Local Diversity and Employment Prospects

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Abstract

This work aims at determining whether and how the level of diversity of a community in terms of origins affects its members' employment prospects. Relying on detailed data from the French Labor Force Survey, I measure diversity at two geographic levels: the neighborhood and the local labor market. The correlation between diversity and employment varies accordingly: it is negative at the local level but positive at a larger geographic level. I then tackle the endogenous location selection issue in two ways. Regarding neighborhood diversity, I adopt the strategy developed by Bayer et al. (2008) which takes advantage of the very precise localization of the data. Concerning employment zone diversity, I rely on a more standard instrumental variable approach. After correcting for endogeneity, the positive large scale effect of diversity is driven down to zero, revealing that it was mostly due to self-selection, while the negative effect of local diversity is reinforced. Another key result is that diversity in terms of nationalities (a proxy for cultural diversity) matters more than diversity based on parents' origins (a proxy for ethnic diversity). These results reveal that local diversity may act as a barrier to communication, preventing job information transmission, and hence reducing employment probability.

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1 Introduction

Western economies are facing intensified flows of immigration due to trade development and economic integration, and consequently have to cope with increasingly mixed populations. This feature is particularly salient in the European Union in regards of the recent enlargement process. The economic and social implications of higher heterogeneity are therefore central issues in the current debate. In particular, public opinion is generally hostile to immigrants that are often perceived as a threat to job security and wages, although this is not clear from empirical research. In the latest paper on the topic, Ottaviano and Peri (2012) adopt a general equilibrium approach and show that the massive immigration to the US over the 1990-2004 period actually increased natives wages, contradicting the influential paper by Borjas (2003). In contrast to the large literature studying the economic impact of immigration on natives, papers looking at the labor market effect of diversity *per se* are very scarce. Using US cities data, Ottaviano and Peri (2006) jointly estimate a wage and a rent equations and find that diversity is positively associated to both variables. They conclude that diversity has a net positive impact on US-born workers' productivity. Using a similar setting, Prarolo et al. (2009) replicate these results for European regions. To my knowledge, these are the only two papers in the diversity literature dealing with labor market outcomes, although not directly with employment.

The present paper intends to fill this gap by assessing the impact of local diversity on individuals' employment prospects. It asks the following question: To what extent people living in heterogeneous neighborhoods have different employment probabilities than those living in more homogeneous areas? At the micro level, if different ethnic or cultural groups are hermetic to each other, in the sense that no interaction takes place across groups, then diversity can act as a barrier to communication and in particular to job information transmission. Given the importance of personal networks in the job search process (see Ioannides and Datcher Loury (2004)), diversity would therefore reduce the chance of finding a job. On the other hand, if communication across groups is not an issue, then mixing people conveying non-redundant pieces of information (e.g. due to different backgrounds) can certainly improve employment prospects. At a more macro level, diversity can affect employment probability through its impact on productivity, which is ambiguous as well. On the bright side, diversity can be beneficial to productivity due to complementarity in workers' skills (Lazear (1999)), the more so in developed countries (Alesina and La Ferrara (2005)). On the downside, heterogeneity can hinder productivity by preventing social capital formation (Coleman (1988)).[1] As we

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[1] Not only is the impact of diversity on productivity unclear, but the impact of productivity on employment is ambiguous as well: Nordhaus (2005) finds that more rapid productivity growth leads to increased rather than decreased employment in manufacturing, a sector that recently experienced a large employment decline. On the contrary, Michelis et al. (2013) find a strong negative relationship between TFP growth and labor

see from this brief discussion, the question of the role of diversity on employment is not trivial.

Dealing with this question using French data, this paper makes three contributions. First, the level of diversity is measured at two different geographic levels. As discussed above, diversity could impact employment prospects locally through networks and on a larger scale through productivity. In order to account for both effects, I compute diversity at a very local neighborhood level and at the employment zone level (local labor market). Not only is it the first time that various geographic scales for diversity are simultaneously considered, but it is also one of the first studies conducted at such disaggregated levels.[2] The results reveal that employment probability is negatively correlated with neighborhood diversity, but positively correlated with employment zone diversity, suggesting a negative effect through networks and a positive one through productivity.

Second, I rely on three alternative definitions of origins to measure diversity, namely nationality, birth country and parents' origins, while the existing literature mostly relies on ethno-linguistic and religious groups. The measure based on parents' origin encompasses first- and second-generation immigrants and is therefore more closely related to the standard ethnic classification of individuals. By contrast, defining kinship according to nationality introduces the notion of immigrants' integration through naturalization. This distinction allows me to draw conclusions on whether the cultural or the ethnic dimension of diversity prevails. An important finding of this paper is that diversity based on nationality has a larger impact than diversity based on birth country, which is itself more relevant than diversity based on parents' origins, suggesting a prominent role of cultural over ethnic diversity.

Third, I tackle the endogeneity issue that is pervasive in the literature on ethnic diversity. An important concern in the literature is that individuals have a preference for living close to their co-ethnics and thus tend to gather along ethnic lines, biasing any measure of the effect of diversity. Another issue is reverse causality that can arise if immigrants decide to settle in more economically dynamic areas. To deal with the endogeneity of local neighborhoods diversity, I follow Bayer et al. (2008) and assume that although households are able to select a rather precise area in which they want to live, they are, however, unable to pinpoint an exact neighborhood within this given area. Therefore, after controlling for sorting in a larger area, the assignment of individuals to a specific neighborhood is essentially random and provides a useful source of variation to identify the effect of diversity. As it turns out, the effect of local diversity on employment is corrected downward (it becomes more negative). The endogeneity of employment zones diversity is handled through a more traditional instrumental variable approach, where two different instruments are proposed. Following Card (2001) and Saiz (2007), I construct the predicted level of diversity in each employment zone based on the

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[2] An exception is Algan et al. (2013)

distribution of each origin group across employment zones in 1968 and the current number of individuals from each origin in France at the time of the study (2007-2010). An alternative and more innovative instrument is the level of diversity within the public housing tenants of the employment zone. It builds on Algan et al. (2013) who show that the allocation of households across public housing units in France does not take their origins or their preference for diversity into account, so that public housing diversity can be considered as exogenous. Interestingly, once employment zone diversity is instrumented using any of these two variables, its positive relationship with employment is driven down to zero, confirming the intuition that this was actually driven by selection.

The rest of the paper proceeds as follows. Section 2 discusses more extensively the channels through which diversity can affect employment prospects. Section 3 presents the data and the various measures of diversity. The relationship between diversity and employment status is investigated in Section 4. Section 5 is devoted to correcting for endogeneity. Section 6 provides some insights about the results. Section 7 concludes.

2   Diversity and employment prospects

The interest in the effect of diversity on economic performance and social peace has been rooted in economic research since the seminal paper by Easterly and Levine (1997) showing that Africa's high levels of ethnic diversity help understand its "tragic growth performance". The subsequent literature covers a very broad set of issues. Diversity is generally found to reduce public good provision, because the threat of sanction to punish defectors is not credible across groups, or because different groups do not share the same preferences and cannot agree on the type of public good to be produced. This result holds in developing countries and developed countries alike (see Miguel and Gugerty (2005) for Kenya, Alesina et al. (1999) for the US and Algan et al. (2013) for France).[3] Another trend of the literature focuses rather on the social impact of diversity, and shows that it is associated with lower participation to civic life or community activities (Alesina and Ferrara (2000), Costa and Kahn (2003)) and reduced trust (Alesina and La Ferrara (2002)).

The present paper focuses on employment and is therefore more closely related to the branch of the literature that studies productivity. At the macro level, diversity can affect employment through its effect on productivity. A large part of the literature supports the idea that diversity has a positive impact on diversity related to skills complementarity, that dominates the negative effects linked to coordination issues. Indeed, workers from different

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[3] An exception is Glennerster et al. (2013) who do not find any particular effect of diversity in Sierra Leone villages.

4

origins are more likely to have been exposed to different cultures and different school systems (especially if they come from different countries), acquiring different skills and learning different approaches to the same problem, so that their collaboration can increase productivity and facilitate innovation. To take a very concrete example, luxury shops in Paris tend to hire salespersons with foreign origins (e.g. Japanese) who will be more efficient attending to customers from these countries by being familiar to their language and customs. More formally, Hong and Page (2001) develop a model showing that team work may benefit more from low-skilled but cognitively diverse workers than from homogenous high-skilled workers. In a different theoretical setting, Lazear (1999) shows that when multicultural workers are complementary in the sense that they can exchange non-redundant and relevant information, the benefits from diversity offset its costs (e.g. barriers to communication).

Several recent papers also bring empirical support to the beneficial impact of diversity on productivity and economic performance more generally. Using data from 160 metropolitan areas in the US, Ottaviano and Peri (2006) jointly estimate a wage and a rent equations and find that diversity, measured in terms of birth countries, is positively associated to both variables. These results are robust to the inclusion of many confounding factors proxying for productivity and amenity shocks across cities, as well as to the instrumentation of diversity to correct for endogeneity. They conclude that diversity has a net positive impact on US-born workers' productivity. A similar methodology is adopted by Prarolo et al. (2009) who reach the same conclusion for European regions. Finally, Alesina et al. (2013) investigate the relationship between birth country-based diversity and economic development in a cross-section of countries. Potential endogeneity due to reverse causality is addressed through instrumental variable estimation. They compute a predicted measure of immigrants diversity by estimating a gravity model based on exogenous geographic and cultural bilateral variables. They find that while standard ethno-linguistic fractionalization is detrimental to economic success, the impact of diversity in terms of birth countries is positive, especially in more developed countries.[4]

At a more micro level, diversity can affect individuals' employment prospects through the channel of networks and job information transmission. There is considerable evidence that information transmission plays a key role on the labor market.[5] Many empirical studies conducted over various time periods and on diverse countries agree that relying on friends and family is a very popular job search method and that on average half of jobs are found through social networks (Corcoran et al. (1980), Granovetter (1995), Holzer (1988), Wahba and Zenou (2005)). Theoretically as well, Calvó-Armengol and Jackson (2004) show that employment probability increases both with the number of links an agent has, and with the employment

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[4]This paper also provides a comprehensive review of the literature on the costs and benefits of diversity.
[5]Ioannides and Datcher Loury (2004) and Ioannides and Topa (2010) provide comprehensive surveys on the topic.

5

rate in the individual's network. In particular, several papers focus on the role of ethnic and immigrant networks. A recent paper by Battu et al. (2011) shows that ethnic minorities in the UK rely extensively on personal networks when searching for a job, although this does not necessarily lead to better employment prospects. The sociology literature also emphasizes the importance of ethnic networks in business relations and entrepreneurship, through an increased capacity to cooperate due to common languages and values (Light and Rosenstein (1995), Light (2005)).

Because communication across ethnic groups may be hindered by a tendency to self-segregate, by different religious beliefs and culture, and above all by differences in the languages spoken, diversity may prevent network formation and information transmission, thus having a negative impact on individuals' labor market performances. This effect could be amplified if diversity exists at the neighborhood level, as networks tend to be very local (see for instance Wellman (1996)). In particular, a few recent studies have shown that local social interactions within neighborhoods do affect employment and wage outcomes. For instance, Weinberg et al. (2004) show that a one standard deviation increase in neighborhood employment is associated with a 6.1% increase in annual hours worked for adult males on average. Bayer et al. (2008) estimate that living in the same block increases by more than 33% the probability to work at the same location. In a paper dealing explicitly with ethnic networks, Patacchini and Zenou (2012) show that the individual probability of finding a job increases with the number of ties, but that the magnitude of the effect decreases with distance. To summarize, if individuals are unable to create social ties within their neighborhood because they live in a diverse environment, this might hinder their ability to search and find job through the network.

3   Data and descriptive statistics

The main dataset used in this paper is the French Labor Force Survey (*Enquête Emploi*, INSEE, hereafter the LFS), which has been conducted quarterly since 2003. One sixth of the sample is renewed each quarter, so that the survey takes the form of a quasi-panel, as each household is surveyed for six consecutive waves before leaving the sample. Each wave of the survey comprises about 72,000 respondents aged 15 years-old or older. The sampling strategy of the LFS makes it particularly valuable for studying neighborhood effects. To put it simply, France is divided into areas made up of twenty homes on average. The sample is then drawn from a random selection of these areas, in which all the households will be surveyed.[6] As a consequence, we are able to characterize the immediate neighborhood of each surveyed individual. In particular, it is possible to measure the precise level of diversity and the unemployment rate within these 20 households units.

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[6]Refer to INSEE documentation for more details on the sample composition and selection.

The LFS contains all the relevant information about individuals' labor market situation: employment status, wage, type of contract, tenure, job search methods and socio-economic category. It also provides detailed individual information, such as age, gender, education, and marital status. Individuals' ethnic background can be inferred from their birth country, their nationality, and their parents' origins. Because I am interested in individuals' employment status I restrict the sample to working-age individuals (16 to 65 years-old) and I drop the students. In addition, the information about parents which is used to characterize individuals' origins is mostly missing before 2007, I restrict my sample to the 2007 to 2010 period. Table 1 summarizes the main employment-related individual characteristics for this sub-sample. I then define three different measures of origins. Two measures are simply based on individuals' nationality and country of birth, while a third measure combines the nationality and birth country of both individuals' and their parents'. The survey contains two 28-categories variables describing individuals' nationality and birth country respectively, which are used as two different indicators of origin of their own.[7] The information about parents' nationality and birth country is given by four 9-categories variables, for each parent's (mother's and father's) nationality *at birth* and birth country.[8] This enables me to build a measure of origins that takes second generation immigrants into account. More precisely, for an individual to be sorted in a given group, it must be the case that at least one of his or her parents belongs to this group. For instance, a French person who is born in France but whose parents were born with a Maghrebian nationality is allocated to the "Maghreb" group. Note however that this third type of origins classification can contain at most 9 categories. Because the measure of diversity (see next paragraph) is sensitive to the number of categories used, the alternative measures of origins should contain the same number of categories for the sake of comparison. In addition, some of the groups considered, such as "Northern European", represent such small shares of the population living in France that I decide to aggregate them further. I eventually build three measures of origins based on nationality, birth country and individual and parents origins that are divided into the following 6 categories: France, Southern Europe, other European countries, Maghreb, other African countries and rest of the world. Table 2 describes the sample along the three dimensions of origins.

Using these various origins classifications, I am able to compute several measures of diversity. The level of diversity in a given area reflects the probability that two randomly drawn

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[7]The 28 possible nationalities or birth countries correspond to the following countries: France, Algeria, Tunisia, Morocco, Other African countries, Vietnam / Laos / Cambodia, Italy, Germany, Belgium, Netherlands, Luxembourg, Ireland, Denmark, United Kingdom, Greece, Spain, Portugal, Switzerland, Austria, Poland, Yugoslavia, Turkey, Norway, Sweden, other European countries (including former USSR), USA / Canada, Latin American countries and other countries.

[8]The 9 categories correspond to France, Northern Europe, Southern Europe, Eastern Europe, Maghreb, rest of Africa, Middle East, Vietnam / Laos / Cambodia and rest of the world.

individuals from the population belong to two different groups. Formally, it is computed using the standard fractionalization index used in the literature (see Alesina et al. (2003) for an extensive description):

$$DIV_j = \sum_{i=1}^{N} s_{ij} \left(1 - s_{ij}\right) = 1 - \sum_{i=1}^{N} s_{ij}^2 \tag{1}$$

where s_{ij} is the share of individuals from group i $(i=1, ..., N)$ in geographic area j. This index takes its minimum at 0 when the population living in area j is fully homogeneous, and it converges to 1 as the population heterogeneity increases. Note that DIV_j can increase for two reasons: it will increase with the number of groups, and it will increase the more equal the size of the groups.

In the context of this paper, the groups considered are alternatively nationalities, birth countries and parents' origins, as defined above. Looking at various measures of diversity enables me to capture various dimensions of diversity. I argue that parents' origins-based diversity is the best proxy for *ethnic* diversity as it is more likely to reflect color of skin. For instance, a person whose parents are Senegalese is very likely to be black, even though s/he is French and born in France. This measure of diversity is therefore the closest to the ethnic diversity used in the literature and in particular in the US. On the other hand, diversity based on nationality reflects *cultural* rather than *ethnic* diversity. Indeed, two individuals sharing the same nationality are more likely to speak a common language and to share other cultural traits. This can be true for two native individuals, as well as for naturalized French who spent some time in France, learning French before being naturalized. Given what precedes, it is then reasonable to rank birth country diversity in-between.

Let me now present the various types of geographic areas for which I assess diversity. The first type of area considered is the local neighborhood made of around twenty contiguous households (LFS sampling unit). Measuring diversity at such a local geographic level enables one to indirectly account for really local interactions between immediate neighbors and to test whether diversity acts as a barrier to job information transmission. The second area used to measure diversity is the employment zone, which is a local labor market. More precisely, it is a geographical area within which most of the labor force lives and works, and in which establishments can find most of the labor force necessary to occupy the offered jobs. There are about 300 employment zones in metropolitan France. Measuring diversity at a level corresponding to a consistent local labor market is particularly useful to challenge the idea that diversity increases productivity hence being beneficial at more aggregate levels.

Table 3 describes the levels of diversity prevailing in individuals' local neighborhoods and employment zones. It is immediate to see that diversity is the lowest when measured in terms

of nationalities, and the highest when computed based on individuals' and parents' origins, which is not surprising. Consider for instance an area made of three French individuals, one born in France from French parents (e.g. native French), one born in France from Vietnamese parents (e.g. second generation immigrant), and one born in Morocco from Moroccan parents (e.g. first generation immigrant). This population is completely homogeneous (DIV_j=0) if we consider the individuals' nationality only. However, diversity is larger (0.44) once birth countries are taken into account, and even more (0.67) once parents' origins are considered. Note also that employment zone diversity is slightly larger than neighborhood diversity, while the latter takes more extreme values (larger maxima) than the former.

4   Analysis

In this section, diversity is considered as exogenous, and its impact on employment status is estimated through the following equation:

$$EMP_{ijt} = \alpha + \beta DIV_{jt} + \eta Z_{jt} + \gamma X_{it} + \phi_g + \phi_t + \varepsilon_{ij} \tag{2}$$

where EMP_{ijt} is the employment status of individual i living in area j at time t, DIV_{jt} is the level of diversity in area j at time t, Z_{jt} is a vector of characteristics of area j at time t, and X_{it} is a set of individual control variables. I also include geographic fixed effects ϕ_g, generally *départements* fixed effects, along with time fixed effects ϕ_t (quarter dummies). Finally, ε_{ij} is an error term. The main coefficient of interest is β. Individuals' employment status can either be *employed, unemployed* or *inactive.* In what follows, the dependent variable used will be a dummy variable equal to 1 if the individual is employed, and 0 otherwise (unemployed or inactive).[9] The results presented in this section derive from OLS estimates, with robust standard errors clustered at the neighborhood level. Logistic regressions lead to qualitatively similar results, but OLS estimates are displayed for simplicity. At some point, multinomial logit estimates will be presented, to take into account the three possible employment statuses, without altering the main result.

The various measures of diversity (nationality-based, birth country-based and parents' origin-based) are included separately, in different regressions. However, both neighborhood and employment zone diversity (based on the same origin groups) might be included in a given regression. The set of individual controls X_{it} comprises the standard socio-demographic variables: age (quadratic form), gender, origin, education, socio-economic category and potential experience (quadratic function). The origin variable can take 6 different values: France, South

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[9]An alternative dummy variable considered takes value 1 if the individual is employed, and 0 if s/he is unemployed, letting aside inactive individuals. Using this alternative dependent variable does not significantly alter the estimated coefficients.

Europe, rest of Europe, Maghreb, rest of Africa and rest of the world. Specifically, I alternatively include nationality, birth country and parents-based origin indicators when diversity is measured based on nationality, birth country and parents' origin respectively. The education variable describes the highest degree obtained by the individual, which can be one of the following: *No diploma*, end of junior high school degree (9th grade) (*BEPC*), early vocational training degree (*CAP*), *Technical degree*, technical or vocational senior high school degree (*Tech. & Pro. Baccalauréat*), general senior high school degree (*Baccalauréat*), *Undergraduate* diploma (two years after the *Baccalauréat*), *Bachelor's* degree (three years after the *Baccalauréat*), *Graduate* diploma (four years after the *Baccalauréat*), and higher degree (*Master's & PhD*). Finally, there are 6 possible socio-economic categories: *Farmer*, *Craftsman or Shopkeeper*, *Executive* or other high position, *Intermediate* occupation, *Employee* and *(Factory) worker*. Potential experience is measured as the number of years since the highest degree was awarded. Finally, I also control for the unemployment rate prevailing in an individual's neighborhood, so as to account for peer effects. Note that a given individual is excluded when computing the unemployment rate in his/her neighborhood.

Table 4 presents the estimates obtained from regressing the employment dummy on neighborhood-level and employment zone-level diversity based on nationality. Each column corresponds to an alternative specification, starting from no control in column 1 to the full set of controls in column 4. The sample is restricted to the non-student, working-age population (16 to 65 years-old individuals). In addition, I keep the first observation of each individual, so that an individual appears only once in the sample.[10] The estimates reported in the first column directly reveal that local diversity is negatively associated to the probability of being employed, while the correlation with employment zone diversity is positive.[11] These results seem to be in line with the idea that diversity can have an adverse effect on job finding locally by preventing communication, but that at a more aggregate level, diversity has positive effect on productivity and hence on employment probability. An alternative interpretation could be that when diversity is high, individual's networks lie in a larger area than their direct neighborhood. The estimates presented in column 2 are obtained controlling for the set of individual characteristics. The coefficients for the two measures of diversity are significantly reduced (in absolute terms), but we still have a negative coefficient for neighborhood diversity and a positive one for employment zone diversity. Turning to individuals' nationality, it is quite interesting to see that South European perform better than French in terms of employment, while individuals of any other nationality are more likely to be unemployed or inactive than French. The positive coefficient of South European can be attributed to Portuguese who

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[10]The panel aspect of the data is ignored for the time being.

[11]This is also true when local and employment zone diversity are included in separate regressions. In this case, both coefficients are smaller (in absolute terms), but are still significant at the 1% level.

have a much lower unemployment rate than France average. Coefficients for education levels, socio-economic categories, gender, age and experience all have the expected signs. Column 3 adds quarters and *départements* fixed effects to the previous specification. The most notable change is for employment zone diversity which is reduced further. Finally, the results displayed in column 4 are obtained when neighborhood unemployment rate is added to the other controls. Including this variable significantly decreases (in absolute terms) the estimated effect of diversity, especially that of neighborhood diversity. Obviously, the coefficient for local unemployment rate is strongly negative.

The estimated effects of the various types of diversity are summarized in Table 5. Each column corresponds to a different specification, as in Table 4. The first two lines display the estimates for nationality-based diversity that were already shown in the previous table. The second and third sets of estimates correspond to birth country- and parents' origin-based diversity. As previously, we observe that the coefficient is always negative for neighborhood diversity, and always positive for employment zone diversity, no matter how diversity is measured. Note also that the negative effect of local neighborhood diversity always dominates the positive effect of employment zone diversity, revealing that close neighbors are more important than further neighbors when it comes to job finding. A substantial result emerges from comparing the coefficients for the various measures of diversity. In any specification, the estimated effect of nationality-based diversity is larger (in absolute terms) than that of birth country-based diversity, which is also larger than parents' origins-based diversity. To put it differently, living in a context where people have different nationalities matters more for employment than living in a context where people were born in different countries, and even more than living close to people whose parents are from different origins. As discussed in the previous section, parents' origins are more likely to reflect ethnicity than nationality is, the latter being rather associated to common values and language. A direct interpretation of the results is therefore that neighborhood diversity lowers the probability of employment because of cultural differences, most likely including language differences, rather than ethnic differences. This reinforces the intuition that diversity affects job finding by limiting job information transmission between neighbors.

Finally, Table 6 reports the estimates for the various types of diversity obtained with multinomial logits. This enables me to look at the effect of diversity on the three possible employment statuses. The two results put forward in the preceding tables hold in this case. First, living in a more diverse neighborhood reduces one's employment prospects, while the effect of living in a more diverse employment zone goes in the opposite direction. Second, cultural diversity, embedded by diversity based on nationality matters more than ethnic diversity, embedded by parents' origins diversity. The additional information contained in this

11

table is that when neighborhood diversity is found to decrease employment probability, it corresponds to an increase in both unemployment and inactivity, the former being two to three times larger than the former.

5 Results with endogenous diversity

The analysis presented in the previous section assumes that diversity is exogenous. However, there are several reasons to suspect that diversity might actually be endogenous. First, individuals who have a taste for diversity might both self-select into high diversity areas and be more able or willing to communicate with their neighbors. In this case, people living in more diverse area should be more likely to communicate with each other and the negative effect found previously would be overestimated (less negative than the true effect). Reverse causality could also be a problem if immigrants are attracted by more economically dynamic places, where jobs are more abundant. The issue of endogeneity related to the non-random location of individuals is addressed in this section.

5.1 Local neighborhood diversity: a local approach

The first part of this section deals with the endogeneity of local neighborhoods (*aires*) diversity. The approach adopted here builds on the very local nature of the data. It follows Bayer et al. (2008) who study the role of neighbors on work location. The idea is that although households are able to select a given area in which they want to live, they are, however, unable to select a precise neighborhood within this given area. This assumption means that even if households are able to choose a given residential area, there will not be any correlation in unobserved factors affecting employment probability among individuals living in the same neighborhood within the larger selected area.

Let me now present a few arguments supporting this assumption. First, because the housing market is very tight, it is reasonable to think that an individual targeting a given area is very unlikely to have a choice over the precise neighborhood where s/he will end up in this area. This would indeed require that at least one housing unit satisfying the other decision criteria of the individual (e.g. size) be vacant in each of the neighborhoods within the target area at the time when the individual is searching a new place. A second consideration is that it may be difficult for prospecting individuals to identify neighborhood-by-neighborhood variation in neighbors and contextual characteristics, prior to moving into the neighborhood. To put it differently, although the individual may have a realistic ex-ante view on the characteristics of the targeted area, it is less likely that s/he is actually able to identify differences in these characteristics across the various neighborhoods of the area. This is particularly

reasonable when the neighborhood considered consists in about twenty households. Finally, the neighborhoods studied here (the labor force survey units called *aires*) do not correspond to any administrative or official frontiers. People do not know where the borders are, and more generally do not even know what an *aire* is, as it is only used as the sampling unit of the LFS. For those reasons, it is close to impossible that French households purposely decide to live in a given *aire* rather than the next one. All these arguments support the validity of the assumption that there should be no correlation in unobserved factors affecting employment among neighbors living in the same neighborhood (*aire*) within the larger targeted area.

As a consequence, once we control for the characteristics of the larger area selected by the individual, the remaining spatial variance of diversity across neighborhoods within the larger area is supposed to be exogenous. This is done through the inclusion of fixed effects of larger areas than the neighborhood under study (*aire*). Yet, one cannot know for sure which is the larger area initially selected by an individual prior to moving in a new home. I therefore run several regressions where I successively control for smaller and smaller areas fixed effects. The results are summarized in Table 7, which reports the coefficients for local neighborhood diversity. Each column corresponds to a separate regression, with the full specification, but controlling for the different larger areas fixed effects. Note also that as I want to focus on local neighborhood diversity here, I exclude employment zone diversity from these regressions.[12] In the first column, I control for *départements* characteristics, as in the regressions presented in the previous section. As *départements* are quite large areas, it is very likely that individuals actually target a more precise location. Hence, I control for employment zone fixed effects in column 2. We can see that the coefficients are slightly more negative than in the *département* fixed effects specification, comforting the idea that the previous estimates of neighborhood diversity were indeed overestimated. Employment zones still being rather large areas, I go one step further and include municipalities (i.e. cities) fixed effects in column 3. In particular, the *arrondissements* of Paris, Lyon and Marseille are municipalities of their own. Again, the estimated effects of diversity are even lower than in the previous set of regressions, as we control for the characteristics of a more precise area in which individuals are more likely to self-select. I finally control for the characteristics of the *sector* where the individual lives, which is the smallest identifiable area after the *aire* (the 20 homes neighborhoods of interest in this paper). More precisely, a sector is an area delimited by topographical elements such as streets, roads, railways and rivers, containing between 120 and 240 homes and hence between 6 and 11 *aires*, out of which 6 are randomly selected to be included in the labor force survey

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[12]The coefficients for local neighborhood diversity are slightly larger when I control for employment zone diversity, but the changes related to the inclusion of alternative large neighborhood fixed effects are similar. On the other hand, the coefficients for employment zone diversity lose their significance once fixed effects for smaller areas are included. This reinforces the intuition that the naive estimates presented in the previous section were actually upward biased. This is addressed in the following subsection.

sample over its total lifespan. The last column reports the estimates of diversity when *sector* fixed effects are included. The estimates are still significantly negative, but are not lower than with the municipalities fixed effects. All in all, these results confirm that local diversity has indeed a strong negative causal impact on the probability to be employed, and that, if anything, this effect was underestimated in the previous section.

5.2 Employment zone diversity: an instrumental variable approach

The second part of this section deals with the endogeneity of employment zones diversity. Because employment zones are quite large areas, the assumption made in the previous sub-section cannot hold and the above strategy cannot be applied. Instead, I will rely on more standard instrumental variable estimation. A plausible instrument should be correlated with employment zone level of diversity (e.g. employment zone population composition), but uncorrelated to labor market outcomes. In what follows, I propose two different instruments.

The first instrument relies on the "shift-share" methodology initiated by Card (2001) and more recently used by Saiz (2007) and Ottaviano and Peri (2006) in a setting close to this paper's. It builds on the idea that new migrants to a country tend to settle where former migrants from the same origin previously settled, i.e. ethnic enclaves (Munshi (2003), Winters et al. (2001)). Using past settlements of immigrants from various countries across French employment zones, it is possible to construct a predicted measure of current diversity in each employment zone. More precisely, I use the 1968 population census data to compute the distribution of each origin group across French employment zones. Because employment zones did not exist in 1968, and because their frontiers evolved over time, I apply the 2010 employment zones borders to the 1968 population. The origin groups considered are limited by the information contained in the 1968 census. In particular, no information about parents is available. I alternatively rely on nationalities and birth countries, grouped into the six categories defined previously. Then, for each origin group, I apply the 1968 distribution of groups across employment zones to the current (2007 to 2010) total population in France. Doing so, I compute the expected number of individuals from each origin in each employment zone, solely based on the ethnic enclaves pull factor. From this, I can deduce the predicted composition of each employment zone population. Once the predicted shares of each group are computed, I can eventually construct the predicted level of diversity in each employment zone over the 2007 to 2010 period. By construction, the predicted measure of diversity depends only on 1968 population settlements and not on any employment zone-specific shock (e.g. productivity shock), and can thus be used to instrument actual diversity. A more formal description how the predicted level of diversity is computed can be found in Appendix A.

14

The alternative instrument is more innovative and builds on Algan et al. (2013). In this paper, the authors provide evidence that the allocation of households across public housing units in France does not take their origins or their preference for diversity into account, so that diversity can be considered as exogenous within the public housing sector. Not only do legal rules prohibit housing allocation based on ethnic backgrounds, but the characteristics of the public housing sector, which is very tight and highly regulated, also make it very complicated to bypass the law in practice. In addition to presenting these general arguments, the authors conduct a variety of formal statistical tests to verify the absence of self-sorting on ethnic characteristics. In particular, they show that the observed spatial distribution of residents across public housing blocks is not statistically different from a random distribution. Now that the exogeneity of diversity is acknowledged, I argue that the level of diversity within the public housing sector of a given area is necessarily correlated to the global level of diversity of this area. Indeed, because the public housing population is part of the total population, fractionalization based only on this sub-population is mechanically proportional to fractionalization based on the population as a whole. Also, it is reasonable to think that individuals living in the private housing market, and who are therefore less constrained upon their location choice, are influenced by the composition of the public housing population. Otherwise stated, people from a given group might be attracted by an area where some of their co-ethnics were located through the public housing allocation process, so that diversity in the area is likely to reflect diversity in the area's public housing sector. In a nutshell, public housing diversity can be considered as exogenous, and it is correlated to general diversity both mechanically and through a magnet effect on immigrants living in the private sector. It can therefore reasonably be used to instrument the general level of diversity.

I now estimate the effect of diversity on employment status using a two-stage least square procedure, where the two instrumental variables described above are alternatively employed. Aside from the inclusion of an instrument, the specification corresponds to the full specification presented in Section 4, where I control for individual characteristics, local neighborhood unemployment, and *département* fixed effects. The results are summarized in Table 8, where I only report the coefficients and statistics of interest.[13] For the sake of comparability between OLS and IV estimates, I report the OLS estimates in the first column. Column 2 displays the results obtained using the predicted measure of employment zone diversity as an instrument for employment zone diversity. More precisely, in the first part of the table, which deals with diversity based on nationalities, the predicted diversity is also based on nationalities. In the second part of the table dealing with birth country-based diversity, I use the predicted diversity based on birth countries instead.[14] In both cases, we observe that the coefficient

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[13]The coefficients of the other variables are almost unchanged, and are available upon request.

[14]Given that I do not have any information about parents' origins in the 1968 census, I am unable to

15

for employment zone diversity loses its significance once it is instrumented by the predicted level of diversity. The magnitude of the coefficient drops significantly and is driven down to zero (especially in the birth country regression), so that the lack of significance is not just a consequence of larger standard errors. The first-stage statistics reported at the bottom of Table 8 illustrate the strength of the excluded instrument. The F-statistics testing the hypothesis that the excluded instrument is equal to zero in the first stage are much larger than the rule-of-thumb value of 10 indicated by the literature on weak instruments (e.g. **??**). In addition, the partial R^2 confirm the large correlation between the excluded instrument and the endogenous variable. The results obtained using the second instrument, namely diversity within the public housing sector of the employment zones, are reported in column 3. The first-stage statistics also reveal that this instrument is strong, and its use leads to the same results as with the first instrument: the coefficient for employment zone diversity is basically annihilated in the second stage.[15] To summarize, these results show that employment zone diversity does not have any causal impact individuals' employment status. This confirms the suspicion that the naive estimates derived in the previous section were upwardly biased, due to a selection of immigrants into more economically dynamic areas.

6 Interpretation of the results

So far, I have shown that there is a positive relationship between diversity and individuals' employment probability at the employment zone level, but that it is merely due to self-selection, and does not correspond to any causal relationship from the former to the latter. By contrast, I have also established that living in a diverse neighborhood actually implies a lower employment probability. This section gives an attempt to understand why local diversity reduces individuals' employment prospects. As mentioned at the beginning of the paper, one of the channels that come to mind when thinking about the relationship between neighborhood diversity and employment is the channel of communication and job information transmission between agents. Specifically, if neighbors from different origins do not communicate, e.g. because they do not speak the same language, then information about job opportunities or about how to register to an employment agency does not circulate across groups. One of the results obtained in this paper, namely that the negative effect of neighborhood diversity is stronger for nationality-based diversity than for birth country- or parents' origin-based diversity is a

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compute the predicted level of diversity based on this particular measure of origins. As a consequence, I have alternatively instrumented parents' origins-based diversity by the predicted level of diversity based on nationality and on birth country. The results are comparable to those reported in the table for the other measures of diversity, and are available upon request.

[15]A comment on local neighborhood diversity is in order here. As noted in the previous subsection, the estimates reported in Table 8 are likely to be biased, as we only control for *département* fixed effects. However, we already know that correcting for this bias by the introduction of smaller area fixed effects (e.g. municipality) reduces these coefficient further.

first evidence supporting this intuition.

In order to address this question more formally, I look at the correlation between local diversity and the nature of neighborhood relationships using the 2002 French Housing Survey. Surveyed individuals are asked to qualify the relationships with their neighbors, which can either be *good*, *average*, *bad*, or *nonexistent*. In addition, I know the precise (block level) place of living of the individuals, and I am able to match it with representative block level measures of diversity computed using the 1999 population census. The results of multinomial logit regressions of the quality of neighborhood relationships on neighborhood diversity are presented in Table 9. Each line corresponds to a separate regression: the first line displays the estimated coefficients of diversity based on nationality at birth, those for birth country-based diversity being reported in the second line. Each regression controls for individual characteristics (age, gender, origin, employment status, education, household income), block level unemployment rate, department fixed effects and a detailed indicator of the social and economic composition of neighborhood in 27 categories.[16] The results reveal that individuals living in more diverse neighborhoods are less likely to report having good relationships with their neighbors. In particular, they are more likely to report having bad relationships than average relationships than no relationship at all. These simple results tend to support the idea that communication can be hindered in more diverse neighborhoods due to the poor quality of the relationships between neighbors.

An alternative test of this intuition is to see how employment status is affected by the presence of people from the same origin group. Presumably, if the negative effect of neighborhood diversity is due to limited information transmission across groups, then living close to people from the same origin should conversely be related to better employment prospects. Using the LFS data, I compute, for each individual, the share of the local neighborhood population belonging to the same origin group (excluding the reference individual from the computation). I then run simple OLS regressions of the employment status dummy used in Sections 4 and 5 on this variable, using the same set of controls as in the full specification. However, because I want to avoid the bias due to endogenous location selection, I include municipalities rather than *département* fixed effects. The results are presented in Table 10. The estimates presented in Column 1 show that the larger the share of neighbors from one's own origin group, the higher one's employment probability. This is especially true when the individual's nationality determines his/her origin group. To put it differently, when communication is free from cultural or language barriers with a larger share of individuals, employment prospects are improved. Mechanically, more diversity implies smaller group shares, contributing to the

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[16]The socio-economic classification of French neighborhoods into 27 groups is realized by Martin-Houssart and Tabard (2002).

negative effect of diversity. As a matter of fact, once we control for neighborhood diversity in column 2, the estimates of the share of people from the same group are strongly reduced (and lose their significance except for nationality).

A more direct and natural way to dig into the hypothesis that job information transmission bridges the gap between diversity and employment, is to focus on the role of personal networks in job search and job finding. The LFS data first provides information about the methods used by individuals who are looking for a job. Job seekers, whether unemployed or not can indicate which methods they use among 15 possible methods. For the purpose of the present study, I focus on the use of friends and family network as a job search method. I consider two variables: a dummy indicating whether the job seeker relies on personal networks or not, possibly combined with other job search methods and a dummy equal to one if the person uses exclusively his/her network. Simple OLS regressions including the full set of controls used throughout the paper (individual characteristics including employment status, neighborhood unemployment rate, quarter and municipality fixed effects), reveal that neighborhood diversity does not relate to these variables, as shown in Table 11. Yet, individuals' origin matter to some extent in explaining the use of networks to search for a job. People with Mediterranean, Maghrebian and other African origins (taking 2nd generation into account) are more likely to rely on personal networks than natives (column 3). Interestingly, European (other than South European) and African citizens are also more likely to rely exclusively on networks (column 4), revealing a low level of integration for those particular groups. For those minority groups that heavily rely on networks to look for jobs, living in more diverse areas and hence being cut from the bulk of their friends and family might therefore hinder their job search efforts.

Alternatively, the LFS asks employed workers to indicate the main channel through which they found their current job. I build a variable equal to 1 if the individual found his/her job through personal contacts, and 0 otherwise, which I regress on diversity using the same specification as for job search methods. Table 12 reports the estimates of neighborhood diversity, which do not significantly differ from zero, suggesting that living in a more diverse environment do not influence the chance to find a job through contacts. However, any employed foreigner is more likely to have found his/her job using networks than French citizens (column 1). This is especially true for individuals of South European and Rest of the World nationalities. The coefficients decrease (or even vanish) as other measures of origins are considered, suggesting that networks are particularly helpful for the least integrated people, i.e. those who are of foreign origin but who have not yet been naturalized. Although these results are to be interpreted with caution because they do not correct for selection and do not control for the search methods that were actually used, they suggest that friends and family network

is an important vector of employment for foreign individuals. Therefore, even if diversity is not directly involved in the use of networks to search and find jobs, it might still be an issue for minorities if they live in diverse areas, isolated from the core of their network.

7 Conclusion

The findings of this paper bring new insights to the literature on diversity. First, measuring diversity based on various definitions of origins reveals that diversity in terms of nationalities matters more than diversity in terms of parents origins. This is a key result, as it means that diversity of origins plays a role through the variety of cultures and languages rather than through ethnic diversity *per se*. This speaks in favor of the idea that diversity affects employment prospects by altering job information transmission. Second, measuring diversity at different geographic levels reveals that this effect varies with the scale used. Neighborhood diversity reduces employment prospects, while employment zone diversity is neutral, after correcting the biases due to endogenous sorting. This implies that the mechanisms through which diversity hinders employment at a local level are counterbalanced at a more aggregate level. In particular, job seekers might be unable to develop efficient networks in their own neighborhood because of diversity, but they might instead rely on a network established in a larger area. More generally, this work calls for a new approach of the literature on diversity, as it shows that (i) the notion of diversity hides various aspects that can influence the outcome considered in different ways, and that (ii) the effect of diversity can vary according to the geographical scale considered.

Although part of this paper is devoted to testing the hypothesis that the negative impact of local diversity on employment prospects is related to job information transmission, much remains to be done in this direction. In addition, a natural subsequent question is that of the quality of the job found in terms of tenure or wage for instance. These issues remain open for future research.

Table 1: Sample Description: 16-65 y.o. individuals, 2007-2010

	[Min-Max]	Mean	(Std Dev)
Male	[0-1]	49.30	(50.00)
Age	[16-65]	42.92	(12.71)
Experience (years)	[0-63]	24.00	(13.82)
Employment Status			
Employed	[0-1]	0.714	(0.452)
Unemployed	[0-1]	0.066	(0.249)
Inactive	[0-1]	0.220	(0.414)
Socio-Economic Category			
Farmer	[0-1]	0.018	(0.133)
Craftsman, shopkeeper	[0-1]	0.059	(0.236)
Executive or other high position	[0-1]	0.143	(0.350)
Intermediate occupation	[0-1]	0.225	(0.417)
Employee	[0-1]	0.304	(0.460)
(Factory) worker	[0-1]	0.240	(0.427)
Unemployed never employed	[0-1]	0.011	(0.106)
Level of Education			
Master, PhD, schools	[0-1]	0.077	(0.267)
Graduate (bac+4)	[0-1]	0.030	(0.170)
Under-graduate (bac+3)	[0-1]	0.037	(0.188)
Lower under-grad (bac+2)	[0-1]	0.125	(0.331)
General Baccalaureat	[0-1]	0.081	(0.272)
Techno. / Pro. Baccalaureat	[0-1]	0.075	(0.263)
bretech	[0-1]	0.020	(0.140)
cap	[0-1]	0.253	(0.435)
bepc	[0-1]	0.082	(0.274)
No Diploma	[0-1]	0.222	(0.415)
Employed workers characteristics			
Hourly wage (log)	[-5.02-6.828]	2.276	(0.445)
Tenure (months)	[0-792]	136.0	(125.6)
Public servant	[0-1]	0.280	(0.449)
Part time job	[0-1]	0.165	(0.371)
Permanent contract	[0-1]	0.835	(0.371)

These figures are obtained using a sample of 920,388 individuals aged between 16 and 65 years old. It consists in the observations from the 16 successive waves of the labor Force Survey from 2007 to 2010.

Table 2: Distribution of individuals' origins, 2007-2010 (in %)

	Nationality	Birth Country	Parents
France	93.65	87.09	80.31
Southern Europe	1.51	2.18	6.30
Rest of Europe	1.07	1.81	3.31
Maghreb	1.86	4.86	5.66
Rest of Africa	0.81	1.79	1.80
Rest of the World	1.10	2.27	2.62
N	920,235	920,346	905,241

Reading: among the 15-65 y.o. individuals living in France, 1.86 % are of Maghrebian nationality, 4.86 % are born in Maghreb and 5.66 % have a Maghrebian origin, either by their nationality or through their parents'.

Table 3: Diversity in individuals' living environment

	[Min-Max]	Mean	(Std Dev)	Median
Neighborhood diversity				
Nationality	[0-0.771]	0.089	(0.131)	0.034
Birth Country	[0-0.803]	0.175	(0.162)	0.132
Parents	[0-0.818]	0.280	(0.207)	0.246
Employment Zone diversity				
Nationality	[0-0.559]	0.099	(0.080)	0.078
Birth Country	[0-0.731]	0.190	(0.117)	0.166
Parents	[0-0.735]	0.325	(0.171)	0.317

Reading: Individuals live in neighborhoods where diversity in terms of nationality amounts to 8.9 % on average. They live in employment zones where diversity in terms of birth country amounts to 19 % on average. Alternatively: there is a 32.5 % chance that two individuals living in the same employment zone are from different origin background.

Table 4: Employment Status and Diversity by Nationality

	No controls	Individual Characteristics	Ind. charac., Time & Geo. FE,	Ind. charac., Time & Geo. FE, Local Unemployment
	(1)	(2)	(3)	(4)
Diversity by Nationality				
Local Neighborhood	-0.364***	-0.172***	-0.181***	-0.105***
	(0.016)	(0.013)	(0.013)	(0.011)
Employment Zone	0.447***	0.189***	0.122***	0.090***
	(0.024)	(0.018)	(0.028)	(0.025)
Nationality (Ref.: French)				
South European		0.103***	0.098***	0.087***
		(0.009)	(0.009)	(0.009)
Other European		-0.125***	-0.124***	-0.132***
		(0.013)	(0.013)	(0.013)
Maghrebian		-0.143***	-0.139***	-0.130***
		(0.011)	(0.011)	(0.011)
Other African		-0.122***	-0.126***	-0.125***
		(0.017)	(0.017)	(0.017)
Other nationality		-0.111***	-0.115***	-0.117***
		(0.014)	(0.014)	(0.014)
Education (Ref: Baccalauréat)				
Master, PhD & schools		0.049***	0.048***	0.047***
		(0.006)	(0.006)	(0.006)
Graduate (bac+4)		0.034***	0.033***	0.034***
		(0.007)	(0.007)	(0.007)
Under-graduate (bac+3)		0.044***	0.045***	0.045***
		(0.006)	(0.006)	(0.006)
Lower under-grad (bac+2)		0.039***	0.039***	0.038***
		(0.005)	(0.005)	(0.005)
Techno. & Pro. Baccalauréat		0.037***	0.038***	0.037***
		(0.005)	(0.005)	(0.005)
Technical degree		0.013*	0.012	0.012
		(0.008)	(0.008)	(0.008)
cap		-0.004	-0.004	-0.003
		(0.005)	(0.005)	(0.005)
bepc		-0.039***	-0.037***	-0.035***
		(0.006)	(0.006)	(0.006)
No diploma		-0.082***	-0.080***	-0.073***
		(0.005)	(0.005)	(0.005)

Table 4: Employment Status and Diversity by Nationality (C'ed)

	No controls	Individual Characteristics	Ind. charac., Time & Geo. FE,	Ind. charac., Time & Geo. FE, Local Unemployment
	(1)	(2)	(3)	(4)
Socio-economic category (Ref:)				
Craftsman, shopkeeper		0.204***	0.206***	0.205***
		(0.010)	(0.010)	(0.010)
Executive or other high position		0.191***	0.191***	0.190***
		(0.010)	(0.010)	(0.010)
Intermediate occupation		0.162***	0.163***	0.163***
		(0.010)	(0.010)	(0.010)
Employee		0.150***	0.152***	0.154***
		(0.010)	(0.010)	(0.009)
(Factory) worker		0.098***	0.101***	0.105***
		(0.010)	(0.009)	(0.009)
Other individual characteristics				
Male		0.087***	0.087***	0.087***
		(0.002)	(0.002)	(0.002)
Age		0.068***	0.068***	0.067***
		(0.002)	(0.002)	(0.001)
Age^2		-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)
Experience		0.007***	0.007***	0.007***
		(0.001)	(0.001)	(0.001)
$Experience^2$		-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)
Local unemployment rate				-0.272***
				(0.014)
Intercept	0.682***	-0.651***	-0.608***	-0.570***
	(0.003)	(0.027)	(0.031)	(0.030)
Quarter F.E.	No	No	Yes	Yes
Department F.E.	No	No	Yes	Yes
N	162,097	151,053	151,053	150,913
Adj. R^2	0.009	0.254	0.257	0.260

The dependent variable indicates the employment status of an individual in a given quarter. It takes value 1 if the individual is employed, and 0 otherwise (unemployed or inactive). It is regressed on diversity by nationality based on the 6-categories nationality variable. Each column corresponds to a different specification. In column (1), the employment dummy is regressed on neighborhood and employment zone diversity, without any other control. Column (2) controls for individual characteristics: origin group (6 categories), gender, quadratic function of age, education (10 categories), socio-economic category (6 categories), quadratic function of experience. Column (3) = (2) + quarter fixed effects + *département* fixed effects. Column (4) = (3) + unemployment rate in the local neighborhood (excluding the individual). The sample is made of the first observation of each individual. Standard errors clustered at the neighborhood level are reported in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.001$

Table 5: Employment status and diversity: summary of the results (OLS)

	No controls	Individual Characteristics	Ind. charac., Time & Geo. FE,	Ind. charac., Time & Geo. FE, Local Unemployment
	(1)	(2)	(3)	(4)
1. Diversity by Nationality				
Local Neighborhood	-0.364***	-0.172***	-0.181***	-0.105***
	(0.016)	(0.013)	(0.013)	(0.011)
Employment Zone	0.447***	0.189***	0.122***	0.090***
	(0.024)	(0.018)	(0.028)	(0.025)
2. Diversity by Birth Country				
Local Neighborhood	-0.346***	-0.149***	-0.156***	-0.092***
	(0.014)	(0.011)	(0.011)	(0.010)
Employment Zone	0.381***	0.151***	0.120***	0.088***
	(0.018)	(0.014)	(0.023)	(0.020)
3. Diversity by Parents Origins				
Local Neighborhood	-0.234***	-0.089***	-0.096***	-0.053***
	(0.011)	(0.009)	(0.009)	(0.008)
Employment Zone	0.215***	0.091***	0.056***	0.041**
	(0.013)	(0.010)	(0.016)	(0.014)
Individual controls	No	Yes	Yes	Yes
Quarter F.E.	No	No	Yes	Yes
Département F.E.	No	No	Yes	Yes
Local unemployment rate	No	No	No	Yes

The dependent variable indicates the employment status of an individual in a given quarter. It takes value 1 if the individual is employed, and 0 otherwise (unemployed or inactive). It is regressed on diversity by nationality in the first set of regressions (**1.**), on diversity by birth country and by parents' origins in the second (**2.**) and third (**3.**) sets of regressions respectively. Fractionalization indices are based on the 6-categories origin variables. Each column corresponds to a different specification. In column (1), the employment dummy is regressed on neighborhood and employment zone diversity, without any other control. Column (2) controls for individual characteristics: origin group (6 categories), gender, quadratic function of age, education (10 categories), socio-economic category (6 categories), quadratic function of experience. Column (3) = (2) + quarter fixed effects + *département* fixed effects. Column (4) = (3) + unemployment rate in the local neighborhood (excluding the individual). The sample is made of the first observation of each individual. Standard errors clustered at the neighborhood level are reported in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.001$

Table 6: Employment status and diversity: summary of the results (Multinomial logit)

Dep Var:	Employment Status (Ref: Employed)	
	Unemployed	Inactive
1. Diversity by Nationality		
Local Neighborhood	0.921***	0.463***
	(0.090)	(0.092)
Employment Zone	-0.566**	-0.628**
	(0.228)	(0.207)
1. Diversity by Birth Country		
Local Neighborhood	0.929***	0.351***
	(0.083)	(0.078)
Employment Zone	-0.580**	-0.603***
	(0.187)	(0.167)
1. Diversity by Parents' Origins		
Local Neighborhood	0.687***	0.201**
	(0.069)	(0.062)
Employment Zone	-0.387**	-0.273**
	(0.129)	(0.114)
Individual controls	Yes	
Local unemployment rate	Yes	
Quarter *dep.* F.E.	Yes	

The dependent variable indicates the employment status of an individual in a given quarter. It takes value 1 if the individual is employed (reference category), 2 if s/he is unemployed and 3 if s/he is inactive. It is regressed on diversity by nationality based on the 6-categories origin variables. It is regressed on diversity by nationality in the first regression (**1.**), on diversity by birth country and by parents' origins in the second (**2.**) and third (**3.**) regressions respectively. The results come from a multinomial logit estimation, using the full specification. In each regression, the following controls are included: individual characteristics (origin group, gender, quadratic function of age, education, socio-economic category, quadratic function of experience), local unemployment rate, and quarter and *département* fixed effects. The sample is made of the first observation of each individual. Standard errors clustered at the neighborhood level are reported in parentheses. * p<0.10, ** p<0.05, *** p<0.001

Table 7: Employment status and local diversity: considering within area variation

	Département FE (1)	Employment Zone FE (2)	Municipality FE (3)	Sector FE (4)
Local Neighborhood Diversity				
1. By Nationality	-0.094***	-0.109***	-0.140***	-0.110***
	(0.010)	(0.010)	(0.013)	(0.017)
2. By Birth Country	-0.079***	-0.094***	-0.120***	-0.080***
	(0.009)	(0.009)	(0.011)	(0.016)
3. By Parents Origins	-0.047***	-0.054***	-0.075***	-0.060***
	(0.007)	(0.007)	(0.009)	(0.012)

The dependent variable indicates the employment status of an individual in a given quarter. It takes value 1 if the individual is employed, and 0 otherwise (unemployed or inactive). The sample is made of the first observation of each individual. Fractionalization indices are based on the 6-categories origin variables. Each regression controls for the full set of individual characteristics, quarter and department fixed effects and local neighborhood unemployment rate. However, compared to the previous specification, employment zone diversity is not included so as to focus on the changes of local neighborhood diversity to the inclusion of the alternative fixed effects. Standard errors clustered at the neighborhood level are reported in parentheses. * p<0.10, ** p<0.05, *** p<0.001

Table 8: Effect of diversity on employment status: IV regressions

Instrument used:	OLS	IV: Expected Diversity	IV: Public Housing Diversity
	(1)	(2)	(3)
1. Diversity by Nationality			
Local Neighborhood	-0.105***	-0.092***	-0.104***
	(0.011)	(0.014)	(0.012)
Employment Zone	0.090***	-0.028	0.025
	(0.025)	(0.070)	(0.054)
First stage			
Expected Diversity		0.468***	
		(0.020)	
Public Housing Diversity			0.197***
			(0.006)
F-stat (excl. instr.)		537.20	937.02
Partial R^2 (excl. instr.)		0.133	0.252
2. Diversity by Birth Country			
Local Neighborhood	-0.092***	-0.081***	-0.092***
	(0.010)	(0.011)	(0.011)
Employment Zone	0.088***	0.006	0.046
	(0.020)	(0.044)	(0.046)
First stage			
Expected Diversity		0.723***	
		(0.024)	
Public Housing Diversity			0.209***
			(0.007)
F-stat (excl. instr.)		922.28	848.12
Partial R^2 (excl. instr.)		0.227	0.230

The dependent variable indicates the employment status of an individual in a given quarter. It takes value 1 if the individual is employed, and 0 otherwise (unemployed or inactive). The sample is made of the first observation of each individual. Fractionalization indices are based on the 6-categories origin variables. Each regression controls for the full set of individual characteristics, quarter and department fixed effects and local neighborhood unemployment rate. Standard errors clustered at the neighborhood level are reported in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.001$

Table 9: Quality of the relationships with neighbors and diversity

Dep. Var.:	Quality of Neighborhood Relationships (Ref: Good)		
	Average	Bad	No relationship
1. Diversity by nationality	1.434***	1.708***	0.882***
	(0.235)	(0.506)	(0.179)
2. Diversity by birth country	1.617***	1.958**	1.206***
	(0.273)	(0.610)	(0.207)

Each line reports the coefficients from a separate multinomial logit regression. The dependent variable indicates opinion about the relationships with the neighbors. It takes value 1 if the surveyed individual declares having good relationships with his/her neighbors (reference category), 2 if the relationships are average, 3 if they are bad, and 4 if there is no relationship at all. The main variable of interest is the level of diversity, computed at the block level, based on nationalities in the first regression and on birth countries in the second one. In each specification, the following controls are included: individual characteristics (age, gender, origin, employment status, education, household income), block level unemployment rate, department fixed effects and a detailed indicator of the social and economic composition of the neighborhood (27 categories). The data come from the 2002 French Housing Survey and the 1999 population census (INSEE). Standard errors clustered at the neighborhood level are reported in parentheses. * p<0.10, ** p<0.05, *** p<0.001

Table 10: Effect of the share of neighbors from own origin group on employment probability

Dep. Var.: Employment status (employed vs unemployed or inactive)		
	(1)	(2)
1. Origins: Nationality		
Neighborhood share of same origin	0.154***	0.046**
	(0.016)	(0.023)
Neighborhood Diversity		-0.115***
		(0.018)
2. Origins: Birth country		
Neighborhood share of same origin	0.073***	-0.014
	(0.013)	(0.163)
Neighborhood Diversity		-0.127***
		(0.014)
3. Origins: Parents		
Neighborhood share of same origin	0.037***	0.002
	(0.008)	(0.010)
Neighborhood Diversity		-0.074***
		(0.011)

Each column and each set of results (1., 2. and 3.) report the coefficients from a separate OLS regression. The dependant variable indicates whether the individual is employed (1) or unemployed or inactive (0). In each specification, the following controls are added to the variables displayed: individual characteristics (origin group, gender, quadratic function of age, education, socio-economic category, quadratic function of experience), neighborhood unemployment rate (excluding the individual), quarter dummies and municipalities fixed effects. The sample is made of the first observation of each individual. Standard errors clustered at the neighborhood level are reported in parentheses. * p<0.10, ** p<0.05, *** p<0.001

Table 11: Job search method: use of friends and family networks

Dep Var:	Use of networks			Exclusive use of networks		
Origins:	Nationality	Birth country	Parents	Nationality	Birth country	Parents
	(1)	(2)	(3)	(4)	(5)	(6)
Neighborhood diversity	-0.027	-0.035	-0.005	-0.007	-0.006	-0.004
	(0.025)	(0.023)	(0.019)	(0.007)	(0.006)	(0.005)
Origin Group: (Ref: France)						
South Europe	0.024	0.027	0.033**	0.008	-0.003	-0.003
	(0.024)	(0.021)	(0.011)	(0.007)	(0.006)	(0.003)
Rest of Europe	-0.006	0.018	0.017	0.026***	0.022***	0.012**
	(0.021)	(0.017)	(0.014)	(0.006)	(0.005)	(0.004)
Maghreb	0.018	0.015	0.028**	0.005	0.000	0.001
	(0.014)	(0.010)	(0.009)	(0.004)	(0.003)	(0.002)
Rest of Africa	0.022	0.027*	0.030**	0.012**	0.003	0.007*
	(0.019)	(0.014)	(0.014)	(0.005)	(0.004)	(0.004)
Rest of World	0.049**	0.039**	0.033**	0.018***	0.009**	0.008**
	(0.019)	(0.015)	(0.013)	(0.005)	(0.004)	(0.004)

In the first three columns, the dependent variable indicates whether the individual relied on personal networks to search for a job, possibly combined with other job search methods. In the last three columns, the dependent variable indicates whether the individual relied on personal networks to search for a job, excluding the use of any other job search method. Fractionalization indices are based on the 6-categories origin variables. The estimates come from OLS regressions. In addition to diversity and origin group (which differ in each column), each regression controls for employment status, gender, age, age squared, education, SEC, experience, experience squared, neighborhood unemployment rate, quarter dummies and municipality fixed effect are also included. The sample is made of the first observation of each individual. * p<0.10, ** p<0.05, *** p<0.001

Table 12: Main method through which the job was found: networks

Dep Var:	Job found through networks		
Origins:	Nationality	Birth country	Parents
	(1)	(2)	(3)
Neighborhood diversity	0.012	-0.003	-0.012
	(0.016)	(0.015)	(0.012)
Origin Group: (Ref: France)			
South Europe	0.141***	0.103***	0.057***
	(0.011)	(0.009)	(0.006)
Rest of Europe	0.040**	0.023**	0.034***
	(0.015)	(0.011)	(0.008)
Maghreb	0.031**	0.006	-0.003
	(0.012)	(0.008)	(0.007)
Rest of Africa	0.038**	-0.000	-0.002
	(0.016)	(0.011)	(0.011)
Rest of World	0.178***	0.114***	0.103***
	(0.014)	(0.010)	(0.009)

The dependent variable indicates whether the currently employed individual found his/her job through personal network. The sample is made of the first observation of each employed individual, and excludes civil servants. Fractionalization indices are based on the 6-categories origin variables. The estimates come from OLS regressions. In addition to diversity and origin group (which differ in each column), each regression controls for gender, age, age squared, education, SEC, experience, experience squared, neighborhood unemployment rate, quarter dummies and municipality fixed effect are also included. * $p<0.10$, ** $p<0.05$, *** $p<0.001$

A   Appendix

A.1   Construction of the predicted level of employment zone diversity

In this appendix, I describe more formally the construction of the "shift-share" instrumental variable. Denote $N^g_{France,1968}$ the number of individuals from origin group $g = 1, ..., g_{max}$ in France in 1968 and $N^g_{EZ_j,1968}$ the number of individuals from origin group $g = 1, ..., N_g$ in employment zone $j = 1, ..., N_j$ in 1968. Then, the share of group g individuals, living in employment zone j in 1968 (out of the total number of group g individuals in France in 1968) can be computed as follows:

$$S^g_{EZ_j,1968} = \frac{N^g_{EZ_j,1968}}{N^g_{France,1968}} \tag{3}$$

with $\sum_{j=1}^{N_j} S^g_{EZ_j,1968} = 1$, for any group g.

Then, the expected number of group g individuals living in employment zone j in year $t = 2007, ..., 2010$ is given by:

$$\widehat{N^g_{EZ_j,t}} = S^g_{EZ_j,1968} * N^g_{France,t} \tag{4}$$

From this, we can deduce the expected share of group g individuals in employment zone j in year t (out of the total number of individuals living in employment zone j in t, all groups included):

$$\widehat{s^g_{EZ_j,t}} = \frac{\widehat{N^g_{EZ_j,t}}}{\sum_{g=1}^{N_g} \widehat{N^g_{EZ_j,t}}} \tag{5}$$

with $\sum_{g=1}^{N_g} \widehat{s^g_{EZ_j,t}} = 1$, for any employment zone j.

Finally, the predicted measure of diversity in employment zone j in t is obtained as follows:

$$\widehat{DIV_{EZ_j,t}} = 1 - \sum_{g=1}^{N_g} \widehat{s^g_{EZ_j,t}}^2 \tag{6}$$

References

Alesina, A., Baqir, R., and Easterly, W. (1999). Public goods and ethnic divisions. *The Quarterly Journal of Economics*, 114(4):1243–1284.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., and Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth*, 8(2):155–94.

Alesina, A. and Ferrara, E. L. (2000). Participation in heterogeneous communities. *The Quarterly Journal of Economics*, 115(3):847–904.

Alesina, A., Harnoss, J., and Rapoport, H. (2013). Birthplace diversity and economic prosperity. NBER Working Papers 18699, National Bureau of Economic Research, Inc.

Alesina, A. and La Ferrara, E. (2002). Who trusts others? *Journal of Public Economics*, 85(2):207–234.

Alesina, A. and La Ferrara, E. (2005). Ethnic diversity and economic performance. *Journal of Economic Literature*, 43(3):762–800.

Algan, Y., Hémet, C., and Laitin, D. (2013). The social effects of ethnic diversity at the local level: A natural experiment with exogenous residential allocation. Working Papers 2013-38, AMSE.

Battu, H., Seaman, P., and Zenou, Y. (2011). Job contact networks and the ethnic minorities. *Labour Economics*, 18(1):48–56.

Bayer, P., Ross, S. L., and Topa, G. (2008). Place of work and place of residence: Informal hiring networks and labor market outcomes. *Journal of Political Economy*, 116(6):1150–1196.

Borjas, G. J. (2003). The labor demand curve is downward sloping: Reexamining the impact of immigration on the labor market. *Quarterly Journal of Economics*, 118(4):1335–1374.

Calvó-Armengol, A. and Jackson, M. O. (2004). The effects of social networks on employment and inequality. *American Economic Review*, 94(3):426–454.

Card, D. (2001). Immigrant inflows, native outflows, and the local labor market impacts of higher immigration. *Journal of Labor Economics*, 19(1):22–64.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94(Supplement: Organizations and Institutions:Sociological and Economic Approaches to the Analysis of Social Structure):S95–S120.

Corcoran, M., Datcher, L., and Duncan, G. (1980). Information and influence networks in labor markets. *Five Thousand American Families: Patterns of Economic Progress*, 7:1–37.

Costa, D. L. and Kahn, M. E. (2003). Civic engagement and community heterogeneity: An economist's perspective. *Perspectives on Politics*, 1(1):103–111.

Easterly, W. and Levine, R. (1997). Africa's growth tragedy: Policies and ethnic divisions. *The Quarterly Journal of Economics*, 112(4):1203–1250.

Glennerster, R., Miguel, E., and Rothenberg, A. D. (2013). Collective action in diverse sierra leone communities. *The Economic Journal*, 123(568):285–316.

Granovetter, M. S. (1995). *Getting a Job: a Study of Contacts and Careers*. Cambridge, MA. Harvard University Press, 2nd edition.

Holzer, H. J. (1988). Search method use by unemployed youth. *Journal of Labor Economics*, 6(1):1–20.

Hong, L. and Page, S. E. (2001). Problem solving by heterogeneous agents. *Journal of Economic Theory*, 97(1):123–163.

Ioannides, Y. M. and Datcher Loury, L. (2004). Job information networks, neighborhood effects, and inequality. *Journal of Economic Literature*, 42(4):1056–1093.

Ioannides, Y. M. and Topa, G. (2010). Neighborhood effects: Accomplishments and looking beyond them. *Journal of Regional Science*, 50(1):343–362.

Lazear, E. P. (1999). Globalisation and the market for team-mates. *Economic Journal*, 109(454):C15–40.

Light, I. (2005). *The Handbook of Economic Sociology*, chapter 28. The Ethnic Economy. Princeton University Press, 2nd edition.

Light, I. and Rosenstein, C. (1995). *Race, Ethnicity, and Entrepreneurship in Urban America*. Walter deGruyter Inc.

Martin-Houssart, G. and Tabard, N. (2002). Représentation socio-économique du territoire, typologie des quartiers et communes de france selon la profession et l'activité socio-économique de leurs habitants. Working Papers F0208, INSEE.

Michelis, A. D., Estevão, M., and Wilson, B. A. (2013). Productivity or employment: Is it a choice? Working Paper 13/97, IMF.

Miguel, E. and Gugerty, M. K. (2005). Ethnic diversity, social sanctions, and public goods in kenya. *Journal of Public Economics*, 89(11-12):2325–2368.

Munshi, K. (2003). Networks in the modern economy: Mexican migrants in the u.s. labor market. *The Quarterly Journal of Economics*, 118(2):549–599.

Nordhaus, W. (2005). The sources of the productivity rebound and the manufacturing employment puzzle. Working Paper Series 11354, NBER.

Ottaviano, G. I. and Peri, G. (2006). The economic value of cultural diversity: evidence from us cities. *Journal of Economic Geography*, 6(1):9–44.

Ottaviano, G. I. P. and Peri, G. (2012). Rethinking the effect of immigration on wages. *Journal of the European Economic Association*, 10(1):152–197.

Patacchini, E. and Zenou, Y. (2012). Ethnic networks and employment outcomes. *Regional Science and Urban Economics*, 42(6):938–949.

Prarolo, G., Bellini, E., Ottaviano, G. I., and Pinelli, D. (2009). Cultural diversity and economic performance: Evidence from european regions. Working Papers 2009.63, Fondazione Eni Enrico Mattei.

Saiz, A. (2007). Immigration and housing rents in american cities. *Journal of Urban Economics*, 61(2):345–371.

Wahba, J. and Zenou, Y. (2005). Density, social networks and job search methods: Theory and application to egypt. *Journal of Development Economics*, 78:443–473.

Weinberg, B. A., Reagan, P. B., and Yankow, J. J. (2004). Do neighborhoods affect hours worked? evidence from longitudinal data. *Journal of Labor Economics*, 22(4):891–924.

Wellman, B. (1996). Are personal communities local? a dumptarian reconsideration. *Social Networks*, 18:347–354.

Winters, P., de Janvry, A., and Sadoulet, E. (2001). Family and community networks in mexico-u.s. migration. *Journal of Human Resources*, 36(1):159–184.