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Final Report

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Abstract

From 2007 to 2011, several research programs were conducted in the context of the projet blanc DISCRI-SEGRE funded by the French National Agency for Research. The focus of this research program was on discrimination related to rental housing markets, education in suburbs, network and spillover effects and finally obstacles to mobility. This final report summarizes the results and the perspectives opened by the activities organized within the project. It contains an overview of the research program followed by three main parts: (1) an empirical section devoted to the measurement of discrimination and segregation in French society, (2) a theoretical part on the mechanisms and inter-relation of discrimination and segregation and (3) a discussion of the implications for policies aimed at achieving more equality in education and labor market outcomes.

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1 Introduction

Socioeconomic disparities across neighborhoods and ethnic groups in most European and American cities are a major concern for social scientists, politicians and the general public alike. These phenomena often bring about comments and worries about the extent to which they might erode social cohesion. In turn and with variations across countries, those eventually feed into public policies aimed at increasing the social and ethnic diversity of the neighborhood population in these cities. However, even in countries where important resources have been invested into these efforts, evidence of a decreasing trend in the concentration of minorities in underprivileged neighborhoods remain scarce[1]. Successive audit studies in the United States have proven that racial and ethnic discriminations are one of the major explanations of this very slow - non existent in some cities - decrease in urban segregation (Committee on National Statistics [21], Massey and Lundy [42], Ondrich, Stricker, and Yinger [45], Yinger [62]). An increasing body of research points to the significance of these factors in European societies too (Ahmed and Hammarstedt [2] provide evidence from a field experiment in Sweden; for Italian and British cities, see Baldini and Federici [7] and Riach and Rich [49], respectively; finally for France an audit study carried out by the *Haute Autorité de Lutte contre les Discriminations et pour l'Egalité* [33] and the study by Bonnet, Lalé, Safi, and Wasmer [15, 16] described hereafter also indicate discriminatory practices in housing markets). If anything, the long-lasting reality of these disparities shows that more efforts have to be made to understand the driving sources of these phenomena (Arrow [6]), and eventually to increase the efficiency of policies aimed at achieving more equality.

1.1 On the local and social aspects of discrimination and segregation

Pioneering applications of economic analysis to discrimination were primarily concerned with differences in labor market outcomes (wages and employment) across ethnic or gender groups. Relying mostly on a competitive (individual) approach where discrimination can occur due to differences of tastes among employers, or imperfect information about the ability or behavior of workers, the economics of discrimination has been successful in providing competing – yet often compatible – explanations for unequal outcomes that are not attributable to productivity differentials. The latter cause, often called "statistical discrimination" has been particularly useful to explain the persistence of group differentials (Phelps [47], Arrow [5]), while the former, often called "taste-based discrimination" (Becker [8]) can only achieve this result when associated with the existence of labor market imperfections. Search frictions, i.e. the time-consuming process through which employers and job-seekers meet, is one example of such imperfections (Black [13]).

In parallel, social scientists have sought to understand the drivers of spatial segregation and have investigated their implications for personal lives, from access to education to economic success and the building of social networks. The potential causes of segregation, for instance, were the focus of Schelling's model [54] showing that intense levels of segregation may be brought about by mild preferences for having neighbors of their own race. Coincidentally, Kain [35] put forward the "spatial mismatch hypothesis" to attribute the difficulties of African-American workers to find and keep well-paid jobs to their residing in urban segregated areas with poor connections to the centers of employment growth[2]. Altogether, these views demonstrate the complex nature of segregation dynamics: while Shelling's seminal contribution emphasizes the role of individual preferences, those necessarily interact with strategic considerations regarding residential mobility towards neighborhoods with better employment opportunities, broader school choices or high safety conditions.

[1] Comparing trends in urban segregation across countries is made difficult by the lack of commensurable measurements of the extent of social and ethnic segregation in Western societies, most notably because these phenomena are deeply rooted in the idiosyncratic histories of cities and states. An attempt to provide uniform information on these questions can be found in Musterd [44].

[2] The hypothesis has received ample empirical support surveyed by Ihlanfeldt and Sjoquist [34] and Zenou [64].

In recent years, several articles have indicated the relevance of bringing together insights from the two lines of research aforementioned. With no pretense to be exhaustive, we shall outline several reasons why increased attention has been given to the local and social aspects of discrimination and segregation.

First, challenged by the enduring significance of segregation in the majority of multiethnic cities, a number of scholars have argued that the prevailing forms of discrimination have become more and more subtle. That is, if direct denial of access to housing for some ethnic and racial groups may still occur, less visible steering strategies (Galster [30]) consisting in orienting minority populations to ethnically homogenous neighborhood may also have become increasingly frequent. Other local factors have been shown to play a significant role in this respect, from access to mortgage credit (Ross and Yinger [50]) to the lasting Whites' unwillingness to live in neighborhoods with high proportion of ethnic minorities, and especially Blacks (Bobo and Zubrinsky [14], Charles [19]). Nowadays, these questions form the basis of an active research literature (the empirical literature devoted to race-based tipping behaviors in neighborhoods, for example, is flourishing; see e.g. Card, Mas and Rothstein [18]) and heated debates among scholars (see for instance Yinger [63]'s discussion of the book by Thernstrom and Thernstrom [56]) .

Second, in an effort to provide a more comprehensive approach to labor market outcomes, economists have enriched their analyzes with dimensions of personal lifes that deepen our understanding of the local aspects of discrimination and segregation. One example from the economics of discrimination is the incorporation of educational choices into the framework of statistical discrimination by Coate and Loury [20]: this brings to the forefront the question of pre-market discrimination, i.e. minorities who underinvest in schooling because they anticipate lower returns to skills, and thereby confirm employers' beliefs regarding their lower levels of productivity. Another example from the economics of labor markets is the explicit modeling of space in job-search theory: a framework showing how "space affects search" (Wasmer and Zenou [61]) is a starter for analyzing the inter-relation of discrimination and segregation at the local level.

Third, several works have indicated that discrimination and segregation are intimately related phenomena. To limit the discussion to the case of France, the 2004 report on integration and segregation by Fitoussi, Laurent and Maurice [26] puts forward a "spatial hysteresis hypothesis", which states that decades of double-digit unemployment rates suffered by the inhabitants of deprived suburbs in France have given rise to a vicious circle whereby discrimination on the labor market and spatial mismatch in the sense of Kain [35] mutually reinforce each other. The authors point out the subsequent increased likelihood of engaging into negative actions, such as underground activities, informal jobs and crime and formulate some recommendations for public policies targeted at fighting these problems. However, as the authors themselves ackowledge, the inherent complexity of the spatial hysteresis phenomenon limits the possibility of exact policy recommendations. As such, their report calls for further investigations into the inter-relation of discrimination and segregation.

Taking stock of these observations, the scope of the DISCRI-SEGRE project was restricted from the beginning to the local and social aspects of discrimination and segregation. Throughout, the emphasis was put on discrimination related to rental housing markets, education in suburbs, local networks, obstacles to mobility and their spillovers onto the labor market (details follow). The specificities of the French context were the other factor that shaped this project.

1.2 The French context and its specificities

A number of specific features of the French context motivated the analysis in the DISCRI-SEGRE project and are commented here. They are also worth pointing out because, for some of them, they account for the scarcity of research on discrimination and segregation in France. Other relevant contextual elements regarding the urban geography and the identities of minority groups in France are also provided here.

Broadly speaking, France embodies the universalistic, colorblind model on race relations. Its unique republican setting stipulates that there is no such thing as ethnic or racial differentiation in French society and the French Constitution's first article states that "France (...) ensures the equality of all citizens before the law, without distinction of origin, race or religion". This has important implications for research on discrimination and segregation in this country in general and for the present project in particular. First, this setting has for long undermined the scientific and political legitimacy of researches on ethnic and racial inequality in France (Safi [53]). Second, the French Constitution's first article makes it difficult for race-based affirmative action to be enforced, but also for ethnic statistics to be collected (Simon [55]). The French supreme court opposes ethnic statistics – and so do many French scholars. Private research firms may ask the permission from an ethics commission to collect ethnic statistics, but they only work on limited samples due to lack of resources. The French census forbids itself to collect ethnic data.

Recent studies, however, challenged the French myth of a colorblind society. It has been shown that ethnic segregation is of higher magnitude than strictly social segregation and that it decreases very slowly, and may even have increased in the Paris region (Préteceille [48]). Evidence was provided from various dimensions of social life, ranging from labor market outcomes (Aeberhardt, Fougère, Pouget and Rathelot [1]) to the mobility decisions and residential choices of immigrants (Safi [53], Verdugo [58]) and the rental housing market (see the audit study by the *Haute Autorité de Lutte contre les Discriminations et pour l'Egalité* [33] aforementioned and the study carried out by Bonnet, Lalé, Safi, and Wasmer [15, 16] as part of the DISCRI-SEGRE project). In sum, evidence suggests that France faces a racial question. Public perception of these phenomena, however, has long been postponed by the reluctance of French society to accept strong individual identification to ethnic communities, and remains problematic nowadays.

Media accounts and commentary of the 2005 and 2007 urban riots in France probably contributed to raise public awareness of these issues. To a large extent, however, they were only the visible part of the iceberg: decades of urban changes and post-colonial immigration have indeed created important patterns of residential segregation in France. A brief presentation of urban history of postwar France is in order here.

In 1962, Algerian independence forced out one million French toward metropolitan France. The impact was however localized to France's southern regions where new areas and new cities were created in emergency. During the end of the 1950s until 1974, French authorities organized large scale immigration to provide cheap labor to the industry and construction sectors. The main countries concerned were Spain, Portugal, Algeria and to a lesser degree Morocco and Tunisia. Social housing (in the 1960s) and new cities (in the 1970s) were built in haste in the suburbs to accommodate the new needs. In 1974, organized economic immigration was stopped, but migrants had their family join them in France. At the same time, middle class baby boomer families reached an age at which they could buy a single-unit house in the farther, more affluent suburbs. They were replaced in social housing units by immigrant families with second-generation children coming to age. In the mid-1980s, the decline of inflation prevented housing authorities to invest in the maintenance of their buildings. Their quality declined sharply, forcing out the tenants who could afford to move elsewhere. Social housing became synonymous with ethnic neighborhood. *De facto* segregation was reinforced by immigration from sub-Saharan Africa in the 1990s and 2000s. These episodes contributed to changing France's urban landscapes deeply, with relatively wealthy inner cities and immigration, poverty and unemployment concentrated in some suburbs.

Throughout this report and in line with the elements described above, the term "ethnic minority" refers to Africans (mostly North Africans) and their descendants in France (unless otherwise specified). Urban segregation refers to the situation of underpriviledged suburbs, the French "*banlieues*", relative to the more wealthy inner cities (again, unless otherwise specified).

2 DISCRI-SEGRE: overview of the project

2.1 Three main research axes

Recognizing the specificities of the French context and the relevance of local approaches to discrimination and segregation issues, Etienne Wasmer, the scientific coordinator of the DISCRI-SEGRE project, decided to put the emphasis on discrimination related to rental housing markets, education in French suburbs, the role of networks and social capital, obstacles to geographic mobility and finally the potential spillovers onto the labor market. The research was organized around three main axes:

1. **Observation and measurement:** In the absence of robust empirical assessment of discrimination on the housing market in France, one of the objectives of the project was to develop an innovative method to provide such measurements. Given the importance of the *banlieues* in the patterns of urban segregation in France, the idea was to test the existence of spatial and racial stigma that might hamper residential mobility among the inhabitants of these deprived suburbs. To do so, a testing procedure in the spirit of Bertrand and Mullainathan [12] (who analyze labor markets in two American cities, Boston and Chicago) would be adapted to the French context.

2. **Theory and empirics:** Because discrimination is especially hard to prove on the rental housing market, it was decided from the beginning that the project would not be only positive, but would also develop theoretical analyzes and test their implications on micro-data from surveys providing information on the residential decisions of individuals. The joint modeling of space and labor markets would be particularly relevant here, and previous work by Etienne Wasmer and Yves Zenou was to serve as a basis for this research. The analysis would primarily focus on the role of networks and on the modeling of mobility decisions (either residential mobility or home-to-work movements).

3. **Institutions and policy:** The issues investigated in the project naturally raises questions about government intervention and the type of policy that would help achieving more equality. It was thus decided to define a third axe of research devoted to the interaction of institutions and the functioning of markets. In line with the local approach to the issues tackled by the project, two particular questions would be investigated: (1) how a geographically-targeted affirmative action program such as the Conventions ZEP implemented by Sciences-Po (details follow) can shed light on pre-market discrimination and (2) how regulation (notably legal procedures) of housing markets affect their functioning.

2.2 A multiplicity of approaches and methodologies

"Can a phenomenon whose manifestations are everywhere in the social world really be understood, even in only one aspect, by the tools of a single discipline?". The implicit answer to Arrow [6]'s question strongly influenced the philosophy of the project, although the economic approach to discrimination and segregation issues was priviledged throughout. Gains from cross-field fertilization were considered as crucial to the project, which constantly incorporated contributors with very different backgrounds. This reflected also in the programs of the two seminars that were organized as part of the DISCRI-SEGRE project.

An interdisciplinary approach:

A number of studies conducted as part of the DISCRI-SEGRE project gathered together researchers from different disciplines and/or embraced a multidisciplinary approach. The most representative studies in this respect were the following:

- The two studies by Bonnet, Lalé, Safi and Wasmer [15, 16] rely on: (i) an audit study well in the economic tradition of quantitative assessment of discrimination and (ii) face-to-face interviews, a qualitative method commonly used in sociology. The team itself associates two economists (Etienne Wasmer and Etienne Lalé, PhD candidate in economics at Sciences-Po) and two sociologists (Mirna Safi, a sociologist at the OSC, Sciences-Po, working on immigration, and François Bonnet, now an assistant professor of sociology at the University of Amsterdam, working on urban issues with qualitative methods).

- A follow-up and on-going research described in subsection 2.3 associates to the team Julie Pollard (assistant professor of political science at the University of Lausanne, working on urban policies and interest groups). The project itself is best described a "sociological difference-in-differences", with qualitative interviews conducted in two cities in Switzerland which will serve as "counter-factuals" to the interviews conducted in two cities in France. Thus, it brings together qualitative methods and an approach derived from quantitative evaluations of public policies.

- The study by Ombeline Gras [32] was conducted in partnership with the master program in Economics and Psychology hosted by universities Paris I and V. It contains a literature review of psychological concepts applied to discrimination and segregation issues. It then relies on a field study which notably adapted a questionnaire from an American psychological study to the context of French high-schools. It draws extensively on the recent literature in psycho-economics (Akerlof and Kranton [3], Bénabou and Tirole [10]).

Though the other researches conducted in the context of the DISCRI-SEGRE project do not ignore the complementarity between the economic approach they rely on and insights from other disciplines, the examples above were purposefully multidisciplinary. As such, they illustrate the attempt that was made in the project to adopt an approach reflecting the multifaceted aspect of discrimination and segregation issues.

Workshops:

Two international workshops were organized as part of the DISCRI-SEGRE project, both hosted by Sciences-Po. The list of papers and participants clearly illustrates the attempts made within the DISCRI-SEGRE project to open the perspectives for a more comprehensive understanding of discrimination and segregation:

Workshop no. 1: (March 22, 2010) The workshop was organized by Yann Algan (Sciences-Po), David Laitin (Stanford) and Etienne Wasmer (Sciences-Po). The list below includes the speakers and their co-authors, who all participated to the workshop.

Speaker	**Paper**
Bruno Decreuse (GREQAM)	*Discrimination on the Housing Market* with Alain Trannoy (GREQAM)
Etienne Lalé (Sciences Po)	*An Audit Study of the French Rental Housing Market* with François Bonnet (University of Amsterdam), Mirna Safi (OSC Sciences Po) and Etienne Wasmer (Sciences Po)
Jeffrey Zax (UColorado Boulder)	*Gender Discrimination*
Rolan Rathelot (CREST)	*Wrong origin or Wrong Neighborhood?*

Camille Hémet (Sciences Po)	*Fractionalization and Public Good: a Natural Experiment Based on HLM* with Yann Algan (Sciences-Po) and David Laitin (Stanford)
Mame-Fatou Diagne (UC Berkeley)	*Geographically-Targeted Affirmative Action and Incentive Effects in French High-schools* with Etienne Wasmer (Sciences Po)

Workshop no. 2: (December 16, 2011) The workshop was organized by Morgane Laouénan (Sciences-Po) and Etienne Wasmer (Sciences-Po). In the list of keynote speakers below, the co-authors did *not* participate to the workshop.

Keynote Speaker	**Paper**
Kevin Lang (Boston University)	*The Evolution of the Black-White Test Score Gap in Grades K-3: The Fragility of Results* (with Tim Bond)
Patrick Bayer (Duke University)	*The impact of jury race in criminal trials* (with Shamena Anwar and Randi Hjalmarsson)
Leah Platt Boustan (UC, Los Angeles)	*White Suburbanization and African-American Homeownership, 1940-1980* (with Robert Margo)
David Neumark (UC Irvine)	*Race and Ethnicity in Hiring*

In addition the following papers were presented during the workshop. In the list of speakers below, the co-authors did *not* participate to the workshop.

Speaker	**Paper**
Florian Mayneris (IRES-UC Louvain)	*The Impact of Urban Enterprise Zones on Establishment Location Decisions: Evidence from French ZFUs* (with Thierry Mayer and Loriane Py)
Marie-Anne Valfort (Paris I)	*One Muslim is enough!* (with Claire Adida and David Laitin)
Amine Ouazad (INSEAD)	*Credit Standards and Segregation* (with Romain Rancière)
Thomas Le Barbanchon (CREST)	*Do Anonymous Resumes Make the Battlefield More Even? Evidence from a Randomized Experiment* (with Luc Behaghel and Bruno Crépon)

Finally a poster session was organized with the following participants: Romain Aeberhardt (CREST), Morgane Laouénan (Sciences-Po), David Pothier (European University Institute), Modibo Sidibé (GATE & CREST), Linas Tarasonis (Paris School of Economics), Maxime Tô (Sciences-Po and CREST) and Gregory Verdugo (Banque de France).

2.3 Main outputs and on-going research

Project outputs:

The length of time necessary to publish a paper in a top journal is usually higher in economics than in many other disciplines since the publication process typically involves a long cycle of reviews and revisions. For this reason, some studies which are part of the DISCRI-SEGRE project are still only in draft form.

- Publications in peer-reviewed journals:
  - David, Quentin, Janiak, Alexandre and Wasmer, Etienne (2010). Local social capital and geographical mobility, Journal of Urban Economics, 68(2):191–204.
  - Gautier, Pieter A. and Zenou, Yves (2010). Car ownership and the labor market of ethnic minorities. Journal of Urban Economics, 67(3):392–403.
  - Rupert, Peter, Stancanelli, Elena G. F., and Wasmer, Etienne (2009). Commuting, wages and bargaining power. Annals of Economics and Statistics, pages 201–220.
  - Rupert, Peter and Wasmer, Etienne (2012). Housing and the labor market: time to move and aggregate unemployment. Journal of Monetary Economics, 59(1) (in press).
- Publications in non-academic journals:
  - Bonnet, François, Safi, Mirna, Lalé, Etienne, and Wasmer, Etienne (2011). À la recherche du locataire «ideal»: du droit aux pratiques en region parisienne. Regards croisés sur l'économie, 9:216–227.
  - Fitoussi, Jean-Paul, Laurent, Eloi, and Wasmer, Etienne (2012). Pour la diversité : contrecarrer les discriminations et la ségrégation urbaine. In France 2012 : E-book de campagne à l'usage des citoyens. Observatoire français des conjonctures économiques.
  - Wasmer, Etienne (2012). Discriminations et ségrégation : le visible et l'invisible. In France 2012 : E-book de campagne à l'usage des citoyens. Observatoire français des conjonctures économiques.
- Papers currently in draft form:
  - Bonnet, François, Safi, Mirna, Lalé, Etienne, and Wasmer, Etienne (2012). Better spatial than ethnic discrimination! Reconciling audit's findings and interviews' findings in the French housing market.
  - Diagne, Mame-Fatou and Wasmer, Etienne (2010). Geographically-targeted affirmative action and incentive effects in French high schools.
  - Fougère, Denis, Kramarz, Francis, Rathelot, Roland and Safi, Mirna (2011). Social housing and location choices of immigrants in France, IZA Discussion Paper no. 5557.
- Master dissertations that benefited from the support of DISCRI-SEGRE:

- Gras, Ombeline (2011). Shaping ambitions: a solution against prejudices and self-censorship?
- Malgouyres, Clément (2011). Estimating the impact of enterprise zones on commercial rents

Ongoing research projects:

Three studies initiated as part of the DISCRI-SEGRE project are currently in progress. Working papers are expected to be available soon.

- *Interviewing Rental Agents in France and in Switzerland: a "Sociological Diff-in-Diff"*
  The project is piloted by François Bonnet (assistant professor of sociology at the University of Amsterdam) and Julie Pollard (assistant professor of political science at the University of Lausanne). The goal is to identify how the regulation of housing markets affect the selection process of housing applicants. This cannot be achieved by direct comparison of two housing markets regulated by different laws because differences are likely to exist along other relevant dimensions, in particular in prices and in the number of vacant units. To overcome this issue, face-to-face interviews with real estate agents (similar to those used in Bonnet, Lalé, Safi and Wasmer [15, 16]) are conducted in four different cities: two cities in two provinces of Switzerland where different laws are in place and two cities in France which exhibit differences in prices and market tightness similar to the two Swiss cities but which are regulated by a uniform legislation. In principle, the French cities can be used as a control group to "wash out" the effect of prices and vacancies on the selection of housing applications.

- *Residential Income Segregation: Empirical Evidence from France*
  The project is conducted by Nina Guyon, now a PhD candidate at the Paris School of Economics and a research associate of the LIEPP (Interdisciplinary Laboratory for the Evaluation of Public Policies) recently created in Sciences-Po. The objective is to document the evolution of residential income segregation in France over the past decade (a period of increased tension on the housing market), and in particular to analyze (i) the correlation between the incomes of neighboring households and (ii) its dynamic response to residential mobility. Nina Guyon was granted access to a rich administrative dataset, which allows her to compute the pre-tax earnings of each household. The geographic location of households is known with a high level of precision: it is available at the cadastre level, which corresponds to a neighborhood of roughly a hundred housing units. A working paper is expected to be available within the next semester, and a summary of the main findings is available in a book on middle class households in France directed by French economist Eric Maurin.

- *The score gap between children of immigrants and children of natives in French primary schools*
  This joint work by Denis Fougère (a CNRS research director and research associate at LIEPP) and Maxime To (a PhD candidate at CREST and Sciences-Po) examines the determinants and the evolution of the educational achievement of children of immigrants and children of French persons in French primary schools. They aim at decomposing the score gap between these children by means of a detailed Blinder-Oaxaca decomposition performed at different ages. Specifically, they seek to decompose the score gap into an explainable and two structural components. The underlying model is based on Todd and Wolpin [57]'s cognitive skill production function approach. To do so, they make use of individual data coming from the French primary school panel (*Panel du premier degré*), which contains information about the school career of approximately 10,000 randomly selected pupils who entered primary school in France in 1997. This panel dataset, which has been collected by the French Ministry of Education (*Ministère de l'Education Nationale, de la Jeunesse et de la Vie associative*), follows these pupils until the 6th grade.

3 Measuring discrimination and segregation in French society

3.1 Empirical material assembled during the project

Several studies of the DISCRI-SEGRE project assembled new empirical material to provide a quantitative assessment of discrimination and segregation in French society. Not surprisingly, the researches based on these material are only available in draft form: assembling empirical material is time-consuming, and the exploration process of the data usually requires several months before obtaining stable results. This section describes these original empirical materials.

A phone-based audit study of the rental housing market

Bonnet, Lalé, Safi and Wasmer [16] piloted a paired-testing audit study based on phone calls to real estate agencies located in the region of Paris and which advertise housing vacancies on the internet. The phone conversations were designed to investigate the role of foreign names (from Maghreb and North Africa) and of residence (deprived suburbs vs. richer neighbourhoods) on the likelihood of a positive contact with a real estate agency after a telephone conversation. The study was carried out in May 2009 by a team of 8 persons aged 22 to 28, all students in Sciences-Po. The outcomes of the phone conversations were subsequently coded to obtain a dataset comprising 250 pairs of phone calls, which allows econometric examinations of the differential outcomes (if any) obtained by the fictitious applicants of the audit study (a more detailed account is provided in subsection 3.2).

Face-to-face interviews with rental agents

Because the process of renting an apartment goes beyond the simple phone interview (there are visits during which the personal contact is established, and the process of a complete application includes the provision of many official documents, such as payroll forms), the phone survey in Bonnet, Lalé, Safi and Wasmer [16] may miss important aspects of the selection process during which discrimination may or may not occur. Bonnet, Lalé, Safi and Wasmer [15, 16] subsequently decided to organize 30 face-to-face interviews with real estate agents from several areas in Paris and around, in order to understand better the mechanisms behind discrimination; to investigate not only patterns of action (presumed discrimination), but also the subjective meaning of these actions. The interviews were carried out by a team of 4 persons, most of whom were PhD candidates in sociology and who were all familiar with the methodology involved in these interviews. The ongoing research in Switzerland (subsection 2.3) relies on the same methodology.

A database to analyze French high-schools

To analyze the impact of the Conventions Prioritaire d'Education (CEPs) launched by Sciences Po in 2001 (see subsection 3.3 for details), Diagne and Wasmer [24] were granted access to data from Sciences Po on the 25 high schools which entered the program between 2001 and 2006. They enriched the database by matching it to data from the French Ministry of Education on all secondary schools (public or private with government supervision) in the three main school districts (*academies*) of France where CEPs were experimented: Creteil, Nancy-Metz and Versailles. The enriched database also includes three other *academies* which are comparable to those where CEPs were experimented over the period considered (Lille, Reims and Dijon). By doing so, they were able to build several control groups to analyze CEPs using conventional methods in public policy evaluation.

A field study adapted from psychology

To understand the impact of CEPs on outcomes that differ from those analyzed by Diagne and Wasmer [24], Gras [32] adapted a questionnaire from a psychological study by Markus and Nurius [40] to obtain accurate measurements of students' current, past and possible "selves" – a concept borrowed from the psychological literature. The questionnaire were mailed to high-schools to be filled in by students in 13 high-schools which had entered the CEP program and in 9 other comparable high-schools. The questionnaire was supplemented by a short survey collecting information such as age, gender, and other controls. Teachers administering the questionnaire were also asked to fill in a brief feedback survey and to provide information on class composition. Building on Diagne and Wasmer [24]'s methodology to obtain control groups, Gras [32] thus created an original dataset suitable for a statistical assessment of the impact of a public policy on psychological outcomes.

A rich administrative database to analyze residential income segregation

As described in subsection 2.3, Nina Guyon relies on a unique administrative dataset to conduct her analysis of residential income segregation. This was created by the French internal revenue service administration for use by the French ministry of public works and equipment. It has several important features for the purpose of her analysis: (i) it has information on the exact composition and income of households, (ii) information is avaible at a very fine level of geographic aggregation and (iii) housing units can be matched longitudinally across the entire time-period. The data can thus be organized in panel structure, which allows the use of adequate econometric techniques to study the dynamics of income segregation.

A study of local rental prices based on geocoded transactions

The study by Malgouyres [39] is another example of a unique dataset assembled as part of the DISCRI-SEGRE project. The goal is to estimate whether local tax cuts aimed at attracting firms in specific areas to stimulate local employment lead to an increase in commercial rental value. To do so, a convention was signed with BNP Real Estate Research in order to access a database on all office and industrial property rental transactions whose areas exceed 5,000 square meters. Using the GIS Mapinfo and the geocoding software of Pitney Bowes, about 34,000 transactions that took place in the Parisian region between 2000 to 2010 were subsequently geocoded at the building block level (*îlot*). This allows the construction of 11 cross-sections of transactions, which are then used to apply standard difference-in-differences methods to analyze the growth of rental values within areas where local tax cuts were implemented.

A database to analyze the individual and contextual determinants of residing in public housing units

Fougère, Kramarz, Rathelot and Safi [28] examine the empirical links between social housing policy (specifically, the *habitations à loyer modéré* program, hereafter HLM) and location choices of immigrants in France. They makes use of individual information coming from large extracts of the population Censuses conducted by the French Statistical Institute in 1982, 1990, and 1999. The Census is especially relevant for their study since it allows them to deal with significant samples of immigrants, according to their origin country, these groups being generally too small in French surveys. It contains relevant information about the observable individual characteristics of immigrants (country of birth, age, marital situation, occupation, human capital, etc.). They further add to this information some contextual variables extracted from the exhaustive Censuses. The fact that the proportion of persons living in HLMs varies across cities and over time allows them to study the effects of individual and contextual covariates on the probability to live in a HLM for natives and for the different groups of immigrants, as well as the evolution of this probability through time.

3.2 Direct discrimination: evidence from the housing market

3.2.1 An audit study of the Parisian rental housing market

The paired-testing audit study in Bonnet, Lalé, Safi and Wasmer [16] is an attempt to provide robust empirical evidence of discrimination on the rental housing market. The methodology shares some characteristics present in other audit studies (e.g. Bertrand and Mullainathan [12]): paired-testers, randomized vita and experiences, names signaling the fictitious applicant's origin (from Maghreb and North Africa). It also has some distinctive features. First, it is based on phone conversations, which required substantial preliminary preparation of the conversations, and subsequent important work to code a large number of observations and outcomes in a quantitative way. Second, it aims at investigating both the role of foreign names and the role of the current residence (deprived suburbs vs. richer neighbourhoods) of fictitious applicants.

The goal of Bonnet, Lalé, Safi and Wasmer [16] is to detect the existence of a *banlieue* effect, i.e. to determine whether the current location of applicants does not act (only) as a proxy for their ethnic origin but matters *per se*. This would limit residential mobility among the inhabitants of these areas and give rise to residential traps, a particularly alarming phenomenon in light of epimedic theories of ghettos (Crane [22]).

Though there are in principle many possible combinations of geographic and ethnic origins that would be relevant for their purposes, Bonnet, Lalé, Safi and Wasmer [16] had to adapt the experiment to take into account several constraints: short phone conversations, high turnover of the advertised dwellings targeted by the study and the possibility of an audit study being suspected. Thus, they relied on the comparison of two procedures:

- In the first procedure, the fictitious applicant explains in the very first sentence of the conversation that he/she has to relocate from her current location to a new one, thereby signaling his/her residence.
- In the second procedure, the fictitious applicant instead starts by giving his/her name and expresses interest for the dwelling, thereby signaling his/her origin.

During the conversation, the fictitious applicant would attempt to signal his/her origin (first procedure) or his/her residence (second procedure). The outcomes of the 250 pairs of phone conversentions were then coded as follows: (1) Already rented, nothing else available, (2) Ask to send file with personal details, (3) We call you back but no recall, (4) Already rented but something else available, (5) Collective visit planned and (6) Individual visit planned.

Bonnet, Lalé, Safi and Wasmer [16] test different econometric models to detect discrimination against the minority candidate. They introduce controls at various levels (individual testers, pairs of testers, city level and finally audit level) and experiment linear models, in levels and in probability. Their findings are as follows:

- The fictitious applicants from deprived suburbs had significantly lower success rates than their counterpart from richer neighbourhoods. They also reported less pro-activity on the part of rental agents.
- On the other hand, foreign origin as signaled by the second procedure is found to have no significant impact on the likelihood of a positive contact or on the pro-activity of the real estate agent.

Unfortunately, the experiment in Bonnet, Lalé, Safi and Wasmer [16] did not yield a sufficient number of phone conversations during which both signals (ethnicity and location) had been revealed to the agent. This prevents them from concluding on whether the effect of one potentially discriminatory criteria cancels out the effect of the other. It also limits the possibility to determine whether the current residence matters *per se* or if it is used by real estate agents to proxy ethnic origin. However, their results do indicate that: (i) applicants from deprived suburbs suffer from lower success rates when they contact rental agencies in different Parisian neighbourhoods

and in different cities in Greater Paris and (ii) the effect of names associated with foreign origin on the likelihood of a positive contact is lower than that of residing in a deprived suburb.

Result (i) is an important element of appreciation of the functioning of rental housing markets in the Paris region. Result (ii) on the other hand was rather unexpected and is hard to interpret. For this reason, Bonnet, Lalé, Safi and Wasmer decided to supplement their quantitative analysis by a qualitative investigation of the selection process of housing applicants.

3.2.2 Rental agents and their appreciation of the housing market

As part of their research, Bonnet, Lalé, Safi and Wasmer [15, 16] organized 30 face-to-face interviews during which real estate agents were asked to describe the selection process of housing applications they and their colleagues resort to. This relies on the recognition that real estate agents have a lot to witness on the functioning of the market in general and other agencies' discriminatory actions; their statements may thus be considered as experts' depiction of the situation on the housing market.

The results obtained so far suggest that:

- Ethnic discrimination seems to be widespread, but real estate agents blame owners. One owner out of ten would explicitly ask the agency to discriminate against minority applicants; perhaps a larger fraction would discriminate when reviewing the applications.
- Real estate agents often claim that minority tenants are not the only ones to default on their rent payment. They therefore screen according to other dimensions that remain obscure.
- Discrimination based on the area of residence does not consciously appear in the discussions with interviewees, but some details suggest that residing in deprived areas may act as a stigma.

Confronting the discursive evidence on discrimination provided by face-to-face interviews with the quantitative assessment of discriminatory practices from their phone paired-testing study, Bonnet, Lalé, Safi and Wasmer [16] point out a double paradox: (1) Ethnic discrimination is statistically non-measured in an audit study that controls for spatial origin while it is very widespread according to real estate agents and (2) Spatial discrimination is non-existent according to real estate agents but is statistically significant in such an audit study.

At this stage, it is early to provide definitive conclusions on these research findings. Yet, Bonnet, Lalé, Safi and Wasmer [16] explore some hypotheses to decode the paradox. One line of interpretation would state that disadvantages experienced by ethnic minorities are linked exclusively to "color-blind" criteria, such as spatial origin. Following this argument, the discourses held by real estate agents reflect the correlation between residential location and ethnicity while missing the real mechanism at work. Bonnet, Lalé, Safi and Wasmer [16] nevertheless point several caveats with this explanation. First, it does not do full justice to the quality of witnesses of the functioning of the real estate agents interviewed (which is one of their working hypothesis). Second, it is not consistent with some of the empirical evidence concerning other facets of urban segregation in French society cited in subsection 1.2. Recognizing the shortcomings of this interpretation, Bonnet, Lalé, Safi and Wasmer put forward another hypothesis discussed in the next paragraphs.

3.2.3 What is really "discriminatory" and can we measure it?

A critical question raised by Bonnet, Lalé, Safi and Wasmer [16] in their concluding discussion is: is it possible to disentangle two overlapping criteria such as spatial origin and ethnic stigma when those are associated to such a degree in cognitive representations? This is an important methodological point for studying discrimination.

Indeed, belonging to some minority groups correlates with other attributes of social life. Econometric measurements of discrimination consists in "controlling for" these other attributes by including them in a regression, thereby assuming some form of separability between them and the discriminatory criteria. Bonnet, Lalé, Safi and Wasmer emphasize the assumption behind the statistical exercise, and also underline its implications.

To further question the implicit assumption of some separability between discriminatory criteria, Bonnet, Lalé, Safi and Wasmer [16] point to studies of the discrepancies between discourses and practices – a phenomenon that had been studied in the context of discrimination by LaPiere [37] in the 1930s and recently discussed by Pager and Quillian [46] – and also to recent socio-psychological research that draws attention to the "unmotivated" form of discriminatory interaction (see Fiske [25]). Unintentional and unaware mechanisms of discrimination, they argue, cast doubts on the conscious framework underlying statistical attempts to disentangle discriminatory criteria. This aspect of their discussion connects to recent research that emphasizes the important of "implicit discrimination" (Bertrand, Chugh, and Mullainathan [11]).

Aside from the implications of Bonnet, Lalé, Safi and Wasmer [16]'s discussion for the measurement of discrimination, an important aspect of their work lies in the effectiveness of the multidisciplinary approach while studying discrimination. The paradox that their study reveals suggests that no complete and definitive answer could be drawn from only one of the econometric and sociological approaches they rely on.

3.3 Indirect discrimination: learning from geographically-targeted affirmative action in education

3.3.1 An original affirmative action policy

Diagne and Wasmer [24] analyze a unique experiment run by one of the top French higher education institutions, Sciences-Po Paris, to shed light on indirect (pre-market, as they put it) discrimination. The program, called CEPs (Conventions d'Education Prioritaire), was launched in 2001. It consisted of agreements signed with high-schools located in deprived areas to grant their best students access to a special admission procedure to Sciences-Po. It was motivated by the observation that students in these deprived areas are likely to self-select out of what they may perceive as an unattainable higher education establishment.

The program has several distinguishing features relative to affirmative action policies usually analyzed in the literature. First and foremost, consistent with the French constitution (subsection 1.2), the program is not racially-based – a feature sometimes referred to as "color-blind" affirmative action (Fryer, Loury and Yuret [29]). Instead, it targets geographic poor urban suburbs. Second, it is not based on quotas: only the best students in their high-schools are admitted. Third, it coincided with an increase in the size of entry cohorts in Sciences-Po through all admission tracks, thus ruling out concerns about potential crowding-out effects. The organic link between Sciences-Po Paris and the DISCRI-SEGRE project allowed Diagne and Wasmer to assemble a unique dataset to evaluate the impact of CEPs, as described in subsection 3.1.

Using difference-in-differences methods, Diagne and Wasmer estimate the average treatment effect of CEPs on two different outcomes: (i) graduation rates at the *baccalauréat* exam and (ii) school composition, as measured by the fraction of students from lower socio-economic background (SES) or originating from priority education areas (ZEP). The hypothesis underlying their empirical analysis can be summarized as follows: (i) CEPs raise the returns to educational efforts, which might be reflected by an increase in graduation rates and (ii) CEPs make high-schools located in deprived areas less infamous, which might attract students with more favorable socio-economic or educational background. Importantly for what follows, it must be emphasized that the treatment in this setup is at the high-school level, not at the individual or at the class levels.

3.3.2 No impact on graduation rates and class composition

The empirical findings of Diagne and Wasmer [24] are readily summarized:

- They find no significant impact on average graduation rates in participating high-schools. The absence of significant impact holds across various specifications and alternative control groups.
- They find no significant impact on school composition, as measured either by the socio-economic criterion or by the fraction of students coming from schools located in priority education areas.

At this stage, it shall be emphasized that the main objective of CEPs is to increase the social diversity of entry cohorts in Sciences-Po – and they are successful along this dimension, by construction. Diagne and Wasmer focus on a set of outcomes that are not directly targeted by the program, which may be one of the reasons why they find no significant treatment effect. Other reasons for this absence of impact are worth commenting on:

- There is a discrepancy between the level at which the treatment is defined and the number of individuals who might realistically benefit from it. That is, the treatment is at the high-school level and within each high-school only one or two students are likely to be admitted to Sciences-Po. The selectivity of the program necessarily dampens its effect on aggregate class results.
- The study also points to the possibility of self-selection of high-schools into the program. Indeed, to sign a CEP with Sciences-Po, principals of eligible high-schools have to request a partnership, which signals higher motivation of the principal, and potentially of other school members. However, the control groups based on the *academies* where CEPs were not experimented removes concerns about self-selection.
- The absence of impact on class composition is somewhat more predictable. School choice in the public sector in France is hindered by school districting, and the data examined by Diagne and Wasmer covers only a few years before and after the implementation of the program. Therefore, it is unlikely to observe a compositional change following an increase in school attractiveness over such a short period of time.

Several conclusions can be drawn from the empirical investigation of Diagne and Wasmer [24]. Some of these have implications for the design of public policies and are thus consigned to subsection 5.2. Others yield insights about indirect discrimination and are commented below.

First, Diagne and Wasmer warn against interpreting the lack of impact of the program as evidence of scant pre-market discrimination in France. Their discussion suggests that pre-market discrimination (if any) occurs earlier in the individual process of human capital investment. On the other hand, programs with an impact concentrated on 12th grade students are more likely to reveal the role of urban segregation, obstacles to mobility and their subsequent impact on individual school choices.

Second, by analyzing potential school composition effects and the possibility of self-selection o high-schools into the program, Diagne and Wasmer point to the complexity of the dynamics involved here. That is, strategic choices made by parents and school officials affect class composition, which may in turn affect individual achievement through direct peer effects and role models which would emerge as more students get admitted into selective higher-education establishments. Thus, their study points to the existence of several social multiplier involved in the process of indirect discrimination, though it is inconclusive about their quantitative importance.

3.3.3 Different outcomes: prejudices and self-censorship

Gras [32] investigates the impact of the CEPs analyzed by Diagne and Wasmer [24] but focuses on a very different set of individual outcomes: ambitions, motivations and self-censorship. Her study sheds light on indirect

discrimination by putting the emphasis on the psychological mechanisms through which negative prejudices are internalized and eventually trigger self-fulfilling prophecies (Merton [43]). Two particular channels are stressed: students may conform directly to negative prejudices by lowering their ambitions and indirectly by dis-identifying themselves with school and school success, i.e. with the ethics that is necessary for achievement (Marx, Brown, and Steele [41]). To derive testable implications from this framework, her preferred concept borrowed from the psychological literature is that of the "possible self", defined as the malleable part of the self-concept which encapsulates individuals' ambitions (Markus and Nurius [40]).

For the purpose of her empirical analysis, Gras [32] adapted a questionnaire that was used to obtain measurements of current, past and possible "selves" in a field study piloted by Markus and Nurius [40] in the United States. Students are asked to rate themselves on different items (happiness, being incompetent, etc.) and different time frames (past, present and future). The questionnaire also includes a series of questions to measure the extent to which they identify themselves with the "ethics" of higher educational performance. Gras [32] then relies on factor analysis to construct synthetic measurements of past, present and future selves, as well as scores of identification with schooling success.

The econometric analysis consists in estimating the impact of attending a CEP high-school on the possible selves, after controlling for school and class characteristics, and also for the past and current selves of each student, along with other individual characteristics. Under the maintained assumption that the inclusion of past and current selves in the regression captures unobserved variables affecting future selves, Gras [32] finds that:

- Being in a CEP high-school class seems to enhance students' perception of their possible selves. Furthermore, current selves seems to be more tied to their possible selves than the past vision of themselves.
- Responses to the treatment are heterogeneous: it is significantly positive for students who exhibit stronger self-identification to schooling success, while it has no effect on those who feel distant from schooling culture.

Of course, there are several identifying hypotheses (in a statistical sense) behind these results. In addition to the hypothesis that current past selves capture unobserved factors, self-selection of classes into the sample might be an even greater concern than in Diagne and Wasmer [24]'s analysis. With these limitations in mind, the study by Gras [32] nevertheless suggests that:

- It is empirically feasible to measure the extent to which individuals self-conform with stereotypes, which is a crucial mechanisms behind indirect discrimination.
- Heterogeneity is an important factor at play: ambitions may pertain to the malleable part of the self-concept, but they are also shaped by more crystallized features of one's identity.

Subsection 5.2 below elaborates on the question of heterogeneity. To conclude, Gras [32] provides elements that can fruitfully be incorporated into the analysis of indirect discrimination. Her study points to connections with the psycho-economics literature, and pursuing further research in this direction would deepen our understanding of indirect discrimination.

4 The mechanisms and inter-relation of discrimination and segregation

4.1 The role of space: residential traps and labor market outcomes

In the context of the DISCRI-SEGRE project, important efforts were made to model the inter-relation of space and labor market outcomes. Of course, the recognition of the importance of space for the shaping of labor markets is not new, but the researches pursued as part of the project revealed that important gaps remain to be filled to obtain a coherent depiction of the role of space. Several interesting figures computed by Rupert, Stancanelli, and Wasmer [51] with the European Community Household Panel (ECHP) motivate this:

- After excluding the less frequent reasons for rejecting job offers, they find that distance to job and commuting time is the third most important reason for job refusals (16.7% of job refusals, behind "type of work" and "rate of pay" which both account for roughly 25% of the reasons for rejecting a job offer).
- Compared to the wage rate, distance to job and commuting time accounts for no less than 40% of job acceptance decisions. Or, put differently, it is only a third lower than the importance of the wage rate.

This subsection focuses on three papers: Gautier and Zenou [31], Rupert, Stancanelli, and Wasmer [51] and Rupert and Wasmer [52]. While these papers all focus on the role of space in the shaping of labor market outcomes, they adopt distinct modeling approaches which are worth underlining:

- Gautier and Zenou [31] explicitly model space by means of a circle along which individuals are distributed. In their model, workers cannot change their residential location and have to commute to jobs, which involves traveling daily along the circle.
- Rupert and Wasmer [52] on the other hand invoke what they call "isotropy of space". The assumption states that although workers can be located far away from the workplace, the spatial distribution of individuals is irrelevant and need not be modeled.

These two modeling approaches yield insights into the role of space, mobility decisions and how they affect wages and employment of different groups of workers. This subsection takes these models in turns and summarizes the findings in these papers.

4.1.1 Statistical discrimination, job-search and transportation decisions of minorities

The objective of Gautier and Zenou [31] can be described as follows: they want (i) to examine the importance of assuming away taste for discrimination and unequal distance to jobs in a spatial model of job search and (ii) to make sense of some stylized facts on distance to jobs. More precisely, they want to understand why minorities in the United States spend more time commuting to work while traveling less miles to go their jobs (these empirical regularities are well-documented in the United States).

Goal (i) is an important challenge. Indeed, to account for differential in employment rates and wages across ethnic groups, it is common to assume either taste for discrimination or to invoke the spatial mismatch hypothesis, i.e. to assume *ex ante* aversion against minority workers or differences in distance to jobs. We shall see that Gautier and Zenou [31]'s model needs none of these assumptions to account for employment and wage differentials. The reason for this is a statistical discrimination argument, a phenomenon which emerges in the model through geographic job search and matching frictions. Another important feature of their framework is an endogenous choice of transportation modes to commute to jobs. As we shall see, this allows the model to rationalize the empirical facts on distance to jobs. Overall, their analysis yields depressing results for minority groups on the labor market, which makes the mechanisms at play in their model worth understanding.

The main assumptions and features of the model by Gautier and Zenou [31]'s can be summarized as follows:

- Workers are tied to a geographic location, commute to their jobs and can do so either with public transports (which are cheap but slow) or by cars (which are expensive but faster). Job search also involves commuting to meet potential employers.

- The labor market is frictional, in the sense of standard macro-search models. Wages are bargained over but employer cannot condition the wage of the residential location of the worker (this is private information; workers could manipulate it if it were disclosed to employers).

The latter feature triggers statistical discrimination in the model, as employers impute to workers the average commuting distance of the group to which they belong upon bargaining on the wage. The mechanisms highlighted by the model are the following:

- Employers expect White workers to be able to commute higher distances. This raises the outside option of Whites and thereby increases their wages. Whites can thus afford to buy cars which allows them to travel larger distances to jobs.

- Wealth differential across groups also play a role: if they are sufficiently high, then Blacks never use cars in equilibrium and thus uniformly search for jobs over a smaller area relative to Whites.

- If public transports are sufficiently slow relative to cars, then Blacks will spend more time commuting to their jobs, even if they live closer to their own workplace.

What about the interaction between the respective labor market outcomes of Blacks and Whites in the model? As already underlined, there is no taste for discrimination in the model. However, labor market frictions imply that Whites generate negative externalities for Blacks: they reach jobs more rapidly and negotiate higher wages, which eventually reduces job creation.

To conclude, the fact that Gautier and Zenou need not assume taste for discrimination or *ex ante* differences in distance to jobs has strong implications for the persistence and extent of discrimination and segregation. That is, while Becker [8]'s analysis predicts that discrimination cannot persist in the long run, the model in Gautier and Zenou [31] has the opposite prediction (as do many models of statistical discrimination). Second, the authors do not aim at challenging the spatial mismatch hypothesis, but instead show that wage and employment differentials across ethnic groups would most likely be observed even if this hypothesis were not valid. These differentials arise naturally when one takes into account the local functioning of labor markets. The analysis of Gautier and Zenou [31] also has several policy implications discussed in subsection 5.1.

4.1.2 Commuting time, bargaining power and wages

The models in Rupert, Stancanelli, and Wasmer [51] and Rupert and Wasmer [52] are not *per se* models of discrimination, and thus the account of their modeling devices will be shorter. Instead, we shall emphasize the implications for wages and obstacles to mobility that follow from these contributions.

Both Rupert, Stancanelli, and Wasmer [51] and Rupert and Wasmer [52] build on the canonical search model of the labor market. Let us start with the latter. They analyze what they call a "dual" of the canonical search model: in their language, this means that job offers are characterized by a commute distance to jobs. They show that a more fluid housing market diminish labor market slack through two channels:

- It makes the unemployed less choosy regarding the job offers that they are willing to accept, as they will move closer to the workplace more easily after starting the job.

- In turn, this boosts job creation: the number of vacancies increases, which shifts the equilibrium of the labor market along the Beveridge curve towards a lower equilibrium unemployment rate.

In subsection 4.3 below, we return to this feedback effect of lower obstacles to geographic mobility. Rupert, Stancanelli, and Wasmer [51] on the other hand analyze a partial equilibrium where job offers consist of a bundle of wage and commute distance. In this set-up, there exists a reservation wage for each distance and a reservation distance for each wage. Since the labor market is frictional, wages are bargained over. and commute distances enter the negotiation through the outside option of workers, as in Gautier and Zenou [31]. This has the following implication: since the bargaining power is the weight of the outside option on the bargained wage, workers whose observed wage is less affected by their commute distance necessarily have a higher bargaining power.

Rupert, Stancanelli, and Wasmer build on this prediction of the model to obtain an estimate of the bargaining power of French workers. To do so, they use data from a time-use survey carried out in 1998 and 1999 by the French National Institute for Statistics and Economic Studies. The survey contains detailed information on commuting times, altogether with data on hourly wages and standard individual characteristics. Their empirical approach involves the following steps:

1. Estimate a simultaneous equations model of wages, commuting time and job-acceptance decisions
2. Combine the results with an estimate of the disutility cost of commuting time
3. Use the theoretical model to compute the implied bargaining power of workers

Regarding step no. 2, Rupert, Stancanelli, and Wasmer borrow from the urban literature on this topic an estimate of the disutility cost of one hour of commute of around one half of the hourly wage. Then they apply the methodology above for different sub-groups of workers. This allows them to shed an interesting light on wage differentials across gender groups, as illustrated by the subset of their findings reproduced in table 1. Indeed, the calculations reveal substantial heterogeneity in bargaining powers, ranging from high bargaining power for men (almost 0.75) to almost no bargaining power for women (either married or single) with kids under three years old.

While data limitation prevents them from applying their methodology to wage differentials across ethnic groups, it could fruitfully be reproduced with other datasets (for instance the American time-use survey, which contains detailed measurements of commuting times together with wage information). And even though their computations do not line up well with previous estimates of the bargaining powers of French workers, their approach is transparent and straightforward relative to structural estimates of bargaining powers.

Table 1. Estimates of Bargaining Powers (from Table 7 in Rupert, Stancanelli, and Wasmer [51])

Sample	All	Men	Women	Married Women	Married women with kids	All women with kids under 3 years old
Wage impact of 1h commute	0.285	0.131	0.421	0.454	0.423	0.492
Implied bargaining power	0.430	0.739	0.157	0.091	0.155	0.016

NOTE: The wage impact of 1h of commute is the percentage change in the wage caused by 1h of commute compared to no commute. The implied bargaining power is 1 minus 2 times the wage impact of 1h of commute.

4.2 The role of human capital: education and social networks

4.2.1 Building social capital: implications for labor market outcomes

Two contributions to the DISCRI-SEGRE project emphasize the role of social human capital, broadly defined here as the amount of social connections that ties an individual to the persons he/she interacts with: Gautier and Zenou [31] and David, Janiak and Wasmer [23]. We shall be concise on the former since a significant part of subsection 4.1 is devoted to their work.

Gautier and Zenou [31] point to an important connection between their analysis and the role of social networks in labor market as formalized by the canonical study by Calvo-Armengol and Jackson [17]. They emphasize that transportation modes matter not only for the purpose of job search but also for the building of new friendships. By sticking to their neighborhoods (a prediction of their model), ethnic minorities cannot access a broad network of friends. In turn, social network matters for job search because information about job opportunities is often obtained through word of mouth communication. This suggests further spillover effects of living in segregated neighborhoods – an interesting avenue for future research.

David, Janiak and Wasmer [23] is another example of the spillovers of social networks onto labor market outcomes. The starting point of their analysis is a multi-correlation observation: countries with higher unemployment rates exhibit lower levels of geographic mobility and the individuals in these countries tend to meet their friends, relatives and neighbors frequently. Conversely, countries where membership rates in clubs and associations are relatively more frequent are also characterized by more geographic mobility and lower unemployment rate. Elaborating on these observations, their analysis proceeds as follows:

- They develop a model that rationalizes this findings. The main ingredients are the following. Individuals who expect to be rather immobile in their careers invest in local social capital (friends, relatives and neighbors), which renders residential mobility more costly to them but also makes them more vulnerable to longer unemployment spells following job loss. On the other hand, individual who expect to move more often over the course of their working lives develop a more fluid social capital, which makes migration less costly and therefore increases their probability of finding a job.

- They test the model's prediction on data from the European Community Household Panel. To do so, they build synthetic measurements of social capital and estimate their impact on mobility decisions and the probability to be unemployed. To circumvent the potential endogeneity of the regressors, they instrument social capital with average social capital in the region. They show that the data support the model's predictions.

While discrimination and segregation are not the focus of David, Janiak and Wasmer [23], their theory clearly has implications for the questions analyzed in the rest of this report. It points to the existence of a multi-causal relation between labor market outcomes and the building of social networks. The consequence for urban segregation are readily derived: individuals in segregated communities may anticipate obstacles to mobility, and thus rationally invest in local social capital, which in turn limits their ability to leave their community. Local social capital thus makes these communities more sticky and allows segregation to perpetuate itself.

To conclude, an originality of the contributions of Gautier and Zenou [31] and David, Janiak and Wasmer [23] is that they both put the emphasis on potential negative effects of social capital. While the former do not elaborate on this question, David, Janiak and Wasmer also provide a typology of different forms of social capital, from local and crystallized to more mobile forms that may instead fluidify the labor market.

4.2.2 Investing in human capital: the role of rewarding educational efforts

Diagne and Wasmer [24] provide a theoretical framework to organize their empirical analysis of the CEP program described in subsection 3.3. They outline a model of educational efforts where students' expectations of admission rates endogenously affect investments in human capital. The main insights from their analysis can be summarized as follows:

- Higher expected admission rates raise the returns to human capital, which increases the levels of educational efforts that students choose to exert
- However, if the standards governing admission rates become too low, students may eventually cut their educational efforts (they will be admitted anyway)
- This perverse effect will primarily affect more talented students if effort and talent are complement

These results are reminiscent of the analysis by Coate and Loury [20] who pointed out some perverse effects of imposing equal employment requirements on the labor market in the presence of statistical discrimination. Diagne and Wasmer [24] center their analysis on the effects that occur inside the classroom. Specifically, they stress the possibility of: (i) peer effects in response to higher rewards to educational efforts and (ii) role models in the dynamic process through which student form their expectations. At this stage however, they did not pursue their inquiries further: their model is better described as a tool to discipline their empirical analysis of CEPs than a self-contained theoretical model of schooling efforts.

4.3 The role of markets: distribution and regulation

4.3.1 Distribution of initial endowments and labor market outcomes

In the models described in subsection 4.2, human wealth as capitalized in human capital plays a central role in accounting for unequal outcomes. In particular, these models all open the possibility of pre-market discrimination: labor market outcomes may differ across individuals because of the different amounts of human capital that they brought in the market, which in turn were driven by their expectations of unequal treatment in the labor market. However, the models of subsection 4.2 do not formalize these mechanisms: David, Janiak and Wasmer [23] do not investigate the implications of discrimination in their framework and Diagne and Wasmer [24] do not endogenize individuals' expectations of graduation rates. This makes it uneasy to analyze the joint behavior of initial distribution of human wealth and subsequent labor market outcomes of individuals.

Financial wealth plays a role in these models too. A contribution of Gautier and Zenou [31], for instance, is to explain how differentials in initial endowments translate into unequal labor market outcomes, which will themselves perpetuate wealth inequalities. Indeed, personal wealth is an important determinant of transportation choices in their model (presumably, in real life too) and thus of employment outcomes. Depending on the wealth of minority workers and on workers' productivity (which is common to both groups in the model), they obtain the following results:

- If both the wealth of minority workers and productivity are low, then ethnic minorities never use cars, which they interpret as a depiction of the labor market for low-skilled workers.
- Even if a fraction of minority workers have the same levels of wealth as Whites, using public transportation may remain their preferred option since firms do not expect them to own a car, and thus offer them lower wages.

We return to the role of initial endowments (either human or financial wealth) in the discussion of some of the policy implications of these models (section 4.3). The interaction between transportation decisions and personal wealth is clearly relevant in this respect.

4.3.2 Regulation of market and the selection of applicants

Another important aspect for the dynamics of discrimination and segregation are the laws and regulation that affect the functioning of markets. Some of their unintended and undesirable consequences are underlined by Bonnet, Lalé, Safi and Wasmer [15], who themselves rely on an earlier comparative study by Wasmer [59] of housing regulations in France and in Quebec. The latter underlines a number of significant differences in housing regulations in the two provinces and details some of their implications:

- While a fix term lease specifies that the lessee has to pay the rent until the end of the lease in Quebec, a lessee in France may leave with three months' notice (reduced to one month under certain conditions). This result in higher unanticipated turnover in France.
- The contractual relation is riskier for the lessor in France than in Quebec. Termination costs are particularly high in the former province. Eviction procedures, for instance, are long and complex: on average 183 days from the start of the procedure to the final step (enforcement of the decision) in France v.s. 47 days in Quebec (López de Silanes, Djankov, La Porta and Shleifer [38]). This induces lessors to ask more *ex ante* and/or to reduce the vacancy supply in France.
- Entry costs into a dwelling are limited for lessees in Quebec. In France, these costs are substantial for both lessees and lessors: they involve security deposits, writing of the lease, and a detailed description of the state of the dwelling.

Bonnet, Lalé, Safi and Wasmer [15] emphasize that discrimination and screening of housing applicants are possible consequences of the tougher protection of lessees that prevails in France. For example the length and complexity of eviction procedures in case of default of payment of the rent reinforces the need to screen applicants based on as many characteristics as possible, including non-economic variables. They also explain that the real estate agents interviewed in their qualitative survey often attribute owners' willingness to discriminate against minority applicants to these costly legal procedures.

In sum, Wasmer [59] and Bonnet, Lalé, Safi and Wasmer [15] both point to the inefficiencies of housing markets that justify government regulation (asymmetries of information and the inelasticity of supply), and the new distortion that this intervention subsequently creates (regulation of these markets induces tougher selection of housing applicants). That is, landlords are more willing to discriminate, or to resort to real estate agents to do so. Therefore, discrimination and high transaction costs are likely to plague housing markets.

4.4 The relevance of these mechanisms for the French context

This section listed several theoretical mechanisms which have the potential to explain the emergence and/or the persistence of unequal outcomes across *ex ante* identical groups. This concluding subpart briefly describes some observed inter-groups differentials along several dimensions of social life in France. Of course, these differentials may arise for reasons that are unrelated to discriminatory practices and segregation phenomena, but they can also be viewed as suggestive evidence of the relevance of the mechanisms aforementioned. The examples regarding labor market and education outcomes are taken from Wasmer [60], who himself relies on Lainé and Okba [36]. The facts about the location choices of immigrants are taken from Fougère, Kramarz, Rathelot and Safi [28].

Labor market patterns

In 2001, the employment rate in French urban deprived areas (areas designated by the acronym ZUS for Zones Urbaines Sensibles) among individuals aged 15 to 59 years-old was 51%. This must be compared to the aggregate employment rate, which was 66% at the time. Low employment rates are particularly concentrated on young workers: the unemployment rate among young male workers for instance was 44% in ZUS, twice higher than in the rest of the country for the same demographic group.

Similar discrepancies exist among French workers and workers of foreign origin. When employed, the latter are also more likely to work in low-wage occupations. For example in 2001 the fraction of young workers of North African origin employed in low-skilled jobs was 41%. Among young workers of French origin, the corresponding figure was 25%.

Educational outcomes

In ZUS in 2001, the admission rate at the middle-school exam was 68.3% while it was 80.9% in the rest of France. At the *baccalauréat* exam the same year, the admission rate was 76.8% in ZUS, which must be compared with a national average of 81.2%. The differentials remain significant after controlling for a range of individual characteristics, including parental income and their socio-economic status.

Turning to French youths of North African origin, they are more likely to leave the education system with no diploma. In 2001, 23.7% of young individuals whose father was of North-African origin were drop-outs. The corresponding figure for individuals whose father was born in France was "only" 7.5%. The differential was also much lower for youth of foreign origin whose father was not from North-Africa. For instance for those whose father had emigrated from Southern Europe, the fraction of drop-outs was 8.1%.

Location choices

In their study, Fougère, Kramarz, Rathelot and Safi [28] analyze the main public housing policy instrument in France, the HLM. Any family is eligible for residing in a HLM dwelling provided that the head of the family is allowed to live in France and that income per unit of consumption lies below a threshold, which depends on the region of residence and is updated each year. Eligible families may apply for a HLM in any city where such public programs exist, regardless of their current place of residence or nationality. Today, more than 12 million of persons live in a HLM.

Fougère, Kramarz, Rathelot and Safi [28]'s estimates show that, in general, migrants live more frequently in social housing than French natives, other observables being equal. In particular, this probability is higher for migrants from Turkey, Morocco, Southeast Asia, Algeria, Tunisia and Sub-Saharan Africa (in descending order). It is generally lower for migrants who have gained French citizenship (except for migrants from Sub-Saharan Africa). Another finding is that migrants of all origins live less often in a HLM when the city has plenty of social housing and when the fraction of natives is high.

5 Some implications for policies to achieve more equality

5.1 Targeting labor market outcomes: taking advantage of spillovers

5.1.1 Labor supply: the role of better transportation and fluid housing market

The models developed by Gautier and Zenou [31], Rupert, Stancanelli, and Wasmer [51] and Rupert and Wasmer [52] all have implications for public policies interacting with the local functioning of labor markets. That is, they all predict that making geographic mobility easier can have important spillovers onto the labor market, and in particular can help fighting against urban segregation. Specifically:

- The analysis of Gautier and Zenou [31] advocates investments in public transportation services to decrease the distance between the neighborhoods inhabited by ethnic minorities and the centers of employment growth in cities. There are multiple channels through which this would decrease labor market differentials. First, workers would search for jobs outside of their neighborhoods more easily, which eventually increases their employment rate and also their wages, since their bargaining power would rise too. Second, productivity gains would also accrue from better public transportation services. Indeed, commuting to work is a costly activity (in terms of utility) which also increases fatigue (Rupert, Stancanelli, and Wasmer [51]) and thus productivity on the job. Reducing the time spent in transports would eventually increase productivity and welfare.

- An alternative to public transportation also evoked by Gautier and Zenou [31] are programs aimed at helping job takers obtain a car: secured loans to purchase a car or leasing schemes are examples of such programs. The rationale regarding spillovers onto the labor market are similar to the ones aforementioned. Yet, this points to other directions regarding obstacles to geographic mobility. Lower access to credit or to car insurance could themselves be caused by discriminatory behaviors. Without a clear depiction of the mechanisms involved, the expected impact of such credit arrangements seems less predictable than investments in public transportation services.

- By highlighting the aggregate consequences of sticky housing market, Rupert and Wasmer [52] also indicate that making residential mobility easier can have a substantial impact on the adverse employment outcomes of workers who live in segregated areas. The remarks above regarding inefficiencies on the credit market applies here too, even if they are not the focus of Rupert and Wasmer [52]. Wasmer [59] and Bonnet, Lalé, Safi and Wasmer [15] point to specific factors of lower residential mobility. Their message is that the contractual relation between lessees and lessors should distribute risks more evenly: this would decrease the need to screen applicants while making residential mobility easier, and eventually increase aggregate employment through the mechanisms described by Rupert and Wasmer [52].

- Finally, the analysis of David, Janiak and Wasmer [23] points to some policy implications at least in two different ways. First, they highlight that generous unemployment compensations and tough employment protection increase the relative returns to staying in a depressed area, which in turn increases investments in local social capital, diminish geographic mobility and eventually increase unemployment. Second, they show that some forms of social capital are more fluid than others, and that promoting the acquisition of these type of skills would have a positive impact on residential mobility, and thus on the labor market. Recent research suggests that educational practices are a strong determinant of the building of such forms of social capital (Algan, Cahuc, and Shleifer [4]). Thus, the findings of David, Janiak and Wasmer [23] suggests that heavily regulated labor markets can avoid slackness if workers have also developed more portable forms of social capital before labor market entry, i.e. through the education system.

In sum, the analyzes of the role of geographic distance converge to the same conclusion: more equality on the labor market can be achieved through an increased competition on housing markets, provided that this is accompanied by arrangements that ensure better access to credit and more integrated urban areas. Fitoussi, Laurent and Wasmer [27] also underline that a better functioning of the housing market will eventually decrease the levels of discrimination and segregation.

5.1.2 Labor demand: looking the other way around

Malgouyres [39] highlights other aspects of policies that interfere with the local dimension of labor markets, and in particular with labor demand. While in the rest of the report the causality usually goes from the housing to the labor market, his study is an example of causality that goes the other way around. It points to the possibility of general equilibrium effects that should be taken into account when evaluating locally targeted policies.

The particular policy analyzed by Malgouyres is the creation of Enterprise zones (EZ) which aim at stimulating local employment by attracting firms in specific areas, usually through tax cuts on labor. In France, a firm can be exempted of contributions to social security if at least a third of its employees are recruited from within the agglomeration where the EZ is located. Thus, this is another example of policy that decrease the distance between workers in deprived areas and jobs.

Malgouyres [39] outlines the mechanism through which the efficiency of such a policy can eventually be offset and attempts to estimate the empirical relevance of this mechanism. The main results of his analysis are the following:

- A stylized model predicts that: local tax cuts increase the demand for labor, as well as the demand for complementary production factors such as floor space. Since the elasticity of floor space supply is usually low, commercial rents are expected to rise, which partially off-set the initial reduction in production costs.
- Applying difference-in-differences methods to the dataset described in subsection 3.1, Malgouyres finds some evidence of increases in rents in cities where urban enterprise zones were introduced.

The increase, however, is not robust to the inclusion of other covariates. Interestingly, the effect if no longer significant when property type (office versus industrial property) is accounted for: Malgouyres suggests that the apparent increase in rental values is driven by an inflated share of transactions pertaining to offices (whose rental value is higher than industrial locals). Unfortunately, this invalidates the difference-in-differences approach. This difficulty sheds light on the complexity involved when evaluating policies with spillovers that might go from the labor market onto the housing market.

5.2 Targeting educational outcomes: students' ambitions and identities

5.2.1 Improving students' perceptions of their opportunities

The model outlined by Diagne and Wasmer [24] puts forward the trade-offs involved in policies that affect students' perception of the returns to educational efforts. It serves as a tool to highlight the following caveats:

- With limited means invested in educational policies, perceived returns to educational efforts are likely to remain unchanged and students will not adapt their behavior. This is the preferred explanation in Diagne and Wasmer [24] to account for the lack of significant impact of CEPs: because the admission track remained very selective, the probability of admission into Sciences-Po was still too low for most students to exert significantly higher efforts. The argument would carry over to other educational policies where public investments remained low (in the case of France, see Bénabou, Kramarz, and Prost [9])

- Educational policies that manipulate admission standards directly can be highly counter-productive. If for instance these standards are made so much lower that even limited efforts result in successful outcome, students will optimally choose to exert lower levels of schooling efforts (this is particularly detrimental when effort and talent are complement). While such a phenomenon is arguably not at play in the policies analyzed in Diagne and Wasmer [24], it has been shown to be empirically relevant in some schools in the United States (Fryer, Loury, and Yuret [29])

While not taking a stand on exact policy recommendations, this discussion points to a key parameter for the success of educational policies: students' perceived elasticity of rewards to educational efforts. Role models can play a role in this respect, provided that the link between their socioeconomic success and their educational efforts (if any) is made as visible as possible. In sum, "making visible minorities more visible" is commendable but not sufficient: how success connects to efforts must be highly visible too.

5.2.2 Heterogeneous identities in the classroom: some implications

Diagne and Wasmer [24]'s model can also serve as a tool to think about the role of heterogeneity within the classroom. Indeed, as the authors show, the interaction between heterogeneous abilities and efforts is another key factor conditioning the success of public policies. This can serve as a cautionary note for public policy evaluation.

Perhaps more than Diagne and Wasmer [24]'s own investigation of CEPs, the analysis of Gras [32] sheds light on the mechanisms through which heterogeneous identities in the classroom affect the outcome of policies targeted at students' efforts. Building on Akerlof and Kranton [3], Gras distinguishes in her study two types of individuals: (i) "compliants" who feel attracted by the dominant culture and (ii) "opponents" who have dis-identified with it, and by extension with school and school success. As explained in subsection 3.3, her questionnaire includes elements that help her establish scores of identification with schooling success, thereby capturing this source of heterogeneity. By estimating the impact of CEPs separately for two samples of individuals who best correspond to the split between compliants and opponents, she finds that:

- Being in a CEP high-school class enhance students' perception of their possible selves among those with higher scores of identification with school and school success (compliants)
- On the other hand there is no significant effect in the sample of students who are more likely to dis-identify with school success (opponents)

In other words the responsiveness of students to a program like CEPs is conditioned by the extent to which school and school success conveys values with which students identify. Therefore, shaping ambitions not only means raising the perceived efficiency of educational efforts (in this context, the probability of being admitted in a selective higher-education institution), but also increasing the value that students attribute to the reward itself (here the value of higher-education).

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