

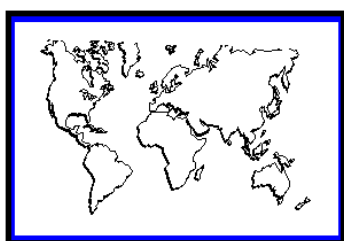
# DOCUMENTOS DE ECONOMIA Y FINANZAS INTERNACIONALES

## **Immigrant's Characteristics and its different effects on bilateral trade**

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# **Immigrant's Characteristics and its different effects on bilateral trade**

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## **Abstract**

This paper tests for the impact of immigration on bilateral trade using Spanish data from 1995 to 2003. It also explores some possible mechanisms through which the stock of immigrants in a country can contribute to its trade. It uses a gravity equation for trade augmented with an immigrants stock variable and a set of control variables. The immigrants variable enters the estimated equation in different ways depending on immigrant relevant characteristics. Results show that there is a positive link between immigration and both exports and imports. We find evidence for the trade transaction cost channel but not for the preference one. We find evidence that support that the mechanisms behind this link are the information effect - additional information about product and about social and political institutions brought by immigrants - and the social o ethnic network effect - since immigrants with a medium level of education and those who are related to business activities are the one who have a positive effect on bilateral trade.

Key words: International Trade, Migration.

JEL Classification: F10, F22

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## I. INTRODUCTION

The increase in immigrant flows and in immigrant population is one of the most challenging political and sociological issues for EU countries. Immigration has also important economic consequences. Although most economic studies have focused on the effects of immigration on host-country labour markets and its welfare state, literature has recently begun to focus on another relevant aspect of immigration: the link between immigrant population and host-country trade. This paper is an attempt to increase the - still scarce - empirical evidence about this subject by analysing the Spanish case.

Immigration can influence trade flows through two basic channels: first, immigrants bring with them a preference for home-country products and, second, immigration can reduce trading transaction costs. This second channel is twofold: immigration can create networks - knowledge of home-country markets and business contacts - and cultural ties - as common languages, historical colonial ties, common preferences, knowledge of political and social institutions - can reduce trading transaction costs. The existing literature suggests that the relevance of these channels would be different for different types of products and for different types of immigrants / source-countries. Those differences can allow us to identify the mechanisms behind the link between immigration and trade.

Immigration is a recent phenomenon in Spain but has increased very fast in recent years. Immigrant population in Spain represented about 2.5% of total population in 2000 when it was less than 1% only ten years before. It has continuing increasing quickly since then and in 2004 immigrant population has reached a 4% of total population in Spain. Its particular geographical distribution of source-countries can be useful to distinguish the different role of each of the types of links between immigration and trade mentioned above. Moreover, since 1995 the EPA addresses immigrant's individual characteristics with more detail and that allows us to better investigate the mechanisms that explain the positive relationship between immigration and trade. So we think that the case of Spain can be useful to help in understanding the relationship between immigration and trade.

The paper uses bilateral Spanish trade data with 83 partner countries from 1995 to 2003. The empirical model is an augmented gravity equation, which includes immigration stock data. In order to identify the mechanism behind the linkage between immigration and trade, and not only the existence of an effect, immigrant data is classified by different individual and national characteristics and trade data by different types of products.

The following section discusses how immigrant population can influence trade of the host-country (the links between immigration and trade and the mechanisms explaining that link). Section three presents the gravity equation, the hypothesis to be tested and the empirical model implemented in this paper. Next section presents the econometric results and, finally, section five summarize the main conclusion of the paper and proposals of further research.

## II. THE LINKS BETWEEN IMMIGRATION AND TRADE

Theoretical literature about the effects of immigration on trade is scarce. The most relevant exception is the work of Rauch (1999). Rauch argues that immigrants can reduce trade transaction costs by creating social networks with their countrymen at home-country which can facilitate trade between home and host-country. Social networks will help to match international buyers and sellers and, hence, reduce transaction costs of trade. This effect will be greater for differentiated products than for products traded on organized exchanges (usually, homogeneous products).

This is one of the hypothesis that the existing empirical literature has tested. All those papers have in common that they make use of an augmented gravity equation for trade. So, recent work of Gould (1994), Head and Ries (1998), Dunlevy and Hutchinson (1999) and Girma and Yu (2002) has found empirical evidence for a positive effect of immigration on bilateral trade between immigrants' host and home-country. From those papers, we can identify two channels through which immigrant population can benefit bilateral trade between their home and host countries. We can also identify a set of mechanisms through which these channels act. There is too one channel through which immigration can reduce such trade.

Immigration can positively influence trade flows through two basic channels: first, immigrant bring with them a preference for home-country products (*preference channel*) and, second, immigration can reduce trading transaction costs (*transaction cost reduction channel*). This second channel is twofold. In one hand, immigration can create (ethnic) networks - knowledge of home-country markets and business contacts. Immigrants can have an advantage in dealing with their countrymen who remain at the home-country due to issues of trust or of mutually understood culture<sup>1</sup> (ethnic network mechanism). In the other hand, cultural ties, as common languages, historical colonial ties, common preferences, knowledge of political and social institutions, can reduce trading transaction costs. Moreover, immigrant population can reduce trade transaction

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<sup>1</sup> The relevance of networks in reducing trade transaction cost and the positive role than immigrants can play in creating these networks has been recently formalized by Rauch (1999) and surveying by Rauch (2001).

cost by their knowledge about the products and their characteristics produced in both countries (information mechanism).

The existing literature suggests that the relevance of these two channels would be different for different types of trade flows. The effects of the second channel would also differ depending on, first, the type of products traded, second, the home-country of the immigrants and, finally, personal characteristics of the immigrants, as level of education or his/her job or business activity developed in the host-country. Those differences can help us to identify the mechanism through which this link between immigration and trade acts.

In that way, while reduction of transaction trade costs would affect in a similar way to both imports and exports, immigrant preference for home-country products would affect only imports of host-country from the home-countries. So, if we only find a positive effect of immigration on imports but not in exports, it could be said that immigration affects trade through immigrant's preference for home-country products. If the effect of immigration is greater for imports than for exports, this mechanism would account for the difference. Moreover, this effect is likely to be larger for differentiated products than for homogeneous products, as pointed by Head and Ries (1998). When goods are homogeneous there is little reason to prefer goods sourced from a specific country while when goods are differentiated the 'ideal' variety may be unavailable locally and require importation.

With respect to transaction costs reduction, firstly, the additional information brought by immigrants can be more relevant for consumer goods than for producer goods, as Gould (1994) pointed out, since the former tend to be more differentiated products across countries. Moreover, Dunlevy and Hutchinson (1999) argue that trade of consumer goods and processed foodstuffs would have stronger immigrant effects than crude or semi-manufactured goods, to the extent that they are imported to satisfy specific tastes. So, if a stronger positive effect of immigrants stock is founded for consumer goods than for producer goods, it could be deduced that the mechanism behind the immigration-trade link is information increase about foreign products gained through immigrants.

Secondly, the different geographical source of immigrants can be also useful. Some home-countries have more similar social and political institutions to the ones in the host-country. This could be the case of countries with colonial / cultural ties or because they are involved in the same economic integration agenda, sharing common institutions. In that case, immigrants from these countries would bring with them less additional information than immigrants from other countries and they would contribute less to reduce transaction costs. That is, for this mechanism, the effect of immigration on bilateral trade would depend on which country that immigrant comes from. In the other hand, immigrants can reduce transaction costs also through individual immigrant personal contacts or connections with his home-country. This effect is independent of the country of origin of the immigrant<sup>2</sup>. So, if we find a positive effect of immigration on trade with countries which present different social and political institutions but not with countries with similar ones, then the mechanism through which immigrations increases trade is the additional knowledge about these institutions brought by immigrants. If the positive effect is bigger for trade with the former group of countries than with the later, this mechanism would account for the difference. If there is no difference between the two groups of immigrants, personal contacts or connections with immigrant's home-country would explain the immigration-trade link.

Finally, different personal characteristics of immigrants can result in different effects of immigration on trade. Gould (1994) and Head and Ries (1998) argue that the more skilled the immigrants are, the greater the chance that they will possess the knowledge and contacts to increase trade flows. So, If the link works through immigrants knowledge about business in their home countries or by contacts with home-country residents, the effect of immigration would be greater as the more skilled (educated) the immigrants are or as the more they are related to business activities.

There could be, however, a negative effect of immigration on bilateral trade. Dunlevy and Hutchinson (1999) pointed out a trade-substitution immigration effect. Immigrants can apply their knowledge about technology or production methods and

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<sup>2</sup> These two mechanisms are called non-individual specific and individual specific, respectively, by Girma and Yu (2002). In the former case, the effect of the immigrant-link would be universal and, in the later, non-universal.

about immigrants tastes to host-country production or transmit them to local producers in a way that previously imported goods could be substituted by local production.



### III. THE EMPIRICAL MODEL

In this paper we test first for the existence and relevance of a positive effect of immigrants in Spain on its bilateral trade with their home countries. Then, we try to identify some of the mechanisms through which this positive effect takes place making use of information about products types and national (non-individual specific) and personal (individual specific) characteristics of immigrants. In all the cases we estimate a basic specification and then we test for the robustness and sensitivity to specification form of our results including different combinations of an additional set of control variables in the form of dummies variables to capture particular characteristics of partner countries which can increase trade flows.

#### III.1. The link between immigration and trade and the preference and transaction costs reduction channels

Following the previous literature, we use an augmented gravity equation for trade to test the link between immigration and bilateral trade. The basic gravity equation for trade relates positively the volume of trade to the mass of the two countries and negatively to the trade costs between them (variables reflecting trade impediments). We use the product of Spain and partner  $i$  GDP in year  $t$  relative to World GDP in the same year to measure the size of the two countries ( $rgdp_{it}$ )<sup>3</sup>:

$$rgdp_{it} = \frac{GDP_{it} \times GDP_{spain,t}}{GDP_{World,t}}$$

Distance ( $dist_{it}$ ), which proxies trade costs between countries, is measured by the geographical distance, in kilometres, between the capital of Spain and the capital of the partner country  $i$  (Bali Online).

Additionally to this basic specification, we include a measure of the stock of immigrants from country  $i$  in Spain in year  $t$  ( $mig_{it}$ )<sup>4</sup>, that we expect to affect positively

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<sup>3</sup> Data is taken from PWT 6.1.

<sup>4</sup> Encuesta de Población Activa (EPA) from Instituto Nacional de Estadística (INE).

both Spanish imports from and exports to immigrants home-countries, because the reasons explained in the previous section of this paper<sup>5</sup>.

We use data of Spain and 83 partner countries for the period from 1995 to 2003. Although we have a panel of data, we do not include country fixed effects on the model, since it would, first drop some relevant variables that do not vary along time – as distance and others that we add in order to test the sensitivity and robustness of results – and, second, skip all the between variation of the model, when we are going to use differences between source countries to identify the mechanism behind the link between immigration and trade. We do control for time effects by including a time dummy variable ( $year_t$ ).

This constitutes the basic specification of the empirical model:

(Specification 1a)

$$y_{it} = \beta_0 + \beta_1 mig_{it} + \beta_2 rgdp_{it} + \beta_3 dist_i + \sum_{t=1996}^{2003} \beta_{4,t} year_t + \mu_{it}$$

where  $y_{it}$  stands for either Spanish imports ( $m_{it}$ ) from or exports ( $x_{it}$ ) to immigrants home-country  $i$ ,

$\mu_{it}$  is the i.i.d. error term, and

all variables, except from dummy variables, enter the equation in natural logarithms.

The estimation of this first specification separately for imports and exports allows us to test both for the existence of a link between immigration and trade and for the relevance of the two channels causing this link. If we obtain a positive effect of immigration on imports but not on exports that will reveal that only the preference effect explains the link between immigration and trade. If we obtain a positive effect for both trade flows but bigger for imports, both channels will explain that link and the preference effect will account for the difference. If the effect results to be bigger for exports than for imports, the substitution negative effect could be on play.

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<sup>5</sup> One exception is the import-substitution effect.

In order to test for the robustness and sensitivity to specification form of our results, we also include a set of control variables in the form of dummies variables to capture particular characteristics of partner countries which can increase trade flows. Those variables are, first, a dummy variable for membership of the European Union ( $EU_{it}$ ), because the Single European Market facilitates trade between its members. Second, a dummy variable capturing the fact of sharing a frontier with Spain since a common frontier can increase trade between countries ( $frt_i$ ). Finally, sharing a common language would also facilitate trade, independently of the immigration effect, reducing, hence, trade transaction costs ( $lang_i$ ). Depending on the set of included variables, we call the resulting specifications as Specification 1b to 1g.

### III.2. The mechanisms behind the link

We perform four additional tests to identify some of the mechanisms explaining the link between immigration and trade. In doing that we use information about product types – since they are related to its sensibility to trade transaction cost - and immigrant's national and individual characteristics – related to their capability to reduce such costs.

In order to test if the link works through the immigrant's information increase on home or host country products we have divide trade flows in two types of goods according to the BEC classification: producer goods<sup>6</sup> (PG) and consumer goods<sup>7</sup> (CG). Then we have estimated specifications 1a to 1h separately for each type of goods. As explaining before, we expect immigrant's stock to have a bigger positive effect on consumer than on producer goods.

Secondly, we consider the hypothesis of a lower positive effect of immigrants from home-countries with more similar social and political institutions to the ones in the host-country, since they bring with them less additional information. The test is twofold. First, we consider that immigrants coming from former Spanish colonies will benefit

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<sup>6</sup> BEC codes 111, 121, 21, 22, 31, 32, 41, 42, 521 and 53.

<sup>7</sup> BEC codes 112, 122, 51, 522, 6 and 7.

less bilateral trade<sup>8</sup>. We answer, so, to the call of Girma and Yu (2002) who test this hypothesis for immigrants from Commonwealth and non-Commonwealth countries to the UK and express the aim of extending their job to other European countries with similar colonial past. We define a dummy variable which takes the value 1 for countries that were colonies of Spain a 0 if they were not ( $col_{it}$ ) and a dummy variable which takes the value 1 for countries that were not colonies of Spain a 0 if they were ( $nocol_{it}$ ). Then a multiplicative variable of these dummies and  $mig_{it}$  is included in the model instead of the immigrant's stock variable. This allows for the elasticity of immigration to vary across the different groups of countries<sup>9</sup>. So, we estimate the following specification:

(specification 2a)

$$y_{it} = \beta_0 + \beta_1 migcol_{it} + \beta_2 mignocol + \beta_3 rgdp_{it} + \beta_4 dist_i + \beta_5 col + \sum_{t=1996}^{2003} \beta_{6,t} year_t + \mu_{it}$$

However, although Spain could be considered the country with the most similar colonial past to UK, there are also big differences between both cases. For example, the process of decolonization is hardly earlier in the case of Spain and there is not any organization like the Commonwealth between Spain and its former colonies. Moreover, Spain, especially in the last decades, has approached more to Europe, being a member of the EU and, hence, sharing, common political and economical institutions. So, we consider that EU immigrants in Spain can bring with them less additional information and we test this hypothesis distinguishing EU and non EU immigrants.

(Specification 3a)

$$y_{it} = \beta_0 + \beta_1 migEU_{it} + \beta_2 mignoEU_{it} + \beta_3 rgdp_{it} + \beta_4 dist_i + \beta_5 EU_{it} + \sum_{t=1996}^{2003} \beta_{6,t} year_t + \mu_{it}$$

Finally, we address to personal (individual specific) characteristics. The objective is to identify if the link works through immigrants knowledge about business

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<sup>8</sup> For example, language is already known since it is the same in Spain than in its former colonies (Philippines being the only exception in the sample)

<sup>9</sup> This is the methodology used by Girma and Yu (2002).

in their home countries or by contacts with home country residents (network effect). Firstly, if this was the case, more skilled / educated immigrants will increase trade the more, since they are more able to bring and use information about home markets and social and political institutions and about products and its characteristics. Secondly, the more related to business the immigrants are, the greater the chance that they will use the knowledge and contacts to increase trade flows.

From the EPA we can compute two sets of variables that capture both types of individual specific characteristics. First, we have grouped immigrants in four groups of education level: no educated ( $migedu1_{it}$ ), primary education ( $migedu2_{it}$ ), secondary education ( $migedu3_{it}$ ) and tertiary (university degree or more) education ( $migedu4_{it}$ ). Second, we have grouped immigrants from each country in three groups: managers, which includes employers and manager without employees ( $migm_{it}$ ), employees ( $mige_{it}$ ) and others ( $migo_{it}$ ). This last group includes ‘familiar assistance’, cooperative members and other situations.

So, we have estimated the following two specifications:

(Specification 4a)

$$y_{it} = \beta_0 + \beta_1 migedu1_{it} + \beta_2 migedu2_{it} + \beta_3 migedu3_{it} + \beta_4 migedu4_{it} + \beta_5 rgdp_{it} + \beta_6 dist_i + \sum_{t=1996}^{2003} \beta_{7,t} year_t + \mu_{it}$$

(Specification 5a)

$$y_{it} = \beta_0 + \beta_1 migm_{it} + \beta_2 mige_{it} + \beta_3 migo_{it} + \beta_4 rgdp_{it} + \beta_5 dist_i + \sum_{t=1996}^{2003} \beta_{6,t} year_t + \mu_{it}$$

As well as for Specification 1, we have made the sensitivity analysis for specifications 2 to 5. For specification 2 we dropped the common language variable, due to its high level of correlation with the former Spanish colonies variable (see footnote 8). For specification 3 the number of alternative specifications decreases due to the inclusion of the European Union membership variable in all them. In the next section we present and discuss the estimation results.

#### IV. RESULTS

Testing for the impact of immigration stock on Spanish bilateral trade, we find a positive effect both for exports and imports (Table 1). These results hold when we include in the model other variables that affect trade costs as European Union membership, common frontier and Spanish language (specification 1b to 1h in Table A1). A 10% increase in immigrants stocks would increase exports in between a 2.8% and a 3.8% and imports in between 1.8% and a 2.6%, depending on the specification. Hence, to consider in our model the *EU* or / and *frt* in the model slightly decreases the coefficient for the immigrants variable, both in exports and imports equations. However, they remain positive and significant at 99% percent. These two variables have the expected positive coefficient in all cases. The results when including the *lang* variable are somewhere unexpected. When this variable is included in the model, the effect of immigrant population on trade is higher. Moreover, when significant the fact of sharing a common language affects negatively bilateral Spanish trade. One possible explanation for this last effect is that maybe it is capturing the fact that trade between Spain and this countries is clearly below the sample average. Finally, the rest of variable present the expected signs. So, the mass of the two countries (*rgdp*) affects positively their trade relations and the distance between them (*dist*) negatively. In specification were other variables are included, the coefficients for *rgdp* and *dist* decrease –slightly for the first – and in some cases *dist* is not significant in the imports equation.

Hence, we can conclude that, even they seem to be some colineality between other variables in the model, there is a positive link between immigrant population in Spain and its bilateral trade with immigrant's home countries. Considering now the evidence for the two channels (preference and trade cost reduction) our result do not support the existence of a preference effect, since the coefficients are higher for exports than for imports. One possible explanation could be that the imports-substitution effect outweighs the transaction cost reduction and preference for home-country products positive effects. If this was the reason, we should find an increase in Spanish production of 'foreigner'<sup>10</sup> goods. Although we do not have data about this kind of activity, it do not seems to be a good explanation since immigration in Spain is a recent phenomenon

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<sup>10</sup> Typical goods from immigrant's home-countries.

and, probably, the stock of immigrants is not high enough to economically justify this kind of business. Another explanation could be the different good composition of exports and imports. Non-consumer goods, especially raw materials as oil, are more relevant in Spanish imports than in exports. The positive effect of immigration on trade would be lower for this kind of goods than for consumer goods, according to the literature discussed in the second section. As an example, Gould (1994) found evidence about a stronger effect of immigration on consumer goods US imports than in producer goods, which, in fact, was non significant.

In tables 2 and A2 we show the results from estimating for producer and for consumer goods. As well as for all kind of products estimation, we obtain a strong effect of immigrants on exports than on imports. So the different composition of Spanish trade does not seem to explain the fact that immigration affects more exports than imports. However, we find evidence for information effects of immigrants. According to our results, immigrants have a positive effect on trade in consumer goods and not on producer goods. As trade in the first are more affect for information constrains, our results indicate that one mechanism behind the link between immigration and trade is the increase of information about home and host countries products due to immigrant population. This result holds for all eight specifications.

We turn now to immigrant's national characteristics. First, we test the hypothesis that immigrants from non-former Spanish colonies will benefit more trade, since they bring with them more additional informational and, hence, contribute more to reduce transaction costs. Results in all specifications show a positive effect of immigrants both from former and non-former Spanish colonies in Spanish bilateral exports as well as in imports. However, this effect is higher - and this difference is statistically significant<sup>11</sup> - for immigrants from countries that have never been Spanish colonies. The dummy variable for countries that have been colonies of Spain have a positive effect on his bilateral trade<sup>12</sup>. That is, controlling for all the trade advantages of being a former colony, immigrants from those countries do not have a higher positive effect on bilateral Spanish trade than immigrants from other countries. Immigrants from non-former colonies seem to bring to Spain the information about social institutions that is already

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<sup>11</sup> Except for imports in specification 1e.

<sup>12</sup> Except for import equation when the *eu* variable is included in the model.

known in a higher degree about former colonies. So, as Girma and Yu (2002) for the UK, we find evidence for the hypothesis that immigration reduces trade transaction costs because immigrants increase the host-country knowledge about social institutions in home countries.

The second test we have performed to test for that hypothesis, that is, using EU membership as a proxy for similar social institutions, do not offers results which confirm our hypothesis (Table 4 a Table A4). Immigrants from EU countries have a higher effect on Spanish bilateral exports than immigrants from non-EU countries. The difference is closely to double for exports and a fifty per cent for imports. The difference of coefficients is statistically significant in all cases for exports and in two on four for imports (is not significant when we include the *frt* dummy variable).

We finally test for individual characteristics of immigrants. First, we consider the hypothesis that more skilled immigrants will contribute more than less skilled immigrants to trade transaction costs reduction and, hence, to increase bilateral trade. Our results show (Table 5 and Table A5) that are immigrants with hold a secondary level of education the ones that have a positive effect on Spanish bilateral trade. The rest of immigrants do not seem to have any effect, with few exceptions<sup>13</sup>. So, results indicate that in order to be able to exploit its personal contact in and their higher knowledge than natives about social institutions immigrants have to poses a certain level of education.

As our last test to identify the mechanisms behind the link between immigration and trade, we have divide immigrant population according to three types of situation in their economic activities: Managers, Employees and Other. In all eight specification and both for exports and imports, immigrants that are managers have a positive and highly significant effect on bilateral Spanish trade. Employees do not have any effect on trade y the group of other have a positive effect on exports but not in imports<sup>14</sup>. The positive effect on trade of the group others may be due to the fact that many of the immigrants included may be related to business activities – the ones classified as ‘Familiar

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<sup>13</sup> Immigrants with a primary level of education have a positive effect on Spanish exports in specifications 4a and 4d. Immigrants with a university degree have a positive effect on exports in specifications 4g and 4h and on imports in specification 4g. Immigrants with not even primary education have a negative effect on imports in specification 4g.

<sup>14</sup> Except at 90% in specifications 5d and 5f.



assistance' and members of cooperatives. So there is evidence that immigrants are taken advantage of their contacts at and knowledge about their home countries by business activities increasing trade, specially imports.

## V. CONCLUDING REMARKS

In this paper we have tested for the existence of a link between immigration and bilateral trade using a new set of data for the Spanish economy. We have use a gravity equation for trade augmented with an immigrant's stock variable. With have test for the robustness of our results by analysing their sensibility to the inclusion of some other control variables. We have also explored some possible mechanisms through which the stock of immigrants in a country can contribute to its trade. The methodology used has been to estimate for different products types and for different immigrant's national and individual characteristics. Such characteristics can contribute in a different way to increase the volume of bilateral trade.

Immigration have a clear positive effect both on Spanish exports and imports. A 10% increase on immigrants stock contributes to a 2.8% to a 3.8% increase on Spanish exports and to a 1.8%-2.6% increase on Spanish imports. This significant and positive effect is robust to the different specifications estimated in this paper. Our results do not find evidence for the preference effect, since the impact on imports is not greater than on exports. One explanation could be that the import substitution effect due to immigration equals the trade transaction cost reduction effect. But it do not seems to be a good explanation since immigration in Spain is a recent phenomenon and, probably, the stock of immigrants is not high enough to economically justify this kind of business. Another explanation that can contribute to this result is rejected by our results. Product composition of Spanish imports and exports differs. The relevance of raw materials, especially oil, is greater in imports than in exports. If we accept, according to the literature, that the effect of immigration on trade will be greater for consumer / or differentiated products than for other kinds of products, we should expect a bigger effect of immigration on Spanish exports than in its imports. However, when we estimate for producer an consumer goods, the coefficient continues to be higher for exports. So, our results point out that immigrants increase trade via trade transaction cost reduction.

We have, then, test for some mechanism explaining the link between immigration and trade. First, estimating for different types of goods, we find that immigration contributes to increase trade in the type of goods that are more sensible to trade transaction costs: consumer goods. This result offer empirical evidence about the

information effect of immigrants, that is: immigrants increase trade because they reduce trade transaction cost via their higher knowledge than natives / countrymen at home country about foreign / host country products and their characteristics.

Then, we have addressed to immigrant's characteristics. Beginning with national (non individual specific) ones, assuming that social and political institutions in Spain are more similar to its former colonies than to other countries, we find evidence for the hypothesis that immigration stimulates trade because it reduces trade transaction costs by increasing the knowledge about social and political institutions. However, this result is not robust to other specification which considers that EU member countries are the ones with the social and political institutions the more similar to the ones in Spain. Even, immigrants from EU countries have a bigger impact on Spanish imports than other immigrants. Maybe, social and cultural differences between Spanish and other EU citizens are still higher than the ones between Spain and its former colonies and EU immigration is contributing to increase reciprocal knowledge. Or it may be that EU immigrants have a stronger preference for home-country products and they have a higher capability to consume them in Spain. This last explanation is reasonable if we consider that a relevant share of EU immigrants in Spain are retired people but this, however, hardly contributes to explain results in the exports equation.

Finally, we have turned to personal (individual specific) characteristics: level of education and situation at economic activity. Results reveals that immigrants may be taken advantage of their business and personal contacts at home to increase bilateral Spanish trade flows (network effect). Immigrants that have a secondary – and in some specifications tertiary – level of education are the ones which have a positive effect on trade. Moreover, our results show that immigrants that are managers are the ones which contribute to increase trade while employees do not. Those kinds of immigrants are the ones supposed to be more able to establish and take advantage of social networks contributing the more to trade transaction cost reduction.

Table 1: Impact of immigration in Spanish bilateral trade  
(Specification 1a)

	<b>Exports</b>	<b>Imports</b>
<b>mig</b>	0.35*** (13.69)	0.23*** (8.97)
<b>rgdp</b>	0.61*** (20.38)	0.88*** (27.99)
<b>dist</b>	-0.21*** (-3.77)	-0.11** (-1.93)
<b>constant</b>	5.22*** (8.10)	-0.33 (-0.37)
<b>R<sup>2</sup></b>	0.6759	0.7672
<b>Obs.</b>	620	620

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table 2: Impact of immigration in Spanish bilateral trade by product type

	Exports		Imports	
	Producer goods	Consumer goods	Producer goods	Consumer goods
<b>mig</b>	0.06 (1.15)	0.41*** (12.21)	-0.05 (-0.71)	0.33*** (8.41)
<b>rgdp</b>	0.03 (0.52)	0.59*** (16.37)	0.06 (0.93)	0.87*** (20.41)
<b>dist</b>	-0.41*** (-3.81)	-0.36*** (-4.85)	-0.50*** (-3.86)	0.14* (1.80)
<b>constant</b>	20.71*** (14.18)	5.20*** (6.21)	21.68*** (12.73)	-4.52*** (-3.92)
<b>R<sup>2</sup></b>	0.0404	0.5577	0.0349	0.6161
<b>Obs.</b>	615	618	617	619

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table 3: Impact of immigration in Spanish bilateral trade by partner colonial status

(Specification 2a)

	<b>Exports</b>	<b>Imports</b>
<b>migcol</b>	0.19*** (6.49)	0.12*** (3.28)
<b>mignocol</b>	0.47*** (13.02)	0.32*** (10.42)
<b>col</b>	2.00*** (5.78)	1.34*** (3.36)
<b>rgdp</b>	0.57*** (14.66)	0.85*** (23.16)
<b>dist</b>	-0.15** (-2.45)	-0.57 (-0.96)
<b>constant</b>	4.64*** (6.41)	-0.65 (-0.66)
<b>R<sup>2</sup></b>	0.6917	0.7748
<b>Obs.</b>	620	620

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table 4: Impact of immigration in Spanish bilateral trade by partner EU membership

(Specification 3a)

	<b>Exports</b>	<b>Imports</b>
<b>migeu</b>	0.55*** (15.58)	0.28*** (9.55)
<b>mignoEU</b>	0.27*** (10.28)	0.17*** (6.18)
<b>eu</b>	-1.15*** (-3.21)	0.36 (1.08)
<b>rgdp</b>	0.52*** (16.64)	0.80*** (24.93)
<b>dist</b>	-0.17*** (-3.33)	-0.07 (-1.27)
<b>constant</b>	7.19*** (11.64)	1.24 (1.37)
<b>R<sup>2</sup></b>	0.7380	0.8050
<b>Obs.</b>	620	620

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table 5: Impact of immigration in Spanish bilateral trade by level of education

(Specification 4a)

	<b>Exports</b>	<b>Imports</b>
<b>migedu1</b>	0.03 (0.39)	-0.19 (-0.28)
<b>migedu2</b>	0.17* (1.81)	0.07 (0.76)
<b>migedu3</b>	0.24** (2.50)	0.34** (2.47)
<b>migedu4</b>	-0.04 (-0.45)	-0.04 (-0.34)
<b>rgdp</b>	0.61*** (13.74)	0.82*** (17.50)
<b>dist</b>	-0.19** (-2.17)	-0.28*** (-3.17)
<b>constant</b>	5.42*** (5.13)	1.37 (0.93)
<b>R<sup>2</sup></b>	0.6520	0.7598
<b>Obs.</b>	252	252

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.



Table 6: Impact of immigration in Spanish bilateral trade by business related activity

(Specification 5a)

	<b>Exports</b>	<b>Imports</b>
<b>migm</b>	0.27*** (3.84)	0.32*** (4.56)
<b>mige</b>	0.05 (0.67)	-0.02 (-0.27)
<b>migo</b>	0.20** (2.48)	0.10 (1.19)
<b>rgdp</b>	0.52*** (15.49)	0.75*** (17.15)
<b>dist</b>	-0.21*** (-2.94)	-0.26*** (-3.55)
<b>constant</b>	6.58*** (8.63)	3.10** (2.28)
<b>R<sup>2</sup></b>	0.6763	0.7449
<b>Obs.</b>	347	347

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table A1: Impact of immigration in Spanish bilateral trade: Sensitivity analysis.

(Specification 1)

	1b		1c		1d		1e		1f		1g		1h	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
<b>mig</b>	0.31*** (13.44)	0.19*** (7.77)	0.30*** (12.38)	0.19*** (7.51)	0.38*** (12.77)	0.26*** (9.85)	0.29*** (12.11)	0.18*** (6.90)	0.31*** (11.36)	0.19*** (7.42)	0.32*** (11.21)	0.22*** (8.14)	0.28*** (10.01)	0.18*** (6.44)
<b>rgdp</b>	0.53*** (17.20)	0.80*** (25.35)	0.60*** (20.13)	0.88*** (27.85)	0.58*** (14.65)	0.85*** (23.09)	0.53*** (17.43)	0.81*** (25.37)	0.53*** (13.63)	0.80*** (22.61)	0.58*** (14.83)	0.85*** (23.41)	0.54*** (13.83)	0.81*** (22.66)
<b>dist</b>	-0.17*** (-3.24)	-0.06 (-1.25)	-0.19*** (-3.44)	-0.09* (-1.64)	-0.19*** (-3.05)	-0.08 (-1.46)	-0.16*** (-3.07)	-0.06 (-1.16)	-0.17*** (-2.93)	-0.06 (-1.21)	-0.17*** (-2.89)	-0.07 (-1.30)	-0.16*** (-2.83)	-0.06 (-1.15)
<b>lang</b>	----	----	----	----	-0.31** (-2.32)	-0.32*** (-2.80)	----	----	-0.00 (-0.03)	-0.03 (-0.24)	-0.19 (1.44)	-0.24** (-2.08)	0.04 (0.29)	-0.00 (-0.05)
<b>frt</b>	----	----	1.93*** (11.45)	1.38*** (10.68)	----	----	1.19*** (8.23)	0.61*** (5.69)	----	----	1.86*** (11.01)	1.29*** (9.97)	1.19*** (8.20)	0.61*** (5.58)
<b>EU</b>	1.29*** (15.25)	1.25*** (16.82)	----	----	----	----	1.13*** (14.89)	1.17*** (15.86)	1.29*** (15.10)	1.25*** (15.65)	----	----	1.14*** (14.69)	1.17*** (14.87)
<b>constant</b>	6.62*** (11.07)	1.03 (1.19)	5.55*** (8.85)	-0.09 (-0.10)	5.52*** (7.93)	-0.02 (-0.02)	6.65*** (11.34)	1.05 (1.20)	6.62*** (10.41)	1.05 (1.17)	5.72*** (8.49)	0.12 (0.13)	6.63*** (10.63)	1.05 (1.18)
<b>R<sup>2</sup></b>	0.7297	0.8042	0.7001	0.7763	0.6796	0.7702	0.7380	0.8058	0.7297	0.8042	0.7014	0.7778	0.7381	0.8058
<b>Obs.</b>	620	620	620	620	620	620	620	620	620	620	620	620	620	620

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table A2: Impact of immigration in Spanish bilateral trade by product type: Sensitivity analysis.

## A) Exports

	1b		1c		1d		1e		1f		1g		1h	
	PG	CG	PG	CG	PG	CG	PG	CG	PG	CG	PG	CG	PG	CG
<b>mig</b>	0.05 (0.96)	0.34*** (11.92)	0.055 (1.03)	0.35*** (10.80)	0.06 (1.01)	0.45*** (11.92)	0.05 (0.96)	0.32*** (10.78)	0.04 (0.68)	0.34*** (10.39)	0.05 (0.88)	0.38*** (10.37)	0.04 (0.67)	0.31*** (9.28)
<b>rgdp</b>	0.01 (0.13)	0.46*** (12.60)	0.03 (0.51)	0.58*** (16.11)	0.03 (0.46)	0.55*** (11.73)	0.01 (0.13)	0.46*** (12.73)	0.01 (0.24)	0.46*** (10.17)	0.03 (0.47)	0.55*** (11.88)	0.01 (0.24)	0.47*** (10.29)
<b>dist</b>	-0.40*** (-3.62)	-0.29*** (-4.46)	-0.41*** (-3.78)	-0.33*** (-4.57)	-0.42*** (-3.77)	-0.32*** (-3.99)	-0.40*** (-3.63)	-0.28*** (-4.34)	-0.41*** (-3.68)	-0.29*** (-4.02)	-0.41*** (-3.75)	-0.31*** (-3.86)	-0.41*** (-3.68)	-0.28*** (-3.95)
<b>lang</b>	----	----	----	----	0.00 (0.04)	-0.43*** (-2.62)	----	----	0.09 (0.42)	0.05 (0.34)	0.02 (0.10)	-0.29* (-1.79)	0.10 (0.41)	0.09 (0.57)
<b>frt</b>	----	----	0.17 (0.31)	2.24*** (12.92)	----	----	-0.05 (-0.08)	0.99*** (7.23)	----	----	0.18 (0.32)	2.13*** (12.15)	-0.02 (-0.04)	1.02*** (7.39)
<b>EU</b>	0.32 (1.27)	2.02*** (20.18)	----	----	----	----	0.33 (1.24)	1.88*** (19.27)	0.35 (1.33)	2.03*** (19.38)	----	----	0.36 (1.30)	1.91*** (18.55)
<b>constant</b>	21.03*** (14.33)	7.40*** (9.99)	20.74*** (14.14)	5.59*** (6.85)	20.70*** (13.73)	5.63*** (6.50)	21.04*** (14.31)	7.43*** (10.15)	20.98*** (13.98)	7.37*** (9.56)	20.72*** (13.72)	5.85*** (6.96)	20.98*** (13.97)	7.37*** (9.68)
<b>R<sup>2</sup></b>	0.0431	0.6608	0.0405	0.5832	0.0404	0.5632	0.0431	0.6655	0.0433	0.6609	0.0405	0.5857	0.0433	0.6657
<b>Obs.</b>	615	618	615	618	615	618	615	618	615	618	615	618	615	618

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table A2: Impact of immigration in Spanish bilateral trade by product type: Sensitivity analysis.  
B) Imports

	1b		1c		1d		1e		1f		1g		1h	
	PG	CG	PG	CG	PG	CG	PG	CG	PG	CG	PG	CG	PG	CG
<b>mig</b>	-0.07 (-1.01)	0.29*** (7.19)	-0.65 (-0.89)	0.29*** (7.05)	0.03 (0.39)	0.36*** (8.77)	-0.07 (-1.01)	0.27*** (6.46)	0.00 (0.05)	0.28*** (6.62)	0.02 (0.27)	0.31*** (7.17)	0.00 (0.06)	0.26*** (5.83)
<b>rgdp</b>	0.01 (0.21)	0.78*** (18.07)	0.06 (0.89)	0.86*** (20.40)	-0.02 (-0.35)	0.84*** (18.84)	0.01 (0.22)	0.78*** (18.13)	-0.04 (-0.61)	0.78*** (17.54)	-0.02 (-0.34)	0.84*** (18.94)	-0.04 (-0.61)	0.78*** (17.54)
<b>dist</b>	-0.48*** (-3.58)	0.20*** (2.60)	-0.50*** (-3.76)	0.16** (2.08)	-0.43*** (-3.17)	0.17** (2.09)	-0.47*** (-3.56)	0.20*** (2.67)	-0.42*** (-3.09)	0.19** (2.52)	-0.43*** (-3.15)	0.18** (2.24)	-0.42*** (-3.09)	0.20*** (2.58)
<b>lang</b>	----	----	----	----	-0.87*** (-2.77)	-0.33** (-2.00)	----	----	-0.74** (-2.27)	0.02 (0.14)	-0.85*** (-2.66)	-0.22 (-1.35)	-0.75** (-2.25)	0.05 (0.31)
<b>frt</b>	----	----	0.60 (0.93)	1.69*** (8.73)	----	----	1.13 (8.23)	0.79*** (4.33)	----	----	0.26 (0.39)	1.61*** (7.98)	-0.04 (-0.06)	0.80*** (4.31)
<b>EU</b>	0.73** (2.29)	1.48*** (11.09)	----	----	----	----	0.71** (2.15)	1.37*** (9.95)	0.51 (1.55)	1.48*** (10.20)	----	----	0.52 (1.52)	1.38*** (9.34)
<b>constant</b>	22.42*** (13.15)	-2.92*** (-2.58)	21.78*** (12.74)	-4.23*** (-3.70)	22.47*** (13.17)	-4.21 (-3.66)	22.42*** (13.13)	-2.91** (-2.56)	22.88*** (13.41)	-2.94*** (-2.59)	22.50*** (13.17)	-4.04*** (-3.52)	22.88*** (13.40)	-2.94*** (-2.59)
<b>R<sup>2</sup></b>	0.0433	0.6550	0.0360	0.6264	0.0490	0.6184	0.0434	0.6570	0.0529	0.6550	0.0492	0.6275	0.0529	0.6571
<b>Obs.</b>	617	619	617	619	617	619	617	619	617	619	617	619	617	617

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table A3: Impact of immigration in Spanish bilateral trade by partner colonial status: Sensitivity analysis.

(Specification 2)

	<b>2b</b>		<b>2c</b>		<b>2e</b>	
	<b>Exports</b>	<b>Imports</b>	<b>Exports</b>	<b>Imports</b>	<b>Exports</b>	<b>Imports</b>
<b>migcol</b>	0.21*** (7.16)	0.14*** (3.83)	0.19*** (6.42)	0.12*** (3.23)	0.20*** (7.04)	0.14*** (3.77)
<b>mignocol</b>	0.37*** (10.84)	0.22*** (6.98)	0.39*** (10.95)	0.27*** (8.31)	0.33*** (9.15)	0.20*** (5.80)
<b>col</b>	1.30*** (3.85)	0.64 (1.60)	1.52*** (4.33)	1.01** (2.47)	1.04*** (3.02)	0.51 (1.24)
<b>rgdp</b>	0.53*** (13.71)	0.80*** (22.62)	0.58*** (14.86)	0.85*** (23.49)	0.54*** (13.87)	0.81*** (22.67)
<b>dist</b>	-0.15** (-2.56)	-0.05 (-0.99)	-0.15** (-2.44)	-0.05 (-0.94)	-0.14** (-2.55)	-0.05 (-0.98)
<b>lang</b>	----	----	----	----	----	----
<b>frt</b>	----	----	1.64*** (8.84)	1.13*** (7.93)	1.09*** (6.95)	0.55*** (4.62)
<b>EU</b>	1.21*** (14.33)	1.20*** (14.63)	----	----	1.09*** (14.08)	1.15*** (14.12)
<b>constant</b>	6.06*** (8.95)	0.76 (0.80)	5.04*** (7.05)	-0.37 (-0.38)	6.19*** (9.27)	0.83 (0.87)
<b>R<sup>2</sup></b>	0.7334	0.8050	0.7078	0.7803	0.7402	0.8062
<b>Obs.</b>	620	620	620	620	620	620

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

able A4: Impact of immigration in Spanish bilateral trade by partner EU membership: Sensitivity analysis.

(Specification 3)

	3e		3f		3h	
	Exports	Imports	Exports	Imports	Exports	Imports
<b>migeu</b>	0.45*** (12.95)	0.21*** (6.25)	0.54*** (14.46)	0.28*** (9.18)	0.45*** (11.57)	0.21*** (5.94)
<b>mignoEU</b>	0.27*** (10.22)	0.17*** (1.14)	0.26*** (8.74)	0.17*** (5.84)	0.26*** (8.62)	0.17*** (5.77)
<b>eu</b>	-0.42 (-1.19)	0.85** (2.43)	-1.17*** (-3.34)	0.36 (1.11)	-0.44 (-1.26)	0.85** (2.46)
<b>rgdp</b>	0.53*** (16.73)	0.80*** (24.73)	0.52*** (13.42)	0.80*** (22.44)	0.53*** (13.49)	0.81*** (22.30)
<b>dist</b>	-0.16*** (-3.20)	-0.06 (-1.17)	-0.17*** (-3.08)	-0.07 (-1.25)	-0.17*** (-2.97)	-0.06 (-1.17)
<b>lang</b>	----	----	0.05** (0.40)	-0.01 (-0.06)	0.06 (0.47)	-0.00 (-0.01)
<b>frt</b>	0.78*** (4.96)	0.53*** (4.62)	----	----	0.79*** (4.89)	0.53*** (4.53)
<b>constant</b>	7.02*** (11.33)	1.12 (1.23)	7.17*** (11.09)	1.24 (1.35)	6.99*** (10.77)	1.13 (1.21)
<b>R<sup>2</sup></b>	0.7406	0.8059	0.7381	0.8050	0.7408	0.8059
<b>Obs.</b>	620	620	620	620	620	620

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table A5: Impact of immigration in Spanish bilateral trade by level of education: Sensitivity analysis.

(Specification 4)

	4b		4c		4d		4e		4f		4g		4h	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
<b>migedu1</b>	0.09 (1.56)	0.03 (0.63)	-0.04 (-0.61)	-0.07 (-1.12)	-0.03 (-0.42)	-0.08 (-1.27)	0.05 (0.97)	0.16 (0.33)	0.06 (1.14)	-0.01 (-0.18)	-0.09 (-1.42)	-0.12** (-2.07)	0.02 (0.45)	-0.02 (-0.51)
<b>migedu2</b>	0.08 (1.02)	-0.01 (-0.20)	0.01 (0.16)	-0.04 (-0.51)	0.16* (1.84)	0.06 (0.69)	0.03 (0.37)	-0.03 (-0.45)	0.08 (1.07)	-0.01 (-0.15)	0.02 (0.22)	-0.04 (-0.49)	0.03 (0.38)	-0.03 (-0.44)
<b>migedu3</b>	0.15** (2.13)	0.27** (2.20)	0.23*** (2.79)	0.34** (2.55)	0.26*** (2.68)	0.36** (2.56)	0.16** (2.33)	0.28** (2.22)	0.17** (2.23)	0.29** (2.31)	0.25*** (2.91)	0.36*** (2.62)	0.17** (2.42)	0.29** (2.34)
<b>migedu4</b>	0.02 (0.27)	0.01 (0.18)	0.11 (1.47)	0.07 (0.76)	0.08 (0.89)	0.09 (0.87)	0.07 (1.11)	0.03 (0.40)	0.06 (1.00)	0.08 (0.83)	0.21*** (2.81)	0.18* (1.74)	0.12* (1.92)	0.10 (1.05)
<b>rgdp</b>	0.40*** (9.24)	0.64*** (14.44)	0.53*** (12.23)	0.76*** (16.55)	0.45*** (7.66)	0.65*** (11.47)	0.40*** (9.30)	0.64*** (14.42)	0.35*** (6.24)	0.58*** (10.72)	0.40*** (7.28)	0.62*** (11.09)	0.34*** (6.28)	0.57*** (10.70)
<b>dist</b>	-0.13** (-2.08)	-0.23*** (-3.42)	-0.15* (-1.85)	-0.25*** (-2.96)	-0.08 (-0.92)	-0.17** (-1.97)	-0.12** (-1.97)	-0.22 (-3.36)	-0.09 (-1.30)	-0.17*** (-2.60)	-0.06 (-0.68)	-0.15* (-1.84)	-0.08 (-1.16)	-0.17** (-2.53)
<b>lang</b>	----	----	----	----	-0.98*** (-4.92)	-1.00*** (-5.45)	----	----	-0.39** (-2.09)	-0.52*** (-2.84)	-0.85*** (-4.69)	-0.91*** (-5.11)	-0.41** (-2.24)	-0.53*** (-2.90)
<b>firt</b>	----	----	2.16*** (9.21)	1.54*** (7.82)	----	----	0.80*** (4.54)	0.32* (1.89)	----	----	1.99*** (9.36)	1.36*** (7.70)	0.84*** (4.87)	0.36** (2.31)
<b>EU</b>	1.99*** (14.64)	1.68*** (14.26)	----	----	----	----	1.77*** (13.63)	1.60*** (12.71)	1.86*** (14.11)	1.51*** (12.54)	----	----	1.62*** (12.37)	1.41*** (10.88)
<b>constant</b>	9.37*** (10.45)	4.70 (3.46)	7.04*** (6.95)	2.52* (1.75)	7.60*** (6.71)	3.58** (2.19)	9.53*** (10.88)	4.77*** (3.52)	9.98*** (9.98)	5.51 (3.65)	8.80*** (8.11)	4.40*** (2.73)	10.18*** (10.42)	5.59*** (3.72)
<b>R<sup>2</sup></b>	0.8210	0.8436	0.7237	0.7851	0.6954	0.7909	0.8289	0.8445	0.8272	0.8511	0.7558	0.8105	0.8357	0.8522
<b>Obs.</b>	252	252	252	252	252	252	252	252	252	252	252	252	252	252

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.

Table A6: Impact of immigration in Spanish bilateral trade by business related activity: Sensitivity analysis.

(Specification 5)

	5b		5c		5d		5e		5f		5g		5h	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
<b>migm</b>	0.17*** (3.11)	0.23*** (4.00)	0.23*** (3.39)	0.29*** (4.27)	0.23*** (3.35)	0.29*** (4.34)	0.16*** (2.96)	0.23*** (3.94)	0.16*** (2.91)	0.22*** (3.96)	0.20*** (3.06)	0.27*** (4.14)	0.15*** (2.80)	0.22*** (3.92)
<b>mige</b>	0.05 (0.72)	-0.03 (-0.33)	0.02 (0.22)	-0.052 (-0.52)	0.10 (1.48)	0.02 (0.24)	0.03 (0.48)	-0.03 (-0.38)	0.07 (1.11)	-0.01 (-0.10)	0.06 (0.91)	-0.00 (-0.03)	0.05 (0.83)	-0.01 (-0.15)
<b>migo</b>	0.21*** (2.90)	0.11 (1.41)	0.18** (2.29)	0.09 (1.029)	0.27*** (3.37)	0.16* (1.82)	0.20*** (2.79)	0.10 (1.36)	0.24*** (3.25)	0.13* (1.65)	0.23*** (3.00)	0.14 (1.59)	0.22*** (3.08)	0.13 (1.60)
<b>rgdp</b>	0.39*** (11.53)	0.63*** (14.10)	0.51*** (15.38)	0.74*** (16.74)	0.41*** (9.89)	0.65*** (12.88)	0.40*** (11.94)	0.63*** (14.13)	0.35*** (8.61)	0.60*** (12.08)	0.43*** (10.56)	0.66*** (13.20)	0.36*** (8.93)	0.60*** (12.15)
<b>dist</b>	-0.11** (-1.96)	-0.17*** (-2.85)	-0.16** (-2.43)	-0.23*** (-3.20)	-0.08 (-1.202)	-0.15** (-2.10)	-0.09* (-1.76)	-0.17*** (-2.77)	-0.06 (-1.00)	-0.13** (-2.21)	-0.07 (-1.04)	-0.14** (-2.01)	-0.06 (-0.94)	-0.13** (-2.18)
<b>lang</b>	----	----	----	----	-0.90*** (-5.66)	-0.80*** (-5.73)	----	----	-0.39*** (-2.61)	-0.34*** (-2.45)	-0.70*** (-4.63)	-0.68*** (-4.92)	-0.33** (-2.21)	-0.32** (-2.32)
<b>frt</b>	----	----	1.89*** (10.64)	1.26*** (9.83)	----	----	0.89*** (6.91)	0.30*** (3.30)	----	----	1.61*** (9.47)	0.99*** (8.42)	0.81*** (6.39)	0.23*** (2.67)
<b>EU</b>	1.71*** (16.77)	1.54*** (18.24)	----	----	----	----	1.54*** (16.41)	1.48*** (17.49)	1.60*** (15.98)	1.44*** (15.91)	----	----	1.46*** (15.39)	1.40*** (15.39)
<b>constant</b>	8.66*** (13.31)	4.97 (3.69)	7.13*** (9.90)	3.47* (2.52)	7.46*** (9.91)	3.88** (2.65)	8.72*** (13.91)	4.99*** (3.69)	8.90*** (13.31)	5.18*** (3.68)	7.37*** (10.84)	4.05*** (2.77)	8.92*** (13.73)	5.18*** (3.67)
<b>R<sup>2</sup></b>	0.8204	0.82776	0.7271	0.7610	0.7130	0.7655	0.8304	0.8285	0.8266	0.8311	0.7483	0.7750	0.8348	0.8315
<b>Obs.</b>	347	347	347	347	347	347	347	347	347	347	347	347	347	347

OLS estimations including time dummies variables.

\*\*\*, \*\*, \*, indicates significance at the 1%, 5% and 10% level respectively.

t-ratios, based on heteroscedasticity robust standard errors, are given in parentheses.



Table A7: Immigrants by country (average 1995-2003)

Country	Number	Country	Number	Country	Number	Country	Number
Albania	158	Polonia	5764	México	8124	Bangladesh	543
Alemania	71654	Portugal	40204	Costa Rica	711	Camboya	48
Andorra	2801	Reino Unido	47696	Cuba	28044	Corea N.	706
Austria	1767	Rumania	17512	El Salvador	786	Corea S.	988
Bélgica	15255	Suecia	3879	Guatemala	630	China	6399
Bulgaria	5896	Suiza y Liechtenstein	31952	Haití	131	Filipinas	8011
Checoslovaquia	776	Turquía	449	Honduras	709	India	4561
Chipre	136	Rusia	2966	Nicaragua	1557	Indonesia	894
Dinamarca	1711	Servia y Montenegro	1339	Panamá	1214	Irán	539
Finlandia	1825	Argelia	10191	República Dominicana	21110	Israel	1266
Francia	117020	Cabo Verde	887	Argentina	61290	Japón	335
Grecia	1076	Egipto	1244	Bolivia	3768	Jordania	118
Hungría	1130	Gambia	3983	Brasil	15578	Laos	778
Irlanda	1976	Guinea Ecuatorial	8863	Colombia	46660	Líbano	1683
Islandia	0	Libia	377	Chile	15667	Pakistán	1173
Italia	15229	Marruecos	137656	Ecuador	51100	Siria	73
Liechtenstein	54	Senegal	3041	Paraguay	884	Sri Lanka	107
Luxemburgo	865	Sudáfrica	1117	Perú	24403	Vietnam	373
Malta	73	Túnez	1121	Uruguay	13303	Australia	2395
Noruega	2378	Canadá	2455	Venezuela	37381	Nueva Zelanda	108
Países Bajos	11214	Estados Unidos	9757	Arabia Saudita	147		

Table A8: Immigrant's personal characteristics. In % of total (average for all countries in the sample).

<b>year</b>	<b>Inmig</b>	<b>Edu1</b>	<b>Edu2</b>	<b>Edu3</b>	<b>Edu4</b>	<b>Situ1</b>	<b>Situ2</b>	<b>Situ3</b>
1995	658465	8.9	23.0	51.6	16.5	8.4	31.5	60.1
1996	659767	9.9	20.3	52.7	17.2	10.0	31.8	58.3
1997	681811	9.3	20.3	52.3	18.0	9.8	34.4	55.8
1998	740249	10.7	18.9	52.5	18.0	9.4	38.1	52.5
1999	839862	9.6	17.7	55.0	17.7	8.1	40.2	51.8
2000	938781	11.9	24.4	45.3	18.3	8.2	39.8	51.9
2001	1099544	11.5	22.2	46.8	19.6	8.7	43.2	48.1
2002	1335763	14.1	20.8	46.6	18.5	6.9	44.6	48.5
2003	1593454	14.6	22.0	46.3	17.1	7.0	46.5	46.5

## REFERENCES

Dunlevy, J. and Hutchinson, W. (1999): “The impact of immigration on American import trade in the late nineteenth and twentieth centuries”, *Journal of Economic History*, 59, pp. 1043-62.

Girma, S. and Yu, Z (2002): “The link between immigration and trade: Evidence from the UK”, *Weltwirtschaftliches Archiv*, 138, pp.

Gould, D. (1994): “Immigrant links to the home-country: empirical implications for U.S. bilateral trade flows”, *The Review of Economics and Statistics*, 76, pp. 302-316.

Head, K. and Ries, J. (1998): “Immigration and trade creation: Econometric evidence from Canada”, *Canadian Journal of Economics*, 31, pp.47-62.

Rauch, J. (1999): “Networks versus markets in international trade”, *Journal of International Economics*, 48, pp.7-35.

Rauch, J. (2001): “Business and social networks in international trade”, *Journal of Economic Literature*, 39, pp. 1177-1203.