

Neighborhood effects and employment outcomes:
Empirical evidence from French priority neighborhoods ¹

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ABSTRACT : Since the 1990s, urban policy measures were implemented in France in order to fight against unemployment, poverty or exclusion for residents of deprived areas. Thereby, three categories of priority neighborhoods were highlighted: sensitive urban areas ("Zones Urbaines Sensibles"), urban renewal areas ("Zones de Redynamisation Urbaine") and urban tax free zones ("Zones Franches Urbaines"). In this work, we analyze the effects of living in one of these priority neighborhoods on access to employment for young people leaving school in 2004. On the other hand, we test the existence of "priority neighborhood label" effects as we consider that the "label" of a priority neighborhood may influence in a negative way employers' decision of recruiting young people. Propensity score matching methods are used on datasets obtained by merging three data sources; these datasets describe between 2004 and 2007 the professional trajectories of young people leaving school. Firstly, we show that living in a priority neighborhood has negative effects for young people with regards to employment access and on the quality of the employment found: residing in a priority neighborhood decreases by 10 percentage points the fact of being employed three years after leaving school. Also, we emphasize that living in priority neighborhoods increases the feeling of territorial discrimination for young people. Secondly, we show that having the "priority neighborhood label" for neighborhood with similar characteristics may be a source of poorer labor market outcomes for inhabitants. These results partially prove the existence of territorial discrimination. Finally, several robustness checks were done (sensitivity analysis to unobservable variables, controlling for the endogeneity of the residential location) validating our previous results.

KEYWORDS: Neighborhoods effects, access to employment, territorial discrimination, propensity score matching.

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1 Introduction

The place of residence is an important feature that contributes to the increase of socio-economic inequalities between individuals. In the 1990s, a French urban policy measure was implemented in order to fight against unemployment, poverty and exclusion for residents of deprived areas: the "Pacte de Relance pour la Ville". Thereby, three categories of priority neighborhoods were highlighted: sensitive urban areas ("Zones Urbaines Sensibles" - ZUS), urban renewal areas ("Zones de Redynamisation Urbaine" - ZRU) and urban tax free zones ("Zones Franches Urbaines" - ZFU). French authorities decide on qualitative criteria which neighborhoods have the sensitive urban area "label" (ZUS); 751 areas are in this case (see APPENDIX 1). In general, ZUS areas are characterized by an important number of residential buildings and a pronounced imbalance between housing and employment. This category of priority neighborhoods is defined by the government to be the primary target of the urban policy intervention. Among ZUS areas, ZRU and ZFU areas are identified according to a synthetic indicator which is representative of their economic and social difficulties. The indicator takes into account the local unemployment rate, the proportion of young people, the proportion of individuals without a diploma and the fiscal potential of the municipality². Even if this indicator helped choosing 90% of the ZRU areas, qualitative criteria are not entirely excluded. 416 ZRU areas were finally emphasized. As for ZFU areas, they are chosen among ZRU areas with more than 10 000 inhabitants and having the highest values for the synthetic indicator (100 ZFU areas exist in France).

These three categories of neighborhoods are different in terms of their socio-economic composition and urban difficulties. Therefore, the government and the local authorities have developed appropriate urban renewal and social cohesion programs in relation with several topics such as education, access to employment or integration. Social programs and urban revitalization projects are mostly focused on the first two categories of neighborhoods (ZUS and ZRU areas) as the third category of priority neighborhoods (ZFU areas) is defined only for the specific implementation of the enterprise zone programs³. Maintaining, developing and setting up of small and medium enterprises are encouraged, through incentives to invest, hire, locate or relocate in the targeted neighborhoods.

In this work, propensity score matching methods (Rubin, 1974 ; Rosenbaum and Rubin, 1983) are used on datasets obtained by merging three data sources (these datasets describe the professional trajectories of young people leaving school between 2004 and 2007) to analyze neighborhood effects on access to employment (being employed three years after leaving school, the duration of getting a job) and on the quality of the employment found (permanent contract) for young people leaving school. Neighborhoods effects are identified by the location of young people in one of the three types of priority neighborhoods described above.

Thereafter, among the different mechanisms of neighborhood effects we want to test the existence of territorial discrimination. More precisely, we want to verify the existence of "pri-

²This indicator is constructed as follows: Synthetic indicator = [(unemployment rate) X (% individuals under 25 years old) X (% individuals without a diploma) X (total population)] / (fiscal potential of the municipality).

³Enterprise zone programs are policies that consist in providing tax incentives and exemptions from regulations to specific areas.

ority neighborhood label" effects as we consider that the "label" of a priority neighborhood may send negative signals to employers and becomes a source of discrimination for young people. In order to study this effect, we compare labor market outcomes of young people living in priority neighborhoods with those inhabiting in neighborhoods with similar characteristics but which do not have the "priority neighborhood label". For doing this, we use propensity score matching so that the comparison group (neighborhoods without label) is similar to the treatment group (neighborhoods with the label). Then, we use the same methods in order to assess the effect of living in a priority neighborhoods, all others things being equals, on employment outcomes. We believe that this strategy permits to partially reveal the effect of the territorial discrimination phenomenon.

Firstly, our results show that living in a priority neighborhood has negative effects for young people with regards to employment access and on the quality of the employment found: residing in a priority neighborhood decreases by 10 percentage points the fact of being employed three years after leaving school. Also, we emphasize that living in priority neighborhoods increases the feeling of residential discrimination for young people. Secondly, we show that having the "priority neighborhood label" for neighborhood with similar characteristics may be a source of poorer labor market outcomes for inhabitants. These results partially prove the existence of territorial discrimination. Finally, several robustness checks were done (sensitivity analysis to unobservable variables, controlling for the endogeneity of the residential location) validating our previous results.

The reminder of the paper is structured as follows: the second section presents a brief review of literature. The third section describes the data, the variables of interest and the econometric methodology. The fourth section presents some stylized facts and the results of our estimations. Finally, the fifth section concludes the analysis.

2 Literature review

2.1 Analyzing the impact of living in priority neighborhoods on labor market outcomes

In France, several studies have analyzed the impact of the implementation of ZUS areas. They can be divided in two categories: those who analyzed the impact of living in a ZUS area on the labor supply and those who study the impact of this type of area on the labor demand.

In the first category of articles, authors generally assess the potential consequences of living in a poor neighborhood on the access to employment, unemployment duration or the effects on the level of the first salary. Thus, Choffel and Delattre (2003) have shown, on the TDE (*Trajectoire des demandeurs d'emplois* or job seekers trajectory) survey, that living in a priority neighborhood may be an obstacle for job search, as it tends to increase unemployment duration. With the Generation 1998 survey, Couppié and Gasquet (2007) analyze the effects of the decision of residence in a ZUS area on the professional integration of young people who completed their studies and have acquired their residential autonomy. They show that young people living in ZUS areas are, all others things being equal, less likely to find a permanent

contract. This negative effect disappears when young people have left this type of neighborhood. By using the same survey, Couppié *et al.* (2010) analyze the wage gap between young people living in ZUS areas and leaving school and those who do not live in such a neighborhood. Their results show that, besides the fact that the inhabitants of ZUS areas have more difficulties in accessing the most skilled jobs, they also receive lower wages than young people living in other neighborhoods. Finally, Gobillon *et al.* (2011) use the FHS (historical file of job applicants) of the French National Agency for Employment to analyze the impact of the enterprise zone program (ZFU) on unemployment. The authors find that this specific zoning has a small but significant effect, in the short term, on the unemployment duration.

Analyzing the negative impact of being a resident in a ZUS area may appear *a priori* surprising since the initial goal of this urban policy intervention is to develop jobs in these specific neighborhoods. One might expect that the existence of this type of area produces potentially positive effects. This is the idea that guides the second category of studies that want to highlight the effects of implementation of ZUS on labor demand. More precisely, the objective is to examine the effects of the specific advantages of these areas on job creation or job destruction. For example, Rathelot and Sillard (2009), using the DADS data base (annual declaration of social data), analyze the effects of the exemption of employer's social security contributions in the ZFU area on employment and enterprise creation. They show that the ZRU neighborhoods, that have been classified ZFU, are experiencing a significant and positive impact on job creation and enterprise creation.

2.2 Neighborhood effects in urban economics

Although the creation of the "priority neighborhood label" seems to have positive effects on labor demand and job creation, it also appears that living in a neighborhood defined as deprived produces negative externalities for individuals. The literature in urban economics names as "neighborhood effects" the fact that a neighborhood may have an impact on individuals' behavior⁴. Different mechanisms have been put forward to explain how the place of residence could impact on the behavior and the performance of individuals on the labor market.

One of these mechanisms is based on the fact that living in a deprived neighborhood can be a hindrance to human capital acquisition. For example, the success of a given student depends on the socio-economic characteristics of all other students in his or her class. If the characteristics are low, then the concentration of low-skill learners exerts a negative pressure on the learning process of the student (Bénabou, 1993). Thus, in neighborhoods that concentrate low-ability students, human capital externalities can deteriorate school achievement and employability.

A second consequence is that segregated or deprived neighborhoods are often exposed to the emergence of social problems that can deteriorate the job seekers' employability. In 1991, Crane develops the epidemic theory of ghettos. His theory shows that the propensity of young people to adopt a given behavior is strongly correlated with the proportion of individuals

⁴Neighborhood effects may be studied in relationship with school achievement for children, access to employment for working people but also behavior as delinquency (for more details, see literature review of Ginther *et al.* (2000) or Dietz (2002)).

already showing this behavior. For unemployed individuals, this phenomenon is also verified. When most adults in a neighborhood are unemployed, it does not motivate young people to search for a job. These fragile populations do not provide role models of social success and so they do not motivate others to find a job.

Another mechanism is based on the fact that an important proportion of jobs are usually found through personal networks and low-skilled workers, young adults and ethnic minorities, generally resort to these search methods (Holzer, 1988 ; Reingold, 1999). If job seekers live in neighborhoods where local unemployment rates are higher than the average, the probability of having contacts in unemployment will be very high, so they will not rely on their "social networks". An individual that lives in a deprived neighborhood will be confronted with a social network of poor quality.

Other mechanisms are based on potential discriminatory practices on the labor market and are related to the stigma of a neighborhood. Living in a deprived neighborhood may reduce the chances of finding a job for an individual, because of the discriminatory behavior of some employers. They may be reluctant to hire individuals from some areas because they believe they have bad work habits or are more likely to be delinquents. Discrimination observed in this case can be compared with statistical discrimination (Arrow, 1972 ; Phelps, 1972). Statistical discrimination occurs when the economic characteristics of candidates (such as productivity) are unknown, but the employer believes that they are correlated with non-economic characteristics specific to a particular group. The asymmetry of information between the candidate and the recruiter creates an adverse selection problem. To limit this risk, the recruiter uses the available information which may be a signal sent by the applicant voluntarily or not and/or reputation. We can find both types of processes for individuals who live in neighborhoods with a "priority neighborhood label". Finally, territorial discrimination is observed when job seekers living in these areas are discriminated because of the stigma associated with their location. It remains possible that this discrimination is not statistical discrimination. This can also be a simple taste for discrimination (Becker, 1957). Territorial discrimination may result, in this case, of a subjective hostility of employers regarding life styles, social practices of people in some neighborhoods. This taste for discrimination is sometimes specific and sometimes imposed to the employer (either implicitly or explicitly) by its potential customers ⁵.

3 Data, variables and econometric strategy

3.1 Data

3.1.1 The Generation 2004 survey

We use the Generation 2004 survey developed by the CEREQ ⁶. It contains 33 655 young people who completed training in 2004 at all levels of education. Individuals are followed during the first three years of their working lives. In France, in 2004, 737 000 young people left school for the first time. The main purpose of this survey is to study the early years of life after leaving

⁵We can not distinguish between these two levels of discrimination in our analysis.

⁶CEREQ is a public body working under the aegis of both the Ministry for National Education, Youth and Associative Life and the Ministry for Labor, Employment and Health.

school. It provides information on the education background of young people, their situations on the labor market since 2004, but also on their geographical and social origins. The interest of the survey is that it permits a longitudinal approach for studying the integration on the labor market. The survey is based on a professional calendar.

The Generation 2004 survey is organized around three databases. The first data base contains the individual characteristics, the second database contains employment episodes of the individual in the enterprise and the third contains non-employment episodes. In this survey, the individual's career is divided into sequences of variable length. The type of the episode corresponds to the situation of the individual on the labor market: employment, unemployment, inactivity, training, return to school or national service. If the individual knows several episodes in different jobs, the episodes are distinguished in the data.

In this survey, we also have information on the residential location of young people. The information is available for individuals when they leave school and every time they are questioned. Thus, we can identify if an individual lives in ZUS area; we also have information on the Iris code ⁷ of his or her residential location. For the Generation 2004 survey, used in this work, 95.8% of the addresses of individuals at the time of interrogation and 94% of their addresses at the end of their studies were geocoded. 92.6% of young people have their two addresses geocoded. For some young people, there were some errors related to the Iris code. The final sample contains 27 572 individuals with a coherent Iris.

3.1.2 The 1999 population census

We then matched the Generation 2004 survey with the 1999 population census by the Iris code. The 1999 population census was conducted by the INSEE (the French national institute of statistical and economic information). However, when this information (the Iris code) is not available, individuals are removed from the analysis. The population census is an exhaustive dataset giving information on all the Iris codes. It provides statistics on the types of housing, on the housing conditions, types of households, residents as well as a number of their socio-economic characteristics (gender, age, qualification, employment status, occupational status etc.).

From this dataset, we construct indicators for the neighborhood of residence (according to each Iris code) such as the unemployment rate, the percentage of 25-65 year olds in work, the percentage of blue-collar, the percentage of individuals with at most a lower secondary diploma, the percentage of 16-24 years old in full-time education, the percentage of individuals of foreign nationality, the percentage of households with 6 persons or more and the percentage of social housing. These indicators are then used to construct a synthetic indicator providing information on the "quality" of the neighborhood (see next section).

⁷We use the Iris code as a proxy of the neighborhood. An Iris may be a municipality or a subdivision of a municipality if the latter has more than 10 000 inhabitants. The Iris code represents homogeneous spatial subdivisions in terms of housing and population (on average, 2 344 inhabitants).

3.1.3 Additional data on neighborhoods of the General Secretariat of the Inter-ministerial Committee for the City

The Generation 2004 survey provides only information on the fact that the individual lives or not in a neighborhood defined as a ZUS area. We use data from the French General Secretariat of the Inter-ministerial Committee for the City (SG-CIV) to identify among the various ZUS areas which were classified as ZRU areas and which were classified as ZFU areas. In the Generation 2004 survey, are covered 544 different ZUS areas. Within these ZUS areas, 241 were classified as ZRU areas (44.3% of ZUS) and within these ZRU areas, 93 were classified as ZFU areas (*ie* 17.1% of ZUS areas and 38.6% of ZRU areas). Distinguishing different types of ZUS areas is a way to capture the degree of difficulty of the residence place for young people; growing in a ZFU area can be associated to a higher degree of difficulty in comparison with growing in a ZUS area. In this case, one can imagine that neighborhood effects are stronger in ZFU areas than in ZRU areas and are stronger in ZRU areas than in ZUS areas.

3.2 Variables

3.2.1 Dependent variables

We retain various indicators of labor market performance. We consider first if the individual is employed in 2007 (three years after leaving school). The variable "Being in employment" is then equal to 1 if the individual is employed in 2007 and 0 otherwise. We also consider in our analysis the time required to find an employment. The variable "Time to first employment" measures the number of months required for an individual to find a first employment. To measure the quality of jobs found, we also introduce two other indicators: "Permanent contract", which takes the value 1 if the individual has obtained a permanent contract at the time of the survey and 0 otherwise; "full-time contract" that takes the value 1 if the individual has obtained a full-time employment at the time of the survey and 0 otherwise.

In addition to measuring the effect of living in ZUS areas on the access to employment, we want to check if inhabitants of ZUS areas suffer from a potential territorial discrimination in their job search process or not. The survey permits to know if young people think they have faced discrimination in their job search process. If this is the case, it is asked to the individual what may be the cause of the discrimination, according to him or her. We retain as a cause of discrimination, the place of residence. The variable "Discrimination feeling" takes the value 1 if the individual claims to have felt a discrimination because of his/her residential location and 0 otherwise. The value 0 includes individuals who have not felt any discrimination or have felt a discrimination but for reasons different than the place of residence. Thus, we can see if the fact of living in a ZUS area increases the risk of experiencing a territorial discrimination or if it increases the feeling of having experienced a discrimination related to the place of residence.

3.2.2 Main explanatory variable

We consider as inhabitants of a ZUS area all individuals who live in this type of neighborhood at the moment they leave school and who are still living in a ZUS area at the time of the survey. We exclude from the analysis individuals who lived in a ZUS area in 2004 (when they leave

school) but not in 2007 (at the time of the survey) and we also exclude those who did not live in a ZUS area in 2004 and living there three years later. We make this choice because it is likely that an individual who lived initially in a ZUS area has changed his or her residence after 2004. The fact that the young people has non longer the "ZUS label" may be favorable for his/her integration on the labor market and hide the potentially negative effect of living in this type of neighborhood. This kind of phenomenon may bias our analysis of the relationship between the fact of living in a ZUS area and the access to employment.

Finally, we compare individuals living in ZUS areas over the period (2004-2007) to individuals who have not resided in such neighborhoods during this period of time. Nevertheless, the latter group may include individuals who have moved away between 2004 and 2007 or not, but who did not live in a ZUS area. We decide not to restrict our analysis on a subsample of young people who did not move away between 2004 and 2007, as it tends to decrease dramatically the sample of study ⁸.

In order to test the robustness of our results, we also consider another definition of living in a ZUS area. In this alternative definition, a young people is considered living in a ZUS area as soon as he or she has lived in this area in 2004 (at the end of his studies). We do not look if he or she still lives in this type of neighborhood in 2007 or if he or she has moved away since 2004. The results of the matching methods according to this definition are presented in the APPENDIX 7. Results are globally similar to the previous definition as individuals that live in ZUS areas in 2004 generally still live in the same neighborhood in 2007.

Our data show that residential mobility for this category of individuals is less important for other individuals who do not live in ZUS areas. Indeed, we observe 1 166 individuals living in a ZUS area between 2004 and 2007 on 27 572 individuals in the whole sample and 1 762 who lived there at least in 2004. The percentage of young people living in ZUS areas in 2004 and who have not moved away in 2007 is 66.2% against only 26.3% for those who do not live in ZUS areas in 2004. Similarly, the number of inhabitants of ZRU areas is 738 with the first definition against 1 207 with the second definition. For inhabitants of ZFU areas, we identify 333 young people living in such a neighborhood between 2004 and 2007 against 510 who live there at least in 2004.

3.2.3 Other explanatory variables

We retain a number of control variables describing the individuals' socio-economic characteristics: sex, age, qualification level (Vocational diploma, high school diploma, second year university diploma, two year technical degree, License, Master's degree and PhD). We retain the variables of work experience: if the individual had a regular job when he was at school or not (an employment with at least 8 hours per week during his/her studies) or if the individual had one or more summer jobs or odd jobs while studying.

We include variables related to parents' characteristics: parents' nationality (French or foreign), employment status and their occupational status (workers, employees, intermediate professions, executives and professionals, self-employed and farmers). We also include

⁸The sample size decreases from 27 572 individuals to 7 970 individuals.

variables concerning the household: whether the individual lives with his/her parents or not, whether he or she lives with a partner or not and the number of children. We also add variables concerning the region of residence in order to control for a potential unobserved heterogeneity due, for example, to public policies that may be different from one region to another.

3.3 Make comparable neighborhoods with and without "priority neighborhood label"

Among the different mechanisms of neighborhood effects, we want to test the existence of a territorial discrimination phenomenon. A way to do this is to work on neighborhoods with similar characteristics but distinguished by one thing: the fact that neighborhoods send a negative signal to employers. Concretely, our idea is to compare access to the employment of individuals living in neighborhoods with the same measured probability of being a priority neighborhood but some have the "priority neighborhood label" and others do not. Thus, we use propensity score matching to make certain the comparison group (neighborhoods without the label) is similar to the treatment group (neighborhoods with the label).

3.3.1 Probability of being defined as priority neighborhood

First, we calculate the probability of having the "ZUS label" with a logit model. we retain, as explanatory variables, different socio-economic characteristics such as: the unemployment rate, the percentage of 25-65 year olds in work, the percentage of blue-collar, the percentage of individuals with at most a lower secondary diploma, the percentage of 16-24 year olds in full-time education, the percentage of individuals of foreign nationality, the percentage of households with 6 persons or more and the percentage of social housing. These variables have been chosen because they are representative of different dimensions that describe a neighborhood, such as employment status, educational level, qualification, demography or residential status. The following table shows the results of this first estimation:

Table 1: Probability of being defined as ZUS area

Variable	Coefficient	Std. Error
Constant	-3,399***	0,629
% 16-24 year olds in full-time educ.	0,519*	0,299
% indiv. with at most a lower sec. dipl.	-0,844**	0,354
% 25-65 year olds in work	-0,357	0,486
% blue-collar	1,280**	0,541
Unemployment rate	6,489***	0,407
% individuals of foreign nationality	4,159***	0,325
% households with 6 pers. or more	3,205***	0,817
% of social housing	2,107***	0,095
Observations	17 331	
Pseudo-R²	0,53	

Source: 1999 population census, INSEE.

Lecture : Estimation made on the sample of 17 331 neighborhoods identified in the Generation survey. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Results of this first step reveal a role of characteristics related to employment status when explaining the probability, for a given neighborhood, of being defined as ZUS area. It appears that an important unemployment rate and/or an important percentage of blue-collar workers have a strong and positive effect on probability of being defined as ZUS area. On the contrary, the percentage of 25-65 years old in work does not seem to have significant effect. Characteristics related to households show that percentage of individuals of foreign nationality, percentage of households with six persons or more and percentage of social housing increase the probability of being defined as ZUS area. Finally, results for characteristics on school achievement go against received ideas. Indeed, the percentage of 16-24 year olds in full-time education in the neighborhood increases the probability of being defined as a ZUS area while the percentage of individuals with at most a lower secondary diploma decreases this probability.

3.3.2 Common support and the comparability of neighborhoods

Estimating the propensity score (probability of being defined as a ZUS area) for treatment group and comparison group permits us to define the region of common support. That is to say the common interval for both distributions of the propensity score between the two groups. The APPENDIX 2 gives a description of the estimated propensity score in region of common support. It is between [0,001 ; 0,999] and 2 170 neighborhoods have been dropped. Mostly, it represents neighborhoods with a very low propensity score estimated.

We also define a given number of blocks, on the common support, that ensure that the mean propensity score is not different for treated and controls in each blocks. The following table shows the number of treated, the number of controls and the inferior bound for each block.

Table 2: Blocks of the common support

Blocks	PS:	ZUS area		% of	Mean PS	Mean PS	Total of neighbor.
	Inf. bound	controls	treated	ZUS area	for controls	for treated	
1	0,0013	9405	22	0,2%	0,005	0,006	9427
2	0,0125	1646	32	1,9%	0,018	0,017	1678
3	0,025	1164	44	3,6%	0,035	0,037	1208
4	0,05	756	84	10,0%	0,07	0,072	840
5	0,1	502	88	14,9%	0,141	0,145	590
6	0,2	373	166	30,8%	0,285	0,288	539
7	0,4	162	151	48,2%	0,482	0,498	313
8	0,6	74	157	68,0%	0,678	0,698	231
9	0,8	34	305	90,0%	0,885	0,922	339
		14116	1049	100%	0,031	0,51	15165

Source: 1999 population census, INSEE.

Lecture : PS is for propensity score. Neighborhoods *treated* are neighborhoods defined a ZUS area while *controls* are neighborhoods not defined as ZUS area.

Although the proportions of controls and treated differ in each block, we observe that they are all comparable in terms of propensity score. In addition, as the balancing property of the propensity score matching has been satisfied, it means that neighborhoods with the same propensity scores have the same distributions of all covariates for all nine blocks.

In order to verify the existence of territorial discrimination, we compare employment outcomes for young people living in neighborhoods belonging to the same block defined previously. If neighborhoods have the same propensity score, we can argue that they are similar on their observed characteristics. The only thing that distinguishes them is then the "priority neighborhood label". If we observe differences on employment outcomes between young people located in a neighborhood of the control group and those located in a neighborhood of the treatment group, we can suppose that it is an effect of the label ⁹.

Finally, we decide to compare employment outcomes for individuals belonging to treated and controls neighborhoods with the highest propensity scores but also employment outcomes for individuals belonging to treated and controls neighborhoods with the lowest propensity scores. By doing this, we analyze the effect of the "priority neighborhood label" for deprived and favorable neighborhoods. In one hand, we restrict our analysis to individuals belonging to neighborhoods in the first three blocks (1,2 and 3). It corresponds to neighborhoods with a maximum propensity score of 0.005, which is a very low. We do not retain only the first block because the number of individuals in treated neighborhoods would be too small for estimating an effect. In the other hand, we restrict our analysis to individuals belonging to neighborhoods in the last two blocks (8 and 9). In this case, this choice is made in order to have a sufficient number of individuals in the two groups of neighborhoods considered (treated and controls). It corresponds to neighborhoods with a minimum propensity score of 0.60.

3.4 Evaluate the effect of living in a priority neighborhood

We remind that our principal objective is to test the effect of living in a priority neighborhood on access to employment, for young school leavers, in order to highlight the role of neighborhood effects. However, observable and/or unobservable characteristics can affect the decision to live in a priority neighborhood area as well as the access to employment. A probable self-selection of individuals in space may bias the analysis. To take into account the selection bias on observable characteristics, we use propensity score matching methods. Initially developed for the evaluation of treatment efficacy in the medical field, these methods have been imported and applied in the social sciences by Rubin (Rubin, 1974 ; Rosenbaum and Rubin, 1983) in the case of natural experiments (*ie* uncontrolled). Further, we develop an analysis on young people who live with their parents to try to control for the selection on unobservables. One can imagine that as parents have previously chosen the place of residence, the fact that a young person is living in a ZUS area, for example, is exogenous or quasi-exogenous to the access to employment.

3.4.1 Description of the process

Our idea is to compare the effects of living in a priority neighborhood on the performance of two groups of young people, all other things being equal. If we take the example of a ZUS area, individuals either residing in a neighborhood considered as a ZUS area (treated individuals) or,

⁹It is possible that it remains some other unobserved characteristics that may explain differences in employment outcomes. In this work, we suppose that the principal characteristic that remains, when we have controlled for the socio-economic composition of the neighborhood, is the stigma of being classified as priority neighborhood.

conversely, in a neighborhood not considered as ZUS area (untreated individuals or controls).

We note T_i the place of residence of a given individual, with $T_i = 1$ if individuals live in a ZUS area and $T_i = 0$ otherwise. We have "treated" individuals ($T_i = 1$) and "untreated" individuals ($T_i = 0$).

Y_i represents the outcome variable which is the access to employment (being in employment, for example) and the effect of living in a ZUS area may be written as:

$$R_i = Y_i(1) - Y_i(0) \quad (1)$$

As we can not observe the same individual facing the two treatment situations, we measure the average treatment effect on the treated population (in our case it is the population that lives in ZUS areas) that we note:

$$R_1 = E[Y(1) - Y(0) | T = 1] = E[Y(1) | T = 1] - E[Y(0) | T = 1] \quad (2)$$

The second part of equation can not be observed. To measure the average treatment effect on the treated population, it is necessary to assume that $E[Y(0) | T = 1] = E[Y(0) | T = 0] = E(Y(0))$, which is equivalent to assuming that whatever the neighborhood where the people reside, the behavior on the labor market remains the same. We then have:

$$R_1 = E[Y(1) | T = 1] - E[Y(0) | T = 0] \quad (3)$$

In addition, if "treated" and "untreated" individuals have different characteristics and if these characteristics influence Y_i , estimation results of the average treatment effect may be biased. It is then necessary to correct this bias by controlling for differences in observable characteristics (X). The treatment is considered to be randomly distributed "conditionally to observable characteristics".

$$Y(1), Y(0) \perp T | X \quad (4)$$

When the number of these features is important, it is difficult to match on all of these characteristics. One solution is the propensity score matching $\pi(X)$, which is defined as the probability that an individual with characteristics X to be treated ($\pi(X) = Pr(T = 1 | X)$). Then we can write:

$$Y(1), Y(0) \perp T | \pi(X) \quad (5)$$

The causal effect is evaluated as follows:

$$R_1 = E_{\pi(X)}(E[Y(1) | T = 1, \pi(X)] - E[Y(0) | T = 0, \pi(X)] | T = 1) \quad (6)$$

However, it is necessary that there is a common interval for both distributions of the propensity score between the two groups. This is the condition of "common support":

$$0 < \pi(X) < 1 \quad (7)$$

Concretely, we calculate the probability of living in a ZUS area, with a *logit* model. We include a large number of variables that may explain the residential location choice. Individuals will be comparable if they are close in terms of the estimated probability of access to treatment.

If we compare twins of individuals whose observable characteristics are as close as possible, but with the only difference that some are treated and others are not (*ie* individuals live in ZUS areas or not), it becomes possible to determine the effect of the treatment on employment outcomes. Since we control for a high number of observable characteristics, the differences measured between the two groups is likely to be explained by a treatment effect.

However, the effect of living in ZUS area on employment, that we want to highlight with the process described, can be explained by the fact that ZUS areas have more unfavorable characteristics than other neighborhoods. In this type of neighborhoods, we can imagine that peer effects, the role of lower-quality network and the problem of territorial discrimination may appear (Bénabou, 1993; Crane, 1991; Holzer, 1988). We develop a method that attempts to isolate the effect of "territorial discrimination" of other effects. We compare employment outcomes for young people living in neighborhoods that are comparable with regard to their observables characteristics but differ by the fact they are defined as priority neighborhood or not. The analysis is replicated for young people living in the most deprived and most favorable neighborhoods.

3.4.2 Implementation of propensity score matching methods

Propensity score matching methods are two-stage methods. After estimating the propensity score for treated and counterfactuals, using a *logit* model, we proceed to an estimate by selective matching. Several matching methods are proposed in the literature for the match between treated and untreated. We retain the matching procedure with kernel function (*Kernel Matching*). The kernel estimator is a nonparametric estimator that uses the weighted average of all individuals in the control group to construct counterfactuals. For the calculation of this estimator, each individual in the control group contributes to the construction of counterfactuals for individuals in the group of treated. The weight of each individual in the control group depends on the distance between his/her propensity score and the one of the treated individual concerned. In other words, the more a "treated" individual and an "untreated" individual are close in terms of propensity score, the higher the weight assigned to the latter is important.

The application of this method requires the choice of a kernel function and a window of estimation. We use the Epanechnikov function, even if DiNardino and Tobias (2001) have shown that the choice of the kernel function has little impact on results. The choice of the estimation window has a greater influence on the performance of the estimator since it introduces a trade-off between variance and bias. We modify the values of the window to check the sensitivity of our results. Whatever the value, we find a negative and significant effect of living in a ZUS area on the probability of access to employment (-7.10 percentage points for a value of 0.01 up to -11.46 percentage points for a value of 0.3). For this reason, we use a value of 0.06

for the estimation window, which represents a good compromise between bias and variance ¹⁰.

We present in the APPENDIX 4 the distributions of propensity scores for treated and untreated individuals. In the first case, the treatment is the fact of living in a ZUS area. In the following two cases, it represents respectively the fact of living in a ZRU area and in a ZFU area. Distributions show that it is easier to find people close to their propensity score when looking exclusively to the treatment "live in a ZUS area". The surface area under the curve, common to both groups, is larger which allows to obtain good matches. This is not necessarily the case for individuals living in a ZRU area or ZFU area because they are calculated on small samples.

4 Results

4.1 Descriptives statistics

The second column of table 3 contains the distribution of a set of individual characteristics for the overall sample. In the third column we present the results for young people living in ZUS areas in 2004. The fourth column contains the results for young people living in ZRU areas and finally, the fifth column shows the results for individuals living in a ZFU area.

Women are slightly under-represented among individuals living in ZUS/ZRU/ZFU areas. Individuals residing in a ZUS, in a ZRU or a ZFU area are significantly younger than those on the general population. Non-graduates are over-represented among young people living in ZUS/ZRU/ZFU areas. For example, almost 33% of young people living in ZUS area have no qualification against nearly 14% for the global sample. This percentage is even higher for individuals living in a ZRU or a ZFU area. The proportion of young people with a vocational diploma is significantly higher in a ZUS area than elsewhere. 24% of young people living in a ZUS area leave school with this diploma against less than 20% for the global sample. This descriptive analysis does not permit to see if failure in school achievement is due to the fact that young people live in deprived neighborhoods or because of their own characteristics.

Concerning the experience of young people during their studies, the results are different depending on variables which are considered. For example, the fact of not had a regular job when the individual was in school is a characteristic slightly under-represented among young people in ZUS/ZRU/ZFU areas: 74% of young people in a ZUS area in 2004 have not been employed regularly during their studies against 87% on the global sample. The fact that individuals did not have odd jobs when they were in school is quite significantly over-represented among young people in deprived neighborhoods: about 49% of young people living in a ZUS area do not have odd jobs against 34% for the global sample. We can imagine that young people in ZUS areas have more often than other individuals regular jobs because of family financial difficulties or because they pay for their education. The summer odd jobs, less restrictive, seem to be reserved to young people not living in ZUS areas. Indeed, this kind of professional experience is associated often to jobs in the firms of parents.

The situation in the household varies greatly according on whether or not the individual is located in a ZUS area. The proportion of young people living with their parents is signifi-

¹⁰The significance of our kernel estimator is determined by *bootstrap* by performing 100 simulations for our explained variables.

cantly higher for those living in ZUS areas than for those on the global sample (76% against 42% respectively). In ZUS areas, young people living outside the parental home, alone or with a partner, are under-represented in comparison with individuals on the global sample (respectively 14% and 10% against 37% and 20%). It is likely that young people living in ZUS areas do not have parental financial assistance or sufficient incomes to be able to leave home and get their own residence. The number of children does not seem to be a discriminating indicator between those living in ZUS areas and the others.

The characteristics of the parents may also distinguish the individuals according to their place of residence. The nationality of the parents clearly plays this role: young people with French parents are under-represented among young people living in ZUS/ZRU/ZFU areas. For example, 50% of young people living in ZFU areas have a French father against 91% for young people in the global sample.

Concerning the socio-professional characteristics of the parents, we decided to interpret only the results for fathers. Indeed, for more than a third of young people living in ZUS areas, we have no information on the occupational or the employment status of the mother ¹¹.

Having, at the time of leaving school, a father who is a blue-collar worker is over-represented among young people in ZUS/ZRU/ZFU areas: for example, 45% of young people living in ZUS areas, have a father who is blue-collar worker against 28% for young people of the global sample. On the contrary, young people with a father who is an executive are under-represented among those living in a ZUS/ZRU/ZFU area. Not surprisingly, it appears that the status of the parents is strongly linked to the place of residence. The well-off households will probably tend to avoid these types of neighborhoods.

Young people in ZUS/ZRU/ZFU areas having parents in employment are under-represented: 61% of young people in ZUS areas have a father who works against 81% for individuals in the global sample and 41% of them have a mother in employment compared to 68% for individuals on the global sample. Young people living in ZUS areas having inactive parents are over-represented; this result is stronger for mothers. We observe that non-employment rates are higher for the population in ZUS areas. This simple statement gives no precise indication on the direction of the causality. It is precisely one of our objectives to analyze if living in this type of neighborhoods plays a role on the propensity of being non-employed.

Three years after leaving school, individuals located in "non-priority neighborhoods" are more often in employment in comparison with those in ZUS/ZRU/ZFU areas. They represent more than 80% of the total population against about 60% for individuals in ZUS/ZRU/ZFU neighborhoods. The time required before finding a job is two times longer for young individuals in "priority neighborhoods" (it is 6 months for individuals from ZUS areas against 3,5 months for young people on the global sample). The type of contract gives also indications on residence inequalities. The proportions of individuals who find full-time or permanent contracts are lower for individuals living in ZUS areas (about 46% of people living in ZUS

¹¹This can be explained by the fact that in this type of neighborhood, mothers are often at-home mothers who have never worked (as suggested by the high proportion of inactive mothers observed in the table). In this case, they are not able to give an occupation status.

areas have a permanent contract against more than 65% on the global sample, for example). The feeling of discrimination related to the place of residence is very pronounced for the people in ZUS areas. It is about ten times higher than for young people in the global sample (11.6% against 1.9%).

Table 3: Descriptive statistics by residence place

Variable	Global sample	Living in a ZUS area	Living in a ZRU area	Living in a ZFU area
Woman	48,4	40,2	37,5	37,2
Age in 2004 (mean)	21,7	20,7	20,3	20,3
Education level				
No diploma	13,5	32,8	34,1	34,5
Vocational diploma	19,6	24,1	26,6	26,4
High school diploma	23,8	22,3	22,1	21,6
Diploma taken after two years' study	1,7	1,1	0,8	0,9
Two-year technical degree	18,1	7,9	7,2	7,2
Bachelor's degree	6,6	4,1	4,1	3,9
Fourth year university diploma	4	2,4	2,3	2,4
Masters' degree	7,8	3	2,2	2,4
PhD	4,9	2,3	0,7	0,6
Previous experience: regular jobs				
Several	2,4	2,7	2,8	2,1
One	11,1	12,9	12,5	12,3
No regular job	86,5	74,2	73,8	75,4
Previous experience: odd jobs				
Often (>3 per year)	22,5	15,3	15,3	12,9
Sometimes (≤ 3 per year)	43,2	35,9	34,8	34,2
Never	34,3	48,7	49,8	52,8
Situation in the household				
Lives with his/her parents	42,4	75,9	81,7	84,1
Lives in cohabitation	37,2	13,9	11,1	11,4
Lives alone	20,4	10,2	7,2	4,5
Number of children				
0	89	90,7	92,4	91,9
1	8,8	7,2	6,2	6,9
2	1,9	1,7	1,1	0,6
3	0,3	0,3	0,1	0,3
4 and more	0,1	0,1	0,1	0,3
French father	90,8	56,3	53,2	49,8
French mother	91,6	57,9	55,3	52,5
Father's occupational status				
Blue-collar worker	27,6	45,2	49,9	49,5
Employee	21,5	22,3	22,9	21,6
Intermediate profession	9,2	5,1	4,3	3,9
Executive, profession	20,3	6,3	4,5	4,8
Self-employed	10	5,4	5,3	5,4
Farmer	3,4	0,3	0,4	0,2
Do not know	8	15,5	13,4	14,7
Mother's occupational status				

Blue-collar worker	15,7	13,4	13,8	13,8
Employee	49,1	40,8	37,1	34,8
Intermediate profession	4,6	5,1	4,3	3,9
Executive, profession	12	4,2	2,7	3,6
Self-employed	3,5	1,5	1,2	1,2
Farmer	2,1	0,4	0,4	0,3
Do not know	12,9	37,2	42,8	45,1
Father's situation on the labor market				
Employment	80,6	61,5	62,3	61,3
Unemployment	2,6	7,1	7,9	6,6
Inactive	9,7	18,8	19,2	21,9
Other situation	7,1	12,6	10,4	10,2
Mother's situation on the labor market				
Employment	68,1	41,2	37,7	33,3
Unemployment	2,5	3,8	3,2	3
Inactive	26,1	50,9	55,4	60,9
Other situation	3,3	4,1	3,7	2,7
Outcome variables (in 2007)				
Being in employment	80,5	62,2	60,7	60,4
Time to first job (in months)	3,5	6,1	6,2	6,4
Discrimination feeling	1,9	11,6	14,1	15,6
Permanent contract	29,1	18,8	16,4	15
Full-time contract	65,5	46,7	46,2	44,2
Observations	27 572	1 166	738	333

Source: Generation survey (2004), CEREQ.

Note: Table 1 gives the percentages for each variable according to the neighborhood type.

4.2 The effects of living in priority neighborhoods on employment outcomes

4.2.1 The determinants of living in a priority neighborhood

The table 4 gives the estimation results of three simple *logit* models explaining the probability that a young people lives in a ZUS/ZRU/ZFU area during the period 2004-2007 (model 1 explains the probability of living in a ZUS area, model 2 explains the probability of living in a ZRU area and model 3 explains the probability of living in a ZFU area). This table corresponds to the results of the first stage of the propensity score matching models.

In model 1, we observe that being a man increases the risk of living in a ZUS area. Contrary to what suggest descriptive statistics, we find that having children increases the risk of living in such neighborhoods. Concerning age, the correlation is relatively weakly significant. Still, age increases the risk of living in ZUS areas. Living with his/her parents also increases the propensity of living in ZUS areas, compared with the reference modality which is "living alone". One can imagine that young people living with their parents are those who have the most important financial difficulties, so it is not easy for them to leave such a neighborhood. As we do not have variables providing information on the financial capacity of young people, we can not ignore this effect. Cohabitation is more favorable because it reduces the risk of residing

Table 4: Estimation of probabilities of living in ZUS/ZRU/ZFU areas (logit models)

Variable	Living in a ZUS area		Living in a ZRU area		Living in a ZFU area	
	Coeff.	σ	Coeff.	σ	Coeff.	σ
Constant	-4,420***	1,33	-5,791***	1,75	-7,532**	2,51
Being a woman	-0,132*	0,07	-0,209**	0,09	-0,233*	0,12
Age in 2004	0,206*	0,11	0,247	0,15	0,194	0,21
Squared age in 2004	-0,004	0,002	-0,005	0,003	-0,004	0,004
Qualification level (ref.: No diploma)						
Vocational diploma	-0,281***	0,09	-0,163	0,11	-0,100	0,16
High school diploma	-0,624***	0,11	-0,597***	0,13	-0,474**	0,19
Diploma taken after two years' study	-1,201***	0,33	-1,326***	0,45	-0,922	0,63
Two-year technical degree	-0,960***	0,15	-0,922***	0,19	-0,728**	0,28
Bachelor's degree	-0,906***	0,20	-0,765***	0,25	-0,581	0,36
Fourth year university diploma	-1,084***	0,24	-0,892***	0,30	-0,631	0,43
Master's degree	-1,193***	0,22	-1,248***	0,31	-0,832*	0,43
PhD	-0,921***	0,27	-1,685***	0,51	-1,726**	0,79
Previous experience: regular jobs (ref.: No)						
Several	0,453**	0,20	0,604**	0,25	0,343	0,41
One	0,312***	0,10	0,395***	0,13	0,348*	0,18
Previous experience: odd jobs (ref.: No)						
Several (> 3 per year)	-0,303***	0,10	-0,212*	0,12	-0,468**	0,19
Sometimes (\leq 3 per year)	-0,155**	0,07	-0,133	0,09	-0,234*	0,13
Situation in the household (ref.: Lives alone)						
Lives with his/her parents	0,791***	0,11	1,095***	0,15	1,639***	0,28
Lives in cohabitation	-0,459***	0,13	-0,326*	0,19	0,134	0,32
Number of children	0,349***	0,09	0,373**	0,12	0,431**	0,17
Father's nationality : \neq French	0,767**	0,12	0,909***	0,155	1,045***	0,22
Mother's nationality : \neq French	0,637***	0,13	0,579***	0,157	0,529**	0,22
Father's occupational status (ref.: Intermediate profession)						
Blue-collar worker	0,369**	0,15	0,459**	0,20	0,746**	0,30
Employee	0,233	0,15	0,381*	0,20	0,653**	0,31
Executive	-0,598***	0,18	-0,617**	0,26	-0,268	0,38
Self-employed	-0,420**	0,19	-0,314	0,25	-0,010	0,37
Farmer	-1,447**	0,55	-1,151*	0,65	-1,021	0,80
Mother's occupational status (ref.: Intermediate profession)						
Blue-collar worker	-0,067	0,25	-0,037	0,30	0,294	0,53
Employee	0,273	0,21	0,249	0,28	0,584	0,52
Executive	0,031	0,18	-0,148	0,36	0,563	0,59
Self-employed	0,031	0,25	-0,083	0,44	0,249	0,72
Farmer	0,141	0,53	0,170	0,69	-0,289	1,14
Father's situation (ref.: unemployment)						
Employment	-0,528**	0,14	-0,589***	0,16	-0,345	0,25
Inactive	-0,214	0,16	-0,328*	0,18	0,001	0,22
Other	-0,374*	0,20	-0,565**	0,24	-0,588*	0,35
Mother's situation (ref.: unemployment)						
Employment	-0,663**	0,17	-0,526**	0,23	-0,567*	0,34
Inactive	-0,131	0,18	0,006	0,23	0,240	0,34
Other	-0,607**	0,24	-0,646**	0,31	-0,755	0,49
Regional dummies	Yes		Yes		Yes	
Observations	27 572		27 100		26 697	
Pseudo R²	18,15		0,26		0,25	

Source: Generation survey (2004), CEREQ.

Note: ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

in such a neighborhood. It is likely that the fact of having two incomes allows to find more easily a residence outside a ZUS area.

The qualification level in 2004 is highly and negatively correlated to the probability of living in ZUS areas. Globally, individuals with high school diploma are less likely to live in a ZUS area. Previous work experience appears to be an important determinant of the probability of living in ZUS areas. For example, having regular jobs in school increases the probability of living in a ZUS area. This could be explained by the fact that young people who have regular jobs when they were in school, generally come from less affluent families; these types of jobs permit them to support themselves financially during their studies. Variables related to odd jobs are negatively correlated to the fact of living in ZUS areas.

The socio-demographic characteristics of the parents play an important role in explaining the probability of living in ZUS areas. We observe a positive correlation between having parents of foreign origin and living in a ZUS area. Concerning the occupational status of the parents, we note that only the information on the father influences the probability of living in a ZUS area. Compared with the reference modality "intermediate profession", having a blue-collar worker father increases the risk of living in a ZUS area. On the contrary, having a father who is an executive or a self-employed reduces this risk.

The situation of parents on the labor market also appears to have an effect on the probability of living in ZUS areas. Thus, having a father in employment decreases (the most strongly in absolute value) the probability of living in a ZUS area. This result is also found for mothers. All these variables may represent *proxies* of the financial capacity of parents. Parents having an important financial capacity are more likely to help their children to find a residence in a favorable neighborhood.

Regional dummies strongly determine the probability to live in a ZUS area. Compared to the reference region (the Paris region), the fact of living in another region decreases the probability of residing in a ZUS area. This result may be justified by the fact that the Paris region is the region that concentrates the largest number of ZUS areas.

We do not comment the other two columns of table 4 because the results are globally the same when explaining the probability of living in a ZRU area or in a ZFU area. Nevertheless, it appears that a number of variables have now no significant effect on these probabilities. This can be explained by the fact that people living in ZRU or ZFU areas represent a very small part of young people in the global sample.

4.2.2 The effects of living in ZUS/ZRU/ZFU areas on labor market outcomes

We now present the results of the second stage of the propensity score matching models. That is to say the effects of the ZUS/ZRU/ZFU variables on the labor market outcomes of young people. We present only the average effects of the three "treatments" on the "treated" individuals (ATT). Thus, table 5 describes the effect of living in ZUS areas on the labor market variables. table 6 shows the effects of living in a ZRU area and finally table 7 shows the results for the third treatment: living in a ZFU area.

In each of these tables, columns 2 and 3 correspond to results for the naive estimator and columns 4 and 5 correspond to the estimated effects using the propensity score matching method. The "naive" estimator gives the simple difference of means between the two groups ("treated" and "controls") in terms of labor market outcomes, without controlling for any observable characteristic. The second estimator (*ie* the propensity score estimator) gives the differences between the two groups of individuals in terms of performance variables after controlling for individual observable characteristics. In the global sample of 27 572 individuals, we count 1 166 individuals who live in ZUS areas (4.2%). Individuals living in a ZRU or in a ZFU area are fewer. They represent respectively 738 and 333 individuals (2.7% and 1.2%)¹².

In the three tables below, the effects of ZUS/ZRU/ZFU variables on the labor market outcomes for young people are still very statistically significant (at 1%). The comparison of the naive estimators with propensity score matching estimators might emphasize the existence of a selection bias associated with the residence of the young individuals. In absolute value, the results of the propensity score matching estimators are systematically lower than those of naive estimators. This could be interpreted as follows: if we do not control for a certain number of observable characteristics, the effect of living in a ZUS/ZRU/ZFU area on the labor market outcomes might be overestimated.

Table 5: The effects of living in a ZUS area on employment outcomes

Variables	Naive estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,192***	0,012	-0,093***	0,015	27 572
Time to first job	2,685***	0,193	1,112***	0,279	26 270
Discrimination feeling	0,101***	0,004	0,077***	0,010	27 572
Permanent contract	-0,108***	0,014	-0,051***	0,013	27 572
Full-time contract	-0,197***	0,014	-0,093***	0,016	27 572

Source: Generation Survey (2004), CEREQ.

Lecture : ATT represents the average treatment effect on the treated. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Table 6: The effects of living in a ZRU area on employment outcomes

Variables	Naive estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,207***	0,015	-0,103***	0,019	27 100
Time to first job	2,818***	0,242	1,262***	0,352	25 876
Discrimination feeling	0,127***	0,005	0,103***	0,013	27 100
Permanent contract	-0,132***	0,017	-0,069***	0,015	27 100
Full-time contract	-0,203***	0,018	-0,099***	0,020	27 100

Source: Generation Survey (2004), CEREQ.

Lecture : ATT represents the average treatment effect on the treated. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

¹²When we analyze the effect of living in a ZUS area, we consider all individuals: those who live in this type of neighborhood (which can also be a ZRU or a ZFU area) and those who do not live there. When we analyze the effect of living in a ZRU area, we exclude from the analysis those who live in ZUS neighborhoods that are not in ZRU or ZFU areas. Similarly, when we analyze the effect of living in a ZFU area, we exclude all individuals who live in a ZUS area or in a ZRU area but are not in a ZFU neighborhood. This ensures that, in the comparison sample, we have only people who do not live in these "priority neighborhoods".

Table 7: The effects of living in a ZFU area on employment outcomes

Variables	Naive estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,223***	0,022	-0,120***	0,028	26 697
Time to first job	3,160***	0,360	1,960***	0,527	25 517
Discrimination feeling	0,144***	0,007	0,124***	0,020	26 697
Permanent contract	-0,148***	0,025	-0,092***	0,021	26 697
Full-time contract	-0,222***	0,026	-0,137***	0,028	26 697

Source: Generation Survey (2004), CEREQ.

Lecture : ATT represents the average treatment effect on the treated. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Living in a ZUS/ZRU/ZFU area seems to have comparable effects on the probability of being employed and on the probability of having a full-time contract three years after leaving school. The fact of living in a ZUS/ZRU/ZFU decreases by almost 10 percentage points the fact of being in employment and the fact of having a full-time contract in 2007. This could be explained by the fact that when young people find jobs in 2007, most of the time they are full-time jobs. Similarly, living in a ZUS/ZRU/ZFU area increases the duration of access to a first job: the fact of living in a ZUS or a ZRU area increases the duration by one month; living in a ZFU area in 2004 increases even more strongly the duration of access to a first job (by almost 2 months). The “quality” of the neighborhood seems to have a strong influence on the access to employment.

Concerning the variable "permanent contract, the effects are slightly different depending on the residential location. Living in a ZUS area declines by 5 percentage points the probability of finding a job with a permanent contract, against a decrease of 7 percentage points for those living in a ZRU area and a decrease of nearly 10 percentage points for those living in a ZFU area. Neighborhood effects have an adverse effect on the access to employment but also on the access to better "quality" jobs when recruiters are more demanding.

These results are consistent with the findings of a number of articles that analyzed the effects of living in ZUS areas on the access to employment. For example, Couppié and Gasquet (2010) analyze the influence of the residence on the access to employment for young people during their first three years of working life. The authors find that young people who lived in "priority neighborhoods" at the end of their studies have more difficulties than other individuals in terms of access to employment. However, this effect differs by sex and origin. In another work, Couppié *et al.* (2011) analyze the wage gap between young people living in ZUS areas at the end of their studies and those who do not live in ZUS areas. They show that the first group of individuals is confined to low-skilled jobs and have lower wages. This is consistent with our finding: individuals in ZUS areas have a poorer access to quality jobs (permanent or full-time jobs). Finally, the fact that living in a “deprived neighborhood” increases the time required before finding a job is in accordance with the work of Gobillon *et al.* (2011). Their article shows that living in ZRU areas increases the unemployment duration, although the effect seems relatively small.

Finally, concerning the residence discrimination feeling, it increases more sharply as individuals live in a “deprived neighborhood”. The fact of living in a ZUS area increases the feeling

of discrimination by almost 8 percentage points, the fact of living in a ZRU area increases it by nearly 10 percentage points while the fact of living a ZFU area increases it by 12 percentage points. This first result seems to confirm the existence of a territorial discrimination phenomenon. This result may be questionable because it is a subjective assessment made by the individual. It is not certain that the individual did not find job because of his/her skills but because of other factors. As he/she knows that he/she comes from a "sensitive" neighborhood, he/she can interpret this failure as a result of the residence place.

Even though this result is subjective, it is nevertheless consistent with one of the few works in France on this issue. Duguet *et al.* (2011) develop a testing to assess the potential discrimination in access to job interviews for young people of foreign origin living in deprived towns of the Paris region. They find that the inhabitants of these towns are less likely to find jobs than individuals living in favorable towns. This result seems in line with the results shown here on the discrimination feeling.

We checked that results do not change when considering a second definition of an individual living in a ZUS area (see SECTION 3.2.2). We recall that, in this case, we assume that he/she lives in a ZUS area as soon as he/she has lived in this type of neighborhood in 2004. We do not look if he/she moves away between 2004 and 2007 or if he/she still lives there three years later.

The estimation results for this second definition (presented in the APPENDIX 7) also show significant effects associated to the fact of living in a ZUS/ZRU/ZFU area on outcome variables. These effects are generally weaker than those for the first definition of ZUS residence. This reflects the fact that with the second definition, some young people are still living in ZUS areas in 2007 and others do not. One can imagine that the second is an advantage on the labor market because they no longer carry the ZUS stigma or because they have more favorable observable or unobservable characteristics that led them moving away and which also influence their chances of finding an employment. Our first definition probably overestimates the effect of living in a ZUS area because individuals who have not moved away between 2004 and 2007 are likely to have more unfavorable characteristics.

4.2.3 Analysis of the "label effect" of living in a priority neighborhood

In this sub-section, we present the results obtained for young people living in most deprived neighborhoods and most favorable neighborhoods. We test the effects of living in a ZUS area on employment outcomes by comparing young people living in such a neighborhoods with young people living in neighborhoods that do not have the "priority neighborhood label" and which are close in terms of socio-economic characteristics. We believe that this strategy permits to test a "label effect" of the residence place. Restricting our analysis to the first blocks and last blocks of the common support of our propensity score distributions provides the advantage of testing the effect for very different types of neighborhoods (deprived and favorable).

Effects of living in a deprived neighborhood without the "ZUS label" on employment outcomes

In the sub-sample of the most deprived neighborhoods (blocks 8 and 9), we are working with 570 neighborhoods of which 462 are located in ZUS areas (81%). This sub-sample corresponds to 858 individuals of whom 708 live in ZUS areas (82%). As the number of treated largely exceeds the number of untreated, we rather test the effect of not having the "priority neighborhood label" on employment outcomes for young people living in these neighborhoods. Thus, we want to see if success on labor market is more important for individuals living in deprived neighborhoods without the label than individuals living in deprived neighborhoods with this particular label.

The table 8 describes the effect of living in ZUS areas on employment outcomes by using the sub-sample which corresponds to individuals living in neighborhoods belonging to the last two blocks of the common support of the propensity score distributions.

Table 8: The effects of not having a "ZUS label" on employment outcomes – Blocks 8 and 9

Variables	Naïve estimator	Std error	ATT	Std error	Obs.
Being in employment	0,035	0,044	0,048	0,056	839
Time to first job	-0,794	0,809	-0,823	1,077	735
Discrimination feeling	-0,066**	0,032	-0,076**	0,035	839
Permanent contract	0,041	0,035	0,007	0,049	839
Full-time contract	0,029	0,045	-0,021	0,059	839

Source: Generation Survey (2004), CEREQ.

Lecture : ATT represents the average treatment effect on the treated. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

The estimates on the most "deprived neighborhood" do not show any significant effect concerning employment outcomes. Being from a deprived neighborhood without the "ZUS label" is not more favorable than being from neighborhood with the same socio-economic characteristics and showing this label. Indeed, we observe that effects on probability of finding a job, a permanent contract or a full-time contract job are very weak (in comparison with the previous section) and are not significant at the 10% level. This suggests that taking into account differences in the socio-economic composition of the neighborhood tends to reduce the influence or the role of the place of residence. It is likely that significant effects previously shown in this paper can be mainly explained by peer effects or network effects (Bénabou, 1993; Crane, 1991; Reingold, 1999).

As the strategy proposed here seeks to control for these different effects in order to highlight the role of territorial discrimination (represented by this "label"), the absence of effect tends to show that territorial discrimination has no impact on the outcome variables considered (or does not exist). We can argue that employers does not make difference between young people that come from a priority neighborhood and others as soon as the neighborhood is perceived as deprived. It is not surprising because, if not, it would imply that they perfectly know location of priority neighborhood which is a very strong assumption ¹³.

¹³Furthermore, when a candidate applies for a job, he only mention his address not the fact that he lives in a ZUS area, for example.

However, these results are in conflict with feelings of young people. Indeed, the only significant observed is for the variable "discrimination feeling". It shows that young people living in neighborhoods without the "ZUS label" have less a feeling of discrimination related to place of residence than those living in neighborhoods with this label. It reveals that there is a gap between objective facts and perception or felts of individuals.

Effects of living in a favorable neighborhood with the "ZUS label" on employment outcomes

In the sub-sample of the most favorable neighborhoods (blocks 1, 2 and 3), we are working with 12 313 neighborhoods of which 98 are located in ZUS areas (0.8%). This sub-sample corresponds to 18 147 individuals of whom 156 live in ZUS areas (0.9%). In this case, we simply test the effect of living in a neighborhood considered as favorable (due to its propensity score) with the "priority neighborhood label compared to living in others favorable neighborhoods without this label.

The following table (Table 9) describes the effect of living in ZUS areas on employment outcomes by using the sub-sample which corresponds to individuals living in neighborhoods belonging to the first three blocks of the common support of the propensity score distributions, *ie* neighborhoods considered as favorable.

Table 9: The effects of having a "ZUS label" on employment outcomes – Blocks 1, 2 and 3

Variables	Naïve estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,063**	0,031	-0,059*	0,035	17 032
Time to first job	0,174	0,489	0,208	0,514	16063
Discrimination feeling	0,034***	0,009	0,034***	0,017	17 032
Permanent contract	-0,040	0,037	-0,033	0,036	17 032
Full-time contract	-0,068*	0,038	-0,060	0,039	17 032

Source: Generation Survey (2004), CEREQ.

Lecture : ATT represents the average treatment effect on the treated. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Contrary to the case where we focus on the most deprived neighborhoods, we observe some significant effects of the label on the probability of being in employment. Living in a ZUS area produces less adverse effects when working on this particular sample than the whole sample. We note that living in ZUS areas declines by nearly 6 percentage points the access to employment three years later against 10 percentage points for the results obtained on the whole sample. Once again, results for the others employment outcomes do not show any significant effect at the 10% level.

The magnitude of the observed effect for "being in employment" leads to two conclusions. First, the existence of an effect seems to prove a role of territorial discrimination on access to employment, as our selection process guarantees that neighborhoods are close in terms of socio-economic characteristics. Second, the observed effect, that is relatively weaker than for the whole sample, reveals an important role of the other neighborhood effects. Even if we are not able to quantify their importance.

Comparison of results for the two sub-sample suggest that territorial discrimination is most obvious for young people living in neighborhoods not too unfavorable. Comparing deprived neighborhoods with "ZUS label" and deprived neighborhoods without the label is inconclusive as it represent globally neighborhoods with unfavorable socio-economic characteristics. The label does not produce additional negative effect. However, as soon as the neighborhood is more favorable, the fact to send a negative signal seems prejudicial. This observation must be put into perspective as we do not observe any effect on the quality of job found or on duration to access to a first job.

Concerning the discrimination feeling related to place of residence, we still observe an effect of living in a neighborhood with (or without) the "ZUS" label. Young people from favorable neighborhoods feel a prejudice when they live in a ZUS area. One can expect that the feeling is more important when young people are located in favorable neighborhoods than when they are located in deprived neighborhoods, because in the second case neighborhoods are already sending a negative signal compared to other. However, results do not support this assumption. It is difficult to settle this question. As it corresponds to a subjective appreciation, we do not know if it betrays employers behavior, own feeling of young people or both.

4.3 Robustness check

Globally, these results proves the existence of neighborhood effects and, to a lesser extent, a role of territorial discrimination on employment outcomes. A significant bias could however exist as our econometric method does not control for unobservable characteristics (that may affect simultaneously the probability of living in ZUS/ZRU/ZFU areas and individual's labor market performance). Evaluating the effect of a "treatment" with selective matching methods supposes that the conditional independence assumption holds. But if the two groups of individuals (treated and untreated) differ on unobserved variables that simultaneously affect the likelihood of being treated and the outcome variables, then there may exist an endogeneity bias. We propose now a method that tries to control for this bias.

4.3.1 Results sensitivity to unobserved heterogeneity

Excepting individual and family characteristics (observable characteristics included in the analysis) some unobserved effects may explain the access to employment. To determine how an unobserved variable can affect the selection process, making the results of our estimates with selective matching methods insignificant, we use the method of sensitivity analysis proposed by Rosenbaum (2002).

The probability of being "treated" for an individual i with observable characteristics x_i can be written as follows:

$$P(x_i) = P(T_i = 1|x_i) = F(\beta x_i + \gamma u_i) \quad (8)$$

where u_i represents the unobserved variable and γ represents the effect of u_i on probability of being "treated". If there is no "hidden bias" then γ is equal to 0 and the probability of being

"treated" depends only on x_i . If this bias exists, then individuals with similar observable characteristics will show different probabilities of receiving the treatment. Aakvik (2001) proposes to simplify the analysis by considering the unobserved variable as a dichotomous variable, taking the value 0 (in the absence of bias) or the value 1 (in the presence of bias). This variable, e^γ , is used as a measure of the degree of departure from a situation that is free of hidden bias, with γ representing the effect of an unobserved variable on the probability of being treated. As shown by Rosenbaum (2002), the odds ratio that one of the two matched individuals receive the treatment has the following bounds:

$$\frac{1}{e^\gamma} \leq \frac{P(x_i)(1 - P(x_j))}{P(x_j)(1 - P(x_i))} \leq e^\gamma \quad (9)$$

Matched individuals have the same probability to be treated if and only if $e^\gamma = 1$. We increase the influence of e^γ to see if the results of the statistical analysis may be invalidated. For this, we use the statistical test of Mantel and Haenszel (1959). This test checks the null hypothesis of independence between two dichotomous variables (in our case the treatment variable and the variable of access to employment) in a population divided into several classes (we can imagine two classes: to be affected or not by an unobservable characteristic). This test assumes that any association between the dichotomous variables is not affected by the third variable.

Table 10 shows the results of the sensitivity analysis. P_{MH} is the significance level for the Mantel-Haenszel statistic. P_{MH}^+ is the significance level under the hypothesis of over-estimation of the treatment effect. In this case, increase the influence of an unobserved variable, which would increase the chances of being treated, does not bias the results. Values for P_{MH}^- show that under the assumption of underestimation of the treatment effect, the results are more significant for some thresholds of e^γ , where e^γ is the magnitude of the hidden bias. The results show that this selection process tends to underestimate the treatment effect (*ie* living in a ZUS area) on the access to employment. This is quite logical because given young people with the same x observable characteristics, if those most likely to live in ZUS area are less motivated (for example), then there is negative unobserved selection and the estimated treatment effects underestimate the true treatment effect.

Under the assumption of no hidden bias so then $e^\gamma = 1$ we find a significant treatment effect for all outcome variables. For $e^\gamma = 1.5$, we compare two individuals with the same x but differing in their odds of being treated by a factor of 1.5, or 50%. In this case our results are not sensitive to this level of selection bias. Globally, the positive effect of living in a ZUS area on the access to employment appears fairly robust to the possible presence of a negative selection bias on unobservables. We also conducted tests on the fact of finding a job with a permanent contract or with a full-time contract. Our second specification seems to be more prone to hidden bias. The critical threshold at which the findings of a negative effect become questionable is reached for a value of e^γ between 1.6 and 1.7. The negative effect of living in a ZUS area previously highlighted can be questioned when a unobserved variable varies the odds ratio of being treated between the two groups by a factor of 1.7. Concerning the two other specifications tested ("Being in employment" and "Full-time contract"), the extent of "hidden

bias" should be much higher. It should be close to 2.5 for the first and 2.1 for the second to question the effect of living in a ZUS area on employment outcomes.

Table 10: Sensitivity analysis to unobserved heterogeneity

Variables	e^γ	P_{MH}^+	P_{MH}^-
<i>Being in employment</i>	1	> 0,001	> 0,001
	2	> 0,001	> 0,001
	2,1	> 0,001	> 0,001
	2,2	> 0,001	0,002
	2,3	> 0,001	0,016
	2,4	> 0,001	0,071
	2,5	> 0,001	0,206
	2,6	> 0,001	0,421
<i>Permanent contract</i>	1	> 0,001	> 0,001
	1,5	> 0,001	0,005
	1,6	> 0,001	0,04
	1,7	> 0,001	0,167
	1,8	> 0,001	0,411
<i>Full-time contract</i>	1	> 0,001	> 0,001
	1,8	> 0,001	> 0,001
	1,9	> 0,001	0,006
	2	> 0,001	0,046
	2,1	> 0,001	0,189
2,2	> 0,001	0,454	

Source: Generation survey (2004), CEREQ.

Lecture: P_{MH} is the significance level for the Mantel-Haenszel statistic. For P_{MH}^+ , the hypothesis tested is the over-estimation of the treatment effect. For P_{MH}^- , the hypothesis tested is the under-estimation of the treatment effect.

Results seem quite robust to the presence of unobserved heterogeneity, although they reveal a certain weakness beyond a certain threshold. It is also important to note that the threshold represents the worst case scenarios. The value of 2.5, for example, does not necessarily mean that unobserved heterogeneity exists and that there is no effect of living in a ZUS area on being in employment. This means that the confidence interval for this purpose includes 0 if an unobserved variable varies the odds ratio of being "treated" between the two groups by a factor of 2.5. It is important to note that a value of 2.5 represents important value as we already control for a large number of variables. The results seem somewhat sensitive to a deviation from the situation where the conditional independence assumption holds. This requires a relatively prudence when interpreting these results.

4.3.2 A strategy to control for the endogeneity of residential location

Selective matching methods permit to control for selection bias on observables. It does not control for unobservable characteristics that might influence both residential location choice and access to employment. The existence of such variables is a potential source of endogeneity for the residential location variables. In other words, it is possible that individuals sort themselves into space according to unobserved characteristics, which also affect access to employment.

To control this bias, different strategies have been put forward in the literature as regressions with instrumental variables, regressions on panel data or quasi-experiments (see for example Dujardin *et al.*, 2009). Here, we choose to work on a sub-sample of individuals for which we can assume that the location choice is exogenous or quasi-exogenous.

We choose to restrict our analysis to young people who live with their parents at the time of the survey (three years after leaving school). This strategy has already been used by Case and Katz (1991) and O'Regan and Quigley (1996) when analyzing the role of neighborhood effects on access employment for young individuals. Dujardin *et al.* (2004, 2008) also use this method to analyze the role of urban organization in Brussels on the probability of being unemployed.

The idea is that young people do not choose their own place of residence, this decision being taken by their parents. The problem of unobservable characteristics that influence the choice of the place of residence does not arise for these particular young. Under these conditions, we can accept the assumption that the place of residence is exogenous for the young people. According to Dujardin *et al.* (2009), the limit of this strategy comes from the fact that by restricting the sample, we also introduce a selection bias: people retained are generally less than 25 years old and so they represent a particular population; this process makes us work on individuals with unusual characteristics since young people who have jobs are usually more likely to leave their family home.

Table 11: The effects of living in ZUS areas on employment outcomes – Young people living with their parents

Variables	Naive estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,142***	0,015	-0,076***	0,018	11 678
Time to first job	2,379***	0,266	1,140***	0,349	10 850
Discrimination feeling	0,113***	0,006	0,088***	0,012	11 678
Permanent contract	-0,069***	0,015	-0,037***	0,015	11 678
Full-time contract	-0,149***	0,017	-0,077***	0,019	11 678

Source: Generation Survey (2004), CEREQ.

Lecture : ATT represents the average treatment effect on the treated. ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

When we work only with young people living with their parents the sample is reduce to 11 678 observations. Among them 884 live in a ZUS area (8%). Results for these new estimations are presented in table 11. The simple comparison of the two groups of young people (living in ZUS areas or not) still shows significant differences with respect to our outcome variables ¹⁴. Deprived neighborhoods (ZUS areas), compared to other neighborhoods, show the worst performances regarding the access to employment for young people. The effect is also observed for the type of contract found (permanent or full-time contract). When we take into account differences in observable characteristics between individuals of the two samples (average treatment effect), we observe a significant effect of the fact of living in ZUS areas only for the different employment outcomes. Nevertheless, the values of the coefficients are less important than those when not controlling for the endogeneity of the residential location.

¹⁴We do not present the results for other types of neighborhood (ZRU/ZFU) because they remain significant and globally close to those obtained on the whole sample.

Without controlling for this bias, we overestimate the effect of the treatment (the effect of living in a ZUS area). A part of the observed effect was explained by the existence of unobservable characteristics, that determined the choice of location as well as the performance on the job market. This confirms the need to consider this type of bias. It also requires a relative prudence when reading the results when not taking into account this bias.

5 Conclusion

In this work, we analyzed the impact in the medium run of living in priority neighborhoods (ZUS, ZRU and ZFU areas) on professional careers of young people leaving school in 2004. Using the "Generation 2004" survey matched with two other datasets, we studied the effect of living in priority neighborhoods on several employment outcomes (being in employment three years after leaving school, the duration of getting a job, the quality of the employment found). We also try to test the existence of territorial discrimination in France. Our assumption is that the "label" of a priority neighborhood might influence in a negative way employers' decisions of recruiting young people. Thus, on the one hand, we analyzed the relationship between the fact of living in priority neighborhoods and the feeling of being discriminated for young people. And on the other hand, we try to verify the existence of "priority neighborhood label" by comparing young people living in priority neighborhoods with young people living in neighborhoods with similar observable characteristics, but which did not have the "priority neighborhood label". Propensity score matching methods were used in this paper.

Our results show that living in a priority neighborhood has negative effects for young people with regards to employment access and on the quality of the employment found. Living in a priority neighborhood decreases by 10 percentage points the fact of being in employment and the fact of having a full-time contact three years after leaving school. Also, we emphasize that living in priority neighborhoods increases the feeling of residential discrimination for young people. Secondly, we show that young people living in priority neighborhoods may have poorer employment outcomes in comparison with those inhabiting in neighborhoods with similar characteristics but which do not have a "priority neighborhood label". This result partially confirms the existence of territorial discrimination. Finally, several robustness checks were done (sensitivity analysis to unobservable variables, controlling for the endogeneity of the residential location) validating our previous results. Nevertheless taking into account the endogeneity of the residential location tends to reduce the estimated effects.

In terms of public policies, this means that residential location is an important determinant of labour market outcomes. In this context, a recommendation might be to develop and to promote social mixing. This recommendation is relevant only if some conditions are met: disadvantaged individuals lose utility by living with other members of their group and gain utility by residing with advantaged groups. Our work suggests that at least the first condition is verified in our data. If it is assumed that the second is also verified, then social mix can be approved. In France, such a policy requires measures such as increasing the offer of public housing in favorable neighborhoods. In the latter case, the French law SRU (Solidarity and Urban Renewal) that "encourages" some municipalities to have a threshold of 20% public

housing seems to be a step forward.

In addition, if we believe in territorial discrimination for inhabitants of priority neighborhoods, specific public policy actions are required in order to fight against. They may involve for example the destruction of buildings or the relocation of public housing. For example, the French National Agency for Urban Renewal (ANRU) has the main objective of supporting such urban projects in order to transform deprived neighborhoods. Recovering the image of priority neighborhoods can also go through the relocation of families; in this way, social mix can be improved.

References

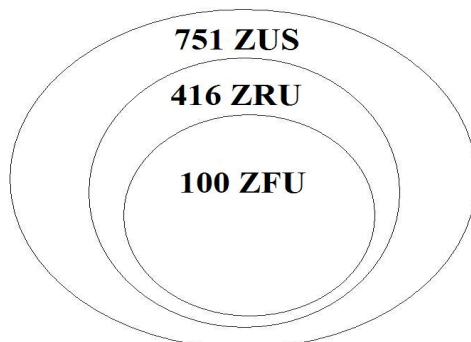
- [1] A. Aakvik. Bounding a matching estimator: The case of a norwegian training program. *Oxford Bulletin of Economics and Statistics*, 63:115–143, 2001.
- [2] K. Arrow. *Racial discrimination in economic life*, chapter Models of job discrimination, pages 83–102. Lexington Mass. : Lexington Books, 1972.
- [3] R. Benabou. Working of a city: Location, education and production. *Quarterly Journal of Economic*, 108:619–652, 1993.
- [4] M. Caliendo and S. Kopeinig. Some practical guidance for the implementation of propensity score matching. *IZA Discussion Paper*, 1588, 2005.
- [5] C. Case and L. Katz. The company you keep: The effects of family and neighborhood on disadvantaged youths. *NBER Working Papers*, 3705, 1991.
- [6] P. Charnoz. *ZUS, ZRU, ZFU : Le Pacte de Relance pour la Ville a-t-il eu un effet sur le chômage des habitants des "quartiers sensibles"?* PhD thesis, mémoire de M2, Ecole Normale Supérieure, 2006.
- [7] P. Choffel and E. Delattre. Habiter un quartier defavorisé: quels effets sur la durée du chômage ? *Premières informations et premières synthèses, DARES*, 43.1, 2003.
- [8] T. Couppié and C. Gasquet. Autonomie résidentielle, domiciliation dans un quartier sensible et insertion professionnelle : premiers éléments à partir des jeunes sortis de formation initiale en 1998. In *3èmes Rencontres Jeunes et Sociétés, Marseille*, 2007.
- [9] T. Couppié and C. Gasquet. Finir ses études dans une zone urbaine sensible : une inégalité également partagée au moment de l’insertion ? In *5èmes Rencontres Jeunes et Sociétés, Marseille.*, 2010.
- [10] T. Couppié, J-F. Giret, and T. Moullet. Lieu de résidence et discrimination salariale : le cas de jeunes habitant dans une zone urbaine sensible. *Economie et Statistique*, 433-434:47–70, 2010.
- [11] J. Crane. The epidemic theory of ghettos and neighbourhood effects on dropping out and teenage childbearing. *American Journal of Sociology*, 96:1226–1259, 1991.

- [12] R. Dietz. The estimation of neighborhood effects in the social sciences: An interdisciplinary approach. *Social Science Research*, 31:539–575, 2002.
- [13] J. DiNardino and J. Tobias. Nonparametric density and regression estimation ». *Journal of Economic Perspectives*, 15(4):11–28, 2001.
- [14] E. Duguet, N. Leandri, Y. L’Horty, and P. Petit. Are young french jobseekers of ethnic immigrant origin discriminated against ? a controlled experiment in the paris area. *Annales d’Economie et de Statistique*, 99-100:187–214, 2011.
- [15] C. Dujardin, D. Peeters, and I. Thomas. *Handbook of theoretical and quantitative Geography*, chapter Neighborhood effects and endogeneity issues, pages 29–71. Unil, Université de Lausanne, 2009.
- [16] C. Dujardin, H. Selod, and I. Thomas. Le chômage dans l’agglomération bruxelloise : une explication par la structure urbaine. *Revue d’Economie Régionale et Urbaine*, 1:3–28, 2004.
- [17] C. Dujardin, H. Selod, and I. Thomas. City structure and urban unemployment: the case of young adults in brussels. *Urban Studies*, 45(1):89–113, 2008.
- [18] D. Ginther, R. Haveman, and B. Wolfe. Neighborhood attributes as determinants of children’s outcomes: How robust are the relationships ? *The Journal of Human Resources*, 35(4):603–642, 2000.
- [19] L. Gobillon, T. Magnac, and H. Selod. The effect of location on finding a job in the paris region. *Journal of Applied Econometrics*, forthcoming, 2011.
- [20] H. Holzer. Informal job search and black youth unemployment. *American Economic Review*, 77(3):446–452, 1987.
- [21] H. Holzer. Search method used by unemployed youth. *Journal of Labor Economics*, 6:1–20, 1988.
- [22] K. O’Regan and M. Quigley. Spatial effects upon employment outcomes : the case of new jersey teenagers. *New England Economic Review*, pages 41–58, 1996.
- [23] E. Phelps. The statistical theory of racism and sexism. *American Economic Review*, 62(4):659–661, 1972.
- [24] R. Rathelot and P. Sillard. Zones franches urbaines : quels effets sur l’emploi salarié et les créations d’établissements ? *Economie et Statistique*, 415-416:81–96, 2009.
- [25] D. Reingold. Social networks and the employment problem of the urban poor. *Urban Studies*, 36:1907–1932, 1999.
- [26] P. Rosenbaum. *Observational Studies*. New York : Springer, 2002.
- [27] P. Rosenbaum and D. Rubin. The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1):41–55, 1983.

- [28] D. Rubin. Estimating causal effects of treatments in randomized and nonrandomized studies. *Journal of Educational Psychology*, 66(5):688–701, 1974.

Appendixes

APPENDIX 1: FITTING OF SENSITIVE URBAN ZONES



APPENDIX 2: DESCRIPTION OF THE ESTIMATED PROPENSITY SCORE IN REGION OF COMMON SUPPORT FOR NEIGHBORHOODS

Table 12: Estimated propensity score

Percentiles	Values
1%	0,001
10%	0,002
25%	0,003
50%	0,007
75%	0,029
90%	0,173
99%	0,946
Mean	0,068
Standard deviation	0,176
Observations	15 165

APPENDIX 3: CHARACTERISTICS OF THE DIFFERENT TYPES OF NEIGHBORHOODS

Table 13: Whole sample

Variables	All neighbor.	ZUS	ZRU	ZFU	non-ZUS
Unemployment rate	12,2%	24,5%	26,5%	27,1%	11,4%
% 25-65 year olds in work	78,7%	75,8%	74,3%	74%	78,9%
% blue-collars	15,6%	20,6%	21,7%	22,1%	15,2%
% indiv. with at most a lower sec. dipl.	63,7%	68%	69,9%	69,8%	63,4%
% 16-24 year olds in full-time educ.	76,7%	72,3%	70,9%	71,5%	77%
% households with 6 pers. or more	2,6%	7,1%	8,3%	9,3%	2,3%
% individuals of foreign nat.	4,7%	16,1%	16,4%	18,6%	4%
% of social housing	13,5%	57,3%	61,9%	64,3%	10,7%
Number of neighborhoods	17 337	1 049	707	302	16 288

Table 14: Sub-sample corresponding to the Blocks 8 and 9

Variables	All neighbor.	ZUS	non-ZUS
Unemployment rate	30,4%	30,9%	28,2%
% 25-65 year olds in work	73,8%	73,4%	75,7%
% blue-collars	23,9%	24,2%	22,8%
% indiv. with at most a lower sec. dipl.	71,6%	71,6%	71,7%
% 16-24 year olds in full-time educ.	69,4%	69,3%	70,2%
% households with 6 pers. or more	10,1%	10,6%	7,5%
% individuals of foreign nat.	21,6%	21,9%	20,1%
% social housing	76,9%	78,6%	70,2%
Number of neighborhoods	570	462	108

Table 15: Sub-sample corresponding to the Blocks 1, 2 and 3

Variables	All neighbor.	ZUS	non-ZUS
Unemployment rate	11,2%	13,5%	11,2%
% 25-65 year olds in work	78,9%	78,3%	78,9%
% blue-collars	14,7%	13,7%	14,7%
% indiv. with at most a lower sec. dipl.	62,3%	61,4%	62,3%
% 16-24 year olds in full-time educ.	77,9%	78,6%	77,9%
% households with 6 pers. or more	2,2%	2,3%	2,2%
% individuals of foreign nat.	3,4%	5,6%	3,4%
% social housing	7,8%	16,8%	7,8%
Number of neighborhoods	12 313	98	12 215

APPENDIX 4: DISTRIBUTION OF PROPENSITY SCORE FOR TREATED AND NON-TREATED INDIVIDUALS

Figure 1: Propensity score for individuals living in ZUS area or not

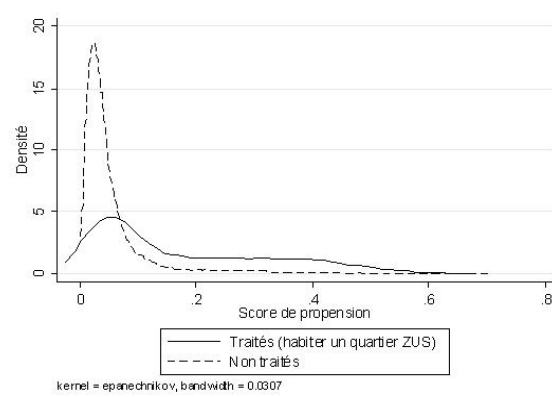


Figure 2: Propensity score for individuals living in ZRU area or not

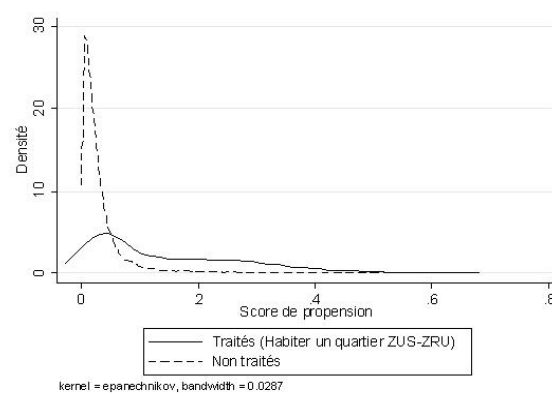
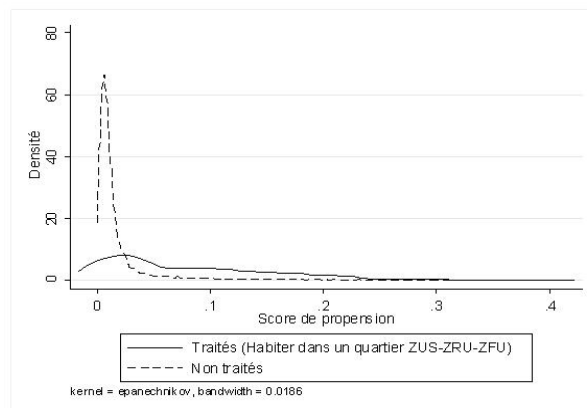


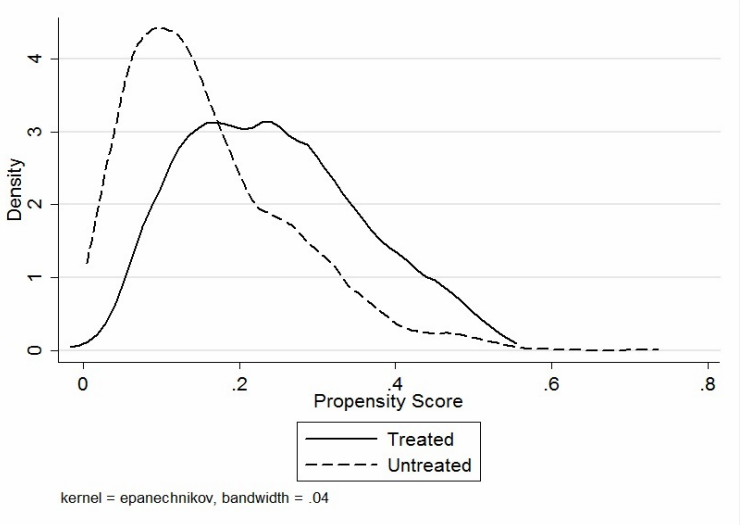
Figure 3: Propensity score for individuals living in ZFU area or not



Source: Generation survey 2004.

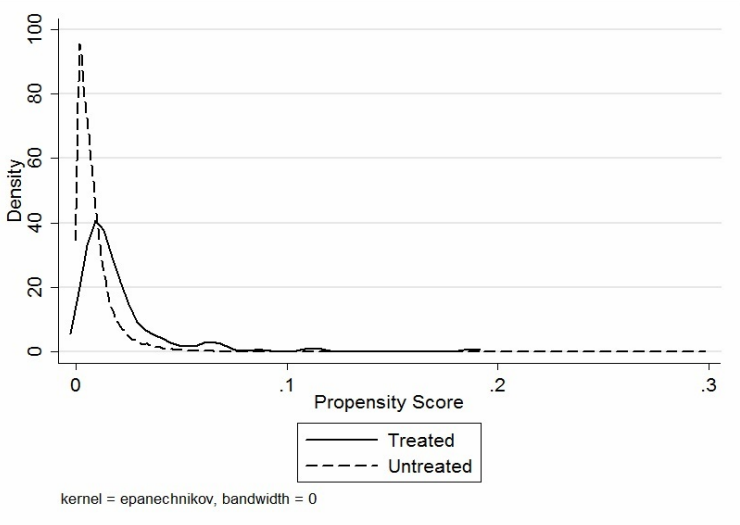
Notes: Sample of 27 572 individuals living in priority neighborhoods or not.

Figure 4: Propensity score for individuals in blocks 8 and 9



Source: Generation survey 2004.
Notes: Sample of 839 individuals living in ZUS area or not.

Figure 5: Propensity score for individuals in blocks 1, 2 and 3



Source: Generation survey 2004.
Notes: Sample of 17 032 individuals living in ZUS area or not.

APPENDIX 6: OTHERS ESTIMATIONS

Table 16: The effects of living in a ZUS area (second definition) on labor market outcomes

Variables	Naive estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,142***	0,009	-0,072***	0,012	27 572
Time to first job	1,958***	0,157	0,923***	0,212	26 270
Discrimination feeling	0,082***	0,003	0,066***	0,008	27 572
Permanent contract	-0,076***	0,011	-0,041***	0,011	27 572
Full-time contract	-0,151***	0,012	-0,080***	0,013	27 572

Source: Generation survey (2004), CEREQ.

Notes: ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Table 17: The effects of living in a ZRU area (second definition) on labor market outcomes

Variables	Naive estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,158***	0,011	-0,077***	0,015	26 974
Time to first job	2,122***	0,189	0,981***	0,259	25 751
Discrimination feeling	0,104***	0,004	0,087***	0,009	26 974
Permanent contract	-0,099***	0,013	-0,056***	0,013	26 974
Full-time contract	-0,162***	0,014	-0,084***	0,016	26 974

Source: Generation survey (2004), CEREQ.

Notes: ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.

Table 18: The effects of living in a ZFU area (second definition) on labor market outcomes

Variables	Naive estimator	Std error	ATT	Std error	Obs.
Being in employment	-0,161***	0,017	-0,089***	0,022	26 279
Time to first job	2,464***	0,287	1,489***	0,398	25 119
Discrimination feeling	0,135***	0,005	0,119***	0,016	26 279
Permanent contract	-0,111***	0,020	-0,071***	0,018	26 279
Full-time contract	-0,163***	0,021	-0,091***	0,023	26 279

Source: Generation survey (2004), CEREQ.

Notes: ***, ** and * denote significance at the 1%, 5% and 10% levels respectively.