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Materiali di discussione

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Migration and Bilateral Trade Flows. Evidence from Italy

by

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Ottobre 2006

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1. Introduction

The emigration from Italy of the last two centuries has been the most important phenomenon of mass migration in modern European history. During the period from 1861 to 1976, approximately one Italian out of four emigrated, principally toward other European destinations and the Americas (Del Boca and Venturini, 2003; Hatton and Williamson, 1998).

The extremely rapid growth of the Italian economy after World War II diminished the economic incentive to leave and ended the abnormal emigration flows, but it also had the effect of transforming the country in an attractive destination for immigrants, especially from less developed countries.

In this paper we analyze the interactions between emigration, immigration and Italian bilateral trade flows. Many empirical studies support the hypothesis that the transnational social and business networks built by migrants have a positive influence on bilateral trade flows between their countries of destination and of origin. Network links are thought to lower the informal barriers to trade that characterize transactions in international markets. A partial list of these studies includes Gould (1994) for the United States, Head and Ries (1998) for Canada, Girma and Yu (2002) for the United Kingdom, Rauch and Trindade (2002) for the Chinese communities worldwide, Wagner, Head and Ries (2002), Saavedra and Herander (2005) and Dunlevy (2006) for the international trade of the Canadian provinces and American states.

Up to now, the literature on networks has concentrated attention on the phenomenon of immigration. This narrowing of the analysis may be due to a general scarcity of databases on emigrants and on their final destinations in foreign countries, but a natural interpretation of network theory is that both groups, emigrants as well as immigrants, may influence bilateral trade flows.

Data is available on both Italian emigration and immigration phenomena and this makes the wider perspective of this paper possible. In particular, records of the presence of Italian emigrants worldwide are kept in the Registry of Italians Residing Abroad (AIRE), maintained by the Italian

Ministry of the Interior. This paper uses this data, together with data on immigration and on Italian trade flows with 51 foreign trading partners, for the time span from 1990 to 2005.

We test the general network theory prediction that the transnational links of migrants have a positive impact on bilateral trade flows between their countries of origin and destination. We control if this effect is higher or more significant for either immigrants or emigrants. The general network effect is supposed to work through information about economic opportunities abroad and the preferences of immigrants for home-country products. We consider these two effects.

We also test a corollary of the general prediction, which is that the information provided by migrant networks is most valuable when referring to more dissimilar economies (Girma and Yu, 2002; Dunlevy, 2006). The underlying presumption is that dissimilarity adds to the informal barriers to trade, and hence to the value of the information provided by migrant networks.

To this aim, we split the sample of countries into two subsets, which we denominate Old and New Markets. The Old Markets are countries that are similar to Italy, in terms of institutions and culture, and are also its oldest trading partners. The New Markets are dissimilar and recent trading partners. Hence, following the above intuition, if information about dissimilar economies is more valuable, the impact of migrant links on bilateral trade with New Markets should be higher.

We find that transnational emigrant networks have a positive and significant impact on a country's bilateral trade flows. Hence, the main prediction of network theory finds support for the case of Italy, as well. However, unlike previous studies, it holds for emigrants, and only for them. The effect of immigration on trade is either negative, for imports, or not significant, for exports. These results are robust to different specifications. More specifically, the positive impact of emigrants works mainly through the information effect, while the preference effect is absent. We also find that the impact of emigrant links on trade is robust to the division of countries into Old and New Markets. For both subsets, the effects of emigrants are positive and significant. However, they are not statistically different. This implies that the presumption on a stronger effect of information on dissimilar economies is not supported by the case of Italy. Conversely, it also means that

networks with a long past and located in economies that are not dissimilar to Italy are still important and active.

The paper is organized as follows. Section 2 presents some stylized facts about emigration and immigration and statistical information about the data. Section 3 discusses the theoretical framework. Section 4 introduces the econometric specifications and the expected signs of the determinants of Italian trade. Section 5 presents the results. Section 6 concludes.

2. Stylized facts and data

The emigration from Italy of the last two centuries has been the most important case of mass migration in modern European history. During the period from 1861 to 1976, more than 26 million people left the country, principally for other European countries, and the Americas. Approximately one Italian out of four emigrated (Del Boca and Venturini, 2003; Hatton and Williamson, 1998).

The flows of return migration have also been higher than those other European countries. The estimates of these flows are extremely imprecise, but oscillate between one third and one half of total departures (Livi Bacci et al. 1996, Hatton and Williamson 1998, Maddison 2001).

Until World War II, the reasons for migrating were poverty and unemployment at home together with growing wealth and opportunities abroad. The average level of education of emigrants was very low. The decision to migrate was taken by the family as a whole, although it often concerned a single member (who typically was male and young), and was conceived as a way of maximizing the family's income. There were strong ties between those abroad and those remaining at home. They were crucial for the family's subsistence and welfare, but were also deeply felt by the emigrants, who often found that living conditions in the country of destination were hard, and integration was difficult.¹

¹ An important institutional factor that has contributed to strengthen links with the home country is the Italian citizenship law. In effect since 1912, it is based on the *jus sanguinis* and states that the offspring of Italian parents are Italian, independently from the place of birth (for its effects on migration see Bertocchi and Strozzi 2004, 2006).

After World War II, the average education and skills of emigrants improved, but migration continued to be driven by a gap of opportunities between home and foreign countries. The main foreign destinations remained those of the pre-war period, the Americas, Northern Europe, and also Australia.

In the decades that followed, Italy went through a phase of extremely rapid growth and modernization and, by the mid-seventies, was one of the richest countries in the world. Then many things changed substantially. The flows of emigration diminished abruptly and since then stabilized at about 40,000 people per year. The educational level of the more recent emigrants improved further and, in recent years, has even risen above the average level of education of the Italian population (Becker, Ichino and Peri, 2004). Decisions to migrate are now taken individually, rather than by the family group, and derive from evaluations of work and educational opportunities abroad or, simply, personal preferences. For the first time, Italians are moving towards new areas of the world, such as Eastern Europe, Asia and the emerging economies, which are gradually becoming more attractive than the “old”, well known, but less dynamic economies of the West (see Table 2 below).

Also the nature of transnational interactions has changed: the old strong family bonds have gradually been replaced by social, cultural, institutional and business links. Traditionally, the Italian communities of foreign countries were “satellites” of their homeland and did develop much cross-interaction between them (Gabaccia, 2000), while the existing international Italian networks tend to have global structures and scopes. This is especially true for business associations, but also for transnational cultural and social communities.

The rapid growth of the Italian economy in the sixties and seventies put an end to the phenomenon of mass emigration, but at the same time transformed the country into an attractive destination for immigration, especially from less developed countries. By the mid-seventies, the flows of immigration were already higher than those of emigration and were also growing at a faster rate. At the beginning of the nineties, Eastern European and other formerly Communist countries

opened their economies to world markets, and immigrants started to flow also from these areas. The percentage of immigrants in the Italian population was about 1.3% in 1990, 5% in 2005 and, according to the projections of the Italian Institute of Statistics (ISTAT), will be 10% by 2010. Most immigrants live in the northern and central and areas of the country, where a large percentage of overall GDP is produced and exported.

Regarding emigration, the Italian foreign Ministry estimates that the number of Italians residing abroad (including offspring and Italians by marriage) is about 60 million, more or less the same number as the Italian population. The Ministry of the Interior recently established a Registry of Italians Residing Abroad (AIRE). This registry contains data on about three and a half million Italians, and spans from 1990 to 2005.² The empirical analysis below will use this database for emigration.

3. Emigrant and immigrant networks.

The central hypothesis of the theory of social and business networks is that the transnational links forged by migrants foster bilateral trade by lowering informal impediments to it. The impact of migrants on bilateral trade flows has been tested for a number of countries. Gould (1994) has found trade creating effects of immigrants for the United States, Head and Ries (1998) for Canada, Girma and Yu (2002) for the United Kingdom, Rauch and Trindade (2002) for the Chinese communities worldwide and, finally, Wagner, Head and Ries (2002), Herander and Saavedra (2005) and Dunlevy (2006) have confirmed the pro-trade effects of immigrants at the sub-national level in the international trade of the Canadian provinces and American states.

These studies have tested the predictions of network theory for a variety of countries, but they have focused on just one side of the phenomenon: immigration. This can be due to a general lack of

² Italians residing abroad have strong incentives to maintain or obtain the Italian citizenship. With it, they can choose the taxation regime but can also return to Italy, or migrate to Europe, without impediments and at any time. This is especially attractive for the offspring of emigrants living in the less developed countries. Furthermore, in many cases the double nationality is allowed.

databases on emigration and on the emigrants' final destinations,³ but a natural interpretation of the theory is that both kinds of communities, immigrant as well as emigrant, may influence the bilateral trade flows of a country with its foreign partners. One might even think that the potential effects of immigrants and emigrants are not the same. In principle, for countries where both emigration and immigration have been important phenomena, the population of emigrants worldwide may represent the major source of international network links. The reason is straightforward, while immigrants are a minor share of the country's population, natives are the majority, and natives will tend to interact more easily with their co-nationals abroad, the emigrants. Immigrants may communicate with partners in their countries of origin, but their initiatives can easily be overwhelmed by the actions of the majority.

The effect of emigration, therefore, cannot be undervalued. At the same time, for Italy and other European countries, emigration is the older phenomenon, and time may work against the tightness of transnational links. Besides, the activities of immigrants and emigrants can be connected to different economic sectors, which have a different impact on trade. These and other possible considerations suggest that while the relevance of both emigrants and immigrants cannot be rejected a priori, the relative importance of each of group, in each country, should be assessed empirically. Data is available for both Italian emigration and immigration and this makes the wider perspective of this paper possible.

The general prediction of network theory is that migrants have a positive influence on the bilateral trade flows between their countries of destination and of origin; in what follows, we will call this the *network effect*. Most studies distinguish between two main channels through which this effect is supposed to work. The first is an *information effect*. It consists of a reduction of the information costs and uncertainty that characterize economic interactions in international markets. Migrants are able to provide information about business opportunities, the bureaucratic and commercial environments of potential trading partners and their reputations. The second is a

³ A partial exception is Rauch and Trindade (2002). They study the impact of worldwide Chinese networks on the bilateral trade flows of a set of countries, but not on Chinese bilateral trade.

preference effect. It takes place through the diffusion of preferences: immigrants in a country increase imports from their country of origin due to their taste for products from home.

A corollary to the main hypothesis on transnational networks, which has been tested by Girma and Yu (2002) and recently by Dunlevy (2006) is that the information provided by migrants is most valuable when it refers to more dissimilar economies. The underlying presumption is that dissimilarity adds to the informal impediments to trade that characterize international markets, and so adds to the value of the information conveyed by migrants. For Girma and Yu, the institutions of the former Commonwealth economies are similar to those of the U.K. Dunlevy calculates the degree of similarity of different countries to the US as a function of corruption, language and institutions. More generally, one may think that many informal impediments to trade depend on a generic ignorance of the economic factors that influence a foreign economy's characteristics. This can especially apply to the former Communist economies, which represent a heterogeneous collection of countries that have varying degrees of dissimilarity with respect to the Western economies, but all share the characteristic of being relatively "new" to Western operators. This reinforces the value of the information provided by those migrants that have moved from one to the other area of the world, and who know both.

In the sections that follow, we test the theory's main prediction, the *network effects* of migrants, control for the *information* and the *preference* effects mentioned above, and test the corollary. We first consider the whole set of countries and test whether the presence of emigrants abroad and of immigrants at home positively affect Italian bilateral trade flows with their countries of origin and destination. This allows us to see which group, of immigrants or of emigrants, if any, has a stronger influence on bilateral trade. As a second step, we test whether the information on the most dissimilar economies and on the new trading partners, adds an extra effect to the value of migrant links.

For this purpose, we split the set of countries into two groups. We call the countries that share more similarities with Italy, and are also its oldest trade partners, the Old Markets, while the New

Markets are the more distant countries, both institutionally and culturally. To this group belong the former Communist economies. We test the impact on trade of emigrants and immigrants differentiated by these two trade areas.

To divide the set of countries into the two subsets, we utilize a variety of indicators. The indices contained in Kaufman et al (1999) are used as a proxy for institutions. Religions and the presence of Italian Schools in the foreign countries are proxies of culture.

Table 1 illustrates the values of these indices. The first six rows regard institutions. Index values are the positive functions of civil liberties, political rights, independence of the media, political stability, quality of bureaucracy, the supply of public services, effectiveness and predictability of judiciary institutions and enforceability of contracts, and the negative functions of regulatory burdens on foreign trade and business development and corruption. Higher values of the coefficients are associated with more effective institutions. The first and the second columns of the Table suggest that Italy and the Old Markets have similar institutions with respect to the New Markets.

The second set of indicators is the average percentage of Christians in the total population of each country and Italian schools. “Christianity” includes a variety of religions, which are listed in the Table footnote. Italian schools, expressed in absolute numbers and as a percentage of the total population of each country, are officially recognized by the Italian state. They are a proxy for the diffusion of Italian language and culture in foreign countries. In this case also, the numbers of the first two columns are more similar to each other than those of the third: Italy and the Old Markets are closer in terms of culture than they are to the New Markets. Finally, Old Markets also includes countries that have been trade partners of Italy in the past. Using ISTAT trade data for the decades from 1960 to 1990, we have considered the countries with which Italy traded most actively during that period of time to be “old” partners.

Rows 1 and 2 of Table 2 show that Italy still trades more with the area of the Old Markets, its most similar and oldest trade partners. However, the bilateral trade flows with the New Markets are

growing more rapidly than those with the Old Markets, (rows 3 and 4). This implies that the bulk of trade is gradually shifting toward this area of the world. This is not surprising, considering that the same phenomenon is taking place in most developed countries.

More interestingly, row 5 of the Table confirms that Italian emigration is highly concentrated in the group of similar countries, the Western, Old Markets. The difference with the New Markets is remarkable: the average presence of Italians in the Old Markets is *eighty* times higher than in the New: the number of Italian citizens living in an Old Market country is, on average, 33,895, while this number for a country of the New Markets is 419. The Old markets have been the traditional destinations of historical Italian emigration, and this emerges entirely from the data.⁴ However, very recent emigration is gradually shifting towards the emerging areas of the world. The presence of Italians in New Markets is still low, but, as illustrated in row 7, their numbers are growing at a speedy pace. Their presence in 2005 is about eleven times that of 1990, while in the Old Markets it has increased by only 3.5 times.

While emigrants are concentrated in the Old Markets, immigrants come mostly from the other side of the globe. This is shown in row 6 of Table 2. The average number of immigrants originating in a country belonging to the New Markets is 13,350, while it is 3,478 for those from an Old Market country. The different distribution in the two areas of the world is not so pronounced as that of emigrants, but it is marked, in any case. Row 8 of the Table shows that the weight of the New Markets is also increasing. Since 1990, the average number of immigrants coming from a New Market country has increased by ten-fold, while that corresponding to the Old Markets has increased by less than two times. Despite the dynamic modifications of the two groups, the Table clearly shows that there is only a slight geographic overlap between immigrants and emigrants.

More generally, the outflows of emigration and the inflows of immigration are geographically and historically independent phenomena. This can help to maintain their effects disentangled. At the

⁴ Data in the AIRE database spans from 1990 to 2005, but some of the people registered in it belong to the second or even third generation of emigrants. This is a consequence of the Italian law of citizenship (see above, footnote 1)

same time, it suggests that a separate test of their effects for the two sides of the world, the Old and New Markets, can be especially interesting in the case of Italy.

4. Empirical model

We estimate a gravity model of trade augmented by both the emigration and immigration variables to assess the links between migration and bilateral trade flows between Italy and 51 foreign countries in the period 1990-2005.

The specification used by the empirical literature on trade and migrations (e.g. Bergstrand 1985, 1989 on the gravity model; Gould, 1994, Head and Ries 1998, Rauch and Trindade 2002, Girma and Yu 2002, Dunlevy 2006 on migration and trade) is: $Y_{it} = f(X_{it}, IMMI_{it})$, where the Y_{it} is the home exports of goods (or imports from) to foreign country i at time t , X_{it} is a vector of explanatory variables influencing the bilateral trade between home country and foreign country i , (e.g., tariff rates and transportation costs, differences in factor endowments, populations, languages, institutions) and $IMMI_{it}$, represents the immigrants from foreign country i to the home country.

In particular, we use distances to captures the time and costs of trading, the GDP terms to describe differences in demand and supply, the GDP deflators to reflect substitution effects, populations to describe differences in market sizes, the stock of Italian emigrants in country i and the stock of immigrants from country i to Italy.

The model to be estimated is

$$Y_{it} = a + \alpha_1 GDP_{it} + \alpha_2 DEFL_{it} + \alpha_3 POP_{it} + \alpha_4 GDP_{ITt} + \alpha_5 DEFL_{ITt} + \alpha_6 POP_{ITt} + \alpha_7 DIST_{it} + \alpha_8 EMI_{it} + \alpha_9 IMMI_{it} + \alpha_{10} D_{EU} + \alpha_{11} D_{NM} + u_{it}$$

Where $i = 1, \dots, 51$ (countries) and $t = 1990, 1995, 2000, 2005$. Variables, except dummy variables, are in natural logs. Specifically,

Y_{it} : volume of Italian exports or imports

GDP_{it} , GDP_{ITt} : foreign country and Italian GDP

$DEFL_{it}$, $DEFL_{ITt}$: foreign country and Italian deflators

POP_{it} , POP_{ITt} : foreign country and Italian populations

$DIST_{it}$: the distance from the capital city in country i and Rome (km)

EM_{ITt} : number of emigrants from Italy to country i

IM_{it} : number of immigrants in Italy from country i

D_{EU} : European Union dummy. It is equal to 1 when a country is in the European Union in the 1990s.

D_{NM} : New Markets dummy. It is equal to 1 when a country in the sample is considered a “new market” in world trade (for example Asia, East Europe).

D_{OM} : Old Markets dummy. It is equal to 1 when a country in the sample does not belong to the group of “new markets” but represents an old market (for example Latin America, EU - except Ireland-, USA, Japan, Australia).⁵

Italy has always been trading with all the countries analyzed during the sample period. Hence unlike Head and Ries (1998) and Eaton and Tamura (1999), we do not use Tobit estimation but pooled OLS. Further details on databases and sources are given in the Appendix.

The expected signs of the gravity model are as follows⁶. Distance has a negative effect on trade (both exports and imports), because the overall transaction costs of bilateral trade (given by formal and informal barriers to trade, and transportation costs) generally increase with distance. The importing country’s GDP should have a positive effect on bilateral trade (foreign GDP for the export equation and Italian GDP for the import equation). The signs of the coefficient of the population variables are a priori ambiguous. They depend on which effect, market size or specialization, prevails when the size of population varies. The signs of the coefficients of the deflators are also influenced by different factors. However, under the normal hypothesis of the

⁵ For a detailed account of *EU*, New and Old markets see the list of countries in the Appendix.

⁶ For a more complete discussion on the expected signs, see Gould (1994).

elasticity of trading country aggregate demand and supply, the deflator of the foreign country can be expected to have a positive effect on the export equation and a negative effect on the import equation of the home country, while the coefficients of the home country deflators are expected to have the opposite signs.

As said in the previous paragraph, the theory of transnational networks predicts a positive effect of migrants on bilateral trade. This is the pro-trade *network effect*. It works through two main channels. An information channel: migrants may be in a better position than other people to conduct trade with their country of origin because of the information they possess: they have deeper knowledge of business opportunities, the bureaucratic and commercial environments of potential trading partners and their reputations. This is the *information effect*. The other channel is a *preference effect*: migrants increase trade from their countries of origin because of their taste for home goods.

If there is a positive relationship between migration and bilateral trade flows, indicating a *network effect*, the coefficients of emigration and immigration variables, α_8 and α_9 , should have positive signs. The *information effect* should have a positive influence on both imports and exports, while the *preferences* of immigrants for home goods should positively affect imports and the preferences of emigrants should positively affect exports. Hence, the coefficient of the immigrant variable is expected to be higher in the import equation, and the coefficient of the emigrant variable is expected to be higher in the export equation⁷.

The impact of networks on bilateral trade can marginally decrease with the size of migrant stocks and with the passage of time. A generally accepted explanation is that the interactions between the members of networks become more difficult and information circulates less easily as their numbers increase (Gould, 1994). Also, ties with the country of origin can become weaker, and the information about business opportunities conveyed by migrants can be less valuable, as the time of migration extends farther into the past. As in Rauch and Trindade (2002), we control for the size

⁷ The results of previous work are not conclusive in this respect, on this point see Wagner, Head and Ries (2002).

effect by adding the squared variable to the regression. If the impact of networks is positive but marginally decreasing in size, the expected signs of coefficients are, in turn, positive for the stock variable and negative for the squared variable.

The model includes observations on the Italian *GDP* and on the Italian deflator and population, which do not vary across trading partners but only over time⁸, and hence, we do not jointly utilize time dummies capturing unobservable time heterogeneity.

Unlike Gould (1994) and Head and Ries (2002), we do not include the lagged dependent variable among the regressors. Given the time dimension of our data, a five-year lag in exports and imports would not be useful in accounting for possible decision, production and delivery lags.

The prevalent cross-sectional nature of our data prevents a direct test of the hypothesis that the causality runs from migrants to trade. However, we exclude the potential endogeneity of the networks with respect to trade by evaluating a model where the emigrants and immigrants are replaced by lagged pre-determined regressors.⁹

With the purpose of avoiding a potential multicollinearity with the distance variable, which changes across trading partners but not over time, we do not use country-specific dummies. A related reason is that these dummies would cancel from our data all of the between-country heterogeneity in trade and migrations: the object of this study. Instead, we include the specific fixed-effect dummies, D_{EU} and D_{NM} , which are meant to capture the different propensities of the Italian economy to trade with these geographic areas. The dummy D_{EU} ¹⁰ (European Union) is used to control for the common market effect, while the dummy D_{NM} (New Markets) groups the 27 new trading partners discussed above.

⁸ We have also estimated the models reported in this paper for the export and import equations by using country specific dummies and/or time dummies. However, these dummies have always low explanatory power.

⁹ Empirical studies of networks generally assume that the direction of causality runs from immigration to trade. More generally, by focusing on immigration from developing economies, the literature partially excludes a problem of endogeneity: developed countries have binding quotas that make migration much more of an exogenously determined variable than trade flows. Besides, studies on migration suggest that individual migration decisions are primarily determined by wage differentials and the size of the existing migrant community, rather than the size of bilateral trade flows. On the other hand, these specifications apply less to migrants from a developed country. Hence, in principle, their decisions to migrate might be influenced by trade.

After testing the main prediction of the theory about the pro-trade effect of networks we are interested in testing the corollary that the information conveyed by migrants is most valuable when referring to the most dissimilar economies (Girma and Yu 2002 and Dunlevy 2006). To this purpose, it is useful to use the geographic differentiation of the set of countries between Old and New Markets that has been developed in the previous paragraph.

To check for the potentially dissimilar effects of emigrants and immigrants in the two world areas, the stocks of emigrants and immigrants are disaggregated by multiplying them by the two dummies D_{NM} and D_{OM} . This allows the elasticity of the coefficients of the two variables to vary across the two groups of countries. For this purpose, the specification of the model is modified as follows:

$$Y_{it} = a + \alpha_1 GDP_{it} + \alpha_2 DEFL_{it} + \alpha_3 POP_{it} + \alpha_4 GDP_{ITt} + \alpha_5 DEFL_{ITt} + \alpha_6 POP_{ITt} + \alpha_7 DIST_{it} + \alpha_8 EMI_{it} * D_{NM} + \alpha_9 EMI_{it} * D_{OM} + \alpha_{10} IMMI_{it} * D_{NM} + \alpha_{11} IMMI_{it} * D_{OM} + \alpha_{12} D_{EU} + \alpha_{11} D_{NM} + u_{it}$$

The parameters α_8 , and α_9 represent different elasticities on bilateral trade of Italian emigrants in the New and Old Markets, while α_{10} , and α_{11} represent different elasticities of immigrants in the New and the Old Markets.

As we have seen in Table 2, the average presence of emigrants in the New Markets is eighty times lower than in the Old Markets, while immigrants originate principally in the New Markets. Moreover, the Old Market economies share in common many institutional and cultural characteristics with Italy, while the New Markets are dissimilar in many respects. Taking into consideration these factors, the expected signs both for export and import are as follows.

If the pro-trade effect of migrants mainly depends on the transmission of information and this, in turn, is related to the size of the networks, then the coefficient of the variable emigrants Old Markets should be positive and higher than the coefficient of the same variable for the New

Markets: $\alpha_9 > \alpha_8$. For the same reason, the coefficient of the immigrants New Markets should be positive and higher than the coefficient of immigrants Old Markets: $\alpha_{10} > \alpha_{11}$.

If, on the other hand if the value of the information transmitted is more related to its content than to the size of the networks, then the expected direction of the inequality between the coefficients on emigrants will change. The relation should be $\alpha_9 < \alpha_8$; the coefficient of the variable emigrants New Markets should be higher (or more significant) than the coefficient of the variable emigrants Old Markets.

5. Key findings

Tables 3 and 4 show the estimation results for the exports and imports equations respectively. Different specifications are reported to test for different hypothesis. In all cases, the explanatory power of the regressions is very high: in the export equations, the adjusted R^2 ranges from 0.84 to 0.86, while in the import equation it varies from 0.72 to 0.74.

As expected, the emigration variable has a positive and highly significant impact (1% significant level) in both equations, of exports and of imports. This gives support to our hypothesis that the social and business links of Italians living abroad affect Italy's bilateral trade flows with their countries of residence.

Contrary to the theory's prediction and to many empirical studies on other countries, the variable regarding immigration is significant at a 5-10% significance level in the import equations, but with a negative sign (see Model I, II, III in Table 3 and 4), it is non-significant in the export equation.¹¹ This result may reveal a substitution effect of immigration on bilateral trade, perhaps due to import-substituting activities performed by immigrants. Obviously, the either negative or non-significant coefficients in the two equations exclude a network effect of immigrants on trade.

¹¹ A similar outcome is in Girma and Yu (2002) for the U.K, but it concerns only the subset of immigrants originating in the most similar countries (in their case, those belonging to the Commonwealth), while the coefficient of immigrants from non-Commonwealth countries is significant and positive.

The control variables of the gravity model have the expected signs in all the specifications. In particular, the distance variable always has a significant negative effect both on exports and imports. In the export equations (Table 3) higher foreign income and higher foreign prices boost exports (respectively, with a demand and a substitution effect), while the coefficient of the foreign population variable is negative¹². This demonstrates that, controlling for the market size proxied by population, Italy trades more with richer countries.

The variables of Italian *GDP*, deflator and population also have the expected signs, but only the *GDP* is statistically significant. The positive coefficient of this variable confirms that, given the elasticity of world demand for Italian products, an increase in home production determines higher exports. In the import equations (Table 4), both the *GDP* and the populations of foreign countries have a positive impact on imports (this implies that, for given income levels, Italy imports more from big countries), while, as expected, the price deflators have a negative effect on imports from those countries. The coefficients of the Italian population and price deflator variables are positive and statistically significant, demonstrating that income and internal prices have both a positive effect on the country's demand for foreign goods.

As suggested by the positive and significant coefficients of the dummy D_{EU} in both the import and export equations, Italy trades more with countries of the European Union. Interestingly, the dummy D_{NM} , New Markets, is always positive and significant in the export equations (see Model III in Table 1 and 2). This confirms that, as seen in Table 2, in the sample period considered (1990-2005), the Italian propensity to export to the New Markets increases, while the exports to the Old Markets (except the *EU* economies) show some decline. Note that the inclusion of these two dummies improves the regression's explanatory power (see Model I, II versus Model III in Table 3 and 4).

As said in the previous paragraphs, the *network effect* of migrants can be disaggregated into a preference and an information effect. If the *preference effect* of emigrants for home goods

¹² As stressed by Gould(1994) population is not signed a priori “because market size can have a negative effect on trade if economies of scale are present or a positive effect if a larger population allows for more specialization”.

influences Italian exports, the coefficient of the variable emigrants should be higher in the export than in the import equation. Our findings, in Tables 3 and 4, are not consistent with this expectation: the difference between the two coefficients is not significant. However, this result should not be surprising. In previous works, from Gould (1994) to more recent studies, the preference effect has been conceived as an “ethnic” component of the foreign demand of a country’s products. While it can have some weight on a developing country’s exports, it should not be expected to be significant for the exports of a developed economy, which, in a very significant proportion, are composed by goods produced for international rather than local tastes.

Considering Model III in Table 3 and 4, the final results are that a 10% increase in the stock of emigrants increases Italian exports by 1.3% and imports by 1.2% (pro-trade effects), while a 10% increase in the stock of immigrants *reduces* the Italian imports by 1% (trade-substitution effect)¹³.

We control for the direction of causality from migrations to trade assumed in this paper. To this aim we substitute the contemporary stocks of migrants by lagged emigrants and immigrants. In this way, these lagged variables are predetermined with respect to trade (see Model V in Table 1 and 2). Despite this experiment being more relevant for emigrants, the estimation reveals that the trade impacts of both immigrants and emigrants do not change with the predetermined variables, hence migrations precede trade and not vice versa.¹⁴

Now, we test the hypothesis that the positive impact of emigrants on bilateral trade can marginally decrease with the size of the stock of emigrant networks and with time (see Model VI in Table 3 and 4).¹⁵ The coefficient of the stock of emigrants remains positive and significant in both the export and the import equations, while, as expected, the coefficient of the squared variable is negative, but it is not significant (also see the test in the table Notes) . This suggests that the

¹³ We also perform a sensitivity analysis to check for the robustness of the estimated elasticities of emigrants and immigrants to the inclusion of other potential determinants of trade: foreign direct investment (inward and outward), the number of Italian schools and of Italian entrepreneurs in the foreign countries. The dimension and significance level of the elasticities of the migrant network is similar to the previous estimates. These results are available on request.

¹⁴ Gould (1994) and Dunley and Hutchinson (1999) perform Granger causality tests finding that immigration precedes trade for most of the US’s trading partners. We cannot perform this analyses because of the short span of our time series data.

¹⁵ We perform the test only on emigrants because this is the only variable with a positive and significant coefficient

networks of Italian emigrants have an impact on trade that it does not tend to decrease significantly with size and time.¹⁶ Model IV illustrates the results of the disaggregation of the variables emigrants and immigrants for the two world areas, the New and the Old Markets (Tables 3 and 4) and for the two equations, exports and imports. This is useful to control whether the migrant links with the New Markets have a higher impact on bilateral trade because of the extra information they convey.

Regarding immigrants, the disaggregation confirms the results obtained above: both groups have a negative impact on trade, which is significant only in the import equation. Therefore, contrary to the expectations based on the hypothesis of Girma and Yu (2002), even immigration originating in the more dissimilar economies, the New Markets, has a negative impact on import flows. This implies that the value of the potential links that these immigrants establish is not strong enough to compensate for the import-substitution effect that they may have on production. More generally, it is not possible to reject the hypothesis that the effects on trade of these two different immigrant stocks do not differ (see the linear restrictions reported in the *Notes* of Table 4).

Again relative to emigrants, the disaggregation shows that the two coefficients are not significantly different (see the linear restrictions in the table Notes), but the meaning of this result is different from above.

While for immigrants the disaggregation confirmed the absence of a network effect, with respect to emigrants it bears the opposite implication. It shows that the emigrants' impact on trade is positive and it is robust to the division of the sample into two subsets, one of countries with a high stock of emigrants and the other of countries with a very low stock. This outcome is in contrast with Girma and Yu (2002) and Dunlevy (2002): the more marked dissimilarity of one subset of countries does not add value to the information conveyed by the emigrants of those countries. In short, our results indicate that the emigrant networks of countries that are similar to Italy and known since older times have not lost their importance, they are still active. There, the old transnational family

¹⁶ This result differs from Rauch and Trindade (2002), where the coefficient of the squared variable of ethnic Chinese immigrants is negative and significant.

bonds have been replaced by more modern forms of interactions. On the other hand, in the New Markets interactions are forming now, and have contemporary features. In any case, when dealing in foreign markets, Italian entrepreneurs still seek to interact with co-nationals.¹⁷

6. Conclusions

To our knowledge, this paper is the first empirical study of the relationship between emigration, immigration and bilateral trade flows. We have focused on the case of Italy, which is a country characterized by important outflows and inflows of population and by a marked geographic and historical separation between these two movements.

The main prediction of network theory is that of the positive effect of migrants on bilateral trade flows. Our findings are that emigrants have a significant and robust effect on bilateral trade flows, while immigrants do not. On the contrary, the latter have a negative impact on imports. More precisely, emigrants affect trade because they have and provide valuable knowledge on market opportunities, not because of their preference for home-market products.

Our separation of the world into two main areas, one of similar and known countries, the other of dissimilar and less explored ones, does not change these results. Emigrants matter for trade, both in the areas where they are many and networks are old and in the areas where they are very few and links are recent. On the other hand, the interactions of immigrants with partners in their home countries, if they exist, remain too weak to positively affect trade, even for the area of the world, the

¹⁷ A frequently tested implication of network theory concerns the types of goods traded in the international markets (e.g. Gould 1994, Head and Ries 1998, Rauch and Trindade 2002). It is hypothesized that the value of the information provided is higher for differentiated than for homogeneous goods (Rauch 2001). To control for these aspects, we have separated the Italian bilateral trade flows into two main groups, one including differentiated manufactures and the other non-differentiated manufactures and other goods. The proportion of differentiated goods over the whole of bilateral trade with the Old markets is 62%, while this share is 52% for the New markets (ISTAT, COMTRADE). The lack of statistical differentiation between the coefficients of the variable emigration in the Old and New Markets suggests that this differentiation is not relevant for our analysis. Another implication of network theory is that transnational links are more easily established by skilled migrants. The proportion of the stock of emigrants of people holding a tertiary degree and of entrepreneurs are both clearly higher in the New Markets than in the Old. In particular, the percentage of emigrants with tertiary education in the New markets is 7.3% versus 2.4% in the Old Markets, while the share of entrepreneurs is 20% in the New versus 5.7% in the Old Markets (AIRE). Again, the two coefficients are not statistically different and also this hypothesis is not supported by Italian data.

New Markets, where their knowledge would be more valuable. Together, these results seem to indicate that natives, in this case Italians, tend to prefer interactions with their co-nationals, even when the information provided by immigrants, regarding their origin countries, is available.

The disaggregation into the two areas confirms a negative impact of immigrants on imports, both for the Old and the New Markets. This result is in contrast with Girma and Yu, where the immigrants of the dissimilar countries (in that case the non-Commonwealth countries) had a positive impact on trade.

Italy trades more with the European Union, but its exports toward the Old Markets (except the EU-15 countries) are showing some decline. The country's emigration flows and its trade are shifting toward the emerging economic areas of the world. These ongoing deep modifications of the economy, together with the rapidly increasing flows of immigration, suggest that a further investigation on the role of emigrants in facilitating trade and on the reasons for the apparently absent network effects of immigrants may be worthwhile.

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Table 1 Institutions and culture: Old and New Markets			
<i>Variables</i>	<i>Italy</i>	<i>Old Markets*</i>	<i>New Markets**</i>
<i>Institutions</i>			
Voice and accountability (a)	1.05	0.40	0.04
Political instability and violence (b)	0.26	0.23	-0.08*
Government effectiveness (c)	0.84	0.60	0.12
Regulatory burden (d)	0.89	0.46	0.12
Rule of law (e)	0.78	0.53	0.05
Corruption (f)	0.68	0.60	0.02
<i>Culture</i>			
Christians on population	0.95	0.81	0.31
Number of Italian schools		323	47
Share of schools on population (millions)		0.35	0.08
<p><i>Notes:</i> *. ** A detailed list of the countries belonging to each group is in the Appendix. a, b, c, d, e, f are the (cross sectional and time series) averages of six standardized indicators provided by Kaufmann et al. (1999). Each original indicators is expressed in terms of deviations from its own mean: greater values are associated to greater effectiveness of institutions. The values in this table (averages) also have the same meaning. The negative value (*) is associated to greater political instability. "Christians" includes Roman Catholics, Greek Catholics, Protestants, Anglicans, Lutherans, Orthodox and other Christians. Italian Schools includes Dante Alighieri and other Italian Schools. Further details on these variables in the Appendix.</p>			

Table 2 Trade and migration: Old and New Markets		
<i>Variables</i>	<i>24 Old Markets*</i>	<i>27 New Markets**</i>
<i>Trade</i>		
Exports (\$ mill.)	13.909	3.665
Imports (\$ mill.)	13.337	4.253
Exports growth#	0,8	2,7
Imports growth #	0,6	3,1
<i>Migration</i>		
Emigrants (stocks)	33.895	419
Immigrants (stocks)	3.478	13.350
Emigrant growth#	350	1128
Immigrant growth#	80	981
<p><i>Notes:</i> *. ** A detailed list of the countries belonging to each group is in the Appendix # percentage increase between 2005 and 1990</p>		

Table 3 *Export equation*

Explanatory Variables	<i>Model I</i>	<i>Model II</i>	<i>Model III</i> ♦	<i>Model IV</i>	<i>Model V</i>	<i>Model VI</i>
Intercept	-107.836 (-1.32)	-126.407 (-1.55)	-51.42 (-0.62); [-0.59]	-30.77 (-0.36)	242.141 (1.49)	-44.425 (-0.52)
Foreign -country GDP	0.691*** (16.19)	0.656*** (14.79)	0.661***,+++ (15.15), [14.17]	0.665*** (15.51)	0.643*** (14.29)	0.66*** (2.37)
Foreign -country deflator	0.302* (1.72)	0.338* (1.95)	0.336**, ++ (1.99) [2.40]	0.351** (2.05)	0.317* (1.95)	0.328* (1.92)
Foreign–country population	-0.078 (-1.60)	-0.058 (-1.20)	-0.079*, + (-1.67), [-1.70]	-0.094** (-2.08)	-0.033 (-0.66)	-0.080* (-1.67)
Italian GDP	0.046* (1.71)	0.060** (2.24)	0.061**,+ (2.35), [1.94]	0.063** (2.39)	0.062** (2.27)	0.062** (2.37)
Italian deflator	-0.302 (-0.38)	-0.104 (-0.41)	-0.112 (-0.45), [-0.44]	-0.090 (-0.36)	0.277 (0.93)	-0.106 (-0.43)
Italian population	5.936 (1.28)	6.94 (1.51)	2.72 (0.59), [0.56]	1.565 (0.33)	-13.78 (-1.04)	2.328 (0.49)
Distance	-0.640*** (-13.10)	-0.601*** (-11.99)	-0.579***,+++ (-11.60), [-11.09]	-0.565*** (-11.36)	-0.627*** (-11.74)	-0.581*** (-11.56)
Emigrants	0.079*** (3.99)	0.071*** (3.58)	0.129***,+++ (5.03), [4.69]			0.156** (2.065)
Immigrants	0.012 (0.36)	0.016 (0.49)	-0.002 (-0.88), [-0.82]			-0.003 (-0.083)
Lagged Emigrants					0.124*** (4.64)	
Lagged Immigrants					-0.014 (-0.39)	
Squared Emigrants						-0.0017 (-0.38)
Emigrants Old Markets				0.134*** (4.54)		
Emigrants New Markets				0.123*** (4.09)		
Immigrants Old Markets				0.004 (0.12)		
Immigrants New Markets				0.024 (0.75)		
Dummy EU (1990)		0.260** (2.46)	0.356***,+++ (3.34), [2.79]	0.36*** (3.19)	0.261** (2.32)	0.354*** (3.28)
Dummy New Markets			0.412***,+++ (3.44), [3.18]	0.37*** (2.74)	0.430*** (3.36)	0.419*** (3.44)
Adjusted R^2	0.846	0.850	0.8585	0.8580	0.865	0.857
Observations	204	204	204	204	153	204

Notes: ♦ optimal model;

*** 1%, ** 5%, * 10% significant level based on (t-values);

+++ 1%, ++ 5%, + 10% significant level based on [t values] – heteroskedasticity robust standard errors

Testing restriction in model IV, H_0 : Emigrants Old Markets = Emigrants New Markets, $F(1,190)=0.12$, p-value=0.72;

Testing restriction in model VI H_0 : Squared Emigrants=0, $F(1,191)=0.12$, p-value=0.72.

Table 4 Import equation						
Explanatory Variables	<i>Model I</i>	<i>Model II</i>	<i>Model III</i> ♦	<i>Model IV</i>	<i>Model V</i>	<i>Model VI</i>
Intercept	-302.972** (-2.67)	-323.77*** (-2.87)	-275.59***, ++ (-2.36); [-2.20]	-243.03** (-2.04)	-146.91 (-0.63)	-266.26** (-2.22)
Foreign-country GDP	0.601*** (10.24)	0.562*** (9.17)	0.567***, +++ (9.27); [10.48]	0.576*** (9.51)	0.572*** (8.82)	0.570*** (9.21)
Foreign-country deflator	-0.760*** (-3.15)	-0.719*** (-2.99)	-0.72, ***, ++, (-3.01); [-2.85]	-0.674*** (-2.77)	-0.753*** (-3.23)	-0.731*** (-3.02)
Foreign-country population	0.087 (1.30)	0.108 (1.61)	0.094 (1.40); [1.58]	0.072** (1.12)	0.148* (2.01)	0.094 (1.40)
Italian GDP	-0.009 (-0.25)	0.007 (0.19)	0.008 (0.21); [0.30]	0.008 (0.23)	-0.0006 (-0.15)	0.008 (0.23)
Italian deflator	0.601* (1.70)	0.595* (1.69)	0.590*, + (1.69); [1.67]	0.565 (1.62)	0.918** (2.15)	0.598* (1.71)
Italian population	17.04*** (2.67)	18.18*** (2.86)	15.47***, ++ (2.35); [2.19]	13.64* (1.82)	6.865 (0.52)	14.94** (2.21)
Distance	-0.742*** (-11.03)	-0.69*** (-9.89)	-0.683***, +++ (-9.66); [-9.86]	-0.673** (-10.02)	-0.77*** (-10.03)	-0.686** (-9.63)
Emigrants	0.091*** (3.31)	0.082*** (2.96)	0.119***, +++ (3.27); [2.74]			0.155 (1.45)
Immigrants	-0.092** (-2.01)	-0.088* (-1.92)	-0.100**, ++ (-2.17); [-2.18]			-0.100** (-2.16)
Squared Emigrants						-0.002 (-0.35)
Lagged Emigrants					0.097*** (2.52)	
Lagged Immigrants					-0.133** (-2.53)	
Emigrants Old Markets				0.123** (2.25)		
Emigrants New Markets				0.115** (2.17)		
Immigrants Old Markets				-0.089** (-1.99)		
Immigrants New Markets				-0.057^ (-1.50)		
Dummy EU (1990)		0.29** (1.99)	0.355**, +++ (2.34); [2.74]	0.330* (1.83)	0.255 (1.57)	0.349** (2.28)
Dummy New Markets			0.269 (1.56); [1.08]	0.14 (0.45)	0.247 (1.34)	0.270 (1.57)
Adjusted R^2	0.728	0.732	0.735	0.735	0.746	0.733
Observations	204	204	204	204	153	204

Notes: ♦ optimal model; *** 1%, ** 5%, * 10% significant level based on (t-values);
+++ 1%, ++ 5%, + 10% significant level based on [t values] – heteroskedasticity robust standard errors

Testing restriction in Model IV H_0 : Emigrants Old Markets = Emigrants New Markets, $F(1,190)=0.032$, p-value=0.85;

H_0 : Immigrants Old Markets = Immigrants New Markets, $F(1,190)=0.68$, p-value=0.40.

Testing restriction in model VI H_0 : Squared Emigrants=0, $F(1,191)=0.14$, p-value=0.70.

Data Appendix

<i>Data</i>	<i>Source</i>
<i>Gross Domestic Product</i> : current prices, US billion dollars	World economic outlook 2006, International Monetary Found. (http://www.imf.org/external/pubs/ft/weo/2006/01/data/dbcdatm.cfm)
<i>Gross Domestic Product Deflator</i> : index	World economic outlook 2006, International Monetary Found.
<i>Population</i>	Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2005. <i>World Population Prospects: The 2004 Revision</i> . Dataset on CD-ROM. New York: United Nations. Available online at http://www.un.org/esa/population/publications/WPP2004/wpp2004.htm
<i>Distance</i>	The great circle distance in km between capital cities, which is available on http://www.wcrl.ars.usda.gov/cec/java/lat-long.htm .
<i>Italian emigrants: stocks</i>	AIRE (Anagrafe Italiani Residenti all'Estero); people registered at AIRE database from 1990 to 2005
<i>Immigrants: stocks</i>	ISTAT, migration trends and foreign population, istat annuals on line; "foreign presence in Italia: social – demographical characteristics; residence permits on 1 st January of the year
<i>Exports</i> : current prices, U.S million dollars	ISTAT, Coeweb – statistics on the international trade..
<i>Imports</i> : current prices, U.S million dollars	ISTAT, Coeweb – statistics on the international trade. Values in current million dollars.
<i>Foreign direct investment inward and outward</i> : current prices, U.S million dollars	OECD International Direct Investment Statistics International direct investment by country <i>Vol 2005 release 01</i>
<i>Italian Schools</i> : total number of Dante Alighieri and other Italian Schools.	<ul style="list-style-type: none"> - Dante Alighieri schools - http://www.scuoladantealighieri.org/ - Italian schools – the list is published by the Italian Foreign Ministry on its site www.esteri.it
<i>Christians</i> : % of Christians (Roman Catholics, Greek Catholics, Protestants, Anglicans, Lutherans, Orthodox and other Christians) on population	The world factbook, Central Intelligence Agency

Table 5 Sample of countries and regional dummies		
<i>Countries</i>		
Albania #	Malaysia #	Hungary #
Algeria #	Morocco #	Ireland, *
Argentina	Mexico	Venezuela
Australia	Norway	
Austria	Netherlands*	
Brazil	Philippines #	
Bulgaria #	Poland #	
Canada	Portugal *	
Chile	UK *	
China #	Czech Rep. #	
South Korea #	South Africa	
Croatia #	Romania #	
Denmark *	Russia #	
Egypt #	Singapore #	
France *	Slovakia #	
Germany *	Slovenia #	
Japan #	Spain *	
Greece *	USA	
India #	Sweden *	
Indonesia #	Switzerland	
Iran #	Thailand #	
Israel #	Tunisia #	
Libya	Turkey #	
Luxembourg *	Ukraine #	

Notes: * denotes EU member countries in the 1990; # denotes countries considered in the New Market Dummy variable