Do Neighborhoods Empower or Disenfranchise?
Co-ethnic Concentration, Spatial Disadvantage, and Voter Registration in France

Introduction

The under-representation of ethnic and racial minorities in the political process poses an enduring challenge to universal suffrage in advanced democracies (Bloemraad and Schönwälder 2013; Hajnal and Trounstine 2005). Research across national contexts documents that minority citizens are generally less likely to be registered and turn out to vote in elections compared to the majority (Bhatti and Hansen 2016; Fraga 2018; Gallego 2007; Heath et al. 2013; Maxwell 2010). Extant literature has primarily analyzed this gap as stemming from socioeconomic inequalities: Compositional differences between ethnoracial groups in individual-level resources that are key to political participation, such as income, occupation and education, are thought to explain disparities in registration and turnout (Schlozman, Brady, and Verba 2018; Verba and Nie 1972; Verba, Shlozman, and Brady 1995; Uhlaner, Cain, and Kiewiet 1989).

However, socioeconomic explanations often fall short of accounting for the ethnic/racial participation gap, pushing scholars to investigate alternative mechanisms operating at the level of the residential environment. The concentration of minorities in disadvantaged neighborhoods has become a key facet of Western democracies (South, Pais, and Crowder 2011; Van Ham et al. 2014; McAvay and Safi 2018; Zuccotti 2019). Recent studies posit that geographical characteristics affect opportunities for minority political engagement above and beyond individual-level determinants. Yet this research comes up with discrepant hypotheses and findings depending on the features of the local environment. One stream posits that the concentration of minority citizens in disadvantaged areas depresses registration or turnout among these citizens (Cohen and Dawson 1993; Maxwell 2010; Pachecho and Plutzer 2008; Nickerson 2015). A second strand of research highlights that

living in proximity to co-ethnics may actually boost political efficacy and in turn favor participation among citizens belonging to discriminated ethnic groups (Bhatti and Hansen 2016; Leighley 2001; Fraga 2018; Fieldhouse and Cutts 2008; Cutts et al. 2007; Fennema and Tillie 1999; Togeby 1999).

Drawing on two specialized data sources from France, this article explores the influence of neighborhood environments on voter registration. Our primary analysis draws on administrative panel data, the *Permanent Demographic Sample* (EDP). EDP helps address limitations in the extant research on the spatial mechanisms of voter registration. First, the dataset provides an objective measure of registration, improving on past studies which typically use self-reported measures that are subject to social desirability bias (Ansolabehere and Hersch 2012). Second, the data offer measures of both neighborhood spatial disadvantage and co-ethnic concentration, allowing us to estimate models that simultaneously control for both of these determinants. Rarely do studies investigate the potentially divergent effects of neighborhood spatial disadvantage and co-ethnic concentration on registration. Third, prior approaches do not usually address the endogeneity of residential location and political behavior. The identification of contextual effects is challenging due to self-selection into residential spaces on the basis of socioeconomic resources, family characteristics, residential preferences, and other unobserved characteristics (Van Ham et al. 2012; Cutts and Fieldhouse, 2009). As political attitudes and behaviors are likely impacted by the same factors that shape residential location, disentangling the specific impact of the environment net of selection is a key empirical challenge. Our strategy uses individual fixed effects models to help address the endogeneity of neighborhood effects and registration by controlling for individual unobservables that are presumed stable over time. Finally, most studies focus on geographical effects for specific ethnic/racial groups only, or assume that neighborhood effects will operate in similar ways for everyone. Our analysis, rather, explores

whether the impact of the neighborhood on registration varies across groups. We complement this analysis by using a special survey on ethnoracial minorities in France, *Trajectories and Origins* (TeO), which helps us identify the role of discrimination and feelings of marginalization in explaining registration in co-ethnic areas among minority citizens.

The findings show that the neighborhood plays a key role in voter registration, but that its effects vary substantially by ethnoracial group. Living in a deprived neighborhood hinders the likelihood of registration among most citizens. Yet, spatial proximity to co-ethnics increases registration among the most discriminated minorities (namely, citizens of Sub-Saharan, North African and other non-European origins). In contrast, electoral registration among European-origin citizens is hindered in co-ethnic spaces. These findings are confirmed across both datasets. A supplementary analysis of the TeO survey further suggests that discrimination and feelings of marginalization are the mechanisms driving African-origin citizens to turn out and register in co-ethnic dense neighborhoods. Collective consciousness of discrimination is hence the likely mobilizing factor in neighborhoods where African-origin groups are concentrated.

Several features of French society make it a relevant case study for analyzing ethnoracial[1] inequality in voter registration. Despite its predominant "colorblind" socio-political model (Simon 2017), considerable socioeconomic disparities exist between French natives and immigrants and their descendants (Aeberhardt et al. 2010; Meurs et al. 2006; Silberman et al. 2007; Pan Ké Shon 2010; McAvay 2018; McAvay and Safi, 2018). Urban areas known as the *banlieues* suffer from structural disadvantages such as high unemployment, disadvantaged school environments, crime, and poor housing (Wacquant

[1] Because France does not collect statistics on race/ethnicity, quantitative research into ethnoracial inequality in this context relies on information concerning migration status and national origin (namely country of birth/nationality for migrants, or parental country of birth/nationality for children of migrants). When we refer to ethnic/racial minorities in France, we are referring to such categorizations based on migration variables. This is the case for our operationalization of race/ethnicity which will be explained further in the Data and Methods section.

2008; Lagrange and Oberti 2006). Available evidence shows that immigrants and their descendants are less likely to be registered to vote compared to the majority (Pan Ké Shon and Robertson 2004; Maxwell 2010; Brouard and Tiberj 2011; Braconnier et al. 2017; Pons and Liegey 2019). France further has a high-cost registration system where the responsibility to register to vote is placed on citizens[2], an institutional feature that has been found to be detrimental for electoral participation, especially for ethnic and racial minorities (Ansolabehere and Konisky 2006; Burden and Neiheisel 2013; Cancela and Geys 2016; Powell 1986; Wolfinger and Rosenstone 1980; Cunningham 1991; Xu 2005). France is often compared to the U.S. in light of these structural barriers to political mobilization (Braconnier and Dormagen, 2007).

Theoretical Framework

Early studies, mostly focusing on the U.S., traced the source of the political participation gap to persistent inequalities between ethnic/racial groups in key resources, the argument being that socioeconomic status increases knowledge of the political process and opens up opportunities to become politically engaged (Leighley and Nagler 2013; Schlozman et al. 2018; Uhlaner, Cain, and Kiewiet 1989; Verba et al. 1993; 1995). Similar explanations have been advanced in Europe. Investigating the individual-level determinants of various participatory actions in 24 European countries, Gallego concludes that similarly to the U.S., the participation gap is to a large extent attributable to differences in levels of education and social class (2007). Yet, not all studies align with this conclusion; some research still finds persistent ethnic/racial participation gaps net of SES factors (Uhlaner, Cain, and Kiewiet 1989; Sandovici and Listhaug 2010; Cho et al. 2006), including in the case of France

[2] In France, voter registration is open to French citizens aged 18 and over who have proof of established residence or fiscal residence in the municipality. Yet the process is not fully automatic. Since 2001, individuals are automatically registered when they turn 18, but they have the responsibility of re-registering every time they change their place of residence, even if the move occurs within the same municipality (Pan Ké Shon and Robertson 2004). Persons born outside of France are not automatically registered.

(Brouard and Tiberj 2011; Maxwell 2010). However, a blindspot of most of these studies pertains to the role of the neighborhood environment, an important source of heterogeneity between ethnic groups that could explain residual disparities in registration net of individual resources.

The Role of Spatial Disadvantage

In both the U.S. and Europe, minorities are strongly concentrated in poor neighborhoods, are residentially segregated from the majority population, and are less likely to move to more affluent spaces (South, Pais and Crowder 2011; Quillian and Lagrange 2016; McAvay 2018; Van Ham et al. 2014). Residential disadvantage may in turn have a discrete influence on political participation. Empirical work from both sides of the Atlantic shows that local economic disadvantage measured at various spatial scales is indeed associated with decreased political participation (Cohen and Dawson 1993; Johnston and Pattie 2006; Mansley and Demsar 2015; Maxwell 2010; Pachecho and Plutzer 2008).

The neighborhood effects literature provides one framework to understand the mechanisms behind this relationship. Prior research points to the importance of collective efficacy, defined as social cohesion and trust among neighbors to act together to achieve common goals (Sampson et al. 1997), in shaping local environments and the opportunities and outcomes of their residents. Citizens of deprived areas have a lower capacity to collectively organize around common goals, such as addressing social problems like violence or disorder. Lower levels of collective efficacy in spaces of concentrated disadvantage are associated with higher levels of crime, poor health outcomes, and adolescent behavior (Sampson et al. 1997; Leventhal and Brooks Gunn 2000; Browning and Cagney 2002). The lack of these social organizational features in deprived neighborhoods are further thought to extend to political participation: Wilson (1987) argued that residing in high poverty areas could lead to political alienation through a weakening of community and labor ties as well as

increased social isolation that diminishes group identities, solidarity, and the capacity for collective action.

A second channel through which socioeconomic spatial disadvantage may exert an independent effect on political mobilization relates to place-based stigma. The negative social representations attached to living in deprived areas (i.e. crime, disorder, disrepute, etc.) create a status bias that influences how residents of deprived areas are perceived in terms of their worth and prestige (Sampson 2011). In France, the *banlieues* are strongly stigmatized in both political discourse and the media, and have received heightened attention since protests erupted in 2005 (Lagrange and Oberti 2006; Braconnier and Dormagen 2007). Living in disadvantaged spaces may translate into experiencing a form of second-class citizenship – or civic deficit (Lockwood 1996; Braconnier and Dormagen 2007) – that discourages residents from engaging in the political process. Such experiences of exclusion and illegitimacy could further be reinforced by address-based discrimination in employment and housing markets (Bunel et al. 2021; Bonnet et al. 2016). Previous studies show that when individuals feel that they lack political influence (Blais 2000; Maxwell 2010), political disengagement follows - a mechanism that is likely at play among residents of disadvantaged spaces. Furthermore, residents of poor areas are often marginalized, both physically and symbolically, from state and local institutions and administrations - the very places where potential voters need to go to register and vote (Braconnier and Dormagen 2007).

Finally, neighborhoods are sites of socialization. Individual behaviors and attitudes towards the political process are thus shaped by those that are predominant in the local environment. Social norms around political participation have been found to strongly shape both registration and turnout (Blais, 2000; Blais and Achen, 2019). Norms refer to "stereotypic perceptions, beliefs, and modes of conduct associated with a group" (Hogg and Abrams, 1988, p. 140). They are forged and reproduced within social groups and also

function as differentiators between social groups (Hogg and Abrams, 1988). Neighborhoods play a key role in the production and sustenance of norms in a realm of behaviors that also include political participation. Get-out-the-vote field studies show that citizens are particularly prone to adjusting in line with the behavior of their neighbors when it comes to participating in elections (Gerber et al., 2008; Rogers et al., 2017). Similarly, Jöst found that the belief that one's neighbors participate in elections boosts individual intentions to turn out and vote (2021). She further finds that social norm effects are stronger in disadvantaged neighborhoods, as disadvantaged citizens tend to generally rely more on each other to deal with everyday problems compared to wealthier citizens. In deprived neighborhoods, the dominant norms may suppress participation: Qualitative research from France has shown how peer networks in deprived neighborhoods reinforce individuals' marginalisation from the political process by establishing and reinforcing norms about political disengagement (Braconnier and Dormagen 2007). In this sense, the neighborhood functions as a locus of political socialization that channels individuals towards a marginalized position within the national community and its political processes through the establishment of norms.

Based on the above, we anticipate that: *Citizens living in spaces with high socioeconomic disadvantage will be less likely to register to vote (H1).*

The Role of Co-ethnic Proximity

Concentrated spatial disadvantage is likely not the only neighborhood-level influence on political participation. Past research provides reasons to expect that discriminated ethnoracial minorities who live in co-ethnic-dense neighborhoods may be more politically mobilized due to three interrelated mechanisms.

The first concerns the development of an ethnic/racial group consciousness and, consequently, of increased in-group solidarity and political efficacy in the face of discrimination. Particularly among the most excluded minorities, co-ethnic proximity could

strengthen collective consciousness around racism and discrimination (Bloemraad and Schönwälder 2013; Dawson, 2004; Verba and Nie 1972). Indeed, past studies have found that frequent ingroup contact among discriminated groups fosters collective ethnic identity (Thompson 1999; Barwick and Beaman 2019). While some studies find that interpersonal experiences of discrimination may be detrimental to participation as a result of sadness and withdrawal (Oskooii, 2020; Schildkraut, 2005), the effect of discrimination on participation reverses when there is awareness of systematic discrimination expressed in laws or policies (Oskoii, 2020 - see also Cho et al. 2006, Pantoja et al., 2001) or a strong identification with the discriminated ingroup (Schildkraut, 2005).

Second, and relatedly, ethnic minorities may become empowered to participate in politics in areas where they perceive their electoral influence to be strong and where they feel they have an important role in political decision-making (Bobo and Gilliam 1990; Barreto, Segura, and Woods 2004; Fraga 2018).

The third pathway by which co-ethnic neighborhoods may boost minority participation is through elite mobilization. Voters are more likely to register and participate in elections if they are mobilized to do so (Verba et al. 1995). In the realm of minority participation, this translates into mobilizing efforts by political elites to motivate residents of ethnically segregated areas to register and turn out to vote (Leighley 2001; Pons and Liegey 2019; Sobolewska 2013). Political elites both in the U.S. and Europe are more likely to make systematic efforts to mobilize ethnic minorities to participate politically in areas with a strong minority presence (Leighley 2001; Sobolewska 2013). Studies have found that mobilizing initiatives, such as canvassing voters to register, are particularly impactful among discriminated minorities, in the U.S. as well as in France (Braconnier et al. 2017; De Rooij 2012; Nickerson 2015; Pons and Liegey 2019).

According to the literature, the key variable in all three processes is the relative ethnic group size in an area (Fraga 2018). The larger the minority group share in a spatial unit, the more likely individuals will foster a group identity, organize politically, be targeted by elite mobilizing efforts, and in turn participate in politics (Schlichting, Tuckel and Maisel 1998; Leighley 2001; Fraga 2018). Indeed, prior studies have shown a positive association between the proportion of co-ethnics in a given area and participation. Drawing on aggregate level data at the district level, Fraga finds that turnout among ethnic minorities is higher in areas with higher co-ethnic shares (2018). Further, using individual-level panel data, he also demonstrates that exogenous changes in the district boundaries that change the ethnic composition of the district have a causal effect on minority turnout. Specifically, minority voters who end up in a district where their co-ethnic group is a majority become more likely to turn out and vote compared to those who remained in districts where their co-ethnics are a minority (Fraga 2018). These results indicate that the association between higher co-ethnic shares and political participation is not spurious but rather causal, at least at the district level. These findings are in line with earlier studies on the influence of context on electoral registration both in the U.S. and Europe (Cutts et al. 2007; Fennema and Tillie 1999; Togeby 1999). Aggregate-level studies have found a positive association between levels of ethnic segregation and electoral participation, whether registration or turnout. Schlichting, Tuckel and Maisel (1998) find that homogeneity in the racial composition of a census block is associated with increased electoral turnout among registered voters in two U.S. cities. In a nationwide aggregate-level analysis of contextual effects on registration in the 2001 UK election, Fieldhouse and Cutts (2008) found that registration rates of Muslims were higher in predominantly Muslim electoral wards. Drawing on the case of Denmark, Bhatti and Hansen (2016) demonstrate a positive effect of the co-ethnic share at the neighborhood level on electoral turnout.

Ethnoracial Minority Disadvantage and Discrimination in France

In France, the largest ethnic minority groups are composed of migrants and their offspring from Southern Europe, primarily Spain, Italy and Portugal, and from former French colonies in North and Sub-Saharan Africa and Southeast Asia (Beauchemin et al. 2018). Research shows that first and second generation migrants of non-European origin, and particularly African origin, are the most exposed to racism and discrimination in both private and state institutions and fare worse on educational, labor and housing market outcomes than minorities of European origin (Meurs et al. 2006; Silberman, Alba, and Fournier 2007; Aeberhardt et al. 2010; Acolin et al. 2016; Brinbaum, Safi and Simon 2018; Quillian et al. 2019). Structural exclusion is coupled with symbolic exclusion as these groups are often portrayed as "unassimilable", fail to be recognized as fully French, and report high levels of discrimination and racism (Brinbaum, Safi, and Simon 2018). Further, African-origin and other non-European origin citizens are among the most concentrated in disadvantaged neighborhoods, have the highest rates of concentration in immigrant-dense neighborhoods and are the most residentially segregated from French natives (McAvay and Safi 2018; McAvay 2018). Residence in the *banlieues* is a source of marginalisation particularly for these ethnoracial minorities, and acts as a marker of otherness and of being perceived as not fully French (Barwick and Beaman 2019).

We posit that for the most discriminated and segregated minorities, such as African origin immigrants and their descendants in France, living close to co-ethnics who share a common experience of discrimination may boost electoral registration. The collective consciousness of being a discriminated minority likely bolsters in-group identification and solidarity, particularly in co-ethnic neighborhoods, strengthening minorities' political agency. Neighborhoods concentrating discriminated minorities may further become key sites for

political candidates to mobilize minority voters, in turn increasing registration among these citizens.

Thus, the spatial concentration of citizens facing a common experience of exclusion and discrimination may foster stronger political engagement. Specifically, we predict that: *Living near co-ethnics will boost registration among African-origin and other non-European origin citizens (H2).*

A note of caution is needed here. As we described earlier, the bulk of the literature considers the share of the group in an area as the best indicator to measure co-ethnic effects. However when it comes to incentives for elite mobilization the absolute size of an ethnic minority may be the more relevant measurement as elites are more likely to be willing to invest resources in areas where there is a large minority population. We address this issue in our empirical approach by directly testing the effect of co-ethnic group size as well as that of the share of co-ethnics out of the total population.

A last consideration concerns how the neighborhood environment may influence the majority. While the existing literature focuses predominantly on how minorities' political behavior is shaped by the local environment, there are reasons to anticipate that spatial mechanisms may also condition the participation of majority groups. The potential negative effects of living in deprived areas should theoretically impact all citizens. Regarding the impact of ethnic diversity on majority political participation, available evidence is mixed. Some studies argue that the presence of minority groups boosts political participation for majority members by increasing levels of ethnic threat (Enos 2017; Giles and Buckner 1993). In a carefully designed experiment, Enos (2017) shows that a drop in the share of African Americans in a neighborhood as a result of the demolition of housing projects decreased majority turnout by more than ten percent, while it did not have an impact on the electoral participation of African Americans. Others argue that the spatial concentration of ethnic

minorities in a given area may depress political participation among the majority through a process of de-powerment and the weakening of elite incentives to mobilize registration and turnout (Barreto, Segura, and Woods, 2004; Förster, 2018; Hill and Leighley, 1999). Drawing on individual level data, Barreto et al. (2004) find that turnout among non-hispanic Whites drops in Latino majority districts in Southern California. Similarly, using panel evidence from Florida and California, Barber and Imai show that increased presence of ethnic outgroups at the neighborhood level decreases turnout for the majority and minorities alike (2014). Finally, testing the same hypothesis in Germany by matching individual and census data, Förster shows that the presence of foreign-born citizens in a neighborhood depresses electoral turnout among natives (2018).

In light of mixed empirical evidence from prior studies regarding the effects of ethnoracial composition on natives/Whites' political participation, we do not advance a specific hypothesis about how co-ethnic concentration will influence the French majority.

Data and Methods

In order to test our hypotheses, we draw on two large-scale datasets: the Permanent Demographic Sample (*L'échantillon démographique permanent*, or EDP) and Trajectories and Origins (*Trajectoires et origines,* or TeO). These sources are complementary: EDP is a panel that enables us to analyze voter registration longitudinally over several decades drawing directly on electoral registry data. TeO, in contrast, is a cross-sectional survey with rich self-reported information on experiences of discrimination and feelings of marginalization among ethnic minorities in France.

I. EDP

EDP is an on-going, large-sample panel of the metropolitan French population. EDP data is compiled from a variety of sources. Individual-level data is pulled from the French

census[3] and civil registries of births, marriages and deaths. Neighborhood-level data is constructed from the French census and matched to EDP using respondents' geographic ID codes (*IRIS* code). EDP's sampling method relies on days of births to ensure a random selection of the metropolitan French population. Individuals enter EDP from birth or as soon as a census form or civil registry certificate is available concerning them. Our analysis is restricted to census waves 1999, 2008, and 2013 due to the fact that it is only starting in 1999 that EDP includes exhaustive information on the neighborhood-level geographic ID code.

Voter registration data comes directly from the electoral registries, which we use to measure our dependent variable, voter registration. This has the advantage of reporting actual registration at a given date rather than self-reported responses, which can suffer from social desirability bias, especially among ethnic minority voters (Deufel and Kedar 2010; Ansolabehere and Hersch 2012). If an EDP individual is not observed in the registration file, this means they were never registered to vote.

Empirical strategy

We use an event history design to track the probability of registering to vote over time. To do so, we focus only on EDP respondents who are at risk of the registration event: namely, eligible voters (French citizens aged 18 or over) who had never registered to vote prior to being observed for the first time in our period of analysis[4]. Respondents without French citizenship at the first date of observation are thus excluded from the sample. The data are structured in a person/period (1999, 2008, 2013) format, and we observe whether

[3] In France, the census was collected on the full population every 8-9 years until 2004, when the French Census Bureau switched to a method of annual collection on a subsample of the population. 70% of the population is surveyed in a five year period. EDP thus contains data from the 1968, 1975, 1982, 1990, and 1999 censuses. Since 2004, the panel has been enriched with census data on a yearly basis. 5 years are needed for a full panel wave to be complete. The most recent waves are therefore 2004-2008 (referred to as 2008) and 2009-2013 (referred to as 2013).

[4] It is important to note that, as our empirical analysis focuses on first-time registration, we do not explore whether previously registered voters who move re-register in their new place of residence. This type of analysis would nonetheless be hindered by data limitations. As EDP does not report the actual date of residential mobility, the data do not allow us to precisely track the occurrence of re-registration with each change of residence.

respondents registered to vote in each of these periods, i.e. whether or not they were listed for the first time in the voter registration file. This is estimated using a logistic discrete time model (Allison 2009). The dichotomous dependent variable is coded 1 if the EDP respondent registered to vote in a given census period or remained unregistered (coded 0). The total sample size is 85,737 individuals. As individuals can be observed over several time periods, this corresponds to 188,416 individual/time observations with non-missing values on all variables.

This longitudinal design has several advantages. First, the logistic discrete time model allows for both the dependent and independent variables to vary over time as they are measured at each available EDP panel wave (1999, 2008, and 2013). Second, we can draw on intra-individual variation to estimate models with more precise causal effects, specifically by controlling for individual heterogeneity in fixed effects models (Allison 2009)[5]. This allows us to estimate the effects of neighborhood characteristics net of presumably stable unobservables at the individual level which may influence residential location and registration simultaneously.

Model 1a is the main logistic discrete time model predicting voter registration. Model 1b includes all of the same controls as Model 1a, but additionally includes two two-way interactions to test the heterogeneity of the neighborhood variables: between ethnoracial group and 1) the neighborhood unemployment rate and 2) the neighborhood co-ethnic share. In Model 2, individual fixed effects are introduced. Finally, Models 3 and 4 are individual fixed effects models run separately on recent movers vs. long-term residents.

Independent variables

[5] Fixed effects models in a logistic discrete time model where the outcome is a non-repeated event have the drawback of not permitting time to be controlled. Allison (2009) proposes the case-time-control method as an alternative. We have also estimated the models using this method and the main findings are robust to this specification. For sake of concision, these models are not shown but may be provided upon request.

In line with the colorblind paradigm governing the collection of public statistics in France, the panel does not report the race/ethnicity of respondents or whether they are descendants of immigrants. It is only formally possible to distinguish whether respondents are immigrants (persons born outside of France without French citizenship at birth) or native French (persons born with French citizenship regardless of country of birth). However, due to the longitudinal design of EDP data, which tracks respondents since birth, second generation immigrants can be identified informally by observing whether or not the respondent grew up in a household with immigrant parent(s). We use this method to distinguish *ethnoracial minority citizens* from *French majority* respondents. Minorities are therefore defined as citizens who were observed at least once in the panel as children in a household with at least one immigrant parent[6]. We then assign the respondent to an origin group based on the immigrant parent's nationality, coded into the following broad groups[7]: Southern Europe (Spain, Portugal and Italy), North Africa (Algeria, Morocco, and Tunisia), Sub-Saharan Africa, Other European countries and all other Non-European countries. Minority citizens may be either themselves foreign-born or born in France. We control for nativity (born in France vs. born abroad) in all models. Finally, the *French majority* are French citizens with no identifiable immigrant origin[8].

[6] We use all dates from 1975 for this identification procedure. Child/parent status is defined using a variable indicating the individual's position in the household. Immigrants are defined as persons born outside of France without French citizenship at birth. When parents are both immigrants with different origins, the father's nationality is used.

[7] These categorization decisions are justified by the fact that countries in Southern Europe, North Africa and Sub-Saharan Africa represent the most common migrant sending countries and the largest estimated second generation immigrant populations in France (Beauchemin et al. 2018). We replicated Model 1b using an alternative coding of the ethnoracial group variable with more detailed categories, distinguishing 7 origin groups: Western Europe, Eastern Europe, Southern Europe, North Africa, Sub-Saharan Africa, Turkey, and Other Non-Europe. These findings are reported in Table A7 in the Appendix. Similarly to Southern Europeans, we find a negative neighborhood co-ethnic effect on registration for citizens with Western European and Turkish origins, but no significant effects are found for Eastern European respondents.

[8] It should be emphasized that this categorization method cannot capture ethnoracial heterogeneity within a given category. For instance, it is possible for a French majority member to be a descendant of migrants, self-identify, and/or be perceived as non-white. Still, given current limitations on the collection of ethnoracial statistics in France, EDP is one of the few sources that permit the outcomes of under-studied immigrant origin populations to be investigated with relatively large sample sizes.

Neighborhood variables are constructed using the French census and then matched to EDP using the geographic ID codes of the respondent's place of residence. The neighborhood scale used is the *IRIS.*[9] We use the *neighborhood unemployment rate* as the measurement of spatial disadvantage, a relevant indicator of local deprivation in the French context (Pan Ké Shon 2010). The variable refers to the share of unemployed persons out of the total working population of the neighborhood. The *share of co-ethnics in the neighborhood* is our measure of ethnoracial composition. For the French majority, this variable measures the share of French natives (i.e. persons born with French citizenship) in the neighborhood out of the total population. For ethnoracial minorities, the share of co-ethnics refers to the proportion of immigrants[10] of the same broad ethnic group as the respondent out of the total population. Specifically, it measures the share of immigrants from Southern Europe (Spain, Portugal and Italy) for respondents with Southern European origins; the share of immigrants from North Africa (Algeria, Morocco, and Tunisia) for respondents with North African origins; and so forth.

The models also integrate spatial controls that are potentially correlated with the neighborhood variables of interest. These include the neighborhood age structure, measured by the share of residents aged under 30, and the degree of residential stability, measured by the share of households that had moved in the previous five years. The size of the municipality of residence is also included in all models. Finally, we control for fixed effects

[9] Acronym "aggregated units for statistical information". IRIS are infra-municipal divisions of between approximately 1,800 to 5,000 residents, created in 1999 by the French Census Bureau for administrative purposes. Municipalities of more than 10,000 inhabitants, and most towns of more than 5,000 inhabitants, are divided into these units. IRIS are a commonly used local scale in French research (Pan Ké Shon and Verdugo 2015; McAvay 2018; Vasilopoulos, McAvay, and Brouard 2021).

[10] Due to data limitations, this is the most precise information available regarding the minority composition of neighborhoods. The French census does not collect information on race/ethnicity or second generation immigrant status. Despite this restriction, the immigrant share can be considered a good proxy of minority concentration overall. However, given that we measure the density of the immigrant population only and not of minorities per se, it is likely that our findings underestimate the effects of ethnoracial segregation.

at the level of the department of residence. This is to ensure that the effects of neighborhood predictors are not confounded by unobserved factors at a broader spatial scale.

All models further control for the following individual-level variables: age group[11], gender, education, occupation, marital status, housing tenure, and whether the respondent has moved within the previous five years. Controlling for residential mobility allows us to capture some unobserved confounders (e.g. changes in political interest or income) that may influence changes in residential location over time. All variables, with the exception of gender and ethnoracial group, are treated as time-variant, measured at each EDP wave. We further integrate a continuous measurement of time and time-squared to the registration event. Due to repeated individual observations, models are estimated using robust standard errors clustered at the individual level.

II. TeO

The TeO survey was collected in 2008 on a representative sample of 21,761 individuals aged 18-60 residing in metropolitan France[12] (Beauchemin et al. 2018). Data were collected using a stratified sampling method to gain adequate sample sizes of first and second generation immigrants, including French majority respondents as a comparison group. Survey weights are applied in all descriptive analyses to account for the over-representation of ethnic minorities in the data. Voter registration is derived from a question asking respondents whether they were registered to vote at the time of the survey, recoded as a dummy.

[11] Following an insightful comment from an anonymous reviewer, we also explored whether specific cohort effects influence registration due to changes in nationality legislation in France. From 1993 until 1998, the acquisition of French nationality was no longer automatic at the age of 18 among children born in France to two foreign parents. Instead, these children of immigrants had to show their willingness to naturalize ("*manifester leur volonté*"). This reform may therefore have impacted the propensity to register among ethnic minority citizens who came of age during this time. We tested whether our results are sensitive to this cohort effect by adding an additional control in Model 1b, a dummy indicating whether the respondent turned 18 between 1993 and 1998. Results are shown in Table A8 in the Appendix. These respondents are significantly less likely to register over the period, yet our main findings are robust to the inclusion of this control.

[12] Data were produced jointly by the French Institute for Demographic Studies (INED) and the French Census Bureau (INSEE).

The sample used in the analysis is restricted to French citizens. We focus on three ethnoracial groups due to the availability of precise neighborhood co-ethnic shares for these groups: French majority citizens, African-origin citizens and Southern European-origin citizens (N=11,560). The French majority are respondents born with French citizenship and whose parents are both French natives. African-origin citizens are respondents who originated or who have at least one parent who originated from North Africa (Algeria, Morocco, Tunisia) or a Sub-Saharan African country, while Southern European-origin citizens originated or have at least one parent who originated from Portugal, Spain or Italy.

The TeO data producers have matched the survey with variables constructed from the French census at the *IRIS* level, providing comparable neighborhood indicators to those used in EDP. The key independent variables measured at the neighborhood-level are the unemployment rate and the share of co-ethnics out of the total population. This refers to the the share of French natives for French majority respondents, the share of immigrants from North or Sub-Saharan Africa for African-origin citizens, and the share of immigrants from Portugal, Spain and Italy for Southern-European origin citizens. The models further control for the share of recent movers and the share of residents under the age of 18 in the neighborhood.

To measure subjective experiences of marginalisation, we use four questions relating to discrimination and feelings of belonging in French society. TeO respondents were asked whether they experienced discrimination in the previous 5 years. The three response categories (often, sometimes, and never) were recoded into a dummy indicating yes (often/sometimes) or no (never). Feelings of belonging were measured by asking respondents whether they feel at home in France, whether they feel French, and whether they believe they are seen by others as French. These are reported on ordinal scales ranging from 1 (completely agree) to 4 (completely disagree), which we recode into dummies indicating yes (completely

agree and agree) and no (disagree and completely disagree). All four variables are combined into a dummy measuring experiences of marginalisation, coded 1 if the respondent reported either an experience of discrimination or responded negatively to at least one of the variables measuring feelings of belonging.

Model 5a is a logistic regression predicting voter registration including all controls. We then test the same two-way interactions as in the EDP analysis: between ethnoracial group and 1) the neighborhood unemployment rate and 2) the neighborhood co-ethnic share (Model 5b). To identify whether marginalisation boosts ethnic minority registration in co-ethnic neighborhoods, we test a three-way interaction between ethnoracial group, the neighborhood co-ethnic share, and experiences of marginalisation (Model 5c). All models control for age group, gender, education, income (measured in quintiles), marital status, housing tenure, nativity, whether the respondent has moved within the previous five years, municipality size and department fixed effects.

Descriptive statistics on all variables are provided in Table A1 (for EDP) and Table A2 (for TeO). French majority citizens have a higher rate of voter registration compared to ethnic minorities in both data sets. Among ethnoracial minorities, neighborhood co-ethnic concentration is highest among African-origin citizens. The French majority lives in neighborhoods with lower average unemployment compared to those with a foreign background. When it comes to individual-level factors, the sample compositions vary across data sets. In TeO, the ethnic minority sample is more disadvantaged in terms of education, income and housing tenure than French natives. African-origin respondents report substantially higher rates of marginalization than Europeans. In EDP, the ethnic minority sample is somewhat older and more advantaged on individual-level characteristics.

Results

Table 1 reports the effects of ethnoracial group and the key neighborhood variables on voter registration predicted from Models 1a and 1b. Full model results are provided in Table A3. Although the descriptive statistics in Table A1 showed that French majority citizens were more likely to register over the period than ethnic minorities by about 10 percentage points, these disparities mostly disappear after controlling for other factors. Significant differences between groups only remain for North African and Sub-Saharan African origin citizens, who are somewhat *more* likely to sign up to vote compared to the French majority net of controls.

Table 1. Effects of Ethnoracial Group and Neighborhood Variables on Registering (EDP)

	Registered to vote	
	Model 1a	Model 1b
Ethnoracial group/Ref: French majority		
Other Europe	0.068	-0.356†
	(0.118)	(0.183)
Southern Europe	0.095	-0.069
	(0.107)	(0.158)
North Africa	0.230*	-0.271†
	(0.103)	(0.147)
Sub-Saharan Africa	0.202†	-0.304†
	(0.119)	(0.182)
Other Non-Europe	0.125	-0.446**
	(0.108)	(0.158)
Neighborhood co-ethnic share	0.005***	0.001
	(0.001)	(0.001)
Interaction ethnoracial group/neighborhood co-ethnic share		
Other Europe x Neighborhood co-ethnic share		-0.066***
		(0.019)
Southern Europe x Neighborhood co-ethnic share		-0.044***
		(0.011)
North Africa x Neighborhood co-ethnic share		0.018**
		(0.006)
Sub-Saharan Africa x Neighborhood co-ethnic share		0.040†
		(0.022)
Other Non-Europe x Neighborhood co-ethnic share		0.034***
		(0.009)
Neighborhood unemployment rate	-0.012***	-0.016***
	(0.001)	(0.002)
Interaction ethnoracial group/neighborhood unemployment rate		
Other Europe x Neighborhood unemployment rate		0.019**
		(0.007)
Southern Europe x Neighborhood unemployment rate		-0.003
		(0.005)
North Africa x Neighborhood unemployment rate		0.006
		(0.004)
Sub-Saharan Africa x Neighborhood unemployment rate		0.006
		(0.008)
Other Non-Europe x Neighborhood unemployment rate		0.010*
		(0.005)
All controls	Yes	Yes

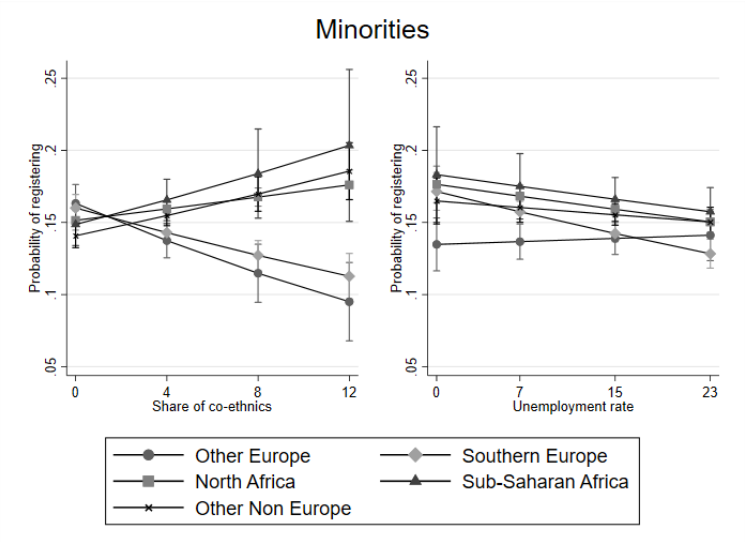
Observations	188,416	188,416

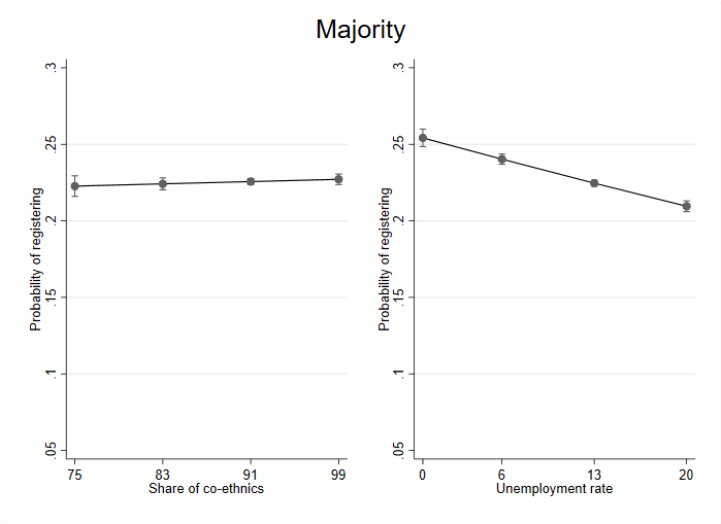
Source: Permanent Demographic Sample (INSEE). Table shows coefficients with standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, † p<0.10

The effects of the neighborhood on voter registration are also included in Table 1. Overall, spatial disadvantage and co-ethnic concentration in the neighborhood each have an independent, significant impact on registration. In line with H1, as the share of unemployed persons in the neighborhood increases, the log-odds of voter registration over the period falls. In contrast, the risk of registration increases with the share of co-ethnics in the local area.

However, the interaction terms included in Model 1b shows that these effects are not always consistent across ethnic groups. Figure 1 plots these interaction terms as the probability of registering over the period according to the neighborhood variables and ethnoracial group.

Figure 1. Effects of Neighborhood Variables on Registrering by Ethnoracial Group





Source: Permanent Demographic Sample (INSEE)

Contrasting slopes for the effect of the neighborhood co-ethnic share are observed across ethnic minorities, as shown in the top left-hand panel of Figure 1. The increased presence of co-ethnics in the neighborhood is associated with a greater likelihood of registering to vote among North African, Sub-Saharan African and other non-European origin citizens. The positive and significant slope for these groups indicates a mobilizing effect of co-ethnic proximity, giving support to H2. Yet in contrast, the effect of co-ethnic proximity has the opposite effect for European origin citizens: higher rates of immigrants in the local area significantly decreases political participation[13]. Among the French majority, the co-ethnic effect is positive but falls short of statistical significance (bottom left-hand panel)[14].

The effect of spatial disadvantage varies less according to ethnic background, as displayed in the right-hand panels of Figure 1. Living in a deprived area has a negative and significant effect for most groups.

[13] We further explored whether the impact of the neighborhood co-ethnic share on registration is sensitive to threshold effects. As Southern European origin immigrants tend to have lower shares of co-ethnics in their local areas (as indicated by the descriptive statistics in Table A1), the likelihood to register may only be boosted above a certain level of co-ethnic concentration. To investigate this, we ran models on European-origin citizens and non-European origin citizens separately, using a co-ethnic share variable measuring the share of immigrants from these two regions broadly defined and cut into quintiles. Results are reported in Table A9. There is no indication that the patterns observed in our main models are sensitive to threshold effects.

[14] We further ran two robustness checks on Model 1b: restricting the sample to urban respondents only and excluding the foreign born population. The results are robust to these alternative specifications.

We further tested whether the neighborhood co-ethnic effect documented here is sensitive to the measurement used. Indeed, when it comes to elite mobilization of minority voters, the share of co-ethnics in an area may be less decisive than the absolute size of the group. We estimated Model 1b controlling for the log size of the co-ethnic group in the neighborhood rather than the proportion of co-ethnics. The results are displayed in Table A4 and again confirm H2: as co-ethnic size increases, the likelihood of registering rises among North African, Sub-Saharan African and other Non-European origin citizens, while for citizens with a Southern European background, it falls.

Residential sorting or neighborhood effects?

The above findings have established a net correlation between the neighborhood environment and the likelihood of registering to vote. Nonetheless, the estimation of the co-ethnic share effect could be influenced by unobserved confounders that influence residential sorting *into* co-ethnic dense neighborhoods and which are also correlated with registration. For instance, citizens who choose to live among neighbors of the same ethnic background may have social, cultural and political attitudes directed towards the country of origin. These values may influence both place of residence as well as result in a lower degree of political engagement, perhaps explaining the negative correlation between co-ethnic concentration and registration for those with a European background. Similarly, residents who prefer living near others of a similar origin are likely to value co-ethnic social ties, a disposition which could also correlate with political engagement. This could explain why African origin and other non-European origin citizens tend to be more likely to register when living among co-ethnics. Such attitudes, values and preferences could be sources of stable individual heterogeneity in Models 1a and 1b.

To address this issue, we introduce individual fixed effects into the logistic discrete time model (Model 2). Individual fixed effects models provide more robust estimates of time-

varying predictors, factoring out unobserved characteristics of individuals that are presumed to be stable over time. These estimates can be more readily interpreted as causal neighborhood effects as they rule out the influence of such individual heterogeneity.

Table 2. Effects of Co-ethnic Concentration on Registering by Ethnoracial Group From Individual Fixed Effects Models

	Model 2 Full sample	Model 3 Moved in <5 years ago	Model 4 Moved in 5 or more years ago
Effect of the neighborhood co-ethnic share for the French majority	0.020***	0.019†	0.033**
	(0.006)	(0.010)	(0.012)
Other Europe x Neighborhood co-ethnic share	-0.119†	-0.376**	0.047
	(0.071)	(0.117)	(0.196)
Southern Europe x Neighborhood co-ethnic share	-0.267***	-0.130	-0.410***
	(0.048)	(0.104)	(0.109)
North Africa x Neighborhood co-ethnic share	0.086**	-0.008	0.142**
	(0.028)	(0.057)	(0.045)
Sub-Saharan Africa x Neighborhood co-ethnic share	0.320**	0.117	0.266
	(0.108)	(0.157)	(0.235)
Other Non-Europe x Neighborhood co-ethnic share	0.104†	0.150	0.060
	(0.056)	(0.106)	(0.107)
All controls	Yes	Yes	Yes
Observations	61,441	24,642	21,367
Number of respondents	28,150	11,578	9,853

Source: Permanent Demographic Sample (INSEE)
Table shows coefficients with standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, † p<0.10

Table 2 summarizes the effects of the neighborhood co-ethnic share, interacted with ethnic groups, from the individual fixed effects model (Model 2). Full model results are included in Table A5. Because ethnoracial group is a time-invariant factor, the main effect of the variable drops out of the model. The interaction terms for each group show the difference in the co-ethnic share effect compared to that for the French majority. Our main findings are robust after accounting for individual heterogeneity, or in other words, net of stable individual factors that may sort individuals into certain types of neighborhoods. Positive effects of the neighborhood co-ethnic share on registration persist for North African, Sub-Saharan African and other non-European origin citizens, while negative effects continue to be found for Southern Europeans. Model 2 hence provides further evidence in favor of H2.

Finally, we ran additional individual fixed effects models of voter registration accounting for residential mobility. Specifically, we distinguish between respondents who recently moved into the neighborhood (see Model 3, Table 2) and those who were already living there five years prior (see Model 4, Table 2). Full model results are again included in Table A5. The findings are particularly robust for long-term residents. This suggests that individuals are less influenced by the local environment after moving into a new neighborhood compared to citizens who live long-term in co-ethnic dense areas.

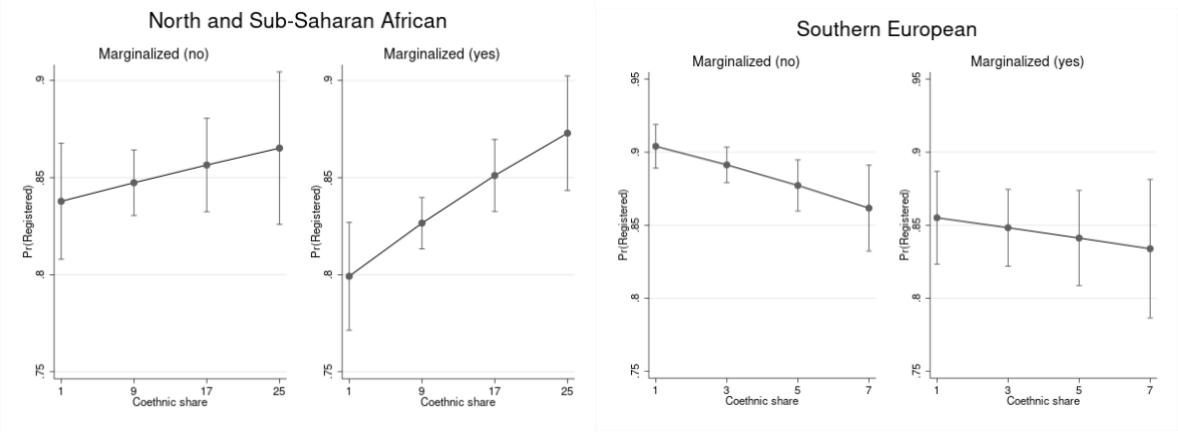
The role of marginalisation

We now turn to the analysis of the TeO data. Logistic regression models of voter registration are provided in Table A6. Findings from TeO first allow us to provide additional corroboration of our hypotheses. As Model 5a in Table A6 indicates, neighborhood socioeconomic disadvantage is negatively associated with registration, again in line with H1. The neighborhood co-ethnic share, while positively linked to voter registration overall, is again shown to vary significantly by ethnoracial group. Registration increases with the neighborhood share of co-ethnics for North and Sub-Saharan African origin citizens, but falls for Southern Europeans (Model 5b in Table A6). The TeO data thus further lends support to H2.

Importantly, TeO provides further insights into the mechanism underpinning the mobilizing co-ethnic effect for African-origin citizens. We test directly whether experiences of marginalization shape the propensity to register to vote among these citizens. To do so, a three-way interaction is included in the model between ethnoracial group, the neighborhood share of co-ethnics, and marginalization (see Model 5c in Table A6 for the full model). Figure 2 illustrates the interaction as probabilities of voter registration. We find that, while there is a positive link between the neighborhood co-ethnic share and voter registration for all African-origin citizens, the effect of the co-ethnic share is particularly salient among those

who feel marginalized within French society. For Southern Europeans, registration is again shown to fall in co-ethnic-dense neighbourhoods, and the experience of marginalisation exerts little effect on this association.

Figure 2. Registration by Ethnoracial Group, the Neighborhood Co-ethnic Share, and Marginalization



Source: TeO (2008).

Discussion and Conclusion

This paper drew on two unique datasets to explore the effects of neighborhood disadvantage and co-ethnic concentration on voter registration. We measured the extent to which the residential environment shaped registration differently across ethnoracial groups. We aimed to provide an original contribution to extant knowledge on the determinants of voter registration by exploring the joint and potentially diverging effects of living in deprived neighborhoods and living in proximity to co-ethnics across groups. The use of longitudinal data further allowed for robust estimates of neighborhood effects in individual fixed effects models so as to account for unobservables that simultaneously sort individuals into different types of neighborhoods and influence their political participation. This is the first empirical work to our knowledge that explores both the effects of spatial disadvantage and co-ethnic concentration on voter registration across different ethnic/racial groups using panel data to help account for self-selection into neighborhoods. A complementary analysis using survey

data further provided new insights into discrimination and marginalization as mechanisms of registration patterns in co-ethnic dense areas.

While France's socio-political model formally promotes a colorblind ideology that downplays the importance of ethnoracial hierarchies and identities, ethnoracial patterns in voter registration reflect trends found in other advanced democracies. In line with past literature on minority participation, we find that minority citizens are less likely to be registered to vote than French majority citizens; however, these disparities tend to disappear net of controls. We also find that neighborhood characteristics play a key role in minorities' political participation. Indeed, living in disadvantaged neighborhoods hinders voter registration for most citizens. The negative influence of spatial disadvantage aligns both with prior quantitative findings across national contexts (Maxwell, 2010; Cohen and Dawson 1993; Maxwell 2010; Pachecho and Plutzer 2008; Nickerson 2015) as well as qualitative studies that illustrate trends towards political marginalisation in France's deprived urban areas (Braconnier and Dormagen, 2007).

Yet, the central finding of our analysis is the variation in the co-ethnic concentration effect across groups. Living among co-ethnics boosts the political participation of citizens of African-origin and other non-European citizens, while depressing voter registration among European origin citizens. Further, in line with neighborhood effects research which emphasizes that the influence of the residential environment is stronger as exposure time to the neighborhood increases (Wodtke et al. 2011; Sharkey and Faber 2014), we find that co-ethnic effects are salient particularly among long-term residents. Moreover, neighborhood co-ethnic concentration promotes registration particularly among those minorities who report experiences of discrimination and marginalization in French society. All in all, these findings give credence to past literature arguing that ingroup identity, collective consciousness, and

thick social bonds lead to the political mobilization of ethnic minorities in the face of discrimination (e.g. Oskooii, 2020; Schildkraut, 2005; Pantoja et al., 2001).

What, on the other hand, might explain the lower propensity to register to vote among European-origin citizens living in co-ethnic dense areas? There is no evidence among these groups of substantial inequalities vis à vis French natives in socioeconomic outcomes or discrimination on job and housing markets (Meurs et al. 2006; Brinbaum, Safi and Simon 2018). European immigrants and their descendants are also less residentially segregated from French natives compared to African origins (McAvay and Safi 2018; Pan Ké Shon and Verdugo 2015). The absence of a collective consciousness around discrimination may hence reduce political mobilization among European minorities in co-ethnic neighborhoods. A second possible deterring mechanism may lie in the lower degree of sociopolitical integration of European minorities. These groups are less likely to naturalize (Fougère and Safi 2009) and display a greater degree of sociopolitical transnationalism (namely an interest in politics, elections and sense of belonging to the country of origin) compared to other groups (Safi 2017). While prior studies do not explore how these characteristics vary by levels of spatial concentration, it is reasonable to expect that sociopolitical connections to the country of origin would be intensified in places where co-ethnics are present, and hence reduce the electoral engagement of European-origin citizens in areas of co-ethnic density.

It is important nonetheless to nuance these findings in light of some analytical limitations linked to the data. The imprecise measurement of ethnic/racial categories, relying on parental national origin, is a drawback that is inherent to French colorblind data collection. This is also true of the measurement of co-ethnic concentration, which is restricted to first generation immigrants only. However, it is possible that these limitations underestimate our findings, as relying on migrant background only underestimates the size of the minority population. Further, we cannot identify whether the presence of ethnic minority candidates in

certain elections spurred registration in minority areas, as prior research shows (Bobo and Gilliam 1990; Fairdosi and Rogowski 2015). Since minority candidates are more likely to run for office in minority districts, this may account for some of the co-ethnic effect. Likewise, the data do not allow us to test directly for the mechanism that minority voters are incited to register due to elite mobilization. Finally, while individual fixed effects models improve estimates of neighborhood effects by accounting for individual characteristics that are stable over time, these models are not without limitations. Unobserved factors that vary over time remain potential confounders of the neighborhood variables. Still, the models control for a wide range of individual characteristics that change over time, including residential mobility, to help reduce bias stemming from time-variant unobservables.

All in all, with the growing diversity of contemporary Western societies, the equal political representation of ethnic/racial groups poses a key democratic issue that is likely to intensify in the future (Ford and Jennings 2020). Understanding the sources of the political participation gap between majority and minority citizens will remain a crucial challenge to implementing effective strategies to reduce disparities in the electoral process. As future research continues to investigate the role of local communities in political participation, these findings emphasize the importance of attending to both the socioeconomic and ethnoracial dimensions of neighborhoods as well as how these spaces represent potentially contrasting political opportunity structures for different ethnoracial groups.

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