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The Concentration of Foreigners in French Schools: Interaction Effects in Place?

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Abstract

This paper explores the existence of negative peer-group pressures derived from the concentration of foreigners in French lower secondary schools. Using different dependent variables (number of years spent in lower secondary education, grades in 4th and 3rd year and track selection in upper secondary schooling) the analyses indicate that the much disputed existence of significant and negative effects of the concentration of foreign students in schools depends on the method used for the estimation. If we assume that the concentration of foreigners is a random and exogenous process, then the multivariate analyses confirm negative interactions. If, on the contrary, we question the assumption that this contextual information is not end the result of prior sorting mechanisms of individuals across social spaces, the concentration of foreigners has no statistical impact on attainment.

Keywords:

peer-group, effects neighbourhood effects, immigration, educational attainment

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1) Introduction: Interactions, neighbourhood and peer group effects

Ever since the 1970s, the common wisdom has been that living in deprived social environments makes it more difficult to escape from deprivation. There has been a significant pressure in favour of de-segregating deprived neighbourhoods and schools, especially if in combination with racial or ethnic concentration. Nonetheless, the literature on this topic remains partly confusing and its conclusions are far from being undisputed. Mayer and Jencks (1989) argue that there are four main schools of thought about neighbourhood effects: (1) disadvantaged neighbours are a disadvantage -the contagion model of social interactions, although this is also coherent with the role of enforcers of social norms playing a sort of social control-, (2) advantaged neighbours are a disadvantage -if living close to privileged neighbours creates resentment-, (3) disadvantaged neighbours are irrelevant -if individuals base their decisions on their own circumstances- and (4) neighbours do not matter but neighbourhoods, through institutions and different resources do.

The relevance of micro-level contacts between individuals is an ever-growing field of research both for sociologists and economists. This literature is based on the central distinction between standard economic and social decisions (Akerlof, 1997). Standard economic decisions are explained by individual level factors while social decisions take into account the wider context in which the individuals live. Social interaction theory explains why social decisions such as the demand for education, the practise of discrimination, fertility and marrying behaviour, the propensity to divorce, and many other aspects of social life are totally explained by the combination of individual level and contextual variables (Durlauf and Peyton, 2001).

There is not a coherent and systematic sociological analysis of social interactions. Manski (2000) argues that instead, sociologists refer to a plethora of elusive concepts such as social capital, social norms, contagion, epidemics, etc. The sociological literature on *neighbourhood effects* estimates the impact of contextual characteristics and other features of the social environment on several indicators of status attainment (Ammermueller and Pischke, 2006; Brook-Gunn et al., 1993; Portes and Hao, 2005; Zietz and Joshi, 2005), sexual (South and Crowder, 1999) or criminal behaviour (Ludwig, Duncan and Hirschfield, 2001)ⁱ.

The broader view of economics has also studied how social interactions are shaped by diverging incentives that affect the allocation of resources (Maski, 2000:115)ⁱⁱ. Economists are developing new models of social dynamics that may shed some light on how some of the above-mentioned sociological concepts affect individual behaviour. These models clarify the relationship between group-membership and the behaviour of interdependent individuals. Most of them claim that the payoff given for a particular action is made of two different components: an exogenous one which represents the influence of individual characteristics, and a random component that results from the observation of the aggregate behaviour of the rest of a particular population to which the individual belongs to. This last part of the payoff is affected by the behaviour of other actors in the same group facing identical choices. For instance, payoffs may increase or decrease depending on the number of individuals that pursue the same activity within the group boundaries (Durlauf and Peyton, 2001). The implication is that the collective component of the payoffs and costs are group-specific. If this can be confirmed, cultural arguments which suggest a negative effect of certain group membership, such as the culture of poverty and some ethnic effects will be harmedⁱⁱⁱ.

In spite of the centrality of this debate, the empirical literature has been unable to meet a consensus on whether neighbourhood effects really count. Some authors have argued that contextual effects are more important to explain criminality, sexual behaviour and health status than educational attainment (see Sampson et al., 2002). Generally, the statistical importance of certain contextual variables like the effect of living in a concrete neighbourhood decreases greatly after controlling for individual level effects^{iv}.

2) Interactions in the sociology of immigration and in the educational attainment of immigrants

Certain immigrant groups and ethnic minorities are believed to benefit from stronger group cohesion possibly because some ethnics are more easily identifiable through racial features, clothes and social practises^v. It is for that reason that proving the existence of interaction effects has a particular importance in the study of immigration. Micro-interactions can be an unambiguous micro-mechanism to explain the so-called ethnic segregation or community closure. The effect of segregation on individual behaviour is one of the most vibrant fields of research in the sociology of immigration, yet, the literature does not agree on its empirical relevance. While *assimilationists* claim that segregation delay the upward mobility of immigrants and ethnic minorities, other scholars suggest just the opposite^{vi}.

Since the 1990s, some of the most prominent theorists of ethnicity and immigration have emphasised the importance of intra-group interactions. The list of examples can be intractable. Cornell suggests that the level of attachment to ethnic membership depends on three dimensions -shared interests, institutions and culture- and that variations in these dimensions have an effect at the individual level via interaction effects (Cornell, 1996). Borjas argues that the celebrated concept of *ethnic capital* has a somewhat stronger effect among those immigrants that are raised in highly concentrated ethnic environments, due to more frequent intra-group contacts (Borjas, 1992 and 1995). On the other side, the very influential *modes of incorporation* developed by Portes and Rumbaut suggest the existence of significant social pressures on newcomers to hide their uppity aspirations (Portes and Rumbaut, 1996; Portes and Min Zhou 1993).

The idea that the concentration of ethnic minorities constrains individual educational attainment was first stated in the “Coleman Report” (Coleman et al., 1966). This report suggested that individual educational attainment was affected by the mean achievement of the students in the same schools. Coleman and his colleagues also documented a substantial racial segregation in American schools, and concluded that minority’s achievement was higher in ethnically integrated schools. This provoked a huge alarm in the American society and it encouraged the idea that schools be integrated in the US in order to have a racial class mixed of students avoiding discrimination (Brown, 2000), inspiring the well-known bussing policies. Academically, it also encouraged an ever-increasing body of academic literature (Thrupp, 1995) part of which was critical with this finding (Jencks et al., 1972), and an intense debate over school effects on achievement (Rutter et al., 1979; Smith and Tomlinson, 1989).

In the specific study of the educational attainment of immigrants and ethnic minorities, the effect of certain ethnic structures such as ethnic social capital is not clear enough. Rumbaut argues that extended family solidarity is negatively related to educational success since it

reinforces normative behaviour and expectations among embedded individuals (Rumbaut, 1977). Hout (1986) says that chances for upward mobility are augmented by a large and segregated ethnic community. Portes and Hao think that interaction pressures are also key for second generations because of the importance of social networks among groups that fight to find a place in the American society (Portes and Hao, 2005:12). Werum (2000) has found a negative influence of parental engagement into socializing activities and placement in the vocational level of the German school track system (*Hauptschule*) and that this effect is only negative for ethnic minorities. Interestingly, it turns out to be positive when socializing happens in ethnic heterogeneous environments and even more if it includes natives. Fekjaer and Birkelund only found a small but positive effect of the ethnic composition in Norwegian secondary schools (Fekjaer and Birkelund, 2006), but Szulkin and Jonsson found a minor negative effect of schools' ethnic composition in the case of Sweden (Szulkin and Jonsson, 2006).

In France, some scholars have also suggested that the concentration of foreigners in schools is a central element in the explanation of the educational attainment of the immigrant population^{vii}. Felouzis (2003) and Felouzis et al. (2005) conducted a path-breaking and systematic analysis of schools in the region of Bordeaux to study the negative impact of attending schools with a high percentage of foreigners. The study measured the gap separating students in more and less concentrated schools and evaluated its importance in around 0.4 points -scale ranging from 0 to 20-. The authors built an index of concentration and concluded that 89% of the North Africans, Africans and Turk students and 69% of other immigrants would have to move to another school in order to achieve an equal representation of the ethnic groups across schools. Hence, this depicts a highly segregated landscape: 28% of the foreign students in Bordeaux attend some 10% of the colleges, where we find 48% of the students from deprived family backgrounds. When the category of study is only North African, African and Turkish, then the level of ethnic concentration grows: 40% of the immigrant students from these origins attend 10% of the schools in Bordeaux with 53% of the most socially deprived profiles. Thus, if the picture in Bordeaux is representative of what happens in the rest of France, the French school system is importantly segregated by ethnic and social axes especially for the Moslems.

3) Problems in the study of social interactions

There are several theoretical and methodological difficulties in the empirical study of social interactions. First of all, not all the correlations between individual and collective behaviour are the result of micro-interactions. Only when the individual behaviour has a direct influence on the behaviour of others sharing the same social space, the externalities in place can legitimately be labelled as interactions. Alternatively, it can also be that given the common features of those who share social spaces, the correlation between their behavioural patterns could erroneously be taken as the result of an interaction; while instead, the real cause of the statistical correlation could be for instance the socioeconomic homogeneity due to prior sorting exposure. Accordingly, Manski asks to differentiate four phenomena (Manski, 1993:30-1):

- Endogenous effects: wherein the prevalence of any behaviour in some reference group influences others. If we focus on educational attainment, this means that educational

achievement may vary with the average level of achievement of the students in the same peer-group.

- Contextual effects: wherein the propensity of an individual to behave in some way varies with the distribution of exogenous background characteristics in the reference group. Here achievement will vary with the socioeconomic composition of the reference group.
- Correlated individual effects: where individuals with similar characteristics tend to cluster in similar contexts. Correlated effects mean that the educational attainment of the members of the group is correlated simply because the individuals are subject to the same type of influences.
- Ecological effects: wherein individuals in the same reference group tend to behave similarly because they face an identical institutional environment. Educational attainment may be different from one school to another because of the different pedagogic methods or the expertise of the staff working in each institution.

The policy implications of each of these possibilities are divergent, and it is essential to distinguish at least the first two options from the rest, which are non-interactive phenomena. The analytical implication is that the statistical significance of neighbourhood estimators can become a black-box explanation. Sampson et al. (2002:457-8) mention several potential neighbourhood mechanisms: social ties or interactions linked to the concept of social capital; norms and collective efficacy if there is mutual trust and shared expectations among the individuals in a social space; institutional resources and routine activities according to different types of land use in the neighbourhood that allow for a different organization or routine activities (presence of schools, stores, shopping malls, hotels, bars, multifamily residential units etc.). Overall, it is hard to distinguish if a correlation means *contagion* – identification with a peer group which is the source of influence-, or a *socialization problem* – where adults exercise a tighten control in different directions. Only contagion must be associated with the constraining role of peer-group influences. Additionally contagion may imply a causality problem: do successful groups create a successful group cultures, or vice-versa?

According to this lack of analytical clarity, the statistical significance of the schools' characteristics can also mean several things for educational attainment. It can be that schools in deprived districts are crowded of children who do not value achievement so the group of reference may show low levels of educational achievement. In this case, contagion and conformism can result from interactions between peers^{viii}. Instead, it can also be that the statistical significance of contextual information is simply the consequence of the akin background of the population in the area or the lack of resources in schools placed in deprived areas -lower ratio students/teacher, less extra curricular activities, etc. In these last cases there are no interactions in place.

In the specific field of immigration and ethnicity, there are few rigorous quantitative empirical works on interactions (Portes and Hao, 2005) and some of them take for granted the existence of interaction effects (Portes and MacLeod, 1996). But in general, this field of research has promptly incorporated technical innovations to overcome these difficulties and

some scholars are now sceptic about their relevance and others even question whether it is possible to estimate their impact at all (Dietz, 2002).

The real challenge of these studies is that social spaces are not the result of a random distribution of individuals. In the case of the public attending schools, family background seems to operate as a classifying factor. Sceptics about interactions suggest that the statistical significance of contextual variables is spurious because the selection of the area of residence is endogenous to wider social processes such as occupational careers and that this generates an insurmountable obstacle in many studies of peer-group effects. Consequently, the individuals living, working or studying in the same district are self-selected, and thus they are subject to similar influences -income, cultural resources, etc. In a celebrated article, Evans et al. (1992) addressed the methodological implications of this devastating critic. The standard estimation of contextual effects through single equation models, assumes that the selection of the area where individuals interact is exogenous (Brooks-Gunn et al., 1993; Zietz and Joshi, 2005). But relaxing this assumption seems to leave no unexplained variance in contextual variables.

Why must some contextual characteristics be endogenized? There are some prior exogenous phenomena that must be taken into account: the people who live in a particular area already share similar characteristics before living there. Thus, individuals are not randomly assigned to different social spaces, but they tend to be geographically distributed according to other factors such as their budget constraints to find accommodation. Standard methods that use a single equation to estimate the effect of contextual variables ignore previous sorting mechanisms and, consequently, overestimate contextual effects. Evans et al. (1992) propose to use simultaneous equation models or related estimation techniques to obtain robust estimations.

Simultaneous equation modelling is only one of the possible solutions to this problem^{ix}. The major advantage of these models is the presence of jointly endogenous variables. The endogeneity of any independent variable requires defining the endogenous variable as a function of further exogenous factors. For instance, if we estimate the educational attainment of students using individual level variables and information about their social context, the model can consider the existence of prior sorting mechanisms that self-select individuals geographically, determining who attends which school. Unfortunately, the data requisites for using this technique are not always easy to meet. Firstly, there must be an appropriate *instrument* to explain the endogenous variable, something that happens only very rarely. Instruments must be correlated with the endogenous regressors and uncorrelated with the error term. This means that they have to capture the specificities of the peer-group formation process and remain uncorrelated with the residual of the neighbourhood effect estimation. If the instrument is correlated with the error term, it produces biased estimations, and if it does not explain the sorting process then the instrument is weak, so it will not solve the problem.

Let's use an example. If we want to explain the educational attainment of students using a set of exogenous individual level variables (Z_i) and some contextual information such as the proportion of foreign students in the school, we can use simultaneous equation models to estimate the effect of the concentration of foreigners. The contextual information is the result of some other set of exogenous variables (N_j) that are responsible for the sorting processes that lead individuals from similar social background to live/work together. N_j may refer to the aggregate levels of deprivation in the area under study. For instance, the price of housing can concentrate foreign students in certain schools. Given these budget constraints, immigrant families may only have access to a limited number of districts where families from

lower socioeconomic background live. Accordingly, the concentration of foreign students in schools is the consequence of the concentration of students from likewise deprived families and thus, the statistical significance of the concentration of foreigners in a single equation model can be a spurious effect of that. Simultaneous equations modelling is required to quantify the net impact of the concentration once taking into account the non-random distribution of students across schools.

$$\text{A) Education}_i = \beta_0 + \beta_1 Z_i + \beta_2 \text{Concentration}_j + \varepsilon$$

$$\text{B) Concentration}_j = \delta_0 + \delta_1 N_j + \eta$$

If we model the education equation separately (A), it will contain a set of omitted variables that are uncorrelated with Z_i but correlated with the neighbourhood characteristics (N_j). The result is that β_2 is inconsistent because $\text{cov}(N_j, \varepsilon) \neq 0$. If on the contrary, we use N_j as the instrument to make the contextual characteristics endogenous (B), we will produce consistent estimators for β_2 , which will reflect the net effect of the concentration of foreigners controlling for the concentration of students coming from similar socioeconomic background, that is to say, controlling for the fact that students in these schools have a similar socioeconomic origin. This can be why they seem, for instance, to fail more at school. What makes it difficult is that the instruments must not be simultaneously correlated with the stochastic disturbances. Thus, it is jointly required that:

$$1) \text{ cov}(N_j, \varepsilon) = 0$$

$$2) \delta_1 \neq 0$$

These conditions are not always easy to meet especially if together^x. Testing the first condition is difficult because we cannot observe ε . But we can easily know whether (2) is met or not because equations estimated using weak instruments have low F statistics (Staiger and Stock, 1997).

4) Data: 1995-2000 Panel of Students in Secondary School

The French Ministry for National Education has traditionally produced large datasets for the study of all sorts of inequalities in education. The recent Panel of Students in Secondary Education (1995-2001) includes explicit information about the family's migration history and allows a proper study of ethnic disadvantage in education.

The panel sampled 18,730 students entering into lower secondary education –*collège*– in 1995. The information was drawn in several stages. Unfortunately, the sampling design is a source of lost cases. A Recruitment Questionnaire was filled up with administrative data for each student in 1995. Each year from 1995 to 2000, a questionnaire surveyed the students' school performance. In 1998 a Family Questionnaire extracted more information about the students' family entourage. Approximately 12,981 completed this questionnaire^{xi}. The panel did not over-sample the immigrant population but it shows adequate figures for this study.

Table 4.1. Type of student by immigration categories

	N	%
Children of father and mother born in France [French-born]	12,672	72.19
First generation immigrant students	513	2.93
Second generation immigrant students	4368	24.88
Total	17,553	100

Source: Panel95.

The table above distinguishes three types of students according to their parents and their own country of birth: *French-born* –taken as natives- are the children of French-born father and mother-. First generation immigrant students are the group which is normally referred to as intermediate generations. This is the group of immigrant students who were born abroad but attended lower secondary school (*collège*) already in France since 1995. Second generation immigrant students are the French-born children of immigrant parents. The logic behind the inclusion of these categories is well-known. Being born in the host country has a potentially beneficial effect because the individual's early socialization happens already in the receiving context (Borjas, 1992; Chiswick and DebBurman, 2004).

Ethnicity is defined according to the parental country of birth. Only two ethnic groups are included in the table below. Maghreb values 1 for immigrants coming from an Algerian, Moroccan or Tunisian origin. South-Europeans are immigrants from Italy, Portugal or Spain.

Table 4.1. Ethnic origin

Ethnic origin	N	%
French	15,214	86.65
Maghreb	663	3.78
South Europe	1,682	9.58
Total	17,559	100.00

Source: Panel95.

5) Empirical analyses

Three dependent variables will be used to measure the impact of the concentration of foreign students in schools. Firstly we shall see whether the concentration of foreign students is associated with spending more years in lower secondary school. Secondly, an analysis will follow to see whether it affects the grades that the students obtain in the national examinations that take place at the end of lower secondary education (the so-called *Brevet des Collèges*). Finally we will study if the concentration of foreigners decreases the likelihood of following the more academic track in upper secondary school versus the vocational option. The use of these three dependent variables will result in a complete description of the impact of this variable in lower secondary schooling, which is known to be a decisive stage in the educational options that link compulsory and non-compulsory education.

The concentration of foreign students is given by the Panel95 as the percentage of foreigners attending schools in the same school division in 1997. The proportion of foreigners ranges from 0 to 23. The effect of this variable can differ for natives and immigrants and within the immigrant category for first and second generation immigrant students. The impact

of concentration can also be different depending on the individual's ethnic ascription. For that reason the dummies for North African and the South European immigrant students will be included in the models, and interactions between these variables and the concentration of foreigners will test if we can confirm different slopes in the effect of concentration. All the models will include the highest level of education reached by parents (no diploma, primary, lower secondary, upper secondary, other non university education). This variable combines information for father and mother's level of education, fixing it in the highest one.

The table below shows some descriptive information for all the variables that are used in the following models.

Table 5.1. Description of the variables

Variable name	Obs.	Mean	Std. Dev.	Min (label)	Max (label)
Mean Brevet des Collèges	13,372	11.04	2.79	0.73	19
First generation	17,830	0.03	0.17	0 (no)	1 (yes)
Second generation	17,830	0.25	0.43	0 (no)	1 (yes)
Number of foreigners (1997)	17,529	1.35	2.27	0 (%)	23 (%)
Maghreb	17,601	0.10	0.29	0 (no)	1 (yes)
South European	17,601	0.04	0.19	0 (no)	1 (yes)
Parental education	14,905	4.09	1.60	1 (no diploma)	6 (university)
Neighbourhood	11,905	3.43	0.81	1(not satisfied)	4 (v. satisfied)
Priority Education Area (1997)	17,536	0.11	0.31	0 (no)	1 (yes)
Repeats Collège	17,830	1.31	1.88	0	6
Final choice for Lycée (upper sec.)	13,953	0.64	0.48	0 (no)	1 (yes)

Source: Panel95.

The identification of proper instrumental variables is indeed a difficult task. The Panel95 offers scarce alternatives for this purpose and those available are problematic. Within the list of possible instruments I selected an objective variable for the quality of the school environment (whether the school is placed in a priority education area) and a subjective measure which is the degree of satisfaction of the respondent to the Family Questionnaire with the neighbourhood where the students' families live. Let's explain the logic of these instruments and judge their quality.

Neighbourhood is an ordinal variable that registers the degree of satisfaction reported by the respondent to the Family Questionnaire regarding the district where the students' family resides. This variable ranges from 1 (not satisfied at all) to 4 (very satisfied). The assumption behind this instrument is that if the family is not satisfied with the district then we can assume that it counts on fewer resources, and thus it will plausibly represent a deprived sector. Some could argue that over-adaptation to the resources available can bias the answers given to *neighbourhood*. If this is the case, families from low class segments can be more satisfied with their area of residence than it is initially expected. In order to cancel any noise introduced by over-adaptation, it is required to control from an objective measure of neighbourhood quality.

Priority Education is a dummy set equal to 1 when the student attends a school placed in so-called priority education areas (*Zones d'Éducation Prioritaire*). The priority education areas are positive discrimination mechanisms for schools placed in very disadvantaged socioeconomic environments. This way, the system offers more financial and cultural resources to schools placed in deprived areas, so as to enhance the opportunities of students

coming from less advantaged families. This is supposed to cancel the handicaps that are linked to difficult family backgrounds. Thus, *priority education* is a variable that covers many of the traditional instruments used in the type of analyses that endogenise contextual variables such as rates of unemployment as well as other indicators of disadvantage (Evans et al., 1992).

It is quite evident why *neighbourhood* can be a proper instrument to endogenise contextual effects, but why will *priority education* serve to control from previous sorting mechanisms? The socioeconomic profile of students attending a particular school in a certain school division is the consequence of the distribution of the families living in the nearby area according to their socioeconomic characteristics. Nowadays, families are more or less free to choose the school that they prefer for their children. This has not always been the case in France. In 1963, the French Ministry of National Education divided the national territory into recruitment areas for secondary education –called sectors for the *collèges* and districts for the *lycées*-. Since then, unless exception agreed, French families choosing public schools had to send their children to the schools in their sector of residence. This measure called *sectorisation*, sought after a more efficient distribution of resources across schools -more accurately information about the approximate number of students attending a particular school each year could help to define a better organized planning.

The debate about the right to choose schools was especially intense during the 1980s, especially after the Savary Act (named after the Cabinet Minister Paul Savary) was passed. The existence of such a regulation gave the right to choose private schools. This resulted in that only those families that were able to afford the cost of a private school in order to avoid the non-desired consequences of the *sectorisation*, could choose their preferred school^{xii}. In 1984, the duty of *sectorisation* was annulated in five zones (Ille-et-Vilaine, Côte d’Or, Dunkerque, Saint-Étienne and Limoges). Since then freedom of choice is recognised to families residing outside the *collège* sector, once all the families in the sector had chosen^{xiii}. Ballion argued that this resulted in the existence of an index of 'school desirability' were certain schools are often rejected because of their descriptive attributes –ancientness, area, existence of wider ranges of study options- and attributes of academic success –rate of students in retard and type of orientation at the end of period- (Ballion, 1986:725)^{xiv}. Nowadays the duty of *sectorisation* can be easily avoided, and it is thought that the different strategies to avoid the schools assigned by default have increased the concentration of immigrants in certain establishments in some 10% (Felouzis et al., 2005:104). This has increased other types of inequality since high and middle classes have a longstanding habit of choosing schools out of their area of residence to skip unpopular institutions in favour of more prestigious ones (Ballion, 1986; Broncholichi, 1989; Coleman, 1993:170) and are more likely to choose private schools whenever the first option was not possible (Héran, 1996)^{xv}.

The commonest wisdom is that school prestige is not only determined by academic excellence –for example: scores obtained in the national exams- but also by the type of public that attends the institution (Felouzis, 2003:426; Felouzis, Liot and Perroton, 2002). Hence, the number of foreigners in a school placed in a certain division can be the consequence of the concentration of low socioeconomic profiles, because other families that count on more economic or cultural resources –including information about their rights and possibilities regarding school choice-, may send their children to other schools. Non-desired schools will then host more immigrant students as well as more children from those families who could not choose another school or simply did not care enough. As a result, the proportion of immigrants could be understood as a function of the average socioeconomic profile in the district. Consequently, the variable *priority education* will capture the socioeconomic differences that result from previous sorting mechanisms.

Alas, the quality of *priority education* and *neighbourhood* as instrumental variables is far from reaching the optimal level. Given the characteristics required to any good instrumental variable, both instruments may imply that $\text{cov}(C_j, \varepsilon) = 0$. This suspicion is difficult to discard. On the contrary we will be able to confirm that these are not weak instruments since $\delta_1 \neq 0$.

5.1) Number of years repeating lower secondary school.

The number of years that a student repeats lower secondary school is used in the French specialised literature to proxy students at risk. Regressing the immigration and ethnic categories and the concentration of foreigners in the school division on this dependent variable (M1) we find a negative effect of attending schools where the proportion of foreigners is larger. This negative effect is not ethnic or immigration group specific since no interaction between these groups and the concentration index is significant (M2). Remark that the concentration coefficient is now even larger and more significant than before. Few changes are appreciated after controlling for parental education (M3). Interestingly, the coefficient for the second generation immigrant students is now negative. This means that in any case, the effect of concentration can be positive for this group in comparison to children coming from French-born families.

Making the concentration of foreign students dependent on the quality of the neighbourhood, the statistical significance of this variable is lost. As the fourth model shows (M4.1 and M4.2), the initial disadvantage issued from this contextual variable is spurious and cannot be used to confirm the existence of peer-group effects. In this conjoint model, no interaction is significant, apart from the one for second generations which indicates that if the concentration has any effect, it is positive for this group. The Hausman specification test indicates that the single equation provides an inconsistent estimator^{xvi}.

Therefore it can be concluded that the correlation between the concentration of foreign students and being more likely to repeat courses in lower secondary school does not result from the contagion of negative views about attainment at the micro level, but rather from the fact that students in schools with more foreigners come from more deprived family backgrounds.

Table 5.1.1. Number of years repeating lower secondary school

Repeats college (range 0-6)	M1	M2	M3	M4.1 DV:repeats	M4.2 DV:foreigns
First generation (ref. is natives)	-0.2733*	-0.3871*	-0.4349**	-0.4340**	
	0.121	0.152	0.151	0.154	
Second generation	0.0859	0.0864	0.0125	0.0019	
	0.056	0.059	0.058	0.063	
Number of foreigners	0.0228*	0.0384***	0.0303**	0.0643	
	0.009	0.011	0.011	0.044	
Magreb (ref.is French)	0.0522	0.1530	0.0721	0.1049	
	0.083	0.105	0.104	0.117	
South European	0.2569*	0.3970**	0.3144*	0.3564*	
	0.111	0.136	0.136	0.149	
N. foreigners*1 st generation		0.0260	0.0034	-0.0174	
		0.038	0.038	0.052	
N. foreigners*2 nd generation		-0.0172	-0.0540**	-0.0706*	
		0.021	0.021	0.033	
N. foreigners*Magreb		-0.0308	-0.0324	-0.0558	
		0.027	0.027	0.034	
N. foreigners*S. European		-0.0631	-0.0571	-0.0766	
		0.036	0.036	0.044	
Parental education			-0.2063***	-0.2118***	
			0.011	0.012	
Neighbourhood					-0.3650***
					0.030
Priority Education Area					2.5618***
					0.116
Constant	1.2206***	1.2070***	2.1034***	2.0835***	2.2549***
	0.021	0.022	0.057	0.075	0.111
N	12394	12394	12394	12394	11446
R ²	0.0029	0.0037	0.0312	0.0320	0.1646
F	6.2076	4.6141	36.7953	34.95***	357.16***

Legend: β & standard errors; P. level * p<.05; ** p<.01; *** p<.001

Models M1, M2 and M3 are single equations. Model 4 is formed by two equations. The dependent variable (DV) in M4.1 is the number of years repeating college. The DV in M4.2 is the concentration of foreigners

5.2) Academic performance: the *Brevet des Collèges*

The *Brevet des Collèges* is a key moment in lower secondary education. It is then -at the end of the *collège*, in 3rd year- that the students' general academic level is quantified. The *Brevet* is no longer the prestigious diploma that it used to be some years ago when it even opened real professional opportunities. Yet, it continues to represent a turning point in the secondary education programme since it is much taken into consideration to evaluate and decide the students' career prospects in the selective process where a board formed by the school teachers and some other advisors decide the track that the student is to follow in upper secondary education. The grades obtained in the *Brevet* are known to provide the Council with crucial information about the student's abilities, skills and capacities.

The *Brevet's* final score is calculated assigning a 60% to the average grade obtained in mathematics and French throughout 4th and 3rd year (*contrôle continu*) and a 40% to the scores

obtained in the national exams that take place in the 3rd year (*contrôle sur table*). Felouzis et al. estimate that the score gap in the *Brevet* national exams ranges from 10'6/20 in the less segregated schools to 9,3/20 in the most segregated ones, but that the scores in the continuous control do not vary much (Felouzis et al., 2005:62). The reason is the adaptation of teachers to the classes' level. This can indeed be the case, if students attending more segregated schools happen to be worse than those attending less segregated ones. If this occurs, the first group will learn in a less demanding environment than the second one. In France, this mechanism has already been detected in studies of classroom segregation of students according to their academic level (Duru-Bellat and Migat, 1997).

The next table shows the results of the models that explore the effect of concentration on the score obtained in the *Brevet* continuous control (*contrôle continu*). The table introduces the results stepwise: immigration and ethnic categories plus concentration (M1), interactions (M2), parental education (M3) and the simultaneous equations models (M4.1 and M4.2).

Table 5.2.1. School results: Grades in lower secondary education

Mean in the Brevet des Collèges (1-19)	M1	M2	M3	M4.1 DV:Brevet	M4.2 DV:foreigns
First generation	-0.2401	-0.1083	0.0081	0.0874	
	0.226	0.304	0.282	0.296	
Second generation (ref. is natives)	-0.2830**	-0.2706**	-0.1054	-0.1162	
	0.095	0.099	0.094	0.103	
Number of foreigners	-0.1207***	-0.1201***	-0.0981***	-0.1369	
	0.016	0.019	0.018	0.080	
Maghreb	-0.2541	-0.2632	-0.0580	-0.0506	
	0.145	0.182	0.171	0.192	
South European (ref. is French)	-0.1445	-0.2971	-0.0498	-0.0112	
	0.190	0.224	0.218	0.241	
N. foreigners* 1 st generation		-0.0482	0.0120	0.0341	
		0.067	0.065	0.091	
N. foreigners*2 nd generation		-0.0150	0.0996*	0.1210	
		0.042	0.042	0.062	
N. foreigners*Maghreb		0.0102	0.0194	0.0355	
		0.053	0.052	0.063	
N. foreigners*South European		0.0733	0.0463	0.0637	
		0.064	0.059	0.074	
Parental education			0.5707***	0.5633***	
			0.019	0.020	
Neighbourhood					-0.3650***
					0.030
Priority Education Area					2.5618***
					0.116
Constant	11.4205****	11.4200***	8.8756***	8.9820***	2.2549***
	0.034	0.035	0.094	0.126	0.111
N	9,917	9,917	9,917	9,917	11,446
R ²	0.015	0.016	0.105	0.101	0.165
F	22.61***	13.13***	102.87***	88.87***	357.16***

Legend: β & standard errors; P. level * p<.05; ** p<.01; *** p<.001

Models M1, M2 and M3 are single equations. Model 4 is formed by two equations. The dependent variable (DV) in M4.1 is the number of years repeating college. The DV in M4.2 is the concentration of foreigners

The results indicate that ethnic concentration has a negative and significant impact in all the single equation models (M1, M2 & M3). This negative effect is not different for groups across ethnic or immigration categories (being the natives/French the reference group). The interaction between second generation and concentration is positive in the model where parental education is introduced as a control, so if anything it will have a positive effect for this group of immigrant students.

As it occurred in the model for the number of years repeating lower secondary school, the fourth model (M4.1 and M4.2) points out that the negative effect of concentration detected in the previous models is spurious since it disappears after controlling for the objective and subjective quality of the neighbourhood. The Hausman specification test rejects the pertinence of single equation model^{xvii}.

5.3) Track chosen in upper secondary school

Secondary school in France is divided into two blocks. Lower secondary education is compulsory and universal (*collège*: 6^{ème}-3^{ème} from the age of 11 to 16). Upper secondary schooling follows a track system (*lycée*: 2^{ème}-terminale). At the end of lower secondary school, a *class council* formed by teachers and inspectors decides which track the student is invited to follow in upper secondary education. The decision is made within the so-called *orientation process*. This selective process has become more demanding ever since its creation and it is the cornerstone of the French school system (Prost, 1992:156). The selection begins when the students' families express their most preferred options. The final decision is taken by the class council at the light of the family's preference and the student's performance in lower secondary schooling. In case of disagreement with the final decision, the families can complain opening an administrative process, although this very rarely happens (Masson, 1997). Some authors have criticised this process for amplifying the effect of family level constraints leading to greater inequality (Duru-Bellat and Kieffer, 2000).

Merle has suggested that the study of the democratisation of access to upper secondary education in France cannot focus on leaving or staying at school after the college period, but it has to take into account the different tracks followed as deprived families are more likely to prefer shorter and more applied educational options (Merle, 2002). In the 1990s, some 89,3% of the children from top-executive classes followed the upper track, compared to only 54,6% from manual background. 65,1% of the French natives went to the academic track and only 51,7% could do it among the immigrant students (Duru-Bellat and Mingat, 1990)^{xviii}. It is thought that the family's expectations work as a binding information and this is why, students from lower social strata have a bigger likelihood of being sent to the vocational option rather than to the more academic one (Duru-Bellat and Mingat, 1985 and 1988).

Final-choice is a dummy variable set equal to 1 when the final decision taken by the class council is the academic option (*seconde générale et technologique*) and 0 otherwise (*seconde professionnelle and certificat d'attitude professionnelle*). For the presentation of the results I follow the protocol used in the previous analyses. First, I introduce the ethnic and immigration categories, the concentration and some interaction among these variables. The second model controls for parental education and the average grade obtained in the *Brevet* continuous control, which works a proxy of performance throughout lower secondary school.

The concentration will be made endogenous in the third model using the objective and subjective proxies for neighbourhood quality.

Note that the concentration variable has a negative effect only before controlling for parental education and academic performance (M1). After controlling for these variables (M2), the effect of concentration turns out to be positive. The reason why given the same academic performance, students from highly concentrated schools may be more often channelled towards the academic track than others from less mixed schools is that teachers may adjust their level of exigency to the type of public that attends their classes. As in some of the models presented before, we can see a positive effect for second generation immigrant students. It is important to remark that the interactions between the ethnic categories (North Africans and South Europeans) are now significantly negative being the children of French-born families the reference category.

Table 5.3.1. Orientation in upper secondary school

Choice in Upper Sec. School 0(vocational) 1(academic)	M1	M2	M3.1 DV:final-choice	M3.2 DV:foreigns
First generation	0.1435 0.234	0.5366 0.307	0.2436 0.189	
Second generation (ref. is natives)	-0.2014** 0.074	0.0391 0.103	0.0268 0.062	
Number of foreigners	-0.0416** 0.014	0.0544** 0.020	0.0133 0.015	
N. Foreigners*first generation	-0.0720 0.054	-0.0414 0.054	-0.0124 0.032	
N. Foreigners*second generation	0.0117 0.029	0.1261*** 0.037	0.0682** 0.022	
Magreb	0.1285 0.135	0.7733*** 0.194	0.3962*** 0.114	
South European (ref. is French)	0.1604 0.176	0.5948* 0.238	0.3103* 0.147	
N. foreigners*Magreb	-0.0301 0.036	-0.0977* 0.045	-0.0411 0.026	
N. foreigners*South European	-0.0567 0.049	-0.1668** 0.062	-0.0800* 0.035	
Mean brevet des Collèges		0.7769*** 0.019	0.4357*** 0.011	
Parental education		0.4697*** 0.022	0.2617*** 0.013	
Neighbourhood				-0.1780*** 0.018
Priority Education Area				0.9512*** 0.054
Constant	0.7847*** 0.028	-9.5942*** 0.228	-5.3352*** 0.134	0.4059*** 0.065
N	9,694	9,694	9,694	
Chi ²	36.82***	2042.26***	2368.12***	
Pseudo R ²	0.004	0.408		
ρ			0.0411 0.030	

Legend: β & standard errors; P. level * p<.05; ** p<.01; *** p<.001

Models M1, M2 and M3 are single equations. Model 4 is formed by two equations. The dependent variable (DV) in M3.1 is the number of years repeating college. The DV in M3.2 is the concentration of foreigners

Note that once the concentration of foreigners is endogenized (M3.1), the negative effect found for the North African students loses significance and the interaction between the concentration and the South European immigrant students loses half of its former size, although it remains slightly significant. Interestingly, the concentration parameter is not significant in this final model^{xix}. The positive effect found for second generations remains significant in the last model.

5) Conclusions

The empirical evidence provided in this article recommends being cautious in the study of interaction effects resulting from the concentration of foreigners in schools. The conclusions are diametrically different depending on the method selected for the estimation, and this choice depends on explicit assumptions about the nature of the contextual information.

Using a single equation to estimate the effect of the concentration of foreigners in French schools, confirms the existence of a negative correlation between this contextual variable and several proxies of educational attainment (number of years repeating course in lower secondary school and the grades obtained in the *Brevet* continuous control). The assumption behind these models is that the concentration of foreigners is exogenous, and therefore, that there is no need to model how the population is distributed across schools since it is assumed to be a random process. What if we question this assumption?

There are grounds to suspect that the concentration of foreigners is due to the existence of prior sorting mechanisms that distribute the public across schools (or districts) following a non-random pattern. It is very possible that the socioeconomic background of families determine the choice of social spaces -such as the area of residence or schools attended- and thus, that the assumption behind single equation models, namely that the concentration of foreigners can be treated as an exogenous variable, can result too aggressive. My results seem to indicate that students attending schools where there are more foreigners are not hindered by micro-interacting with immigrants, but instead that their lower educational attainment is the result of the homogeneous socioeconomic background of the public that attends these schools. The sorting of individuals across social spaces is not a random process, and immigrants are not an exception.

This conclusion does not imply that interaction effects or peer-group pressures do not exist. It only means that the concentration of foreigners is not a particularly rich ground for them to appear in comparison to contexts where disadvantage is also concentrated. The concentration of foreigners in schools is the result of the concentration of disadvantage, and when we take this into account, it does not matter whether we interact with foreigners or natives. All this is coherent with the findings of Evans et al. (1992) stating that the endogenisation of contextual variables results in their loss of significance or at least in the reduction of their empirical importance. On the other hand, we must bear in mind that interaction effects can keep a great importance in the study of other social phenomena such as criminality or patterns of sexual behaviour.

Contrary to the common wisdom, the concentration of foreigners appear to increase the likelihood of being channelled towards the more academic track in upper secondary schooling controlling for school performance. This can of course be the result of the over-adjustment of teachers to the classroom academic level. Anyhow, this positive effect also disappears once the concentration is endogenized. The concentration seems to have a positive impact for second generation immigrant students. This has not been detected for the number of years spent in lower secondary education, but it works for the grades obtained in the *Brevet* and the track chosen in upper secondary school. There is also a small negative effect of the concentration among students from a Southern European origin (Italians, Portuguese and Spaniards). This is surprising, since most of the supporters of the interactive hypothesis will predict a specific negative effect among the North African students who are among the less successful ethnic groups.

Ever since the publication of the Coleman Report in the US, many have argued that the concentration of foreign students and ethnic minorities in schools harms educational attainment. The use of more sophisticated estimation techniques is now questioning the validity of this finding. In spite of the dubious existence of peer group pressures constraining educational attainment, the academic theoretical literature is still giving a lot of importance to these phenomena. The Media are also spreading an alarmist view to the wider public opinion. The recent riots in France occurred after the death of two youngsters from African origin in Clichy-sur-Seine brought these issues back to the public debate. The concentration of foreigners and ethnic minorities can be a significant factor to develop specific identities and to explain certain types of behaviour, but it does not seem to be a trap constraining educational attainment.

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ⁱ Zietz and Joshi found that together with academic attitude, life-time consumption goals as driven by family background and peer group pressures are the determinants of high school choices (Zietz and Joshi, 2005)

ⁱⁱ The narrower view is that economics is concerned with the strict study of markets. Manski has argued that the development of microeconomics (specially non-cooperative game theory), the framing of individual decisions in broader contexts such as families or households and the emergence of the macroeconomic endogenous growth theory has widen the scope of economics to this field of research.

ⁱⁱⁱ Durlauf and Peyton argue that only when economic incentives are associated with certain types of behaviour, we can find an individually rational behaviour but socially undesirable such as those predicted by cultural arguments (Durlauf and Peyton, 2001:ch. II).

^{iv} Some authors argue that these pessimistic conclusions do not take into account non-linear effects in the estimation of contextual variables. Crane (1995) suggests that dropout rates are influenced by neighbourhood characteristics in a non-linear that he calls an epidemic effect. Wilson's *The Truly Disadvantaged* (1990) suggests that because of the accumulation of poverty and disadvantage in certain districts in the US during the 1960s and 1970s, some urban areas became a socioeconomic trap, especially if this accumulation reaches 40%.

^v In France, Tribalat argues that immigrants use more often their social capital than natives, especially the Turks, Portuguese and Southeast-Asian immigrants, including second generations (Tribalat, 1995:69).

^{vi} This is the view of the supporters of the *enclave economy hypothesis* (Wilson and Portes, 1980). Enclaves are supposed to shelter members of ethnic communities giving them opportunities that are not accessible in the larger society. There are many variations of this statement. Sanders and Nee (1987) argued that this might only be the case of self employees. Hout (1986) has measured this positive effects both for Black Americans in the US and Catholics in Northern Ireland. This topic has been extensively investigated in the US, the effect of different types of ethnic social capital is not yet a very well developed field of research in Europe.

^{vii} Empirical studies done using the 1989 and 1995 French panels of students in secondary education have concluded that controlling for class of origin, immigrant students are not disadvantaged in comparison to natives (Vallet and Caille, 1996 and Cebolla, 2004).

^{viii} This is why some analyses on schools effects stress that the social composition of their public has a significant impact on attainment (Halsey et al., 1980 and Sullivan and Heath, 2002). Alternatively it can also be that teachers adjust their teaching level to the students in the class. If students from underprivileged social origins attend the same schools, the teachers can lower their standards and their expectations.

^{ix} More sophisticated techniques, such as multilevel modelling are also an acceptable solution and may improve the estimation of standard errors (Szulkin and Jonsson, 2006), but data requirements are enormously difficult to meet, because at each level included in the analysis, there has to be enough variation.

^x What (1) imposes is that the instrument is exogenous, as well as the rest of the independent variables in the first equation -the instruments must not be correlated with omitted factors from the first equation, in which case, they could also be taken as independent variables for the first equation. (2) compels that the partial correlation between the instrument and the endogenous variable is low. (2) relates to the problem of the so-called 'weak instruments'. If this requisite is not met, then the estimator is not consistent and has non standard asymptotic distributions (Staiger and Stock, 1997:564). This is a frequent problem because of the restriction that (1) entails. For example, instruments such as quarter of year birth are normally included in the analyses of educational attainment because there are very few instruments available that have an ensuring non-endogenous nature (1).

^{xi} The rate of answers decreases dramatically in the family questionnaire. For that reason, the Panel95 includes appropriate weights (POND1 and POND2; Caille, 2003:212-3).

^{xii} In 1982, the magazine *France-Soir* published the results of a survey asking why parents valued private schools. The answers were clarifying: for its discipline [91,74%]; religious education [38,98%]; the quality of teaching [77,33%]; the pedagogical originality [48,09%]; as the final option given the failure of the public school system [61,44%]; and the freedom to choose [87,71%] (*France-Soir*, 9th November 1982).

^{xiii} Ballion made a classification ranging schools depending on the final balance between demands for admission and demands for changes when the particular collège was assigned to a student in his area of residence. The result showed that 14 schools [13,3%] were very demanded; 13 [12,4%] were demanded; 29 were rejected [27,6%]; and 9 were very rejected [8,6%] (Ballion, 1986:722-3). A survey was conducted among those families who asked for a change of school. Ballion and Théry observed

that this sub-sample had an over-representation of good students –only 20% of them had repeated before 6^{ème} in comparison to 44% in the rest of the population- and families from advantaged social-background (Ballion and Théry, 1985). Interestingly, the teachers in secondary education school are the most over-represented group in the sub-sample –four times more in the sub-sample of families demanding change than in the rest of the sample-.

^{xiv} From here he concludes that there are three main types of schools. What he calls *Phare* schools are much demanded schools. They tend to be placed in the city centres and have more than 20% of their students from very accommodated families. These schools lack structures for the early-detection of students at risk, and they tend to be strongly linked to nearby *lycées*. The *medium-demanded* schools present a balanced summary of their descriptive attributes and academic results. Finally, the *ghetto*-schools present a higher rate of students in retard, mainly from deprived family contexts and bigger numbers of immigrant *students*. These schools tend to be placed in the outskirts of the cities.

^{xv} It is for that reason that *neighbourhood* can also be taken as a potential instrument since families from lower classes will be more likely to send their children to schools in their area of residence.

^{xvi} This test allows to see whether there is sufficient difference between the coefficients of the instrumental variable regression and the standard OLS ($\chi^2(11) = 26.19 ***$)

^{xvii} $\chi^2(11) = 43.82 ***$

^{xviii} Some scholars have argued that immigrants and ethnic minorities are more often channelled towards the academic track than natives (Vallet and Caille, 1996; Duru-Bellat and Mingat, 1997; Felouzis, 2003:438).

^{xix} Note that the ρ statistic is not significant. This means that $\text{cov}(\varepsilon_1, \varepsilon_2)=0$. Therefore, there is no need to estimate a system of equations.