

## Las Redes Migratorias Chinas en Europa y el Equilibrio Comercial

### *Chinese Migration Networks in Europe and the Comercial Balance*

Samir Djelti

Mustapha Stambouli University (Algeria)

<https://orcid.org/0000-0003-4139-4002>

samirecodjelti@yahoo.fr

#### RESUMEN

El objetivo de este trabajo es estimar el efecto de las redes migratorias chinas sobre su balanza comercial. Hemos medido el impacto sobre la exportación de la emigración china a los países europeos y lo hemos comparado con los efectos sobre la importación mediante la estimación de un modelo de gravedad en el que, además del PIB/Cápita, la distancia y otras variables ficticias, se incluyó la emigración como variable explicativa. Nuestros análisis, basados en una regresión GLS de panel de 32 socios comerciales europeos de China en 1960, 1970, 1980, 1990 y 2000, han revelado que el efecto de la emigración sobre la importación es ligeramente más importante que el efecto sobre la exportación. La principal conclusión del estudio es que un aumento del diez por ciento en la emigración de China a los países europeos disminuye el valor real de la balanza comercial en un 0,18 %.

#### PALABRAS CLAVE

Migración; Redes Migratorias; Exportación; Importación; Balanza Comercial.

#### ABSTRACT

The aim of this paper is to estimate the Chinese migration networks effect on its commercial balance. We have measured the impact of Chinese emigration to European countries on the exportation and compared it with the effects on importation through a gravity model estimation in which, emigration was included as an explicative variable as well as GDP/Capita, distance and other dummy variables. Our analyses, based on a panel GLS regression of 32 trade European partners of China in 1960, 1970, 1980, 1990 and 2000, have revealed that the effect of emigration on the import is slightly more important than the exportation effect. The main important finding of the study is that a ten percent increase in the emigration from China to European countries decreases the real value of the commercial balance by 0.18 %.

#### KEYWORDS

Migration; Migration Networks; Exportation; Importation; Commercial balance.

Clasificación JEL: F22, F14.

MSC2010: 6207,62M10.

## 1. INTRODUCTION

International trade is a zero-sum game, so if a country has a surplus in its balance of trade, for sure that there are other countries assuming a deficit. According to the World Trade Organization report, “The incomes of developing countries and those in rich countries tend to converge since the 1990s because the growth of developing economies has accelerated, while that of developed economies slow motion” (World trade report, 2014), this means that international trade acts positively in reducing global inequality.

In this report, economists have reclaimed the trends that characterized the last decade. In general, the most important trends are summarized in the following four points: The rapid development of developing countries, the expansion of global value chains level, inflation, and the importance of exports of commodities and macroeconomic shocks have become increasingly globalized.

The analysis of these trends confirmed the leading role of international trade in the transfer and diffusion of development from developed countries to developing ones. In addition, the same report noted the obstacles that continue to hamper the growth of global development. Those economists think that anti openness and free trade governments pose barriers to the development of developing countries (World trade report, 2014).

In the early Nineteen's, economists thought that migration networks can boost the exports of the origin countries. According to these economists, the mechanism linking migration networks to foreign trade in general and exports in particular goes primarily. Other economists thought that the existence of a population that prefers the traditional products of the origin country by taste or nostalgia in the host country can stimulate demand for these products and, therefore, increase export.

Greif (1993) and Gould (1994) are considered as the pioneers in studying the relationship between international migration and trade. According to the latter, who began with a robust theoretical framework, exports and imports of the United States are positively correlated with stocks of migrants present in the USA. Combes and al., (2003) and Head and Ries (1998) founded similar results when they analyzed the trade database of Canada and France. Later, Rauch and Trindade (2002) were the first to distinguish between the effects of networks through information and contract empowerment mechanism. They showed that the presence of migration Chinese networks is more important for trade in differentiated products than the homogeneous ones.

The effect of international migration or Diaspora on exportation was demonstrated theoretically and empirically. Historically, except the mercantilist model, exportations and importations are tightly linked. Therefore, what about the effect of migration networks on the importations? Are there any reasonable theoretical links? Moreover, what about the commercial balance?

Because of the importance of the Chinese diaspora, lot of empirical studies on the effect of Chinese migration networks on exportation are realized. In this article, we will focus on the effect of these networks on the balance of trade. The aim is to estimate the effect of Chinese migration to the European countries on the exportation and importation between them and conclude the effect on the commercial balance. For this, we will use a gravity model in which migration was included as an explicative variable as well as GDP/cap, distance and other control (dummy) variables.

## 2. LITERATURE REVIEW

The basic and most important works often cited in theoretical and empirical studies on the migration and trade topic is Greif (1993). Based on the history of North African and Muslim foreign trade, the economist has tried to examine the economic institutions used during the 11th century to simplify the complexity of trade. He argued that the commercial relations of the time were marked

by great asymmetry of information on one side and the limited application of legal contracts on the other. The economist has tried to find the institutions' secret in the documents of Genizah (The tomb where Jews bury their religious documents) which are used to present the Coalition. It is an economic institution based on the reputation mechanism used by the Mediterranean traders to confront the organizational problems associated with exchange relations between merchants and their overseas' agents (Greif, 1993). Greif thought that the social, religious and racial membership gave the Maghreban merchants a very good reputation. This reputation has facilitated the management of their commercial relations with their customers and suppliers.

We support the economist in the idea of crossing ethnic and religious forces to form a good reputation. The example of Muslims clearly shows this coupling, historically the Arabs before Arabs were good merchants and Islam regulated increasingly their markets. For example, regarding the transparency of information, Islam prohibits for citizens to buy from Bedouins before joining the city and this for optimal information transparency (Because the Bedouin has not an idea about the market price contrary to citizens who waited at the entrance of the market to buy their products and sell them more expensive). Through this study, the author tried to explain why traders used specific forms of trade associations and highlight the relationship between social and economic institutions (Greif, 1993). The author concluded that the religious and migration form traders' coalition which serves as a signal when the information on traders can be obtained, while the social and commercial relations in the coalition serve as a network for the transmission of this information.

The second most cited theoretical model is Gould (1994), in his study; he examined the relationship between the immigrants and their countries of origin, which may have a positive impact on bilateral trade relations. The economist thought that these relations are based on Knowledge in the home market, language, preferences, and personal contracts that have the potential to decrease the cost of commercial transactions (Gould, 1994).

The economist developed the model proposed by Bergstrand (1985), based on microeconomic foundations of the gravity equation (Inspired from the universal law of gravitation initially developed by Newton and used in economics for the first time by Timbergen in 1962). He introduced endogenous transaction costs that fall with the introduction of foreign market information offered by immigrants. In his theoretical model, he assumed that a number of countries producing goods that are differentiated in relation to the country of destination. In addition, the production is related to the hiring of native labor work and immigrant labor. Gould argued this point by the profit maximization in a constant elasticity of transformation (CET) equation, in turn; consumers maximize the constant elasticity of substitution (CES). After analyzing the supply and demand, Gould set up a gravity model that explains the flow of international trade between countries  $i$  and  $j$  by income from importers and consumer countries, the wedge between export and import prices of tradable goods and the terms of the price.

Rauch and Cassela (1998) presented the last one, they have noted that countries trade and invest more with themselves (McCallum, 1995) and they concluded that Crossing Borders is expensive. The previous observations led them to suggest that incomplete information represent a major obstacle to the productive activity in the international market. In the same vein, economists have found that it is more difficult in the international market to meet consumer tastes and find the right distributors for consumer goods, suppliers and partners. Therefore, migration networks, through the information facilitate the installation of foreign direct investments in the countries of origin of migration.

In the basic model, simplified in the relationship between workers and producers in origin and host countries, economists have focused on two objectives: First, a general equilibrium model, where the difference in the level of information between indigenous and international partners can be intuitively captured and treatable. That means that economists have formulated a model that takes into account the value of information in attracting international partners. Second, they introduced an immobile factor (Primarily land and natural resources) that has a different distribution between countries to capture the origin of the gain from international trade. This is a stable factor which, according to economists, acts as a landmark. More recently, the Osmosis

theory of human migration has introduced migration networks as a determinant factor of borders permeability (Djelti 2017; Djelti 2018). According to its logic, if people move just like osmosis, from the less concentrated countries to the more concentrated one, then goods and services diffuse between people from the more concentrated to the less concentrated cells.

In general, according to the cited basic theoretical models, migration networks influence exportation through three channels: first, emigration cause a trade costs reduction, which results from the availability or transparency of information on one side and through the history of international trade relations on the other. Second, the preference effect which can be explained by the preferences of emigrants that can increase importation of territory products from the origin countries of emigration. Third, migration increase borders' permeability the fact that foster trade.

In general, the former channels relating emigration to trade focused on exportation, in this paper, we will check its effect on importation and consequently on the commercial balance. Theoretically, the preference effect cannot have any role in the link between emigration and importation; however, the cost effect can relate them in the two directions. Emigrants can provide transparent information's for importers on the available product their quality and their prices in the origin country, so, the inversed cause can be theoretically possible.

### 3. EMPIRICAL STUDIES

Gould (1994) showed that for the USA and Canada, migration relationships played a role in increasing bilateral trade flows. More specifically, by applying the gravity model, he concluded that the information provided by international immigrants has played a vital role in determining bilateral trade flows. The effects of information seem to be stronger for the exportation and importation of manufactured consumption's goods than for goods of production.

In general, according to the results of this empirical study, export seems to be more influenced by immigrants' ties then imports. In addition, the immigrants' skill level plays a positive role in Canadian commerce, but it has a negative effect on the trade of USA. The economist explained this negative effect by the creation of industries by immigrants and the migration period had a positive effect but a limited one on exportations and a negative effect on the importations.

The results have also revealed that a relatively small immigrant community can deplete most of the effects of migration on the exportation sector, but a large community is required before the appearance of the effects in the importation sector. The economist thought that this might reflect the dominant role of the original product preferences in the importation sector. This implies a linear correlation between importation and the number of international migrants and resident alongside indigenous workers.

Rauche and Trindade (2002) attempted to study the impact of Chinese migration networks on bilateral trade. Economists have introduced a new measure for a new concept; they measured the strength of migration Chinese networks by the of drawing two Chinese during a random selection in two countries. Their study revealed that Chinese migration networks economically have a significant positive impact on bilateral trade for differentiated products than for homogenous products in 1980 and 1990.

In general, the study found that Chinese migration networks have a significant quantitative impact on bilateral trade through the mechanisms of the market information, public services and associations (Lawyer referral services, which represent a mixed force helping justice) in addition to another effect through the implementation of community sanctions that discourage opportunistic behavior. In this work, economists have combined the two theoretical models.

The overall conclusion of the study is that in 1990, migration Chinese networks increased China's trade by about 60%. Several economists have criticized the result of this empirical study. In their study, Felbermayr et al, (2010), showed that the previous study is biased because it takes account of omitted variables and it was partially based on the effects of preferences (Felbermayr et al, 2010).

Based on a model of gravity and migration database between 1980 and 1990 and focusing on the effects of networks, the former economists concluded that Chinese networks could create a very small share of trade relative to the first result (around 15%). Using a new database on bilateral stock of migrants (World Bank, 2000), economists have extended the analysis to all the potential of migration networks. Their analysis identified Polish, Turkish, Mexican and Indian networks.

Belderbes and Sleweagen (1998) tried to test the hypothesis that Japanese trade barriers are related. To do this, they examined the Japanese electronics exports to Europe, as well as Japanese firms investing in manufacturing and distribution in Europe during the second half of the 1980s, the results showed a rapid increase in foreign direct investment in the manufacturing sector in Europe accompanied by trade policies constituting a barrier on international trade.

Relations between Japanese firms have played an important role in the export. Subcontracting firms established by the principal firm in the European community export relatively more to Europe. In addition, affiliates exporters are able to expand their exports to provide components for Europe and their firms will do the assembling process. This suggests that when manufacturing investment will be substituted by export, export substitution becomes weaker if it is measured by a level of vertical Keiratsu (A Japanese word, which refers to a group of companies specialized in different domains with crossed participations).

Kugler and Rapoport (2011) attempted to determine the relationship between international trade, international migration and foreign direct investment in a context of heterogeneous firms. After introducing international migration (The total migration stock and the skilled migration stock) as an explanatory variable (using migrants stocks of import countries living in the countries of exportation in 2000), economists have estimated the elasticity of export to the country of origin of migrants to 9% when they used the stocks of skilled migrants. Besides that, they have estimated the corresponding elasticity of foreign direct investment to 25%. Economists explained these results by the sensitivity of FDI to emigration to the country of origin of multinational firms and exports with emigration from importing countries. After using the total stock of migrants, elasticities appeared weaker and the economists explained this by the fact that skilled migration represent the type the most relevant for understanding the role of migration in reducing the transaction costs of selling abroad (Kugler and Rapoport, 2011).

Hiller (2011) used a database of Danish firms established in 2001, to explore the relationship between migration and exports. He thought that it is essential to measure the similarity of tastes of people in Denmark and in partner countries. Furthermore, referring to researches on small and medium enterprises, the economist assessed the heterogeneity of the effect of emigration across different sizes of firms. His study, which was based on a microeconomic database, concluded that migration plays the role of international trade promoter.

Redding (2013), found that there are three major forms of capitalism (Japanese, Korean and Chinese overseas capitalism) in Pacific Asia, overseas Chinese and the rest is dispersed throughout a region. To understand the most important part of the strength of the capitalism, the economist thought that it is based on a cultural heritage containing strong elements of Confucianism (A Chinese philosophical wave of thinking developed by Confucius and his disciples. Based on many principals like good behavior, wisdom and sane social ties. The Confucianism is considered as one of the fundaments of the Chinese political institutions), personal trust...etc. In this context, families' trade became their scales through the establishment of networks in different regions.

Ehrhart et al., (2012) tried to answer the following question: Does migration encourage export in Africa? They explained the way in which international migrants of African origin encourage foreign trade. By exploring a new database on bilateral international migration between 1980 and 2010 conducted by the World Bank, the authors estimated a gravity model. Their results revealed a positive effect of the African Diaspora on African exports, which is significant for the export of differentiated products. Subsequently, they focused their study on intra-African trade and concluded that the effects of African migrants on trade were greater when the emigrants settled in countries that are not neighbors and from different migration groups (Ehrhart et al., 2012).



In general, all the empirical studies demonstrated the existence of an important link between emigration and exportation through the migration networks channel. We have tried to measure the effect of Algerian migration networks on its balance of trade (Djelti, 2016). In practice, the gravity model was used to explain the contribution of Algerian migration networks in the exportation and the importation with 139 countries in 1970, 1980, 1990 and 2000. The main objective of the study was to estimate the effect of the Algerian migration networks on the balance of trade. The results revealed that a 10% increase in the emigration level foster the exportation and the importation of Algeria and lead to 0.22% as a deficit in the Algerian balance of trade. The same model was used to explain the effect of migration networks on trade (Djelti, 2021), on technology diffusion (Lahmeri and Djelti, 2023), entrepreneurship (Djelti and Zapata-Barrero, 2023), and the analysis of permeability (Lahmeri, 2024)

#### 4. THE MODEL

Eurasian trade is one of the oldest trade in the whole world, the history attest of the Silk Road, the opium war and the surplus Chinese trade balance. The Chinese diaspora is present in the entire world and especially in Europe; many of these European countries require a certain product's quality to protect their consumers, that which represent a barrier for the Chinese exportation. Recently, some European countries move back in the industrialization, in France for example, we observe that the delocalization process is inversed and that the Chinese companies who delocalize to France, Italy, Spain and other vulnerable European countries.

In the empirical studies, we have showed that the Chinese case received most of the attention. In our contribution, we will try to measure and compare the impact of Chinese migration networks in Europe on the exportation and the importation to this economic union with a simple estimation of gravity model.

$$T_{ij} = \mu \frac{Y_i Y_j}{D_{ij}}$$

$T_{ij}$ : Represents the size of trade between the countries  $i$  and  $j$ .

$\mu$ : Constant,

$Y_i$ : The GDP/cap of the country  $i$ ,

$Y_j$ : The GDP/cap of the country  $j$  and,

$D_{ij}$ : The distance between the two countries.

In this estimation, our dependent variable is the Chinese exportation to the European countries. We have saved the basic variables of the Gravity equation and added bilateral emigration from China to European countries as another explicative variable. For making the result's interpretations of this equation easier, we have used the natural logarithm in the equation. In addition, for the problems of the null values of exportation and emigration we have added a unit for each variable ( $\exp+1$ ,  $\text{imp}+1$  and  $\text{emig}+1$ ). The equation is given:

$$\ln(\exp + 1) = \ln(\mu) + \ln(Y_i) + \ln(Y_j) + \ln(\text{emig} + 1) - \ln(D_{ij}) + \delta$$

We have also represented the income of origin and host countries by GDP/cap (The GDP per capita take into account an additional variable, which is population). For a large touch to variables explaining exportation, we have added to this basic equation a number of dummy variables:

$$\ln(EXP_{ce} + 1) = \ln(\mu) + \ln(GDP_{cap\ e}) + \ln(EMIG_{ce} + 1) - \ln(D_{ce}) + Bord + comlangoff + comlangethno + comcolonialist + coloni + Gatt + rta + comcol + \delta$$

Our explicative variables are:

**Bord:** Represents the fact of the existence of borders between the two countries.

**Comlangoff:** Is the probability of the existence of a common langue between the two countries (first or second official language)

**Comlangethno:** The case of the principal migration language.

**Comcolonialiste:** If the two countries (i and j) have colonized the same country.

**Coloni:** The existence of a colonial tie.

**Gatt:** If the two countries are members in GATT or not.

**Rta:** The fact of the existence of bilateral trade accords.

**Comcol:** If the two countries have been colonized by the same country.

Concerning the data, we have collected bilateral statistics of China with 32 members (The list of studied countries is in appendix 1) of the European countries during five periods (1960, 1970, 1980, 1990 and 2000) (Migration bilateral statistics are only available by decades, and that is the reason why they have limited our analyses in time). Exportation statistics (By Millions of courant Dollars) are imported from the COW-Trade-3.0 database, bilateral migration statistics are available in the official website of the World Bank and the rest of statistics are taken from the official website of CEPII regrouped in « Gravity Data ».

After constructing and checking the Data, we have eliminated a number of dummy variables because of their insignificancy (Comlang-off, Comlang-ethno, Comcol and Rta). Between China and the studied European countries, we have not detected any common language, colonial ties or bilateral trade associations; therefore, the final equation goes as follows:

$$\ln(EXP_{ce} + 1) = \ln(\mu) + \ln(GDP_{cap\ e}) + \ln(EMIG_{ce} + 1) - \ln(D_{ce}) + Bord + Gatt + \delta$$

## 5. THE RESULTS

Before the model application and because of the short series in our data (five observations), we could not check the stationarity of our series. Concerning correlations between the emigration, exportation, GDP and distance are presented in the following recap table.

Table 1: The correlations' matrix

	EXPORT	IMPORT	MIG	DIST	GDP
EXPORT	1	0.94	0.37	-0.36	0.74
IMPORT	0.94	1	0.33	-0.41	0.69
EMIG	0.37	0.33	1	-0.08	0.14
DIST	-0.36	-0.41	-0.08	1	-0.30
GDP/cap	0.74	0.69	0.14	-0.30	1

The correlations' table shows that exportation and importation are strongly correlated; moreover, the GDP/capita is also positively correlated to exportation and importation at 74 %. Between migration, distance, and the other variables there is no important correlation.

For panel-balanced regression of the former gravity model application with the QLS method, we have started by the explanation of the exportation by GDP/cap, emigration, distance, GATT membership and having common borders. As usual in panel regressions, we have first applied the pooling regression and then the fixed and random effects regression. The results are summarized in the recap table, which lies below:

Table 2: The exportation regressions' recap table

Variable	Coefficient		
	Pooling	Fixed	Random
GDP	1.080344 (0.0000)***	0.829405 (0.0000)***	1.302246 (0.0000)***
Emigration	0.260324 (0.0000)***	0.198098 (0.0000)***	0.247698 (0.0000)***
Distance	-0.994615 (0.0905)**	-1.671568 (0.0046)***	-0.846862 (0.3443)
GATT	0.738834 (0.0452)***	0.639876 (0.0729)**	0.026773 (0.9369)
Bord	2.309312 (0.0078)***	1.788036 (0.0305)***	1.772724 (0.1700)
R-squared	0.653924	0.701239	0.682336
Prob(F-statistic)	0.000000***	0.000000***	0.000000***

Notes: p\*\*\*<0.005; p\*\*<0.01; p\*<0.1.

Based on the recap table, it is clear that the fixed effect regression is the best model among the others. Despite this, we have confirmed by the application of the Hausman Test. The null hypothesis is that the random model is the appropriate model; however, the alternative hypothesis states that the fixed effect model is the appropriate one. As it is shown in the table below, the value of the probability is 0.0139, less than 0.05 %, which means statistically that we can reject the null hypothesis; therefore, the fixed effect model is more appropriate than the random one.

Table 3: The Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.637901	3	0.0139

The former test has confirmed the fact that the fixed effect model proved to be the appropriate one. All the variables of the model are significant at less than 0.005 %, the model is also significant and the determination coefficient is equal to 70 %, which means that the variables explain 70 % of exportation from China to the 32 European countries. In the appropriate fixed model, the coefficient of emigration, a significant variable, is positive and equal to 19.8 %, which means (Because of the use of loga-



rithm, we consider the variables coefficients as elasticity) statistically that a ten percent rise in the emigration rate from China to European countries increases the real value of exportation by 1.98%. These findings are not contradictory with the findings presented in the former empirical studies.

We have continued using the same theoretical and empirical model for estimating the effect of Chinese migration networks on the importation from the European countries during the same period. We have just replaced exportation's variables with importation ones, the main results of the model estimation are summarized in the table below:

Table 4: The importation regressions' recap table

Variable	Coefficient		
	Pooling	Fixed	Random
GDP	1.014726 (0.0000)***	0.912702 (0.0000)***	1.124135 (0.0000)***
Emigration	0.241382 (0.0000)***	0.206308 (0.0001)***	0.216250 (0.0005)***
Distance	-1.744796 (0.0076)***	-2.059832 (0.0026)***	-1.842575 (0.0955)**
GATT	0.566719 (0.1630)	0.472393 (0.2503)	-0.116032 (0.7513)
Bord	(2.526415)*** (0.0084)***	2.230080 (0.0197)***	1.877858 (0.2359)
R-squared	0.595594	0.618174	0.590716
Prob (F-statistic)	0.000000***	0.000000***	0.000000***

Notes: p\*\*\*<0.005; p\*\*<0.01; p\*<0.1.

As we have done in the previous method, we have applied the Hausman test. The null hypothesis is that the random model is the appropriate one, however; the alternative hypothesis claims that the fixed effect is the appropriate model. As it is shown in the table number 5, the value of the probability is 0.3139%, more than 0.05%, which means statistically that we cannot reject the null hypothesis, so the random effect model is more appropriate than the fixed one.

Table 5: The Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.553059	3	0.3139

Contrary to the exportation estimation, the Hausman test has confirmed that the random effect model is the appropriate one. The principal variables of the gravity model are significant at less than 0.05%, the model is significant too and the determination coefficient is equal to 0.59%, which means that the variables explain 59% of importation from China to the 32 European countries. In the appropriate random model, the coefficient of emigration, a significant variable, is positive and equal to 21.6%, in other words, ten percent increase in the emigration from China to European countries increase the real value of importation by 2.16% during the studied period.

**Table 6: The exportation and importation regressions'**

Variable	Exportation		Importation	
	Coefficient	t-Statistic	Coefficient	t-Statistic
GDP	0.829405 (0.0000)***	6.701390	1.124135 (0.0000)***	10.73198
Emigration	0.198098 (0.0000)***	4.395009	0.216250 (0.0005)***	3.550109
Distance	-1.671568 (0.0046)***	-2.874816	-1.842575 (0.0955)**	-1.677376
GATT	0.639876 (0.0729)**	1.806388	-0.116032 (0.7513)	-0.317535
Bord	1.788036 (0.0305)***	2.184259	1.877858 (0.2359)	1.189880
R-squared	0.701239		0.590716	
Prob(F-statistic)	0.000000***		0.000000***	

Notes: p\*\*\*<0.005; p\*\*<0.01; p\*<0.1.

The recap table above presents a summary of the main findings of this study. It demonstrates that the model estimation's of the impact of Chinese emigration on exportation is stronger than the importation one in terms of determination and variables significance (The residual collinearity Jark Berra tests of the two models are presented in appendix 2 and 3). Concerning the effect of emigration on trade, a ten percent rise in the emigration from China to European countries increases by 1.98 % for the real value of exportation and by 2.16 % for the one of importation.

Despite the strength of the estimated models, the effect of emigration on the import is slightly more important than the exportation effect. These findings were not expected because, theoretically, the exportation has a preference and a cost effect while importation depends only on the cost effect. The principal finding of the study is that a 10 % increase in the emigration from China to European countries decreases the real value of the commercial balance by 0.18 %.

## 6. CONCLUSIONS

According to the literature review, migration networks can have an impact on exportation through two channels: first, emigration causes a trade costs reduction, which results in the information transparency on one side and through the history of international trade relations on the other. Second, the preference effect which can be explained by the preferences of emigrants that can increase importation of territory products from the origin countries of emigration. In general, the two former channels link emigration to trade with the focus on exportation. It is worth mentioning that, in this paper, we have checked the same effects on importation. Theoretically, the cost effect cannot have any role in the link between emigration and importation; however, the cost effect can relate them in the two directions of causality. Emigrants can provide transparent information for importers on the available product alongside, their prices in the origin country, so, the inversed cause can be possible.

Concerning the data, we have collected bilateral statistics of China with 32 members of the European countries during five periods. Exportation statistics are imported from the COW-Trade-3.0 database, bilateral migration statistics are available in the official website of the World Bank and the rest of statistics are taken from the official website of CEPII regrouped in « Gravity Data ».

The estimation's result has suggested that the impact of Chinese emigration on exportation is stronger than the importation one in terms of determination and variables significance. Concerning the effect of emigration on exportation, a ten percent increase in the emigration from China to European countries increases the real value of exportation by 1.98%. In counter, a ten percent increase in the emigration from China to European countries increases the real value of importation by 2.16%.

The main important finding of the study is that a ten percent increase in the emigration from China to European countries decreases the real value of the commercial balance by 0.18%, to put it another way, it could cause a trade deficit. These findings were not expected because theoretically, exportation acts by the preference and the cost effects' while importation depends only on the cost effect.

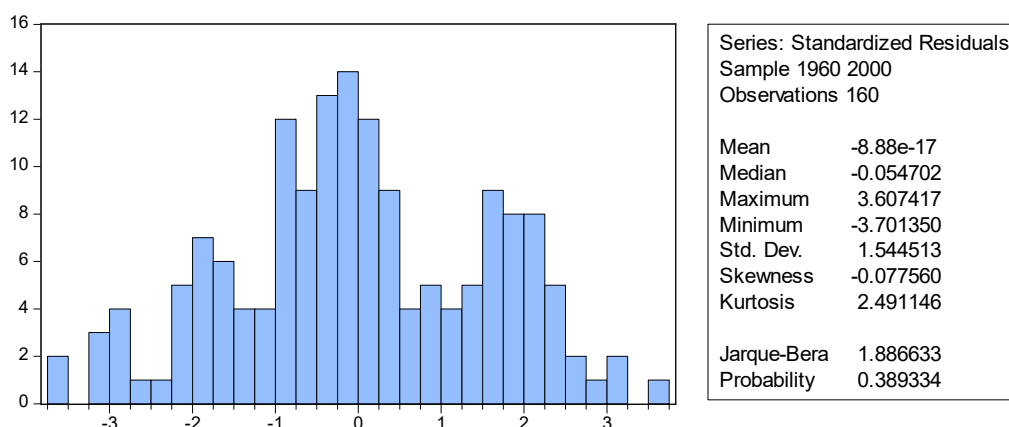
If we take this main finding from the migration and development point of view, it is clear that the emigration has an important effect on trade between China and European countries but a negative one on the Chinese commercial balance. The global effect of migration is very important on the development of the concerned countries, but the migration and development process through networks and trade link does not slip through the rules of international trade "a zero-sum game".

## APPENDIX

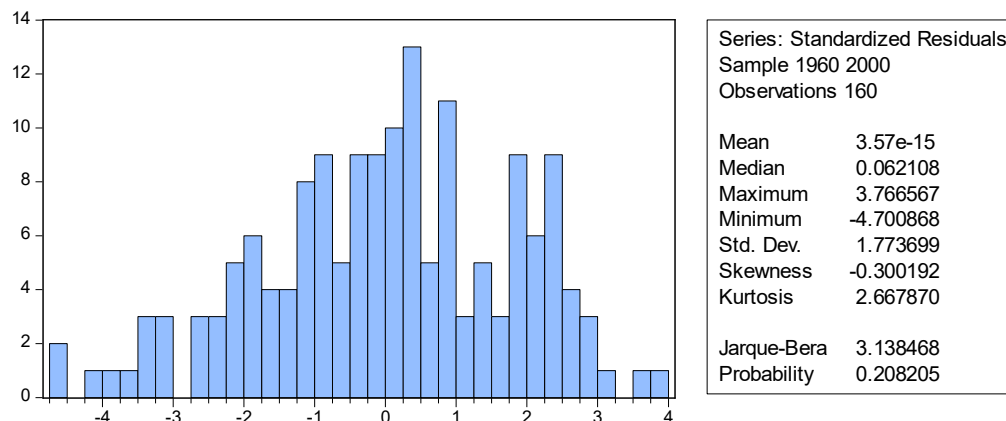
### APP 1. The list of European studied countries

Albania	Germany	United Kingdom	Ireland
Belgium	Denmark	Greece	Iceland
Bulgaria	Spain	Grenada	Italy
Switzerland	Finland	Guyana	St. Lucia
Cyprus	France	Haiti	Luxembourg
Sweden	Solomon Islands	Russian Federation	Romania
Turkey	St. Vincent and the Grenadines	Portugal	Poland
Malta	Netherlands	Norway	New Zealand

### APP 2. Normality test of exportation fixed effect model



### APP 3. Normality test of importation fixed effect model



## REFERENCES

- Bergstrand, J. H. (1985). The gravity equation in international trade: some microeconomic foundations and empirical evidence. *The review of economics and statistics*, 474-481.
- Combes, P., Lafourcade, M., & Mayer, T. (2003). The Trade Creating Effects of Business and Social Networks. *Document de travail CERAS*, (3750).
- Djelti, S. (2016). Réseaux migratoires et balance commerciale: Évidence de l'Algérie. *Revue Algérienne d'Economie et de Management*, 7(2), 1-11.
- Djelti, S. (2017). Osmosis: the unifying theory of human migration. *Revue Algérienne d'Economie et de management*, 8(2), 48-59.
- Djelti, S. (2018). Osmosis of forced migration: The Plasmolysis Theorem" paperpresented in the *United Nation University-Globalization, Culture and mobility. internal research workshop, UNU-GCM*, Barcelona, Spain. Retrieved from [https://www.researchgate.net/publication/328248979\\_Osmosis\\_of\\_Forced\\_Migration\\_The\\_Plasmolysis\\_Theorem\\_1\\_Draft\\_Paper](https://www.researchgate.net/publication/328248979_Osmosis_of_Forced_Migration_The_Plasmolysis_Theorem_1_Draft_Paper)
- Djelti, S., Ahmed, M. H., & Guellil, M. S. (2021). Migration networks and the Moroccan tourism: A panel data analysis. *Revista de Métodos Cuantitativos para la Economía y la Empresa*, 32, 130-147.
- Djelti, S., & Zapata-Barrero, R. (2023). Transnational Migrant Entrepreneurship Policies in the Maghreb Countries: Tunisia, Algeria, and Morocco. In *Migrations in the Mediterranean: IMISCOE Regional Reader*. 403-418. Cham: Springer International Publi.
- Ehrhart, H., Le Goff, M., & Singh, R. J. (2012). *Does Migration Foster Exports?: An African Perspective* (Vol. 38). CEPII.
- Felbermayr, G. J., Jung, B., & Toubal, F. (2010). Ethnic networks, information, and international trade: Revisiting the evidence. *Annals of Economics and Statistics/Annales d'Économie et de Statistique*, 41-70.
- Gould (1991) "Immigrants Links to the House Country: Empirical implications for U.S. and Canadian Bilateral Trade Flows" *Federal Reserve Bank of Dallas*, No: 91-02.
- Gould, D. M. (1994). Immigrant links to the home country: empirical implications for US bilateral trade flows. *The Review of Economics and Statistics*, 302-316.
- Greif (1989) "Reputation and Coalitions in Medieval Trade: Evidence on the Maghribi' *Traders Journal of Economic History* XLIX.
- Greif (1993) "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition" *American Economic Review*. 83:3, pp. 525-548.
- Hiller (2011) "The Export Promoting Effect of Emigration: Evidence from Denmark" *ETSG 2010, the Gottingen Workshop in International Economics*.
- Kugler, Rapoport (2011) "Migration, FDI, and the Margins of Trade" CID Working Paper N°222.

- Lahmeri, H. (2024). Forecasting Migration Flows in the Mediterranean Countries: The Osmosis Model” PhD thesis. Economics Faculty, Mustapha Stambouli University.
- Lahmeri, H., & Djelti, S. (2023). Innovation and Migration in the mediterranean Region during 1972-2017. *Revue Organisation et travail*, 12(1), 156-170.
- McCallum, J. (1995). National borders matter: Canada-US regional trade patterns. *The American economic review*, 85(3), 615-623.
- Rauch, Trindade (2002) “Migration Chinese Networks in International Trade” *The Review of Economics and Statistics*, Vol 84, Nº 1.
- Rauch, Casella (1998) “Overcoming Informational Barriers to International Resource Allocation: Prices and Group Ties” *NBER Workong Paper Series*, Nº 6628.
- Redding, G. (2013). Governance in Pacific Asia: political economy and development from Japan to Burma.
- World trade report (2014) “Trade and development: recent trends and the role of the WTO” [https://www.wto.org/english/res\\_e/booksp\\_e/world\\_trade\\_report14\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/world_trade_report14_e.pdf)