# Neighborhood effect and Labor Market Integration*

**Work in progress. Please do not quote.**

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**Abstract**

Studies on the French labour market reveal major disparities among workers according to their parents' country of origin. Descendants of immigrants born and raised in France, especially of African origin, have on average lower employment rates than descendants of natives. Three years after finishing school, only 65.7% of African immigrants' sons have a job compared to 84.1% of natives' sons. African immigrants' descendants tend more often to live in deprived urban areas and their behavior may be influenced by the behavior of their neighborhood peers. However, the identification of this endogenous social effect from the sorting process requires implementing specific identification strategies. Two complementary approaches are developed in this paper using representative samples of youth leaving the French educational system (Génération 1998 and Génération 2004 panel surveys from the Céreq). We first implement an instrumental variable approach using employment conditions in different nearby areas as instruments of the neighborhood employment level. Then, we assume a random assignment within the neighborhood taking block employment differences as exogenous. In both estimation strategies, the positive impact of local employment conditions on job access remains significant suggesting that the employment situation of local peers matters to successfully enter the job market.

**Keywords:** Economy geography, peer effects, Labor market, Discrimination, Residential Segregation, Spatial Mismatch

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# 1 Introduction

The spatial concentration of social and economic difficulties in poor urban neighborhoods has been a core issue in many developed countries. The awareness of segregation problems among European citizens has been particularly heightened by sporadic riots that affected France or England more recently. In France, the 2005 civil unrest highlighted two patterns: the segregation of immigrants' families in deprived suburbs and the difficulties faced by their descendants born and raised in France on the labor market. It is widely accepted that living in housing projects has an impact on getting a job. However, the mechanisms explaining how spatial location can affect individual success are much more debated.

Many recent works in economics focus on social interactions to explore the several ways that may explain these patterns[1]. Following the early work of Manski (1993), social effects can be explained by at least three channels. First, individuals act similarly because they face similar contexts and situations. Second, individuals from the same neighborhood act similarly because they have the similar characteristics. And finally, the endogenous social effect implies that an individual's behavior is directly influenced by the behavior of others living in his neighborhood.

In the case of employment, the three channels may be relevant given that local labor market structure influences all residents, sorting on characteristics as social background or ethnicity is observed. The third one, endogenous effects, can be the result of different mechanisms. An information mechanism states that employed workers are more aware of job opportunities and inform their neighbors (Calvandoacute;-Armengol and Jackson (2004)). Through a stigma channel, deviant behavior is socially more costly to support and individuals living in areas where employment is high make more important efforts to find jobs.

As suggested by Manski (1993), the identification of the different channels is a difficult task. However, in the case of employment, the binary form of the output of the model allows to identify the existence of social effects. Brock and Durlauf (2001), Brock and Durlauf (2007) show that binary choice model with social interactions can be identified.

One important remaining concern for the identification of social effects is the existence of self-selection into neighborhoods. To address this problem, one has to make assumptions on the individual's neighborhood choice. To correct this source of endogeneity, one can directly model the neighborhood choice (Nesheim (2004), Bayer, Ferreira, and McMillan (2007)) but such a work is demanding computationally and in the necessary data. To identify neighborhood social interactions, Bayer, Ross, and Topa (2008) focus on a very small area and make the assumption that individuals may choose a neighborhood, but that inside of it, the block level composition is random. They show that people living in the same block are more likely to work together.

A last alternative is the use of instrumental variables methods. Evans, Oates, and Schwab (1992) use this framework to explore the link between teenage behaviors and school composition. Given that teenagers or parents may choose their high-school according to this criteria, they use city

[1] see Blume, Brock, Durlauf, and Ioannides (2011) and Ioannides and Topa (2010) for extended surveys on recent works about social interactions and neighborhood effects.

level variables to instrument the composition of the school. The motivation for these instruments is that families are not mobile between cities and are constrained to choose a school within a city, thus city characteristics may affect school compositions, but may not directly impact teenage behaviors. The correction of the estimates by the instrumental variables method reduces the impact of school composition on teenage behaviors, suggesting that what we observe as an endogenous social effect is in fact the result of the teenagers similarity in terms of unobservable heterogeneity: self-selection remains an important issue when taking into account social interactions. In the case of employment, estimations using epidemiological spatial models by Topa (2001) and Conley and Topa (2007) also show that there exists an important dependance between close neighborhoods. A similar instrumental variables strategy can be used if we assume that individuals are directly affected by the employment rate in his neighborhood, but that rates in other neighborhoods do not directly affect his employment outcome.

In this paper, we focus on the importance of neighborhood effects as determinants of employment. First, we endogenize the characteristics of the neighborhood and use the instrumental variables framework to estimate social effects. As instruments for neighborhoods' characteristics, we use characteristics of close neighborhoods. These characteristics may be considered as instruments given that they account for the structural composition of a more global area but do not explain remaining unobserved heterogeneity of the characteristics that may be the source of endogeneity. Then, assuming random assignment within the neighborhood, the very local variation of employment conditions will be taken as exogenous. Fixed effects will take into account the characteristics of the neighborhood. We then estimate the effect of the remaining spatial variance of employment on job access.

The presentation of the two estimation strategies is followed by the description of the *Génération* databases. These representative samples of youth leaving the French educational system give us the opportunity to carry out estimations for African immigrants' descendants and natives' ones. They are made separately for men and women and on various spatial level and common supports. Some representative results from both strategies are presented in a third part. The general finding is that peers employment situation matters to enter job market.

# 2 Model

Following Brock and Durlauf (2001) and Brock and Durlauf (2007), we model employment of individual $i$ living in neighborhood $g(i)$ as a binary variable $y_{ig(i)}$ that equals 1 if the individual is employed:

$$y_{ig(i)} = \mathbb{1}_{\{X_i\beta_1 + Y_{.g(i)}\beta_2 + Z_{.g(i)}\beta_3 + \varepsilon_{ig(i)} > 0\}}$$

where $X_i$ a vector of individual observable characteristics, $Y_{.g(i)}$ and $Z_{.g(i)}$ are respectively an employment indicator and a vector of characteristics of the neighborhood.

We consider endogeneity of the social interaction effect when $Y_{.g(i)}$ is correlated to $\varepsilon_{ig(i)}$. The existence of endogeneity is natural if there exists sorting on unobserved heterogeneity in the location

choice process. In that case, we have $cov(\varepsilon_{ig(i)}, \varepsilon_{jg(i)}) > 0 \ \forall i, j : g(i) = g(j)$ which directly implies $cov(Y_{.g(i)}, \varepsilon_{ig(i)}) > 0$.

The existence of an unobserved neighborhood effect also implies a positive correlation between $Y_{.g(i)}$ and $\varepsilon_{ig(i)}$. In that case, we model $\varepsilon_{ig(i)}$ as the sum of a unobserved neighborhood effect and an individual effect : $\varepsilon_{ig(i)} = \alpha_{g(i)} + u_{ig(i)}$ which implies the same positive correlation between unobserved heterogeneity of individuals.

In the previous illustrations of endogeneity, the bias of the estimation of the model without taking into account for endogeneity is likely to be a positive one.

To correct for this problem of endogeneity, we propose two distinct strategies of identification. First, we find exogenous variation to explain the endogenous variable $Y_{.g(i)}$ following Evans, Oates, and Schwab (1992). The second strategy of identification consists in considering that agents choose a neighborhood but may be randomly allocated within the neighborhood as in Bayer, Ross, and Topa (2008). The definition of the neighborhood has an impact on the results obtained with both methods.

## 2.1 Instrumenting for the level of employment in the neighborhood

We first model the contextual variable $Y_{.g(i)}$ as a function of close neighborhoods, $g'(i)$, outputs : $Y_{.g(i)} = f(Y_{.g'(i)}, v_g)$. Works by Topa (2001) and Conley and Topa (2007) previously cited show that the rank condition is likely to be satisfied. Adjacent areas share a common structure in terms of labor markets that implies an important correlation between employment rates. The exogeneity of instruments is verified if individuals living in a given neighborhood are not directly affected by the context of other neighborhoods. In terms of social interactions, this assumption holds if individuals' ties are randomly distributed among other neighborhoods.

Although it is not possible to verify this assumption, we use variation in the distance and size of neighborhoods we take into account to check for robustness of the estimators: individuals are less likely to be directly affected by further away neighborhoods but neighborhoods in a given city always share the same structure.

Estimation is achieved using usual maximum likelihood and two stage methods for the Probit model with endogenous covariates. The first stage is given by :

$$Y_{.g(i)} = X_i\gamma_1 + Z_{.g(i)}\gamma_2 + Y_{.g'(i)}\gamma_3 + v_{g(i)}$$

## 2.2 Random assignment within the neighborhood

In a second strategy of identification, we make the assumption that individuals choose a broad area where to live but that the precise neighborhood where they end up living is randomly assigned within this area. Bayer, Ross, and Topa (2008) use this assumption taking block assignments as random within a given neighborhood. This assumption allows to estimate the impact of neighborhood characteristics if we observe sufficient variation in neighborhood characteristics within the

broader areas.

The assumption is sustained by the fact that individuals are likely to choose to live in a given neighborhood but that their final location is subject to random events such as the availability of empty accommodations at the moment they are looking for a place to live.

We still denote by $g(i)$ the neighborhood chosen by the individual. Within this neighborhood, we distinguish $\ell_g$ smaller locations and the final location where individual $i$ lives is denoted by $\ell_{g(i)}$. Then individual outputs of the initial specification can be rewritten as :

$$y_{i\ell_{g(i)}} = \mathbb{1}_{\{X_i\beta_1 + Y_{.\ell_{g(i)}}\beta_2 + Z_{\ell_{g(i)}}\beta_3 + \varepsilon_{i\ell_{g(i)}} > 0\}}$$

where the residual $\varepsilon_{i\ell_{g(i)}}$ can be decomposed to take into account for the potential sorting process among broader areas:

$$\varepsilon_{i\ell_{g(i)}} = \alpha_{g(i)} + u_{i\ell_{g(i)}}$$

where we assume $u_{i\ell_{g(i)}}$ independent of covariates.

The estimation of this specification is achieved by assuming that $u_{i\ell_{g(i)}}$ are type I extreme values distributed. The model is then a logit model. This particular distribution allows to differentiate out the are fixed effects $\alpha_{g(i)}$ without affecting estimations.

# 3 Data

## 3.1 *Génération* surveys

To estimate the model we used data from the *Génération* surveys collected by Céreq (the French Center for Research on Education and Employment). These surveys are representative samples of young people who leave the French educational system for the first time in a given year. These young people are interviewed three years after they leave school. We use the surveys conducted in 2001 and 2007 on the 1998 and 2004 cohorts.

In addition to the information relative to their labor market situation, the *Génération* surveys include many respondent's characteristics: family's socioeconomic status, age, education, household situation, national origin. In particular, they provide detailed information about parents' place of birth and nationality at birth (French or foreign nationality at birth). Among the children born in France, we make a distinction between descendants of French natives and descendants of African immigrants. The sample contains 49 858 descendants of French natives whom parents born in France had already the French nationality at birth. 3 841 individuals have at least one parent who is an African immigrant[2].

Additional information about the respondent's residential location at the time he left school were recently added. Henceforth, the location is known at the statistical block groups (IRIS) levels. These basic units used by the French national institute of statistics for the dissemination of local

[2]Under the terms of the definition adopted by the High Council for Integration, an "immigrant is a person who is born a foreigner and abroad, and resides in France" (INSEE)

(a) TRIRIS

(b) *Large Districts*

(c) N1

(d) N2

Figure 1: Alternative definitions of neighborhoods.

data divide Metropolitan France into 50,100 zones. The population of IRIS falls between 1800 and 5000[3].

We consider the Iris perimeter as the basis for the estimation of the model. Other administrative perimeters are also used : the TRIRIS is an aggregation of several IRIS (in general three) in urban contexts and the *Large Districts* is an aggregation of TRIRIS. IRIS are contained in TRIRIS which are contained in *Large Districts*. According to its size, a city may or not be divided into subdivisions of IRIS, TRIRIS or *Large Districts*.

Figure 1 gives an illustration of these perimeters. On these maps, all nuclear divisions are Iris. We focus on an individual located in the IRIS represented in red (shaded area in a black and white version of the document). On the figure 1a, the dashed area corresponds to the TRIRIS where the individual lives, whereas the dashed area on figure 1b corresponds to his *Large District*.

[3] http://www.insee.fr/en/methodes/default.asp?page=definitions/iris.htm

## 3.2 Contextual variables

Contextual variables are matched to the survey through the IRIS. We import data from several sources of information. The census gives us information on the neighborhood social composition and employment rate. Data from the "Permanent database of facilities" (BPE)[4] provides us detail of all facilities and services that are in an IRIS. These variables measure attractiveness, and some of them may also influence the labor market outputs.

### 3.2.1 Distance between areas

For each individual, the neighborhood where he lives when he left school is considered as $g(i)$. As in Topa (2001), we consider the distance $d(g, g')$ between two neighborhoods $g$ and $g'$ as the minimum number of frontiers an individual has to cross to go from $g$ to $g'$. For individual $i$ we denote by $g_1(i)$ the set of neighborhoods such that $g_1(i) = \{g : d(g(i), g) = 1\}$ and more generally we define $g_k(i) = \{g : d(g(i), g) = k\}$. Then the covariate that gives the employment rate in the area of residence is denoted by $y_{.g(i)}$, and instruments, that is the employment rate in other locations, are denoted by $y_{.g_1(i)}$.

Back to figure 1, for individual $i$ situated in the red Iris, $g_1(i)$ corresponds to the dashed area on figure 1c and $g_2(i)$ corresponds to the dashed area on figure 1d.

### 3.2.2 Nested Neighborhoods

For the second strategy of identification, we consider TRIRIS and *Large districts* as neighborhoods chosen by the individual and thus as perimeters on which sorting may play an important role. Within these neighborhoods, we use the variation from one IRIS to another to identify the effect of local neighborhood characteristics. Focussing on the previous maps (Figures 1c and 1d), we will then consider that an individual chose to live within the dashed areas but that their location in a specific IRIS of these areas is random.

## 3.3 Descriptive statistics

### 3.3.1 An employment gap between African immigrants' and natives' descendants

Three years after leaving school, the employment situation of African immigrants' descendants is worse than French natives' descendants, especially for men. At the time of the survey, only 65.7% of African immigrants' sons have a job, compared to 84.1% for the natives' sons (Tab.1). The gap is smaller for women: employment-to-population ratios are 63.1% and 77.1% respectively.

### 3.3.2 Individual control variables

Many different factors may contribute to this employment gap given that the two population have quite different characteristics (Tab.1). For example, disparities in education are important factors

[4] A detailed description of this database is given at http://www.insee.fr/en/methodes/default.asp?page=sources/ope-adm-bpe.htm

| | Men | | Women | |
|---|---|---|---|---|
| Descendants of | French Natives | African immigrants | French Natives | African immigrants |
| Employed (%) | 84.1 | 65.7 | 77.1 | 63.1 |
| Mean age (end of education) | 20.9 | 20.2 | 21.4 | 21 |
| *Education (%)* | | | | |
| Repeating a year before high-school | 21.3 | 35.5 | 15.6 | 32.1 |
| No diploma | 20.2 | 44.6 | 13.2 | 28.2 |
| Vocational high-school | 20.7 | 19.2 | 15.2 | 15.3 |
| General high-school | 25.5 | 22.3 | 27.7 | 29.8 |
| Higher vocational | 15.7 | 5.4 | 19.8 | 12.1 |
| College | 7.5 | 4.9 | 12.9 | 8.4 |
| Graduate | 10.4 | 3.7 | 11.2 | 6.1 |
| *Socio-economic status of father (%)* | | | | |
| Blue-collar | 23.3 | 48.4 | 22.5 | 48.9 |
| White-collar | 24.8 | 20.2 | 26.1 | 20 |
| Intermediate | 10.1 | 2.8 | 9.3 | 4.2 |
| Executive | 19 | 4.5 | 18.3 | 3.9 |
| Craftsman | 13.7 | 8.6 | 13.4 | 7.1 |
| Absent father | 12.4 | 16.3 | 13.9 | 16.3 |
| *Household (%)* | | | | |
| Parental home | 76.8 | 89 | 65 | 81.2 |
| Living in couple | 9.4 | 3.5 | 21.4 | 10.2 |
| Single | 13.8 | 7.5 | 13.6 | 8.6 |
| Having children | 6 | 3 | 16.3 | 17.4 |
| Generation 2004 (%) | 41.2 | 37.2 | 42.3 | 37.9 |
| N | 25 661 | 2010 | 24 197 | 1 831 |

Source: Génération 1998 and 2004 surveys, Céreq. Distributions are weighted.

Table 1: Characteristics of French natives' and African immigrants' descendants (men on the left part, women on the right)

affecting employment. On average, African immigrants' descendants school succeed less at school than French natives' descendants. Indeed, 44.6% of African immigrants' sons do not have any diploma which is twice as high as French natives' sons. The proportion of African immigrants' daughters who had repeated a year before entering high school is also twice as high as natives' ones. Their socioeconomic family background also differs. African immigrants' descendants come two times more often from a working class family.

Several control variables are used in the following analysis: six level of diploma (ref.: no diploma), a dummy variable taking on 1 if respondent repeated a class before entering high school, the socio-economic status of the father (ref.: blue collar), a dummy variable indicating his likely absence in the household. A dummy variable indicates if respondent became a parent during the first three years after leaving school. As we use both *Génération* surveys from 1998 and 2004, a dummy variable for the 2004 cohort respondents is added. When they left school, individual can live with their parents (ref.) or on their own either as single or a couple. Most of them still be living in the parental home, especially men: three quarters of men are in such a situation (76.8% of the natives' sons up to 89% of the African immigrants' sons).

### 3.3.3 Spatial common support

The spatial distribution of immigrants on the French metropolitan territory has been quite singular and remains so today (Pan Ké Shon (2010), Safi (2009)). Immigrants are more often located in major urban areas and in their most deprived zones. As most of their children still live with them when they finish school, a similar spatial distributon is also observed for the immigrants' descendants. Indeed, half of African immigrants' descendants live in the four main urban areas while only 22% of natives' descendants live there (Tab.2). On the contrary, the proportion of these two groups living outside any urban area are respectively 4.6% and 15.4%. That is why studying the situation of African immigrants' descendants requires focusing on urban areas. It is a matter of geographical common support. Otherwise we would be comparing African immigrants' descendants living in major cities with natives' ones living in smaller towns or villages. These differences are reflected in the administrative divisions of their respective home places. Half of natives' descendants live in a municipality which is not divided into IRIS areas, compared to only 13% for African immigrants' descendants (Tab.2). Locations in municipalities which are divided in more than one IRIS will be called "irised areas". The analysis in this article will mainly be carried out on the urban areas divided in blocks. In addition to providing us a first spatial common support fitting well African immigrants' descendants location, they give us the opportunity to define quite uniform small neighborhood for which statistical informations are available from administrative data and surveys.

Both estimation approaches will be conducted on various types of spatial common support. Among irised areas, specific spatial common support can be defined based on the different spatial units (IRIS, TRIRIS, large district) and the surveyed individuals they contain. Thus, each reference unit containing at least one member of each group is called mixed area. Its surveyed population

| Urban area | Proportion of descendants of French natives | African immigrants |
|---|---|---|
| Paris | 16.1 | 35.2 |
| Lyon | 2.3 | 5.3 |
| Marseilles | 1.8 | 4.2 |
| Lille | 2.0 | 3.6 |
| Outside urban areas | 15.4 | 4.6 |
| In iris area | 51.6 | 87.0 |
| N | 49 858 | 3 841 |

Source: Génération 1998 and 2004 surveys, Céreq. Distributions are weighted.

Table 2: Spatial distribution of African immigrants' and natives' descendants in major urban areas and "irised areas"

and its outcome intra-variance are also used as criteria. Spatial common support for a given unit gathers mixed irised areas in which the total surveyed population is sufficient to get different outcomes (at least one respondent is in employment and one is out of employment). Requiring an intra-group variance leads to an even more restrictive definition of the common support.

#### 3.3.4 Neighborhood effects

Even in the irised areas, the residential area characteristics of each group differ. Like their parents, African immigrants' descendants live more often in deprived areas. 35.6% of them are in *sensitive urban zones* (ZUS)[5], compared to 8.8% for natives' ones. The median IRIS level of the 15-24 unemployment rate is 30.1% for African immigrants' descendants, compared to 23.3% for natives' descendants.

Employment characteristics of the small neighborhood (IRIS) are introduced through the 15-24 employment-to-active population ratio or the 15-24 employment-to-population ratio (especially for women). At this block level, the other characteristics are controlled by their projection on orthogonal axes using the principal-component factors method. The projected variables (Fig.3) are the type of housing (public housing ratio, the single-detached dwellings ratio), the homeownership status, the residents turn over (proportion of residents in the block since at least 5 years / arrived during the two last years), the transport mode (car owner ratio, public transportation ratio), the social composition of the block (ratio executive/white and blue collar, proportion of people without diploma, one parent family ratio, immigrant-to-population ratio). Other projections have been made including various blocks amenities like health services, different type of shops: results are quite similar. The first axe splits blocks according to the type of housing (high rate of public housing in the positive part versus high rate of single-detached dwellings owners in the negative part). The residents turn over is described on the second axe (high proportion of residents in the block since at least 5 years in the positive part). The social composition of the block is projected on the third axe (low social level in the positive part). We assume that this strategy enables us to

[5]"Sensitive urban zones (ZUS) are infra-urban territories defined by the authorities as being priority targets for urban policy, according to local factors relating to the difficulties that the inhabitants of these territories are experiencing." (INSEE)

control for most of the neighborhood effects.

Even if on average the two groups live in quite different location, there are far from being totally segregated. It can be illustrated in the surveyed populations. In the both 1998 and 2004 generation surveys, for most African immigrants' descendants surveyed, at least one of their natives' descendant neighbor has been also interviewed (Tab.3 and Fig.2). 97% of them have a natives' descendant counterpart in the same large district although only 39% of these areas contains members of both groups. Ratios are the same for TRIRIS. It means that *Génération* survey allow us to defined very local spatial common support to study African immigrants' descendants compared to natives' descendants without losing many observations of the first group.

| Area level | Unit | Proportion (%) mixed | only African immigrants' descendants | only natives' descendants | N |
|---|---|---|---|---|---|
| Large district | area | 39.2 | 1.2 | 59.5 | 3 712 |
| | Afr. imm. desc. | 97.6 | 2.4 | | 3 321 |
| | Nat. desc. | 47.7 | | 52.3 | 25 686 |
| Triris | area | 39.7 | 0.9 | 59.4 | 4 488 |
| | Afr. imm. desc. | 97.3 | 2.7 | | 3 321 |
| | Nat. desc. | 39.2 | | 60.8 | 25 686 |
| IRIS | area | 16.05 | 5.51 | 78.4 | 11 688 |
| | Afr. imm. desc. | 73.2 | 26.8 | | 3 321 |
| | Nat. desc. | 16.3 | | 83.7 | 25 686 |

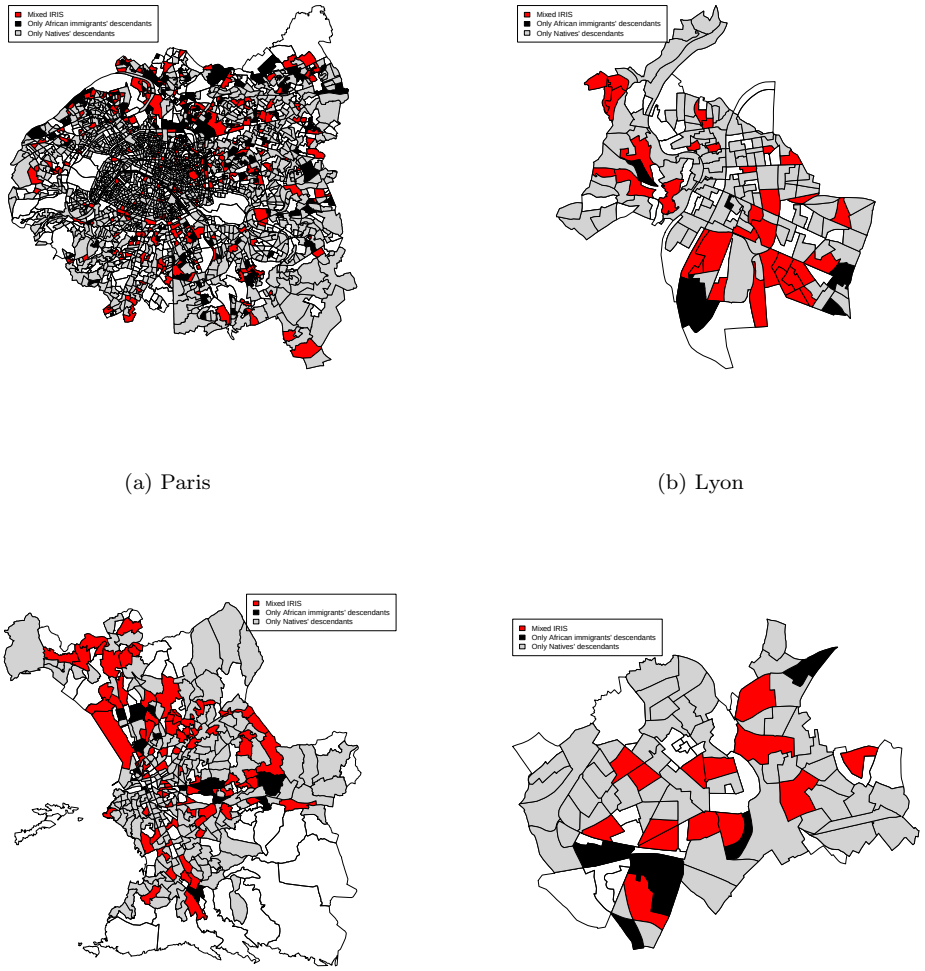
Source: Génération 1998 and 2004 surveys, Céreq.

Table 3: Spatial distribution in "mixed" areas (composed of at least one African immigrants' descendant and one natives' descendant in the survey) and "non-mixed" area (composed of surveyed individuals from only one group) for individuals surveyed in irised areas.

#### 3.3.5 Prospects

To sum up, the fact that African immigrants' descendants live quite exclusively in major urban areas leads us to define a first geographical common support area: the irised area. Neighborhood effects are controlled through a set of variables sum-up by their projection and an employment indicator at the block level (IRIS). But potential sorting can still bias estimations. Indeed, residential location choice may be driven by numerous factors that can also affect job access and thus local employment conditions faced by youth. Employment indicators may not be exogenous from all factors determining job access. That is why local employment conditions will be taken as endogenous from job access.

The first strategy to disentangle this endogenous component of location from the exogenous we are interested in will be to instrument the level of unemployment in the block level. Secondly, assuming random assignment within the neighborhood, the very local variation of employment conditions will be taken as exogenous. When they finish school, most individuals live in the parental home. Thus, the location of most youth is the one chosen by their parents many years ago in a different context. Local characteristics were quite different, especially in terms of youth employment. Moreover, this location may have be chosen according to other incentives than




(a) Paris

(b) Lyon

(c) Marseilles

(d) Lille

Figure 2: Spatial distribution of "mixed" and non-mixed blocks in the four main urban areas

youth job access such as social housing assignment, home ownership, specific local amenities... That is why this particular situation tends to sustain the idea of a random assignment within the neighborhood.

# 4 Results

## 4.1 Estimation framework

In the following estimation approaches, we try to estimate local peers effect on entering the job market. Employment situation is defined by simplification as being or not in employment at the time of the survey three years after leaving school. Estimations are conducted on irised areas defined as urban municipalities divided in several administrative block levels called IRIS (see previous part).

By default, we will assume that the neighborhood is the large district area. The employed-to-active population ratio or to population (for women) will be use as a proxy of local peers employment situation. The other characteristics of the neighborhood are taken into account through their projection on three axes.

In the second approach, fixed effect take into account the characteristics of the neighborhood including peers employment. A necessary condition is that all surveyed inhabitants living in an area do not have similar outcome, otherwise local fixed effect can not be estimated. Thus, the spatial common support will be defined keeping all African immigrants' or natives' descendants living in a irised area and surveyed in a large district with at least one individual with a different outcome (in employment or not).

## 4.2 Instrumenting for the level of employment in the neighborhood

The IRIS 15-24 employment-to-active population ratio is instrumented by different indicators of employment conditions in various surrounding areas. We first use the average employment situation in abutted blocks. This first IRIS belt is then defined as areas reachable from the given IRIS by crossing only one block border ($g_1(i)$ area type according previous notation). It is figured out by the dashed area in maps figure 1c and we refer to it as N1 area. The abutted blocks of the N1 area (the given IRIS excepted) is a $g_2(i)$ type zone called N2 (see figure 1d). Surrounding TRIRIS and large districts are also used to test the robustness of the results to spatial change.

Table 4 and 5 show the impact of the employment rate in the employment equations using different instruments. From a general point of view, all estimates are slightly higher than one and significantly different from 0. The use of instruments increases the value of the coefficients although they cannot be considered as statistically different from the coefficient obtained without instrumenting.

The results are robust to the choice of instrument. In table 4, we can observe that the results do not change when we choose the situation of farer neighborhoods to instrument the local peers employment indicator. From the last two columns of table 4, we can see that the definition of the neighborhood size nor matters for the result. Finally, from table 5 we observe that results do not depend on the choice of the instrument in terms of population: whether we use the employment rate for individuals aged between 15 and 24 or for individuals aged between 15 and 64 does not have a significant impact on the results. Given that we focus on a group of individuals entering the labor market, such a variation in the instrument would have an impact if we admit that individuals are more likely to relate to peers of their age.

## 4.3 Random assignment within the neighborhood first estimations on a common geographical support

In the second estimation strategy, neighborhood characteristics are controlled using fixed effects. By default, neighborhood is the large district area. Peer employment variation within the neighbor-

| | Probit | IV Probit | IV Probit | IV Probit | IV Probit |
|---|---|---|---|---|---|
| Afr. imm. desc. | -0.4394*** | -0.4379*** | -0.4441*** | -0.4376*** | -0.4430*** |
| | (0.0509) | (0.0510) | (0.0511) | (0.0510) | (0.0512) |
| Controlled for individual and family characteristics | yes | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | yes | yes | yes | yes | yes |
| 15-24 Empl/act | 1.0354*** | 1.2506*** | 1.1671** | 1.2948** | 1.3253** |
| | (0.2360) | (0.4481) | (0.4714) | (0.5104) | (0.5758) |
| cons | -0.3745** | -0.5328 | -0.4723 | -0.5652 | -0.5886 |
| | (0.1848) | (0.3347) | (0.3522) | (0.3802) | (0.4277) |
| First stage 15-24 Empl/act | | OLS | OLS | OLS | OLS |
| Afr. imm. desc. | | -0.0040 | -0.0055* | -0.0033 | -0.0043 |
| | | (0.0029) | (0.0030) | (0.0031) | (0.0032) |
| Controlled for individual and family characteristics | | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | | yes | yes | yes | yes |
| 15-24 Empl/act N1 | | 0.6188*** | | | |
| | | (0.0156) | | | |
| 15-24 Empl/act N2 | | | 0.6600*** | | |
| | | | (0.0184) | | |
| 15-64 Empl/act N1 | | | | 0.7640*** | |
| | | | | (0.0257) | |
| 15-64 Empl/act N2 | | | | | 0.7573*** |
| | | | | | (0.0292) |
| cons | | 0.2770*** | 0.2418*** | 0.0717*** | 0.0745*** |
| | | (0.0122) | (0.0142) | (0.0228) | (0.0258) |
| rho | | -0.0221 | -0.0139 | -0.0256 | -0.0284 |
| | | (0.0399) | (0.0419) | (0.0455) | (0.0512) |
| N | 4714 | 4714 | 4694 | 4714 | 4694 |

Table 4: Men employment Probit and IV probit (spatial common support: "mixed" large districts)

| | Probit | IV Probit | IV Probit | IV Probit | IV Probit |
|---|---|---|---|---|---|
| Afr. imm. desc. | -0.4394*** | -0.4395*** | -0.4395*** | -0.4389*** | -0.4388*** |
| | (0.0509) | (0.0509) | (0.0509) | (0.0510) | (0.0510) |
| Controlled for individual and family characteristics | yes | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | yes | yes | yes | yes | yes |
| 15-24 Empl/act | 1.0354*** | 1.0227*** | 1.0205*** | 1.1164** | 1.1328** |
| | (0.2360) | (0.3774) | (0.3897) | (0.4639) | (0.4743) |
| cons | -0.3745** | -0.3652 | -0.3636 | -0.4340 | -0.4461 |
| | (0.1848) | (0.2843) | (0.2930) | (0.3466) | (0.3540) |
| First stage 15-24 Empl/act | | OLS | OLS | OLS | OLS |
| Afr. imm. desc. | | -0.0041 | -0.0045 | -0.0032 | -0.0037 |
| | | (0.0027) | (0.0028) | (0.0030) | (0.0030) |
| Controlled for individual and family characteristics | | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | | yes | yes | yes | yes |
| 15-24 Empl/act TRIRIS N1 | | 0.7894*** | | | |
| | | (0.0153) | | | |
| 15-24 Empl/act Large district N1 | | | 0.7764*** | | |
| | | | (0.0154) | | |
| 15-64 Empl/act TRIRIS N1 | | | | 0.9227*** | |
| | | | | (0.0273) | |
| 15-64 Empl/act Large district N1 | | | | | 0.9008*** |
| | | | | | (0.0271) |
| cons | | 0.1534*** | 0.1638*** | -0.0645*** | -0.0434* |
| | | (0.0118) | (0.0119) | (0.0239) | (0.0238) |
| rho | | 0.0014 | 0.0016 | -0.0082 | -0.0098 |
| | | (0.0336) | (0.0347) | (0.0414) | (0.0423) |
| N | 4714 | 4714 | 4714 | 4714 | 4714 |

Table 5: Men employment Probit and IV probit (spatial common support: "mixed" large districts)

hood is assumed to be exogenous. Other variations in social composition and amenities within the neighborhood are controlled using the projections of these characteristics on their three principal components.

The 15-24 Employment-to-active population ratio at the block level (IRIS) has still a significant impact on employment (Tab.6 column 1 and 2). Its effect is higher on the spatial common support (columns "Com. sup." for mixed large district in Tab.6) compared to all irised areas with outcome variance (columns "Gen." in Tab.6). Separate estimates are also carried out on sub-groups (African immigrants' and natives' sons) on a restricted mixed common support (Tab.6): both outcomes (employment and non-employment) must be observed in each sub-group. Gathering both sub-groups, the local employment indicator remains significant at the 10% level.

Similar results are found for women with 15-24 Employment-to-population ratio (see Tab.6 and Tab.7 in appendix). Assuming a random assignment within large districts, these results tend to suggest that the local peers employment situation matters for youth to find a job.

## 4.4 Discussion

At this stage, we do not much discuss what are the channels through which local peer effects affect employment. An higher level of local peer employment can provide more information about job opportunities, increase social pressure to find a job... Part of the explanation relies on the absence of strict definitions of peers and neighborhood. Local peers can either be all people of the same age living in the same large district or people of the same block sharing common individual characteristics. This quite agnostic empirical approach is used to highlight the effect of local peer employment no matter what specific definitions are chosen. It will give us the opportunity to compare these estimates and make hypothesis about the role of the different areas and peer groups.

| Logit with large district fixed effect | Gen. | Com.sup. | Gen. | Com.sup. | Gen. | Com.sup. |
|---|---|---|---|---|---|---|
| Afr. imm. desc. | -0.5510*** | -0.5339*** | -0.5523*** | -0.5362*** | -0.5493*** | -0.5291*** |
| | (0.0819) | (0.0861) | (0.0821) | (0.0865) | (0.0822) | (0.0865) |
| age | 0.0563*** | 0.0659*** | 0.0557*** | 0.0664*** | 0.0551*** | 0.0651*** |
| | (0.0149) | (0.0207) | (0.0149) | (0.0207) | (0.0149) | (0.0207) |
| *Education (ref: no diploma)* | | | | | | |
| Vocational high school | 0.7470*** | 0.7467*** | 0.7465*** | 0.7495*** | 0.7467*** | 0.7473*** |
| | (0.0795) | (0.1077) | (0.0794) | (0.1074) | (0.0794) | (0.1075) |
| General high school | 0.7901*** | 0.8526*** | 0.7933*** | 0.8624*** | 0.7915*** | 0.8564*** |
| | (0.0777) | (0.1081) | (0.0777) | (0.1084) | (0.0778) | (0.1086) |
| Higher vocational | 1.4552*** | 1.4340*** | 1.4608*** | 1.4414*** | 1.4582*** | 1.4351*** |
| | (0.1096) | (0.1687) | (0.1097) | (0.1695) | (0.1096) | (0.1689) |
| Some college | 0.8804*** | 0.8782*** | 0.8845*** | 0.8826*** | 0.8818*** | 0.8781*** |
| | (0.1111) | (0.1589) | (0.1110) | (0.1586) | (0.1110) | (0.1586) |
| Graduate | 1.2215*** | 1.2397*** | 1.2234*** | 1.2412*** | 1.2237*** | 1.2401*** |
| | (0.1161) | (0.1719) | (0.1159) | (0.1720) | (0.1160) | (0.1720) |
| Repeat bf h.sch | 0.1249* | 0.0239 | 0.1252* | 0.0217 | 0.1261* | 0.0255 |
| | (0.0647) | (0.0858) | (0.0646) | (0.0859) | (0.0646) | (0.0858) |
| *Socio-eco. status of father (ref: blue collar)* | | | | | | |
| White collar | -0.0524 | 0.0260 | -0.0514 | 0.0319 | -0.0529 | 0.0281 |
| | (0.0767) | (0.1078) | (0.0768) | (0.1081) | (0.0767) | (0.1078) |
| Intermediate | 0.0947 | 0.0060 | 0.0960 | 0.0137 | 0.0958 | 0.0127 |
| | (0.1098) | (0.1622) | (0.1099) | (0.1622) | (0.1098) | (0.1623) |
| Executive | -0.0318 | 0.0290 | -0.0293 | 0.0319 | -0.0312 | 0.0332 |
| | (0.0904) | (0.1367) | (0.0905) | (0.1369) | (0.0904) | (0.1366) |
| Craftsman | 0.1225 | -0.0181 | 0.1223 | -0.0101 | 0.1264 | -0.0079 |
| | (0.1009) | (0.1430) | (0.1009) | (0.1434) | (0.1006) | (0.1424) |
| Absent father | -0.2507*** | -0.3426*** | -0.2494*** | -0.3382*** | -0.2498*** | -0.3379*** |
| | (0.0917) | (0.1235) | (0.0918) | (0.1238) | (0.0917) | (0.1237) |
| *Household (ref: parental home)* | | | | | | |
| In couple | 0.6367*** | 0.5208*** | 0.6379*** | 0.5262*** | 0.6372*** | 0.5211*** |
| | (0.1210) | (0.1956) | (0.1211) | (0.1958) | (0.1211) | (0.1954) |
| Single | 0.1774* | 0.0646 | 0.1766* | 0.0786 | 0.1803** | 0.0762 |
| | (0.0908) | (0.1379) | (0.0908) | (0.1385) | (0.0907) | (0.1382) |
| Children | 0.2798** | 0.3345* | 0.2791** | 0.3203 | 0.2834** | 0.3341 |
| | (0.1297) | (0.2028) | (0.1297) | (0.2022) | (0.1298) | (0.2033) |
| Generation 2004 | -0.5013*** | -0.6032*** | -0.5635*** | -0.6193*** | -0.4880*** | -0.5956*** |
| | (0.0589) | (0.0844) | (0.0881) | (0.1220) | (0.0587) | (0.0848) |
| *IRIS charact.: projection on principal components* | | | | | | |
| Axe1 Public housing | 0.0002 | 0.0088 | -0.0318 | -0.0551 | 0.0177 | 0.0475 |
| | (0.0743) | (0.0922) | (0.0718) | (0.0891) | (0.0856) | (0.1053) |
| Axe2 Seniority of residence | 0.0148 | 0.0064 | 0.0224 | 0.0002 | -0.0035 | -0.0221 |
| | (0.0415) | (0.0589) | (0.0421) | (0.0594) | (0.0410) | (0.0573) |
| Axe3 Low social class | 0.0029 | 0.0310 | -0.0220 | 0.0048 | -0.0051 | 0.0195 |
| | (0.0581) | (0.0765) | (0.0577) | (0.0755) | (0.0578) | (0.0760) |
| *Employment rates (IRIS level)* | | | | | | |
| 15-24 Empl/act | 0.9357** | 1.4646** | | | | |
| | (0.4180) | (0.5738) | | | | |
| 15-24 Empl/pop | | | 0.8000 | 0.5009 | | |
| | | | (0.5513) | (0.7821) | | |
| 15-64 Empl/act | | | | | 1.0956 | 1.9384** |
| | | | | | (0.7980) | (0.9705) |
| N | 9161 | 4712 | 9161 | 4712 | 9161 | 4712 |

Table 6: Men employment Logit in two spatial areas: irised large districts (Gen.) and "mixed" large districts (Com. sup.)

| Logit with large district fixed effect | Both groups | Afr. Immigrants' descendants | Natives' descendants |
|---|---|---|---|
| Afr. imm. desc. | -0.4560*** | | |
| | (0.1180) | | |
| age | 0.1373*** | 0.2142** | 0.0984** |
| | (0.0434) | (0.0899) | (0.0495) |
| *Education (ref: no diploma)* | | | |
| Vocational high school | 0.6793*** | 0.7494* | 0.6615** |
| | (0.1897) | (0.3840) | (0.2612) |
| General high school | 0.9614*** | 0.6286* | 1.0681*** |
| | (0.2074) | (0.3752) | (0.3276) |
| Higher vocational | 1.5938*** | 1.1903* | 1.6511*** |
| | (0.3648) | (0.6182) | (0.4285) |
| Some college | 0.5710* | 0.8245 | 0.5240 |
| | (0.3149) | (0.6883) | (0.4114) |
| Graduate | 1.5186*** | 2.0555** | 1.6019*** |
| | (0.3605) | (0.9031) | (0.4100) |
| Repeat bf h.sch | -0.0996 | -0.0781 | -0.0664 |
| | (0.1518) | (0.2773) | (0.2342) |
| *Socio-eco. status of father (ref: blue collar)* | | | |
| White collar | -0.0258 | 0.0767 | -0.0550 |
| | (0.1946) | (0.3103) | (0.2780) |
| Intermediate | 0.3120 | 0.5286 | 0.1986 |
| | (0.3312) | (0.7283) | (0.4013) |
| Executive | -0.1438 | -0.4789 | -0.0156 |
| | (0.2464) | (0.6230) | (0.3162) |
| Craftsman | -0.4391* | 0.0569 | -0.6055* |
| | (0.2495) | (0.4095) | (0.3396) |
| Absent father | -0.4276* | -0.2922 | -0.5401* |
| | (0.2284) | (0.4363) | (0.3126) |
| *Household (ref: parental home)* | | | |
| In couple | 0.8118** | 15.1677*** | 0.4065 |
| | (0.3273) | (0.5753) | (0.3408) |
| Single | 0.1465 | 0.6959 | -0.0073 |
| | (0.3177) | (0.5965) | (0.3673) |
| Children | -0.1142 | -0.6367 | 0.2081 |
| | (0.3780) | (0.6800) | (0.4755) |
| Generation 2004 | -0.7545*** | -1.2055*** | -0.5474** |
| | (0.1789) | (0.3490) | (0.2235) |
| *IRIS charact.: projection on principal components* | | | |
| Axe1 Public housing | 0.0759 | 0.2601 | -0.0278 |
| | (0.2114) | (0.3648) | (0.2453) |
| Axe2 Seniority of residence | -0.1286 | -0.1608 | -0.0929 |
| | (0.0963) | (0.1828) | (0.1209) |
| Axe3 Low social class | -0.0103 | -0.1800 | 0.1010 |
| | (0.2096) | (0.3586) | (0.2360) |
| *Employment rates (IRIS level)* | | | |
| 15-24 Empl/act | 1.6043* | 2.1448 | 1.3941 |
| | (0.8817) | (1.6440) | (1.2121) |
| N | 1195 | 352 | 843 |

Table 7: Men employment Logit ("mixed" large district restricted common support)

# 5 Conclusion

This paper is devoted to studying local peers effect on entering job market. We try to test the hypothesis that employment status of the peers in the neighborhood has an effect on getting a job. Such a process may partly explain the large average employment gap observed between African immigrants' descendants and natives' descendants. Indeed, African immigrants' descendants live on average in more deprived area. If the chance to getting a job depends on local peers employment, African immigrants' descendants will benefit less from positive endogenous social effects. But a correlation between local characteristics and getting a job may also be due to a sorting process, people aggregating themselves to similar individuals. Two estimation strategies are used to disentangle the local peer effect from local residential sorting. The first one use surrounding employment conditions to instrument neighborhood level of employment. The second one relies on the assumption of random assignment within the neighborhood. Estimates from both strategies suggest that peers employment situation does matter to enter job market. Hypothesis they rely on can hardly be tested. But results tend to remain the same no matters what the unit and the spatial common support are. Further analysis will be carried out to check the robustness and the spatial scope of these results.

# A Appendix

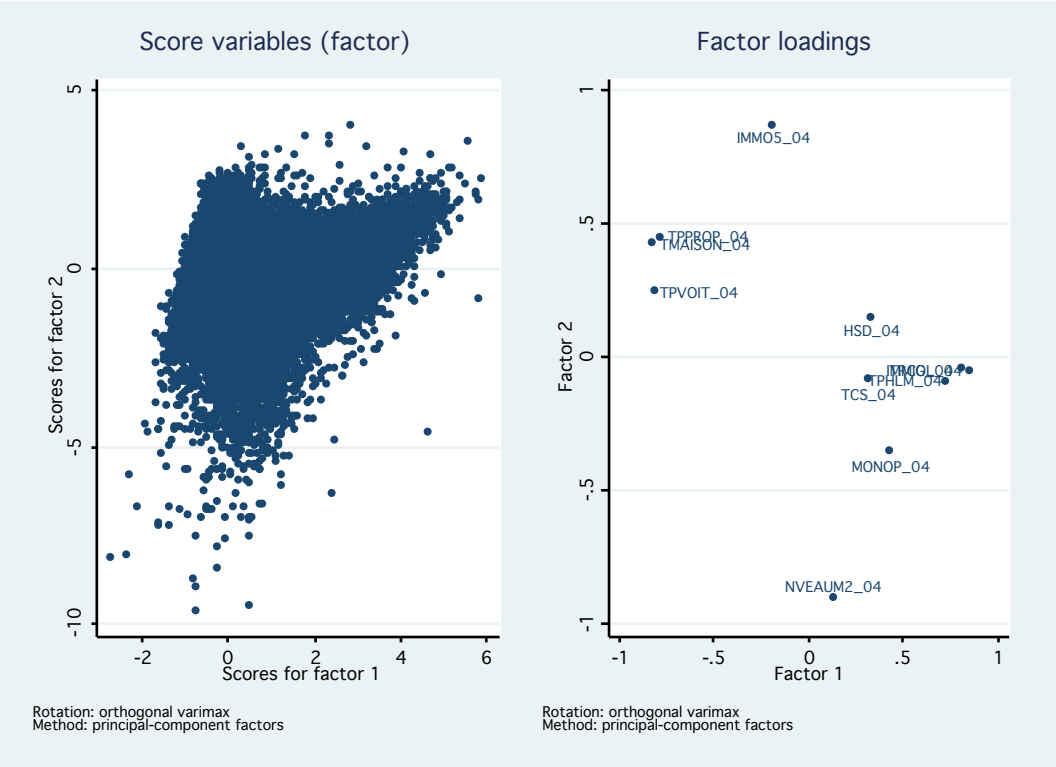



Figure 3: Projection of IRIS characteristics on principal components (axe 1 and axe 2)

| | Probit | IV Probit | IV Probit | IV Probit | IV Probit |
|---|---|---|---|---|---|
| Afr. imm. desc. | -0.4106*** | -0.4070*** | -0.4097*** | -0.4080*** | -0.4108*** |
| | (0.0522) | (0.0522) | (0.0524) | (0.0522) | (0.0524) |
| Controlled for individual and family characteristics | yes | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | yes | yes | yes | yes | yes |
| 15-24 Empl/act | 0.7129*** | 1.4303*** | 1.2578*** | 1.2467*** | 1.0856** |
| | (0.2273) | (0.3937) | (0.4078) | (0.4386) | (0.4894) |
| cons | -0.4326** | -0.9495*** | -0.8194*** | -0.8172** | -0.6956* |
| | (0.1807) | (0.2927) | (0.3027) | (0.3248) | (0.3597) |
| First stage 15-24 Empl/act | | OLS | OLS | OLS | OLS |
| Afr. imm. desc. | | -0.0057* | -0.0079** | -0.0045 | -0.0058* |
| | | (0.0030) | (0.0031) | (0.0032) | (0.0033) |
| Controlled for individual and family characteristics | | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | | yes | yes | yes | yes |
| 15-24 Empl/act N1 | | 0.6759*** | | | |
| | | (0.0151) | | | |
| 15-24 Empl/act N2 | | | 0.7292*** | | |
| | | | (0.0174) | | |
| 15-64 Empl/act N1 | | | | 0.8296*** | |
| | | | | (0.0229) | |
| 15-64 Empl/act N2 | | | | | 0.8431*** |
| | | | | | (0.0293) |
| cons | | 0.2325*** | 0.1875*** | 0.0114 | -0.0058 |
| | | (0.0120) | (0.0137) | (0.0204) | (0.0261) |
| rho | | -0.0788** | -0.0598 | -0.0559 | -0.0386 |
| | | (0.0363) | (0.0372) | (0.0400) | (0.0444) |
| N | 4702.0000 | 4702.0000 | 4678.0000 | 4702.0000 | 4678.0000 |

Table 8: Women employment Probit and IV probit (spatial common support: "mixed" large districts)

| | Probit | IV Probit | IV Probit | IV Probit | IV Probit |
|---|---|---|---|---|---|
| Afr. imm. desc. | -0.4106*** | -0.4082*** | -0.4084*** | -0.4082*** | -0.4089*** |
| | (0.0522) | (0.0522) | (0.0522) | (0.0522) | (0.0522) |
| Controlled for individual and family characteristics | yes | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | yes | yes | yes | yes | yes |
| 15-24 Empl/act | 0.7129*** | 1.2386*** | 1.2146*** | 1.2284*** | 1.1106*** |
| | (0.2273) | (0.3389) | (0.3463) | (0.4034) | (0.4117) |
| cons | -0.4326** | -0.8110*** | -0.7937*** | -0.8041*** | -0.7192** |
| | (0.1807) | (0.2549) | (0.2600) | (0.3001) | (0.3059) |
| First stage 15-24 Empl/act | | OLS | OLS | OLS | OLS |
| Afr. imm. desc. | | -0.0067** | -0.0079*** | -0.0053* | -0.0064** |
| | | (0.0028) | (0.0028) | (0.0031) | (0.0031) |
| Controlled for individual and family characteristics | | yes | yes | yes | yes |
| Controlled for IRIS characteristics (3 axes) | | yes | yes | yes | yes |
| 15-24 Empl/act TRIRIS N1 | | 0.8402*** | | | |
| | | (0.0146) | | | |
| 15-24 Empl/act Large district N1 | | | 0.8305*** | | |
| | | | (0.0151) | | |
| 15-64 Empl/act TRIRIS N1 | | | | 0.9756*** | |
| | | | | (0.0248) | |
| 15-64 Empl/act Large district N1 | | | | | 0.9585*** |
| | | | | | (0.0247) |
| cons | | 0.1161*** | 0.1248*** | -0.1128*** | -0.0956*** |
| | | (0.0114) | (0.0117) | (0.0218) | (0.0217) |
| rho | | -0.0632** | -0.0594* | -0.0557 | -0.0427 |
| | | (0.0313) | (0.0318) | (0.0368) | (0.0373) |
| N | 4702.0000 | 4702.0000 | 4702.0000 | 4702.0000 | 4702.0000 |

Table 9: Women employment Probit and IV probit (spatial common support: "mixed" large districts)

| Logit with large district fixed effect | Gen. | Com.sup. | Gen. | Com.sup. | Gen. | Com.sup. |
|---|---|---|---|---|---|---|
| Afr. imm. desc. | -0.4953*** | -0.6057*** | -0.4939*** | -0.5974*** | -0.4896*** | -0.6001*** |
| | (0.0835) | (0.1152) | (0.0833) | (0.1152) | (0.0836) | (0.1154) |
| age | 0.0912*** | 0.1089*** | 0.0913*** | 0.1086*** | 0.0912*** | 0.1090*** |
| | (0.0140) | (0.0228) | (0.0140) | (0.0227) | (0.0140) | (0.0228) |
| *Education (ref: no diploma)* | | | | | | |
| Vocational high school | 0.7228*** | 0.6465*** | 0.7187*** | 0.6428*** | 0.7227*** | 0.6472*** |
| | (0.0934) | (0.1341) | (0.0936) | (0.1343) | (0.0935) | (0.1339) |
| General high school | 0.9584*** | 0.9379*** | 0.9600*** | 0.9386*** | 0.9593*** | 0.9370*** |
| | (0.0841) | (0.1264) | (0.0841) | (0.1254) | (0.0842) | (0.1260) |
| Higher vocational | 2.4447*** | 2.4509*** | 2.4476*** | 2.4514*** | 2.4464*** | 2.4494*** |
| | (0.1101) | (0.1729) | (0.1102) | (0.1731) | (0.1103) | (0.1729) |
| Some college | 1.5219*** | 1.5454*** | 1.5294*** | 1.5522*** | 1.5249*** | 1.5464*** |
| | (0.1032) | (0.1517) | (0.1034) | (0.1518) | (0.1034) | (0.1521) |
| Graduate | 1.9944*** | 2.0269*** | 2.0008*** | 2.0316*** | 1.9972*** | 2.0269*** |
| | (0.1169) | (0.1842) | (0.1173) | (0.1851) | (0.1169) | (0.1842) |
| Repeat bf h.sch | -0.0259 | -0.1937* | -0.0272 | -0.1968* | -0.0255 | -0.1953* |
| | (0.0738) | (0.1131) | (0.0737) | (0.1133) | (0.0739) | (0.1132) |
| *Socio-eco. status of father (ref: blue collar)* | | | | | | |
| White collar | 0.0560 | 0.0030 | 0.0558 | 0.0043 | 0.0541 | -0.0016 |
| | (0.0730) | (0.1099) | (0.0730) | (0.1097) | (0.0732) | (0.1102) |
| Intermediate | 0.0607 | -0.0284 | 0.0605 | -0.0253 | 0.0592 | -0.0318 |
| | (0.1079) | (0.1783) | (0.1080) | (0.1792) | (0.1081) | (0.1792) |
| Executive | -0.0987 | -0.5549*** | -0.1003 | -0.5499*** | -0.0995 | -0.5562*** |
| | (0.0919) | (0.1397) | (0.0918) | (0.1402) | (0.0919) | (0.1396) |
| Craftsman | 0.0707 | -0.0198 | 0.0729 | -0.0076 | 0.0738 | -0.0187 |
| | (0.1024) | (0.1653) | (0.1026) | (0.1661) | (0.1025) | (0.1654) |
| Absent father | -0.2835*** | -0.4216*** | -0.2871*** | -0.4177*** | -0.2826*** | -0.4222*** |
| | (0.0864) | (0.1302) | (0.0864) | (0.1303) | (0.0864) | (0.1303) |
| *Household (ref: parental home)* | | | | | | |
| In couple | 0.2789*** | 0.2474* | 0.2762*** | 0.2425* | 0.2783*** | 0.2476* |
| | (0.0768) | (0.1295) | (0.0770) | (0.1303) | (0.0768) | (0.1293) |
| Single | -0.0030 | -0.1437 | -0.0082 | -0.1484 | -0.0041 | -0.1433 |
| | (0.0858) | (0.1459) | (0.0859) | (0.1463) | (0.0858) | (0.1460) |
| Children | -0.8982*** | -0.9957*** | -0.8993*** | -0.9975*** | -0.8967*** | -0.9927*** |
| | (0.0699) | (0.1110) | (0.0700) | (0.1119) | (0.0701) | (0.1115) |
| Generation 2004 | -0.3850*** | -0.5846*** | -0.4897*** | -0.7269*** | -0.3917*** | -0.5962*** |
| | (0.0593) | (0.0955) | (0.0822) | (0.1223) | (0.0594) | (0.0961) |
| *IRIS charact.: projection on principal components* | | | | | | |
| Axe1 Public housing | 0.0004 | -0.1168 | -0.0094 | -0.1131 | 0.0527 | -0.0674 |
| | (0.0754) | (0.0956) | (0.0735) | (0.0901) | (0.0863) | (0.1132) |
| Axe2 Seniority of residence | -0.0732** | -0.1202** | -0.0558 | -0.0853 | -0.0893** | -0.1293** |
| | (0.0359) | (0.0526) | (0.0367) | (0.0541) | (0.0360) | (0.0529) |
| Axe3 Low social class | 0.0781 | 0.1335* | 0.0565 | 0.1217* | 0.0784 | 0.1363* |
| | (0.0571) | (0.0708) | (0.0570) | (0.0695) | (0.0569) | (0.0708) |
| *Employment rates (IRIS level)* | | | | | | |
| 15-24 Empl/act | 0.5317 | 0.1902 | | | | |
| | (0.4231) | (0.6538) | | | | |
| 15-24 Empl/pop | | | 1.0527** | 1.4135* | | |
| | | | (0.5330) | (0.7962) | | |
| 15-64 Empl/act | | | | | 1.4048 | 1.0095 |
| | | | | | (0.8622) | (1.2142) |
| N | 9669 | 4045 | 9669 | 4045 | 9669 | 4045 |

Table 10: Women employment Logit in two spatial areas: irised large districts (Gen.) and "mixed" large districts (Com. sup.)

| Logit with large district fixed effect | Both groups | Afr. Immigrants' descendants | Natives' descendants |
|---|---|---|---|
| Afr. imm. desc. | -0.3175** | | |
| | (0.1285) | | |
| age | 0.0981** | 0.1158 | 0.0933** |
| | (0.0395) | (0.0861) | (0.0463) |
| *Education (ref: no diploma)* | | | |
| Vocational high school | 0.7247*** | 0.9535** | 0.6364** |
| | (0.2190) | (0.3961) | (0.3057) |
| General high school | 0.8008*** | 0.9417*** | 0.7433*** |
| | (0.2154) | (0.3570) | (0.2873) |
| Higher vocational | 2.5800*** | 2.5681*** | 2.5430*** |
| | (0.3001) | (0.7905) | (0.3334) |
| Some college | 1.2756*** | 0.9335* | 1.4086*** |
| | (0.2243) | (0.5170) | (0.2942) |
| Graduate | 2.1523*** | 2.8808*** | 1.9599*** |
| | (0.3091) | (0.8542) | (0.3656) |
| Repeat bf h.sch | -0.4260*** | -0.5078 | -0.4758** |
| | (0.1615) | (0.3340) | (0.1855) |
| *Socio-eco. status of father (ref: blue collar)* | | | |
| White collar | -0.1252 | -0.5097 | 0.0437 |
| | (0.1729) | (0.3342) | (0.2520) |
| Intermediate | -0.0597 | -0.2474 | 0.0558 |
| | (0.3056) | (1.0630) | (0.3869) |
| Executive | -0.4368* | 0.0419 | -0.3425 |
| | (0.2491) | (1.6693) | (0.2827) |
| Craftsman | 0.1405 | -0.2413 | 0.4237 |
| | (0.2843) | (0.5731) | (0.3622) |
| Absent father | -0.4834** | -0.6817* | -0.4081 |
| | (0.2109) | (0.3994) | (0.3211) |
| *Household (ref: parental home)* | | | |
| In couple | 0.3052 | 0.1798 | 0.2735 |
| | (0.2366) | (0.5646) | (0.2845) |
| Single | -0.4876* | 0.6918 | -0.7747*** |
| | (0.2560) | (0.5279) | (0.2675) |
| Children | -1.0003*** | -1.4324*** | -0.8678*** |
| | (0.1828) | (0.3946) | (0.2344) |
| Generation 2004 | -0.5689*** | -0.9581*** | -0.4317** |
| | (0.1630) | (0.3140) | (0.2026) |
| *IRIS charact.: projection on principal components* | | | |
| Axe1 Public housing | -0.0453 | 0.3864 | -0.1171 |
| | (0.1771) | (0.3160) | (0.2293) |
| Axe2 Seniority of residence | -0.1308 | -0.0433 | -0.1658* |
| | (0.0906) | (0.1772) | (0.0988) |
| Axe3 Low social class | -0.0583 | -0.7071** | 0.0884 |
| | (0.1382) | (0.3332) | (0.1527) |
| *Employment rates (IRIS level)* | | | |
| 15-24 Empl/act | -0.3705 | 0.8543 | -0.9523 |
| | (0.9178) | (1.6233) | (1.2927) |
| N | 1324 | 369 | 955 |

Table 11: Women employment Logit ("mixed" large district restricted common support)

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