural Organization
UNHCR	United Nations High Commission for Refugees

About the Editors

Prof. Dr. Christina Benita Wilke has been Professor of Economics at the FOM University of Applied Sciences since 2016. She is also Head of Academic Studies at the FOM University Center Bremen and Scientific Director of the KCV Competence Center of Applied Economics. Previously, she worked as a senior researcher and managing director at the Mannheim Research Institute for the Economics of Ageing (MEA) as well as senior expert and managing director of the Bremen branch of the Hamburg Institute of International Economics (HWWI). Her research focuses on demographic change, social and labour market policy and health economics.

Prof. Dr. Monika Wohlmann has been Professor of Economics at the FOM University of Applied Sciences in Düsseldorf since 2014 and is Scientific Director of the KCV Competence Center of Applied Economics. After studying business administration at the University of Passau and the University of Málaga, she earned her doctorate in economics at the Ibero-America Institute of the University of Göttingen. She then worked for several years as an economist at a major German bank. Her research focuses on monetary policy and financial markets.

About the Author

Dr. (USA) Charmaine Fritsche studied Accounting & Commerce at the University of Bombay, India. She continued her education in the US, receiving a PhD in economics from Clemson University, SC. Thereafter she lived in Greece for several years, where she taught economics at the American College of Greece in Athens. Since 2013, she has been a freelance lecturer mainly in the areas of Finance, International Accounting and Research Methods at the FOM University of Applied Sciences in Essen, Germany. In 2018 and 2019, she taught at Wuhan Business University in China. Her research interests lie in the field of applied economics.

1   Introduction

The number of international migrants increased from 220.8 million in 2010 to 271.6 million in 2019, indicating an annual increase in world migration of about 5.7 million people.[1] While these figures indicate that international migration in 2019 affects only 3.5 per cent of the global population of 7.61 billion, migration has been increasing. Why do people move? What acts as an attraction to create movement? How do new migrants affect the people and places they move to? How do they assimilate, integrate, work and build lives in the new environment? The list of questions is a long one. The study of migration provides an array of topics across several disciplines – anthropology, sociology, law, psychology, economics, political science, history and policy, to name a few.

Most studies are thus structured on a relatively narrow base, depending on the underlying discipline. In the social sciences, empirical or theoretical work on migration addresses distinct issues in order to answer specific questions. A generic, all-encompassing theory of migration does not exist.

This three-pronged study aims at: (i) assessing theories of migration, (ii) identifying current trends in the direction of migration and (iii) examining the benefits of migration to host and home countries.

Section 2 contains a discussion on the major theories of migration. Trends in global migration are explored in Section 3 and the special case of Germany is discussed. Section 4 investigates the demand for migration within the framework of population growth and fertility. A simple regression model is applied to explain the relationship between migration and per capita GDP in Section 5. Section 6 contains a brief overview of migration policy in Europe. The two-fold contributions of migrants from an economic viewpoint are explored in Section 7.

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[1]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019a).

2   Major Theories of Migration

Starting with the early Homo sapiens moving out of Africa about 70,000 years ago to populate all continents of the globe, migration has been a constant element in human history. In the modern context, for over 500 years now, people have been moving away from their country of birth. Europeans left their countries of origin to live in colonies abroad and, for instance, to populate the Americas. Developments in transportation, natural calamities and the industrial revolution played their part in causing or supporting these migratory movements. The single largest mass migration in human history, the displacement of about 14 million people in 1947, was the result of the partition between India and Pakistan.

More recently, about fifty years ago migratory trends have evolved from developing economies toward more mature ones. Additionally, when people migrated, they made the host country their new home and gained a new sense of identity. This scenario has been changing in the past three decades. Globalization and technological developments have been playing an important role in migration, changing the idea of nation-building, influencing social interactions in the destination country and supporting a trans-nationalistic framework of influence.

Migration entails not only issues of the labor market like employment, returns earned and costs thereof, but also unique social issues like displacement, assimilation, cultural differences and integration. Migration theories for the most part attempt to establish the cause for international migration. Some theories address questions about how migratory labor can be adequately harnessed or how migrants adapt to the new socio-cultural scenario in the receiving country.[2] Every migrant's story is individual and experiences vary, making migration a diverse phenomenon. Therefore, a general theory of migration that synthesizes various aspects of the subject is yet to be developed and presents an even greater challenge than before.[3] Furthermore, a universal theory on migration can only be built on several caveats and assumptions. It also implies that the existing store of knowledge built around ideas with empirical foundations would be made redundant. This idea by itself is self-defeating.

How can migration be explained? In the following, after briefly clarifying some essential definitions, a selected set of the most established migration theories is briefly presented.

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[2]   Cf. Portes (1999).
[3]   Cf. Arango (2000).

2.1   Terminology: Refugees and Migrants

The terms 'refugee' and 'migrant' are often used interchangeably. There is, however, an essential difference between them. According to the United Nations High Commission for Refugees (UNHCR), 'refugees' are a specific category of people who are protected under international law.[4] Further, the UNHCR clarifies the following:

> Refugees are people outside their country of origin because of feared persecution, conflict, violence, or other circumstances that have seriously disturbed public order, and who, as a result, require 'international protection'.[5]

A refugee can apply for asylum in the country where he or she seeks refuge, making him or her an asylum seeker.

A definition for the term 'migrant' does not exist in the legal sense. Migrants, unlike refugees, leave their country of origin voluntarily:

> 'Migration' is often understood to imply a voluntary process, for example someone who crosses a border in search of better economic opportunities.[6]

The conclusion is that, while a migrant, one who works in a country other than his or her country of origin, can return home, a refugee cannot. The most recent count of the world refugee population in 2018 was 25.9 million.[7] In a reasonable comparison, there were 271.6 million international migrants in 2019. While Turkey, Pakistan, Uganda, Sudan and Germany are the five major countries hosting refugees, the five top destination countries for international migrants are: The United States, Germany, India, the United Kingdom and France.[8]

It is the norm that international migration statistics include both refugee as well as migrant population movements. They include all persons who cross the borders of their country of origin and enter another. Therefore, in this paper, the term migrant includes both refugees as well as voluntary migrants.

Immigrants refer to people who move into an area and emigrants are those who move out of a given area. Net migration is the immigrant population less the emigrant population in a given year. Germany, for example, had a net migration of

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[4]   Cf. UN High Commission for Refugees (UNHCR) (2018b).
[5]   Ibid.
[6]   Ibid.
[7]   Cf. UN High Commission for Refugees (UNHCR) (2018a).
[8]   Cf. UN High Commission for Refugees (UNHCR) (2018c).

416,000 in the year 2018, implying the number of people who entered Germany exceeded the number of people who left the country.[9]

A receiving or host country is also referred to as the destination country, the country to which the migrant moves to work and settle down. The sending country is the country of origin or the birth country of the migrant.

2.2   Ravenstein's Theory of Migration: Then and Now

In the years 1885[10] and 1889,[11] E.G. Ravenstein published a series of what he termed 'laws' of migration. These 'laws' were generalized empirical conclusions drawn from observed data of UK census reports. Ravenstein's tenets of migration are one of the earliest works on modern day migration. Yet, they are over a hundred years old. An inquiry into the relevance of Ravenstein's tenets in the contemporary world is conducted in this section.

2.2.1   Migrants Travel Short Distances

Ravenstein's first 'law' of migration states that migrants travel only short distances. To investigate the validity of this assertion in the contemporary world, the following methodology is applied: 'Short distances' are assumed to be either internal migratory movements or crossing borders into neighboring countries.

Immigrants to the five main countries of destination are investigated. The country/countries of origin of migrants into these five countries are identified to find out how far they travelled (see Table 1).

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[9]   Cf. Statistisches Bundesamt (Destatis) (2019b).
[10]   Cf. Ravenstein (1885).
[11]   Cf. Ravenstein (1889).

Table 1: Major Migrant Destinations in 2019 and the Origins of Those Migrants

The Five Countries with the Largest Amounts of Migrant Populations in the World (2019)	Migrants' Countries of Origin
USA	The largest group of migrants living in the US are 11.5 million people from neighboring Mexico
Germany	Almost 1.8 million Polish migrants live in Germany followed closely by 1.5 million Turkish and almost 1 million Russian citizens
Saudi Arabia	Employment opportunities draw migrants from several neighboring countries in the Persian Gulf along with over 2.4 million Indians, 1.5 million Pakistanis and 1.7 million Indonesians
Russian Federation	The largest number of migrants into Russia are from the neighboring countries of Ukraine and Kazakhstan (3.3 million and 2.6 million respectively)
UK	About 3 million migrants from neighboring countries of Europe constitute the largest group of migrants in the UKfollowed by migrants from India and Poland.

Source: Own tabulation, based on data from UN DESA, Migrant Stock by Origin and Destination, 2019.

Results show that the largest groups of migrants in each of the five destination countries originated mostly from home countries that are either direct neighbors or those that are located relatively close to the destination country. Thus, some first evidence can be found that Ravenstein's first tenet of migration still holds today.

2.2.2　Migration Takes Place from Rural to Urban Areas

The second proposition states that migration takes place mostly from rural to urban areas and that migrants travel long distances within their own national borders and usually settle down in cities. This tenet, in the following, is investigated from two angles:

Internal migration: In a 2018 report, 12 percent of the global population was identified to be living in regions outside their place of birth (as per 2005 census data).[12] In comparison, international migrants, whose movements can be tracked more easily, constituted 2.92 percent of the world population in the same year. This figure increased to 3.52 percent in 2019.[13] These figures as well as data on trends in urbanization point to the fact that people who move away from their place of birth stay predominantly within their national borders. They make up the world's internal migrants.

Urbanization: Patterns of urban growth indicate that the share of the world's urban population has been growing from only 30 per cent in 1950 to 55 per cent in 2018. This figure is projected to increase further to about 68 per cent by 2050[14] (see Table 2).

Table 2: Urbanization of the World

Year	Population of the World Living in Urban Areas
1950	30%
2018	55%
2050 (projected)	68%

Source: UN DESA World Urbanization Prospects (2018).

As for international migrants, estimates in 2018 indicate that about 52 million people lived in cities. 18 major cities of the world had foreign-born populations of 20 per cent or more. For example, the foreign population of the city of London in 2011 was 37 per cent.[15] Although large urban populations create hurdles and problems of their own, it cannot be overlooked that when people move to cities, opportunities to work and choices of education and employment increase.

Looking at this data on internal migration and urbanization, the following preliminary conclusion can be drawn:

  i.   internal migration is still a large part of total migration today and
  ii.   population in cities is increasing as a result of both internal as well as
        international migration.

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[12]   Cf. UNESDOC Digital Library (2018).
[13]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019a).
[14]   Cf. United Nations, Department of Economic and Social Affairs (2019e).
[15]   Cf. International Organization for Migration (2015), p.58.

2.2.3   Migrants Are Mostly Adults

Ravenstein observed that most migrants are adults. To investigate the validity of this tenet, UN data[16] for 2019 on the age of migrants is used to find out the proportion of children in the population of international migrants.

Of the 271.6 million international migrants, over 26 million were in the age group of 0-14 years. This age group accounted for 9.57 per cent of all migrants in 2019 (see Figure 2). From 2000 to 2019, the increase in migration across the world was 56 per cent while the increase in the migration numbers of children in the 0-19 age group was 43 per cent.[17] Data shows that over 90 per cent of all migrants in 2019 were 15 years of age or older, which supports Ravenstein's proposition that even in the present times, migrants are mostly adults.

Figure 1: Ages of International Migrants in 2000 and 2019

Source: Own illustration based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019c).

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[16]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019c).
[17]   Cf. ibid.

2.2.4   Migrants Are Usually Young Adult Males

Ravenstein's observation, that most international migrants are young males, in contrast, does not find strong support in the data in recent years. Since 1990, the share of women as a percentage of total migrants in the world has stayed relatively constant at roughly 50 per cent. In the year 2000, women made up 49.3 per cent of all migrants.[18] Although the percentage of female migrants differs from region to region (for example 41.5 per cent in Asia versus 51.8 per cent in North America, in 2019), women comprised 47.9 per cent of all migrants in the world in 2019. This implies an almost equal split of men and women among international migrants.

2.2.5   Immigration Causes Emigration

The last tenet of Ravenstein states that flows of immigrants into a country produce counter-flows in the opposite direction. In order to interpret this law and roughly check its validity, the following question is posed: Do emigration and immigration statistics match?

To test this proposition, emigrant and immigrant populations in the five main destination countries for migrants in the world are compared (see Table 3). Except for Russia, immigration and emigration numbers differ widely for the selected countries.[19] Thus, there is at least some indication that Ravenstein's proposition that immigration causes emigration does not hold anymore in today's world.

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[18]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019c).

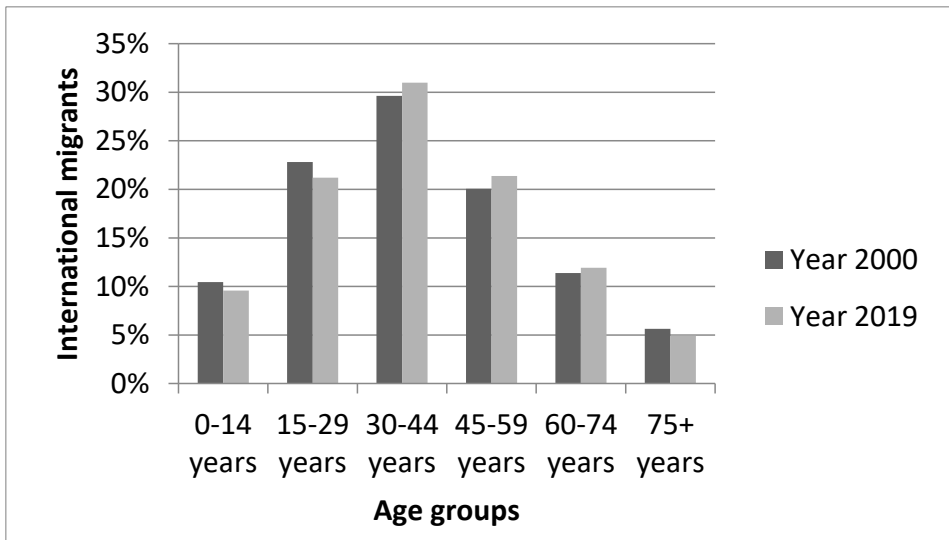[19]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019d).

Table 3: Immigrants to and Emigrants from Major Destination Countries of the World, 2019

	Germany	Saudi Arabia	United Kingdom	Russian Federation	United States of America
Emigrants (leaving)	4 million	296,254	4.3 million	10.5 million	3.2 million
Immigrants (entering)	13.1 million	13.1 million	9.6 million	11.6 million	50.7 million

Source: Own representation based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019d).

Thus, three of five tenets on migration proposed by E.G. Ravenstein over 100 years ago still seem to be valid today. Table 4 summarizes these findings.

Table 4: Conclusions of the Relevance of Ravenstein's Tenets of Migration in the Contemporary World

Ravenstein's Tenets of Migration (1885 and 1887)	Supported or Refuted by the Current Data
1. Migrants travel short distances	Supported
2. Migration takes places from rural to urban areas	Supported
3. Migrants are mostly adults	Supported
4. Migrants are usually young adult males	Refuted
5. Immigration causes counter-flows of emigration	Refuted

2.3   Neoclassical, Macro and Micro Theories

Although migration is not a central part of economic theory, economic models are frequently applied to understand migration patterns.

Environmental, demographic and economic factors push people to move from their countries of origin and at the same time attract them to destination countries.

These push-pull factors that drive migration (propagated by Lee, 1966)[20] do not distinguish between individual and macro motives, be they economic or social. As a result, explanations provided are static and generic.

The push-pull theory has been refined and extended to the equilibrium neo-classical theory of migration. It is based on the idea that labor and capital scarcities result in wage differentials across regions, both nationally and internationally. Due to differences in the supply of and demand for labor across countries, labor-rich countries will have relatively lower wage rates and capital-rich counties will have relatively higher wage rates. This will result in migration from low-wage to high-wage countries.[21] Further, this line of thought is expanded from actual to expected future earnings. Expected future earnings that drive migration are calculated as observed earnings times the probability of obtaining a job.

Bauer and Zimmermann extend the Harris-Todaro model and make it more realistic by including other variables like the opportunity costs of migration, temporary unemployment and costs of travel.[22] However, this being an equilibrium model, the conclusion lies in long-term equilibrium. In the short-run, wage differentials drive migration but over time scarcity of labor in the country of origin will result in higher wages there. Similarly, the price of labor in the destination country falls due to increased supply. Long-run equilibrium is then at the point where benefits of migration (wage gains) equal the costs (social, psychological and economic).

2.3.1   The New Economics of Migration

Stark and Bloom present an alternate theory of migration in their seminal paper 'The New Economics of Labor Migration' (1985). They view migration as a collective decision taken at the household level. It is based on the premise that migration of certain members can diversify the risk to a family's income. Remittances made by migrants to their families in the home country play a key role in this theory. Further, observing the economic benefits of remittances, other members of the community are influenced to migrate. Migration theories were hereby repositioned from individual decisions of migration to those made in the broader context of family and society.[23]

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[20]   Cf. Lee (1966).
[21]   Cf. Harris / Todaro (1970); cf. Massey et al. (1993).
[22]   Cf. Bauer / Zimmermann (1999).
[23]   Cf. Stark / Bloom (1985), pp. 175, 177.

2.3.2   Dual Markets Theory

In his book Birds of Passage (1979) M. J. Piore discusses how the demand for labor in specific occupations in a country determines the extent of labor migration into that country.[24] Developed countries show a demand for both skilled as well as low-skilled workers. Government policies and labor demand by companies determine who enters the country.

In the same vein, using US immigration data from 1970 to 1990, Borjas theorizes that dual or segmented labor markets exist in the receiving developed economy.[25] In this scenario, low-skilled jobs in a secondary labor market are distinct from the market for high-skilled labor. Figure 2 illustrates such a segmented labor market. The downward sloping marginal product of labor represents the existing demand for labor in the native (receiving country) market. Supply (N) gives the inelastic supply curve for native workers, underscoring the low bargaining power of unskilled native labor. The market closes and the wage rate for unskilled workers is given by w1. The benefits accruing to unskilled workers is given by the number of workers multiplied by the wage rate of w1, represented by the area (b+c). The area (a) under the curve represents the benefits to skilled labor.

An influx of migrants in this scenario is represented by the outward shift of the supply curve Supply (N) to Supply (N+M). This pushes the wage rate for unskilled workers down and the labor market will clear at the new wage rate of w2.

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[24]   Cf. Piore (1979).
[25]   Cf. Borjas (1995).

Figure 2: Dual Markets and the Downward Push on Unskilled Labor Wages due to Immigration
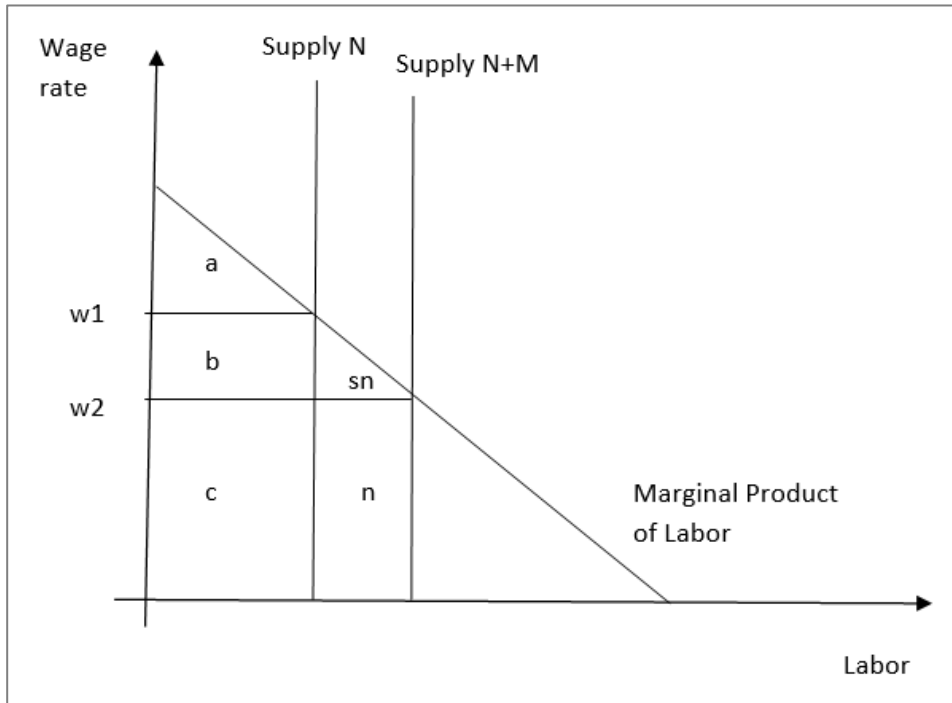
Native unskilled workers are assumed to be substitutes for migrants. A lower wage, w2, indicates that the benefits to the group of native unskilled labor is given by the smaller area (c). Unskilled migrants receive benefits represented by the area (m).

In this dual labor market scenario, skilled workers are assumed to be comple-ments to capital inputs. Lower wages paid to unskilled workers indicate higher profits for investors. The return on investment is now higher, which pushes up the return to the complementary input of skilled labor. Total returns to native skilled workers are now given by the area (a+b+sn). This net gain to native skilled work-ers as a result of immigration of unskilled migrant workers is represented by the area (sn).

The dual labor market theory supports the idea that in a globalized world, labor demand in receiving countries determines migration. Unlike the neo-classical thought, individual decisions do not play a role in this framework.

2.3.3   The Perpetuation of Migration: Social Capital or Networks Theory

Socio-cultural networks are treated as capital in the context of migration in this theory. Social networks at the personal or family level, work-related networks or illegal immigrant networks bind migrants together in a home-away-from-home situation.[26] The economic and social support is based on trust and co-operation. It results in transfer of information among migrants and consequently lowers the costs and risks of migration. This helps to perpetuate migration.[27] To function effectively these network groups are limited in size. As migrants integrate, networks grow weaker over time and eventually dissolve. Further, unlike the neo-classical specification, wage differentials and political control through regulation or the influence of markets are not important factors in the social theory.

Research in social capital theory extends to include the influences of a connected, globalized world on migratory trends. According to Castles a general all-encompassing theory to explain migration is too abstract.[28] However, middle range theories are more informative. These, according to Castles, should integrate contributions of various social sciences to uncover similarities as well as variations in migration. Understanding economic as well as non-economic transformations in society can help create a better understanding of changes in human mobility.

2.3.4   Recent Trends in Research on Migration

Research on migration has been moving away from quantitative analytics towards more qualitative discourses, in the style of anthropologists or sociologists. 'Trans-nationalism' for example, is an area of research which discusses the connectivity among people in a globalized world. It has implications for migration, migrants, their current geographical location and their countries of origin. Trans-nationalist trends are characterized by frequent travel and communication, virtual communities, financial, economic, cultural and political participation across borders.

Trans-nationalists have identities that are not specifically bound to their geographical location. They create 'trans-local' spaces – a merging of cities where migrants settle and maintain connections with their villages and places of origin. Such social and cultural connectivity across borders raises challenges related to

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[26]   Cf. Boyd / Nowak (2012).
[27]   Cf. Massey et al. (1998).
[28]   Cf. Castles (2010).

nation building and efforts of integration into the wider framework of the country that they live in.

Given this relatively recent trend in urban migration research, Glick Schiller and Çaglar make a case for connecting migration researchers to urban restructuring scholars.[29] The authors call for a dialogue between these groups of scholars with the aim of integrating migrants and supporting their active participation in urban life. This addresses the needs of migrants living in predominantly ethnically homogeneous urban localities as well as those in dispersed social settings.

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[29]   Cf. Glick Schiller / Çaglar (2009).

3   Worldwide Trends in Migration

Over 13 per cent of the 7.7 billion people on our planet have had the migrant experience. In the period 2018-19, there were 272 million cross-border migrants and 763 million internal migrants across the world (recall Figure 1). This paper focuses on international migrants by tracking trends in cross-border movements since 1990 in this section.

3.1   Tracking Annual Migration, 1990-2019

Data shows that the number of people who moved away from their country of origin increased from about 153 million in 1990 to 272 million in 2019, indicating an increase of 77.5 per cent. If projected into the future, an annual increase of 2.67 per cent means that in a little over 37 years, the migratory population in the world would double.

Most recent data show that Asia's migrants were 83.6 million followed closely by Europe at 82.3 million and 58.6 million in North America.[30] Figure 3 tracks the total number of migrants in major regions of the world from 1990 to 2019.

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[30]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019b).

Figure 3: International Migrants in Major Regions of the World, 1990-2019
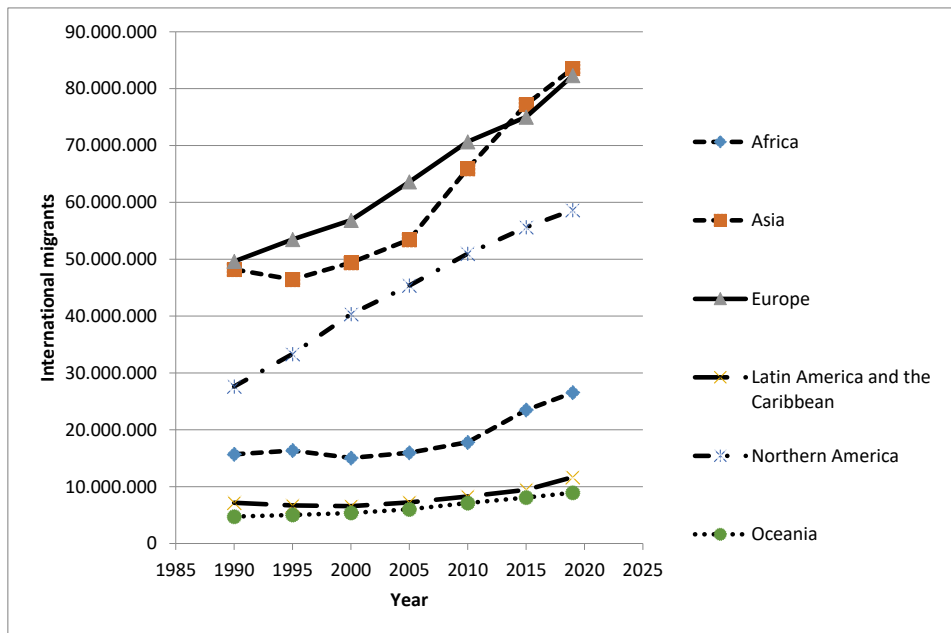
Source: Own illustration based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019b).

The number of migrants in different countries and regions indicate the favored destinations of migrant populations. On the other hand, annual rates of change show trends in migrant movement in these countries or regions. As Figure 4 shows, the stock of international migrants in the world grew at a little over 2 per cent each year in recent years (2015-2019).[31]

There are however regional differences. More recent years show an annual increase of 5.3 per cent in the countries of Latin America & the Caribbean and 3.1 per cent in Africa. Africa's increase is due to political unrest. Europe's annual increase has been at a little over 2 per cent p.a. since the year 2000. Even though the USA and Canada have high levels of migrant populations (around 50 million and 8 million respectively) the annual rates of growth of immigrants are controlled through immigration law. Changes in immigration law account for the fall in annual growth of migrants from 3.8 per cent in 1990 to 1.3 per cent in 2019 in North America.

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[31]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019b).

Figure 4: Annual Rate of Change of Migrant Stock in the World, 1990-2019
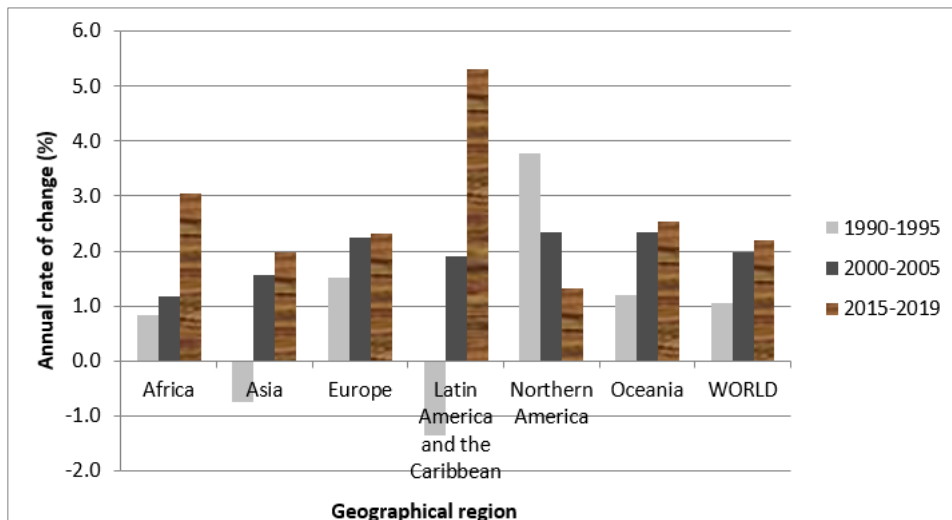
Source: Own illustration based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019b).

3.2   Main Destination Countries of the World

Labor migrants as well as refugees from countries plagued by unrest cross borders in search of better economic opportunities, stability and freedom. Figure 5 shows the five main destination countries for international migrants in the world in 2019 and compares their migrant stocks in 2019 to 1990. The foreign-born population in the UK in 2019 is more than 7 times what it was in 1990. In the same period, the migrant populations in the US and Germany more than doubled while it tripled in the Russian Federation.

Figure 6 displays the percentage of migrants compared to the total population in each of the top 10 destination countries in the world in 2019.[32] The United States had the largest number of migrants in the world in 2019. The total population of the United States is over 329 million, of which 50.7 million or 15.4 per cent are foreign-born. A country that prides itself as a nation of migrants, the United States has held this position since 1960. In 1990, Germany's migrants were 7.5 per cent of the total population. In 2015, 12.5 per cent of the population of 81.7 million

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[32]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019b).

were foreign-born. Since then, the proportion has risen to 15.7 per cent in the population of 83.5 million in 2019.

The case of the United Arab Emirates, for example, is different. In 1990, over 72 per cent of the people living in the United Arab Emirates were international migrants. The most recent statistics for the year 2019 estimate that figure to be 87.9 per cent.[33] Countries, which have the highest levels of foreign-born populations within their boundaries, reflect the high demand for labor in the region, both skilled as well as unskilled. While most of these people return to their home countries at the end of their work contracts, in many other countries like Germany, the US and the UK immigrants make the host country their new home.

Germany had the second largest number of migrants in the world. The essence of this paper is to point to trends. These trends are important to understand because they indicate the need for adjustments in policy within host countries to regulate and accommodate inflows of migrants with an emphasis on city planning, education, employment opportunities and social support.

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[33]   Ibid.

Figure 5: Number of Migrants in the Top 5 Destination Countries of the World in 2019 and their Comparative Values in 1990
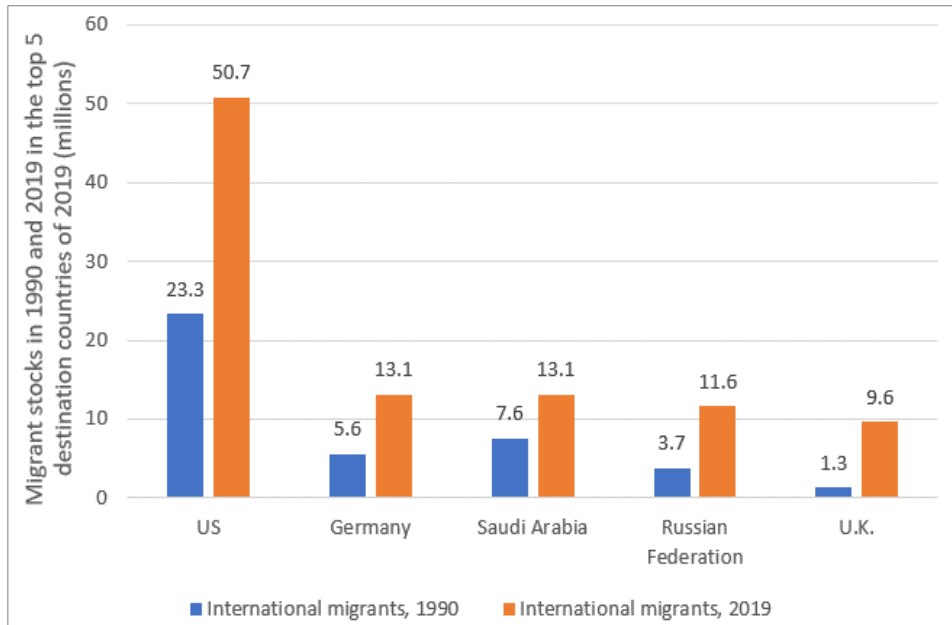
Source: Own illustration based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019b).

Figure 6: Migrants as a Percentage of the Total Population in the Top 10 Destination Countries 2019
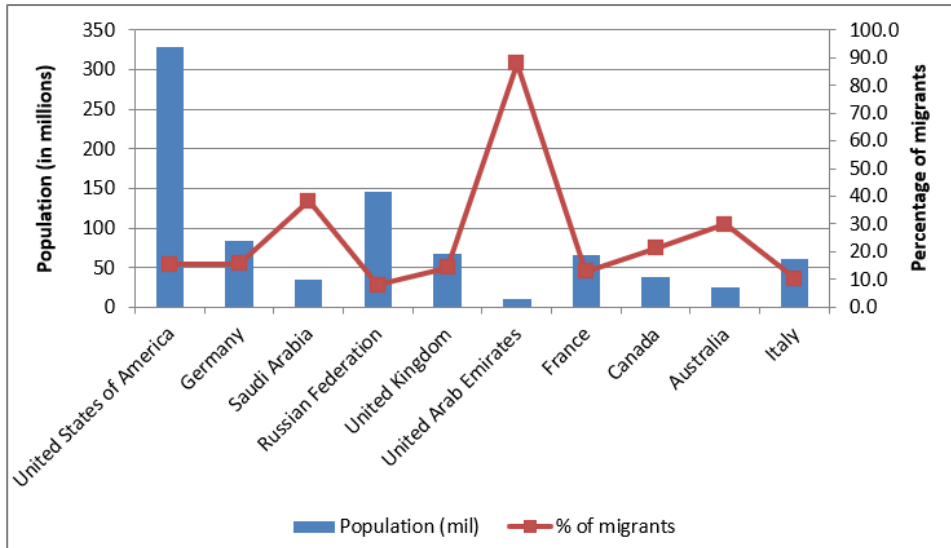
Source: Own illustration based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019b).

3.3   Example: The Case of Germany

Political, social as well as economic questions related to migration are being posed and debated in Germany. For example: Is migration required? Will migration continue? What are the social consequences of migration? What are the costs involved? What are the benefits? This debate takes place not only in Germany and other countries of Europe, but also in several countries of the world which are faced with falling population levels. In the face of this issue, countries are either learning lessons from others or making new forays into migration policy.

This sub-section investigates demographic changes in Germany by examining three closely related variables – population, migration and fertility. Population demographics are traced over the past 30 years and population projections till 2060 are discussed in a three-scenario setting. As population projections for Germany show, even maintaining the current level of fertility and life-expectancy, Germany would require an annual net inflow of 311,000 migrants per year to maintain the current population count of 83 million in 2060. This appears to be a clear indication that without migration, the German population will shrink over time.

The population of Germany has been relatively stable at around 80 million since 1990. Figure 8 tracks the population of Germany from 1990-2019 at intervals of 5 years. A slight downward movement from 81.6 million to 80.8 million was a direct consequence of the financial crisis of 2007-2008, when birth rates dropped in many countries of the world. Since 2011 however, the population of Germany has been increasing.

Figure 7: Germany – Population and Migrant Growth from 1990-2019
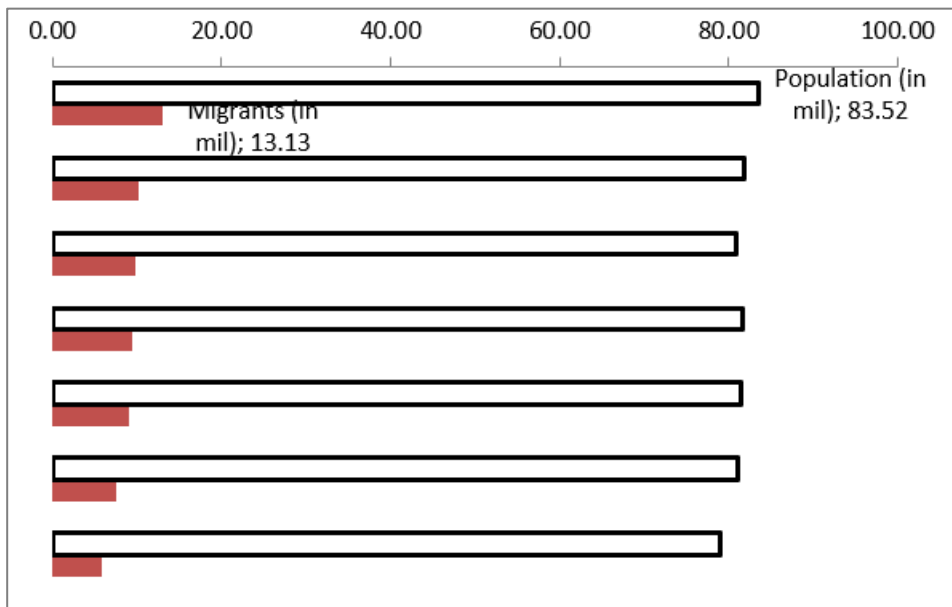
Source: Own illustration based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019b).

In comparison, as noted in Section 3.2, the migrant population in Germany has more than doubled during the period of 1990-2019. The foreign-born population in Germany was 5.9 million in 1990. This was 7.5 per cent of the population. In 2019, the migrant population stands at over 13 million, which is 15.7 per cent of the total population.

Table 5: First-time Asylum Applicants in Germany and the EU (28) States, 2012-2019

Year	Germany	EU (28)
2012	64,415	306,485
2013	109,380	400,520
2014	172,935	594,175
2015	441,800	1,282,680
2016	722,270	1,221,170
2017	198,255	677,465
2018	161,885	608,325
2019	142,440	676,230

Source: Own representation based on data from Eurostat (2020a).

Humanitarian migration and the inflows of refugees into Germany in the past years accounted for the increase in total population from 2015 to 2019. For a comparison across countries of Europe, Appendix 1 contains a list of the migrant population in countries of Europe. Of all asylum seekers in countries of the European Union (28),[34] Germany registered 59.14 per cent of all first-time asylum applicants in 2016. This figure was 722,210 persons. In 2019, there were 142,440 applicants, accounting for just over 21 per cent of the total applicants in Europe (see Table 5 and Figure 8).

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[34]   Note: Eurostat provides data on EU (27) states from 2020 onwards.

Figure 8: New Applicants for Asylum in EU (27) Countries and Germany, 2012-2019
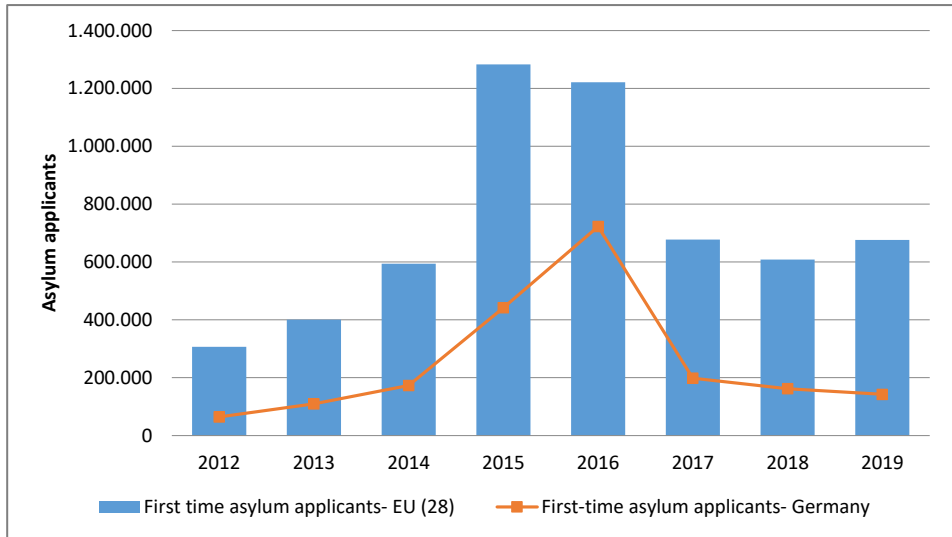
Source: Own illustration based on data from Eurostat (2020a).

The Federal Statistics Office of Germany (Statistisches Bundesamt or Destatis) published scenario-based projections of population for Germany till the year 2060.[35] Changes in population are usually a function of three variables: life expectancy, fertility levels and migration levels. Destatis makes population projections using these three variables, which are combined and varied to produce different results. Three scenarios, which are relevant to the discussion on migration are included in this section.

In each of the three scenarios, the following two variables are constant:

    i. Life expectancy at birth is 84.4 years for men and 88.1 years for women

    ii. Fertility rate is 1.55 births per woman

The third variable, migration, is varied at three levels from 2019-2060:

- Case 1: Stable fertility and life expectancy rates and a low level of net immigration: 147,000 per year
- Case 2: Stable fertility and life expectancy rates and a moderate level of net immigration: 221,000 per year

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[35]   Cf. Statistisches Bundesamt (Destatis) (2019a).

- Case 3: Stable fertility and life expectancy rates and a high level of net immigration: 311,000 per year

Figure 9: Population Projections for Germany from 2019-2060 in Three Scenarios of Migration – Low, Moderate and High
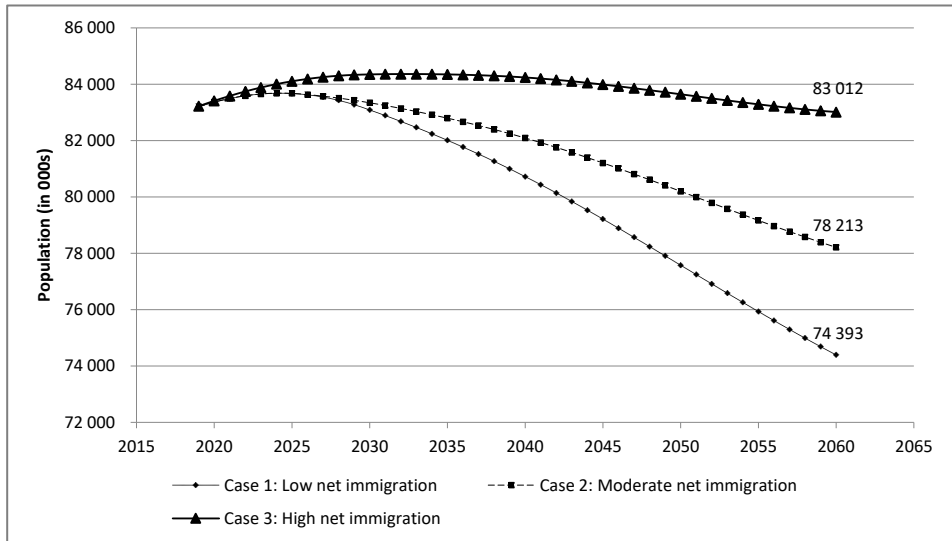
Source: Own representation based on Statistisches Bundesamt (Destatis) (2020).

A few conclusions can be drawn from Figure 9. First, the population levels of Germany fall in all three scenarios. Second, the decline in population over the 2019-2060 time period varies in each scenario. In the first case of low migration, the population is projected to fall by 10.6 per cent even as people are expected to live longer in the future[36] and the fertility rate of 1.55 children per woman is maintained. In the second scenario, where a moderate level of migration is maintained, the decrease in population is measured to be 6 per cent. In the last case, at high levels of migration of 311,000 net immigrants, the decrease is minimal and the current population level can be maintained.

Clearly, this makes the discussion of migration in Germany and in Europe a relevant one that can perhaps best be addressed by planning now. It is not an issue that can be regulated through policy in a generic manner because of its complexity. The current population of Europe and its governments are the stakeholders in this discussion. Due to remittances made, future immigrants in home countries

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[36]   Life expectancy in 2020 in Germany is 78.5 years for men and 83.3 years for women.

and their governments are also stakeholders. A comprehensive dialogue that incorporates policy makers and academics along with citizens and communities will be affected due to these policies in the future.

4   Understanding the Demand for and the Flow of Migration

For the first time in history, in 2018, the global population of people over 65 years of age (almost 703 million) exceeded the number of children below the age of 5 years (677 million).[37] According to the World Bank data, life expectancy at birth for the world was 52.6 years in 1960 and 72.6 years in 2018. In contrast, in 1960, people of both sexes were expected to live for 69 years in Germany. This figure rose to 81 years in 2018.[38]

In this section, the discussion on demographics focuses not on ageing, but on two factors affecting population growth of a country, namely, net migration and natural increase.

Equation 1: Population Growth

$$Population\ growth = f(net\ migration, natural\ increase)$$

where

- net migration is the difference between the number of people immigrating and emigrating (see Section 2.1) and
- natural increase is measured by net births or the number of birth less deaths in a country

Both net migration and natural increase have a positive effect on population growth. Fertility rate is given by the number of births per woman over a lifetime. It is the driving factor behind natural increase. Clearly, the relationship insists that with low fertility rates, migration can maintain at a desired level of population growth.

The world population was 7.71 billion in 2019 and is projected to rise to 9.7 billion by 2050.[39] Even though world population appears to be exploding, the world fertility rate is steadily falling. While the global fertility rate was 4.98 children per woman in 1968, it stood at 2.415 births in 2018. Falling fertility rates across the world in the past half century have many explanations, of which developments in medicine, birth control and education are the most significant. Other explanations for falling fertility rates range from the expense of raising children, falling incomes,

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[37]   Cf. United Nations, Department of Economic and Social Affairs, Population Division (2019c).
[38]   Cf. The World Bank (2020c).
[39]   Cf. United Nations, Department of Economic and Social Affairs (2019).

insecure employment, inadequate housing or simply the anticipation of a difficult life in the future.

Some well-known theories on fertility emphasize the link between economic variables and fertility. More children mean high costs of child-rearing. In addition, higher the wages earned by a woman means higher the opportunity cost or the wages she stands to lose by having a child. According to the International Labour Organization (ILO), in 2019, only 51.6 per cent of women participated in the labor force, yet the female share in management has increased from 25 per cent in 2000 to 28 per cent in 2019.[40]

On the other hand, several developing countries find themselves in a state of 'demographic momentum' – one where fertility rates are falling, yet the population is growing. This occurs in most cases due to the broad base of total population, where fewer children are being born per woman, but current child-bearing cohorts are larger than in previous generations. In the case of India for example, the fertility rate of 5.9 births per woman in 1960 fell to 2.2 births in 2018.[41] However, the population is increasing and India is forecasted to be the most populous country in the world, surpassing China's population around the year 2027.[42]

4.1   Connecting Fertility Rates to Income

Fertility rates in many high-income countries of Europe are lower than the world average. Education and self-dependency are the main reasons why women choose to have fewer children. In some high-income countries with social constraints like Japan and Korea, cultural norms are a defining factor why women quit working after having one or more children.[43] And those women who do pursue careers, in many cases do not have children. In both cultural settings, education and employment account for lower fertility rates.

The connection between high-income countries and low fertility rates and vice-versa can be examined by calculating the correlation between fertility rates and income levels. The correlation between two variables reveals how they are related to each other. A positive coefficient indicates that both variables move together in the same direction, a negative coefficient indicates that the variables move in opposite directions.

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[40]   Cf. International Labour Organization (2020).
[41]   Cf. The World Bank (2020a).
[42]   Cf. United Nations, Department of Economic and Social Affairs (2019f).
[43]   Cf. Cooke (2010).

As per availability, World Bank data for 185 countries in the year 2018 was used in this exercise to find out the relationship between income[44] (proxied by the per capita GDP) and the fertility rates. As expected, a negative correlation coefficient of -0.51 was calculated. This indicates that as GDP per person increases, fertility rates move in the opposite direction – richer countries have a lower number of births per woman than poorer countries. This verifies the need for migrants as given by the population growth equation. Germany recorded 2.37 births per woman in 1960 and 1.57 births in 2019.[45] It is a known fact, supported by demographers, that countries need to maintain an average birthrate of 2.1 children per woman to replace their populations. Evidently, Germany falls below this replacement rate. Figure 10 represents a comparison of world fertility rates and those of Germany from 1960-2018.

Figure 10: Fertility Rates in the World and Germany, 1960-2018
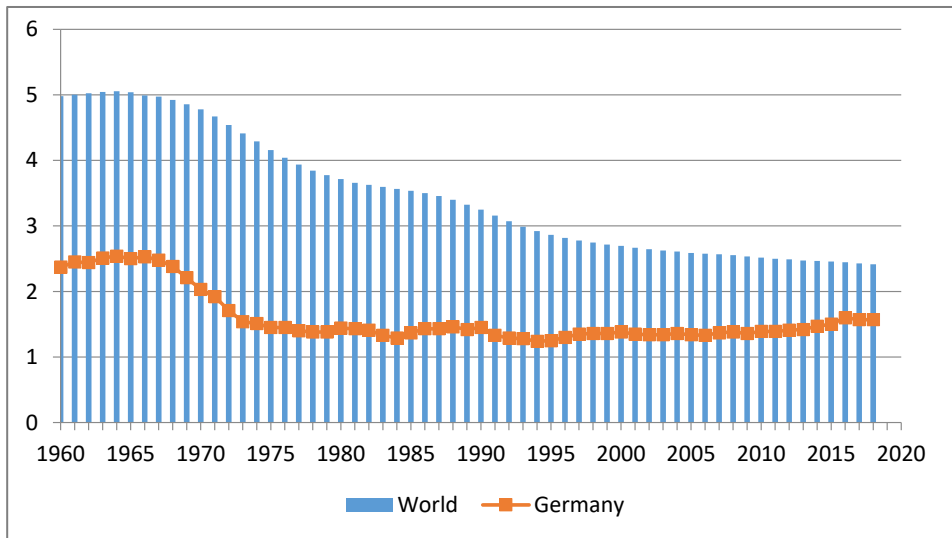
Source: Own illustration based on data on fertility rate from The World Bank (2020a).

Germany has low fertility rates, high income levels and ageing populations. Table 6 contains a comparative analysis of demographics related to migration for the world, Europe and Germany.

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[44]   Cf. The World Bank (2020b).
[45]   Cf. The World Bank (2020a).

Table 6: Comparisons of Population, Life Expectancy and Fertility 2018-2019

	World	Germany	Europe/EU
Population in 000s (2019)	7.7 billion	83.5 million	747 million
Fertility (2018)	2.4 children	1.57 children	1.54 children (EU)
Life expectancy (2018)	72.56 years	81 years	81 years (EU)
Migrants as a percentage of total population (2019)	3.5%	15.7%	11%

Source: Own representation based on data on the fertility rate from The World Bank (2020a).

The assimilation of current information shown in Table 6 brings migration into the forefront of the discussion of future population trends. Net migration is the balancing factor in the population equation.

Sudden inflows of migratory populations into Europe due to humanitarian reasons in recent years may have instigated a public discussion on migration. However, the deeper issue of the need for migrants needs to be recognized and addressed. Long-term legal immigration measures point in that direction. A planned and controlled migration policy set in the European context will benefit both natives as well as migrants. Extremes of uncontrolled migration or zero migration are not viable in the economic as well as social context. In the case of Canada, which relies on migration as a source of nation building, the immigration program is non-discriminatory assessment of human capital, leading to over 6 million new immigrants since 1960.[46]

4.2   The Flow of Migrants: Estimating a Relationship Between Migration and per Capita GDP

When people do move away from their country of birth, where do they move? Stated alternatively: Are there specific factors that act as beacons drawing migrants to a certain country? Investigative studies have tried to identify specific

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[46]   Cf. 2018 Annual Report to Parliament on Immigration (2018).

underlying driving factors of the migratory phenomenon. Originally, the neo-classical theory of migration dealt initially with rural-urban movements as in the Harris-Todaro model (see Section 2). This theory, when applied to the international scenario, is a study of the relative scarcity of capital and labor among different geographic areas, which leads to relative wage differentials and drives migration. This idea was modified to take into consideration costs and risks of migration.[47] Further, Borjas presented a study on the cost-benefit calculation by individual migrants, which directed the decision to migrate or not.[48] Basically, this area of migration studies incorporates human capital, income differentials and labor markets.

Other empirical studies identify economic conditions measured in terms of GDP in the home country as a cause of migration. The term *migration hump* relates to increases in migration in the short term due to trade as incomes increase at the point of origin up to a certain point, and then decrease.[49]

De Haas more realistically describes the act of migration to be a combination of human capital factors, wealth and social connections.[50] Besides economic reasons, the framework of migration presented by Timmerman, Heyse and Van Mol is built on macro-meso-micro drivers, where *macro* factors are identified as political, demographic, and environmental conditions that contribute to migration.[51] *Meso* factors, such as connectivity and networks, along with *micro* factors, such as those at the household and individual level, for instance religion and education, play their own part in the decision to migrate.

4.2.1   A Functional Representation of Migration

Wealth of a country implies both financial well-being as well as the opportunity to live in an organized and free society – this includes all the benefits of credit institutions, private industry, opportunities to work, education, health, housing and even government support when required. High-income countries are mostly welfare states that have both the income to devote toward assisting immigration as well as the framework to provide such economic assistance. Wealthy countries are also democratic countries that propagate freedom and allow personal development without fear and oppression. Humanitarian, economic and even climate

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[47]   Cf. Bauer and Zimmermann (1998).
[48]   Cf. Borjas (1989).
[49]   Cf. Martin (1993); cf. Martin / Taylor (1996).
[50]   Cf. de Haas (2014).
[51]   Cf. Timmerman / Heyse / Van Mol (2010).

change migrants look toward organized societies as a source of opportunity for a better life.

The above discussion is taken as a preliminary formulation of the direction of the flow of migration. Per capita GDP is a more realistic representation of national wealth that can be attributed to each citizen, therefore the functional relationship can be represented as:

Equation 2: Relationship Between Immigration and GDP

$$Immigration \ = \ f(per\ capita\ GDP)$$

The expectation is that as income per person in a country increases, the number of migrants in the total population should increase. Regression analysis is a means of exploring and explaining relationships between variables. Given that the OLS assumptions are held, regression results are relevant for understanding functional relationships, testing a hypothesis and making predictions.

The following proxies are used in estimation:

- Dependent variable: Immigration is measured as the number of migrants as a percentage of the total population of a country
- Independent variable: Wealth of a country is proxied by the per capita GDP at purchasing power parity (PPP)

The *true* relationship is represented as:

Equation 3: True Relationship

$$Y_i = \ \alpha + \ \beta X_i + \ \varepsilon_i$$

The estimated relationship is given as follows:

Equation 4: Estimated Relationship

$$\hat{Y}_i = \ \hat{\alpha} + \ \hat{\beta} X_i$$

$$\%\widehat{Migrants}_i = \ \hat{\alpha} + \ \hat{\beta} Per\ Capita\ GDP_i$$

4.2.2   Data

Restricting empirical tests of migration to geographical case studies finds applicability in the narrow sense. However, the issue of migration is universally relevant.

Therefore, this exercise applies statistical regression techniques on observed data across all countries of the world, as per availability.

The relationship between migration and wealth was modeled on cross-sectional data for the year 2018. The sources are listed below.

i.   UN data on the percentage of migrants in the population of a given country, 2018

ii.   UN data of per capita GDP at purchasing power parity (PPP) at constant levels of 2017 US$, 2018[52]

Observations of 155 countries were included in the data, as per availability. In this analysis, data was treated in three stages. These are displayed in Equations 5, 6 and 8.

4.2.3   Stage 1

Equation 5: Equation for Stage 1

$$\left(\%\widehat{Migrants_i}\right)_i = \hat{\alpha} + \hat{\beta} * (Per\ capita\ GDP)_i$$

In the case of raw data like per capita GDP and the percentage of migrants, OLS assumptions of the normality of residuals as determined by the Shapiro-Wilk test are not upheld. The results of this regression are displayed in Appendix 2 (untransformed data).

4.2.4   Stage 2

Log transformed data often supports the assumptions of linearity and enables valid statistical interpretations of OLS results. In the second stage, a simple log-log model is used to estimate the following relationship:

Equation 6: Equation for Stage 2

$$ln(\%\ \widehat{Migrants})_i = \hat{\alpha} + \hat{\beta} * ln(Per\ capita\ GDP)_i$$

$$ln(\%\ \widehat{Migrants})_i \quad = -2.57 \quad\quad + 0.78 * ln(Per\ capita\ GDP)_t$$

$$(7.37\text{e-}13\ ^{***}) \quad\quad\quad (< 2\text{e-}16\ ^{***})$$

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[52]   Cf. UN Data (2020).

The results of the estimated relationship are shown below and can be interpreted as follows: On average, a 1 per cent increase in the per capita GDP of a country brings about a 0.78 per cent increase in the percentage of migrants in the population of a country. Both the intercept and the independent variables are found to have low p-values (as shown under the coefficients). However, the Shapiro-Wilk test rejects the hypothesis of normality of the residuals. Complete results of the regression are shown in Appendix 2 (log-transformed data).

4.2.5   Stage 3

A Box-Cox transformation of the data is conducted.[53] The reasoning is that such a transformation: (i) reduces or eliminates non-normality of the residuals, if any, and (ii) eliminates heteroscedasticity in the residuals. The Box-Cox transformation is defined as:

Equation 7: Box-Cox Transformation[54]

$$Y_i^{(\lambda)} = \frac{Y_i^\lambda - 1}{\lambda} \ \ if \ \lambda \neq 0 \qquad and \qquad Y_i^{(\lambda)} = \ln(Y_i) \ \ if \ \lambda = 0$$

This type of Box-Cox transformation can improve statistical models, given that the dependent variable is positive and λ is any real number. The dependent variable is exponentially transformed by a fixed parameter λ, which is obtained through maximum likelihood estimation.

To keep all positive values of λ continuous throughout the data set, the transformation is of the nature $\frac{Y_i^\lambda - 1}{\lambda}$. In the case that $\lambda = 0$, the natural log of Y is the dependent variable. $Y_i^{(\lambda)}$ is convex with $\lambda > 1$, and concave with $\lambda < 1$.

The resulting regression of $Y_i^{(\lambda)}$ on the intercept and X produces errors that are linear, normally distributed and homogeneous. The transformation minimizes the residual sum of squares and the usual OLS interpretations are valid.

As the results in Appendix 3 show, the optimum value for lambda is: $\lambda = 0.181818$. It is that value where the log-likelihood function is maximum. For simplicity, the value of λ is rounded off to 0.2 or 1/5. A visual inspection shows that the 95 per cent confidence interval for λ falls between 0 and 0.5.

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[53]   Cf. Box / Cox (1964).
[54]   Ibid.

The results of the estimated regression of the fifth root of Y on the intercept and X are shown below.

Equation 8: Equation for Stage 3

$$\widehat{Y_i^{0.2}} = \hat{\alpha} + \hat{\beta} * X_i$$

$$\% \, \widehat{Migrants}_i^{0.2} \qquad = \qquad \hat{\alpha} + \qquad\qquad \hat{\beta} * (Per \, capita \, GDP)_i$$

$$\% \, \widehat{Migrants}_i^{0.2} \qquad = 1.101e+00 \qquad\qquad + 1.418e\text{-}05 \, [55] \, * \\ (Per \, capita \, GDP)_i$$

$$(<2e\text{-}16 \, ***) \qquad\qquad\qquad (< 2e\text{-}16 \, ***)$$

The regression can be interpreted as follows: a change in X of 1 unit causes Y^λ to change by β units. As a result, the interpretation of the coefficients is as follows.[56]

Equation 9: Interpretation of Coefficients

$$\widehat{Y_i^{1/5}} \; = \hat{\alpha} + \hat{\beta} * X_i$$

$$\frac{d\widehat{Y^{1/5}}}{dX} = \frac{d(\hat{\alpha} + \hat{\beta} * X_i)}{dX}$$

$$\frac{\widehat{dY}}{dX} = 5 * \beta(\hat{\alpha} + \hat{\beta} * X_i)^4$$

The mean value of per capita GDP is: 18,776.68

In order to draw plausible conclusions, the mean value of X is substituted in the above equation:

Equation 10: Substitution of Mean Value of X

$$\frac{d\hat{Y}}{dX} = 5 * 0.00001418 * (\hat{\alpha} + \hat{\beta} * \bar{X})^4$$

$$\hat{\alpha} + \hat{\beta} * \bar{X} = 1.101e + 00 + (1.418e - 05 * 18776.68)$$

$$= 5 * 0.00001418 * (1.367253)^4$$

$$= 0.000247766$$

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[55]   Where the notation means: 1.418e-05 = 1.418*0.00001 = 0.00001418.
[56]   Cf. Kyu Lee (2020).

This can be interpreted as follows: For an increase of GDP per capita of US$ 1,000 the percentage of migrants in the population of a country increases by approximately 0.25. This is a very small, yet positive increase, which can be seen in the almost flat regression line in Figure 11. The conclusion is that increases in GDP per capita cause increases in the percentage of migrants.

Estimates of the regression produce high t-values of 34.81 on the intercept and 12.15 on per capita GDP. The p-values were correspondingly close to zero. The coefficient of determination of the model, the R^2 is 0.49. This could be due to the simplicity of the model and the fact that data for 155 countries of the world can be assumed to contain inherent variability. Adding other variables could perhaps contribute to improving the R^2. However, this model is meant to be comprehensive in the data, yet simple in explanation, therefore adding explanatory variables is avoided. When R^2 values are low, it is the low p-values that are relevant in indicating a real relationship between the explanatory and dependent variable. In addition, the Shapiro-Wilk test produces a value of 0.3269 which does not reject the hypothesis of normally distributed residuals (all results are displayed in Appendix 3).

Figure 11: A Graphical Representation of OLS Regression of the Percentage of Migrants on the per Capita GDP, 158 Countries, 2018
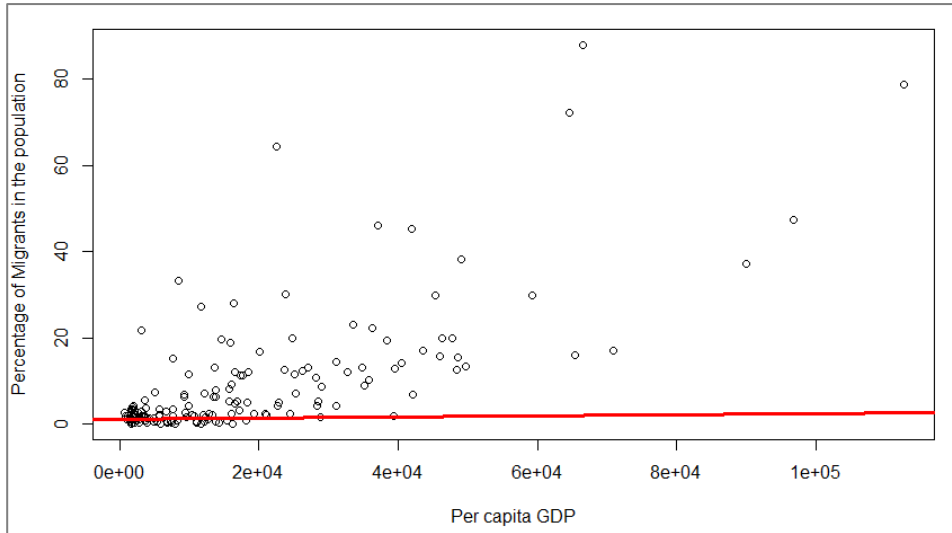
Source: Own representation based on United Nations (2018) data of per capita GDP and migrants (note $2e + 04 = 2 * 10^4 = 20{,}000$ and $1e + 05 = 1 * 10^5 = 1{,}00{,}000$).

Plots of (i) the residuals; (ii) the residuals versus fitted values; (iii) histograms of residuals and the normal Q-Q are presented in Appendix 4. These plots allow for the visual comparison of residuals of the untransformed regression (Equation 5) versus the Box-Cox regression (Equation 8). For example, the histogram shows the distribution of the residuals which appears to be rightly skewed in the non-transformed data. The Box-Cox transformation lessens the skewness and the distribution of residuals appears to follow the normal curve. The QQ plot of residuals showing the normal probability of residuals follows an approximately straight line after the transformation.

5   The Benefits of Migration

The repercussions of migration are felt both in the host as well as in the sending countries. This section aims at measuring the economic gains of migration both in the receiving as well as in the sending countries. Although the benefits of migration are varied and discussions on these topics extend from contributions to cultural diversity and building bridges across nations, this analysis relies exclusively on economic benefits that can be measured in absolute figures. This section shows connections between education and employment, a discussion that is relevant in guiding policy making in the EU.

Costs of migration are incurred in the early years of entry into a host country and are reflected in government spending on migrants. According to a 2017 report, in 2015, an estimated 8,900,000 asylum seekers entered Germany and government outlays for refugees amounted to € 21.7 billion in 2016. This would indicate spending of over € 24,000 per migrant.[57] These initial estimates differ from the more recently published ones (see Table 5). Federal spending in Germany's Finance Ministry is reported to have planned outlays of estimated Federal spending of € 70 billion along with another € 8 billion at the state and local levels till 2022.[58] UN data show that there over 2,900,000 new migrants entered Germany between 2015 and 2019. To make a conservative calculation of initial costs, they are assumed to be all refugees. Based on this information, costs for social transfers, language courses, other integrative measures as well as administration would amount to an average of € 26,000 per new entrant in the early years till 2022. This is a relatively small amount of government spending on a migrant compared to the amount of taxes that migrant can be expected to pay in his or her lifetime..[59] A further discussion on the costs of migration is excluded from this study.

In the host country, migrants join the labor force and make substantial fiscal contributions in the form of taxes collected by the host government. Migrants with higher levels of education are more likely to be employed and therefore make

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[57]   Cf. Federal Ministry of Finance (2017).
[58]   Cf. Reuters.com (2018).
[59]   As per World Bank figures, the average per capita income in Germany in 2018 = €46,600 (rounded). The average tax rate for a Category 3 employee after solidarity tax = €4,600 (rounded). The effective tax rate is therefore 9.7%. Calculated over 40 years, tax payments would be €184,000 and the present value of all those tax payments as an annuity calculation at the current risk free rate of 0.8% = €157,000 (rounded).

higher tax contributions in the host country. Benefits to the host country are therefore accounted for by connecting education to employment of foreign-born persons.

Countries of Europe are the choice of destination for many migrants (Figure 6). In addition, Europe's migration policies are jointly made by member states. Section 7.1 contains a discussion on the benefits to Europe. In comparison, migrants are guided by independent decisions of self-betterment. Due to remittances they make, they are a beacon of hope to the family they leave behind in the sending country. Since this phenomenon is not country-specific or even region-specific, the analysis of benefits of migration contained in Section 7.2 includes all countries of the world, as per data availability. A model is fitted to cross-sectional data to find out to what extent remittances received impact the GDP of a country.

5.1 Host Country Effects

5.1.1 The Age Factor

Two factors that impact lifetime fiscal contributions are age and education. The low average age of migrants implies a longer work life and higher lifetime fiscal contributions in the host country. The age distributions of the population of Europe and the migrant population in Europe is displayed in Figure 12. Younger people have longer life-time contributions to the workforce of the host country than people of advanced age and they may add future children to the population of the host country. In monetary terms, the benefits are not just in terms of production per worker but also fiscal contributions that maintain the social security system and benefits that resound throughout the economic framework of the country. This is relevant for the EU policy built on guidelines of freedom, independence and social equality for all.

Figure 12: Ages of the Population and Migrant Population in Europe
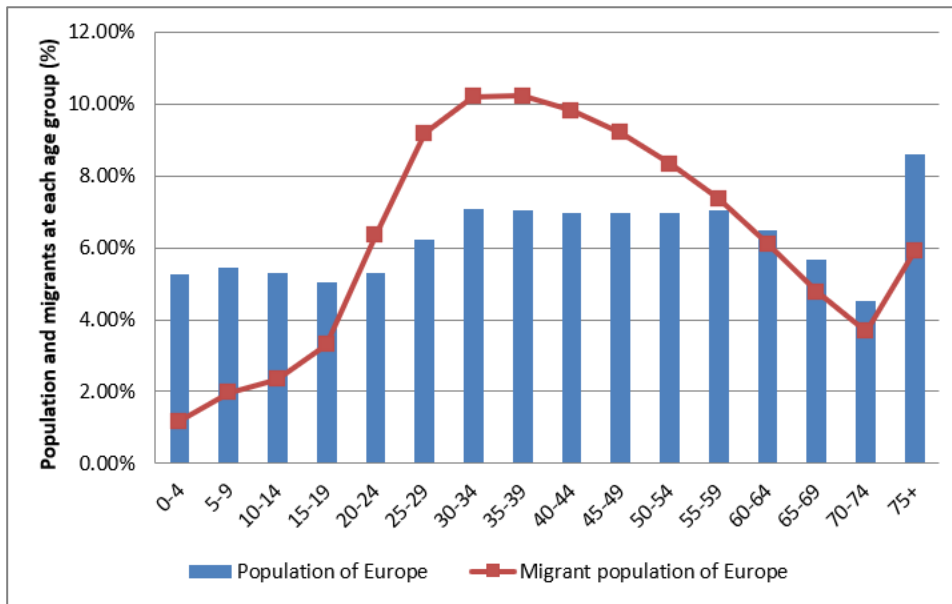
Source: Own representation based on data from United Nations, Department of Economic and Social Affairs, Population Division (2019c).

5.1.2   Education Affects Fiscal Contributions Through Employment

Education is generally known to be positively related to income earned. Income earned determines the amount of tax contributions collected by the host govern-ment. Germany for example, faces labor shortages, especially skilled labor in specific fields like medicine and engineering. In this sub-section, education levels are matched with employment levels of foreign-born persons in countries of the EU.

International Standard Classification of Education (ISCED) of the United Nations Educational Scientific and Cultural Organization (UNESCO) specifies eight levels of education:[60]

ISCED 0,1 and 2 – Early childhood, pre-primary, primary and lower secondary levels of education

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[60]   Cf. UNESCO Institute for Statistics (2012).

ISCED 3 and 4 – Upper secondary and post-secondary, non-tertiary levels of education

ISCED 5 and 6 – Tertiary education including short-cycle tertiary and Bachelor or equivalent

ISCED 7 and 8 – Master and Doctoral equivalents

Table 7 displays this classification of the education levels of foreign-born residents of the EU in the years 2010 and 2019. Eurostat data showed that a 26 per cent increase in tertiary educated individuals was recorded along with a 12 per cent decrease in individuals having the lowest level of education. The trend toward better education in foreign-born persons living in the EU is evident.

Table 7: Percentage of Educational Attainment in Foreign-born Citizens Living in the EU (27), 2010 and 2019

| Educational attainment levels, foreign-born EU residents	2010	2019
ISCED 0-2	41.1%	36.2%
ISCED 3-4	37.9%	37.4%
ISCED 5-8	21.0%	26.5%

Source: Own illustration based on data from Eurostat (2020c).

Activity rates are not the same as employment rates. They give a broader picture of both the number of persons employed as well as those looking for gainful employment, indicating those who are currently making fiscal contributions and those who will do so on being employed. Activity rate is the percentage of active persons in relation to the comparable total population. The economically active population comprises employed and unemployed persons.[61]

The activity rate of foreign-born persons of all ages and educational backgrounds in the EU was 71.7 per cent in 2019 compared to the EU (27) average of 78.9 per cent. While this shows that on average foreign-born persons participate less in the labor market than non-foreign-born persons, Figure 13 shows that higher levels of education correspond to higher rates of activity for both migrants and EU citizens. Migrants who have higher levels of education make higher fiscal contributions through economic activity than those who do not.

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[61]   Cf. Eurostat (2021).

Figure 13: Activity Rates for EU (27) Citizens and Migrants According to Education Levels, 2019
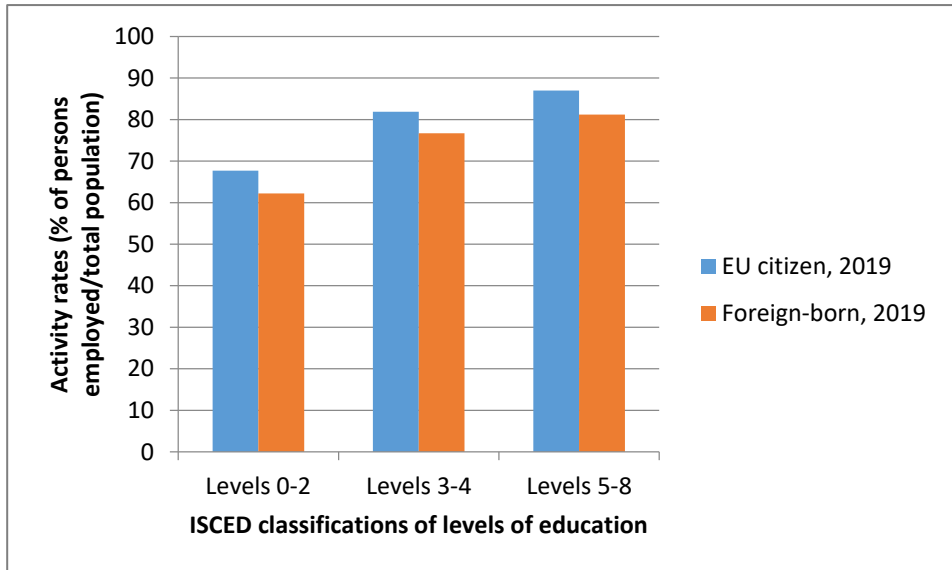
Source: Own representation based on data from Eurostat (2020b).

5.2   Sending Country Effects: Global Remittances

Global remittances which were about US$ 35 billion in 1980, rose to $ 714 billion in the year 2019.[62] In the literature on migration, remittance refers to transfers in cash or kind from emigrants to persons, in most cases family members, in the country of origin.[63] Remittances account for a large and stable source of income for developing countries. This income is often spent on consumer goods, housing, education, services and investment. Over time, the multiplier effect brings about an even larger effect on GDP. World Bank data for 2019 shows that remittance inflows are 5 per cent or more of GDP in 56 countries of the world. Table 8 contains a list of countries where the inflows of remittances by emigrants were greater than 20 per cent of the GDP of that country.[64]

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[62]   Cf. The World Bank (2021).
[63]   Cf. International Monetary Fund (2020).
[64]   Cf. The World Bank (2021).

Table 8: Countries for which Remittances Amount to 20 per cent or More of GDP, 2019

Country	Remittance inflows as a percentage of GDP
El Salvador	21%
Haiti	37.1%
Honduras	22%
Kyrgyz Republic	29.2%
Lesotho	21.3%
Montenegro	25.4%
Nepal	27.3%
Tonga	37.6%
South Sudan	34.4%

Source: Own illustration based on data from The World Bank (2021).

Remittances are used for consumption and investment spending in the home country. Such transfers are made where inflows are most needed, contributing to GDP growth. While this article does not allude to the Covid-19 pandemic, due note should be given to the issue at hand – the fall in remittances to the home country due to the pandemic. The World Bank makes predictions of a fall in remittances of 14 per cent or more in 2021 compared to the previous year. Factors like lost employment, a downturn in economic growth and the depreciation of currencies against the US dollar are responsible for this outcome. Loss of jobs indicates reverse migration back to home countries which brings associated problems of re-settling of workers, job creation and loans for businesses. On the brighter side, mobile finance transfer providers are now required to comply with identification and anti-money laundering regulatory measures of banks. Additionally, digitization of transfer services as well as competition in the remittances market has reduced the costs of making remittances in the past year. Looking ahead, these are positive changes which will support sustainable transfers in the future.

6   Immigration Policy of the European Union

Articles 79 and 80 of the Treaty on the Functioning of the European Union (TFEU) sets the legal basis for a European immigration policy which is followed by member states. It is based on the principle of solidarity, meaning that member states share the responsibility of migration, including its financial costs. Co-operation by member states on immigration policy addresses main issues of: (i) refugees; (ii) labor migrants; (iii) integration (iv) travel/freedom of movement; (iv) fighting irregular migration through border control.

In order to offer refugees the same opportunities and to support the administration of migration rules within the member states of the EU, there are common asylum policies. These policies are the result of co-legislation activities between the European Commission and the European Parliament. Each member state maintains its own final decision on asylum. However, representatives of each of the 27 countries participate in proposing, negotiating and legislating policies. These broadly cover the following areas:

  i.   Qualifications for asylum

  ii.   Processes related to granting asylum status

  iii. Administration of policies

In the case of legal labor migration, EU immigration policy deals with organizing legal immigration better, integrating migrants in EU societies, controlling irregular migration and managing migration by strengthening relationships with non-EU partner countries. For labor migrants, each of the 27 countries of Europe have individual visa policies that address their own labor market needs. Denmark does not follow EU rules on immigration and Ireland undertakes a case-by-case ruling. Other member states retain the right to determine the volumes of persons who come from third countries for employment. Rules on legal migration are limited to the following areas of co-operation:

  i.   Immigration rules for students and workers from non-EU countries who reside legally in the EU. EU immigration policy lays down conditions for legal entry into and residence in countries of the EU.

  ii.   Families of legal EU residents who join their family members in the EU.

  iii. Visa policies of non-EU citizens to travel in the EU and or visit family and friends.

6.1 Existing Emmigration Policy Directives of the European Commission[65]

The Lisbon Treaty of 2009 requires decisions on migration to be made jointly by member states through majority voting both for regular as well as, more recently, for irregular migration. Further, the European Commission established a general framework in 2011 called the *Global Approach to Migration and Mobility* to guide the relationship between the EU and third countries in the area of migration. In 2015, the European Commission adopted a European Agenda on Migration which is a set of measures to deal with and manage the sudden humanitarian refugee crisis of the past years.

The Blue Card Directive (2009) allows highly qualified persons in possession of a work contract, a minimum salary offer and professional qualifications to enter, live and work in any state of the EU on a visa that is renewable, after an initial four-year period. Since this directive was functioning well in only few member states, it is currently being revised in both the European Parliament as well as the European Commission. By not recruiting persons in host countries, this policy is clearly demand-based.

The Single Permit Directive (2011) is aimed at a single admission application for migrants, which is legally recognized in all member states. This directive also allows for mobility across EU member states, clarifies procedures for family reunification and grants a common set of rights to regular migrants. A directive on integration (2003) sets out provisions on the right to family reunion. Another directive on the status on term EU residents who are third-country nationals and long-term residents in the European Union is regulated by a 2003 directive, which was later amended (2011) to include refugees.

Another directive on seasonal workers was adopted in 2014. It covers conditions of legal entry, residence, working conditions, safety and health as well as rights of workers who enter the EU for a period of 5-9 months to engage in seasonal work in agriculture, horticulture and tourism.

In a globalized world, the demand for skilled workers is rising, and that applies to Europe too. A directive for intra-corporate transfer of skilled workers from non-EU countries has been adopted since 2014. This policy aims at unifying visa and work permit requirements across member states so that skilled workers can move

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[65]   Cf. European Commission (2016a).

across member states as per the requirement of their employer, with minimum difficulty.

Further, a directive was adopted in 2016 which regulates the conditions of legal entry and residence of third country nationals for purposes of research, studies, training, voluntary service, pupil exchange schemes or educational projects.

6.2   Migrants, Hosts and the Agenda for the EU

As briefly discussed in Section 6.1, legal migration in the EU is regulated by the directives of the European Commission. The status of refugees, who are classified as illegal migrants, is also regulated by directives. Other illegal labor migration is an issue in Europe and cannot be ignored.

As discussed in Section 4, Europe displays a pattern of low fertility, ageing population and high-income countries. This points to the issue of demand for skilled labor in Europe. On the other hand, the conclusion from Section 5 is that migrants in general move towards high-income countries. This is observed in Europe, where Europe's migrants are 11 per cent of the population (see Appendix 1) compared to the world average of 3.5 per cent. This is a clear indication that non-EU migrants find Europe a place where they can be safe, where they can live and work in freedom and with social equality. Additionally, humanitarian migration is also addressed in the common asylum policies of member states.

Therefore, the open question that is bound to arise in the future is that of legal migration in Europe. As mentioned in Section 6.1, the EU does have a legal labor immigration policy in operation. It is not comprehensive and applies to certain sections of the labor market only. Individual member states have their own legal provisions that direct the number and type of migrants entering their respective countries. Clearly, individual countries have the right to do so in the future. However cohesive policies in legal migration are vital to preserving the freedoms, social equalities and democratic values across member states.

As the discussion in Sections 4 and 5 show, this paper is observational and analytical in nature. It therefore does not overlook the problems that Europe has been facing in the recent past on the issue of migration. Unrest on the topic of migration exists in Europe mainly because of the humanitarian migration in Europe in the recent past (see Table 5). Countries were unprepared to meet the demands brought on by large inflows of immigrants. This, along with parties hostile to migration in various countries of Europe, fueled both negative views on migration as well as preservationist national tendencies.

Assuming that bilateral agreements with non-EU border countries like Turkey hold, and the Dublin agreement[66] on asylum applications continues to be upheld in the best possible manner, the European Commission should continue with processes that lead to legislating in areas of co-operation between member states. Specific visa application processes which are currently in place like professional and business visas need to be underlined so that opportunities for migration are made known to prospective migrants in their home countries themselves. Support for the idea of legal migration should be attended to and regulated *not in Europe*, but in the home countries of migrants. Legal migration should be made accessible to those interested in immigration in their home countries.

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[66]   Cf. European Commission (2016b).

7   Conclusion

The humanitarian refugee crisis and the sudden influx of migrants into Europe have deeply affected the populations and politicians of Europe in the past years. This paper does not address humanitarian migration by itself. Rather, it aims at pointing out that the issue of migration is far deeper and more complex than the refugee crisis because most migrants are not refugees.

The population equation is built on the pillars of natural increase and net migration. Income is strongly and negatively correlated to fertility rates. This means that in high-income countries, where low fertility rates dominate population dynamics, net positive migration is the only way to support the population structure of a country. Data supports the conclusion that migrants move from low-income to high-income countries, which constitutes the supply side of migrants in high income countries.

The need for migration and the flow of migrants toward countries with high per capita incomes constitute the demand for and supply of migrants. Bringing these concepts together in the European context requires government intervention and contributing input from the private sector stakeholders and policy makers in this discussion. The need for comprehensive, long-term, common, legal labor migration policies in Europe cannot be denied.

Furthermore, the benefits of migration in terms of fiscal contributions made by foreign-born persons are examined. Results show that foreign-born residents with higher levels of education are found to be more actively involved in productive employment than those with lower levels of education, indicating that fiscal contributions are higher if education levels are higher. Additionally, benefits to sending countries are measured in terms of remittances made. Analysis of the data supports the conclusion that remittances have a positive impact on the GDP of sending countries.

Appendix 1: International Migrants as a Percentage of Total Population

International migrants as a percentage of total population, 2019

	2019
WORLD	3.5%
EUROPE	11%
Belarus	11.3%
Bulgaria	2.4%
Czechia	4.8%
Hungary	5.3%
Poland	1.7%
Republic of Moldova	2.6%
Romania	2.4%
Russian Federation	8%
Slovakia	3.4%
Ukraine	11.3%
Channel Islands	48.7%
Denmark	12.5%
Estonia	14.4%
Faroe Islands	13.3%
Finland	6.9%
Iceland	15.5%
Ireland	17.1%
Isle of Man	50.7%
Latvia	12.4%
Lithuania	4.2%
Norway	16.1%
Sweden	20%
United Kingdom	14.1%
Albania	1.7%

Country	% of migrants in the population
Andorra	58.5%
Bosnia and Herzegovina	1.1%
Croatia	12.5%
Gibraltar	33.2%
Greece	11.6%
Italy	10.4%
Malta	19.3%
Montenegro	11.3%
North Macedonia	6.3%
Portugal	8.7%
San Marino	16.3%
Serbia	9.4%
Slovenia	12.2%
Spain	13.1%
Austria	19.9%
Belgium	17.2%
France	12.8%
Germany	15.7%
Liechtenstein	67%
Luxembourg	47.4%
Monaco	68%
Netherlands	13.4%
Switzerland	29.9%

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019b).

Appendix 2: Output of the Regression of (i) the Untransformed Data and (ii) the Log-transformed Data of the Percentage of Migrants on per Capita GDP

Untransformed Data (Equation 5):

lm(formula = MIG ~ GDP, data = Mig)

Residuals:

   Min   1Q Median   3Q   Max

-20.437 -5.156 -0.781   1.731 52.638

Coefficients:

         Estimate Std. Error t value Pr(>|t|)

(Intercept) -2.365e-01 1.142e+00 -0.207   0.836

GDP   5.327e-04 4.213e-05 12.645 <2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 10.26 on 153 degrees of freedom

Multiple R-squared: 0.511,   Adjusted R-squared: 0.5078

F-statistic: 159.9 on 1 and 153 DF, p-value: < 2.2e-16

The Shapiro-Wilk Test on the Residuals of Equation 5

> shapiro.test(residuals(Mod1))

    Shapiro-Wilk normality test

data: residuals(Mod1)

W = 0.77869, p-value = 4.998e-14

Log-transformation Regression (Equation 6)

lm(formula = log10(MIG) ~ log10(GDP), data = Mig)

Residuals:

    Min   1Q   Median   3Q   Max

-1.87995 -0.28152 0.07743 0.33353 1.16392

Coefficients:

        Estimate Std. Error t value Pr(>|t|)

(Intercept) -2.56989   0.32802 -7.834 7.37e-13 ***

log10(GDP) 0.78389   0.08082   9.699 < 2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.5088 on 153 degrees of freedom

Multiple R-squared: 0.3808, Adjusted R-squared: 0.3767

F-statistic: 94.08 on 1 and 153 DF, p-value: < 2.2e-16

The Shapiro-Wilk Test on the Residuals of Equation 6

> shapiro.test(residuals(Mod3))

    Shapiro-Wilk normality test

data: residuals(Mod3)

W = 0.96885, p-value = 0.001403

Appendix 3: The Maximized Log-likelihood Function and Corresponding Lambdas
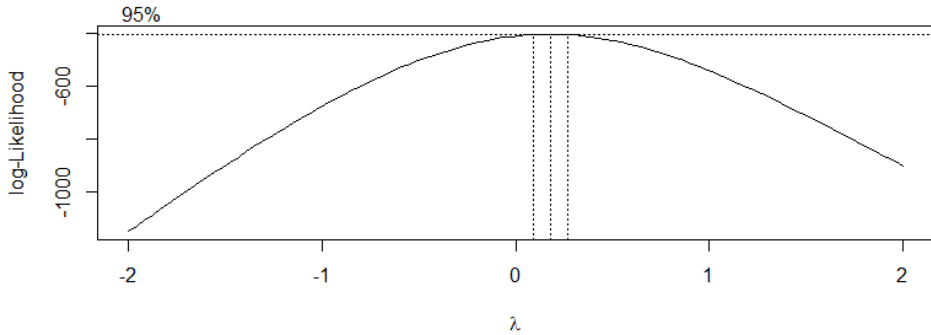
[51,] 0.02020202 -408.1572

[52,] 0.06060606 -405.5831

[53,] 0.10101010 -403.7461

[54,] 0.14141414 -402.6539

[55,] 0.18181818 -402.3114

[56,] 0.22222222 -402.7226

[57,] 0.26262626 -403.8885

[58,] 0.30303030 -405.8073

[59,] 0.34343434 -408.4757

One can notice that the maximum likelihood corresponds to the lambda value = 0.181818, which is the highest level within the 95 per cent confidence interval for lambda. This is approximated at 0.2 or 1/5, which is used in the transformation of Y.

Results of the OLS Regression Based on the Box-Cox Transformation (Equation 8)

Call:

lm(formula = MIG^(1/5) ~ GDP, data = Mig)

Residuals:

    Min   1Q   Median   3Q   Max

-0.74204 -0.18740 -0.00561 0.16812 0.87862

Coefficients:

          Estimate Std. Error t value Pr(>|t|)

(Intercept) 1.101e+00 3.164e-02   34.81   <2e-16 ***

GDP   1.418e-05 1.167e-06   12.15   <2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.2842 on 153 degrees of freedom

Multiple R-squared: 0.491,   Adjusted R-squared: 0.4877

F-statistic: 147.6 on 1 and 153 DF, p-value: < 2.2e-16

The Shapiro-Wilk Test on the Residuals of Equation 8

> shapiro.test(residuals(Mod2))

    Shapiro-Wilk normality test

W = 0.98982, p-value = 0.3269

Appendix 4: A Comparison of the Residuals of the Untransformed Data and the Box-Cox Transformed Data

(i) **Residuals: Untransformed Data versus Box-Cox Transformed Data**

Residuals of regressions on raw data
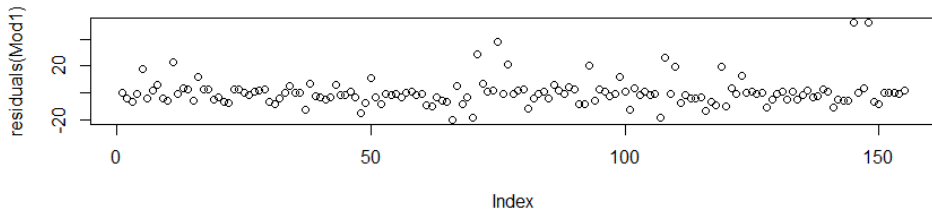
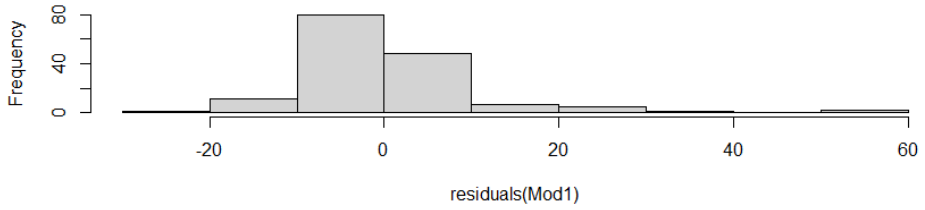Residuals of regressions on Box Cox transformed data
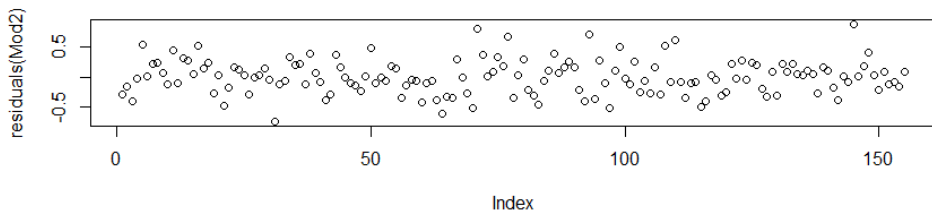
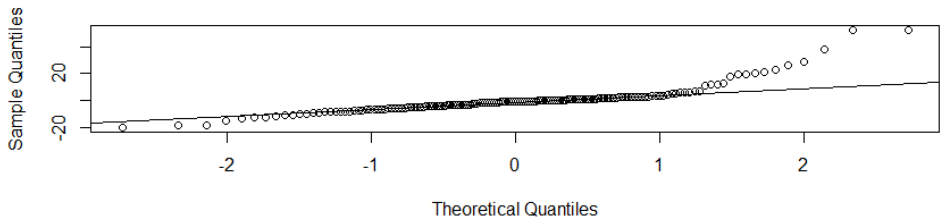**(ii)** <u>**Residuals versus Fitted Values: Untransformed Data versus Box-Cox Transformed Data**</u>
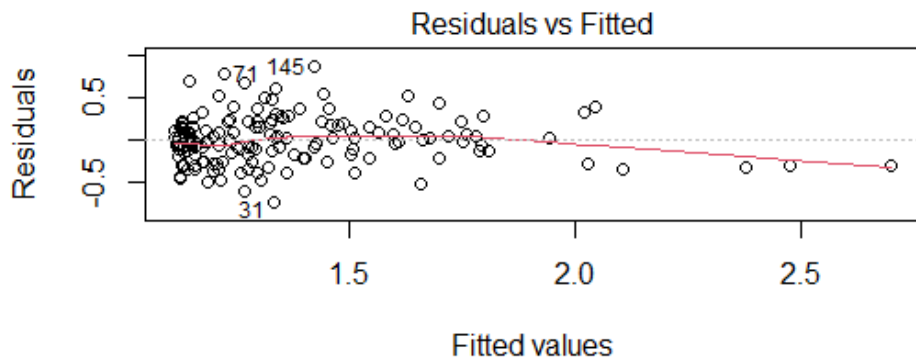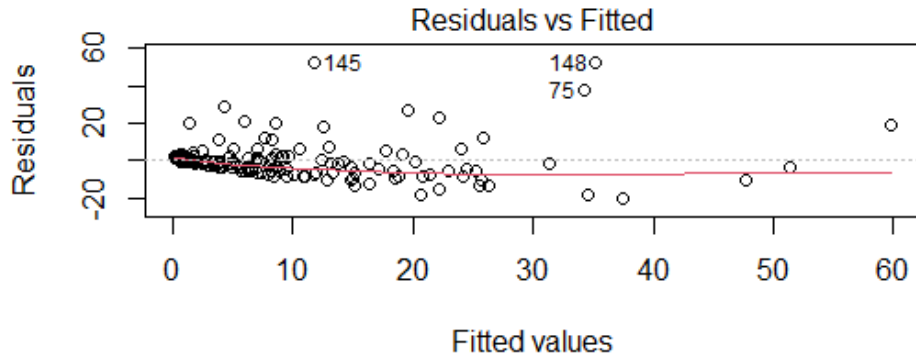
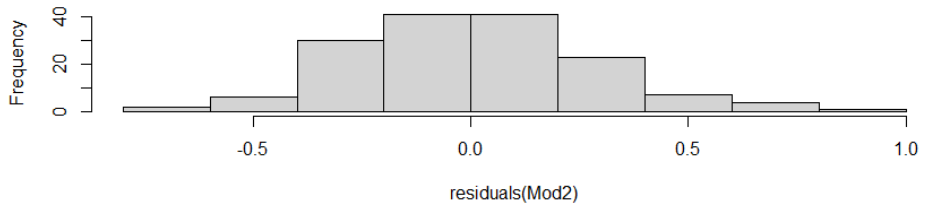**(iii)** <u>**Histograms and Normal Q-Q plots: Untransformed Data versus Box-Cox Transformed Data**</u>

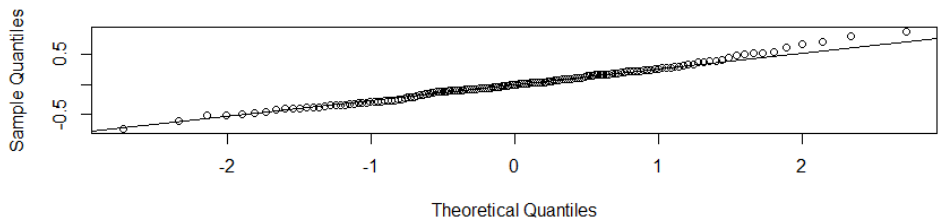**Histogram of residuals of Migration on GDP (untransformed data)**

Normal Q-Q Plot

Histogram of residuals of Migration on GDP (Box Cox transformed data)

Normal Q-Q Plot

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