Wrong origin or wrong neighborhood: Explaining weaker labor maket outcomes of French individuals of African origin [§]

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Abstract

In this study, we estimate models with cluster fixed effects, in order to disentangle the effects of neighborhood from the ones of the nationality of the parents in the probability for a French individual to be employed and in their wages. We take advantage of the sampling structure of the LFS to purge the employment model from cluster effects, using a conditional logit for employment and panel OLS for wages. Finally, the employment probability gap and the wage gap between French workers with French born parents and French workers with parents of African origin may be decomposed into three components: one due to a gap in observables, one due to a gap in neighborhood quality, and one unexplained component. It is found that the neighborhood quality accounts for around one fifth of the differential, while the unexplained part covers the rest. Introducing cluster effects in the wage equation does not at all change the story: the whole gap is explained by differentials in characteristics.

Keywords: discrimination, segregation, wage differentials, employment differentials, fixed-effects, nonlinear models, cluster data.
JEL: C24, J31, J71.

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1 Introduction

To what extent are lower employment of second-generation migrants due to the fact that they are more likely to live in relatively deprived areas? A first fact is that workers of foreign national origin do not perform as well as native workers. In 2005, there was a 15% differential in monthly wage and a 20% differential in employment probability between French individuals with French parents and French individuals with parents born with an African nationality. A second fact is that workers living in distressed areas experience more difficulties on the labor market than workers living anywhere else. Comparing French workers living inside "Zones Urbaines Sensibles"[1](ZUS) with French workers outside, there was a 20% wage differential and a 15% differential in employment probability in 2005. Finally, a third fact is that there is a statistical correlation between living in a distressed area and being of foreign origin: 23% of second-generation migrants of African origin live in ZUS areas, versus 5% of French workers of French origin. The question we raise in this paper is: aside from composition effects, is there a specific component in the lack of performance of workers of foreign origin that would be due to residence location?

Discrimination against a given minority group have been studied by economists and econometricians for more than fifty years. Becker (1957), Phelps (1972), Arrow (1973) are pioneering works that encompassed both taste and statistical discrimination. Empical evidence of discrimination[2] has been provided by roughly two kinds of methods, each of which with assets and drawbacks. Audit studies [3] have been developed to experimentally control for all other characteristics than the one on which discrimination is to be tested. These audit studies have been used in all kinds of markets (labor, housing, cars...) to detect discrimination against different groups (women, Blacks, immigrants, older workers, gay...) and have proved useful to provide clear evidence about the existence of the phenomenom.

Heckman (1998) however formulated critiques against this technique, claiming that focusing on a single case do not prove formally the existence of discrimination in the whole market and that some unobservables would always not be controlled for. Indirect proofs thus keep on being useful to detect and quantify discrimination. Decomposition techniques, in particular, have been extensively used since their introduction by Blinder (1973) and Oaxaca (1973). This kind of approach obviously suffer from the fact that all variables uncorrelated with the controlled variables but correlated with fact to belong to the potentially discriminated group may be suspected to bias the results. In the French case, studies dealing with discrimination on the labor market against French individuals of African origin started only recently, mostly because of the lack of data.[4]

Employers may discriminate against workers according to its (supposed) ethnic group, or its color, but they may also discriminate against workers living in particularly distressed areas. This kind of discrimination of sometimes named redlining.[5] Even apart from direct discrimina-

[1]"Zone Urbaine Sensible" is a label created in 1996 by the national government in order to signal which areas should be targeted by national or local social and economic programs. The vast majority of the 700 existing ZUS spread over the French territory suffers from high unemployment, high poverty, low education rates.

[2]A comprehensive survey over the empirical literature about discrimination is available in Altonji and Blank (1999).

[3]Riach and Rich (2002) provides an interesing survey of this large literature.

[4]See, e.g., Silberman and Fournier (1999), Dupray and Moullet (2004), Domingues Dos Santos (2005), Meurs, Pailhé, and Simon (2006), Aeberhardt, Fougère, Pouget, and Rathelot (2007).

[5]A model of redlining in the labor market close in spirit to statistical discrimination models may be found in

tion, there exist at least three kinds of reasons to explain lower performance for individuals living in ZUS areas. Obviously, a part of labor performance differentials come from composition effects as residence location is endogenous and thus depends on individual and household characteristics. Then, the *spatial mismatch* hypothesis first defined by Kain (1968) states that distance to jobs empedes workers living in enclaves to perform as well in the labor market as workers living closer to areas where economic activity flourishes.[6]. Gobillon, Magnac, and Selod (2007) and Gobillon and Selod (2008) are empirical evidence of the remevance of spatial mismatch in the case of Paris region. *Human capital externalities*, as described by Cutler and Glaeser (1997) and Borjas (1998), may also play a role. If residential segregation implies that less skilled members are separated from high skilled ones, spillover effects may take place. People living in the enclave interact only with lower skilled workers and lose from this segregation.

The idea to try and disentangle consequences of discrimination from those of segregation is not new. Early studies of J. Kain, in which the idea of spatial mismatch is developed, aims at explaining why Blacks, that mostly lived in distressed inner cities while White and most of the economic activity were fleeing in the suburbs, were experiencing such high levels of poverty and joblessness. In a comparison between Chicago and Los Angeles, Leonard (1987) finds that residential segregation strongly influences black employment patterns. Holzer and Reaser (2000) and Raphael, Stoll, and Holzer (2000) use firm-level data to assess that firms located in suburbs are more likely to discriminate against Blacks.

In a first attempt to disentangle residence location effects from discrimination in the French case, Aeberhardt, Fougère, Pouget, and Rathelot (2007) introduced in the traditional Blinder-Oaxaca decomposition framework crossed dummies for belonging to a ZUS and to the Paris region and found no real evidence of the importance of location to explain the wage and the employment gap. In this study, we propose to go one step further and to use the area-sampling scheme of the LFS to control more accurately for the individuals' neighborhood. The idea is to identify the within-sampling-area wage and employment gaps between individuals with French parents and individuals with parents born with a foreign citizenship. We estimate an employment and a wage models with cluster effects.

Next part presents the method that will be used to decompose the gap in the labor market outcome between the two groups. Section 3 details the data used and provides some summary statistics. In section 4, the results of the estimation and the decompostion are delivered and discussed.

2 Methodology

2.1 Model

We specify a model of employment as in Gronau (1974) and of wage as in Mincer (1958). The sample is segmented into demographic groups j. We denote E_{ij} the employment status of the individual i in group j and w_{ij} her wage.

Zenou and Boccard (2000) or Zenou (2002). Redlining may also refer to some kind of discrimination in the access to mortgage loans; see, e.g., Tootell (1996).

[6]See Wasmer and Zenou (2002), Smith and Zenou (2003) and Selod and Zenou (2006) for more theoretical details on spatial mismatch and Gobillon, Selod, and Zenou (2007) for a well-documented survey.

$$\begin{cases} E_{ij}^* = Z_i\gamma_j + \eta_{a(i)} + \varepsilon_{ij} \\ w_{ij} = X_i\beta_j + \alpha_{a(i)} + u_{ij} \end{cases}$$

Worker i is employed if and only if $E_{ij} = 1$ (*i.e.* $E_{ij}^* > 0$). She is not employed if and only if $E_{ij} = 0$ or (*i.e.* $E_{ij}^* < 0$). a_i is the neighborhood to which individual i belongs. η_a and α_a are unobservable area-specific effects. Wage is only observed if the worker is employed.

2.2 Decompositions

Empirical evidence of wage and employment discrimination toward workers of foreign origin is established through the decomposition method initiated by Oaxaca (1973) and Blinder (1973). In what follows, population F is assumed to be the reference (i.e. not discriminated and majoritary) population whereas population D is the potentially discriminated (i.e. minoritary) population.

For a given distribution $G(.)$ on the error in the employment model, the employment probability for an individual i belonging to group j will be:

$$\mathbb{E}(E_{ij}|Z_i) = G(Z_i\gamma_j + \eta_{a_i})$$

Exact decomposition is possible in this framework. The raw employment gap may be split into an explained and an unexplained part.

$$\begin{aligned} &\underbrace{\mathbb{E}_{Z_F,A_F}\left[\mathbb{E}\left(E_{iF}|Z_i,a_i\right)\right] - \mathbb{E}_{Z_D,A_D}\left[\mathbb{E}\left(E_{iD}|Z_i,a_i\right)\right]}_{\text{raw gap}} = \\ &\underbrace{\mathbb{E}_{Z_F,A_F}\left[\mathbb{E}\left(E_{iF}|Z_i,a_i\right)\right] - \mathbb{E}_{Z_D,A_F}\left[\mathbb{E}\left(E_{iF}|Z_i,a_i\right)\right]}_{\text{covariate gap}} \\ &+ \underbrace{\mathbb{E}_{Z_D,A_F}\left[\mathbb{E}\left(E_{iF}|Z_i,a_i\right)\right] - \mathbb{E}_{Z_D,A_D}\left[\mathbb{E}\left(E_{iF}|Z_i,a_i\right)\right]}_{\text{area quality gap}} \\ &+ \underbrace{\mathbb{E}_{Z_D,A_D}\left[\mathbb{E}\left(E_{iF}|Z_i,a_i\right)\right] - \mathbb{E}_{Z_D,A_D}\left[\mathbb{E}\left(E_{iD}|Z_i,a_i\right)\right]}_{\text{unexplained}} \end{aligned}$$

In these expressions, Z_j (resp. A_j), with $j \in \{D, F\}$ denotes the distribution of the Z's (resp. the a's) in the population j.

Simple empirical counterparts of the following terms can be found:

$$\begin{aligned} (1/N_j)\sum_{i\in j} E_i &\overset{p.s.}{\to} \mathbb{E}_{Z_j,A_j}[\mathbb{E}(E_{ij}|Z_i,a_i)] = \mathbb{E}[E_{ij}] \\ (1/N_D)\sum_{i\in D} \Phi\left(Z_i\hat{\gamma}_F + \hat{\eta}_{a_i}\right) &\overset{p.s.}{\to} \mathbb{E}_{Z_D,A_D}[\mathbb{E}(E_{iF}|Z_i)] \end{aligned}$$

The term $\mathbb{E}_{Z_D,A_F}\left[\mathbb{E}\left(E_{iF}|Z_i,a_i\right)\right]$ is more difficult to obtain as it involves the distribution of the Z's for population D and the distribution of the η's for population F. It requires to use simulation methods. Given a sufficiently large number M, we sample M elements from the

distribution of the cluster effects η for population F and M elements from the distribution of the characteristics Z for population D : $\{\dots \eta_m^F \dots\}_{\{m=1\dots M\}}$ and $\{\dots Z_m^D \dots\}_{\{m=1\dots M\}}$. Then,

$$(1/M)\sum_{m=1}^{M} \Phi\left(Z_m^D \hat{\gamma}_F + \hat{\eta}_m^F\right) \overset{p.s.}{\to} \mathbb{E}_{Z_D, A_F}[\mathbb{E}(E_{iF}|Z_i)]$$

The same is true for wage, replacing E by w, if $G(.)$ is now the identity function.

2.3 Estimation strategies

Estimating parameters in the employment equation requires using panel binary model methods. As the full MLE is shown to be biased (due to the incidental parameter problem), we have to rely on alternative techniques. Conditional logit is efficient to differentiate out fixed effects and consistently estimate the γ's, see Rasch (1960), Andersen (1970), Chamberlain (1980). The only problem with this method is that it does not provide estimates for fixed-effects. We propose a method to retrieve them.
First, conditional logit estimation is used to provide for consistent γ's. We also estimate corresponding standard errors.

In a second stage, we compute the fixed effects of the selection equation. We use the logit assumption to write the log-likelihood. Because the global log-likelihood is additively separable across the neighborhoods a, we can re-write the global problem as a chain of sub-problems. Hence, for all a, maximizing the log-likelihood

$$\ell(\eta_a) = \sum_{i \in a} E_{ia}(Z_i\hat{\gamma} + \eta_a) - \log(1 + \exp(Z_i\hat{\gamma} + \eta_a))$$

with scores $Z_i\hat{\gamma}$ given by first-stage estimation, provides estimates for η_a and for the corresponding standard errors.
The wage equation is estimated by panel OLS, assuming that there is no correlation between errors of the first and the second terms, a strong and probably invalid assumption. Point estimates of the β and the α's as well as estimates of the standard errors are obtained directly.

3 Data

Before 2005, Labor Force Surveys undertaken by the Institut National de Statistiques et d'Etudes Economiques (Insee, Paris) did not allow to get information on the national origin of the parents of the surveyed persons. The precise question "What is the citizenship at birth of your mother/father?" is the key to identify the "second generation" of immigrants. In 2003, the Formation and Qualification Professionnelle (FQP) survey (Insee, Paris) was the first major survey to collect such information on a representative sample of the French population. From 2005 on, the same question is included in the Labor Force Surveys, providing us with a larger sample.

3.1 The Labor Force Survey

From July 2001, the LFS takes place quarterly and each household is interviewed six times. The first and the last interviews are done face-to-face whereas the second to the fifth are done by phone. Thus, one sixth of the sample is changed quarterly (but two third are changed yearly). Again, all individuals living in the household and aged more than 15 are interviewed. About 70,000 individuals (in 45,000 households) are selected in the sample: the theoretical sample rate

is around 1/600. The realized sample rate (taking into account non-answering individuals and non-consistent answers) is around 1/700.

The sampling frame, though complex, offers a nice way to control for very local effects. Households are not selected by simple random sampling or stratified sampling. The frame used is a three-fold geographical cluster sampling. First, using information gathered by the 1999, *primary sample units* (with several thousands inhabitants) are selected by stratified sampling. Then, within these primary units, at least one *sector*, consisting of between 120 and 240 contiguous households, is defined. Last, six *areas* of, on average, 20 contiguous households are constituted within each sector. Households of one given area are all interviews simultaneously, they enter and leave the sample during the same quarter. After their last interview, they are replaced by households of another area belonging to the same sector. Because there are six areas in each sector, and because each area is interviewed six times, the current sample will be used nine years and a new sample will have to have to be drawn in 2010, using fresher Census data.

The area level, made of about 20 contiguous households, is useful to control for very local neighbor effects. Some local characteristics affecting one household in a given area will undoubtedly affect the other households of the same area. Same is true for the sector level, but to a lesser extent, as it may be made of a much larger number of households. Note also that, by the definition of primary sample units, the boundaries of areas or sectors cannot intersect those of administrative units (municipalities...). All inhabitants of given area or sector are thus subject to the same public goods offer. More details about the number of inhabitants of these geographic objects are given in the descriptive statistics section.

Years 2005 and 2006 of the LFS, restricted only to the first interrogation of each individual, are used in this study. Note that geographical location of areas or sectors were not made available for this study: only anonymized IDs of areas and sectors were in the database, allowing to gather individuals living in the same sample unit. Therefore, it is not possible to know where the area or the sector is located and thus to add local control variables to the analysis.

3.2 Sample and groups considered for the analysis

3.2.1 Scope of the study

Given the issues tackled by this paper, we start by reducing our sample. First, since we are interested in the employment status, we exclude students or retirees from our sample. Then, we keep only observations for which diplomas and ages are observed.

3.2.2 Variables considered for the analysis

Our variables of interest are the employment status of the individual and, if employed, its wage (or more precisely the logarithm of its wage). We work here with the most reliable wage variable that is available in the LFS that represents actual monthly earnings.

We create twelve different categories of households crossing gender, presence of children, matrimonial status and working spouse. These variables are used as exclusion variables in the employment equation. We also consider age or potential experience (which is equal to the actual age less the age of the end of initial formation). Education is taken into account through fifteen dummies for diploma, from no-diploma to university degree.

3.2.3 Sub-populations of interest

In order to interpret our results, we need our populations to be as close as possible, conditional on observable characteristics. There are at least two obvious reasons why comparisons are difficult between French workers and foreign migrants working in France. First, doubt may be cast on the fact that the quality of education, or labor experience is the same in France and other countries. Then, the ability to speak French language may also explain some differences.

This is why we choose to focus on individuals with French nationality, born in France or arrived in France before five years old. Our group of reference will be composed by individuals whose both parents are born French. We build a group of interest composed by French individuals with at least one parent born with the citizenship of an African country.[7]

Table 1 presents some summary statistics on the two subpopulations, group of reference in the first two columns, group of interest in the last ones. Because we only estimate our model on the reference population, we will only characterize fixed effects on the areas where there are at least two persons from this group. At the end, we will only be able to investigate the difference across groups whose location are in a common support. Columns 2 and 3 present summary statistics on the two groups, restricted on the areas where both groups are represented.[8] This may be compared to columns 1 and 4 where summary statistics for the whole populations are reported.

Columns 1 and 2 really differ from 3 and 4 over several aspects. First, individuals with African origin are younger (13 years of potential experience vs. about 21), they are more likely to have children (54% vs. 45%), they are less likely to reach the highest diploma and more likely to have no diploma at all. Differences in residence location are also striking. They are about five times more likely to live in ZUS, and even more in Paris region. They also live twice more often in the Paris region (31% vs. 14%). On the labor market, they are less often on jobs (60% vs. 78%) and earn around 15% less monthly. Regarding their socio-professional status, they are less likely to be executive or professional (8% vs. 13%) or to occupy technical or educational occupations (16% vs. 22%) and more likely to be inactive that never worked (13% vs. 4%).

Of course, restricting to the areas where more than one community lives does not change much the sample of the group of interest: about seventy persons are removed. The group of reference is however reduced to a quarter of the initial population. However, apart from variables relating to residence location, summary statistics are not much affected by this restriction.

3.3 Areas and sectors

Figure 1 displays the distribution of the number of individuals of the sampling units – areas or sectors. When all individuals, whether from the group of interest or from the group of reference, are considered, 213 areas contain only one individual and 292 areas contain only two. The median size is 9 individuals, the average size is 10.4 and the maximum size is 70. 27 sectors contain one individual and 24 contain two. The sectors median size is 18 individuals, their average size is 19.8 and the maximum size is 105. When only the individuals with French parents are considered, the distribution is roughly the same, as it is the largest group.

When only the individuals with African parents are considered, the situation is rather different. Two thirds of the areas (740 over 1160) where they are present contain only one individual with

[7] We exclude individuals not declaring the nationality of both parents.

[8] The set of areas where the two groups are represented is called the *mixed areas* in what follows.

African parents and 85% of these areas contain one or two individuals with African parents. The area where the individuals with African parents are the most numerous contain 12 of them. The situation is about the same with the sectors.

Figure 2 presents the average levels of employment probability and wage in the areas and sectors conditional on their size.[9] The top graphs clearly displays an upward trend, meaning that larger areas and sectors contain individuals that are more often in employment. This may easily be explained by the fact that smaller areas and smaller sectors are more likely to be located in rural zones, where employment probability is lower. Moreover, variance clearly increases with the sampling unit size, reflecting the fact that more larger units are less frequent. No clear trend appears for wages, but this variance increase remains.

This trend in employment suggests that sampling units of different sizes are likely to be different both in terms of observable and unobservable characteristics. Estimating our models with fixed-effects involves to leave out observations for which there is only one individual by cluster. This means that, for instance, it may be not possible to include fixed effects in a model over the population of individuals with African parents, as it would lead to exclude more than two thirds of the areas where they are living. In what follows, we will focus on estimations realized on the reference group, both to avoid this potential bias and to achieve more precise estimates.

4 Results

4.1 Estimation results

The employment equation is estimated alternatively by a conditional logit[10] and, assuming a linear model of probability, by panel OLS [11]. The wage equation is estimated by a panel OLS. Two specifications have been tried: including cluster effects at the level of areas and at the level of sectors.

All estimations are realized on the population of the French individuals with French parents. Estimation results are presented in table 2, 3, 4 and 5. Table 2 presents results of conditional logits both on the whole sample and on the sample restricted to the mixed areas. Table 2 presents results of conditional logits when area- or sector-level cluster effects are introduced in the model. Table 2 compares results of conditional logits with area-level cluster effects with those obtained by logit, with no control for cluster effects. In what follows, the conditional logit with area-level cluster effects estimated on the mixed-areas sample is considered as the benchmark equation.

Living in couple and having children are factors correlated with more employment for men and less employment for women. For both gender, being in couple with someone in employment is associated with less chance to be employed. Finally, women tend to earn weaker wages, everything else equal. Coefficients relating to potential experience have the usual signs: experience has an increasing yet concave role on the probability to be employed as well as on wages. Degrees higher than Bac+3 as well technical, health-oriented Bac+2 and technical and vocational Bac

[9] Smoothed conditional densities has been estimated using the `ksmooth` function in `R`; see R Development Core Team (2007).

[10] E. Kyriazidou provides a script for estimating such models in Gauss, with unbalanced data. It is been translated to R and modified to make it able to handle data with large T. In particular, the gradient and the hessian matrix are computed analytically. What also improves the estimation of the standard errors of the coefficients.

[11] To estimate panel OLS models, the R package plm has been used, see Croissant and Millo (2007).

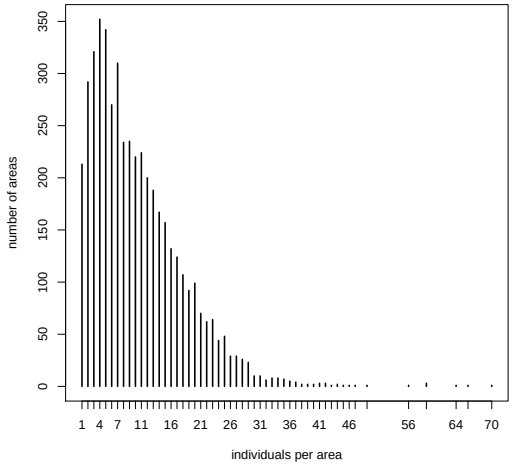
Table 1: Summary Statistics

Variables	Populations			
	2 French parents whole sample	2 French parents mixed areas	African parents mixed areas	African parents whole sample
Socio-demographic				
Women	0.55	0.55	0.56	0.56
Couple	0.75	0.70	0.69	0.69
Children	0.45	0.44	0.54	0.54
Diploma				
Master and over	0.04	0.04	0.03	0.03
Ecole: Bac+3 and over	0.03	0.03	0.01	0.01
Univ.: Bac+4	0.04	0.04	0.03	0.02
Univ.: Bac+3	0.03	0.03	0.03	0.03
Univ.: Bac+2	0.02	0.02	0.01	0.02
Tech.: Bac+2	0.09	0.09	0.09	0.09
Health: Bac+2	0.03	0.02	0.01	0.01
Bac: General	0.08	0.08	0.09	0.09
Bac: Technical	0.04	0.04	0.05	0.05
Bac: Vocational	0.05	0.04	0.05	0.04
Bac-2: Vocational	0.27	0.26	0.21	0.21
Lower Sec. Educ. Deg.	0.09	0.09	0.10	0.10
No diploma	0.20	0.22	0.29	0.30
Residence				
Outside Paris region outside ZUS	0.82	0.72	0.57	0.56
Inside Paris region outside ZUS	0.12	0.17	0.21	0.21
ZUS outside Paris region	0.04	0.09	0.15	0.16
ZUS inside Paris region	0.01	0.03	0.07	0.07
Sample area with one community	0.81	0.26	0.14	0.16
Labor Market				
Employed	0.76	0.73	0.55	0.54
Full-time when employed	0.83	0.84	0.82	0.82
Potential experience (years)	21.12	20.22	13.49	13.45
Average monthly wage (euros)	1648.57	1617.48	1398.14	1403.18
Executive, Professional	0.14	0.13	0.08	0.08
Technical, Education	0.22	0.21	0.16	0.16
Clerical, Sales, Service Worker	0.28	0.29	0.29	0.28
Factory Operator	0.19	0.19	0.20	0.21
Inactive that worked before	0.13	0.13	0.14	0.14
Other inactive	0.04	0.05	0.13	0.13
Misceallanous				
Average Nobs per sample area	13.21	14.61	10.82	10.55
Nobs	44831	11671	1901	1975

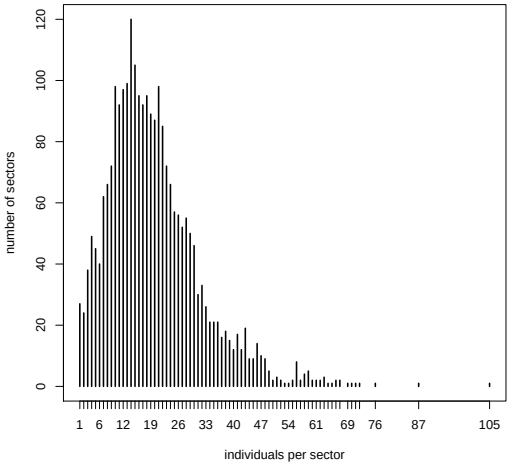
Source: Labor Force Survey 2005-2006 (Insee).
Reading note: 82% of individuals with French parents live outside Paris region and outside a ZUS. 72% of individuals who live in areas with at least one individual with African parents and with French parents live outside Paris region and outside a ZUS.

Figure 1: Areas and Sectors: size distribution of sampling units, by population

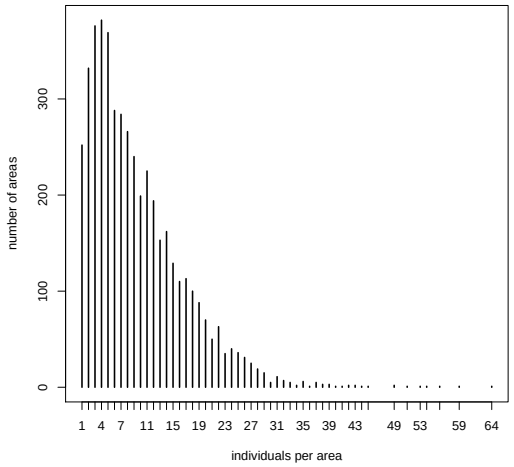
All individuals, areas



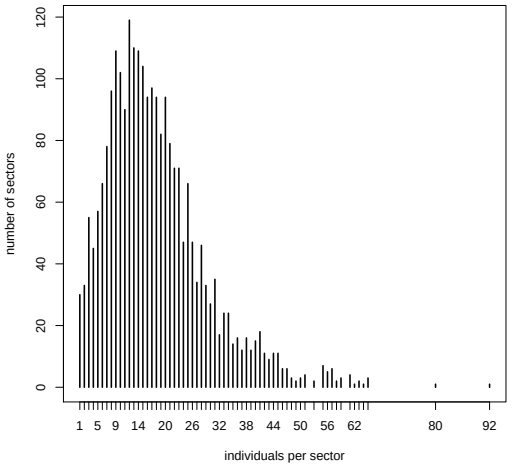
All individuals, sectors



French parents, areas

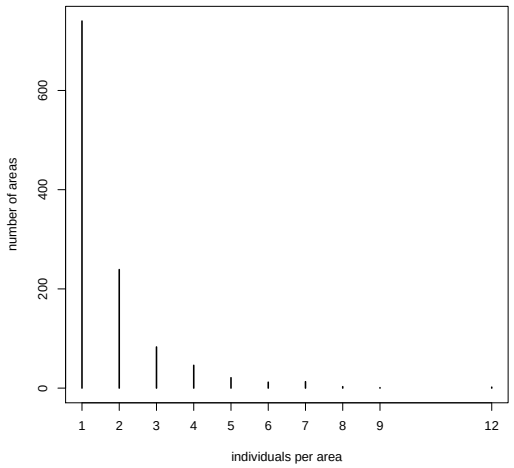


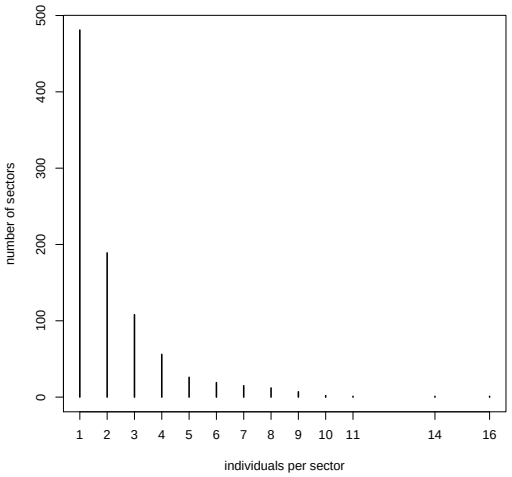
French parents, sectors



African parents, areas

African parents, sectors



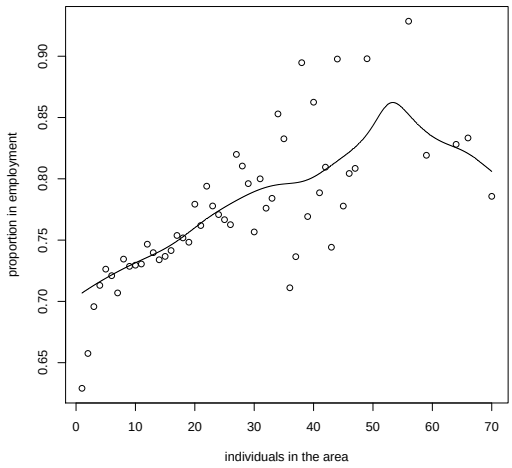


Source: Labor Force Survey 2005-2006 (Insee).

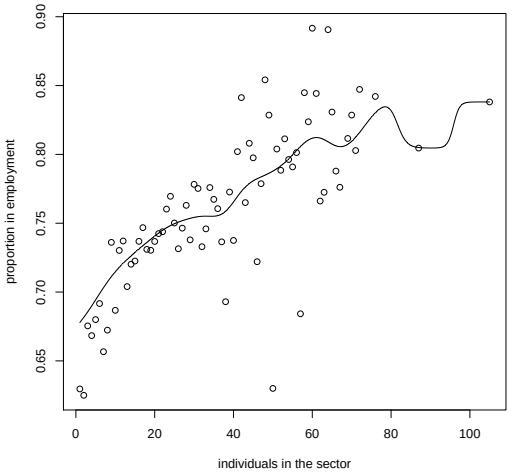
Reading note: Considering all individuals in the sample, there are more than 320 areas with 4 individuals.

Figure 2: Wage and employment probability means, by sampling unit size

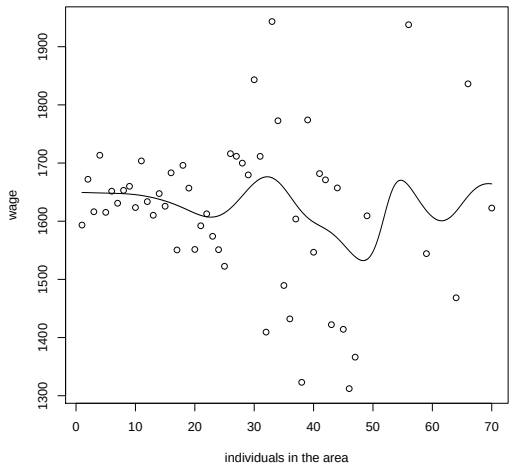
Employment probability, areas



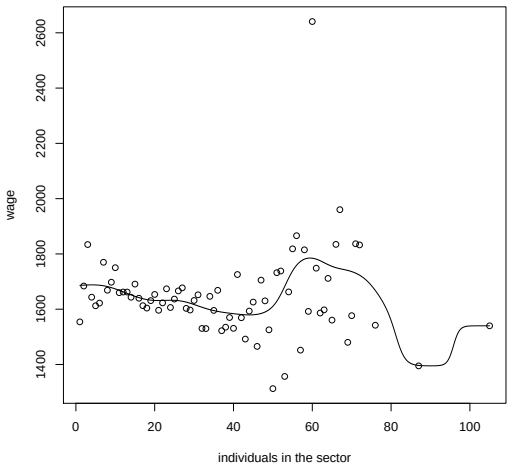
Employment probability, sectors



Wage, areas



Wage, sectors



Source: Labor Force Survey 2005-2006 (Insee).
Note: Smoothed conditional density of employment/wage with respect to the sampling unit size, usinf the Gaussian kernel.

are significantly more helpful to find a job than a General Bac. Only the Lower Secondary Education Degree and no degree are significantly less favorable than the General Bac. Education, seniority and working time also have expected effects on wages.

As described in the methodological section, we infer cluster-effects of the employment equation by MLE. Figure 3 displays the smoothed densities of cluster effects for the two sub-populations. The distribution relating to the group of interest displays more variance and is shifted to the left, especially in the lower half of the distribution. The modes of the two distributions are about the same. This shows that individuals with African origin tend to live in areas slighly less favorable in terms of access to employment.

The distribution of the cluster effects of the wage equation across the two populations is not reported: the two distributions are quasi-similar.

4.2 Decompositions

In this section, we present the results of the decomposition based on the estimation of the employment and the wage equations, with or without including cluster effects in the equations. Results are reported in table 6.
The quality of the area seems to account for about 20% of the employment gap, while differences in individual characteristics account for about the same. Two third of the 19 points of employment differential remain unexplained. Including cluster effects do curb the unexplained part, yet very little. [12] The wage story is quite different: whether including cluster effects or not, the whole differential is explained by differences in groups' average characteristics.

4.3 Robustness and specification issues

Our model assumes that location adds a constant, positive or negative, to the individual propensity to be employment or to the individual wage. This may be interpreted in terms of changing the level of the unobservable component of the employment or the wage. If location changes also, say, returns to observable skills, our model is likely to be subject to some specification error. Columns (3) and (4) of table 2 reports estimation results for the population of individuals with French parents, no matter the area they in. Qualitatively, the major change between columns (1) and (3) is the coefficient relating to the spouse wage for women with children. From strongly negative and significant in the whole sample, the estimate becomes close to zero and unsignificant in the sample restricted to mixed areas, suggesting different behaviors for women children in different kinds of areas. Finally, a Fisher test does not reject the equality of coefficients of columns (1) et (3) at 5%; nor does it for coefficients from columns (2) and (4).

Table 3 present estimates for the employment equation, comparing regressions in which area-level cluster effects are introduced with those with sector-level cluster effects. Table 4 compares the conditional logit with area-level cluster effects with the logit that takes no account of the clustering structure. While coefficients in these two tables seems to behave qualitatively in the same direction, there may be stark differences in the values, especially between the logit and the conditional logit controlling for area-specific cluster effects. The sector-level cluster effects results usually lie in between, suggesting that some of the neighborhood specificity is taken into

[12] Note that standard errors are only given here for decomposition stemming from panel OLS estimations. They are obtained by bootstrap on the observations. Bootstrap on the conditional logit estimation has still to be performed, but computations are quite heavy.

Table 2: Estimates of the employment equation parameters on the population of individuals with French parents, with area-level cluster effects

Covariates	Mixed areas		All areas	
	Cond. Log FE	Panel OLS	Cond. Log FE	Panel OLS
Intercept	–	–	–	–
Family Situation				
Single women with children	−0.68*** (0.11)	−0.16*** (0.02)	−0.77*** (0.06)	−0.15*** (0.01)
Men with working spouse with children	0.58 *** (0.13)	0.04 *** (0.02)	0.74 *** (0.07)	0.06 *** (0.01)
Men with working spouse without children	0.35 *** (0.11)	0.06 *** (0.02)	0.59 *** (0.06)	0.08 *** (0.01)
Men with non-working spouse with children	0.98 *** (0.13)	0.11 *** (0.02)	1.07 *** (0.07)	0.12 *** (0.01)
Men with non-working spouse without children	0.35 *** (0.11)	0.04 * (0.02)	0.55 *** (0.06)	0.08 *** (0.01)
Women with working spouse with children	−1.13*** (0.09)	−0.17*** (0.01)	−1.01*** (0.05)	−0.14*** (0.01)
Women with working spouse without children	−0.30*** (0.09)	−0.02 (0.02)	−0.20*** (0.05)	−0.02** (0.01)
Women with non-working spouse with children	−0.88*** (0.12)	−0.19*** (0.02)	−0.93*** (0.06)	−0.18*** (0.01)
Women with non-working spouse without children	−0.37*** (0.10)	−0.10*** (0.02)	−0.47*** (0.05)	−0.11*** (0.01)
*Spouse wage*Men with working spouse with children*	0.10 (0.20)	−0.02 (0.02)	−0.10 (0.11)	−0.03** (0.01)
*Spouse wage*Men with working spouse without children*	−0.04 (0.17)	−0.02 (0.02)	−0.08 (0.09)	−0.02* (0.01)
*Spouse wage*Women with working spouse with children*	−0.06 (0.14)	0.01 (0.02)	−0.32*** (0.07)	−0.03*** (0.01)
*Spouse wage*Women with working spouse without children*	−0.38** (0.17)	−0.07** (0.03)	−0.30*** (0.08)	−0.05*** (0.01)
Experience in Labor Force	0.11 *** (0.01)	0.02 *** (0.00)	0.10 *** (0.00)	0.02 *** (0.00)
Experience Squared/100	−0.27*** (0.02)	−0.04*** (0.00)	−0.25*** (0.01)	−0.04*** (0.00)
Diploma Level				
Bac: General	–	–	–	–
Master and over	0.47 *** (0.18)	0.05 ** (0.03)	0.43 *** (0.09)	0.08 *** (0.01)
Ecoles: Bac+3 and over	0.52 *** (0.19)	0.05 * (0.03)	0.33 *** (0.10)	0.06 *** (0.01)
Univ: Bac+4	0.32 * (0.16)	0.04 (0.03)	0.52 *** (0.09)	0.09 *** (0.01)
Univ: Bac+3	0.33 * (0.17)	0.04 (0.03)	0.26 *** (0.09)	0.06 *** (0.01)
Univ: Bac+2	0.24 (0.20)	0.03 (0.03)	−0.03 (0.10)	0.02 (0.02)
Tech: Bac+2	0.48 *** (0.13)	0.06 *** (0.02)	0.28 *** (0.07)	0.06 *** (0.01)
Health: Bac+2	0.60 *** (0.20)	0.08 *** (0.03)	0.61 *** (0.10)	0.12 *** (0.01)
Bac: Technical	0.22 (0.15)	0.02 (0.02)	0.11 (0.08)	0.04 *** (0.01)
Bac: Vocational	0.28 * (0.16)	0.03 (0.02)	0.12 (0.08)	0.04 *** (0.01)
Bac-2: Vocational	−0.08 (0.10)	−0.05*** (0.02)	−0.24*** (0.06)	−0.01* (0.01)
Lower Sec. Educ. Deg.	−0.29** (0.12)	−0.06*** (0.02)	−0.37*** (0.06)	−0.05*** (0.01)
No diploma	−0.68*** (0.11)	−0.14*** (0.02)	−0.72*** (0.06)	−0.12*** (0.01)
Nobs	11631	11631	44580	44580

Source: Labor Force Survey 2005-2006 (Insee).
Notes: 1 star means 90%-significant, 2 stars means 95%-significant and 3 stars means 99%-significant. Standard errors are in parentheses. The first two columns display estimations run on the sample of individuals with French parents living in areas where at least one individual with African parents lives. The last two columns are run on the whole sample. Columns 1 and 3 are obtained by conditional logits. Columns 2 and 4 are obtained by panel OLS.

Table 3: Estimates of the employment equation parameters on the population of individuals with French parents, with area-level or sector-level cluster effects

Covariates	Area-level FE		Sector-level FE	
	Mixed areas	All areas	Mixed sectors	All sectors
Intercept	–	–	–	–
Family Situation				
Single women with children	−0.68*** (0.11)	−0.77*** (0.06)	−0.83*** (0.11)	−0.73*** (0.06)
Men with working spouse with children	0.58 *** (0.13)	0.74 *** (0.07)	0.82 *** (0.13)	0.86 *** (0.06)
Men with working spouse without children	0.35 *** (0.11)	0.59 *** (0.06)	0.57 *** (0.11)	0.73 *** (0.06)
Men with non-working spouse with children	0.98 *** (0.13)	1.07 *** (0.07)	0.69 *** (0.12)	0.83 *** (0.07)
Men with non-working spouse without children	0.35 *** (0.11)	0.55 *** (0.06)	0.18 (0.11)	0.43 *** (0.06)
Women with working spouse with children	−1.13*** (0.09)	−1.01*** (0.05)	−0.85*** (0.09)	−0.86*** (0.04)
Women with working spouse without children	−0.30*** (0.09)	−0.20*** (0.05)	−0.01 (0.09)	−0.14*** (0.05)
Women with non-working spouse with children	−0.88*** (0.12)	−0.93*** (0.06)	−0.99*** (0.11)	−1.01*** (0.06)
Women with non-working spouse without children	−0.37*** (0.10)	−0.47*** (0.05)	−0.48*** (0.10)	−0.53*** (0.05)
*Spouse wage*Men with working spouse with children*	0.10 (0.20)	−0.10 (0.11)	0.07 (0.20)	−0.07 (0.10)
*Spouse wage*Men with working spouse without children*	−0.04 (0.17)	−0.08 (0.09)	−0.04 (0.18)	−0.06 (0.09)
*Spouse wage*Women with working spouse with children*	−0.06 (0.14)	−0.32*** (0.07)	−0.02 (0.14)	−0.29*** (0.07)
*Spouse wage*Women with working spouse without children*	−0.38** (0.17)	−0.30*** (0.08)	−0.39** (0.18)	−0.39*** (0.08)
Experience in Labor Force	0.11 *** (0.01)	0.10 *** (0.00)	0.10 *** (0.01)	0.08 *** (0.00)
Experience Squared/100	−0.27*** (0.02)	−0.25*** (0.01)	−0.24*** (0.02)	−0.23*** (0.01)
Diploma Level				
Bac: General	–	–	–	–
Master and over	0.47 *** (0.18)	0.43 *** (0.09)	0.56 *** (0.18)	0.64 *** (0.09)
Ecoles: Bac+3 and over	0.52 *** (0.19)	0.33 *** (0.10)	0.52 *** (0.19)	0.56 *** (0.10)
Univ: Bac+4	0.32 * (0.16)	0.52 *** (0.09)	0.37 ** (0.16)	0.63 *** (0.09)
Univ: Bac+3	0.33 * (0.17)	0.26 *** (0.09)	0.40 ** (0.17)	0.51 *** (0.09)
Univ: Bac+2	0.24 (0.20)	−0.03 (0.10)	0.25 (0.20)	0.12 (0.10)
Tech: Bac+2	0.48 *** (0.13)	0.28 *** (0.07)	0.58 *** (0.13)	0.47 *** (0.07)
Health: Bac+2	0.60 *** (0.20)	0.61 *** (0.10)	0.59 *** (0.20)	0.87 *** (0.10)
Bac: Technical	0.22 (0.15)	0.11 (0.08)	0.27 * (0.15)	0.29 *** (0.08)
Bac: Vocational	0.28 * (0.16)	0.12 (0.08)	0.32 ** (0.16)	0.29 *** (0.08)
Bac-2: Vocational	−0.08 (0.10)	−0.24*** (0.06)	−0.19* (0.10)	−0.10* (0.05)
Lower Sec. Educ. Deg.	−0.29** (0.12)	−0.37*** (0.06)	−0.30** (0.12)	−0.27*** (0.06)
No diploma	−0.68*** (0.11)	−0.72*** (0.06)	−0.85*** (0.11)	−0.70*** (0.05)
Nobs	11631	44580	11655	44801

Source: Labor Force Survey 2005-2006 (Insee).

Notes: 1 star means 90%-significant, 2 stars means 95%-significant and 3 stars means 99%-significant. Standard errors are in parentheses. The first two columns display estimations controlling for area-level cluster effects. The last two columns display estimations controlling for sector-level cluster effects. Column 1 displays estimates on the sample of individuals with French parents living in areas where at least one individual with African parents lives. Column 3 displays estimates on the sample of individuals with French parents living in sectors where at least one individual with African parents lives. Estimates reported in columns 2 and 4 are run on the whole sample. All estimates are obtained by conditional logits.

Table 4: Estimates of the employment equation parameters on the population of individuals with French parents, with and without area-level cluster effects

Covariates	Area-level FE		Logit	
	Mixed areas	All areas	Mixed sectors	All sectors
Intercept	–	–	–	–
Family Situation				
Single women with children	−0.68*** (0.11)	−0.77*** (0.06)	−0.94*** (0.09)	−0.84*** (0.06)
Men with working spouse with children	0.58 *** (0.13)	0.74 *** (0.07)	1.03 *** (0.12)	1.17 *** (0.06)
Men with working spouse without children	0.35 *** (0.11)	0.59 *** (0.06)	0.75 *** (0.10)	1.03 *** (0.06)
Men with non-working spouse with children	0.98 *** (0.13)	1.07 *** (0.07)	0.47 *** (0.11)	0.57 *** (0.06)
Men with non-working spouse without children	0.35 *** (0.11)	0.55 *** (0.06)	0.06 (0.10)	0.25 *** (0.05)
Women with working spouse with children	−1.13*** (0.09)	−1.01*** (0.05)	−0.68*** (0.07)	−0.57*** (0.04)
Women with working spouse without children	−0.30*** (0.09)	−0.20*** (0.05)	0.18 ** (0.09)	0.16 *** (0.04)
Women with non-working spouse with children	−0.88*** (0.12)	−0.93*** (0.06)	−1.02*** (0.10)	−0.97*** (0.05)
Women with non-working spouse without children	−0.37*** (0.10)	−0.47*** (0.05)	−0.52*** (0.09)	−0.52*** (0.04)
*Spouse wage*Men with working spouse with children*	0.10 (0.20)	−0.10 (0.11)	0.10 (0.19)	−0.05 (0.10)
*Spouse wage*Men with working spouse without children*	−0.04 (0.17)	−0.08 (0.09)	−0.02 (0.17)	0.04 (0.09)
*Spouse wage*Women with working spouse with children*	−0.06 (0.14)	−0.32*** (0.07)	0.02 (0.13)	−0.24*** (0.06)
*Spouse wage*Women with working spouse without children*	−0.38** (0.17)	−0.30*** (0.08)	−0.34** (0.17)	−0.28*** (0.08)
Experience in Labor Force	0.11 *** (0.01)	0.10 *** (0.00)	0.11 *** (0.01)	0.10 *** (0.00)
Experience Squared/100	−0.27*** (0.02)	−0.25*** (0.01)	−0.24*** (0.02)	−0.24*** (0.01)
Diploma Level				
Bac: General	–	–	–	–
Master and over	0.47 *** (0.18)	0.43 *** (0.09)	0.59 *** (0.16)	0.65 *** (0.08)
Ecoles: Bac+3 and over	0.52 *** (0.19)	0.33 *** (0.10)	0.59 *** (0.17)	0.58 *** (0.09)
Univ: Bac+4	0.32 * (0.16)	0.52 *** (0.09)	0.37 ** (0.15)	0.63 *** (0.08)
Univ: Bac+3	0.33 * (0.17)	0.26 *** (0.09)	0.42 *** (0.16)	0.54 *** (0.08)
Univ: Bac+2	0.24 (0.20)	−0.03 (0.10)	0.25 (0.19)	0.09 (0.09)
Tech: Bac+2	0.48 *** (0.13)	0.28 *** (0.07)	0.57 *** (0.12)	0.58 *** (0.06)
Health: Bac+2	0.60 *** (0.20)	0.61 *** (0.10)	0.65 *** (0.19)	0.87 *** (0.09)
Bac: Technical	0.22 (0.15)	0.11 (0.08)	0.29 ** (0.14)	0.35 *** (0.07)
Bac: Vocational	0.28 * (0.16)	0.12 (0.08)	0.37 ** (0.15)	0.33 *** (0.07)
Bac-2: Vocational	−0.08 (0.10)	−0.24*** (0.06)	−0.27*** (0.09)	−0.11** (0.05)
Lower Sec. Educ. Deg.	−0.29** (0.12)	−0.37*** (0.06)	−0.37*** (0.11)	−0.31*** (0.06)
No diploma	−0.68*** (0.11)	−0.72*** (0.06)	−0.91*** (0.10)	−0.79*** (0.05)
Nobs	11631	44580	11671	44831

Source: Labor Force Survey 2005-2006 (Insee).
Notes: 1 star means 90%-significant, 2 stars means 95%-significant and 3 stars means 99%-significant. Standard errors are in parentheses. The first two columns display estimations controlling for area-level cluster effects, obtained by conditional logit. The last two columns display logit estimations, not controlling for any cluster effect. Columns 1 and 3 displays estimates on the sample of individuals with French parents living in areas where at least one individual with African parents lives. Estimations reported in columns 2 and 4 are run on the whole sample.

Table 5: Estimates of the wage equation parameters on the population of individuals with French parents, with area-level or without cluster effects

Covariates	Panel OLS		OLS	
	Mixed areas	All areas	Mixed areas	All areas
Intercept	–	–		
Working time				
Full-time	Ref.	Ref.		
Less than 50%	-1.24^{***} (0.02)	-1.24^{***} (0.01)	-1.27^{***} (0.02)	-1.25^{***} (0.01)
50%	-0.64^{***} (0.02)	-0.67^{***} (0.01)	-0.66^{***} (0.02)	-0.69^{***} (0.01)
Between 50% and 80%	-0.52^{***} (0.02)	-0.49^{***} (0.01)	-0.54^{***} (0.02)	-0.50^{***} (0.01)
80%	-0.21^{***} (0.02)	-0.23^{***} (0.01)	-0.20^{***} (0.02)	-0.23^{***} (0.01)
More than 80%	-0.21^{***} (0.03)	-0.20^{***} (0.02)	-0.24^{***} (0.03)	-0.20^{***} (0.01)
Gender				
Men	Ref.	Ref.		
Women	-0.18^{***} (0.01)	-0.20^{***} (0.00)	-0.18^{***} (0.01)	-0.19^{***} (0.00)
Experience in Labor Force	0.02^{***} (0.00)	0.02^{***} (0.00)	0.02^{***} (0.00)	0.02^{***} (0.00)
Experience Squared/100	-0.03^{***} (0.00)	-0.03^{***} (0.00)	-0.03^{***} (0.00)	-0.03^{***} (0.00)
Seniority				
Less than 1 year	Ref.	Ref.		
1 to 5 years	0.06^{***} (0.01)	0.07^{***} (0.01)	0.06^{***} (0.01)	0.07^{***} (0.01)
5 to 10 years	0.13^{***} (0.01)	0.13^{***} (0.01)	0.13^{***} (0.01)	0.13^{***} (0.01)
More than 10 years	0.23^{***} (0.01)	0.23^{***} (0.01)	0.25^{***} (0.01)	0.24^{***} (0.01)
Diploma Level				
Bac: General	Ref.	Ref.		
Master and over	0.41^{***} (0.02)	0.44^{***} (0.01)	0.46^{***} (0.02)	0.50^{***} (0.01)
Ecoles: Bac+3 and over	0.47^{***} (0.02)	0.46^{***} (0.01)	0.54^{***} (0.02)	0.54^{***} (0.01)
Univ: Bac+4	0.09^{***} (0.02)	0.14^{***} (0.01)	0.10^{***} (0.02)	0.14^{***} (0.01)
Univ: Bac+3	0.26^{***} (0.02)	0.25^{***} (0.01)	0.29^{***} (0.02)	0.27^{***} (0.01)
Univ: Bac+2	0.05^{*} (0.03)	0.07^{***} (0.01)	0.07^{***} (0.03)	0.08^{***} (0.01)
Tech: Bac+2	0.11^{***} (0.02)	0.11^{***} (0.01)	0.12^{***} (0.02)	0.11^{***} (0.01)
Health: Bac+2	0.21^{***} (0.03)	0.21^{***} (0.01)	0.22^{***} (0.03)	0.21^{***} (0.01)
Bac: Technical	-0.05^{**} (0.02)	-0.04^{***} (0.01)	-0.07^{***} (0.02)	-0.07^{***} (0.01)
Bac: Vocational	-0.06^{***} (0.02)	-0.07^{***} (0.01)	-0.09^{***} (0.02)	-0.10^{***} (0.01)
Bac-2: Vocational	-0.17^{***} (0.02)	-0.18^{***} (0.01)	-0.21^{***} (0.01)	-0.23^{***} (0.01)
Lower Sec. Educ. Deg.	-0.12^{***} (0.02)	-0.13^{***} (0.01)	-0.16^{***} (0.02)	-0.17^{***} (0.01)
No diploma	-0.27^{***} (0.02)	-0.31^{***} (0.01)	-0.34^{***} (0.02)	-0.37^{***} (0.01)
Nobs	8506	33511		

Source: Labor Force Survey 2005-2006 (Insee).
Notes: 1 star means 90%-significant, 2 stars means 95%-significant and 3 stars means 99%-significant. Standard errors are in parentheses. Estimations are performed by panel OLS. The first column presents the estimates over the population of individuals with French parents living in areas where at least one individual with African parents lives. The second column presents the estimates over the whole sample.

Figure 3: Densities of cluster effects, by subpopulation

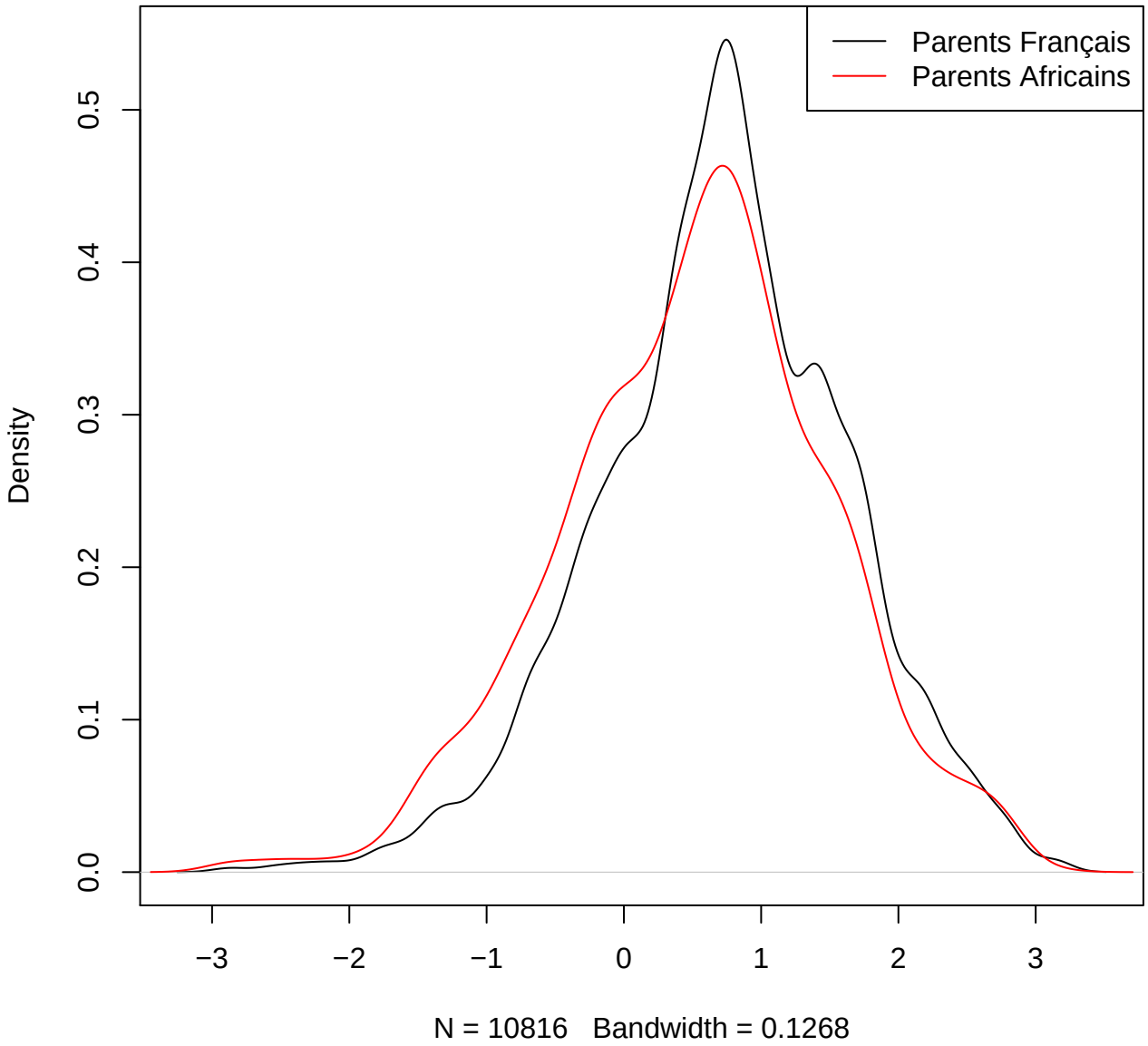


Table 6: Decomposition of the employment and the wage differentials

		With cluster effects			
outcome	estimation method	raw gap	covariate gap	area quality gap	unexplained
employment	cond. logit	0.186	0.023	0.037	0.127
employment	panel OLS	0.186 [0.164−0.205]	0.021 [0.013−0.030]	0.032 [0.018−0.046]	0.132 [0.109−0.157]
wage	panel OLS	0.140 [0.111−0.164]	0.124 [0.102−0.147]	0.014 [−0.008−0.041]	0.000 [−0.015−0.012]
		Without cluster effects			
outcome	estimation method	raw gap	covariate gap	area quality gap	unexplained
employment	logit	0.186	0.043	-	0.143
wage	OLS	0.186	0.127	-	0.013

Source: Labor Force Survey 2005-2006 (Insee).
Note: In brackets are reported 95% intervals of confidence, obtained by full bootstrap on the observations.

account but that some dilution may already be acting. Differences noted in table 4 between columns (1)-(2) and (3)-(4) suggest that not taking into account these cluster effects may result in important misspecification biases.

From table 5, which displays results from panel OLS and OLS estimations, one may conclude that controlling from areas does not alter the results. In this case, not introducing cluster effects does not seem to generate misspecification issues.

4.4 Discussion

These results are evidence that location matter for both employment probability and wage. However, the French case contrasts with other countries' situations in that segregation or spatial mismatch issues do not seem to account much in the differentials in labor market outcomes between individuals with French parents and individuals with African parents. For the wage, most of the gap is explained by differences in observable covariates while very little is accounted by differences in neighborhood quality. For access to employment, on the other hand, differences are hardly explained by differences in characteristics or neighborhood quality: each accounts for about 20% of the gap while two thirds remain unexplained.

A drawback the Blinder-Oaxaca decomposition is usually accused to suffer from is that there might exist unobserved individual characteristics correlated with the origin but only partially with observables. If such unobserved characteristics exist, it is difficult to identify the unexplained part of the gap as discrimination. In this case, the fact that introducing cluster effects leaves the unexplained component unchanged allows to conclude that, if they exist, such unobserved determinants of employment are uncorrelated with the quality of the neighborhood. What else may remain in the unexplained component of the employment gap? Discrimination is an obvious candidate. The ability to speal French language is sometimes claimed to be another one.[13] The quality of networks is yet another possibility: children of migrants are penalized the weaker quality of the parents' network, comparing to individuals with French parents. This

[13]There are two strategies to attempt to control for language, though none is possible using our dataset. First, some surveys explicitly ask individuals about the language that was spoken at home. Then, one could try to

hypothesis could be tested comparing outcomes of children of migrants whose wave of arrival in France was simultanous, but whose country of origin differ.

compare outcomes between individuals coming from Martinique and Guadeloupe and others coming from African countries: the former speaking French at home while the latter usually not doing.

References

Aeberhardt, R., D. Fougère, J. Pouget, and R. Rathelot (2007): "Wages and Employment of French Workers with African Origin," IZA Discussion Paper 2898.

Altonji, J., and R. Blank (1999): "Race and Gender in the Labor Market," in *Handbook of Labor Economics*, ed. by O. Ashenfelter, and D. Card, vol. 3C, pp. 3143–3259. Elsevier, Amsterdam.

Andersen, P. (1970): "Asymptotic Properties of Conditional Maximum Likelihood Estimators," *Journal of the Royal Statistical Society, Series B*, 32, 283–301.

Arrow, K. J. (1973): "The Theory of Discrimination," in *Discrimination in Labor Markets*, ed. by O. Ashenfelter, and A. Rees, pp. 3–33. Princeton University Press.

Becker, G. (1957): *The Economics of Discrimination*. University of Chicago Press.

Blinder, A. (1973): "Wage Discrimination: Reduced Form and Structural Estimates," *Journal of Human Resources*, 8, 436–455.

Borjas, G. J. (1998): "To Ghetto or Not to Ghetto: Ethnicity and Residential Segregation," *Journal of Urban Economics*, 44(2), 228–253.

Chamberlain, G. (1980): "Analysis of Covariance with Qualitative Data," *Review of Economic Studies*, 47, 225–238.

Croissant, Y., and G. Millo (2007): "plm: Linear models for panel data," R package version 0.3-1.

Cutler, D. M., and E. L. Glaeser (1997): "Are Ghettos Good or Bad?," *The Quarterly Journal of Economics*, 112(3), 827–72.

Domingues Dos Santos, M. (2005): "Travailleurs maghrébins et portugais en France : le poids de l'origine," *Revue Economique*, 56(2), 447–464.

Dupray, A., and S. Moullet (2004): "L'insertion des jeunes d'origine maghrébine en France : des différences plus marquées dans l'accès à l'emploi qu'en matière salariale," Document de travail du Céreq.

Gobillon, L., T. Magnac, and H. Selod (2007): "The Effect of Location on Finding a Job in the Paris Region," CEPR Working Paper 6199.

Gobillon, L., and H. Selod (2008): "Ségrégation Résidentielle, Accès à l'Emploi, et Chômage : le Cas de l'Île-de-France," *Economie et Prévision*, 180-181.

Gobillon, L., H. Selod, and Y. Zenou (2007): "The Mechanisms of Spatial Mismatch," *Urban Studies*, 44(12), 2401–2427.

Gronau, R. (1974): "Wage Comparisons – A Selectivity Bias," *Journal of Political Economy*, 82(6), 1119–1143.

Heckman, J. J. (1998): "Detecting Discrimination," *Journal of Economic Perspectives*, 12, 101–116.

Holzer, H. J., and J. Reaser (2000): "Black Applicants, Black Employees, and Urban Labor Market Policy," *Journal of Urban Economics*, 48(3), 365–387.

Kain, J. F. (1968): "Housing Segregation, Negro Employment, and Metropolitan Decentralization," *Quarterly Journal of Economics*, 82(2), 175–197.

Leonard, J. S. (1987): "The interaction of residential segregation and employment discrimination," *Journal of Urban Economics*, 21(3), 323–346.

Meurs, D., A. Pailhé, and P. Simon (2006): "The Persistence of Intergenerational Inequalities linked to Immigration: Labour Market Outcomes for Immigrants and their Descendants in France," *Population*, 61(5), 645–682.

Mincer, J. (1958): "Investment in Human Capital and Personal Income Distribution," *Journal of Political Economy*, 66, 281.

Oaxaca, R. (1973): "Male-Female Wage Differentials in Urban Labor Markets," *International Economic Review*, 14, 693–709.

Phelps, E. S. (1972): "The Statistical Theory of Racism and Sexism," *American Economic Review*, 62, 659–661.

R Development Core Team (2007): *R: A Language and Environment for Statistical Computing*, R Foundation for Statistical Computing, Vienna, Austria.

Raphael, S., M. A. Stoll, and H. J. Holzer (2000): "Are Suburban Firms More Likely to Discriminate against African-Americans?," *Journal of Urban Economics*, 48(3), 485–508.

Rasch, G. (1960): *Probabilistic Models for some Intelligence and Attainment Tests*. Paedagogiske Institut, Copenhagen.

Riach, P. A., and J. Rich (2002): "Field Experiments of Discrimination in the Market Place," *Economic Journal*, 112(483), 480–518.

Selod, H., and Y. Zenou (2006): "City Structure, Job Search and Labour Discrimination: Theory and Policy Implications," *Economic Journal*, 116(514), 1057–1087.

Silberman, R., and I. Fournier (1999): "Les enfants d'immigrés sur le marché du travail, Les mécanismes d'une discrimination sélective," *Formation Emploi*, 65, 31–55.

Smith, T. E., and Y. Zenou (2003): "Spatial mismatch, search effort, and urban spatial structure," *Journal of Urban Economics*, 54(1), 129–156.

Tootell, G. M. B. (1996): "Redlining in Boston: Do Mortgage Lenders Discriminate against Neighborhoods?," *The Quarterly Journal of Economics*, 111(4), 1049–79.

Wasmer, E., and Y. Zenou (2002): "Does City Structure Affect Job Search and Welfare?," *Journal of Urban Economics*, 51(3), 515–541.

Zenou, Y. (2002): "How do firms redline workers?," *Journal of Urban Economics*, 52(3), 391–408.

Zenou, Y., and N. Boccard (2000): "Racial Discrimination and Redlining in Cities," *Journal of Urban Economics*, 48(2), 260–285.