Measuring the Effect of the Local Ethnic Composition on Natives' and Immigrants' Geographic Mobility in France. Evidence from Panel Data (1982-1999)

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Résumé :

Cet article étudie la mobilité résidentielle des immigrés et des natifs en France en utilisant des données longitudinales. Il cherche à mesurer le degré auquel les comportements de mobilité sont affectés par les compositions ethniques du lieu de résidence. En tirant profit de l'architecture en panel des données, nous cherchons à corriger l'estimation de ces effets contextuels des biais liés à la sélection en raison de caractéristiques individuelles et géographiques inobservables ou inobservées. Nos résultats tendent à discréditer l'hypothèse du "white flight" longtemps dominante dans la littérature sur la mobilité résidentielle. Un certain évitement ethnique est néanmoins mesuré dans le choix de la commune d'installation pour les natifs mobiles. Les résultats attestent également que la présence d'immigrés de la même origine dans la commune réduit fortement les chances des immigrés de quitter cette dernière.

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Abstract:

This article provides empirical results on the patterns of native and immigrant geographic mobility in France. Using longitudinal data, we measure mobility from one French municipality (*commune*) to another over time and estimate the effect of the initial municipality's ethnic composition on the probability of moving out. Relying on a unique methodology, we try to correct for biases related to selection based on geographical and individual unobservables. Our findings tend to discredit the hypothesis of the "white flight" central pattern in residential mobility dynamics in France. Some evidence nevertheless denotes ethnic avoidance mechanisms in natives' relocating. We also find a strong negative and highly robust effect of co-ethnics' presence on immigrant geographic mobility. The final discussion explores some avenues to interpret these findings.

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Introduction

After lacking scientific and political legitimacy for decades, urban sociology in France is increasingly concerned with issues of ethnicity[1]. During the 2005 riots, black and Arab youth were primarily depicted in the violent images of the French suburbs; the media and even some politicians directly linked the riots to the so-called failure of the immigrant assimilation process and the rise of "communautarism" in France. On the other hand, an increasing trend has emerged among some scholars to use the ghettoization terminology, usually regarded as specific to the American context, to describe French urban dynamics (Lapeyronnie 2008; Maurin 2004). Nevertheless, evidence as to the degree to which geographic mobility has been driven by neighborhood ethnic characteristics has rarely contributed to this debate.

This research seeks to simultaneously describe patterns of natives' and immigrants'[2] geographic mobility in France and these groups' respective reactivity to the ethnic composition of their neighborhoods. We therefore build on the American literature concerning the impact of ethnic preferences on mobility for whites (the white flight literature) and for minorities (the ethnic clustering literature) and discuss its relevance for studying mobility in France. Our empirical analyses rely on unique data that combine longitudinal individual information on geographic mobility and contextual aggregated socioeconomic and ethnic characteristics of residential areas. Our modeling is one of the very rare that controls for both individual and geographical unobserved characteristics. Thus, we argue that our findings better lend themselves to causal interpretations as to the impact of ethnic preferences on mobility. Findings show very little support for a "French white flight" in out-migration but some support for avoidance patterns in relocating. On the other hand, the ethnic clustering effect is proved to be highly robust. In the conclusion, we explore some avenues for interpreting these findings.

[1] France generally embraces politics and policies in line with its unique republican model according to which there is no ethnic or racial differentiation in French society (Favell 2001; Safi 2008; Simon 2003). The French model rejects ethnicity, culture and religion as bases for political organization, claims-making, and even historically as the basis of categories for official statistics (Silberman 1992; Simon 1998).

[2] Ethnicity *per se* is not reported in any French public statistics survey. Only the migration status (immigrant or native) can be found in the census data. When used in this article, ethnicity refers more specifically to first generation immigrants' country of birth.

1. Studying natives˘ and minorities˘ geographic mobility and their reactivity to local ethnic composition across the Atlantic

Research on both white flight and ethnic clustering suggests that geographic mobility is driven to a large extent by both the majority and minority populations' preferences towards the local ethnic composition of their residential area. However, many scholars have questioned whether ethnic preferences do indeed play a pivotal role in segregation and have shown the effect to be modest if not negligible altogether (Galster 1988b; Massey and Denton 1993; Yinger 1995). In this section we sequentially review the research on white flight and ethnic clustering effects along with some of their underlying hypotheses and limitations. Since this literature has mainly flourished in the United States, we pay specific attention to the extent to which ethnic preferences and geographic mobility are linked in France and whether or not these processes are expected to operate in a similar way.

1.1. In search of a white flight effect: underlying hypotheses and limitations

Classical sociologists considered geographic mobility to be the channel through which ethnic segregation could supposedly lose ground (Duncan and Lieberson 1959; Park and Burgess 1921; Park, Burgess, and McKenzie 1925; Schwirian 1983). Geographic mobility is thus seen as a sign — or an outcome — of the assimilation process (Massey and Denton 1985; South, Crowder, and Chavez 2005). Studies on patterns and trends of segregation in the United-States have emphasized the limitations of this framework, especially for African Americans (Iceland and Scopilliti 2008; Logan, Stults, and Farley 2004; Massey and Denton 1993; Massey and Denton 1987). The very slow decrease in racial segregation after the Civil Rights Act has shifted the focus to the behavior of the white population. Many scholars supported the idea that, after Jim Crow and with the upheaval of anti-discrimination laws, segregation has been sustained by the residential patterns of whites and their unwillingness to remain in neighborhoods with a large and growing ethnic minority population. Evidence of white flight has been documented over more than three decades in the United-States (Crowder 2000; Farley, Schuman, Bianchi, Colasanto, and Hatchett 1978; Galster 1990; Ihlanfeldt and Scafidi 2004; Massey, Gross, and Shibuya 1994; South and Crowder 1998). Some studies have also attempted to directly measure natives' out-migration as a response to a minority influx in their residential areas (Boustan 2010; Card 2001; Card and DiNardo 2000; Frey 1995; Kritz and Gurak 2001; White and Liang 1998). In all these studies, scholars attempt to account for the possibility that whites' out-migration may not be motivated by the presence of ethnic minorities (or their growing number) *per se*, but rather the poor socioeconomic conditions (employment opportunities, safety conditions, social interactions, etc.) of the neighborhoods in which minorities are (or become) overrepresented (Frey 1979)[3]. For example, school choice has been shown to be a very significant component of whites' decisions to out-migrate (Clapp and Ross 2004; Fairlie and Resch 2002; Renzulli and Evans 2005). Most studies control for these non-racial factors by including neighborhood observed characteristics in the models (unemployment, crime rates, school dropouts, etc.). The effect of the ethnic

[3] Some recent research has used experimental methods to assess racial or ethnic preferences in neighborhood choice net of other social factors (Emerson, Chai, and Yancey 2001; Krysan, Couper, Farley, and Forman 2009). They tend to show that whites' neighborhood preferences are not racially blind.

composition of the neighborhood is thus interpretable in terms of a white flight net of these effects; in other words, the white flight interpretation is a residual one.

American scholars have traditionally considered that empirical findings supporting white flight conveyed the persistence of racial prejudice among whites (Charles 2006; Farley, Steeh, Krysan, Jackson, and Reeves 1994; Yinger 1976). Studies on subjective preferences towards neighborhood ethnic and racial composition tend to show patterns that are consistent with this hypothesis (Bobo and Zubrinsky 1996; Charles 2003; Charles 2006). However, none of these studies were conducted on white movers nor asked them to what extent the ethnic composition of their initial neighborhood precisely prompted them to move[4].

While quantitative information on individual preferences towards neighborhood ethnic and racial composition unfortunately remains non-existent in France, a few surveys measuring global "tolerance" towards minorities suggest a high level of hostility, especially towards African immigration[5]. The prominence of ethnoracial prejudice has also been demonstrated by high proportions of right-wing extremism since the 1980's that tends to be exacerbated in a context of economic crisis (Mayer 2002). This hostility may thus shape natives' residential strategies and would lead us to expect avoidance dynamics resembling white flight patterns in the U.S. In particular, some scholars suggest that the educational dimension of an "anti-immigration flight" is substantial in France specifically because school choice is very often limited to the location of residence and the presence of immigrants' children in classrooms is usually associated with lower quality education (Oberti 2007; Van Zanten 2006). Nonetheless, empirical evidence on patterns of geographic mobility and their link with the local ethnic composition is still lacking to support these arguments.

However, even if stereotypes and prejudice towards minority populations are widespread and indeed affect neighborhood preferences, this does not necessarily imply that white flight patterns would be observed in France. According to Schelling (1969; 1978), individual preferences only become effective once a threshold is reached. This idea has led scholars to attempt to measure the "tipping point" of whites' tolerance towards their black neighbors (Card, Mas, and Rothstein 2008; Clark 1991; Frey 1996; Grubb 1982). The literature highlights that the magnitude of such tipping points is related to urban and population structures that may differ across countries and even within cities in a given country. Such factors as the city population size, the proportion of individual minority groups, the total minority population size and the level of spatial segregation can affect the degree to which tipping points are reached locally. Many urban geographers and sociologists have argued that for historical and geographical reasons, the configuration of cities in Europe distances them from American ones (Johnston, Poulsen, and Forrest 2007; Musterd 2005; Peach 1996; Peach 1999; Wacquant 1992). In France, the dominant discourse about the lesser extent of

[4] Krysan studied the motivations of whites who said they would leave integrated neighborhoods and found some evidence of negative racial stereotypes among them (Krysan 2002b).
[5] The latest robust quantitative findings on French representations towards immigrants date back to the 1970's. A. Girard conducted repeated surveys on French natives' attitudes towards immigration in 1951, 1971 and 1974. All three surveys showed high prejudice towards post-colonial migration and specifically North-Africans (Girard and Stoetzel 1953; Girard 1971; Lamy, Charbit, and Girard 1974). More recently, comparative studies based on the Eurobarometers, the International Social Survey Program or the European Social Survey provide some information on increasingly high anti-immigrant attitudes in France (Malchow-Møller, Munch, Schroll, and Skaksen 2009; Meuleman, Davidov, and Billiet 2009; Quillian 1995; Semyonov, Raijman, and Gorodzeisky 2006). Finally, the *Commission Nationale Consultative des Droits de l'Homme* (2011) regularly publishes opinion survey results

segregation compared to the American context has traditionally relied on ethnographic research. Due to limitations in data availability and/or data access, and also because ethnic and racial inequality has long suffered from a lack of scientific and political legitimacy in France, only very recently have studies provided information regarding the magnitude of ethnic segregation (Lagrange 2006; Préteceille 2009; Rathelot 2011; Rathelot and Sillard 2010; Safi 2009; Verdugo 2011). Their findings show that segregation is much higher for non-European minorities than for Europeans and that it decreases at a slower rate for the former. The levels of ethnic segregation they account for remain lower than those measured in American metropolitan areas, thus reinforcing some scholars' objection to the concept of an ethnic or racial "ghetto" in the French case[6]. This lesser degree of segregation thus suggests that geographic mobility dynamics may be less affected by neighborhood ethnic composition preferences not necessarily because these preferences are less salient, but rather because the threshold of natives' tolerance is very rarely reached locally.

1.2. Ethnic clustering: chosen or constrained?

Critics of the white flight paradigm's centrality in sustaining ethnic segregation point to the fact that the effect of ethnic preferences on geographic mobility may also be operative for non-whites. The white flight framework has too long neglected the fact that ethnic minorities do not merely undergo whites' strategic residential behavior (Pais, South, and Crowder 2009). In the United States, the underlying assumption has held that blacks and ethnic minorities also preferred white or integrated neighborhoods (Krysan and Farley 2002). This assumption has since been contested. Research has indeed shown that in-group preferences are widespread for both majority and minority populations; when asked about their preferences, all individuals exhibit inclinations for both the meaningful integration and substantial presence of the same ethnoracial group (Bobo and Zubrinsky 1996; Charles 2000; Charles 2006; Clark 1991; Clark 1992; Krysan 2002a; Krysan and Farley 2002; Vigdor 2003). However, such preferences are still much stronger among whites than among blacks and ethnic minorities in the United States (Bobo 2001; Charles 2001).

In most empirical studies, blacks and immigrants have been shown to be significantly less likely to leave areas where ethnic minorities (and specifically persons of their own group) are concentrated (Ihlanfeldt and Scafidi 2002; Kritz and Nogle 1994; Zavodny 1999). Moreover, some research draws attention to the fact that ethnic groups may even seek "self-segregation" because it may bring about economic and social advantages (Aldrich and Waldinger 1990; Borjas 1992; Logan, Zhang, and Alba 2002; Munshi 2003; Waldinger 1996; Zhou 1992).

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on racism and prejudice in French society. None of these surveys asked respondents about their preferences towards neighborhood ethnic composition.

[6] This statement should however be put into perspective because of methodological problems involved in comparing France and the United States. Indeed, the indices that have recently been calculated in France use a geographical scale that is still too big in comparison with the census tracts used in the U.S., and segregation indices are very sensitive to scale issues. Moreover, while indices are computed for ethnic groups in the U.S., they are only obtained for first generation immigrants in France because no data is available on ethnicity. One might posit that if the French statistics on segregation included at least the second generation immigrant population (which is almost as large as the population of the first generation), the indices may become considerably greater (Safi 2009).

Although strictly comparable research is still inexistent in France, the concentration of immigrant populations in certain areas is increasingly documented in urban studies. Motivated by a concern to distance French patterns of segregation from those in the U.S., some scholars stress the fact that although same-group concentration (understood here as the same country of origin) exists in some areas (especially for Turkish and Asian immigrants), and even if some division is observed between European and non-European immigrants, these patterns are an exception to the norm. Immigrants tend to live in localities where all immigrants, and not only those belonging to the same group, are overrepresented (Wacquant 1992). Moreover, localities where the immigrant population is a majority are extremely rare in France. However, these assertions rely on limited and disputable empirical evidence.

From another perspective, as research in the United States has shown, specific structural mechanisms may help put into perspective the impact of ethnic preferences on minorities' mobility. Among these mechanisms, the literature has traditionally focused on housing discrimination on the one hand and economic constraints on the other (Charles 2003; Dawkins 2004; Galster 1988a).

There is now extensive American research on ethnic and racial housing discrimination that mostly relies on audit studies (Fix and Struyk 1993; Galster 1992; Ondrich, Stricker, and Yinger 1999; Turner, Ross, Galster, and Yinger 2002; Yinger 1998). Direct and indirect discrimination mechanisms impede ethnic minority members from locating or relocating in some areas and may thus have crucial impacts on their patterns of geographic mobility.

In France, there are relevant reasons to think that similar mechanisms are preventing ethnic minorities from "desegregating" through geographic mobility. Although studies on housing discrimination are still very rare, some recent findings regarding how widespread the phenomenon is are quite alarming (Bonnet, Lalé, Safi, and Wasmer 2011). According to a study by the *Haute Autorité de Lutte contre les Discriminations et pour l'Égalité* (2006), ethnic minority (namely African) candidates are four times less likely to be selected to rent an apartment compared to their paired French mainstream candidates. Some measures of reported discrimination in access to housing also put forward high levels of ethnoracial discrimination (Brinbaum, Hamel, Primon, Safi, and Simon 2010).

On the other hand, increasing housing inequality brings about additional constraints on geographic mobility that may structurally disadvantage ethnic minority populations, specifically because they can rely much less on inheritance resources. Some American studies highlight substantial barriers to securing affordable housing, which are particularly severe in terms of ethnic minorities' access to homeownership and wealth inequality (Krivo 1995; Krivo and Kaufman 2004; McConnell and Akresh 2010; Oliver and Shapiro 1995).

In France, recent research reveals intensifying wealth inequality and the growing role that household income flows play in a context where real estate prices have steadily increased in almost every major French city (Gallot, Leprévost, and Rougerie 2011; Grégoir, Hutin, Maury, and Prandi 2010). Although there is still no research regarding the effect of these dynamics on ethnic inequality, it is plausible to think that

they have both sharpened ethnic housing disadvantages at the individual level[7] and intensified economic disparities between immigrant and native neighborhoods.

Hence, while some empirical studies reveal an ethnic clustering pattern in minority geographic mobility, the main limitation of this framework lies in the fact that, firstly, ethnic minority populations are assumed to freely decide to move or not, and secondly, in the case they do move, are assumed to be unconstrained in the choice of their new location. The ethnic clustering interpretation thus understates the fact that structural economic and institutional factors, as well as direct and indirect mechanisms of housing discrimination, may also lead to a form of "imposed segregation."

This article therefore aims at investigating a possible "French (white)[8] flight" and/or ethnic clustering dynamics and exploring their causal links with neighborhood racial and ethnic composition. Our findings will be compared to those advanced in the American literature on this issue.

2. Data

Data used in this research are extracted from a large French longitudinal database called *Echantillon Démographique Permanent* (EDP). The EDP was created by the French National Institute of Statistics (INSEE) in 1967 to constitute a longitudinal dataset linked between successive censuses, together with data for various events reported in registration data (such as births, death and marriage). The EDP currently contains data from the 1968, 1975, 1982, 1990 and 1999 population censuses. The EDP is constructed through simple individual sampling: it includes individuals born on certain days of the year (4 out of 365 days, around 1% of the population) and for whom a census form or civil status certificate issued upon a major demographic event in the individual's life (birth, marriage, death, childbirth, etc.) is available. Whenever individuals enter the panel, they may be tracked across the following censuses if they are listed again. Sampling is thus the same for immigrants and natives; they appear in the EDP as soon as they are identified, or as soon as one of their civil status certificates is collected[9]. The EDP is a valuable dataset for studying immigration since it allows researchers to deal with significant samples of immigrants and to compare the situation of several immigrant groups, often underrepresented when other surveys are used. Although not focusing on ethnicity-related issues, many studies have shown that EDP is one of the most valuable empirical sources for analyzing geographic mobility in France (Couet 2006b; Courgeau, Lelièvre, and Wolber 1998; Détang-Dessendre, Goffette-Nagot, and Piguet 2008).

[7] According to the last public survey on housing (Enquête Logement 2002), 35% of immigrants and 57% of natives are homeowners. Some French studies have already shown that these disparities in homeownership are significant even when controlling for a wide range of socioeconomic variables (Barou 2002; Boëldieu and Thave 2000).

[8] It is not strictly correct to speak of a white flight in the French case as some ethnic minority populations are natives and could not be distinguished from "non-ethnic French" in the census. Rather, what we are able to measure in this study will more accurately be called a "native flight." However, we occasionally use the expression "French white flight" for the sake of comparability with the research corpus on this issue in the American case.

[9] For more information see (Couet 2006a) and the Insee webpage about the EDP (http://www.insee.fr/fr/methodes/default.asp?page=sources/ope-adm-echantillon-edp.htm).

In this study, we analyze geographic mobility during two inter-census periods (1982–1990 and 1990–1999). Our sample only includes individuals who are listed in two successive censuses between 1982 and 1999 and for whom information about the municipality of residence is available (French *commune*[10]). If the latter is different in *t+1* than the one declared in *t*, we consider that there has been geographic mobility. Conversely, individuals who declared the same municipality of residence in *t* and *t+1* are defined as sedentary. This broad definition of mobility does not take movement's distance into account; this is the reason why we use the expression "geographic mobility" rather than "residential mobility" the latter being related in the American literature to relatively short distance moves by households within a metropolitan area[11]. By geographic mobility, we mean any movement out of a municipality[12].

We have enriched the EDP data with local indicators extracted from the General Population Census in 1982 and 1990. The Census is used to compute for each municipality the main covariates of interest: the proportions of the most sizeable minority groups[13]. These proportions are then matched with the EDP data to build the proportion of co-ethnics in a municipality of residence. Census data are also used to build contextual variables at the municipality level. Contextual variables are mainly used to control for the municipality's social situation, such as the population size, the unemployment rate, the proportion of managers, the proportion of subsidized housing tenants, as well as the proportion of school dropouts. For an individual *i* and a period of observation between *t* and *t+1*, these variables provide information about the municipality characteristics at time *t*. Thus, our data offer a unique opportunity to measure the impacts of individual and contextual level characteristics on the geographic mobility of EDP respondents.

The geographical level at which these variables are measured can however be criticized. Municipalities are larger than the American census tracts and are therefore hardly equivalent to local neighborhoods[14]. Unfortunately EDP longitudinal data cannot identify the individual location at a smaller geographical level[15].

Nevertheless, there are several reasons that make the use of the municipality level relevant to the analysis of contextual effects on geographic mobility. Indeed, municipalities are (the smallest) political entities; the local housing policy outlines (especially in terms of social housing constructions) along with the provision of important local amenities (*e.g.* elementary schools and security) and some taxes (business taxes and property taxes) are defined at this level. Rhein (1998) argue thus that the commune level is

[10] *Communes* represent the smallest administrative geographical subdivision and are governed by mayors. France is composed of around 36,600 *communes* (a number which is slightly variable during the period). French *communes* are very heterogeneous in terms of population size: while more than 20,000 *communes* have less than 500 inhabitants, only a thousand have a population size that exceeds 10,000. In big cities (Paris, Marseille, Lyon) we use the "arrondissement" rather than the "commune" since it is the smallest administrative unit available there. Finally, in this article, the term municipality is interchangeable with the French term *commune*.

[11] In the American context, residential mobility is an expression that has been often used in the spatial assimilation literature to refer to an intergenerational process that involves the movement of an ethnic population from central cities to suburbs (Alba, Logan, Stults, Marzan, and Zhang 1999; Logan, Alba, and Leung 1996).

[12] In the findings section we test for alternative definitions of geographic mobility.

[13] Namely the proportion of Algerians, Moroccans, Portuguese, Italians and Spanish.

[14] In his comparison of residential mobility in France and in the United States, Courgeau presented the French communes as an intermediary scale between the census tract and the American counties (Courgeau 1982).

[15] IRIS (an acronym of 'aggregated units for statistical information') are for instance much more comparable to the American census tracts than municipalities. This territorial division was introduced by INSEE (the French National Statistical Office) for the dissemination of the 1999 population census. IRIS are built so that most of them contain between 1,800 and 5,000 inhabitants. Unfortunately, this territorial division is only available since 1999.

relevant for "evaluating the differential impacts of housing and urban policies upon social structure at the national as well as at the municipal level". Even though some recent studies show heterogeneity within communes has been increasing in the recent years, it is of lesser extent than in the U.S. Few studies compared measures of segregation using the IRIS and *Commune* divisions in the 1999 census and found similar patterns of ethnic segregation (Verdugo 2011).

Table 1 presents the composition of the sample. The immigrant subsample is mostly composed of European migrants (Portuguese, Spanish and Italians) followed by African post-colonial migrants (mostly Algerians).

Table 1. The sample composition

	N	%
Natives	**569,569**	**93.15**
Immigrants	**41,917**	**6.85**
Western Europeans	3 469	0.57
Eastern Europeans	2 943	0.48
Spanish	5 481	0.90
Italians	8 108	1.33
Portuguese	7 947	1.30
Sub-Saharan Africans	1 539	0.25
Southeast Asians	1 912	0.31
Algerians	5 403	0.88
Moroccans	1 561	0.26
Tunisians	2 230	0.36
Turks	1 324	0.22
Total	**611,486**	**100**

Tables 2 and 3 provide some general summary statistics on individual and contextual variables. Natives and immigrants differ the most in terms of individual characteristics. The most prominent disparities can be observed in the educational level (with a large proportion of immigrants reporting no education) and occupation (with a large proportion of blue collar immigrants). Immigrants are also less likely to own their home.

Table 2. Summary statistics of individual variables

	Natives (mean)	Immigrants (mean)
Family status		
Single	0.25	0.13
Single with children	0.03	0.02
Married without children	0.25	0.23
Married with one or two children	0.35	0.41
Married with more than two children	0.04	0.11
Divorced or widowed without children	0.05	0.04
Divorced or widowed with children	0.03	0.03
Education		
No diploma	0.25	0.57
Primary school certificate	0.20	0.14
Lower secondary school diploma	0.09	0.04
Vocational high school	0.24	0.12
High school	0.11	0.06
College	0.11	0.06
Occupation and working status[16]		
Farmer	0.04	0.01
Craftsman retail trader	0.05	0.05
Manager	0.06	0.04
Intermediate professions	0.13	0.06
Office Worker	0.20	0.14
Blue collar	0.20	0.33
Unemployed (never employed)	0.10	0.10
Non-working (never active)	0.15	0.24
Employed	0.62	0.55
Unemployed	0.06	0.08
Non-working	0.25	0.33
Still studying	0.07	0.03
Other individual variables		
Average age in *t*	40.46	42.82
Female	0.53	0.49
Owner of housing in *t*	0.39	0.26
Observed between 1990 and 1999	0.53	0.52
Residential mobility between *t* and *t+1*	0.32	0.25
N	569,569	41,917

[16] We use categories from the French PCS (Professions et Catégories Socioprofessionnelles) occupational nomenclature. Intermediate professions mainly include teachers and technicians.

The average characteristics of municipalities where immigrants live do not seem to differ consistently from those of natives. The last two lines of Table 3 are indeed quite similar; the most noticeable disparities concern the total proportion of immigrants, significantly higher in immigrants' municipalities compared to natives. Discrepancies increase, however, within the immigrant population. North and Sub-Saharan African immigrants live in municipalities where unemployment rates and subsidized housing numbers are higher than in Western and Eastern European immigrants' municipalities. Moreover, African and Southeast Asian immigrants also live in municipalities where the concentration of immigrants is higher. Things differ, however, when one considers the overall immigrant population or the specific co-ethnic population in the municipality. While Tunisians live in areas with the highest concentration of immigrants (17.5%), their co-ethnics are not frequently found in these areas. On the other hand, Algerians, Italians and Portuguese seem to live closer to their co-ethnics, which is partly due to the fact that these groups are more sizeable.

Table 3. Summary statistics of contextual variables (municipality level) by ethnic origin

	Unemployment rate	Proportion of managers	Proportion of subsidized housing	Proportion of dropouts	Total proportion of immigrants	Proportion of co-ethnics
Western Europeans	9.6	5.6	14.8	23.8	12.2	1.8
Eastern Europeans	10.4	5.1	19.3	25.4	14.4	1.9
Spanish	10.9	4.4	16.3	25.7	13.3	3.3
Italians	10.5	3.8	17.2	25.6	14.5	3.9
Portuguese	9.7	5.1	21.2	23.2	13.9	3.6
Sub-Saharan Africans	10.4	6.7	26.1	21.6	16.8	1.7
Southeast Asians	10.2	6.3	26.7	21.9	16.3	1.5
Algerians	11.8	4.6	26.4	24.7	16.9	3.8
Moroccans	11.5	5.6	24.9	22.3	15.3	2.4
Tunisians	10.9	6.0	23.9	23.8	17.5	1.7
Turks	10.8	4.3	24.4	23.9	16.0	2.3
All immigrants	10.5	4.9	20.6	24.3	14.8	
Natives	10	4.0	15.2	24.1	8.5	

3. Methodological issues

The sociological literature has traditionally been concerned with the misattribution of contextual effects (Duncan and Raudenbush 1999; Hauser 1974; Massey 1998; Robinson 1950; Sampson, Morenoff, and Gannon-Rowley 2002; Vallet 2005; Winship and Morgan 1999). The most frequent complaints are related to measurement errors, cluster autocorrelation and selection into geographic locations. These three issues are addressed here.

3.1. Measurement errors

There are three reasons why measurement error may be an issue in our study. First, the main covariates of interest are the proportions of immigrants and immigrants may be very rare in some municipalities. Second, these proportions are computed using a one-fourth extract of the censuses, as detailed information on the immigrants' country of origin is not available on an exhaustive basis. Lastly, French municipalities are rather small (more than 20,000 of the 36,600 municipalities have less than 500 inhabitants). Because of these three factors, immigrants' proportions in municipalities are not measured accurately; the error will be higher for smaller municipalities and those where immigrants are rather rare. Measurement errors generate a systematic bias of the coefficients corresponding to the proportions of immigrants (Cockburn and Griliches 1987; Mairesse and Greenan 1999). In the case of linear regression, treating this issue would be possible. However, as we deal here with a dichotomous dependent variable (geographic mobility between t and t+1), these techniques are not appropriate. To reduce bias due to measurement errors, we introduce interaction terms for the variables of interest (proportion of immigrants and proportion of co-ethnics in the municipality) with the size of the municipality distinguishing thus their effect in small and sizeable municipality (more than 10 000 inhabitants). Small municipalities' coefficients are likely to be biased downwards but their sign can still be informative. Only coefficients related to large municipalities might be expected to be unbiased.

3.2. Autocorrelation within units

Estimating the effects of aggregate variables on micro-units may lead to severely biased results. Moulton (1990) stresses that, when a multi-level analysis is carried out, the cluster-structure of the variance-covariance should be accounted for. Omitting the relevant cluster structure is likely to lead to downward-biased standard errors for the coefficient relating to the contextual covariates: one would risk interpreting a coefficient as significantly different from zero, while it is not. This issue is dealt with by relaxing the assumption that the error terms of two observations belonging to the same municipality are not correlated. Adjusting the variance-covariance matrix to account for this cluster structure is enough to recover unbiased inference.

3.3. Isolating the causal effect of the local ethnic composition: controlling for individual and geographic unobserved variables

A frequent complaint with regard to the use of aggregated contextual variables is related to non-random sorting into geographical units. This selection may lead to considerable estimation biases among which we distinguish two sources.

The first source of bias stems from individual unobserved heterogeneity. The ethnic composition of the municipality at time *t* is already a consequence of individual choice and location strategy and it is most probably affected by a range of independent variables that are similar to the ones that determine the probability of mobility (Dustmann and Preston 2001). In our case, individual preferences with regard to the ethnic composition of the municipality may affect both the choice of location in *t* and mobility between *t* and *t+1*. The same hypothesis can be put forward with regard to individual strategies driven by social attainment

motivations. If individuals seek a better school for their children, this affects both their choice of location in *t* and their mobility pattern between *t* and *t+1*. Selection into the initial location may hence upwardly bias the effect of the local ethnic composition on the probability of geographic mobility[17].

Panel modeling is capable of providing a better estimation of such ambiguous effects because of its capacity of controlling for individual heterogeneity (Halaby 2004; Petersen 1993). The underlying hypothesis is that if some individual characteristics are supposed to be time-invariant, panel modeling can control for them through the analysis of within-individual variance. In our case, if individuals' racial and ethnic preferences (or social attainment residential strategies) are assumed to be time-invariant over the period, they can be incorporated into the longitudinal design of the models because we observe the individuals over two periods (1982-1990 and 1990-1999). Individual heterogeneities can be specified as random or fixed effects and we will use both these specifications in order to test for the robustness of our findings.

The second source of bias is related to geographic unobservable characteristics. Despite introducing several social and demographic covariates to describe locations, there may still remain some unobserved determinants that affect mobility. When these determinants are correlated with the proportion of immigrants, the estimation of our parameters of interest will be biased. One may think of "pure" geographical features of some areas: weather quality, proximity to natural resources, transportation connectivity, etc. Furthermore, if for historical reasons, immigrants have been oriented to the least desirable geographical areas, this lack of desirability may continue to cause people to avoid these areas independently of the current local ethnic composition. To correct for these sources of statistical biases, we introduce geographical fixed effects which account for the fact that some determinants of the location's attractiveness are not observed.

The most general version of the model we estimate is:

$$\square^{*}_{\square\square} = \square_{\square\square}\square + \square\square_{\square\square}\square + \square_{\square\square}\square_{\square} + \square\square_{\square\square}\square_{\square} + \square_{\square} + \square_{\square} + \square_{\square} + \square\square_{\square\square}$$

$$\square_{\square\square} = \square\square^{*}_{\square\square} > 0$$

where *i* is the individual, *g* is individual *i*'s ethnic group, *t* is the time period (1982-1990 or 1990-1999), *l* is the location in which individual *i* lives at the beginning of time period *t*. The binary outcome *Y* is equal to one if the individual moves during the period. A latent *Y** is assumed to exist and to depend linearly on the covariates. The covariates of most interest in this study are *c*, the proportion of co-ethnics in the municipality, and *m*, the total share of immigrants in the municipality. Other covariates are included to control for observable and unobservable heterogeneity: *Z* are local contextual variables, *X* are individual variables, and the ≈are individual, time and geographical fixed effects. ∴and are indexed by *g*, as we interact most of the individual and contextual covariates with the dummy variable of "being an immigrant."

[17] The most convincing estimations that have attempted to neutralize this geographic selection problem are those that assessed for an ethnic concentration effect using natural experiments. Data in Sweden and Denmark (Aslund 2005; Damm 2009; Edin, Fredriksson, and Olof 2003) have indeed shown that the initial location decision of immigrants is highly determined by the presence of their co-ethnics and that the proportion of co-ethnics in their relocation neighborhood has a lasting effect on their subsequent mobility. As discussed in the conclusive section, this effect may not only reflect intrinsic preferences to living with co-ethnics but also structural constraints on ethnic minority mobility.

We will first explore patterns of immigrant and native geographic mobility using cross-sections[18]. The final section provides findings estimated with panel methods.

4. Findings

4.1. Patterns of immigrant and native geographic mobility

Table 4 shows the results of a regression model on the probability of moving between *t* and *t+1*, estimated separately for immigrants and natives. What we primarily aim to identify is the impact of the local proportions of immigrants on the probability of an individual to move using a binary variable model (logit).

Coefficients are similar across groups for most individual variables. Men, younger age groups and educated people are more likely to move. Mobility differs across occupations: blue collar workers move less than all other occupations. Long-term unemployment, inactivity and studying have significant effects on natives' mobility (a negative impact for inactivity and a positive impact for unemployment and studying). For immigrants, however, these effects are non-significant compared to blue collar occupations. Family situation also matters. Parenthood seems to put the brakes on geographical mobility while divorce seems to enhance it. Finally, homeownership is negatively correlated with mobility for both natives and immigrants.

Significant effects are also estimated for contextual variables[19]. The share of managers seems positively correlated to natives' and immigrants' mobility. The proportion of subsidized housing has a significant positive effect only for natives. The proportion of school dropouts seems, on the contrary, correlated with immobility for natives. Finally, significant coefficients are estimated for the share of immigrants and the share of co-ethnics; natives and immigrants tend to move more often out of areas with higher immigration rates. For immigrants, however, mobility seems to also be affected by co-ethnic concentration: the higher the proportion of immigrants of the same group in the municipality, the lower the probability of immigrants moving out.

[18] The presentation of cross-sectional models remains of importance despite the fact that our final results rely on a panel model. This is mainly due to the fact that the effects of time invariant variables are not identifiable in the fixed effect model we ultimately used. Some of them are nevertheless very instructive and deserve to be commented on.

[19] All contextual variables (except the log of total population) are proportions (between 0 and 1). Therefore, the odds-ratio should be interpreted as the impact of a variation from 0 to 1 (and not the increase of one percentage point). We computed variance inflation factors (VIF) in order to detect multicollinearity between contextual variables. All VIF are lower than 3 so that multicollinearity does not seem to be an issue in our case.

Table 4. Logit models of geographic mobility for natives and immigrants

		Natives		Immigrants	
		Odds-ratios	S.E.	Odds-ratios	S.E.
Education/No education					
	Primary school certificate	1.06***	0.01	1.02	0.04
	Lower secondary school diploma	1.24***	0.02	1.14*	0.07
	Vocational high school	1.19***	0.01	1.15***	0.05
	High school	1.58***	0.02	1.34***	0.08
	College	1.65***	0.03	1.55***	0.09
Occupation/Blue collar					
	Farmer	0.45***	0.01	0.83	0.13
	Craftsman retail trader	1.47***	0.03	1.35***	0.09
	Manager	1.49***	0.03	1.40***	0.10
	Intermediate professions	1.38***	0.02	1.40***	0.08
	Office Worker	1.25***	0.01	1.18***	0.05
	Unemployed (has never worked)	0.72***	0.03	1.19	0.14
	Non-working (has never worked)	0.93*	0.03	0.99	0.10
	Currently Unemployed	1.14***	0.02	1.07	0.05
	Currently non-working	1.33***	0.05	1.06	0.11
	Still studying	1.48***	0.03	1.04	0.07
Family situation/single without children					
	Single with children	0.97	0.02	1.01	0.07
	Married without children	1.12***	0.02	1.03	0.05
	Married with one or two children	0.71***	0.01	0.73***	0.03
	Married with more than two children	0.73***	0.02	0.60***	0.04
	Divorced or widowed without children	1.39***	0.03	1.28**	0.10
	Divorced or widowed with children	1.15***	0.02	0.96	0.08
	Undeclared without children	1.13**	0.05	1.11	0.14
	Undeclared with children	0.86**	0.05	0.60***	0.09
Immigrant origin/Algeria					
	Western Europe			1.12	0.07
	Eastern Europe			0.92	0.06
	Spain			1.02	0.06
	Italy			0.91	0.05
	Portugal			1.02	0.05
	Sub-Saharan Africa			1.91***	0.12
	Cambodia-Laos-Vietnam			1.67***	0.11
	Morocco			0.82*	0.06
	Tunisia			0.85*	0.06
	Turkey			1.03	0.08

Other individual characteristics					
	Women	0.90***	0.01	0.85***	0.03
	Age at *t*	0.86***	0.00	0.91***	0.01
	Age square at *t*	1.00***	0.00	1.00***	0.00
	Between 1990 and 1999	1.35***	0.02	0.91*	0.04
	Homeownership in *t*	0.46***	0.00	0.58***	0.02
Contextual characteristics at the municipality level					
	Unemployment rate	1.01	0.01	1.03	0.02
	Share of managers	1.17***	0.01	1.18***	0.02
	Share of subsidized housing	1.10***	0.01	0.99	0.02
	Share of dropouts	0.97***	0.01	1.04	0.03
	Log of total population	0.87***	0.01	0.77***	0.03
For municipalities > 10,000 inhabitants					
	Share of immigrants	1.13***	0.01	1.16***	0.03
	Share of co-ethnics (for immigrants)			0.81***	0.02
For municipalities < 10,000 inhabitants					
	Share of immigrants	1.03***	0.01	1.00	0.03
	Share of co-ethnics (for immigrants)			0.89***	0.02
N		569,569		41,917	
Pseudo R-sq		0.17		0.12	

*p < .05; ** p < .01; *** p < .001; (two-tailed tests)

4.2. Controlling for individual heterogeneity and geographical fixed-effects: A statistically non-significant `native flight_ effect versus robust ethnic concentration dynamics

In this section, we take advantage of the panel structure of our dataset by using different specifications in order to estimate the effect of the local ethnic composition and assess its robustness. Table 5 displays five different models. While a full set of individual and contextual control variables are introduced in all models (the same as those used in the logistic regression presented in Table 4), Table 5 only reports the coefficients of the variables of interest (the share of immigrants for natives and immigrants and the share of co-ethnics for immigrants). In order to account for the potential measurement-error bias that we detailed above, we estimate different coefficients for small and sizeable communes (with populations below or over 10,000 inhabitants). Although we report both sets of coefficients, we will mainly comment the findings obtained on large communes. Each model uses a specific identification strategy which affects the size of the estimation sample as we will show below.

Benefiting from the fact that some individuals are observed during both periods, we can control for individual unobserved heterogeneity using a fixed-effect (Model 2) or a random effects (Model 3) design. Fixed-effect modeling is generally preferable because it does not require restricting the functional form of the unobserved heterogeneities and it allows for correlations between unobserved and observed characteristics. Nevertheless, these valuable properties come at the price of severe restrictions in the estimation sample. A fixed-effect modeling requires observing individuals at least twice over time. Moreover, fixed-effect modeling uses the time-variability of the independent variables to explain the time-variation of the dependent variable. In other words, the estimation sample will not use individuals that have the same outcome value across time: individuals who did not move either in the first or second period, and individuals who moved in both periods. Only observations for which a change in geographic mobility is observed across our periods contribute to the estimation (N=142,652). Because one may be concerned with the selection biases caused by such a considerable reduction of the estimation sample we compared summary statistics between the selected and unselected samples and found no considerable differences (not reported here for concision). Conversely, while random effects models can be estimated on the whole sample, they rely on the questionable assumption that no correlation exists between individual heterogeneity and the control variables. This shows the trade-off of such methods; compared to the random effect model, the fixed effect design has a higher internal validity but its identification strategy leads to a loss in precision and consequently in external validity.

Drawing on the fact that nearly all communes are observed during both periods (1982-1990 and 1990-1999), Model 1 controls for geographical fixed effects at the commune level using a conditional logit regression. 28,820 observations are excluded from the estimation sample because they concern municipalities in which the mobility outcome does not vary (all observations in these communes stem either from only mobile or only non-mobile individuals).

First, it is remarkable that the statistical association between the share of co-ethnics and immigrants' mobility is strongly robust across these three models. Immigrants tend to move considerably less out of communes where their co-ethnics are numerous. Second, the native flight effect resists when individual heterogeneity is introduced (both in fixed and random effect modeling), but not when geographical fixed effects are controlled. In Model 1, the local share of immigrants has no significant effect on either immigrants' or natives' geographical mobility. These results suggest that controlling for the local unobserved characteristics is crucial in explaining residential mobility behaviors. Model 1 is thus our preferred model.

One might object that the results of Model 1 may be altered if both individual and local unobserved heterogeneity were controlled. In this case, the most flexible model would be a double (individual and geographic) fixed-effect model, which proves to be impossible to estimate with our data, given that: (i) the number of communes is too large; (ii) we only have two periods of observation per individual. It is only possible for us to estimate a model that controls for random individual heterogeneity and geographic fixed effects. Performing this estimation nonetheless requires restricting the number of geographic fixed effects, which is why we run this model only for large communes. Note that despite these restrictions, the model still takes a very long time to estimate: five days on a high-performance computer. The results shown in column 4 happen to be very similar to the model with only geographic fixed effects (Model 3), with an even stronger

co-ethnics effect. This supports our previous conclusion as regards the importance of controlling for the local unobserved characteristics when studying geographic mobility.

One might suspect that unobserved geographic heterogeneity may be at play differently for immigrants and for natives. While weather or school quality may be more determinant factors for natives, concentrations of public housing as well as levels of discrimination within localities may have a more crucial impact on immigrants' mobility. Moreover, constraining municipality effects so they are identical for immigrants or natives does not reflect the fact that municipalities may actually differ in the way they treat immigrants. For instance, municipalities may implicitly dedicate more or less space to immigrants in subsidized housing or landlords may or may not be open to immigrant tenants. Light (2006) has shown the local governance of immigration in Los Angeles and Garbaye (2005) has investigated similar local policy patterns in France and the United Kingdom. Model 5 relaxes the assumption that communes fixed effects should be equal for immigrants and natives. Technically, this amounts to estimate twice as many fixed effects, which is again very difficult to run on the full sample. This analysis only applies for large communes thus and the results look frankly similar to column 1, which here again comforts our previous conclusions.

All in all these results highlight an extremely robust ethnic clustering effect: for immigrants, the presence of their co-ethnics systematically undermines their probability to leave their initial location. The effect is significant at 0.1% and is large in magnitude. In the communes of more than 10,000 inhabitants, increasing the proportion of co-ethnics by one standard deviation will decrease the probability to change commune by 21%, that is by 5.7 percentage points (the average mobility rate of immigrants from large communes being equal to 28%).

Table 5. The influence of the local ethnic composition on the probability of moving in the next period controlling for geographical and individual fixed effects

	(1)		(2)		(3)		(4)		(5)	
	Coef	S.E.	Coef	S.E.	Coef	S.E.	Coef	S.E.	Coef	S.E.
Communes > 10,000 inhabitants										
Natives										
Share of immigrants	0,04	0,03	0.16***	0,02	0.20***	0,01	0,02	0,05	-0,02	0,04
Immigrants										
Share of immigrants	0,01	0,04	0,02	0,07	0,02	0,03	-0,03	0,06	0,16	0,12
Share of co-ethnics	-0.24***	0,02	-0.15*	0,07	-0.31***	0,03	-0.34***	0,03	-0.24***	0,03
Communes < 10,000 inhabitants										
Natives										
Share of immigrants	0,02	0,02	0,02	0,02	0.06***	0,01	-	-	-	-
Immigrants										
Share of immigrants	-0,04	0,04	0,09	0,08	0,01	0,04	-	-	-	-
Share of co-ethnics	-0.11***	0,02	-0,03	0,06	-0.15***	0,03	-	-	-	-
Commune FE	Yes		No		No		Yes		Yes, interacted with immigrant dummy	
Individual heterogeneity	No		FE		RE		RE		No	
Communes' sample	ALL		ALL		ALL		> 10,000 inhabitants		> 10,000 inhabitants	
N	583,266		142,652		611,486		288442		287,844	
Pseudo R-Sq	0,1		0,14		-		-		0,05	

*p < .05; ** p < .01; *** p < .001; (two-tailed tests)

4.2.1.Do the findings differ across population categories?

In Table 6, the first sets of lines report interaction effects for the share of immigrants and the share of co-ethnics with individual occupation (managers, blue collar and other) while interactions with age are displayed in the second set of lines (younger than 55 and older than 55). Each of these interaction effects is incorporated successively into model 3 (table 6). In the two final lines, the effect of the share of co-ethnics is reported for models that successively exclude two small groups from the sample[20]: sub-Saharan Africans and South-East Asians (immigrants from Cambodia, Laos and Vietnam).

Table 6. Are the native flight and ethnic clustering effects homogeneous within subpopulations?

	The native flight effect				The ethnic clustering effect	
	Natives		Immigrants		Immigrants	
	Coef	S.E.	Coef	S.E.	Coef	S.E.
Model 4, interaction effects with occupations						
Managers	0.02	0.04	-0.10	0.09	0.10	0.12
Blue Collars	0.05	0.04	0.03	0.05	-0.22***	0.04
Other occupations	0.04	0.03	0.00	0.04	-0.23***	0.03
Model 4, interaction effects with age						
Younger than 55	0.02	0.03	0.01	0.04	-0.24***	0.02
Older than 55	0.21***	0.04	-0.01	0.06	-0.31***	0.07
Model 4 without South-East Asians	0.04	0.03	0	0.04	-0.20***	0.03
Model 4 without Sub-Saharan Africans	0.04	0.03	-0.01	0.04	-0.22***	0.03

*p < .05; ** p < .01; *** p < .001; (two-tailed tests)

While the proportion of immigrants had a uniformly non significant effect across occupations, a native flight effect is statistically perceivable for older natives. Indeed, some prior studies show that migration at retirement age is motivated by residential considerations (Christel 2006; Cribier and Kych 1992; Détang-Dessendre, Goffette-Nagot, and Piguet 2008). Our findings suggest that the local ethnic characteristics are among these residential considerations. They also indicate that the impact of ethnic preferences on the decision to move becomes activated only when family or labor-related constraints are reduced.

Except for immigrant managers, the significance and magnitude of the ethnic clustering effect are similar across groups. The non significance of the ethnic clustering effect for manager immigrants may be interpreted in light of the literature on ethnic communities; immigrant managers do not need the ethnic group social capital while the most disadvantaged immigrants may benefit from the socioeconomic support of their ethnic group and thus choose to stay geographically close. These results may also be interpreted in

[20] Since these groups are very small, separate regressions are impossible to run exclusively with them. We alternatively chose to exclude them from the sample in order to measure the extent to which they drive the ethnic effect result.

terms of constraining mechanisms on mobility that operate most effectively for the most disadvantaged categories of immigrants.

Finally, the white flight effect is still non significant and the ethnic clustering effect is still measurable when regressions are run without South-East Asian or African immigrants. All in all, these results show that our findings are highly homogeneous across subpopulations.

4.2.2.What about ethnic avoidance in relocation decision?

The white flight paradigm relies on the assumption that the geographic mobility observed *ex-post* expresses individual neighborhood preferences, among which ethnic composition is particularly central. This framework thus supposes that the ethnic composition of the neighborhood acts like a push factor for the white population's mobility. However, when people have stable jobs, schools for their children, and social attachments, it is questionable whether their preferences towards the neighborhood's ethnic composition in and of itself would effectively cause them to move out. Alternatively, one could imagine that natives' unwillingness to live with ethnic minorities may indeed be activated when they decide to move (regardless of the reason). Such preferences would thus more efficiently affect choices in terms of residential location (Ellen 2000; Quillian 2002; South and Crowder 1998). Thus, it would be possible to observe a very small or even non-significant ethnic composition effect on the probability of "fleeing", while the same effect would be determinant upon relocating (Ellen 2000; Frey 1979; Quillian 2002).

In an attempt to test for a potential "relocating effect," we run an aggregate model[21] that counts, for each commune, the number of natives and the number of immigrants entering the commune in 1990 and 1999. As we have two time periods, it is possible to control for a geographical fixed effect at the municipality level (Table 7).

Table 7. Moving into French communes (coefficients on the standardized share of immigrants)

	Natives		**Immigrants**	
Moving in (log)	Coef	S.E.	Coef	S.E.
Less than 10,000 inh.	0.00	0.01	-0.02	0.05
More than 10,000 inh.	-0.10*	0.05	0.08	0.06
N	34,833		4,823	

*p < .05; ** p < .01; *** p < .001; (two-tailed tests)

Controlling for other contextual variables, the impact of the local immigrant share on the number of natives settling in a *commune* is significant and rather sizeable. For each additional standard deviation in the share of immigrants, the number of natives entering a *commune* is reduced by 10%. Although non significant, the share of the immigrant population has, on the contrary, a positive impact on the number of

[21] Unlike geographical mobility, the location choice is very difficult to model with individual data. What is the relevant dependant variable when we know that the whole geographical space is potentially possible? Ioannides and Zabel (2008) have for example used a multinomial model of location choice but their framework relies on strong microeconomic hypotheses. Another difficulty stems from the fact that models of destination choice suffer from potentially considerable selection bias because they precisely deal with populations who move, which are likely to be different from those that stay.

immigrants moving into a *commune*[22]. These results thus suggest that the weak native flight effect initially measured while modeling out-migration is only part of the story; ethnic preferences seem to have a significant impact on location choice for movers. Nonetheless, these findings suffer from their aggregated nature and do not lend themselves to interpretation in terms of individual choice.

5. Discussion and conclusions

This article is one of the first to measure the effects of the local ethnic composition on native and immigrant geographic mobility in France. It explores some individual and contextual mechanisms that lie behind urban dynamics in French cities.

First, our estimation strategy puts forward the value of panel data and modeling in investigating the net effects of the municipality's ethnic composition on geographic mobility. Controlling for individual and geographic heterogeneity considerably changes the results of simple cross-sectional estimations. The correlation between immigrant concentration in some areas and French natives moving out of these areas becomes less pronounced and even loses its significance. Conversely, immigrants' geographic mobility (or more precisely their immobility) is highly associated with the presence of their co-ethnics in their residential location. This ethnic clustering effect resists all variations in the model specifications and its magnitude is considerable.

What may explain the absence of a "French white flight"? As recent research has linked white flight dynamics to "tipping point" effects (Card, Mas, and Rothstein 2008; Clark 1991; Frey 1996; Grubb 1982), and since municipalities with high proportions of minorities are extremely rare in France, it is possible that the tipping-point threshold has not yet been reached.

On the other hand, the small and non-significant effect of the share of immigrants on natives' out-migration may stem from limitations of our data and, specifically, categorization issues. Unlike data available in the U.S., the French census does not allow us to estimate a strictly white flight effect but only "native flight" dynamics. Yet, the native category includes immigrant descendants that are not identified; their share in the whole population is around 10% (Borrel and Lhommeau 2010). If their geographic mobility resembles the patterns of first generation immigrants more closely than those of natives without immigrant ascendants, this may explain the global non-significance of native flight. Geographical categorization issues may additionally be at stake: since this study relies on data at the municipality level, we cannot dismiss the possibility that some native flight dynamics might be at play at a smaller contextual scale. We performed nonetheless some test for the sensitivity of our findings to the residential mobility definition that suggesting that this was unlikely to be true.

[22] Note that the co-ethnic effect remains very difficult to measure within these aggregate models of moving-out and moving into French municipalities. It would indeed necessitate reiterating the estimation for each ethnic group which is beyond the scope of this article. Given that ethnic groups' sub-samples are not sizeable enough, we would have a lot of municipalities with very few arrivals of immigrants from a specific ethnic group and measurement errors would become very problematic.

What about the ethnic clustering effect? What may explain the strong and resistant negative impact of the proportion of co-ethnics on immigrants' probability to move out? Some research draws attention to mechanisms of solidarity within ethnic groups seeking self-segregation in order to enhance ethnic social capital, especially in a context of widespread hostility and discrimination in the host society (Portes 1998). Even if the ethnic clustering effect measured in this study may partly reflect this kind of process, its magnitude and robustness can hardly be reduced to immigrant intrinsic preferences for co-ethnic neighbors. While public debate tends to focus only on the cultural factors of ethnic clustering (the search for religious homogeneity, the desire to maintain traditions and language), the social sciences literature also emphasizes the structural mechanisms at play (chain migration and ethnic networks, endogamous marriages and family relations, ethnic businesses, etc.) (Fischer 1975; Fischer 1984; Logan, Zhang, and Alba 2002; Palloni, Massey, Ceballos, Espinosa, and Spittel 2001; Wilson 2010). More research needs to be done to disentangle these dimensions of co-ethnics' spatial clustering.

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