ECONOMIC DETERMINANTS OF USA MIGRANTS INFLOWS; EVIDENCE FROM EIGHT MAJOR ORIGIN COUNTRIES

Ismail AMANI[1], Nadjet KACI[2]

[1]Associate Professor, MCA, Economics Department, University of Oran 2 Mohamed ben Ahmed (Algeria), E-mail: amani.ismail@univ-oran2.dz
[2]Assistant Professor, PhD, Economics Department University of Oran 2 Mohamed ben Ahmed (Algeria), E-mail: kaci.nadjet@gmail.com

Abstract: *This study aims to assess the main determinants of migration inflows to the United States of America, especially the economical ones. To answer the study problem we use a gravity model based on theoretical and empirical studies estimated by Panel Least Squares method. Migration inflows are used as endogenous variables, while exogenous ones include geographical distance, common frontier and language, income and unemployment in origin and destination countries. This model is applied to data from 2010 to 2019 for the eight major origin countries of migrants' inflows in the US. Results show that geographical distance, origin country income and destination country unemployment have a negative impact on migration inflows. While the existence of a common frontier or language, destination country income and origin country unemployment raise migration flows to the US. Ranked by order of importance, the existence of a common frontier, the destination country income and the origin country unemployment, in this order, are the most important factors of migration inflows from concerned countries.*

Keywords: Migration, Inflows, USA, Gravity, PLS

1. Introduction

Migration is a universal phenomenon that concerns all countries at different degrees. It is currently one of the major issues of the world's economy, animating economic and social policy debates in both origin and destination countries. This phenomenon is accentuated by civil and interstate conflicts that generate illegal migration (Cohen, 1996). Both legal and illegal migration could have positive and negative consequences for origin and destination countries at different levels.

In 2020, no less than 280 million people migrated to different regions of the world. These numbers have been rising steadily since 1995, 174 million migrants then, to reach 249 million migrants in 2010 and 272 million in 2019 (IOM, 2020). The United States of America has been the leading destination country for international migrants since 1970. Since then, the number of foreign-born residing in the country has more than quadrupled, from less than 12 million in 1970 to about 51 million in 2019 (IOM, 2020).

To note that the percentage of migrants in population, both permanent and temporary, is still low in the Americas as a whole, at 1.6 migrants per 1,000 people. But this percentage is higher in the United States, where it is estimated at 8.8 per 1,000 people, and in Canada, where it is close to 16.6 per 1,000 people (OECD, 2016). Intra-American migration has also been ongoing, especially since the establishment of MERCOSUR and the introduction of free movement of people within the zone, which has increased migration flows in most countries of the zone.

But incoming migrant flows to the United States are not only from this region, but that are also motivated by geographical proximity. A large part of them comes from other countries especially Asian ones, mostly China and India. This population's migration could be motivated by other strong factors, especially economical ones, that could compensate for the cost of migration that increase the more geographical distance is large.

Hence, this research paper aims to assess the determinant of migrations inflows to the United States. To do so, a gravity model is used and estimated using a PLS method, this model is applied on the incoming migrants, as dependant variable, from 2010 to 2019. Data concerns the eight major origin countries; Mexico, Cuba, Puerto Rico, Philippines, China, Vietnam, India and Korea.

But before this, a theoretical literature review is presented first to determine the possible factors affecting migration flows. Then, characteristics of these migrants will be analysed in order to determine their components. Finally, the determinants of migration flows to the US will be assessed empirically.

2. Literature Review

According to the neoclassical approach, migration is a rational action that maximizes utility. Thus, individuals compare the satisfaction they get from their current location with the one they could get from a specific destination. So, residential dissatisfaction leads to movement (Rossi, 1955)

Until the 1990s, traditional theories of international migration depended mainly on the difference in income that could exist between the different countries of origin and destination, which is qualified as human capital in relation to the leading works of (Sjaastad, 1962) (Harris and Todaro, 1970). Indeed, the level and characteristics of human capital have an influence on the susceptibility to migrate, as is the case for qualified people. On the other hand, migration can constitute a strategy for increasing human capital. An international mobility can allow the acquisition of a diploma or experience that can be valued upon return to the origin country (Piguet, 2013).

In addition, recent studies have focused on the self-selection model of migrants set out by (Borjas, 1987) (Borjas, George J., 1994). This model takes into account, not only income inequality between countries, but also the qualifications of migrants from both of them. These theories were later extended to the theory of Welfare magnets (Borjas, George J., 1999), which states that once the migrant is self-selected, he or she may choose to settle in the country with the highest social benefits (Péridy Nicolas, 2010).

These models have been extended to take into account the determinants of migration in terms of the costs it can generate, including travel costs related to the geographical distance between the two countries, language differences, and differences in living costs (Péridy Nicolas, 2010)

Several other costs have been identified; costs related to border effects, which fall under the measure of specific border crossing costs (HelliWell.J, 1997) (Hunt, H; Mueller, R, 2004) and costs related to human or economic networks loss resulting from migration. Hence, some authors showed that endogenous migration costs decrease with the level of past migration (Carrington, Detragiache, and Vishwanath, 1996), as well as the costs generated by migration policies. Several authors have shown that migration decreases when migration policy becomes restrictive as it increases migration costs (Benhabib, 1996) (Bianchi, 2006)

Finally, most recent theories study the relationship between migration and trade. They establish a complementarity relationship between trade and migration if concerned countries have different levels of technology, an imperfect competition or economic distortions (taxes, production, subsidies ...) exists between them. In this situation, the authors consider that migration flows become necessary and complementary to international trade (Wagner, Head,K, and Ries,J, 2002) (Co, Euzent,P, and Martin,T, 2004)

3. A Bird Eye on USA Immigration Inflows

Immigration is an ongoing source of tension in many societies around the world. Especially illegal immigration that is higher in the United States than in most other industrial countries. This is a situation common to all industrial societies (Hirschman, 2001)

In recent years, legal immigration to the United States has ranged from 700,000 to 1,000,000 new permanent residents, with an upward trend (US Department of Homeland Security, 2019). Indeed, only half of legal immigrants are newcomers to the country. The other half are adjustments of current residents who were able to obtain an immigrant visa due to a change in employment or family status. On the other hand, many refugees are able to obtain a permanent resident immigrant visa.

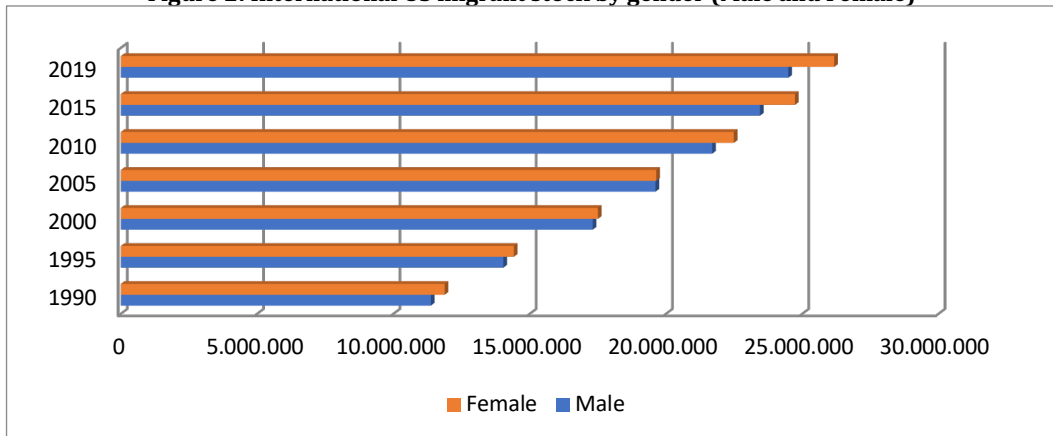**Figure 1: International migrant stock US**
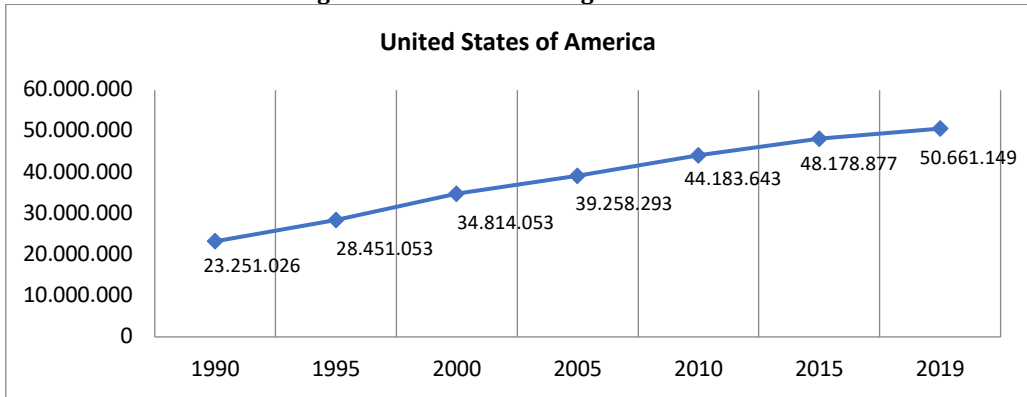
Source: Realised by authors, data from UN DESA International Migration Database 2019

The figure above shows the evolution of the total number of migrants to the United States over the period from 1990 to 2019. We see an evolutionary trend in the number of people going to the United States, from 23 million migrants in 1990 to 39 million migrants in 2005 to 50.66 million migrants in 2019

This increase also corresponds to an increase in the total number of migrants worldwide, from 153 million people in 1990 to 271.64 migrants in 2019 (UN International, 2022). Thus, people who integrated the US in 2019 represent almost 19% of the total migrants in the world compared to 15% in 1990.

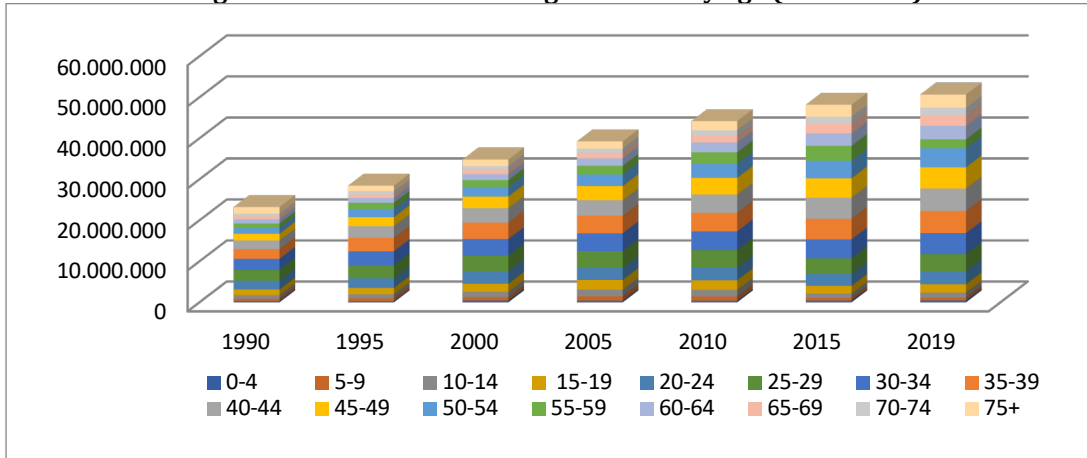**Figure 2: International US migrant stock by gender (Male and Female)**

Source: Realised by authors, data from UN DESA International Migration Database 2019

The figure above shows the number of migrants to the US from 1990 to 2019, from its analysis we see that the female share of migration is slightly higher than the male share, this gap continues to widen over time reaching 500,000 migrants in 2019. Between 2015 and

2019, the number of female migrants in the U.S. has diverged from the number of male migrants, reaching 11.8 million female migrants versus 11.3 million male migrants.

Figure 3: International US migrant stock by age (both sexes)

From figure 3, we conclude that the number of migrants to the United States is much higher for people between the ages of 20 and 50 years, they are individuals with the ability and age to work, whose number reached nearly 6 million migrants over the entire period studied. On the other hand, the number of people over 70 is much smaller, as are the individuals between the ages of 0 and 14, whose highest number of people is only 1.6 million. In general, the number of migrants in all age groups has increased significantly between 1990 and 2019.

4. Methodology
4.1. Empirical Model

Econometrical models, especially gravity models, have been the most important tool to analyse determinants of the migration inflows and outflows in the world. These models explain the difference in quantity of incoming migrants between different countries. They include geographical, historical, economical, social and other control variables of both the origin and destination country.

Initially this kind of models have been created to study bilateral trade flows TDF (Tinbergen, 1962) and (Lindemann, 1966), depending on 3 factors; distance between the two countries, origin country income and destination country income both represented by their respective gross domestic product. Later on, this model has been augmented by integrating a wealth effect, represented by GDP per capita instead of GDP, in origin and destination country and the existence of a common frontier (Frankel, Stein, and Shang-Jin, 1995). Other studies have also added a positive effect of sharing a common language between the two countries (Baier and Bergstrand, 2007). Thus, the mathematical formulation of the initial gravity model is written as follow:

$$TDF = f(Dist, GDPP_i, GDPP_j, Contig, Lang)$$

Hence, the model used in this paper is inspired by (Bertoli and Moraga, 2017) that elaborate a gravity model from different factors affecting international migration. Some elements are also taken from the study of (Péridy Nicolas, 2010) that goes from a micro-economical perspective.

Thus, the gravity model measures the factors that impact migration inflows MIG, dependant variable, from an origin country j to the United States of America, destination country, i. These factors, exogenous variables, consist of migration costs represented by geographical distance DIST between the origin country and the United States, and if a common frontier FRONCOM or languages LANGCOM exist between the two. Economic factors include income in origin and destination country represented by the GDP per capita, GDPP, and the unemployment rate UNMP in both origin and destination country.

The function is written as:

$$MIG_{ij} = f(DIST_{ij}, FRONCOM_{ij}, LANGCOM_{ij}, GDPP_i - GDPP_j, UNMP_i - UNMP_j)$$

The estimated mathematical model is expressed as:

$$MIG_{ij} = \alpha_0 + \alpha_1 DIST_{ij} + \alpha_2 FRONCOM_{ij} + \alpha_3 LANGCOM_{ij} + \alpha_4 GDPP_i + \alpha_5 GDPP_j + \alpha_6 UNMP_i + \alpha_7 UNMP_j + \varepsilon$$

The coefficient $\alpha_1, \alpha_5, \alpha_6$ are expected to be negative according to theoretical review, while $\alpha_2, \alpha_3, \alpha_4, \alpha_7$ are expected to have a positive value.

4.2. Data

Data used to estimate the model covers a period of time from 2010 to 2019 for the 8 countries with most immigrants in the USA, more than 1 million. These countries are Mexico, Cuba, Puerto Rico, Philippines, China, Vietnam, India and Korea.

The dependant variable is represented by the migrants' inflows from each country to the USA, statistical data has been taken from CENSUS[1] bureau website. For exogenous variables, economical ones, GDP per capita and unemployment have been taken from the World Development Indicator WDI, World Bank database. While geographical and historical variables; distance, common frontier and language have been taken from the CEPII[2] gravity database. All used variables have been transformed into logarithm except binary variables.

5. Results

Before estimating the elaborated model, we assess if it involves random or fixed effects. All used tests including Chow, Hausman for period random effects and Lagrange for cross-section random effects proved to be inconclusive.

Hence, the model has been estimated using a Panel Least Squares PLS method, results are shown in the next table;

Table 1: PLS Estimation Results

Adjusted R-Squared:	**0,95**	
F-Statistic:	240,43	
Prob. (F-Statistic):	**0,00**	
Variable	Coefficient	Prob.
C	-6,71	0,25
LDIST*	**-0,17**	**0,00**
FRONCOM*	**2,50**	**0,00**
LANGCOM	0,05	0,47
LGDPPi*	**2,15**	**0,00**
LGDPPj	-0,10	0,08
LUNMPi*	**-0,03**	**0,00**
LUNMPj*	**0,45**	**0,00**

Source: realised by authors using Eviews1

---

[1] CENSUS United States Bureau, https://data.census.gov

[2] CEPII Research and expertise on the world economy, www.cepii.fr

Estimated model is significant as the probability of the f-statistic test is inferior to 5%, while the endogenous variables explain 95% of the endogenous one, represented by the adjusted R-squared. Residuals are random, Jarque-Bera test having a probability superior to 5%, and are not autocorellated, going by heteroskedasticity LR test.

As about variables coefficients we note first that all of them have their theoretical sign and their coefficients are significant besides the variable representing the common language. Geographical distance, DIST, has a negative effect, so the more countries are far the less migrants come to the USA. While the common frontier has a positive one, meaning neighbour countries residents are more likely to migrate to the USA. These coefficients are conform to the theoretical literature of both general gravity models and migration specific ones, confirming the effectiveness of these kind of models to estimate migration flows.

Destination income, GDPPi, has a positive impact while origin income has a negative one, this result also correspond to migration theories, all arguing that migrants move from low income countries to high one, and base their decision on the difference of income between the two. In the opposite side, destination unemployment has a negative impact on migration flows while origin unemployment has a positive impact. This result confirms that people move seeking for job opportunities when there is a lack of them in their origin country.

As an order of importance, a common frontier between origin country and the USA is the most important determinant, which facilitates their movement to the USA. As factors go, migrants come to USA mostly seeking a higher income in their destination. This factor is followed by the unemployment in their origin country, people moving mostly to seek job opportunities elsewhere when they lack them in their countries. Thus, migration inflows to the USA are highly dependent on economic situation on the origin country and the one of the destination one.

6. Discussion

Incoming migration to the USA is mainly due to its economic and political influence in the world, especially in the era of globalization (Bonzom, 2015). This is even more evident for neighbour countries as Mexico and Cuba, where its influence was great since 19th century and has been enhanced by regional agreements like ALENA, since 1994. As has been shown in results, regional attractiveness, distance and frontiers, is still highly effective despite strong debate between defenders of economic needs in workforce and opponents calling for restrictive measures. USA is still facing a mass migration incoming from Mexico and in a lesser extent other Latin American countries, even after migration policy tightening last decade.

Moreover, since early 20th century American influence has grown even further in the rest of the world thanks to its strong economy and its participation in the two world wars. Helped by media, people from over the world moved to the USA looking for the "American dream" seeking good jobs and prosperity. Thus economic motivations, having a strong impact in the estimated model, represented mainly by an escape from unemployment and low incomes in origin country, seeking job opportunities and a better quality of life in USA.

To reduce this flows that can be seen as a threat for both origin and destination countries, even if some see them as an opportunity especially low population destination countries, international institutions have set some measures to react against migration determinants, especially economic ones. In fact, based on millennium sustainable development goals SDGs put on September 2000, the United Nations Development Program UNDP gave many recommendations for developed countries to apply (CentreAvec, 2005) in the same optic of this paper's findings.

First, adjusting agriculture exportation policy for a more fair trade system. In fact, actual policies impoverish little producer's regions where citizens produce for firm's exportation instead of their self-consumption and benefits. While they must import a big part of their necessary consumption, facing sometimes huge costs. In this sense, WTO and

multinational firms must work for a more sustainable trade policies especially in this sector, and create more fair and durable job opportunities.

Second, international institutions must help origin countries to improve their macroeconomical situation. It can be realized through financial aids, a better loan conditions for these countries and technical assist to improve their financial resource use. In fact, fiscal incomes must be directed toward social sectors, health and education to create better life conditions in these countries and thus reduce their outcoming migration flows. These institutions could also help protecting social, cultural and environmental resources in developing countries that could be exploited to reduce poverty.

Third, guarantee respect of human rights all over the world and work toward reduction of inequalities and discrimination, both gender and racial. This can be expanded to eradicate and prevent internal and external wars and conflict that push even more people to migrate seeking stability and safety.

Finally, media have a great power toward people's perception of both their original country, sometimes described worse than reality, and destination country, especially USA in our case, described as perfect life places, or what is called American dream. In this sense, they must adapt their countries' picture by focusing on advantages of every individual country encouraging them to work for success wherever they are.

7. Conclusion

This study aimed to assess the determinant of migration inflows to the United States of American. Theoretical and empirical literature suggested many factors, traditional ones as difference of income or geographical distance between the two countries and extended factors by introducing social factors, welfare factors and migration costs related to the existence of a common frontier or language and network losses.

In order to evaluate these determinants a gravity model estimated by PLS method has been estimated and applied to migrants' inflows to USA from the eight major origin countries in a period of time from 2010 to 2019.

Results were according to theoretical statements and so showed that geographical distance has a negative impact on migrants inflows while existence of a common frontier or language raise them. This result confirms that migration costs affect their move decisions. In the other hand, concerning economic factors, migrants inflows raises the more the difference of income is important between the destination and origin country, represented by a positive impact of destination income and negative impact of origin country income, while the difference of unemployment have an opposite effect. Thus, migrants are more willing to move from high unemployment countries to low unemployment rate countries seeking for job opportunities and a better economic situation as all.

Classified by order of importance, the existence of a common frontier is the most important determinant of migration inflow, this explain the large number of migrants inflow from Mexico to the USA. This factor is follower by the destination country income that represent a seek of welfare and better life conditions. The third determinant by order of importance is the origin country unemployment, in the same line as the precedent factor, migrants move from low opportunities country to higher opportunities one to raise their chance for job positions and better life conditions.

In this way, many solutions have been proposed by PNUD to reduce migration flows for more benefits for both origin and destination countries. These solutions mainly focus to create job opportunities and reduce cost consumption costs for a better quality of life in origin countries through a more fair international trade system especially in agricultural sector goods. They also recommend more technical support from international financial institutions to poor countries for a more optimal use of their fiscal resources and promoting their natural resource's exploitation. Furthermore, countries must enhance their picture for both their

population and the world encouraging citizens to work for success in their original countries while offering a guarantee for equality and human right respect.

Finally, acting in favour of migration is a way to create a more inclusive economic growth and reduce income difference between developed and developing countries. But, destination countries can still benefit from aimed migration to cover some specific needs in labor force, especially in qualified workforce.

References:

1. Baier, L., and Bergstrand, J. (2007). Do free trade agreements actually increase members international trade? *Journal of International Economics*(71), 72-95.
2. Benhabib, J. (1996). On the Political economy of immigration. *European economic review, 40*(9), 1737-1743.
3. Bertoli, S., and Moraga, J. F.-H. (2017). Gravity models in the migration and development nexus. *Revue d'économie du développement, 25*(3), 69-91.
4. Bianchi, M. (2006). Immigration policy and self-selectingmigrants. *SSE/EFI Working Papers series in economics and finance*, 627, stockholm school of economics.
5. Bonzom, M. (2015). Le régime d'immigration des États-Unis : politiques migratoires, hégémonie, et mouvements sociaux. *Politique américaine, 25*, 91-112.
6. Borjas, G. J. (1987). Self-Selection and the Earnings of Immigrants. *NBER WORKING PAPER SERIES*, 1-51.
7. Borjas, George J. (1994, December). The Economics of Immigration. *Journal of Economic Literature, 32*(4), pp. 1667-1717.
8. Borjas, George J. (1999). Immigration and Welfare Magnets. *Journal of Labor Economics, 17*(4), 607-637.
9. Carrington, W., Detragiache, E., and Vishwanath, T. (1996). Migration with endogenous moving costs. *American economic Review, 86*(4), 909-930.
10. CentreAvec. (2005). *Les causes de migrations: pistes d'analyse et d'action.* Bruxelles: Documents d'analyse et de réflexion.
11. Co, C., Euzent,P, and Martin,T. (2004). The export effect of immigration into the USA. *Applied economics*, 573-583.
12. Cohen, R. (1996). *Theories of Migration.* International library of studies on migration Cheltenham : Edward Elgar.
13. Frankel, J., Stein, E., and Shang-Jin, W. (1995). Trading blocs and the Americas: The natural, the unnatural and the super-natural. *Journal of Development Economics*(47), 61-95.
14. Harris, J. R., and Todaro, M. (1970). Migration, Unemployment and Development: A Two-Sector Analysis. *The American Economic Review, 60*(1), 126-142.
15. HelliWell.J. (1997). National Borders, trade and migration. *Pacific economic review, 2*(3), 65-85.
16. Hirschman, C. (2001). The educational enrollment of immigrant youth: A test of the segmented-assimilation hypothesis. *Demography, 38*(3), pp. 317-336.
17. Hunt, H; Mueller, R. (2004). North American migration: returns to skill, Border effects and mobility Costs. *The Review of economics and statistics, 86*(4), 988-1007.
18. IOM. (2020). *World migration report.* Geneva: International Organization for Migration.
19. Lindemann, H. (1966). *An Econometric Study of International Trade Flows.* Amsterdam: Holland Publishing.
20. OECD. (2016). *Why is migration increasing in the Americas?* Migration policy Debates. Organization of American States.
21. Péridy Nicolas. (2010). Un modèle généralisé des déterminants des migrations internationales: Application aux migrations des pays méditerranéens vers l'ue. *Revue économique, 61*, pp. 981-1010.

22. Piguet, E. (2013). Les théories des migrations. Synthèse de la prise de décision individuelle. *Revue européenne des migrations internationles, 29*(3), pp. 1-22.
23. Rossi, P. (1955). Why Families Move: A Study in the Social Psychology of Urban Residential Mobility. *The Free Press, Glencoe*, 1-19.
24. Sjaastad, L. (1962). The Costs and Returns of Human Migration. *Journal of Political Economy*, 80-93.
25. Tinbergen, J. (1962). *Shaping the world economy: suggestions for an international economic policy.* New York: Twentieth Century Fund.
26. UN International, m. (2022). *International migrant stock*. Retrieved from United Nations, Department of economic and social affairs, Population division, International migration: https://www.un.org/en/development/desa/population/theme/international-migration/index.asp
27. US Department of Homeland Security. (2019). *Yearbook of Immigration Statistics*. Retrieved from https://www.dhs.gov/immigration-statistics/yearbook/2019
28. Wagner, D., Head,K, and Ries,J. (2002). Immigration and the trade of provinces. *scottish Journal of Political economy, 49*(5), 507-525.