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**A Social Network Approach to Spanish Immigration:
An Analysis of Immigration into Spain 1998-2006**

by

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DOCUMENTO DE TRABAJO 2008-33

Serie Inmigración
CÁTEDRA Fedea - Banco Popular

October 2008

Paper prepared for the Fedea Report 2008

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IMDEA

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ISSN:1696-750

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FIRST DRAFT

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Introduction

From being an European emigration champion for a good part of the 20th century Spain have not only seen a reversal in its migration flows, but have for some time been the perhaps most important immigration destination worldwide. Its immigrant population, documented and undocumented, have grown from less than 900 thousand in 1998 to close to 5.2 million in 2008. Or to get a clear understanding of the size magnitude of Spain's immigration, imagine the entire population of Ireland moving to Spain in the course of just ten years.

The Spanish immigration phenomenon beg for attention in terms of research. To this day, most of the academic work on Spanish immigration is descriptive to its nature, and there have been few attempts to advance international migration theory based on the Spanish immigration experience. This chapter attempt to confront the Spanish immigration experience with a research strand that have received substantial interest in later years, but have suffered from low levels of diversity since it has mainly been tested empirically on the US immigration experience (Massey 1990; Massey 1997).¹

Research that successfully addresses the problems of why individuals migrate have shown that past migration is a network creating process that give rise to more or less dense contacts between origin and destination countries. These interstate contacts is in turn a potential recourse that may reduces the costs and risks of consecutive migrations and, hence, may be an important explanation to increases the likelihood for future migration among potential migrants (see Portes 1995; Massey et al 1998). Basing myself on this observation, in this chapter I will assume that just as in other immigration contexts, the Spanish immigration process also reallocates pre-existing networks geographically and across borders. These reallocated social ties then becomes an important resource in future immigration decisions in so far that an interpersonal social network ties stretching from the destination to the origin country reduces the costs and risks of migration, as well as make family migration more common and likely. That is, the structure of network ties is a potentially important causal factor influencing the immigration destination decision, and consequently any existing territorial differences in the growth and spread of the Spanish immigration phenomenon.

My primary concern is the receiving society, and how social networks are likely to shape the spatial diffusion and composition of the immigrant population in the receiving society. In difference to much of the existing immigration research in this genre, I will not restrict my analysis to a single collective of immigrants (Lesger et al 2002; Wegge 1998, Massey 1990; Massey 1997). Instead, I will look at the population of collectives that immigrate into Spain (See Dunlevy and Gemery (1977) for an example of a multi collective approach focusing on the US experience). To archive my objective I will be using a unique set of data with information about 4.4 million immigration events, which

¹ See Lesger et al 2002; Wegge 1998 for European examples.

is close to the entire population of immigration events in Spain. Moreover, the data include information on both documented and undocumented immigration events, thus, making it more complete than other sources of this kind.

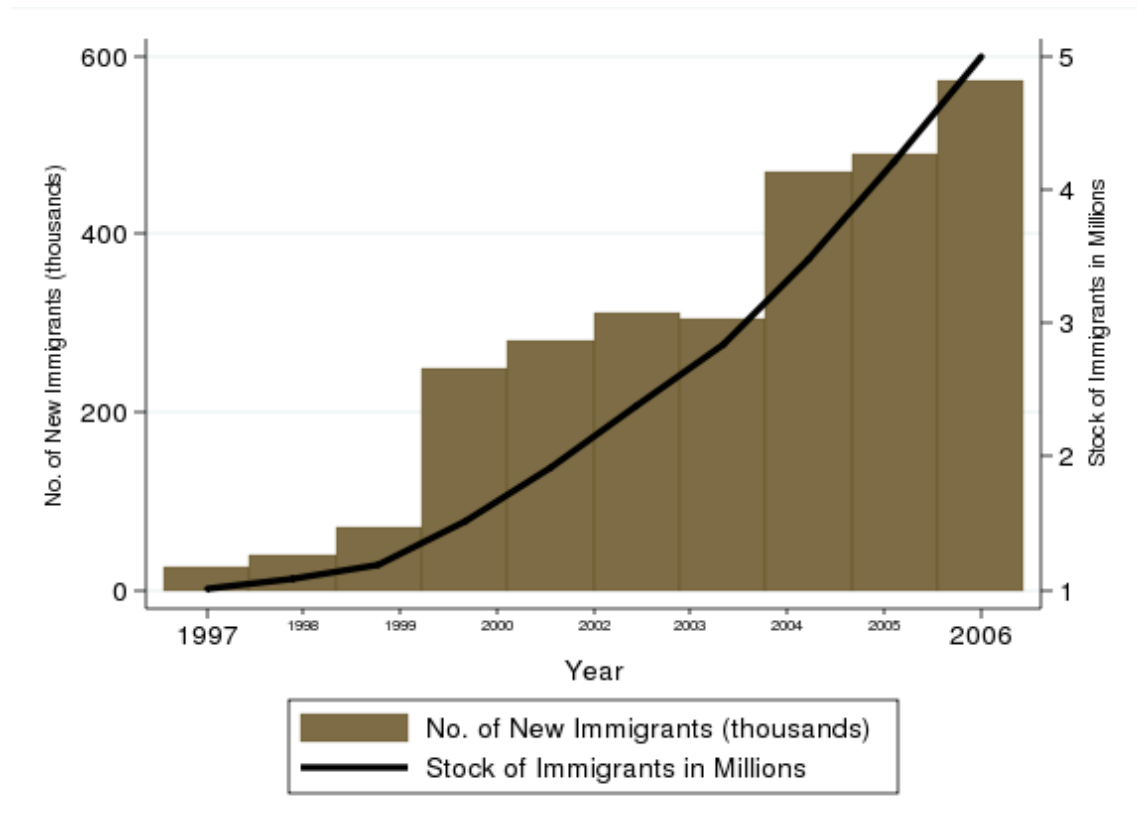
The chapter is organized as follows. First I describe the Spanish immigration phenomenon in more detail, by looking at the size and composition of the immigrant population, as well as the territorial diffusion of the immigrants. Thereafter, I introduce the concept of the social network effect, and discuss why and how social networks are likely to be a casual factor to consider when explaining immigration processes and variations in their spatial diffusion in the receiving country. Third, I discuss alternative explanations that may compete with or complement my network approach to variations immigration destination decisions in Spain. Fourth, I present empirical analyses in which I test the main hypothesis as explained in part two and three. Finally, In the conclusion I discuss some general implications of my findings for policy makers.

Spain's Immigration phenomenon.

Until very recently international immigration was close to non-existent in Spain. But shortly after the country's entry into the European Union in the early 1980's immigration gradually increased in a spectacular way. Today it is probably fair to say that Spain have been the most important immigration destination both in absolute terms as well as in relative terms worldwide in the last decade.

The data displayed in figure 1 summarizes Spain's recent immigration history. Against the left y-axis I graph the number of new immigrants (in thousands) that entered Spain by year between 1997 and 2006. The number of new immigrants is graphically represented by the bars in figure 1. The definition of new immigrants is simply the number of documented and undocumented persons proceeding from abroad that inscribed with the Spanish local population register. Against the y-axis on the right, I graph Spain's total stock of documented and undocumented immigrants (in millions).

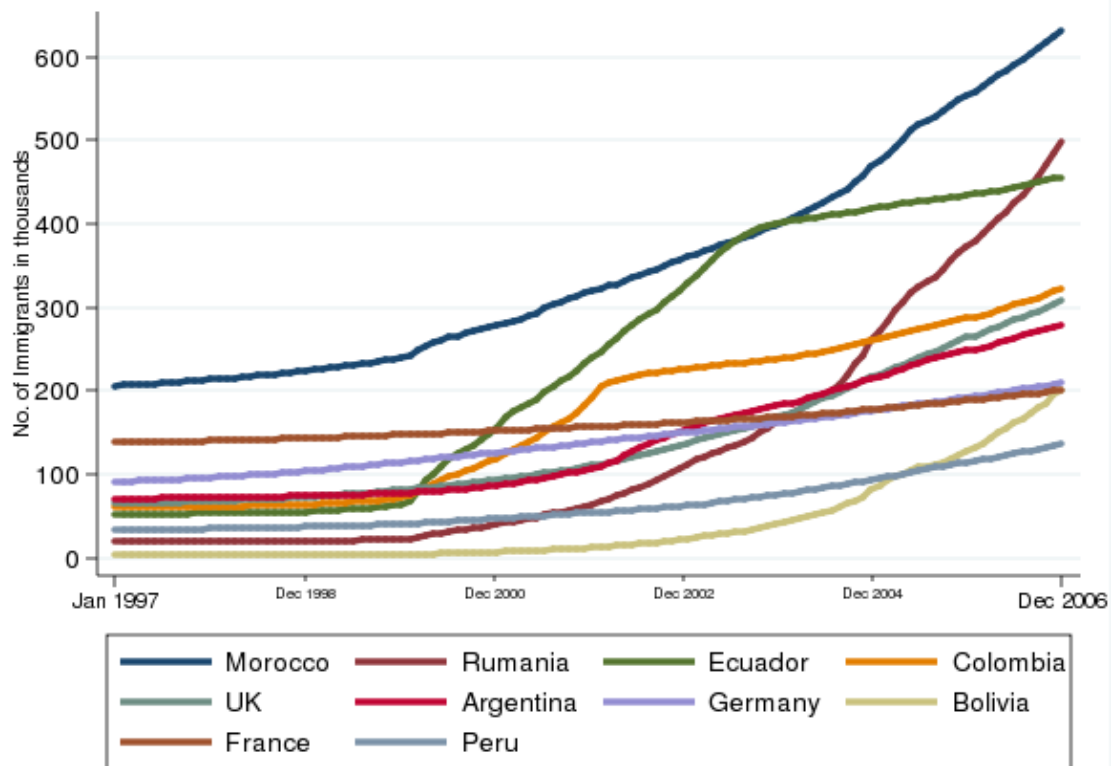
Figure 1. Immigration into Spain 1997-2006



Note. Data is from the Micro-data archive on residential variation combined with micro data on vital statistics. Authors own elaboration

As we can see from figure 1, Spain saw new immigration increase in a stepwise fashion over the last decade. In the period 1997 to 2000 the country received less than 50 thousand new immigrants per year. After 2000 up until 2004 it received new immigration in the range 250-300 thousand per year. And in the last three year period the inflow have next to exploded with yearly immigration levels close to and well above the 500 thousand mark. With yearly increases in the number of new immigrants at this level, and almost no return or transit migration, Spain have seen its immigrant stock skyrocket. Figure 1, show an increase in the stock from slightly less than one million in 1997 to over 5 million in 2006.

Figure 2 Spanish Immigration by Country of Origin, 20 Largest Collectives.



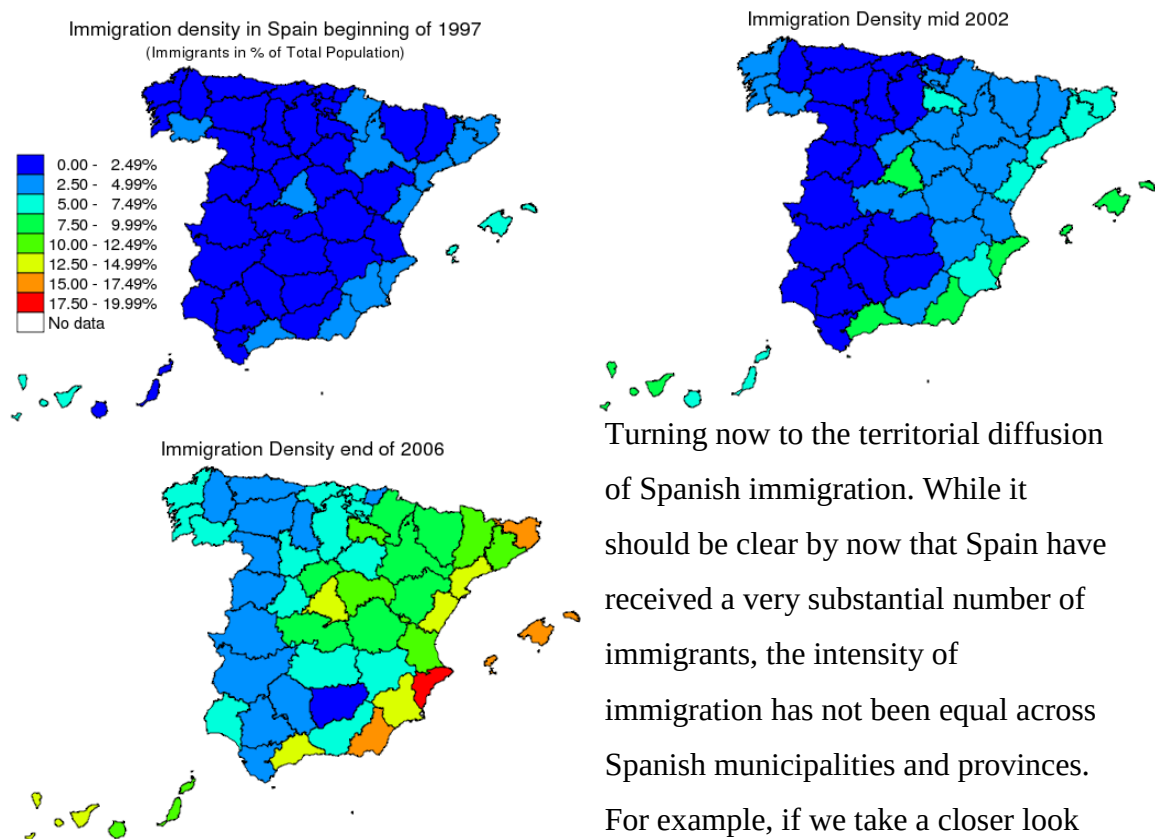
Note. Data is from the Micro-data archive on residential variation combined with micro data on vital statistics. Authors own elaboration

Table 1. Spanish Immigration (in thousands) by Country of Origin: 20 largest collectives

	Jan 1997	% of Spain's Immigration	Jan 2003	% of Spain's Immigration	Jan 2007	% of Spain's Immigration
Morocco	206	21,1%	357	15,0%	632	12,6%
Romania	20	2,0%	108	4,5%	498	9,9%
Ecuador	53	5,4%	321	13,5%	456	9,1%
Colombia	60	6,1%	226	9,5%	323	6,5%
UK	66	6,8%	135	5,7%	308	6,2%
Argentina	71	7,3%	152	6,4%	280	5,6%
Germany	92	9,4%	150	6,3%	210	4,2%
Bolivia	3	0,3%	22	0,9%	202	4,0%
France	138	14,1%	163	6,8%	201	4,0%
Peru	34	3,5%	62	2,6%	137	2,7%
Venezuela	52	5,3%	76	3,2%	135	2,7%
Bulgaria	10	1,0%	44	1,8%	119	2,4%
China	22	2,3%	41	1,7%	107	2,1%
Brazil	3	0,3%	22	0,9%	105	2,1%
Dominican Rep.	26	2,7%	50	2,1%	96	1,9%
Cuba	32	3,3%	57	2,4%	88	1,8%
Ukraine	6	0,6%	34	1,4%	77	1,5%
Portugal	5	0,5%	19	0,8%	65	1,3%
Uruguay	3	0,3%	17	0,7%	64	1,3%
Italy	16	1,6%	31	1,3%	62	1,2%
Total 20 Largest Collective	918	94,1%	2087	87,5%	4165	83,2%
Total Immigration Spain	976	N.A	2385	N.A	5006	N.A

Note. Data is from the Micro-data archive on residential variation combined with micro data on vital statistics. Authors own elaboration

As for the composition of the immigrant population, there are currently immigrants from over 150 nations in Spain. However, in terms of importance, there are some 20 immigrant origins that stand out, (see table 1 and figure 2). Together immigrants from these 20 collectives account for well over 80% of Spain's total immigrant population. As we can see in table 1 and in figure 2, immigrants from Morocco form the most important collective numerically, and have done so for the time-period for which I present data, with exception for the end of year 2003 when immigrants from Ecuador for a few months exceeded the Moroccan born immigrant population. In 2006, there were over 600 thousand documented and undocumented Moroccan immigrants in Spain, around 500 thousand Romanians, 450 thousand Ecuadorian, and around 300 thousand immigrants from Colombia, the UK, and Argentina respectively.

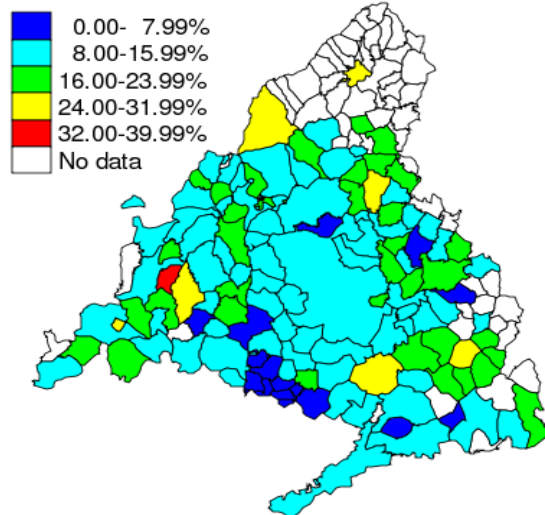


Turning now to the territorial diffusion of Spanish immigration. While it should be clear by now that Spain have received a very substantial number of immigrants, the intensity of immigration has not been equal across Spanish municipalities and provinces. For example, if we take a closer look

on immigration density across Spanish provinces we find increasing inter provincial variation over time. In the adjacent graphs we see the evolution of immigration density across Spanish provinces at three different points in time, 1997, 2002, and 2006. As we can see from the information contained in this graph. At the start of the period, 1997, immigration density was relatively homogeneous across provinces. As immigration into Spain intensify so does the inter-provincial differences in immigration density. In 2002

we can clearly see how provinces such as Madrid (in the middle of the chart) and Malaga, Almeria, Alicante (in the south), and the Balears (islands) have a immigration density above 10% while the western parts of the country, except for the western provinces in Galicia (in the northwest) have close to zero immigration. Finally in 2006, inter-provincial differences are becoming manifested, and we see territorial variation from less than 2% to well over 17,5%.

Immigration Density in the Province of Madrid end 2007
(Immigration in % of Total Population)

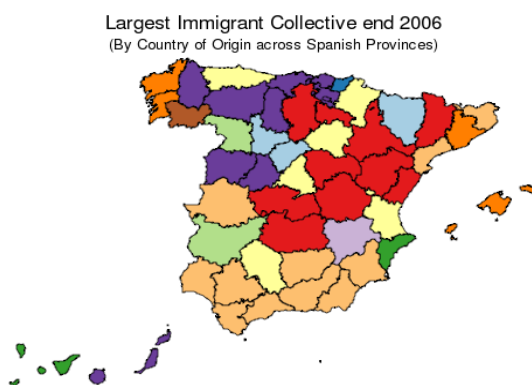
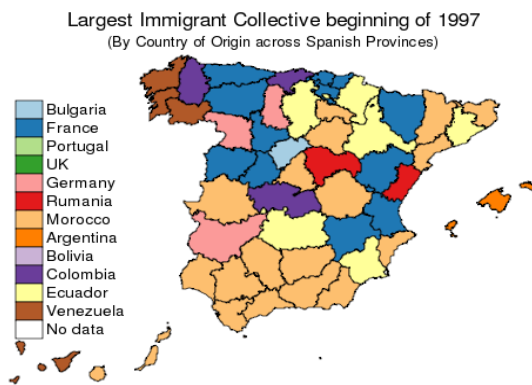


Note: Data only available for municipalities larger than 1000 inhabitants

A similar pattern is also observable at the next administrative level, at the level of municipalities. Take the example of the Madrid province, (see adjacent chart) which had an average immigration density just short of 15% in 2006. When looking at the density across Madrid's municipalities we see almost extreme inter-municipality variation in immigration density from under 8% up to 40% immigrants of the total population.

If we instead of turn our attention to ethnic and cultural origin of the immigrants and how different collective disperse across the Spanish territory, inter-provincial differences is again an issue. Above (see table 1) we saw that there are 20 origin countries dominating Spanish immigration. Without any a priori assumptions about the different collectives settlement patterns, it would be rational to expect that, for example, the Moroccan immigrant collective in its capacity of being the numerically largest immigrant collective at the national level, would be the numerically dominating immigrant collective at lower administrative levels.

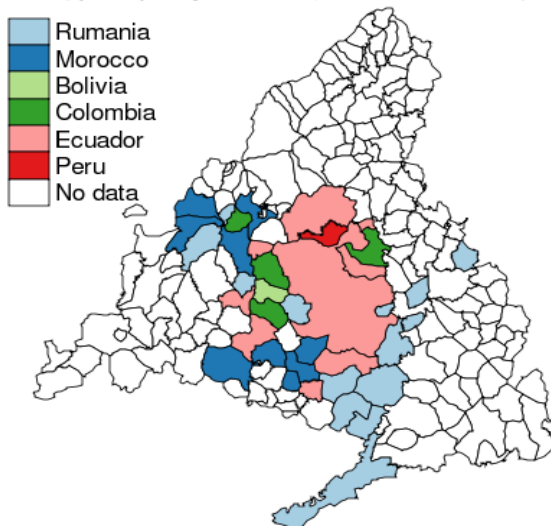
The adjacent illustration show the numerically dominating collective across Spanish province in 1997 and in 2006. As we can see, being the largest collective at the national level does not imply being the largest collective at lower administrative levels. While it is true that immigrants from Morocco dominates more provinces than other collectives at both points in time (in 1997 it dominates some 20 provinces out of 52, and in 2006, 11 out of 53), there are 12 immigrant collectives apart from the Moroccan that



dominates one or more Spanish provinces numerically. Of these 12 other collectives the large majority are significantly smaller than the Moroccan collective (see table 1 above).

Another interesting pattern that can be observed in the adjacent charts is the tendency of clustering. That is, in those cases where an immigrant collective is the numerically largest collective in more than one Spanish province, there is a tendency for the provinces in which the collective prevails numerically to be adjacent. For example, in 2006, Colombian immigrants cluster in Spain's north-western provinces, Romanians in the middle and Moroccans in the south.

Largest Immigrant Collective in the Province of Madrid end 2006
(By Country of Origin across Municipalities in the Madrid Province)



Note: Data only available for municipalities larger than 10,000 inhabitants

This tendency for clustering is also discernible at the municipal level.

Turning again to the province of Madrid for an example, in the adjacent illustration we see the geographical diffusion of immigrant collectives in at the level of Municipalities in the Province of Madrid. Immigrants from Ecuador form the largest collective in Madrid, but at the municipal level there are 6 dominating immigrant collectives with Moroccans dominating the western parts of Madrid, Rumanian's the south and the east, and Ecuadorian the central parts.

Needless to say, the descriptive statistics just displayed clearly indicate that the Spanish immigration phenomenon is subject to high levels of geographical and cultural

heterogeneity. Thus, anyone interested in explaining the Spanish immigration phenomenon have to address the question: Why the immigrant population is so unevenly scattered over the Spanish territory, and why we see a clear tendency for different immigrant collectives to clustering geographically?

The fact that there is substantial variation with respect to immigration density, together with the observed tendency for geographical clustering of immigrant collectives suggest the presence of some intervening process. From the economist point of view it is tempting to seek an explanation to this heterogeneity in terms of, say, economic differentials across Spanish provinces. However, while it is not unlikely that existing economic differences across Spanish provinces could shed light on this problem, it is less clear if it is the only valid explanation to the observed differences in immigration density or cultural clustering with respect to the immigrants origin. Nor is it clear whether it is a sufficient explanation to why geographical heterogeneity in immigration settlement emerges. One of the key claims of this chapter is that social processes are likely to be of substantial importance for the immigrants settlement decisions. If social processes are intervening in the immigration settlement processes it is likely to have consequences for immigration diffusion patterns. In the following sections in this chapter I will argue that social processes are likely to be responsible for a significant part of the territorial variation in the immigrant density and the geographical diversity in immigrant collectives settlement patterns that can be observed in the adjacent graphs.

The Sociology of Immigration

Labour migration research, have long been dominated by economic theory. However, there is a growing agreement that traditional economic explanations of particularly international migration settlement processes are insufficient. This is not to say that economic explanations are wrong or non-valid, what seem to be a growing concern is that the economic conditions advocated as causes for both emigration and immigration decision are necessary but not a sufficient explanation of international migration processes (Massey et al 1998).

One important reason for why economic theory is rendered insufficient when attempting to explain international immigration settlement decisions is that potential migrants usually lack first-hand knowledge about the destination society. Or put differently, to

take advantage of an immigration opportunity such as it is laid out in economic theory, the potential migrants' must be aware of its existence (Nelson 1959). It is clearly the case that information about immigration opportunities becomes more scarce, or difficult to obtain, as distance between the origin and the potential destination increases. This, suggest that the diffusion of information is a key concern when trying to explain the immigration processes. Another concern is that when immigrants set out to overcome the transition costs of migration, social as well as economical, they are potentially unable, or unwilling, to do this independently of other actors, thus challenging the rational decision making process that economic theory is based on. The sociological approach to international immigration has in part aimed at solving for some of the problems taunting the economic approach, and hence, it has the potential to complement the economic approach to international immigration, thereby rendering more precise predictors of this phenomenon.

Today there is a growing literature that argues that migrant networks influence the migration process in significant ways. One of the dominating ideas in this literature is that past immigrants lower the cost and risks of subsequent migration, as well as provide information about jobs and the labour market to potential migrants who are socially tied to the initial migrants. This induce new immigration events, which in turn lower the cost for migration further. Looked at in this manner immigration becomes a self sustained diffusion process fuelled by the social capital inherent in the network structure emerging from past migration (Nelson 1959 Greenwood 1970; Levy and Wadycki; Anjomani and Hariri 1991; Massey and Espinosa 1997, Massey 1998; Fussel and Massey 2004).

The social network effect

While it is widely agreed that pre-existing social ties are influential for migration decisions, exactly how and why they are important is less well established. However, it seems likely to assume that most potential migrants face a high level of uncertainty regarding their possibilities to make it in the destination society, and anyone about to make a migration decision face a choice situation, that contains risks, costs, and benefits of different migration choices. In ambiguous situations, potential migrants can at best arrive at informed guesses about the 'best' or 'right' decision based on and influenced by available information about the likely effects of migration (Granovetter 1985; Portes

1995; Hedström et al 2001;). A key concern in immigration research is consequently to assess how potential migrants go about solving for their information needs. In particular, any potential immigrant is likely to be interested in learning about any existing immigration opportunities in the destination country. These immigration opportunities could be a specific job offer, or a potential contractual demand, in the destination location. In either case, jobs are typically offered by agents or employers in the destination location j and people in origin i rarely have access to this information since they lack direct connections to actors and employers operating in i . To come by information of this type and thereby reduce the costs and risks inherent in the migration decision, potential immigrants are likely to draw upon their social networks in potential destination countries. Or put differently, if a potential migrant has friends or family in the potential destination, the potential migrant is likely to call on them to bridge the information gap preceding the final decision to migrate and thereby reducing the risk of migration. The potential migrant may also call on friends and family in the destination with a view to reduce some of the transition costs of migration. Past migrants may even pay potential migrants to emigrate by means of, say, remittances. Thus, not only can social networks lower the cost of establishment in the host country, but also significantly lower the cost of actually getting from the origin to the destination country.

In addition, as friends and families migrate, already established social networks are effectively being reallocated to a potential destination country. This reallocation of the social network is in effect a reallocation of social capital. Those who have previously migrated and established themselves in the destination may in turn ease the social transition between the origin and the destination as well as provide the necessary means to get by for subsequent migrants that enjoy social ties with the prior migrants (Nelson 1959; Greenwood 1970; Dunlevy and Gemery 1977; Massey 1990). This reallocation of existing social networks is likely to have far reaching consequence for future migration. It follows that the more people that have moved from origin i to destination j , the larger is the number of people in i that come to enjoy a direct link with someone in j that they can benefit from if and when they decide to migrate between i and j . One likely consequence of this is that subsequent migration between i and j increases as migration between i and j increases. Or as sociologists have chosen to call it, the immigration process becomes subject to cumulative causation, whereby the accumulated immigration at one point in time causes more immigration at the next time point (Myrdal

1957; Massey 1990; Portes 1995; Massey and Espinosa 1997, Fussel and Massey 2004). To the extent that this type of mechanism is operating, I expect to find that the immigration intensity of a given collective into a particular location is positively related to the number of socially relevant individuals that already have immigrated into the location in question.

Furthermore, and as a simple test of the validity of this assumption as well as a test that the path dependency just hypothesized is just not the result of some underlying trend capable of causing more immigration in general, individuals in i choosing to immigrate into j should only be sensitive to the development of past immigration between i and j . In other words, immigrants from i should be indifferent to the simultaneous migration development between origin k and destination j for the simple reason that there exist no direct social ties between people in i and people in k and hence, no transition cost/risk reduction is expected. That is, once controlling for immigration of socially relevant others, the immigration intensity of a given collective into a particular location is uncorrelated with the number of non socially relevant others that have immigrated into the location in question.

Destination and origin effects

Following the suggestions made by Massey et al (1993) about the immigration process being the product of several casual mechanisms, in the following section I will introduce a series of control, or complementary, variables that are likely to account for the part of the variance not explained by the sociological mechanism just introduced. That is, while a particular immigrant collective's immigration intensity in a given destination is likely to be influenced by the social factors, the immigration intensity is likely to be influenced by other factors as well. I will restrict the analysis to factors that are general enough to apply to most immigration destination decisions, and thus are likely to account for some of the observed variation in immigrant destination decisions that I expect to observe in the data. These factors are roughly divided into two categories 1) Destination specific variables and 2) Origin specific variables.

Destination specific determinants of immigration

In discussing the destination specific measures I am basing my argument in economic theory. I assume that actors are rational and that they select an immigration destination that maximizes their well-being (Borjas 1989; see also Massey et. al. 1993).

Population size in the destination location. While population size in the destination is not likely to cause immigration it is an important proxy measure of casual factors. Following Greenwoods (1970) suggestion the greater the population in the destination, the greater is the local labour market. From the immigrants point of view the larger the local labour market is, the more job opportunities there are, and the more job opportunities there are the more attractive is the locality in question. It can thus be expected that; *the intensity of the immigration rate is likely to be higher in municipalities located in populous provinces.*

Economic Growth. Another variable of substantial interest for this study is regional economic performance. Just as with unemployment, research focusing on the relationship between economic growth and immigration aim at assessing how immigration influences growth rather than how growth may affect immigration. However, while there is less interest in studying the inverted relationship, there seem to be little disagreement that such a relationship exists. For example, Friedberg and Hunt (1999) noted in reviewing research on immigration and the receiving economy that while immigration may influence growth, growth surely affect immigration.² I therefore expect that; *the intensity of the immigration rate is likely to be higher in municipalities located in provinces with a high relative growth rate.*

Unemployment. Most research that deal with unemployment and immigration levels usually looks at how immigration influences unemployment in the host country, and in particular how immigration influences the unemployment level for the native population (Borjas 1994; Sassen 1995; Friedberg and Hunt 1999; Castles and Miller 2003). Although this research strand is interesting, it is less relevant for the present analysis. My primary concern is instead how differential unemployment levels may affect

² As for Spain, as much as 40 % of the Spanish Economy's growth rate is attributed to immigration (Oficina Economica del Presidente del Gobierno 2007)

immigrant's location decisions. In the context of this study, I will assume that this decision hinges on a rational assessment of which is the best or “right” location to settle in (Borjas 2001). Time series analysis looking at the longer trend in the relation between unemployment and immigration levels support the notion that high unemployment levels dampens the immigration rate (Pope and Withers, 1993).³ Hence, based on this evidence I expect that: *the intensity of the immigration rate is likely to be higher in municipalities located in provinces with a low relative unemployment rate.*

Living Cost. In addition to low unemployment and high growth, any immigrant looking to maximize his well-being, in choosing between two alternative location with similar characteristics, high living costs in one but not the other location could easily discourage immigrants from choosing the location with high living cost. Not surprisingly, Cameron et al (2005) and Hughes and McCormick (2000) found that rising housing prices have a negative effect on net-migration in the UK. Based on this finding I expect that after controlling for other relevant variables; *that the intensity of the immigration rate will be lower in municipalities located in provinces in which the cost of living is high.*

Origin Specific determinants of immigration into Spanish municipalities

So far I have mainly been taking about economic differences across immigration locations in Spain. However, it is a reasonable assumption that, after controlling for the economic variables introduced above, some immigrants are more likely to immigrate than others, and that any observed differences in immigration propensities across immigrant collective may be tied to characteristics that are unique for the collective to which the immigrant belong.

³ Past research have suggested that the direction of the relationship between unemployment and immigration may be ambiguous insofar that immigrants could sometime be drawn to areas with high unemployment (Filer 1992). The explanation for this is that immigrants have biased information about the labour market, and that this bias arise because information about contract opportunities is channelled through social networks to a larger extent than for the native population (Filer 1992). However, since I explicitly control for social network effects I do not expect this to be an issue here.

Distance. While distance in itself is not an explanatory factor, it is commonly used as a proxy for factors that makes immigration more difficult or less likely as distance increases. Common such factors are cost of moving, and cultural differences which tend to increase as the distance between the origin and destination country increases (Hagerstrand 19xx, Levy and Wadycki 1973, Dunlevy 19XX). I thus expect that: *the intensity of the immigration rate decreases as the distance between origin and destination countries increases.*

Population size in the origin country. The idea here is simple. Once controlling for relevant variables, the larger the population in the origin country, the larger is the number of potential immigrants (Levy and Wadycki 1973). To this end I expect that; *the intensity of the immigration rate is likely to be higher for immigrant collectives from populous countries.*

Economic performance in the origin and in the destination countries. One of the most discussed determinants for immigration are economic push and pull factors. (Castles and Miller 2003). While push and pull factors usually fail to explain why a particular emigrant immigrate into a specific country, the existence of economic push and pull factor can be conceived as a prerequisite for migration flows between countries. Hence, it is a potentially important control variable when assessing why immigration from one origin is more frequent than from another. The perhaps most important push and pull measure discussed in the literature is the economic differences between the origin and the destination country, which claim that the potential for migration is larger between countries where the income divide is significant. That is: *the intensity of the immigration rate will be higher for immigrant collectives that come from significantly poorer countries than Spain.*

Language. Language skills play an important role in determining immigrants' social and economic status (Chiswick and Miller 2001). The language barrier is an obstacle that can delay the adaptation process and if present deny immigrants access to the parts of the labor market that are language sensitive. Language skills and the language barrier becomes a particular concern when studying the immigration rate across various collectives of which some share the mother tongue spoken in the destination but others do not. Since Castellano or Spanish is an international language spoken officially in

some 20 countries across the world by approximately 500 million people, there is clearly a case to be made about language being an opportunity enhancing factor for those fluent in Spanish. Inversely, potential immigrants in non-Spanish speaking collectives are likely to factor in the increased cost of having to learn a foreign language. *The immigration intensity will be higher in immigrant collectives whose origin country have Castellano/Spanish as an official language.*

EU-Membership & Common Visa Regulation. It is not only economical concern that determine a immigrant collectives propensity for immigration, the collectives opportunity structure is likely to play an important role. Immigration opportunities are often a product of political or institutional processes or joint ventures. For example, it is not uncommon for two countries to sign agreements regulating the level of travelling freedom that their citizens enjoy mutually. In Spain there are foremost two different opportunity structures that govern international immigration opportunities, 1) EU-Membership and 2) The common Visa regulation.

As for EU-Member states, the free movement of people between EU countries is a basic right for all EU citizens. This means that nationals of any of the EU-Member states have the right to live and work wherever they like inside the European Union. Hence, *the immigration intensity will be higher for immigrant collectives whose origin country is member of the European Union.*

With respect to the common visa regime, consider the case of Ecuador, and how immigration from Ecuador into Spain changed after removing Ecuador from the list of countries exempted for a Visa. In 2001 and in 2002 the number of new Ecuadorian immigrants in Spain was around 120,000 each year. In April 2003 Ecuador was excluded from the visa waiver program and that year the net increase was of 80,000. In 2004, the first complete year in which the new visa restrictions for Ecuador were fully effective, the increase in the stock of Ecuadorian immigrants fell to 20,000, only a fraction of earlier levels. Most likely the sudden decline in Ecuadorian immigrants was a direct result of the new visa regulations imposed on Ecuador. Simply put, the possibility for Ecuadorian's to enter Spain, with or without the intention of becoming undocumented immigrants, disappeared when Ecuador lost its travel freedom with the EU and consequently Spain (see also figure 2 above for a visual representation of

immigration from Ecuador). There is a series of countries that are exempted from the visa requirements, and as a result they can freely travel into Spain and while they are not allowed to work in Spain they are free to stay for 90 days as tourists. Needless to say, overstaying is the most common route for Spain's undocumented migrants. For this reason I expect that, *the immigration intensity will be higher for immigrant collectives whose origin country does not require a visa to enter into Spain.*

Immigrant networks and the Institutional context. In addition to the direct effect of these last two measures there are a potential interaction effect between the way access to Spanish territory is being or not being granted and social networks. The main idea concerning the social network effects is that friends and family ties cushion and make the transition easier between the origin and destination society. If this is the case then it follows that the more difficult or complicated it is to transfer from one origin to a particular destination, the more important should family and friendship ties be for potential migrants seeking to immigrate into the destination country in question. In the case of Spain, being an immigrant from a non-EU country or being an immigrant from a country whose citizens are requested a Visa to enter Spain are two significant obstacles that would make family and friendship ties to past migrants a more important asset than otherwise. I thus expect to observe the following interaction effect in my data: *the network effect is likely to be more important for collectives which have a more restricted access to the destination society than those that do not.*

Data and Methods

A decisive test of the hypotheses discussed above requires relevant longitudinal data on individuals and their immigration history as well as information on their relationships to all other individuals and their immigration histories in the relevant population at different points in time. Even if this type of data were at all possible to collect, it is definitely not currently available. Hence, an alternative strategy is necessary. I have chosen to focus on the timing of immigration events for a specific collective of immigrants in a particular Spanish municipality at a given point in time, and how the timing of this event is related to the way the event process is unfolding for the collective/municipality in question.

Methods

In the following, I will illustrate my reasoning a bit more formally in order to arrive at a suitable model for testing the idea that the immigration process and spatial variation in immigration in the receiving society is to a large degree the result of a social network effect. I will assume that the immigration intensity for a specific collective in a given municipality is a function of (1) the political context (i.e., general Spanish immigration policies), (2) destination specific characteristics (for example, Unemployment, GDP, Housing prices etc.) of the 52 province in which the investigated municipalities are located, (3) origin specific characteristics (such as visa exemptions, EU membership, population size, as well as cultural variables such as language and geographical proximity), and finally (4) the social network effect discussed at some length above. A simple model for the probability of the event that an immigrant from a particular collective i will immigrate into a given municipality j can be written as,

$$p_{ij}(t) = \sum a(t) + \sum d_j(t) + \sum o_i(t) + \sum s_{ij}(t), 0 \leq p_{ij}(t) \leq 1 \quad \text{Equation (1)}$$

where p_{ijt} is the probability that an immigrant from origin i will immigrate into municipality j at time t , and a , d , o , and s are factors and characteristics related to the political context, the destination, the origin, and the family and friends network respectively. Note that factors related to the political context are assumed to be the same for all subjects in the risk set. Thus, a has no subscript. The destination, and the origin characteristics are heterogeneous and time varying. Finally, social influence is a subject specific function of the network effects for a specific collective in a given municipality, and consequently time varying too. Since a in Equation 1 is the same for every municipality, its properties are of no theoretical interest in the present context. However, d , o , and especially s are of central concern.

The principal objective is to analyse the duration of time until the subject (ij) experience an immigration event. This suggests that survival or event history models is proper choice of model Strang (1991). Moreover, since immigration is recurrent – more than one immigrant from collective i is likely to immigrate into municipality j over time – the specified model have to accommodate multiple events. Following the recommendation of Andersen and Gill (1982) Therneau and Grambach (2000) and Ezzell

et al (2003), a counting process formulation of the Cox-model is appropriate in an analytical situation where the subject will experience multiple events. Finally, because I am dealing with multiple events of the same type I will adopt a model for ordered multiple events. While there exist several alternative models for modeling ordered multiple events (see Therneau and Grambach, 2000 pp.185) I will apply the so called AG (Andersen-Gill) model.⁴ My reason for this is simple. My primary hypothesis is that the intensity of future immigration events is a function of the stock and intensity of past immigration events. and, since all alternative models stratify the model on the event process while the AG model does not, the AG model is the only available alternative allowing me to explicitly estimate the effect of the number of previous immigration events on the intensity of future events (Ezell et al, 2003).

In the AG model each subject is represented as a ordered series of observations (rows), with risk-time-intervals being (entry time, time of first event], (time of first event, time of second event], (k^{th} event, last follow-up] (Therneau and Grambach, 2000). However, since I have time varying covariates I will modify this set-up so that every subject contributes one observation for every time period under study and within each time period the subject can either experience or not experience an immigration event (see Box Steffensmeier and Jones, 2004, for an intuitive discussion on accommodating time varying covariates in a counting process formulation of the Cox model). The following equation describes the extended Cox proportional hazard rate model that will be used here:

$$r(t) = Y(t)h(t)e^{[\beta_1 D(t) + \beta_2 O(t) + \beta_3 S(t)]} \quad \text{Equation (2)}$$

where $r(t)$ is the intensity of immigration, $h(t)$ is the (unspecified) baseline hazard. The only difference with an ordinary proportional hazard model is that $Y(t)$ remains one instead of going to zero as an event occur (Therneau and Grambach, 2000). $D(t)$ is the vector of time varying covariates measuring destination specific characteristics, $O(t)$ is

⁴ Competing alternative models are the WLW (Wein, Lin and Weissfeld, 1989) and the PWP model (Prentice, Williams and Peterson, 1981). See Ezell et al for an extensive applied discussion of the strength and weaknesses of the different models mentioned here.

the vector of time varying covariates measuring origin specific characteristics, and finally $S(t)$ is the vector of time varying covariates measuring the social network effect. The network effect is construed as the stock of an immigrant collective in a province at time t . That is, the network effect is an influence coefficient measuring the stock of immigrants from a particular collective over the interval [entry time, t] in a particular province, less the number of deaths and outmigration events for the collective in question. If the parameter estimate for this coefficient is significantly different from zero a social network effect is likely to be operating.

My measures concerning destination specific effects is inter-municipality differences. That is, instead of focusing on, say. the economic performance of a particular Spanish municipality I will concentrate on inter-municipality differences so that:

$$\Delta d_{it} = D_t - d_{it} \quad \text{Equation (3)}$$

where D is the value of the destination specific measure at time t at the national level and d is the corresponding value of this measure for province j at time t .

Data

I will use data from the Spanish local population register. The data set has some unique features. It contains information about practically every immigration event – local as well as international – in Spain on a monthly basis between 1988 until 2006. Moreover, the register include information about both documented and undocumented immigration. To my knowledge there is no other country that produce a continuous account of both its documented and documented immigration at this level of detail.⁵

⁵ Inscription in the Spanish local population register is a basic right –as well as an obligation– for any immigrant residing regularly or irregularly in Spain. It is also a precondition for regular/legal immigrants that file for a residence and work permit. Moreover, it is a right reinforced by legal incentives in so far that their inscription in the local population register gives irregular immigrants access to healthcare in the municipality in which they reside according to the local population register. (See art 12 Spanish Organic Law 4/2000 on foreigner's rights). What is more, Spanish law includes important mechanisms for regularising irregular immigrants (the so-called *arraigo*, or 'to take root') which are conditional on the irregular immigrant's date of entry into Spain. (See art 45 in Royal decree 2393/2004 for a full account of the meaning of *Arraigo*. On the functionality of this mechanism see also J. Arango and R. Sandell, 'Inmigración: prioridades para una nueva política española', Real Instituto Elcano, Madrid, 2004.) To this end, inscription, aside from being a precondition for regularization, in the local population register is at the moment the only irrefutable evidence of the length of an immigrant's stay in the country. If we also

More precisely, I have information on the sex, date of birth, place of birth, nationality, destination municipality, origin municipality or country of origin, month and year when the migration event was registered. In total, for the period 1988 to 2006 I have information about 23,048,289 migration events, of which 18,634,604 are domestic migration events, and 4,413,685 are immigration from abroad. As it should be clear by the discussion in preceding sections, the analytical focus is on the approximately 4.4 million immigration events that Spain experienced in this period.

Because of data limitations regarding some of the control variables I am forced to restrict the analysis period to 1997 to 2006. While this might seem like a drastic measure it is not likely to be of significant importance. Immigration in Spain was close to non-existent before 1997. Restricting the window of observation as suggested reduces the number of international immigration events by 172,018 bringing down the total to 4,241,667. Now, since my main concern here is that, once controlling for relevant variables, the intensity at which immigration event occur may be altered as a result of a social network structure between origin and destination country, I will concentrate the analysis only to foreign born immigrants. This limits the number of immigration events further to a total of 4,050,753. Put differently, I exclude about 190 thousand Spanish born (return) immigrants from the final analysis. Furthermore, due to Spanish data protection regulations, I can only identify municipality id for the migration events in municipalities that have more than 10,000 inhabitants. Thus, of the approximately 8.1 thousand municipalities in Spain I have immigration data for 716 municipalities, (which is the number of municipalities in Spain with more than 10.000 inhabitants). However, these 716 municipalities received about 83 %, or 3,372,811 of Spain's total immigration in this period. However, this restriction only concern my dependent variable, my key independent measures, including the social network effect includes information about immigration in municipalities smaller than 10 thousand

add to this that past massive regularisation campaigns, like the last one in 2005, usually also make regularisation conditional on the date of entry into the country. For example, the last massive regularisation campaign explicitly mentioned the inscription in the local population register before a specific date as a prerequisite for inclusion in the campaign. (See third Transitory Disposition in Royal decree 2393/2004.) If –or when– Spain embarks on a massive regularisation campaign in the future, it is likely that inscription in the population register will be used as a prerequisite for inclusion. Considering this, very few immigrants forsake the right and obligation to be inscribed in the population register.

immigrants. Finally, and for theoretical reasons, since the process I focus on assumes that where and when an immigration event is taking place is subject to rational actions on behalf of the people that immigrate, I will exclude immigration events where the immigrants are under-aged. That is, I exclude 558,919 immigrants that were under the age 18 at the time of entry into Spain, and who's immigration decision is assumed to be completely contingent on the immigration decision of their parents. This leaves me with a total of 2,813,892 immigration events. In principle, despite the above restrictions, it is important to point out that the close to 3 million immigration events constitutes the immigration universe in Spanish municipalities larger than 10 inhabitants.

The the destination and origin specific measures are drawn from the following sources. Information about unemployment is obtained from the Spanish (quarterly) labour market survey, the so called EPA ("Encuesta de la poblacion activa") at the level of provinces. Economic data, such as the growth in regional GDP, Consumer price index are drawn from INE's on-line database on regional economic indicators. Data on housing costs are from the Ministerio de Viviendas (Ministry for Housing) on-line data base on housing costs. Information on GDP in the origin countries is from the World Banks on-line data base. Population data for the origin countries is from the UN on-line data base. The language and distance variables are derived from the information provided on-line by CEPII.

Results

As mentioned above, I use an extended Cox proportional hazard rate model to analyze the intensity of the Spanish migration process for a particular collective at the municipality level. By intensity the following analysis refer to the risk that municipality j will experience a new immigration event involving an immigrant from collective i at a given point in time t . I chose to report the results of my analyses in terms of three different models. Model 1 is a baseline model in which I introduce the set of destination and origin specific variables discussed above. In model 2 I introduce my network effect measure together with the destination and origin specific variables. A second measure introduced in this model is the size of non socially relevant others. As mentioned above, with respect to the network effect, if my argument is correct that individuals rely on their friends and family to lower the cost of the transition from the origin to the destination, then their propensity to immigrate should be largely unaffected by an

increase in the stock of non socially relevant others. Finally, in Model 3 I explore the two interaction effects discussed above. Both effects concern the interaction between policy and the social network. If my argument is correct, that friends and family ties cushion and make the transition easier between the origin and destination society, then the importance of such ties should increment as access to the destination society is made more difficult by, say, policy measures in the destination society.

The first model relates the immigration intensity for a specific collective in a municipality to the destination and origin specific measures. As for the destination specific variables there is a somewhat mixed support for my four main hypotheses concerning the destination specific variables. The immigration intensity increases with 25% for every increase in the population size in the destination province. It increases with 8% for every percentage increase in the difference between growth of GDP at the national level and the GDP in the province in which the municipality is located. Similarly, the immigration intensity decreases by more than 5% for every percentage increase in the difference between the national unemployment level and the unemployment level in the province in which the municipality where the immigration event takes place is located. Or simply put, the more economic growth and the less unemployment there are in a particular province relative to the national average, the higher is the immigration intensity in municipality located in this province.

My indicators concerning the living cost are less coherent. Both hazard rate estimates are in the opposite direction than the expected. Although, in both cases the hazard rate are so close to zero and almost insignificant. One possible explanation for why we observe relationship in the opposite direction than the expected is that immigration in Spain is concentrated to urban areas which are characterized by higher living cost than rural areas. However, since these variables does not really contribute any explanatory value in this model the direction of the relationship is of no direct concern here.

Turning now to the origin specific effects in model one. As we can see my hypotheses concerning these variables are confirmed with one exception, the immigration intensity is reduced by slightly less than 5% for immigrant collectives coming from EU member states, which is contrary to my expectations. However, this variable suffer from a high standard error which renders it insignificant. This suggest that there is considerable

variation between EU member-states with respect to Spanish immigration propensities with no general pattern visible. The immigration intensity is higher for collectives from origin countries with a large population. If the origin country is exempted from visa requirements the immigration intensity is about 73% larger than if the immigrants come from countries not exempted from the Visa requirements. Language appears as the most important predictor judging by the size magnitude of the coefficient. Spanish speaking collectives have an immigration intensity that is 546% larger than non Spanish speaking collectives. Geographical proximity also behaves as expected, for each unit increase in distance between the destination and the origin the immigration intensity decreases by about 60%. Finally, my measure of economic differences between the origin and the destination countries, is barely significant, and has a close to zero effect on the immigration intensity in this model.

If we were to use significance levels as a measure of importance (Allison 1982) we find that for the origin specific variables, Geographical Proximity, Population Size and Language are the three most important variables (in that order). As for the destination specific variables we find that Unemployment, Growth and Population Size are the most important explanatory variables (also in that order).

In model 2 I introduce my measures of the network effects as hypothesized. As we can see my network measures are highly influential. For example, for each unit increase in my influence measure of the network effect, the immigration intensity rises by 54%. This result strongly supports the hypothesized effect of the network-variable; the estimated hazard rates are as expected positive, and the variable is highly significant. In the same model I also introduce my measure of the stock of other immigrants in the municipality –The Network Effect Others. As shown in Table 1, my hypotheses regarding how this control measure is likely to behave are confirmed. The hazard rate for the Network Effect Others is only borderline significant and close to zero compared to the main network measure, meaning that, and just as predicted, the immigration intensity for collective i is by and large unaffected by an increase in the stock of immigrants from the k other collectives in the receiving province. This suggests that the observed network effect is not just responding to a general increase in the immigration intensity in the receiving province, but an effect that reflects the presence of intra-collective influences for a particular immigrant collective. The way in which this control measure behaves adds

credence to my argument that the migration process is likely to be the result of a network effect , and that the measures I have chosen to represent this effect in this chapter is both valid and appropriate.

Table 1 Hazard Ratios predicting the immigration intensity for a particular collective in Spanish municipalities for the period 1998 – 2006. (standard errors in parenthesis)

Variable	Model					
	1.		2.		3.	
<i>Micro Level Network Effect*</i>			1.542 ** (0.019)		1.633 ** (0.022)	
<i>Micro Level Network Effect Others*</i>			1.054 * (0.023)		1.058 ** (0.022)	
<i>Population Size in Destination Province*</i>	1.258 ** (0.037)		0.680 ** (0.018)		0.671 ** (0.018)	
<i>% Difference in GDP Growth Rate to National Growth Rate</i>	1.080 ** (0.006)		1.010 ** (0.004)		1.012 ** (0.004)	
<i>% Difference in Unemployment Rate to National average</i>	0.942 ** (0.004)		0.993 * (0.003)		0.994 (0.003)	
<i>% Difference in House Price to National average</i>	1.001 (0.001)		1.001 * (0.000)		1.001 * (0.000)	
<i>% Difference in Change in Consumer Price Index to Change in National CPI</i>	0.998 ** (0.000)		1.000 (0.000)		1.000 (0.000)	
<i>% Difference in GDP per Capita Between Spain and Origin Country</i>	1.000 * (0.000)		0.999 ** (0.000)		0.999 ** (0.000)	
<i>Distance in Km. Between Spain and Origin Country*</i>	0.393 ** (0.007)		0.952 (0.032)		1.020 (0.035)	
<i>Population Size in Origin Country*</i>	1.647 ** (0.017)		1.124 ** (0.017)		1.105 ** (0.017)	
<i>Dummy 1 if Origin Country is an EU Member</i>	0.955 (0.043)		1.023 (0.041)		2.367 ** (0.236)	
<i>Dummy 1 if Origin Country is Exempted from Visa When entering the EU</i>	1.731 ** (0.080)		1.250 ** (0.041)		2.661 ** (0.173)	
<i>Dummy 1 if Origin Country have Castellano as Official Language</i>	6.461 ** (0.395)		1.301 ** (0.070)		1.138 * (0.062)	
<i>Interaction Effect Migrant Stock by Collective & EU Membership</i>					0.916 ** (0.007)	
<i>Interaction Effect Migrant Stock by Collective & Visa Exemption</i>					0.912 ** (0.010)	
<i>Log Pseudo-Likelihood</i>	-28,134,197		-27,459,276		-27,445,397	
<i>Wald Chi square</i>	5,679		12,415		15,456	
<i>N</i>	17,801,471		17,801,471		17,801,471	
Number of Immigration events	2,752,992		2,752,992		2,752,992	

Introducing my network variable have far reaching implications regarding the interpretations of the other variables introduced in model 1. To begin with there are several general observations to be made. In comparing the two models using a simple LR-test we can easily appreciate that model 1 is significantly worse than model 2. Also the reported Wald Chi square for model 2 is almost twice the level reported in model 1, thus, suggesting that model 2 is a much more efficient model. This general improvement in explanatory power clearly suggest that my network effect measure is highly influential and the perhaps most important explanatory variable in the model. Secondly, the hazard rate estimates across all previously introduced variables are much lower when the network effect is introduced in the model. Lower hazard rates are to be expected. If the intensity of immigration is a function past migration as it has be argued here, it is also a function of all the variables that helped determine past migration. Thus, not including information about past migration in the model lead to parameter estimates that overstates the true relationship between the independent variables and new migration (Nelson 1959; Greenwood 1970; Levy and Wadycki 1973).

But let us take a closer look at some of the variables. To begin with we find that the hazard rate for the measure of population size in the destination changes from 1.25 to 0.68, That is, once my network measures, which controls for past immigration, are introduced, we find that for each unit increase in the measure for the autochthonal population size immigration intensity is 32% lower. This change in sign of the relationship may appear surprising, but, a negative relationship is still plausible and even expected. Given that immigrants are drawn to populous rather than non populous areas implies that a measure of population size in the destination would act as a proxy for the family and friend effect that my network variables picks up. Hence, in the absence of the variables measuring the network effect, population size will exert disproportional influence on the immigration intensity (Dunlevy and Gemery 1977). While this explain why we should expect lower effects of the population estimate, it does not explain why we see a change in sign. Note that the observed effects in model 2 suggest that once we control for the size of the immigrant population, immigration intensity is higher in municipalities located in provinces where the authohtonal population declines. This could be the result of a crowding and a crowding-out effect. That is, faced with an increasing immigrant population, the authohtonal population leaves for other provinces. Alternatively, municipalities located in populous provinces

but in which the autochthonal population declines because of natural demographic reasons, are more prone to receive new immigrants than more demographically vital municipalities. However, deciding on which of these ad-hoc explanations that is most likely requires a separate analysis that goes beyond the scope of this chapter.

As for the hazard rates concerning the rest of the destination specific variables they are reduced to almost a fraction of their initial values. The only reasonably important measure is GDP Growth. For each percentage increase in the difference between the province and the national average, immigration intensity rises by 1%. Somewhat surprisingly the effect of unemployment is reduced and is now only borderline significant. A plausible explanation for this is that immigrants have biased information about the labour market, and that this bias arises because information about contract opportunities is channeled through their social networks to a larger extent than for the native population (Filer 1992). It is even the case that immigrants could sometimes be drawn to areas with high unemployment because of the explicit information about job opportunities that is channeled through the immigrants' social network (Filer 1992). Thus, explicitly controlling for social network effects in the way I do in this model would make my general measure of the province's employment situation redundant with respect to where they decide to settle.

To summarize the findings so far, controlling for the hypothesized family and friends effect on future immigration reduces the importance of traditional economic explanations concerning the destination location capacity to attract immigration to a minimum. Of the four key economic measures it is only Economic Growth that seems to make a substantial difference. That is, once controlling for past migration, increased economic growth in a particular Spanish province relative to other Spanish provinces increases the immigration intensity in municipalities located in the Province in question.

Turning now to the origin specific variables. In the case of the origin specific variables the size magnitude of the reduction in the hazard ratios is much larger than in the case of the destination specific variables. To begin with, once controlling for the network effect, distance between the origin and the destination is no longer an issue. Recall that distance is included as a proxy for the cost of immigration, the longer the distance between the origin and the destination the more expensive is immigration on several

dimensions. Hence, the cost reduction implied by the social network effect is indeed effective since it reduces the importance of the distance measure to a fraction of its value in model 1, in which the network effect is excluded.

Language is partly subject to the same logic. But the drop in hazard ratio from 540% to 30% increase in the intensity in immigration is likely to be due to other factors as well. A likely interpretation of why language is so important in the first model in terms of hazard ratio is that since there are so many past migrants in Spain with Spanish as their native language (recall that in fig 2, 5 of the ten largest collectives are Spanish speaking collectives) the likelihood for more Spanish speaking immigration is huge. Or put slightly differently, the intensity of Spanish immigration is not so much the result of immigrants speaking Spanish or not, but instead it is by and large explained by a high level of past migration from Spanish speaking parts of the world. Controlling for this, as it is done in model 2 by introducing my network effect measures, renders a language effect that is more modest, but probably more accurate. The interpretation is that once controlling for past immigration the immigration intensity is 30% higher for collectives that are Spanish spoken. This is a finding very much in line with the main hypothesis of this chapter since not speaking Spanish is “still” a immigrant disadvantage in Spain. With small modifications the argument concerning changes in the hazard ratio for my language dummy is also applicable to the interpretation of the changes in the dummy capturing Visa restrictions.

In my third model I develop the idea that the family and friends effect may vary as a function of the institutional context in which the immigration event takes place. My main argument here is that social ties, which can cushion and make transition from the origin to the destination country easier, should be more important the more difficult and the more obstacles there is for the transition between the origin and the destination. To test this hypothesis I introduce two interaction variables with a view to explore the interaction between the Network effect measure and whether the origin country is an EU-member or is exempted from Visa respectively. A negative parameter estimate for each of these measures, suggest that the social network are less important if the immigrant have an easy entry access to Spanish territory. And as we can see in model 4, both interaction effects influence the immigration intensity negatively, reducing the

immigration intensity by 8 or 10 percent. This tells us that social networks not only lower the cost of transition and makes immigration a less risky venture, but that they are an important recourse in situations where immigration becomes more complicated from the point of view of the immigrants access to the country to which they choose to immigrate.

Conclusion

The research reported here is primarily concerned with the receiving society, and how social networks are likely to channel information that is important for the diffusion of immigrants in the receiving society, Spain. The goal is not to dispose of alternative explanations based on economic theory, and which have been proven more or less effective elsewhere in explaining settlement patterns (Borjas 1994). Rather, the objective here has been to use sociological theory as a refining instrument that will make economic explanations more precise than currently is the case when explaining, for example, heterogeneity in the immigrants settlement process. My results however seem to indicate differently. While my first model give substantial support for the hypothesis that heterogeneity in the settlement process, could be the result of economic differential between Spanish provinces, once controlling for the effect of the immigrants social networks economic differentials seem to be redundant for the explanation, with one important exception – economic growth. That the social network effect is present in the data is no surprise, since it is an increasingly well-documented explanation to immigration in international research. What is a surprise however is the way it dominates the present analysis. It is the single most important independent variable in the present analysis. It is a legit question to ask why this is the case.

One possible explanation could be found in how immigration into Spain has been managed politically. A relatively unique feature of Spanish immigration is that Spain had not planned in advance for its huge immigration intake over the last ten years, and there are, nor have there been, regular immigration channels in Spain that are capable of supplying immigration at the rate observed in Spain (Arango and Sandell 2004; Sandell 2008). That is, Spain have been the European scene for the type of mass (documented and undocumented) immigration that we have seen between, for example, Mexico and the US in the last couple of decades. An intervention-free immigration process makes the immigrant, and the immigrants' immigration decision central. This is likely to have

implications regarding the importance of social influences in the decision making process since migration depend more on the decision made by the migrants than by the receiving society's immigration policies (Wegge 1998). Or put differently in the absence of restrictions, immigration becomes to a large extent a process explained and governed by the immigrants preferences rather than rational economic considerations and policy. And as it has been shown in so much of the sociological literature, individual preference formation is usually the result of social interaction and social influences.

However, and a perhaps more important question to address is if immigrant networks are so important for the way the immigration process unfolds, what are the implications for the receiving society, in this case Spain? While there are likely to be multiple implications I like to highlight three main implications for the receiving society that are general enough to be subject to policy making and/or political concern.

The first implication concern the causal factors . The way the social network effect is operating imply that the immigration process becomes self-sustaining. This means that subsequent immigration becomes less and less an outcome of factors that originally caused migration. That is, people start to immigrate for reasons other than the original economic incentives, like for example joining their family (Portes 1995). This suggest that migration becomes less and less correlated with economic factors as employment rates, economic growth in the destination. Hence, and as a consequence of this, it would be unfortunate to regard immigration uniquely as an commodity subject to the principles of the market. Or expressed more directly, the presence of the social network effect in my data suggest that the intensity of Spain's immigration will not be directly correlated with economic change in the country, and that the immigration intensity could continue being high despite a lower demand of immigrant labour. The implications of this is of course that in good economic times the social network effect is relatively speaking unproblematic, but in bad economic times, the social network effect may imply increased cost for the receiving society since it is capable of generating immigration even if there is a explicit negative demand for immigrant labour in the receiving society.

A second implication concern the social outcome of a migration processes governed by an underlying social process. The social network effect implies that the geographical

concentration of immigrants from the same collective will be higher than if there had not been any social effect present in the data. While this is understandable and even desirable from the immigrants point of view, it also implies a strong potential for residential segregation both in terms of the immigrants vis a vis the native born population, as well as between different immigrant collectives. While segregation is not necessarily a negative phenomenon it can have some negative unintended consequences for the host society. For example, the educational system may have to cope with sometimes extreme immigration density with far reaching consequences for the way resources have to be distributed, and for the quality of education. Healthcare systems may also be affected by segregation, and last but not least, segregation is known to be a prerequisite for racial confrontation between immigrants and the host population. Regardless of whether policy-makers are interested in controlling segregation or not, the fact that immigrant segregation is caused by social processes makes interventions in this area extremely difficult since the immigrants social network is largely outside the control of policy makers (Massey 1998). Thus, if segregation is almost unavoidable given the way immigrants social networks operate, then it is likely to be the case that integration policies have to be designed in such a way that they recognizing the presence of the strong segregating mechanisms, and that they are capable of achieving integration despite that residential segregation is likely to be present or even increasing.

And finally third. In so far that the immigration process becomes self sustained due to the social mechanisms at work, immigration by definition also becomes self selective. Whether or not this is a problem is for each and everyone to decide. Here it suffice to say that if the immigration process becomes self selective, any existing demand by the host society with respect to the immigrants socio-economic profile have to be relaxed. If the immigration process is self selective we can expect that the immigrant population will be representative of the sending society's population rather than any socioeconomic demand profile in the host society (if such a profile exist). While there is a possibility for convergence, it cannot be excluded that there are substantial differences between the supplied and the demanded socio-economic immigrant profile. That is, any attempt of the host society to tailor its socio-economic demand with respect to new immigrants is likely to be effectively undermined by the ongoing social process generating the bulk of immigration received.

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