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ABSTRACT

'Can't Get Enough': Prejudice, Contact Jobs and the Racial Wage Gap in the US*

The wage gap between African-Americans and white Americans is substantial in the US and has slightly narrowed over the past 30 years. Today, blacks have almost achieved the same educational level as whites. There is reason to believe that discrimination driven by prejudice plays a part in explaining this residual wage gap. Whereas racial prejudice has substantially declined over the past 30 years, the wage differential has slightly converged overtime. This 'prejudice puzzle' raises other reasons in explaining the absence of convergence of this racial differential. In this paper, I assess the impact which of the boom of jobs in contact with customers has on blacks' labor market earnings. I develop a search-matching model with bargaining to predict the negative impact which of the share of these contact jobs has on blacks' earnings in the presence of customer discrimination. I test this model using the IPUMS, the General Social Survey and the Occupation Information Network. My estimates show that black men's relative earnings are lower in areas where the proportions of prejudiced individuals and of contact jobs are high. I also estimate that the decreased exposure to racial prejudice is associated with a higher convergence of the residual gap, whereas the expansion of contact jobs partly explains the persistence of the gap.

JEL Classification: J15, J61, R23

Keywords: wage differential, racial prejudice, search model

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1 Introduction

The wage gap between African-Americans and white Americans is substantial in the US and has slightly narrowed over the past 30 years. In 2000, black men full time workers earned on average 85 percent of the hourly wage earned by their white counterparts. Even though black workers continue to catch up whites in educational attainment, blacks almost achieved the same educational level as whites. There is reason to believe that discrimination driven by prejudice plays a part in explaining the residual wage gap. As Becker (1957) postulates, the starting point of racial prejudice is that some people have a negative feeling when interacting with people of another race. However, racial prejudice has substantially declined over the past 30 years whereas the earnings differential has slightly converged overtime. This paper tries to give an explanation to this 'prejudice puzzle' in analyzing the role of the growth of the service sector in blacks' economic progress.

Racial prejudice translates into lower labor market prospects for black workers through hiring and wage-setting practices. According to the *Cambridge American Dictionary*, prejudice means an unfair opinion or feeling formed without enough knowledge. In taste-based models of discrimination, prejudicial tastes of individuals lead to a less favorable treatment of minority group members even if they have identical productive characteristics as members of a majority group. These taste-based models can be separated into two categories : models with perfect labor markets and search models with matching frictions. In Becker's classic model, white employers, workers, or consumers dislike employing, working with, or purchasing from blacks. Employers (and indirectly workers or consumers) with such tastes hire only white workers and market pressures sort blacks away from the most-prejudiced individuals. Sorting between unprejudiced employers and black employees would be able to achieve if both shares of blacks and unprejudiced whites are small enough. As noted in Becker (1957) and emphasized by Arrow (1972), employers with weaker prejudicial tastes will make more profit and will expand. Demand for black workers will grow, and in the long run, if there are sufficient employers with no aversion to hiring blacks, employment will be partially segregated and there will be no wage discrimination. If, however, the share of prejudiced employers is sufficiently large, then some of black employees will work for prejudiced employers. In this case, in equilibrium, the racial wage gap is given by the prejudice of employers with whom blacks interact - what Becker calls *the marginal discriminator*. Charles and Guryan (2008) provided the first attempt to test the main predictions of Becker's model in examining how the distribution of employer prejudice affects the residual racial wage differential in the US. As predicted by Becker (1957), they point out that for a fixed distribution of prejudice among whites, segregation should be more difficult

to achieve when the fraction of blacks in a state is higher. Therefore, holding the distribution of discrimination constant, an increase in the number of black workers in the market will reduce their wages if it entails the marginal black worker to match a more discriminating employer. The authors use self-reported measures of prejudicial attitudes from the General Social Survey (GSS) for years 1972 through 2004 and find that the wage differential is increasing in the proportion of blacks and the prejudice measure at the 10th percentile. Their results imply that a one-standard deviation increase in prejudice is associated with lower black wages of about 23 percent relative to the mean residual wage gap across states.

In contrast to neoclassical models of the labor market, subsequent models have introduced search frictions to explain the persistence of the racial wage gap in the labor market. Including features such as employers' monopsonistic power, search costs, imperfection of information and workers' lack of residential immobility, these models prove that wage differentials can be a stable phenomenon in the long run as long as prejudice exists (See Black (1995), Bowlus and Eckstein (2002), Lang et al. (2005) and Rosen (2003)). These search models do not provide the same predictions as Becker's model as they do not suppose that market pressures will sort blacks away from the most prejudiced persons. They show that local wage differentials will persist as long as prejudice exists in the local labor market. Therefore, the variation of racial prejudice at the local level contributes to local variation in earnings inequalities between blacks and whites.

Nevertheless, both of these theories are unlikely to accurately predict the temporal trend of the black-white earnings differential. There is a fairly steady decline in the level of racial prejudice which is not matched by a stable decrease in the racial wage gap. Today there is growing evidence (mostly national polls and surveys) that prejudice against blacks has significantly declined over the past decades. Americans' attitudes about interracial marriage represent a telling indicator of the general shift in views of racial matters in the US. Their opinions have changed dramatically over the last 55 years, moving from the point in 1958 when disapproval was over 90%, to the point today of around 10%[1]. Consistent with this change, census data indicate that black-white marriages have increased eight-fold since 1960 albeit from a very low level (see Fryer (2007)). Thus, these findings suggest that strong prejudice is not the only explanation for racial inequalities in the labor market.

In an economy where job markets are heterogeneous and the structure of the market varies across local areas, some recent shifts related to the sectoral composition of the labor market may also influence the evolution of blacks' labor market outcomes. The last thirty decades of the twentieth century witnessed a marked shift in the sectorial composition of jobs : manufacturing has been losing

[1]Source : Gallup Politics http://www.gallup.com/poll/163697/approve-marriage-blacks-whites.aspx

its importance in employment whereas the service sector has significantly soared. On the one hand, the large decrease in manufacturing activity made low-skill industrial jobs more scarce (see Glaeser and Kahn (2001) and Bound and Freeman (1992) for instance). On the other hand, the share of US employment in service occupations grew by 30 percent between 1980 and 2000 (Schettkat and Yocarini (2006) and Autor and Dorn (2013)). Service occupations are mainly jobs that involve caring for others (food services, sales and clerical, janitors, cleaners, home health aides, child care workers and recreation occupations) and therefore imply interacting with customers. The expansion of the service sector has increased jobs in contact with customers (henceforth 'contact jobs') over the past 30 years[2]. These contact jobs are particularly discriminatory as the aversion customers may have interacting with black employees affects profits of firms. Evidence of consumer discrimination may generate both a direct effect on sales and/or an indirect effect on black labor market outcomes. On the one hand, sales in firms are a negative function of the black share of employees ; on the other hand, employers internalize the expected feelings their customers have from a cross-racial interaction in not hiring (or paying them at a lower rate) black employees. A large number of empirical and experimental studies have proved the existence of consumer discrimination against minorities in these contact jobs. Holzer and Ihlanfeldt (1998) show that consumer racial composition has a significant impact on the race of newly hired employees and on their wages, whereas Giuliano et al. (2010) find evidence of direct consumer discrimination on firms' sales. Moreover, Combes et al. (2013) build and run a test of customer discrimination on French data, whose modified version is implemented in the US by Laouénan (2013). These two papers show evidence of consumer discrimination at job entry in both countries. There are also a number of experimental contributions to the customer discrimination literature (see Ihlanfeldt and Young (1994) and Kenney and Wissoker (1994)). All these papers suggest empirical findings that minority workers are excluded from jobs involving substantial interaction with majority and prejudiced customers. Even if these studies have shown that contact jobs are particularly discriminatory against blacks, these latter have hold slightly more of these jobs than their white counterparts over the period 1980-2000: from 35% to 42% for blacks and from 38% to 40% for whites. The over-representation of African-Americans and contact jobs in large cities explains this phenomenon. After controlling for location, blacks are less likely to occupy contact jobs. This racial division of labor limits entry of contact jobs to these workers and therefore reduces the set of their employment opportunities.

In this paper, I try to understand why the black-white residual wage gap has slightly declined over the past 30 years while racial prejudice has tremendously slumped over the same period in

[2]This paper is related to the literature on the impact of technological change on workers' tasks and their labor market outcomes (see Autor et al. (2003), Autor et al. (2006) and Acemoglu and Autor (2011)).

focusing on the recent acceleration in the rate of contact jobs.

First, I assess the impact of the sectoral composition of jobs on blacks' earnings in presence of racial discrimination by using a search-matching model with two sectors. I develop a standard search-matching model based on Beaudry et al. (2012) in which I include both employer and customer discrimination against blacks in the labor market. It predicts that the local proportion of contact jobs is detrimental to blacks' earnings when customer discrimination exists in the labor market. In presence of customer discrimination, the sectoral composition of jobs affects the bargaining position of black workers by changing their outside option and therefore reduces their average wages. With the expansion of contact jobs across local markets, the associated labor demand shifts made prejudice more likely and (independently of prejudice) depressed blacks' outcomes.

Second, using the Integrated Public Use Microdata Series (IPUMS) for decennial years 1980, 1990 and 2000, I identify the effects of racial prejudice and contact jobs on black-white relative earnings at the local level. The economic situation of blacks in terms of employment and wages was mainly studied on a national level (see, for instance, Altonji and Blank (1999)). Some of them that have focused on this topic distinguish regions, states or urban/rural areas, like Vigdor (2006) that differentiates individuals located in the North from those in the South, or Charles and Guryan (2008) at the state level, or even Sundstrom (2007) at the state economic areas level in the South. Focusing at the local level is primordial since housing discrimination, racial segregation, or lack of information constrain mobility of black residents[3]. Therefore, their job opportunities depend on the characteristics of their residential local labor market. Local labor markets differ in their exposure to discrimination as a result of spatial variation in the location of tensions on the job market structure and in historical aspects. Following Autor and Dorn (2013), I construct *Commuting Zones* (CZ), considered as local labor markets, which are identified using county-level commuting data from the 1990 Census by Tolbert and Sizer (1996). I supplement IPUMS datasets with the O*NET (Occupational Information Network) and the GSS (General Social Survey). To measure the share of contact jobs, I use job task database (O*NET) that provides an index of how important working with the public is in a given occupation. As a measure of a contact job, I use the index of 'Working directly with the Public' in a given occupation which takes values between 1 and 98. I match the importance index of customer contact with the corresponding occupation classification to measure contact by occupation. Then, I measure the share of contact jobs at the commuting-zone level using the US Census. I measure the share of racial prejudice by

[3]Overall, measured housing discrimination against blacks took the form of less information offered about units, fewer opportunities to view units, and constraining into less wealthy neighborhoods with a higher proportion of minority residents. See Yinger (1986), Page (1995), Roychoudhury and Goodman (1996) and Ondrich et al. (2003).

using the GSS for the years 1976 to 2004 as the source for data on prejudice. This representative dataset elicited responses from survey questions about matters strongly related to racially prejudiced sentiments. None of these questions perfectly captures the disutility which an individual may have from a cross-racial interaction. However, a person's probability of responding to these questions in a racially intolerant way is strongly correlated with the racial prejudice felt by whites towards blacks. I use the question `"Do you think there should be laws against marriages between blacks and whites ?"` and compute the share of prejudiced individuals for each commuting zone as the percentage of white respondents who answered positively. I compute the share of white prejudiced individuals for each local area and each decade (1976-1984, 1986-1994 and 1996-2004) based on their answers. Then, I develop a two-step procedure to identify the role of both individual and local characteristics on blacks' earnings. In the first step, I estimate individual-level regression of earnings on a set of individual characteristics. It also includes a full set of racial CZ cell dummies and their coefficients are used to construct the dependent variable in the second stage regression. These residual racial earnings gaps are then regressed on the shares of racial prejudice and of contact jobs at the local level. The first-stage individual-level regression of earnings is corrected both for sample selection bias using Heckman (1979)'s procedure, and for selection based on mobility, as proposed by Dahl (2002) and implemented by Beaudry et al. (2012). I derive a careful strategy that controls for possible reverse causality and endogeneity of racial prejudice by instrumenting the shares of racial prejudice by the share of prejudice against communists and homosexuals. I also check the robustness of my results by adding spatial variables that could affect the racial wage gap and by using other questions from the General Social Survey to construct the share of prejudice against blacks. As predicted by search-matching models with taste-based discrimination, my estimates show that black men's relative earnings are lower in areas where the proportion of prejudiced individuals is high. As expected by the present search model with bargaining and consumer discrimination, the share of contact jobs is detrimental to blacks' wages.

Finally, I estimate the contribution of these recent shifts on the evolution of the residual racial gap using my estimates. I find that decreased exposure to racial prejudice is associated with higher convergence of the residual gap. The decline of racial prejudice would have decreased the racial earnings gap in 2000 to around 12 log points. This figure is significantly below the observed racial gap in 2000. The recent positive shift in contact jobs has contributed to widen this residual gap. The growth of these discriminatory jobs has widened the earnings gap by around 3-4 log points over the period studied.

The remainder of the paper is organized as follows : section 2 outlines the search-matching

model, section 3 describes the data used in my analysis, section 3 shows the econometric approach and empirical results and section 4 briefly concludes.

2 Model

In this section, I assess the impact of the sectoral composition of jobs on blacks' earnings in presence of racial discrimination by using a search-matching model with two sectors. The present model is based on Beaudry et al. (2012) in which I include both employer and customer discrimination against blacks in the labor market.

2.1 Framework

There is a country which is composed of l local labor markets. There is an exogenous number of inhabitants infinitely lived and constant through time. Workers can be in one of two different states: employment or unemployment. Unemployed workers migrate (at no cost) with an exogenous shock (mobility, family) from one labor market to another one. Importantly, unemployed workers search in their respective local labor market only.

2.2 Production

The economy has one final good, denoted Y, which is an aggregation of output from two sectors as given by :

$$Y = \{a_1 Z_1^{\chi} + a_2 Z_2^{\chi}\}^{1/\chi}$$

with $\chi < 1$ and where Z_1 and Z_2 are the two intermediate goods. In sector 1, non-contact goods (Z_1) are produced and in sector 2, contact goods (Z_2) are produced. The price of the final good is normalized to 1, while the price of the good produced by sector j is given by p_j. In this economy, the intermediate goods Z_j can be produced in any local labor markets : $Z_j = \sum_l Z_{jl}$, where Z_{jl} is the output in sector j in area l. There are two types of workers in the labor market (blacks and whites) and these goods can be either produced by blacks or whites (same ex-ante productivity).

The probability a match is made is determined by the matching function $M_l(U_l, V_l)$, where M is the flow of hires achieved in function of the stocks of vacant jobs V_l in l and of unemployed persons in search of work U_l in l. This function is of Cobb-Douglas form and is assumed to be strictly increasing with respect to each of its argument and has constant returns to scale. The search matching process is city random and there is no on-the-job search.

The probability of filling a vacant job per unit of time is expressed as :

$$\frac{M_l(U_l, V_l)}{V_l}$$

where $V_l = \sum_j V_{jl}$, with V_{jl} being the number of jobs in sector j in area l.
An unemployed person finds a job at a rate :

$$\frac{M_l(U_l, V_l)}{U_l} = \lambda_l$$

where λ_l is the rate of arrival. The share of vacant jobs in sector j in area l is denoted by $\eta_{jl} = \frac{V_{jl}}{\sum_j V_{jl}}$. As there are two sectors ($j = 1, 2$), we can also write $\eta_{1l} + \eta_{2l} = 1$ for each specific area l.

Wages ω are determined ex-post through wage bargaining between employers and workers. Workers' utility functions are linear in wages and no disutility from working is assumed. While unemployed, workers receive an instantaneous utility flows b. The last exogenous common knowledge parameter in the model is a discount rate r, assumed to be the same for employers and workers.

2.3 Discrimination

In this search-matching model, we assume that employers and customers may have a disutility towards people of race k. Let α^e_{jkl} be the proportion of prejudiced employers who dislike employees of race k in sector j in area l and a^c_{jkl} be the proportion of prejudiced consumers who get a lower utility from purchasing goods sold by an employee of race k in sector j in area l. Employer discrimination is indexed with $e = d, n$ and customer discrimination is indexed with $c = d, n$, where the (non-)existence of discrimination is defined by d (n). Consumer discrimination is considered here as indirect in the way that employers internalize the expected feelings their customers have from a cross-racial interaction. We assume that black individuals suffer from both kinds of discrimination : $\alpha^e_{jbl} \in]0, 1]$ and $a^c_{jbl} \in]0, 1]$, whereas white individuals don't suffer from discrimination of any kind : $\alpha^e_{jwl} = a^c_{jwl} = 0$. Moreover, discrimination is sector-specific : in sector 1 where non-contact jobs are produced, there is only employer discrimination whereas in sector 2, both employer and customer discrimination against blacks exist.

With probability λ_l, an unemployed worker is matched to a firm and then four events may happen. He can meet a firm with both prejudiced employers and consumers with probability $\alpha^d_{jkl} a^d_{jkl}$, with only prejudiced employers with probability $\alpha^d_{jkl} a^n_{jkl}$, with only prejudiced consumers with probability $\alpha^n_{jkl} a^d_{jkl}$, or with both unprejudiced employers and consumers with probability $\alpha^n_{jkl} a^n_{jkl}$. For each specific case, a wage is associated : when there are both types of discrimination

(ω_{jkl}^{dd}), employer discrimination but not customer discrimination (ω_{jkl}^{dn}), customer discrimination but not employer discrimination (ω_{jkl}^{nd}), and neither employer discrimination nor customer discrimination (ω_{jkl}^{nn}).

2.4 Value functions

Firms

When a job is filled, the intertemporal discounted profits for firms of type (e, c) with workers of race k in sector j of area l verify :

$$r\Pi_{jkl}^{ec} = p_j - \omega_{jkl}^{ec} - \delta_{jk}^{ec} + q(\Pi_l^v - \Pi_{jkl}^{ec}) \tag{1}$$

where ω_{jkl}^{ec} is the wage, p_j is the price of good produced in sector j, Π^{ec} the value of profits from a filled position, Π_l^v the value of a vacancy in area l, r is the discount rate, and q is the exogenous separation rate. The productivity of a worker is assumed to be equal to 1 and is the same for both types of workers in each sector. Prejudiced firms have a disutility δ_{jk}^{ec} which is the same across local labor markets l. This disutility is a monetary cost for these firms which comes from employer discrimination ($e = d$) and/or indirectly from customer discrimination ($c = d$).

To create a job in sector j in area l, a firm must pay a cost of c_{jl}, the value of which is endogenously determined in equilibrium. The number of jobs created in each sector j in l, N_{jl}, is determined by the free-entry condition : $c_{jl} = \Pi_{jl}^v$. As Beaudry et al. (2012), I assume that c_{jl} is potentially increasing in the number of jobs created in a local market:

$$c_{jl} = \frac{(N_{jl})^r}{\Psi_j + \Omega_{jl}}$$

where r represents decreasing returns to job creation at the sector-area level, Ω_{jl} is a sector-area specific measure of advantage, and Ψ_j reflects differences in cost of entry across both sectors.

Workers

The value of employment for a worker occupied in a firm of type (e, c) in sector j of race k in zone l is :

$$rW_{jkl}^{ec} = \omega_{jkl}^{ec} + q[U_{kl}^u - W_{jkl}^{ec}] \tag{2}$$

where rW_{jkl}^{ec} represents the value associated of being employed in a firm of type (e, c) in sector j of race k in zone l and U_{kl}^u represents the value associated of being unemployed. This equation states

that the value of employment is the current instantaneous value of the state for the worker ω_{jkl}^{ec} plus the value of the other possible state U_{kl}^{u} weighted by the probability associated to this event q.

The value of unemployment for an individual is :

$$rU_{kl}^{u} = b + \lambda_l \left\{ \sum_{e=d,n} \sum_{c=d,n} \sum_{j} \alpha_{jkl}^{e} a_{jkl}^{c} \eta_{jl} W_{jkl}^{ec} - U_{kl}^{u} \right\} + \phi(maxU_{kl'}^{u} - U_{kl}^{u}) \tag{3}$$

where λ_l is the rate of job offer, η_{jl} is the ratio of vacant jobs in sector j in area l to the total number of vacancies, where ϕ is the probability of moving to another labor market. An individual would choose the area l' that maximizes his expected utility. If we assume that mobility shocks (or family shocks as in Rupert and Wasmer (2012)) are sufficiently frequent, utility would be equalized across areas ($maxU_{kl'}^{u} - U_{kl}^{u} = 0$) in equilibrium.

2.5 Wage determination

To understand how the sectoral composition of jobs may affect racial wages across local markets, I need to derive the wage equation. From equation (1) and from the free-entry condition, the value of a match to a firm is :

$$\Pi_{jkl}^{ec} - \Pi_{l}^{v} = \frac{p_j - \omega_{jkl}^{ec} - \delta_{jk}^{ec}}{r+q} \tag{4}$$

From equations (2) and (3), the value of finding a job relative to being unemployed can be expressed as :

$$W_{jkl}^{ec} - U_{kl}^{u} = \frac{\omega_{jkl}^{ec} - b}{r+q} - \frac{\lambda_l [\sum_{e=d,n} \sum_{c=d,n} \sum_{j} \alpha_{jkl}^{e} a_{jkl}^{c} \eta_{jl} (\omega_{jkl}^{ec} - b)]}{(r+q)(r+q+\lambda_l)} \tag{5}$$

The worker's utility from being employed relative to being unemployed is affected by the sectoral composition of jobs η_{jl} and by the shares of prejudiced employers α_{jkl}^{e} and customers a_{jkl}^{c}.

Wages are set by Nash bargaining. The wage schedules are determined by choosing a wage that maximizes the product of the surplus in the match of the employers and workers, weighted by their relative bargaining power coefficient. Nash bargaining implies :

$$\text{Max } \gamma ln(W_{jkl}^{ec} - U_{kl}^{u}) + (1-\gamma) ln(\Pi_{jkl}^{ec} - \Pi_{l}^{v}) \tag{6}$$

$$\gamma(\Pi^{ec}_{jkl} - \Pi^{v}_{l}) = (W^{ec}_{jkl} - U^{u}_{kl})(1-\gamma) \tag{7}$$

where γ is the bargaining power of the worker.

Using equations (4), (5) and (7), the average sector-specific wages within a local market are represented as :

$$\omega^{ec}_{jkl} = \gamma(p_j - \delta^{ec}_{jk}) + b(1-\gamma)\left\{1 + \frac{\lambda_l}{r+q+\lambda_l}\right\} + \frac{\lambda_l[\sum_{e=d,n}\sum_{c=d,n}\sum_j \alpha^e_{jkl}a^c_{jkl}\eta_{jl}\omega^{ec}_{jkl}]}{(r+q+\lambda_l)}(1-\gamma) \tag{8}$$

This equation links wages in sector j to the national price of the sectoral good, p_j and to the average wages of individuals of race k in local labor market l.

If we replace the four types of wages (defined above) in the average earnings of individuals of race b, it becomes :

$$\sum_{e=d,n}\sum_{c=d,n}\sum_j \alpha^e_{jbl}a^c_{jbl}\eta_{jl}\omega^{ec}_{jbl} = [\alpha^d_{1bl}\omega^{dn}_{1bl} + (1-\alpha^d_{1bl})\omega^{nn}_{1bl}]\eta_{1l}$$
$$+[\alpha^d_{2bl}a^d_{2bl}\omega^{dd}_{2bl} + \alpha^d_{2bl}(1-a^d_{jbl})\omega^{dn}_{2bl} + (1-\alpha^d_{2bl})a^d_{2bl}\omega^{nd}_{2bl} + (1-\alpha^d_{2bl})(1-a^d_{2bl})\omega^{nn}_{2bl}]\eta_{2l}$$

Similarly, the average earnings of individuals of race w become :

$$\sum_{e=d,n}\sum_{c=d,n}\sum_j \alpha^e_{jwl}a^c_{jwl}\eta_{jl}\omega^{ec}_{jwl} = \omega^{nn}_{1wl}\eta_{1l} + \omega^{nn}_{2wl}\eta_{2l}$$

For each sector j, similar blacks and whites earn similar earnings if they meet both an unprejudiced employer and an unprejudiced consumer : $\omega^{nn}_{jwl} = \omega^{nn}_{jbl}$

The average difference in earnings between blacks and whites in sector j of area l is :

$$\overline{\omega^{ec}_{jbl}} - \overline{\omega^{ec}_{jwl}} = -\gamma\delta^{ec}_{jb} + \frac{\lambda_l(1-\gamma)[\alpha^d_{1bl}(\omega^{dn}_{1bl} - \omega^{nn}_{1bl})]\eta_{1l}}{(r+q+\lambda_l)} +$$
$$\frac{\lambda_l(1-\gamma)[\alpha^d_{2bl}(\omega^{dn}_{2bl} - \omega^{nn}_{2bl}) + a^d_{2bl}(\omega^{nd}_{2bl} - \omega^{nn}_{2bl}) + \alpha^d_{2bl}a^d_{2bl}(\omega^{dd}_{2bl} - \omega^{dn}_{2bl} - \omega^{nd}_{2bl} + \omega^{nn}_{2bl})]\eta_{2l}}{(r+q+\lambda_l)} \tag{9}$$

As ω^{nn}_{jkl} is greater than ω^{dd}_{jkl}, the racial difference in earnings is negative. This equation captures the main idea : when black workers in a given sector bargain with their employers, the sectoral

composition of jobs affects the bargaining position of black workers by changing their outside option. If the local area has a high proportion of vacant jobs in sector 2 (contact jobs) then the value to workers of leaving their current sector and becoming unemployed is lower because unemployed searchers have a higher probability of getting a low paid discriminatory job. As long as there is customer discrimination in sector 2 : $a^d_{2bl} > 0$, the relative share of jobs in this sector has a negative impact on blacks' relative earnings. In other words, it indicates that, in presence of consumer discrimination, racial wages differential within a local labor market is higher if the sectoral composition of a market is weighted toward contact jobs. But the reverse is not necessarily true, and this model does not aim at proving evidence of customer discrimination.

3 Data

This section describes the data used in this paper. First, I introduce datasets, then I detail the construction of commuting zones and the measure of both spatial covariates, and finally I provide some descriptive statistics.

3.1 Data sources and measurement

This analysis draws on the Census Integrated Public Use Micro Series (Ruggles et al. (2010)) for the years 1980, 1990 and 2000. These datasets contain very large samples representative of the U.S. population : each sample includes 5 % of the population[4]. It also gives extensive information on individuals, which is useful to assess outcomes on the labor market[5]. For each respondent in the sample, the database provides a wealth of information, including age, educational attainment, employment status, income, industry and occupation of employment, marital status and the residential/work location. There are three reasons why these series are well-suited for the purpose of this paper. First, these series provide large sample sizes that are essential for an analysis of changes in labor market conditions at detailed geographic level. Second, to assess the structure of the local job market over time I need a constant comparable classification of occupational data in historical US Census samples. The Census IPUMS recodes the occupation of employment according to different classification schemes which is consistent over the whole period. A constant classification makes it possible to highlight trends in the sectoral composition of jobs. Third, these series make it possible

[4]Appendix A provides additional details on the construction of our sample as well as more information on the database.

[5]The Current Population Survey is often preferred to IPUMS since it provides detailed information on individual earnings every month. The drawback of this database is the lack of precise geographic information on the location of individuals : it contains state-level geographic identifiers only.

to construct local labor markets using the definition of *Commuting Zones* which are consistent over the period[6].

3.1.1 Construction of Commuting Zones

This paper aims at analyzing how local factors affect African-Americans' earnings in the labor market. By providing local geographic information, IPUMS allows the construction of *Commuting Zones* (CZs) in the US. This concept of CZs comes from Tolbert and Sizer (1996). CZs are particularly suitable for this analysis of local labor markets for two main reasons. First, they are based primarily on economic geography rather than factors such as minimum population. Second, they can be consistently constructed using both County Groups and Census Public Use Micro Areas for the full period of this analysis. Each CZ approximates a local labor market, which can be considered as the smallest geographic space where most residents work and most workers reside. Tolbert and Sizer (1996) describe the identification of CZs using county-level commuting data from the 1990 Census. Each CZ is a collection of counties (or a single county) with strong commuting links which covers both urban and rural areas. However, CZs have hardly been used in empirical economic research on the US, probably because this geographic unit is not reported in publicly accessible micro data. The most detailed geographic units in IPUMS data are defined to comprise between 100,000 and 200,000 residents each. These units are alternatively called County Groups (CGs in 1980), or Public Use Microdata Areas (PUMAs, in 1990 and 2000). This definition does not allow the perfect matching of boundaries for all CZs. In order to overcome this issue, I assign individuals to CZs following the same procedure as in Autor and Dorn (2013). I split every individual observation into multiple parts whenever an individual's CG/PUMA cannot be uniquely assigned to a CZ. The adjusted person weights in the resulting dataset multiply the original census weights `PERWT` to the ratio between the number of residents in the overlap between CG/PUMA and CZ and the number of residents in each CG/PUMA. This ratio is simply the probability that a resident of a specific CG/PUMA lives in a particular CZ for each Census year[7]. The CZs in the sample were chosen based on having at least 100 black wage-earning respondents in the IPUMS census data. Therefore, this analysis includes 160 CZs (instead of 722) which cover the contiguous US (both metropolitan and rural areas), excluding Alaska, Hawaii and Puerto Rico. See Appendix C for more details on

[6] Charles and Guryan (2008) have tested the main predictions of Becker's model in using the Current Population Survey (CPS) March files. This dataset provides information at the state level only. The definition of state as a consistent local labor market has limitations. Local labor markets should be allowed to cross state boundaries. In particular, there are many urban areas overlapping state lines (e.g., New York City/Jersey City, Washington D.C./Arlington, Kansas City (Missouri/Kansas), St Louis (Missouri/Illinois), Omaha (Nebraska/Iowa), Cincinnati (Ohio/Kentucky)).

[7] See Appendix B for the visual comparison between counties and Commuting Zones.

the construction of CZs.

3.1.2 Construction of spatial covariates

I supplement IPUMS datasets with the O*NET (Occupational Information Network) survey and the GSS (General Social Survey) to compute the shares of contact jobs and of racial prejudice at local level for each decade, respectively.

Share of contact jobs

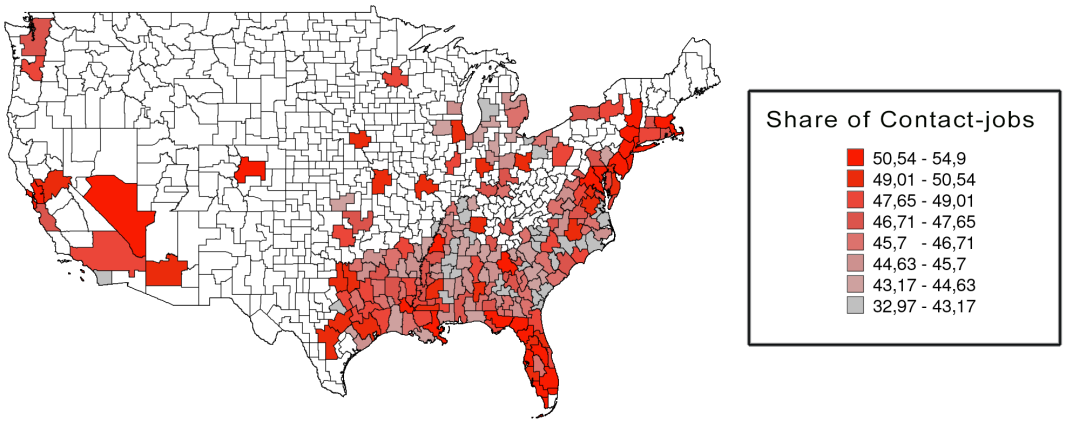
In order to compute the proportion of contact jobs across commuting zones, the empirical analysis requires measuring how important contact is for a given occupation. The decennial IPUMS details occupations but does not indicate whether the worker is in contact with the public or not. Therefore, I use external information to compute the proportion of jobs in contact with the public in each local labor market : Occupational Information Network (O*NET). O*NET has replaced the Dictionary of Occupational Titles (DOT) as the primary source of occupational information for the US. The network is administered and sponsored by the US Department of Labor and provides more than 275 standardized descriptors of skills, knowledges, tasks, occupation requirements, and worker abilities, interests, and values for 974 occupations. As a measure of a contact job, I use the index of 'Working directly with the Public' in a given occupation[8]. This includes serving customers in restaurants and stores, and receiving clients or guests. The importance indexes take values between 1 and 98. Table 13 in Appendix D enumerates the indexes for each occupation category and gives more information on the construction of the occupational classification. Sales agents, waiters and waitresses, and clerks are more likely to work in contact with the public than construction or agricultural workers. I match the importance index of customer contact from the US Department of Labor's DOT with the corresponding `OCC1990` occupation classification to measure contact by occupation $\%Contact_o$. To measure the share of contact jobs at the commuting-zone level, I calculate for each commuting zone k at year t a contact share measure $\%\text{Contact}_{kt}$, equal to :

$$\%\text{Contact}_{kt} = \frac{\sum_{o=1}^{O} L_{okt}.\%Contact_o}{\sum_{o=1}^{O} L_{okt}}$$

where L_{okt} is the employment in occupation o in commuting zone k at year t, and $\%Contact_o$ is the share of contact by occupation.

[8]This index is part of work activities. The exact definition is : Performing for people or dealing directly with the public.

Figure 1: Spatial distribution of contact jobs - 2000



Notes: (i) The spatial distribution of contact jobs is computed from the O*NET and the 2000 Census; (ii) The map consists of 160 CZs; (iii) White CZs are dropped from the analysis.

Figure 1 maps the spatial distribution of contact jobs in 2000. This map divides the US territory into CZs and white areas are excluded from the analysis. It shows that the proportion of contact jobs is high in densely populated CZs where large Metropolitan Statistical Areas (MSAs) are located. The three areas with the highest share of contact jobs are CZs including Atlantic City (NJ), Las Vegas (NV) and Fort Myers-Cape Coral (FL). These results are consistent with the fact that these areas attract tourists and provide a large number of consumer services (hotels, restaurants, casinos and attractions).

Table 1 documents the increase in the importance of contact jobs in the US from 1980 to 2000. It gives the temporal trend of contact jobs arising from shifts between three-digit occupations. The growth rate of the proportion of these jobs has increased by more than 10%. It confirms the idea that this trend is mainly driven by the boom of service industry and that the US have become a society of consumer service over the past decades. Moreover, the mean standard deviation of 0.03 shows there is considerable geographic variation in the share of contact-jobs.

Table 1: Trend of contact jobs employment (1980-2000)

	1980	1990	2000
Mean	.42	.44	.46
Standard deviation	.028	.030	.034

Sub-sample of selected CZs (with at least 100 wage-earning blacks in each CZ) ; Sources : O*NET, IPUMS 1980-2000 and author's own calculations.

Share of racial prejudice

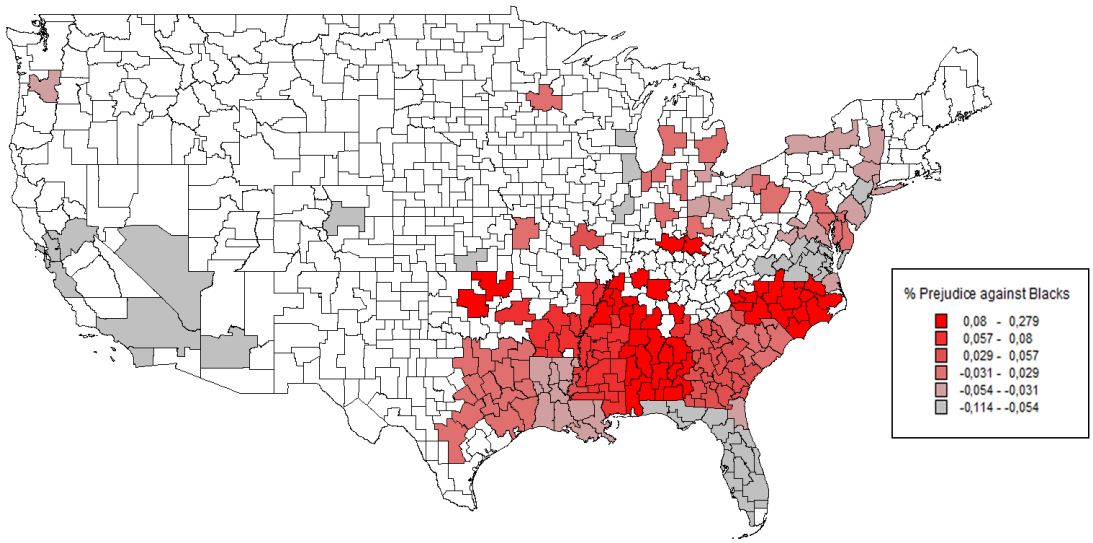
As in Charles and Guryan (2008), I use the General Social Survey (GSS) for the years 1976 to 2004 as the source of data on racial prejudice at the local level. This nationally representative dataset elicited responses from survey questions about matters strongly related to racially prejudiced opinions. Using this survey has two main drawbacks. The first one is that none of these questions perfectly captures the disutility which an individual may have from a cross-racial interaction. However, a person's probability of responding to these questions in a racially intolerant way is strongly correlated with the racial prejudice felt by whites towards blacks. I use the question `"Do you think there should be laws against marriages between blacks and whites ?"` and compute the share of prejudiced individuals for each commuting zone as the percentage of white respondents who answered positively. My measure of racial prejudice is somewhat different from Charles and Guryan (2008) as I compute the temporal trend of the percentage of white respondents who answered intolerantly to these questions[9]. This question is particularly suited as it reveals the true prejudice individuals may have interacting with blacks.

The second issue is that GSS provides information on prejudice at the state level only. As PUMAs/CGs do not cross state lines, I can allocate the share of prejudice at the state level to the PUMA/CG level. Then, I convert this share at the PUMA/CG level to the CZ level by assigning a PUMA/CG to a CZ based on the population weight of the PUMA/CG in the CZ. If a PUMA/CG overlaps several counties, I match PUMAs/CGs to counties assuming that there is the same probability for all residents of a PUMA/CG of living in a given county. See Appendix E for more details on the construction of racial prejudice at the CZ level. For each table of results, I provide two geographical definitions of the share of racial prejudice : at the state level and at the CZ level.

Figure 2 maps the spatial distribution of racial prejudice in 2000. It clearly shows that the proportion of white respondents prejudiced against blacks is high in the South East. The Commuting Zones which are characterized by the highest levels of prejudice are also the areas with the highest share of African-Americans. The spatial distribution of proportion black is illustrated in Figure 3. It exhibits the concentration of blacks in the southern 'black belt' areas as well as in major industrial MSAs in northeastern areas. The correlation between these two shares is 0.3. In the US, prejudice

[9] Charles and Guryan (2008) focus on testing whether a association between racial prejudice and blacks' wages implied by the Becker prejudice model can be found in the data. Using responses to a number of racial questions, the authors create an individual prejudice index among whites in a given state and identify different percentile points in that prejudice distribution, differentially by state. They pool all observations over all years in the data to measure various percentiles of the distribution of prejudice in each state. The goal of this paper is to link the average residual wage gap experienced by blacks in a state to the white prejudice distribution in that state in order to test Becker's predictions.

Figure 2: Proportion of white respondents prejudiced against African-Americans by County Zone



Notes: (i) The proportion of racial prejudice is computed from the General Social Survey on the 1996-2004 time period; (ii) The map consists of 160 CZs; (iii) White CZs are dropped from the analysis; (iv) The share of blacks is centered with respect to the mean.

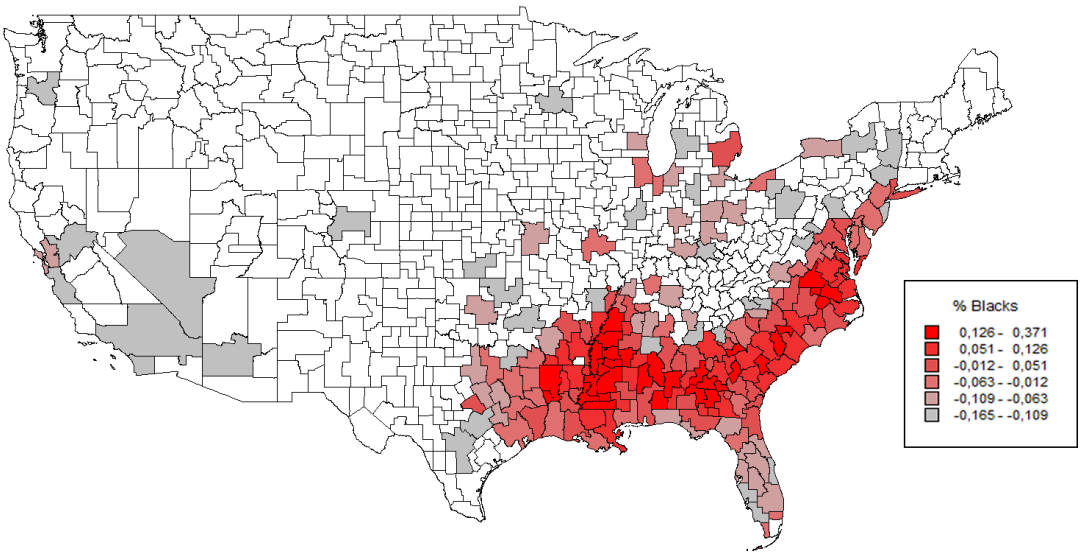
against African-Americans is deeply rooted in the slavery period. Counties where blacks constitute a large share of the workforce used to be plantation farming areas and remain today influenced by a strong tradition of hierarchical race relations and may still exhibit racial prejudice as a result[10].

Table 2 provides some summary statistics on the share of racial prejudice at both state and CZ levels over the period 1980-2000. Since the GSS has too few observations per state-year cell to reliably measure changes in racial prejudice per year, I pool years together in order to create some variation in racial prejudice by decades. I use the shares of racial prejudice at different time periods : 1976-1984, 1986-1994 and 1996-2004 for corresponding decennial Census 1980, 1990 and 2000, respectively. Both definitions present similar statistics. It shows that the level of racial prejudice has significantly declined over time with a variation rate of -62%[11].

[10]This is reminiscent to what Sundstrom (2007) finds across southern counties in 1940. The correlation between the percentage of black men in the 1940 population and the percentage of slaves in the 1860 population is almost 0.9. The large proportion of slaves was mostly required in plantation farming areas where more voters expressed segregationist preferences in the 1948 presidential election by voting for Strom Thurmond.

[11]Appendix F represents the trend of the proportion of white respondents prejudiced against African-Americans (whites agreeing on a law against interracial marriage) over the period 1972-2004 for each specific year.

Figure 3: Proportion of African-Americans by County Zone



Notes: (i) The proportion of African-Americans is computed with the 2000 Census; (ii) The map consists of 160 CZs; (iii) White CZs are dropped from the analysis; (iv) The share of racial prejudice is centered with respect to the mean.

Table 2: Temporal trend of the share of racial prejudice

	Mean	**Std Dev**	**Min**	**Max**
2000				
%Racial Prejudice (ST)	0.17	0.096	0.030	0.39
%Racial Prejudice (CZ)	0.16	0.094	0.0035	0.39
1990				
%Racial Prejudice (ST)	0.33	0.14	0.083	0.65
%Racial Prejudice (CZ)	0.31	0.15	0.013	0.65
1980				
%Racial Prejudice (ST)	0.45	0.16	0.16	0.71
%Racial Prejudice (CZ)	0.43	0.17	0.031	0.71

Notes: (i) %Racial Prejudice (ST) corresponds to the level of racial prejudice at the state level and %Racial Prejudice (CZ) corresponds to the level of racial prejudice at the commuting zone level ; (ii) The share at year 1980 is matched to years 1976-1984 of GSS, the share at year 1990 is matched to years 1986-1994 and the share at year 2000 is matched to years 1996-2004. Source : General Social Survey 1976-2004.

3.2 Sample

The present analysis focuses on non-Hispanic white or black civilians of working age (20-65 years old) who are not self-employed and not living in Group Quarters (non-institutionalized labor force).

I only keep male workers to avoid a number of questions related to family arrangements, residential choices, and female labor market outcomes. Moreover, the earnings differential between black and white women has been historically considerably lower than for men (See Lang (2007) and Neal (2004)). I also exclude college workers from the analysis, as previous studies have found an absence of differentials among highly skilled male workers[12]. Therefore, only men who have at most a high-school diploma are included in the sample.

The sample includes all low-skilled wage and salary workers with positive wages, working full time (usual hours worked per week 35 or greater and weeks worked per year 45 or greater). All calculations are made using the sample weights provided and the CZ weights. I also discard observations reporting employment in the previous year while non-positive labor earnings or hourly wage below 1 dollar. Note that the hourly wage is not reported; I construct it by dividing yearly wage income by the product of weeks worked times weekly hours. All wages are expressed in 2000 dollars.

3.2.1 Descriptive Statistics

Summary statistics for the variables used in my main specifications are displayed, by race and by decade, in Table 3. It shows overall averages of wages and education for black and white men aged 20-65 with means in the 1980, 1990 and 2000 decennial censuses.

The difference in terms of hourly wage between blacks and whites is large. African-Americans earn about three-five dollar less per hour than whites on average. The lower part shows that this gap can be partially explained by skill differences. Black men in the sample have, on average, less education than white men. These characteristics explain that, ceteris paribus, black men are likely to have a lower hourly wage than white men. From 1980 to 2000, the relative hourly wages of black men have increased. A large part of racial economic convergence is attributed to a significant increase in educational attainment levels of blacks over the past decades. There are two main points worth noting. First, in this sample of non-college men, the majority of black men did not have a high school diploma in 1980. Second, the educational attainment of black men has significantly progressed between 1980 and 2000. The proportion of black men without a high-school diploma has considerably dropped between 1980 and 2000. In 2000, around 20 % of non-college workers did not have a high-school diploma.

[12] Neal (2004) finds that the black-white wage gap decreases with skill level and that wages converge at high levels of education for those with similar AFQTs. Lang and Manove (2011) also find that highly skilled black and white men with high AFQTs have similar earnings.

Table 3: Individual characteristics

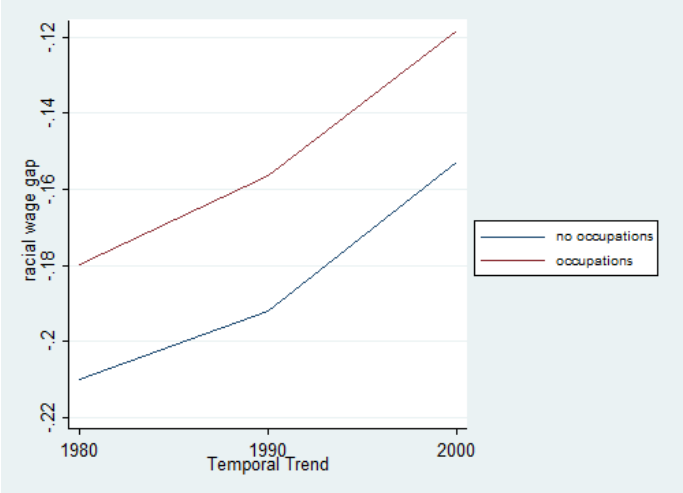
	1980		1990		2000	
	blacks	whites	blacks	whites	blacks	whites
Hours Worked	40.13	40.44	40.10	40.46	40.17	40.54
Weeks Worked	51.25	51.44	51.40	51.50	51.44	51.57
Hourly Wage	14.22	18.90	13.23	16.94	13.86	17.07
Log Hourly Wage	2.52	2.83	2.45	2.71	2.48	2.71
Weekly Wage	559	753	529	684	555	691
Log Weekly Wage	6.12	6.49	6.13	6.40	6.17	6.41
Education (12th grade)	0.48	0.65	0.69	0.77	0.82	0.86
Education (11th grade)	0.10	0.076	0.089	0.058	0.066	0.043
Education (9-10th grade)	0.17	0.14	0.12	0.11	0.074	0.072
Education (8th grade or less)	0.25	0.13	0.10	0.063	0.037	0.029
Observations	103,831	490,864	83,108	379,744	366,048	83,698

Notes: (i) Sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year; (ii) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours and weekly wages are defined as yearly wage divided by the number of weeks worked ; Source : IPUMS Census 5% samples 1980-2000.

3.2.2 The racial wage differential (1980-2000)

The trend of the residual earnings gap between blacks and whites gives a better outline of the evolution of the gap overtime than the previous table. Figure 4 shows the evolution of the racial hourly wage gap from 1980 to 2000, adjusted for observable characteristics (age, education and location). It shows the slight convergence of the gap over the period of time. The residual gap is also estimated using the March Current Population Survey files in Appendix G and gives the same pattern.

Figure 4: Residual wage gap between blacks and whites - Trend 1980-2000



4 Empirical strategy and estimations

This section details the empirical strategy and estimations. I study how local wage gaps are affected by the level of racial prejudice and by the sectoral composition of the local labor market. First, I discuss the econometric methodology, then I present the main results and finally I present some robustness checks.

4.1 Econometric methodology

I estimate the effects of local market measures of prejudice and of contact jobs on black men's earnings. The baseline empirical specification is given by equation (9). As a large number of empirical studies on labor market discrimination do, I estimate Mincerian equations to identify wage differential between both racial groups net of a set of observable characteristics. I adopt a two-step procedure to identify local effects at the CZ level from individual characteristics. This method enables me to consider worker heterogeneity in terms of observables : skills and race in the determination of the residual wage. In the first step, I regress individual-level regression of earnings w_{it} on a set of individual characteristics to eliminate skill differentials. The variables used to measure human capital are the traditional ones employed in the labor literature : age and education. Years of school completed are entered as a string of vector variables in order to raise non-linear relationships and both age and its square are entered. Wage discrimination may operate through differential job assignments that create obstacles to black advancement. Then, controlling for occupational status would simply remove a key component of wage discrimination from the area wage gap estimates. Therefore, I estimate two specifications : controlling and not for occupations. The estimation also includes a full set of racial CZ cell dummies and their coefficients are used to construct the dependent variable in the second stage regression. I eliminate all racial CZ cells which include fewer than 100 black workers.

$$w_{it} = \beta_0 + \beta_1 \chi_{it} + \beta_2 Black_{it} + \sum_t \sum_{l(i)} \left(\psi_{l(i)t} CZ_{k(i)t} + \varphi_{l(i)t} CZ_{l(i)t}.Black_{it} \right) + \rho\sigma\widehat{\lambda}_{it} + \varepsilon_{it} \qquad (10)$$

where w_{it} is the observed wage if individual i works, l is the corresponding location, χ_{it} are the vectors of observed individual characteristics. The basic individual controls (χ_{it}) are for age, age squared, educational dummy variables (8th grade or less, 9-10th grade, 11th grade and 12th grade). $Black_{it}$ is a dummy variable equal to 1 for blacks and 0 otherwise, CZ_{lt} is a dummy variable equal to 1 for area l at year t, ε_{it} are mean-zero stochastic error terms representing the influence of

unobserved variables.

The estimation of model (10) is corrected for both sample selection bias and sorting issue. Firstly, the estimation of the model is corrected for sample selection bias since being paid is conditional on being employed. Focusing on full-time employed individuals under-estimates the effects of discrimination. To correct for sample selection bias, I follow Heckman (1979) and include the inverse of Mills' ratio $\widehat{\lambda}_{it}$ in the selection equation. This model is identified by introducing into the selection equation variables that are supposed to have an impact on the probability of working full-time but do not directly affect the individual log earnings. These variables are dummy variables indicating if the individual lives with a partner and the presence of children. Secondly, the estimation is also corrected for sorting selection bias since employment is closely related to individuals' mobility. More specifically, the distribution of unobserved skills in a CZ may be correlated with the share of racial prejudice. This would imply a non-zero coefficient on the coefficient of interest, which does not reflect evidence of discrimination. The potential bias due to the endogenous residential location generates a correlation between the density of unavailable jobs and potential black workers' unobserved characteristics. For example, suppose that the most able workers move from the South where racial prejudice is high, then employment outcomes for blacks are lower. To address the issue of selection on the unobservables of workers across local labor markets, I apply a Heckman-type two-step procedure as proposed by Dahl (2002) and implemented by Beaudry et al. (2012).

The coefficients on the CZ-black interactions $\varphi_{l(i)}$ are the adjusted estimates of the racial wage gap in each CZ. These local estimates are adjusted for (i) area factors that affect the wage level of all local individuals in a similar way and (ii) for racial differences in individual characteristics. The goal of the second-step regressions is to investigate the contribution of the shares of racial prejudice and of the sectoral composition of jobs on the spatial variation of this adjusted gap. Therefore, in the second step, I regress the estimated area-time effects specific to blacks net of individual and location characteristics, $\hat{\varphi}_{lt}$, on the local effects :

$$\hat{\varphi}_{lt} = \mu \%Prejudice_{lt} + \nu \%Contact_{lt} + \tau_t + \upsilon_{lt} \tag{11}$$

where $\%Prejudice_{lt}$ is the share of racial prejudice, $\%Contact_{lt}$ is the share of contact jobs, τ_t is a time fixed effect and υ_{lt} is a random component at the CZ level assumed to be i.i.d. across CZ and periods. A finding of $\mu < 0$ would support the predictions of taste-based models in imperfect labor market models. A finding of $\nu < 0$ would support the notion of general equilibrium effects of sectoral composition on blacks' wages as predicted by the model. Given that the second-step dependent variables are estimated in the first-step, errors of the second-step regressions υ_{lt} are heteroskedastic.

Following Card and Krueger (1992), I use the inverse of the square root of standard errors of each race-CZ-year cell from the first step to form weights for the second stage estimation and therefore to take this measurement error into account. In all second-step estimation results I calculate standard errors allowing for clustering by CZ and decade. Finally, I use these second-stage estimates in order to understand the persistence of the racial earnings differential over the period 1980-2000.

4.2 Results

4.2.1 First-step regressions

Table 4 presents results concerning individual controls in earnings regression. I present two sets of estimations, without and with 12 occupations dummies. The results for all of the human capital variables are consistent with the literature. Education is an important factor, with more education significantly increasing earnings. Age has a positive effect on wages that diminishes over time. The first column displays racial differences in wages after controlling for age and education. The black white difference is estimated to equal -.21 log points. Controlling for 12 occupation dummies in column (3) slightly increases the first-step explanatory power of the model and marginally reduces the racial wage gap to -.18 log points. Accounting for racial disparities in location reduces the gap by .11-.12 log points; but it remains economically large and statistically significant. Importantly, there is a large increase of the R^2 when CZ-time fixed-effects are introduced, by around 50% for the log earnings. These results suggest that location is of fundamental importance and plays a much greater role than individual effects in the determination of this labor market outcome. On the bottom part of the table, summary statistics for CZ fixed-effects are reported. Area fixed-effects increase the explanatory power of both models and are highly significant (and therefore precisely estimated). A black man moving from the CZ at the first decile to the CZ at the last decile of fixed effects would increase his earnings by 25-28% log points by comparison with a white man. See the spatial distribution of residual racial wage gaps in Appendix H.

4.2.2 Second-step regressions

The objective of second-step regressions is to quantify the contributions of the shares of racial prejudice and of contact jobs to the magnitude of the black-specific area fixed effects obtained in the first step. Both adjusted wage gaps (with and without occupation dummies in the first-step) are estimated by the coefficients on the black-area interaction in the first-stage regressions, relative to

Table 4: Earnings: First-step results

	(1)	(2)	(3)	(4)
Black	-0.207^a	-0.090^a	-0.180^a	-0.063^a
	(0.001)	(0.015)	(0.001)	(0.015)
Age	0.068^a	0.050^a	0.067^a	0.049^a
	(0.000)	(0.000)	(0.000)	(0.000)
Age Squared	-0.001^a	-0.001^a	-0.001^a	-0.001^a
	(0.000)	(0.000)	(0.000)	(0.000)
Education 8th Grade	-0.289^a	-0.139^a	-0.268^a	-0.123^a
	(0.001)	(0.002)	(0.001)	(0.001)
Education 9th-10th Grade	-0.170^a	-0.046^a	-0.161^a	-0.041^a
	(0.001)	(0.001)	(0.001)	(0.001)
Education 11th Grade	-0.122^a	-0.023^a	-0.118^a	-0.022^a
	(0.002)	(0.002)	(0.002)	(0.001)
lambda	-0.218^a	-1.533^a	-0.112^a	-1.403^a
	(0.006)	(0.008)	(0.006)	(0.007)
Constant	1.418^a	1.713^a	1.509^a	1.799^a
	(0.005)	(0.008)	(0.005)	(0.008)
# Occupation dummies	0	0	12	12
CZ fixed effects				
Inter-decile		[−0.093-0.35]		[−0.086-0.35]
# (share) > mean (signif. at 5%)		231 (41.2%)		231 (41.2%)
# (share) < mean (signif. at 5%)		329 (58.6%)		325 (57.9%)
CZ fixed effects X 'Black'				
Inter-decile		[−0.11-0.17]		[−0.10-0.15]
# (share) > mean (signif. at 5%)		263 (46.9%)		253 (45.10%)
# (share) < mean (signif. at 5%)		270 (48.1%)		272 (48.48%)
R^2	.21	.29	.24	.32
Observations	1,494,398	1,494,398	1,494,398	1,494,398

Notes: (i) Sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (ii) Specifications are corrected for sample selection bias and for sorting bias; (iii) Regressions include the full vector of control variables : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio, a black dummy and 12 occupation dummies in columns (3) and (4) ; (iv) Regressions are weighted by the Census sampling weight multiplied by a weight derived from the geographic matching process that is described above ; (v) Significance levels : a: 1%, b: 5%, c: 10%.

the reference area category. Table 5 reports the impact of local variables on the estimated CZ-time-race fixed effects. Results of the first table are estimated not including any occupation dummies in the first-step model. See similar results in Table 14 in appendix I where first-step model includes 12 occupation dummies. Results report the share of prejudice for each geographical definition : at the state level and at the CZ level. All these different specifications show similar results. Relative disadvantages for blacks in wages are greater in local areas where attitudes of whites on racial

intolerance are most pronounced. At the state (CZ) level, the estimated coefficients indicate that a one-standard deviation increase in the proportion of prejudice increases the racial wage gap by about .26-.39 (.30-.43) of its standard deviation. These empirical results confirm that earnings of blacks are significantly reduced by racially intolerant attitudes held by whites. Columns (2) and (5) represent the link between the share of contact jobs and residual racial gap at a given share of racial prejudice. It shows that the share of contact jobs has a significant and negative effect on the wage gap. Results indicate that a one-standard deviation increase in the proportion of contact jobs widens the adjusted racial wage gap by about .27-.31 of its standard deviation. As expected by the model, the spatial composition of contact jobs has a detrimental role on blacks' earnings, holding the level of prejudice constant. In columns (3) and (6), the share of blacks in the population is included in the regressions for two main reasons. First, the share of African-Americans is highly correlated with the share of racial prejudice (see Figures 2 and 3). The estimates of prejudice could therefore be biased upwards or downwards depending on the effect of the racial composition on prejudice. Second, a large number of research predict that this share has a significant impact on blacks' labor market outcomes. According to Becker's model of discrimination, the proportion of blacks in the labor force is expected to be detrimental to blacks' relative wages. Given the distribution of tastes for discrimination, an increase in the relative supply of black workers rises the probability to match blacks with prejudiced firms and therefore expands the racial wage gap. Card and Krueger (1992) have also showed that the relative quality of schools in a state is determined by the fraction of blacks in the population. Schools located in states with a higher concentration of blacks had poorer resources invested in school quality (pupil-teacher ratios, teacher salaries). The authors can explain significant fractions of racial differences in earnings based on these characteristics. Moreover, racial segregation can cause adverse neighborhood or social network effects that are detrimental to labor market outcomes for blacks as noted by Cutler and Glaeser (1997). Conversely, an increase in the relative supply of black workers can entail a spillover effect in leading employers to assign black workers to skilled and more-valued job opportunities, as suggested by Black (1995) and Bowlus and Eckstein (2002). Columns (3) and (6) reveal that the share of black has a negative effect on the racial earnings gap. My results suggest that the job-market crowding and ghetto effects of increased relative supply of blacks in the labor force dominate the spillover effect. The estimated coefficient indicates that a one-standard deviation increase in the proportion of black workers widens the adjusted racial wage gap by about .29-30 of its standard deviation. The inclusion of the racial composition mitigates the effects of prejudice and of contact jobs on racial wages but does not change the significance of estimates. Results presented in Table 5 show that these three local factors play

Table 5: Second-step results

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (ST)	-0.224^a	-0.316^a	-0.209^a			
	(0.034)	(0.042)	(0.046)			
%Prejudice (CZ)				-0.249^a	-0.350^a	-0.246^a
				(0.035)	(0.041)	(0.045)
%Contact		-1.068^a	-0.970^a		-1.116^a	-1.022^a
		(0.192)	(0.191)		(0.181)	(0.180)
%Blacks			-0.324^a			-0.309^a
			(0.052)			(0.051)
Constant	-0.034^a	-0.036^a	-0.304^a	-0.026^a	-0.025^a	-0.283^a
	(0.010)	(0.009)	(0.045)	(0.011)	(0.010)	(0.045)
Time FE	yes	yes	yes	yes	yes	yes
R^2	0.205	0.292	0.350	0.218	0.312	0.365
obs.	480	480	480	480	480	480

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (2) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio and a black dummy ; (iii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (v) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.

a significant role in explaining black men's wages.

4.3 Robustness checks

These empirical results face three main issues. The first one is that omitted spatial variables can bias estimates of the shares of racial prejudice and of contact jobs. The second one is that racial prejudice can be endogenously determined, for instance by black men's earnings, creating a reverse causality issue. The third one is that the proportion of white individuals against interracial marriage may not be an accurate measure of racial prejudice. To address the first concern, I add two spatial variables that have been found in the literature as significant factors of blacks' labor market outcomes. Concerning the second issue, I implement an IV approach by instrumenting the share of racial prejudice by the share of prejudice against communists and homosexuals to solve this endogeneity issue. Finally, about the last issue, I use two other questions in the GSS which refer to matters linked to racially prejudiced opinions.

Adding other spatial variables as controls

I add a vector of labor market conditions that has been known to affect the black-white earnings

differential: the share of employment in manufacturing and the proportion of unskilled (non-college) workers in the second-step regression.

The shifts in employment away from traditional industrial sectors have disproportionately affected blacks' labor market outcomes compared to their white counterparts (See Bound and Holzer (1993) and Wilson (1987)). The effect of de-industrialization on blacks has been more severe than for whites for two reasons. First, blacks men were slightly more represented in manufacturing industries than whites. Over four million African Americans moved from the rural South between 1940 and 1970 to settle in industrial cities (mostly in the North and West) close to manufacturing opportunities (Taeuber and Taeuber (1985) and Farley (1968)). Their share in employment went from 37% to 29% compared to 33% to 28% for whites over the period 1980-2000. Second, they have on average lower levels of educational attainment, which makes it harder for them to adapt to new labor market conditions. They could not relocate easily to other sectors or to other areas in response to these shifts.

The incidence of the proportion of unskilled workforce on blacks' outcome refers to the *Spatial Mismatch Hypothesis*. Kain (1968) states that the employment problems of blacks in the US are partly due to the conjunction of unskilled job suburbanization and housing discrimination in the suburbs that constrain blacks to reside in the inner cities. As a result, the relative supply of low-skilled workers is very large in the central city, which depreciates the labor market performances of black workers (see Wilson (1996)).

In Table 6, I include the shares of employment in manufacturing and of unskilled workers as additional controls for any labor market conditions varying across local markets[13]. The estimates of both shares have expected results. The inclusion of these two spatial covariates slightly mitigates both the effect of prejudice and of contact jobs on blacks' earnings but does not change the significance of estimates.

Solving the endogeneity issue of racial prejudice

In Table 5, blacks' earnings may affect racial prejudice against them. This would create a reverse causality issue in the second step estimation. To circumvent this potential problem, I pursue an instrumental approach that isolates exogenous spatial variation in prejudice to measure the unbiased prejudice effect. In this case, a viable IV should influence the severity of racial prejudice but should not have an independent influence on racial gaps. For each local area, I instrument the share of racial prejudice with the share of prejudice against communists and homosexuals. As for the share of racial prejudice, I use the General Social Survey to compute these two

[13]See also Table 15 in appendix I for estimations including 12 occupation dummies in the first-step model.

Table 6: Second-step results

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (ST)	-0.224^a	-0.259^a	-0.198^a			
	(0.041)	(0.039)	(0.042)			
%Prejudice (CZ)				-0.262^a	-0.289^a	-0.231^a
				(0.040)	(0.040)	(0.043)
%Contact		-2.287^a	-1.991^a		-2.215^a	-1.954^a
		(0.400)	(0.388)		(0.392)	(0.383)
%Blacks			-0.253^a			-0.246^a
			(0.058)			(0.057)
%Manufacturing	0.438^a	-0.298^b	-0.277^b	0.449^a	-0.263^b	-0.254^b
	(0.082)	(0.164)	(0.166)	(0.080)	(0.160)	(0.164)
%Unskilled	-0.284^a	-0.265^a	-0.159^b	-0.267^a	-0.254^a	-0.149^b
	(0.067)	(0.065)	(0.074)	(0.066)	(0.064)	(0.072)
Constant	-0.137^a	-0.130^a	-0.302^a	-0.123^a	-0.117^a	-0.285^a
	(0.024)	(0.023)	(0.042)	(0.024)	(0.023)	(0.043)
Time FE	yes	yes	yes	yes	yes	yes
R^2	0.286	0.341	0.371	0.302	0.354	0.383
obs.	480	480	480	480	480	480

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (2) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio and a black dummy ; (iii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (v) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.

shares of prejudice. For the share of prejudice against communists, I use the two following questions : `"Suppose a man who admits he is a Communist wanted to make a speech in your community. Should he be allowed to speak, or not?"` and `"Suppose a man who admits he is a Communist is teaching in a college. Should he be fired, or not?"` and compute the share of individuals prejudiced against communists for each commuting zone as the percentage of white respondents who answered intolerantly : `"Not allowed"` and `"Yes"` respectively. For the share of prejudice against homosexuals, I use both following questions : `"Suppose a man who admits that he is a homosexual wanted to make a speech in your community. Should he be allowed to speak, or not?"` and `"Should a man who admits that he is a homosexual be allowed to teach in a college or university, or not?"` and compute the share of individuals prejudiced against homosexuals for each commuting zone as the percentage of white respondents who answered intolerantly : `"Not allowed"` for both questions. Table 7 provides some summary statistics on the shares of prejudice against homosexuals and communists for both geo-

graphical definitions. This table also shows the trend of both instruments over the period studied. Compared to Table 2, it highlights that the shares of both types of prejudice are higher than those of prejudice against blacks[14]. As for the share of racial prejudice, both types of prejudice have significantly declined overtime.

Table 7: Temporal trend of the shares of prejudice against communists and homosexuals

	Mean	**Std Dev**	**Min**	**Max**
2000				
%Prejudice against communists (ST)	0.37	0.072	0.20	0.49
%Prejudice against communists (CZ)	0.35	0.092	0.020	0.49
%Prejudice against homosexuals (ST)	0.24	0.092	0.088	0.41
%Prejudice against homosexuals (CZ)	0.23	0.096	0.0087	0.41
1990				
%Prejudice against communists (ST)	0.47	0.10	0.24	0.70
%Prejudice against communists (CZ)	0.44	0.12	0.034	0.70
%Prejudice against homosexuals (ST)	0.37	0.11	0.11	0.60
%Prejudice against homosexuals (CZ)	0.35	0.12	0.023	0.60
1980				
%Prejudice against communists (ST)	0.56	0.099	0.32	0.71
%Prejudice against communists (CZ)	0.53	0.14	0.04	0.71
%Prejudice against homosexuals (ST)	0.48	0.12	0.23	0.69
%Prejudice against homosexuals (CZ)	0.46	0.14	0.035	0.69

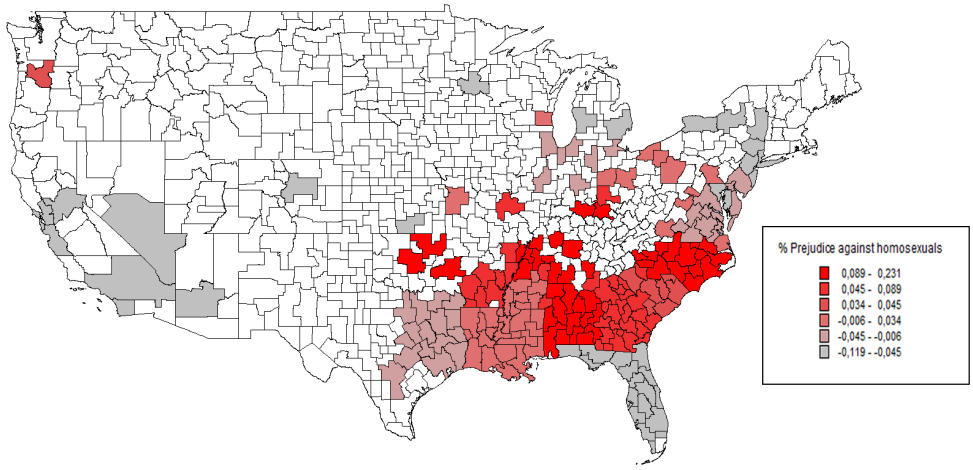
Notes: (i) %Prejudice against communists (ST) corresponds to the level of prejudice against communists at the state level and %Prejudice against communists (CZ) corresponds to the level of prejudice against communists at the commuting zone level ; (ii) %Prejudice against homosexuals (ST) corresponds to the level of prejudice against homosexuals at the state level and %Prejudice against homosexuals (CZ) corresponds to the level of prejudice against homosexuals at the commuting zone level ; (iii) The share at year 1980 is matched to years 1976-1984 of GSS, the share at year 1990 is matched to years 1986-1994 and the share at year 2000 is matched to years 1996-2004. Source : General Social Survey 1976-2004.

Both Figures 5 and 6 map the shares of prejudice against homosexuals and against communists in 2000, respectively. These figures reveal a spatial distribution similar to that of racial prejudice. The highest rates of prejudice against these two groups are located in the Southeastern United States (East and West South Central, South Atlantic). The correlations between the share of racial prejudice and both shares of prejudice against homosexuals and communists are significantly high. For each decade, the coefficients range from 0.70 to 0.85. Prejudice against homosexuals,

[14]Even though questions used to construct the shares of prejudiced individuals are not perfectly the same as the ones concerning prejudice against homosexuals and communists, we can expect similar results with interchangeable minority groups for each question.

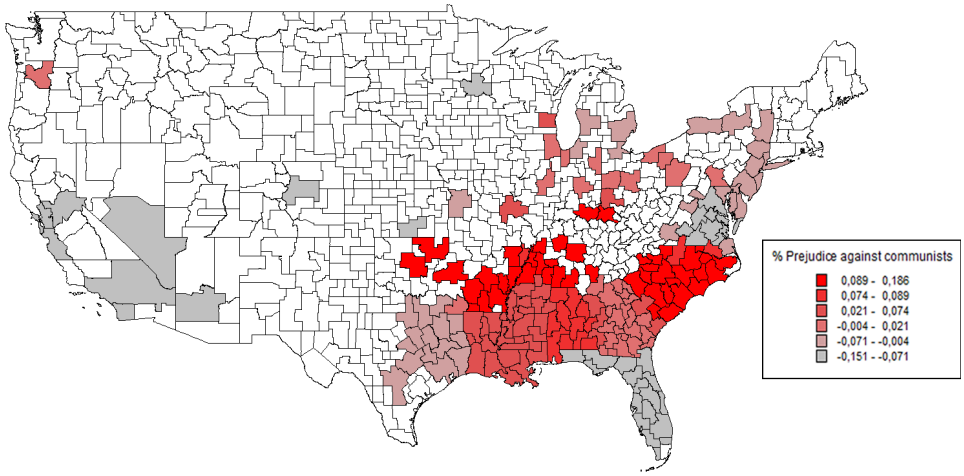
communists and blacks typically comes from the same people. These two shares give two valid instruments since they are highly correlated to the share of racial prejudice and have no expected influence on blacks' earnings.

Figure 5: Proportion of white respondents prejudiced against homosexuals by County Zone



Notes: (i) The proportion of prejudice against homosexuals is computed from the General Social Survey on the 1976-2004 time period; (ii) The map consists of 160 CZs; (iii) White CZs are dropped from the analysis.

Figure 6: Proportion of white respondents prejudiced against communists by County Zone



Notes: (i) The proportion of prejudice against communists is computed from the General Social Survey on the 1976-2004 time period; (ii) The map consists of 160 CZs; (iii) White CZs are dropped from the analysis.

Table 8 presents IV estimates with the same specifications as Table 5. For all columns, instrumental variable estimates are of greater magnitude than the OLS ones. At both state and CZ

levels, the estimated coefficients indicate that a one-standard deviation increase in the proportion of prejudiced individuals widens the wage gap by about .24-.42 of its standard deviation. Table 16 in appendix I provide results estimated including 12 occupation dummies in the first-step model. The magnitude of coefficients is somewhat lower for all columns. To assess the quality of the instrumentation, I report the Shea partial R^2, the p-value of the over-identification test (Hansen J Statistic) and the Cragg-Donald statistics that check the statistical validity of the instruments. For each column, the value above 0.8 of the Shea partial R^2 shows that the two instruments are strong predictors of the endogenous variable. Moreover, over-identification tests do not reject the null hypothesis that the instruments are exogenous at the 10% level. Finally, instruments are not weak in the sense that the lowest Cragg-Donald value is 1344. In these second-step regressions, results and tests allow me to conclude that the share of racial prejudice is robust to instrumentation. The instrumentation of racial prejudice does not change the significance of all three local factors. In sum, these results confirm that the presence of whites' negative racial beliefs is detrimental to African Americans' labor market outcomes.

Table 8: Second-step results - IV

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (ST)	-0.212^a	-0.313^a	-0.200^a			
	(0.034)	(0.042)	(0.046)			
%Prejudice (CZ)				-0.237^a	-0.348^a	-0.244^a
				(0.034)	(0.041)	(0.045)
%Contact		-1.064^a	-0.958^a		-1.114^a	-1.019^a
		(0.193)	(0.191)		(0.180)	(0.176)
%Blacks			-0.330^a			-0.310^a
			(0.052)			(0.052)
Constant	-0.034^a	-0.036^a	-0.308^a	-0.026^a	-0.025^a	-0.285^a
	(0.010)	(0.009)	(0.0442)	(0.011)	(0.009)	(0.046)
Time FE	yes	yes	yes	yes	yes	yes
Shea p. R^2	0.90	0.89	0.86	0.89	0.88	0.85
J-stat p-value	.24	.26	.032	.32	.65	.13
Cragg-Donald	2185.9	1851.9	1422.9	2029.0	1703.1	1344.1
obs.	480	480	480	480	480	480

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (2) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio and a black dummy ; (iii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (v) The share of racial prejudice is instrumented by the shares of prejudice against communists and homosexuals ; (vi) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.

Using other measures of racial prejudice

Being against interracial marriages is potentially an inaccurate measure of disutility an individual may have from a cross-racial interaction. To check the validity of my definition of racial prejudice, I exploit some other questions about matters linked to racially prejudiced opinions from the General Social Survey. I use the two following questions : `"Do you think blacks should not push themselves where they're not wanted ?"` and `"Blacks have worse jobs, income and housing than white people. Do you think these differences are because most blacks have less in-born ability to learn?"` and compute the share of prejudiced individuals for each commuting zone as the percentage of white respondents who agreed for each question separately.

Table 9 provides some summary statistics on the share of racial prejudice (using these 2 questions) at state level over the period 1980-2000. Both questions present similar statistics as the one previously used. It shows that the level of racial prejudice has significantly declined over time. In 1980, three-in-four white Americans agreed on racial segregation while less than one-in-two in 2000 did. The positive shift of attitudes is relatively smaller concerning in-born abilities of blacks (which I refer to statistical discrimination in the table). In 2000, 58% of white Americans think that the lower performances of blacks on both labor and housing markets are explained by their lower in-born inability to learn.

Table 9: Temporal trend of the share of racial prejudice (2 other questions)

	Mean	**Std Dev**	**Min**	**Max**
2000				
%Racial Prejudice (Segregation)	0.46	0.095	0.18	0.66
%Racial Prejudice (Statistical)	0.58	0.11	0.42	0.77
1990				
%Racial Prejudice (Segregation)	0.54	0.079	0.25	0.68
%Racial Prejudice (Statistical)	0.68	0.11	0.48	0.86
1980				
%Racial Prejudice (Segregation)	0.75	0.081	0.53	0.86
%Racial Prejudice (Statistical)	0.73	0.10	0.54	0.88

Notes: (i) %Racial Prejudice (Segregation) corresponds to the proportion of whites agreeing on the statement `"Do you think blacks should not push themselves where they're not wanted ?"` and %Racial Prejudice (Statistical) corresponds to the proportion of whites agreeing on the statement `"Blacks have worse jobs, income and housing than white people. Do you think these differences are because most blacks have less in-born ability to learn?"` ; (ii) The share at year 1980 is matched to years 1976-1984 of GSS, the share at year 1990 is matched to years 1986-1994 and the share at year 2000 is matched to years 1996-2004. Source : General Social Survey 1976-2004.

In Table 10, I alternatively use the two definitions of the share of racial prejudice at state level[15]. The estimates of both shares have similar significant results as before.

Table 10: Second-step results

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (Segregation)	-0.222^a	-0.391^a	-0.223^a			
	(0.053)	(0.059)	(0.068)			
%Prejudice (Statistical)				-0.351^a	-0.518^a	-0.404^a
				(0.057)	(0.061)	(0.070)
%Contact		-1.354^a	-1.274^a		-1.446^a	-1.405^a
		(0.205)	(0.205)		(0.197)	(0.195)
%Blacks			-0.391^a			-0.336^a
			(0.063)			(0.075)
Constant	-0.019	-0.021^b	-0.351^a	-0.017	-0.017^c	-0.301^a
	(0.013)	(0.010)	(0.055)	(0.013)	(0.010)	(0.065)
Time FE	yes	yes	yes	yes	yes	yes
R^2	0.135	0.275	0.348	0.214	0.388	0.438
obs.	363	363	363	276	276	276

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (2) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio and a black dummy ; (iii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (v) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.

[15]See also Table 17 in appendix I for estimations including 12 occupation dummies in the first-step model.

4.4 Understanding racial earnings differentials overtime

In this last section, I relate changes in black-white relative earnings in the labor market from 1980 to 2000 across local labor markets to changes in exposure to both shares of prejudice and of contact jobs.

Table 11 presents the racial hourly wage gap net of individual and location characteristics over the period studied. The racial disparity is expressed as a negative number, with lower levels indicating greater relative disadvantage for blacks. An important feature of both columns is slight convergence over the period of time: the log wage gap declines by 6 log points over the period of study. When not including occupation dummies in the first step, the gap in hourly earnings is around 21% in 1980 and declines to a still substantial 15% in 2000, while including occupation dummies in the first step reduces the residual wage gap, it is around 18% in 1980 and declines to 12% in 2000[16].

Table 11: Black-White labor market wage differentials (1980-2000)

	Log Hourly Wages	
	(1)	(2)
1980	-0.21	-0.18
	(0.0015)	(0.0015)
1990	-0.19	-0.16
	(0.0018)	(0.0018)
2000	-0.15	-0.12
	(0.0018)	(0.0018)
Age	X	X
Education	X	X
Location	X	X

Notes : (i) Every column includes an intercept, age, age squared, three dummies for education levels, a racial dummy and CZ dummies ; (ii) The first column does not include any occupation dummies in the first-step estimation whereas the second column includes 12 occupation dummies ; (iii) Samples include all low-skilled men who were aged 25-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Sources : IPUMS 1980-2000 and author's own calculations.

[16]The log point gap, or difference in mean log wages between two groups, can be interpreted as a percentage difference for small gaps. The log point gap and percentage difference are virtually the same for log point gaps smaller than 0.1. For larger gaps the approximation is less accurate.

Table 12: Contribution of effects

	Estimates				
	Table 5	Table 14	Table 6	Table 8	Table 10
%Prejudice (ST)	[−0.21 - −0.32]	[−0.19 - −0.29]	[−0.20 - −0.22]	[−0.20 - −0.31]	[−0.22 - −0.52]
%Prejudice (CZ)	[−0.25 - −0.35]	[−0.22 - −0.32]	[−0.23 - −0.29]	[−0.25 - −0.35]	-
%Contact	[−0.97 - −1.12]	[−0.82 - −0.96]	[−1.95 - −2.29]	[−0.96 - −1.11]	[−1.27 - −1.45]
	Effects				
%Prejudice (ST)	[+5.9 - +8.8]	[+5.3 - +8.2]	[+5.5 - +6.3]	[+5.6 - +8.8]	[+5.3 - +11]
%Prejudice (CZ)	[+6.9 - +9.5]	[+6.0 - +8.8]	[+6.2 - +7.8]	[+6.4 - +9.4]	-
%Contact	[−2.9 - −3.3]	[−2.5 - −2.9]	[−5.9 - −6.9]	[−2.9 - −3.3]	[−3.8 - −4.4]

Table 5 corresponds to the basic OLS estimations, Table 14 corresponds to the OLS estimations with the inclusion of occupation dummies in the first-step regression, Table 6 corresponds to the OLS estimations with the inclusion of the two other spatial factors, Table 8 corresponds to the IV estimations and Table 10 corresponds to the OLS estimations using the two other questions from the GSS ; Sources : GSS 1976-2004, O*NET, IPUMS 1980-2000 and author's own calculations.

By using previous estimates of the shares of prejudice and contact jobs and their respective trends over the period 1980-2000, I compute the contribution of both shares on the evolution of the residual racial wage gap. Table 12 provides contribution of the effects on the evolution of the earnings gap over the period studied. The first three lines provide estimates of previous specifications: Table 5 corresponds to the basic OLS estimations, Table 14 corresponds to the OLS estimations with the inclusion of occupation dummies in the first-step regression, Table 6 corresponds to the OLS estimations with the inclusion of the two other spatial factors, Table 8 corresponds to the IV estimations and Table 10 corresponds to the OLS estimations using the two other questions from the GSS. The last three lines estimate the effects of second-step explanatory shares on the evolution of the wage residual gap. It shows that a 1 percentage point reduction in racial prejudice increased black relative wages by 0.20-0.35 percentage points. I calculate that decline of racial prejudice lowers the racial gap by 5.5-9.5 log points. The same computation is applied to the share of contact jobs in the last line of this table. The boom of contact jobs increased the racial gap by 2.5-6.9 log points. In sum, this table shows that increased exposure to contact jobs is associated with lowering black labor market outcomes whereas a decrease in prejudice is associated with improving black labor market outcomes in local labor markets.

These results suggest that, even in the face of a decline in racial prejudice, the persistence of the racial wage gap may be consistent with the relative boom of contact jobs over the last decades that has been detrimental to blacks' labor market outcomes. Even if racist attitudes decrease over time, blacks are not exposed to less discrimination in the labor market since the composition of jobs to which they have access becomes weighted toward the more discriminatory job type. These results

shed new light on changes in earnings of black workers over the last decades, suggesting that the large increase in the importance of contact jobs from the last 1970's to recently helps to explain the slowing convergence of the black-white gap over this period.

Conclusion

In the US, African-Americans face relatively lower earnings than their white counterparts, even when controlling for a range of individual characteristics. This differential considerably varies across local markets and has slightly diminished over the past 30 years. In this paper, I try to explain why the significant decline in the level of racial prejudice is not matched with a steady decrease in the black-white labor outcome differential. I build a search-matching model with consumer discrimination which predicts that that the local proportion of contact jobs is detrimental to blacks' earnings when customer discrimination exists in the labor market. By using the 1980-2000 IPUMS, the GSS and the O*NET, I show that black men's relative wages decrease with the proportion of prejudiced individuals and the relative supply for contact jobs. Moreover, the expansion of contact jobs in aggregate employment appears to be partly responsible for the non-convergence in earnings among black men. The increased importance of these jobs has affected blacks' earnings assuming prejudice against them impedes cross-racial interactions. This paper emphasizes the harm done to less-educated, mostly urban, African-Americans by recent sectoral changes in the economy that have left them with few available jobs. Gaining a better understanding of the evolution of the racial wage gap is of great importance, especially to implement efficient public policies to tackle this issue. Last but not least, we can expect a stronger convergence in the next decades as the introduction of the world wide web in 2000s is allowing customers to perform task online that would have otherwise required interactions.

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Appendix

A Data

The Census databases were obtained using the Integrated Public Use MicroData Series (USA) system (see Ruggles et al. (2010)). The files are the 1980 5% State, 1990 5% and 2000 5% Censuses. The initial extraction includes all individuals aged 20-65 not living in group quarters. All calculations are made using the sample weights `PERWT`. I focus on the log of hourly wages, calculated by dividing wage and salary income by annual hours worked. I impute incomes for top coded values by multiplying the top code value in each year by 1.5. I use an occupation coding that is comparable across Censuses and is based on the variable `OCC1990`, which is a modified version of the 1990 Census Bureau occupational classification scheme. This modified variable offers a consistent long-term classification of occupations. The `OCC1990` classification scheme contains 389 categories.

I also use the integrated set of data from 20 years (1980-2000) of the March Current Population Survey (IPUMS-CPS) (see King et al. (2010)). The selected sample is the same as in the Integrated Public Use MicroData Series (IPUMS-USA).

B Comparison between Counties and CZ

Figure 7: Share of blacks in 2000 in both Kansas and Missouri using County level

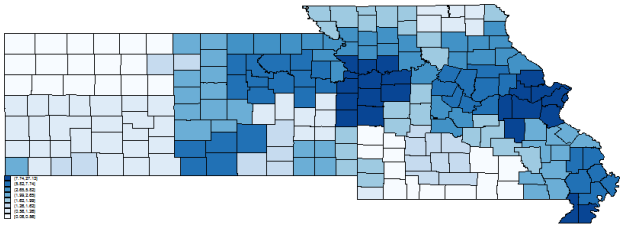
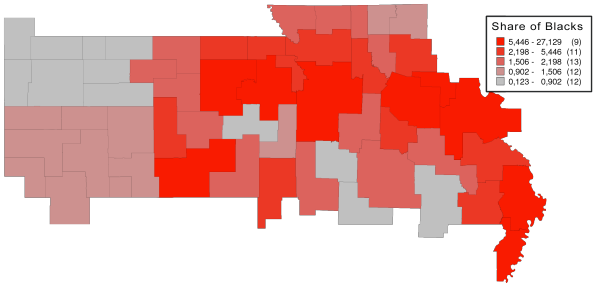


Figure 8: Share of blacks in 2000 in both Kansas and Missouri using CZ level



C Construction of Commuting Zones at the Individual level

Since the Census data do not identify commuting zones for individuals, I have to construct commuting-zones based on the County-Groups (CGs) in 1980 and on the PUMAs in 1990 and in 2000. In order to assign individuals to CZs, I split every individual observation into multiple parts whenever an individual's CG/PUMA cannot be uniquely assigned to a CZ. The adjusted person weights in the resulting dataset multiply the original census weights `PERWT` to the probability that a resident of a particular CG/PUMA lives in a specific CZ.

Figure 9 shows a simple example that assumes a uniformly distributed population. Commuting Zone X (CZ X) is in red and is composed of two PUMAs: PUMA 1 and PUMA 2. Commuting Zone Y (CZ Y) is in blue and is composed of three PUMAs: PUMA 1, PUMA 3 and PUMA 4. An individual who lives in P1 has a 1/6 % chance of living in CZ X. I assign living in CZ X with a weight of 0.166 to this individual. He has a 1/3 % chance of living in CZ Y. I assign living in CZ Y with a weight of 0.333 to this individual. An individual who lives in P2 has a 100 % chance of living in CZ X. I assign living in CZ X with a weight of 1 to this individual.

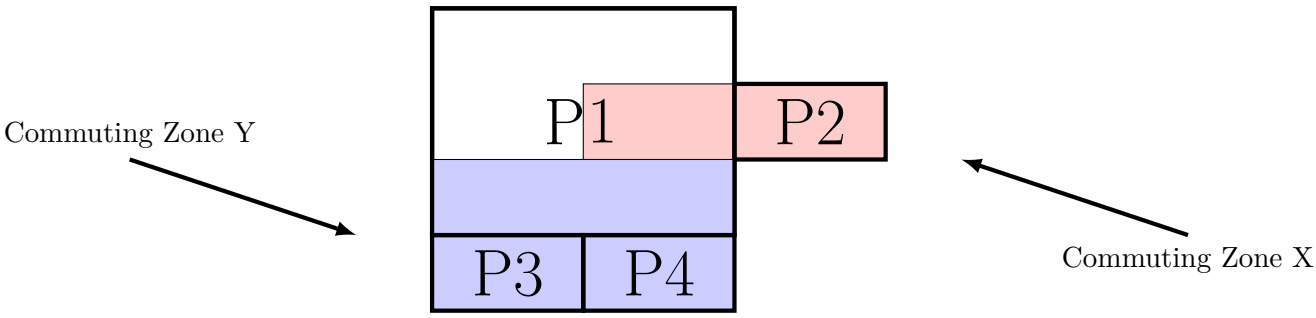


Figure 9: Example

D Proportion of contact jobs by occupation

The US Census records the detailed titles of workers' occupations. The `OCC1990` occupational classification is provided for all three censuses. This classification makes it possible to compute the probability of occupying a contact-job. This occupation system provides 386 occupation codes which are based on the 1990 Census occupation system. I use job task data from the Dictionary of Occupational Titles (DOT - US Department of Labor, Employment and Training Administration, 1977) to characterize the share of contact for a given occupation. O*NET gives details for each occupation in using the `SOC` occupational classification. I match the 1998 Standard Occupational Classification system with the `OCC1990` occupational classification in using a crosswalk between these two variables. Table 13 lists all `OCC1990` occupations and details the share of contact for each category. This table distinguishes 6 major occupation groups : "Managerial & Professional Specialty Occupations", "Technicians, sales & Related Support Occupations", "Service Occupations" "Farming, Forestry, & Fishing Occupations", "Precision production, Craft & Repair Occupations" and "Operators, Fabricators, & Laborers".

Table 13: Proportion of Contact Jobs by Occupation

OCC1990	Occupation	% Contact
	Managerial & Professional Specialty Occupations	
3	Legislators	51
4	Chief executives & public administrators	41
7	Financial managers	89
8	Human resources & labor relations managers	42
13	Managers in marketing, & public relations	56
14	Managers in education & related fields	79
15	Managers of medicine & health occupations	64
16	Postmasters & mail superintendents	59
17	Managers of food-serving & lodging establishments	79
18	Managers of properties & real estate	60
19	Funeral directors	88
21	Managers of service organizations, n.e.c.	61
22	Managers & administrators, n.e.c.	61
23	Accountants & auditors	28
24	Insurance underwriters	30
25	Other financial specialists	28
26	Management analysts	19
27	Personnel, HR & labor relations specialists	67
28	Purchasing agents & buyers, of farm products	67
29	Buyers, wholesale & retail trade	58
33	Purchasing managers, agents & buyers, n.e.c.	31
34	Business & promotion agents	10
35	Construction inspectors	73
36	Inspectors & compliance officers, outside construction	69
37	Management support occupations	50
43	Architects	51
44	Aerospace engineer	12
418	Police, detectives, & private investigators	89
423	Sheriffs, correctional institution officers	98
425	Crossing guards & bridge tenders	70
426	Guards, watchmen, doorkeepers	62
427	Protective services, n.e.c.	86
434	Bartenders	96
435	Waiter/waitress	82
436	Cooks, variously defined	64
438	Food counter & fountain workers	84
439	Kitchen workers	26
443	Waiter's assistant	58
444	Misc food prep workers	26
445	Dental assistants	73
446	Health aides, except nursing	29
447	Nursing aides, orderlies, & attendants	67
448	Supervisors of cleaning & building service	65
453	Janitors	50
454	Elevator operators	57
455	Pest control occupations	84
456	Supervisors of personal service jobs, n.e.c.	80
457	Barbers	89
458	Hairdressers & cosmetologists	89
459	Recreation facility attendants	83
461	Guides	80
462	Ushers	68
463	Public transportation attendants & inspectors	64
464	Baggage porters	75
465	Welfare service aides	45

Continued on Next Page

Table 13 – Continued

OCC1990	Occupation	% Contact
45	Metallurgical & materials engineers	23
47	Petroleum, mining, & geological engineers	16
48	Chemical engineers	27
53	Civil engineers	51
55	Electrical engineer	16
56	Industrial engineers	15
57	Mechanical engineers	24
59	Not-elsewhere-classified engineers	23
64	Computer systems analysts & computer scientists	28
65	Operations & systems researchers & analysts	29
66	Actuaries	21
67	Statisticians	18
68	Mathematicians & mathematical scientists	5
69	Physicists & astronomers	33
73	Chemists	10
74	Atmospheric & space scientists	58
75	Geologists	34
76	Physical scientists, n.e.c.	33
77	Agricultural & food scientists	30
78	Biological scientists	30
79	Foresters & conservation scientists	72
83	Medical scientists	61
84	Physicians	66
85	Dentists	85
86	Veterinarians	81
87	Optometrists	85
88	Podiatrists	78
89	Other health & therapy	79
95	Registered nurses	67
468	Child care workers	38
469	Personal service occupations, nec	71
	Farming, Forestry, & Fishing Occupations	
473	Farmers (owners & tenants)	6
474	Horticultural specialty farmers	18
475	Farm managers, except for horticultural farms	32
476	Managers of horticultural specialty farms	18
479	Farm workers	6
483	Marine life cultivation workers	16
484	Nursery farming workers	38
485	Supervisors of agricultural occupations	18
486	Gardeners & groundskeepers	44
487	Animal caretakers except on farms	52
488	Graders & sorters of agricultural products	22
489	Inspectors of agricultural products	52
496	Timber, logging, & forestry workers	56
498	Fishers, hunters, & kindred	16
	Precision production, Craft & Repair Occupations	
503	Supervisors of mechanics & repairers	56
505	Automobile mechanics	40
507	Bus, truck, & stationary engine mechanics	44
508	Aircraft mechanics	25
509	Small engine repairers	25
514	Auto body repairers	40
516	Heavy equipment & farm equipment mechanics	34
518	Industrial machinery repairers	16
519	Machinery maintenance occupations	7
523	Repairers of industrial electrical equipment	16
525	Repairers of data processing equipment	65

Continued on Next Page

Table 13 – Continued

OCC1990	Occupation	% Contact	OCC1990	Occupation	% Contact
96	Pharmacists	78	526	Repairers of household appliances & power tools	79
97	Dietitians & nutritionists	76	527	Telecom & line installers & repairers	75
98	Respiratory therapists	78	533	Repairers of electrical equipment, n.e.c.	16
99	Occupational therapists	71	534	Heating, AC, & refrigeration mechanics	54
103	Physical therapists	77	535	Precision makers, repairers, & smiths	51
104	Speech therapists	64	536	Locksmiths & safe repairers	78
105	Therapists, n.e.c.	73	538	Office machine repairers & mechanics	71
106	Physicians' assistants	83	539	Repairers of mechanical controls & valves	65
113	Earth, environmental, & marine science instructors	58	543	Elevator installers & repairers	57
114	Biological science instructors	54	544	Millwrights	17
115	Chemistry instructors	29	549	Mechanics & repairers, n.e.c.	16
116	Physics instructors	25	558	Supervisors of construction work	66
118	Psychology instructors	58	563	Masons, tilers & carpet installers	49
119	Economics instructors	58	567	Carpenters	33
123	History instructors	55	573	Drywall installers	50
125	Sociology instructors	50	575	Electricians	36
127	Engineering instructors	43	577	Electric power installers & repairers	75
128	Math instructors	57	579	Painters, construction & maintenance	35
139	Education instructors	52	583	Paperhangers	45
145	Law instructors	54	584	Plasterers	38
147	Theology instructors	44	585	Plumbers, pipe fitters, & steamfitters	62
149	Home economics instructors	65	588	Concrete & cement workers	30
150	Humanities profs/instructors, college, nec	55	589	Glaziers	46
154	Subject instructors (HS/college)	55	593	Insulation workers	36
155	Kindergarten & earlier school teachers	43	594	Paving & surfacing equipment operators	64
156	Primary school teachers	60	595	Roofers & slaters	32
157	Secondary school teachers	46	596	Sheet metal duct installers	37
158	Special education teachers	55	597	Structural metal workers	27
159	Teachers , n.e.c.	51	598	Drillers of earth	14

Continued on Next Page

Table 13 – Continued

OCC1990	Occupation	% Contact
163	Vocational & educational counselors	64
164	Librarians	71
165	Archivists & curators	75
166	Economists & survey researchers	29
167	Psychologists	65
168	Sociologists	37
169	Social scientists, n.e.c.	44
173	Urban & regional planners	61
174	Social workers	79
175	Recreation workers	65
176	Clergy & religious workers	88
178	Lawyers	72
179	Judges	94
183	Writers & authors	45
184	Technical writers	5
185	Designers	63
186	Musician or composer	96
187	Actors, directors, producers	75
188	Art makers: painters, sculptors, craft-artists	47
189	Photographers	57
193	Dancers	96
194	Art/entertainment performers & related	64
195	Editors & reporters	76
198	Announcers	98
199	Athletes, sports instructors, & officials	69
200	Professionals, n.e.c.	50
Technicians, sales & Related Support Occupations		
203	Clinical laboratory technologies & technicians	31
204	Dental hygienists	86
599	Construction trades, n.e.c.	36
614	Drillers of oil wells	25
615	Explosives workers	49
616	Miners	9
617	Other mining occupations	9
628	Production supervisors or foremen	22
634	Tool & die makers & die setters	21
637	Machinists	12
643	Boilermakers	57
644	Precision grinders & filers	37
645	Patternmakers & model makers	11
646	Lay-out workers	18
649	Engravers	47
653	Tinsmiths & sheet metal workers	37
657	Cabinetmakers & bench carpenters	19
658	Furniture & wood finishers	50
659	Other precision woodworkers	35
666	Dressmakers & seamstresses	61
667	Tailors	61
668	Upholsterers	14
669	Shoe repairers	30
674	Other precision apparel & fabric workers	42
675	Hand molders & shapers, except jewelers	24
677	Optical goods workers	38
678	Dental & medical appliance technicians	26
679	Bookbinders	20
684	Other precision & craft workers	27
686	Butchers & meat cutters	65
687	Bakers	51

Continued on Next Page

Table 13 – Continued

OCC1990	Occupation	% Contact
205	Health record tech specialists	49
206	Radiologic tech specialists	83
207	Licensed practical nurses	67
208	Health technologists & technicians, n.e.c.	63
213	Electrical & electronic (engineering) technicians	30
214	Engineering technicians, n.e.c.	30
215	Mechanical engineering technicians	24
217	Drafters	5
218	Surveyors, mapping scientists & technicians	42
223	Biological technicians	13
224	Chemical technicians	20
225	Other science technicians	20
226	Airplane pilots & navigators	65
227	Air traffic controllers	75
228	Broadcast equipment operators	26
229	Computer software developers	27
233	Programmers of numerically machine tools	15
234	Legal assistants, paralegals, legal support, etc	46
235	Technicians, n.e.c.	42
243	Supervisors & proprietors of sales jobs	81
253	Insurance sales occupations	84
254	Real estate sales occupations	84
255	Financial services sales occupations	82
256	Advertising & related sales jobs	68
258	Sales engineers	34
274	Salespersons, n.e.c.	52
275	Retail sales clerks	91
276	Cashiers	82
277	Door-to-door sales, street sales, & news vendors	79
688	Batch food makers	26
693	Adjusters & calibrators	42
694	Water & sewage treatment plant operators	56
695	Power plant operators	6
696	Plant & system operators, stationary engineers	32
699	Other plant & system operators	11
	Operators, Fabricators, & Laborers	
703	Lathe, milling, & turning machine operatives	11
706	Punching & stamping press operatives	9
707	Rollers, roll hands, & finishers of metal	16
708	Drilling & boring machine operators	20
709	Grinding, abrading, buffing, & polishing workers	6
713	Forge & hammer operators	8
717	Fabricating machine operators, n.e.c.	12
719	Molders, & casting machine operators	1
723	Metal platers	5
724	Heat treating equipment operators	15
726	Wood lathe, routing, & planing machine operators	10
727	Sawing machine operators & sawyers	8
728	Shaping & joining machine operator (wood)	8
729	Nail & tacking machine operators (wood)	8
733	Other woodworking machine operators	8
734	Printing machine operators, n.e.c.	15
735	Photoengravers & lithographers	20
736	Typesetters & compositors	20
738	Winding & twisting textile/apparel operatives	25
739	Knitters, loopers, & toppers textile operatives	12
743	Textile cutting machine operators	29
744	Textile sewing machine operators	16

Continued on Next Page

Table 13 – Continued

OCC1990	Occupation	% Contact	OCC1990	Occupation	% Contact
283	Sales demonstrators / promoters / models	73	745	Shoemaking machine operators	26
303	Office supervisors	66	747	Pressing machine operators (clothing)	28
308	Computer & peripheral equipment operators	27	748	Laundry workers	37
313	Secretaries	67	749	Misc textile machine operators	25
314	Stenographers	46	753	Cementing & gluing maching operators	30
315	Typists	46	754	Packers, fillers, & wrappers	14
316	Interviewers, enumerators, & surveyors	70	755	Extruding & forming machine operators	5
317	Hotel clerks	81	756	Mixing & blending machine operatives	21
318	Transportation ticket & reservation agents	91	757	Separating & filtering machine operators	32
319	Receptionists	65	759	Painting machine operators	14
323	Information clerks, nec	65	763	Roasting & baking machine operators (food)	18
326	Correspondence & order clerks	37	764	Washing & pickling machine operators	8
328	Human resources clerks, except payroll	48	765	Paper folding machine operators	26
329	Library assistants	75	766	Furnace & oven operators (apart from food)	9
335	File clerks	47	768	Crushing & grinding machine operators	23
336	Records clerks	23	769	Slicing & cutting machine operators	24
337	Bookkeepers, accounting & auditing clerks	31	773	Motion picture projectionists	44
338	Payroll & timekeeping clerks	25	774	Photographic process workers	50
343	Cost & rate clerks (financial records processing)	20	779	Machine operators, n.e.c.	23
344	Billing clerks & related financial records processing	57	783	Welders & metal cutters	24
345	Duplication/office machine operators	71	784	Solderers	24
346	Mail & paper handlers	70	785	Assemblers of electrical equipment	10
347	Office machine operators, n.e.c.	71	789	Hand painting & decorating occupations	45
348	Telephone operators	42	796	Production checkers & inspectors	73
349	Other telecom operators	42	799	Graders & sorters in manufacturing	13
354	Postal clerks, excluding mail carriers	70	803	Supervisors of motor vehicle transportation	41
355	Mail carriers for postal service	72	804	Truck, delivery, & tractor drivers	78
356	Mail clerks, outside of post office	70	808	Bus drivers	75
357	Messengers	70	809	Taxi cab drivers & chauffeurs	81

Continued on Next Page

Table 13 – Continued

OCC1990	Occupation	% Contact	OCC1990	Occupation	% Contact
359	Dispatchers	72	813	Parking lot attendants	96
361	Inspectors, n.e.c.	13	823	Railroad conductors & yardmasters	28
364	Shipping & receiving clerks	39	824	Locomotive operators (engineers & firemen)	27
365	Stock & inventory clerks	52	825	Railroad brake, coupler, & switch operators	31
366	Meter readers	66	829	Ship crews & marine engineers	49
368	Weighers, measurers, & checkers	23	834	Water transport infrast tenders & crossing guards	67
373	Material recording, production & expediting clerks	20	844	Operating engineers of construction equipment	41
375	Insurance adjusters, examiners, & investigators	58	848	Crane, derrick, winch, & hoist operators	11
376	Customer service reps, investigators, except insurance	64	853	Excavating & loading machine operators	26
377	Eligibility clerks for government programs	95	859	Misc material moving occupations	26
378	Bill & account collectors	57	865	Helpers, constructions	25
379	General office clerks	59	866	Helpers, surveyors	42
383	Bank tellers	74	869	Construction laborers	36
384	Proofreaders	19	874	Production helpers	7
385	Data entry keyers	30	875	Garbage & recyclable material collectors	59
386	Statistical clerks	18	876	Materials movers: longshore workers	45
387	Teacher's aides	43	877	Stock handlers	45
389	Administrative support jobs, n.e.c.	41	878	Machine feeders & off bearers	13
	Service Occupations		883	Freight, stock & materials handlers	45
405	Housekeepers, maids & lodging cleaners	41	885	Garage & service station related occupations	35
407	Private household cleaners & servants	50	887	Vehicle washers & equipment cleaners	48
415	Supervisors of guards	40	888	Packers & packagers by hand	48
417	Fire fighting, prevention, & inspection	86	889	Laborers outside construction	45

Notes: (i) Job Families are in bold; (ii) Source: O*NET.

E Construction of Commuting Zones - Share of Prejudice at the CZ level

Since the General Social Survey is available at the state level only, I have to construct the share of racial prejudice at the commuting-zone level based on CGs/PUMAs defined in 2000. I approximate CZ averages using CG/PUMA averages. I calculate averages of the share of prejudice for each PUMA and take a population-weighted average of CG/PUMA averages that make up each CZ.

Figure 10 shows the same simple example as before. CZ X is composed of 50% of P1 and 50% of P2. I compute the share of prejudice in P1 and in P2, and weight them by 0.5 each to obtain the share of prejudice in CZ X. CZ Y is composed of 50% of P1, 25% of P3 and 25% of P4. I compute the share of prejudice in P1, P3 and P4, and weight them by 0.5, 0.25 and 0.25 respectively to obtain the share of prejudice in CZ Y.

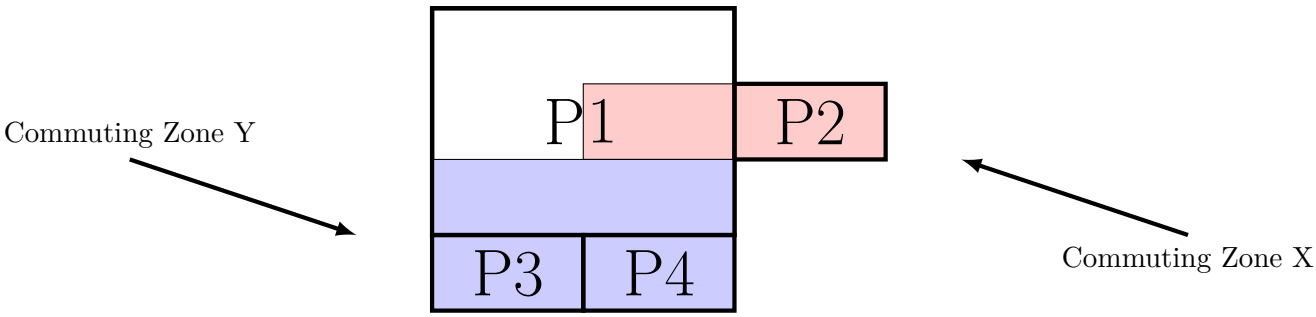
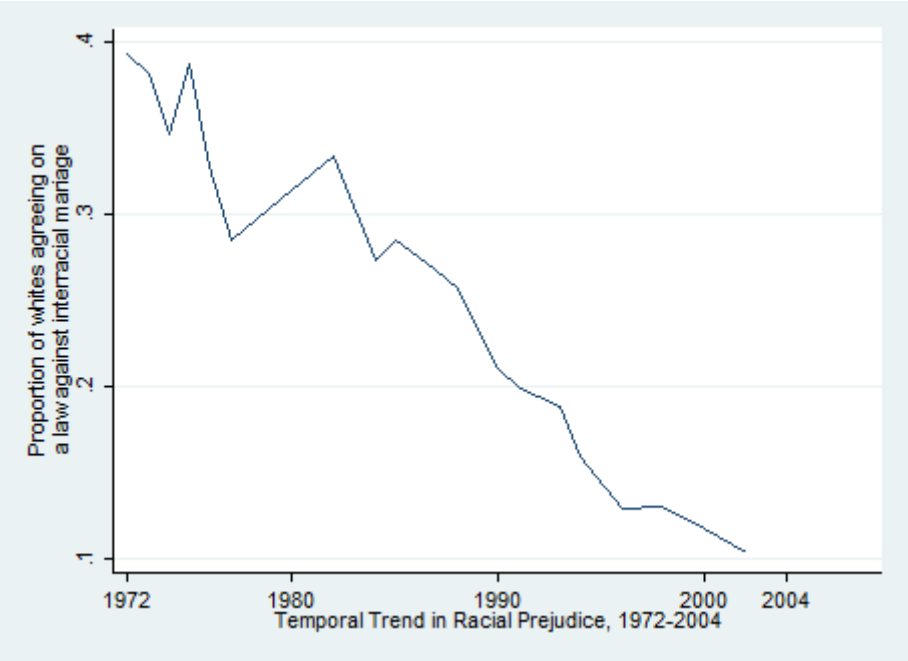


Figure 10: Example 2

F Temporal Trend in Racial Prejudice, 1972-2004

Figure 11



G Racial wage differential - 1980-2000

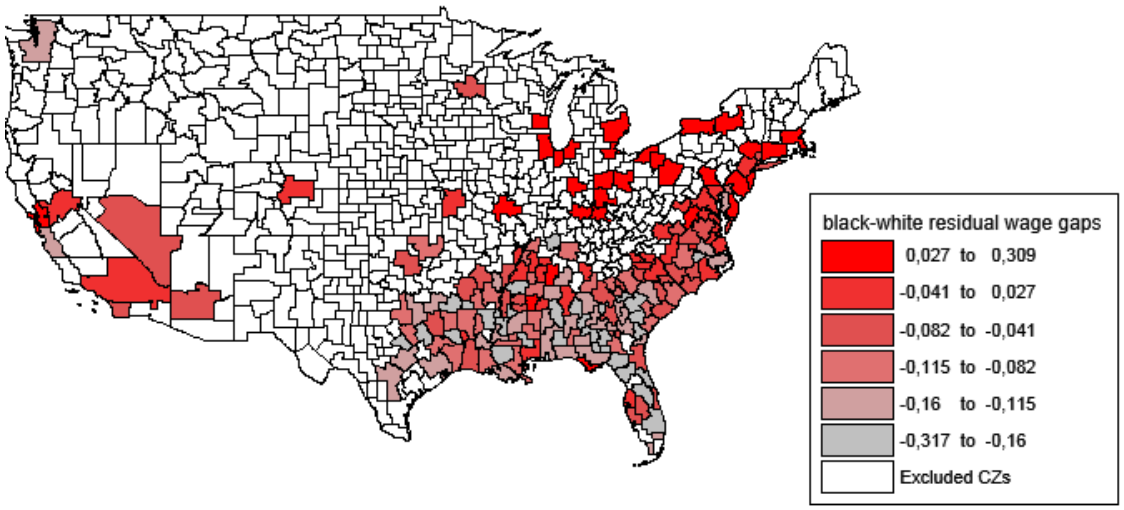
Figure 12 shows the evolution of the black-white wage gap from the March Current Population Survey (IPUMS-CPS). As the other figure, the estimates of the temporal racial wage differential are also based on hourly wages and are adjusted for observable characteristics. This trend of the wage gap is the same as the previous one.

Figure 12: Residual wage gap between blacks and whites - Temporal trend 1980-2000 (CPS March files)

H Residual racial wage gaps across Commuting Zones - 1980

Figure H shows the spatial distribution of residual racial wage differentials in 1980.

Figure 13: Residual wage gap between blacks and whites - 1980



I Inclusion of occupations dummies in the first step earnings regression

Table 14: Second-step results

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (ST)	-0.215^a	-0.293^a	-0.188^a			
	(0.032)	(0.039)	(0.043)			
%Prejudice (CZ)				-0.238^a	-0.325^a	-0.224^a
				(0.033)	(0.039)	(0.042)
%Contact		-0.918^a	-0.822^a		-0.963^a	-0.871^a
		(0.180)	(0.179)		(0.169)	(0.167)
%Blacks			-0.318^a			-0.304^a
			(0.047)			(0.046)
Constant	-0.034^a	-0.035^a	-0.299^a	-0.026^a	-0.025^a	-0.279^a
	(0.010)	(0.009)	(0.042)	(0.010)	(0.009)	(0.042)
Time FE	yes	yes	yes	yes	yes	yes
R^2	0.208	0.280	0.344	0.220	0.299	0.358
obs.	480	480	480	480	480	480

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (2) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio, a black dummy and 12 occupation dummies ; (ii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iii) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (iv) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.

Table 15: Second-step results

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (ST)	-0.205^a	-0.239^a	-0.180^a			
	(0.038)	(0.037)	(0.040)			
%Prejudice (CZ)				-0.240^a	-0.266^a	-0.210^a
				(0.037)	(0.037)	(0.040)
%Contact		-2.232^a	-1.944^a		-2.165^a	-1.910^a
		(0.373)	(0.361)		(0.366)	(0.358)
%Blacks			-0.247^a			-0.241^a
			(0.054)			(0.054)
%Manufacturing	0.380^a	-0.338^a	-0.318^a	0.390^a	-0.306^b	-0.297^b
	(0.077)	(0.153)	(0.155)	(0.075)	(0.150)	(0.153)
%Unskilled	-0.274^a	-0.255^a	-0.152^a	-0.258^a	-0.245^a	-0.142^b
	(0.063)	(0.061)	(0.070)	(0.062)	(0.060)	(0.068)
Constant	-0.133^a	-0.126^a	-0.294^a	-0.120^a	-0.114^a	-0.278^a
	(0.022)	(0.021)	(0.040)	(0.022)	(0.022)	(0.040)
Time FE	yes	yes	yes	yes	yes	yes
R^2	0.277	0.337	0.370	0.292	0.349	0.381
obs.	480	480	480	480	480	480

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (4) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio, a black dummy and 12 occupation dummies ; (iii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (v) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.

Table 16: Second-step results - IV

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (ST)	-0.205^a	-0.292^a	-0.181^a			
	(0.032)	(0.040)	(0.044)			
%Prejudice (CZ)				-0.229^a	-0.326^a	-0.224^a
				(0.033)	(0.039)	(0.043)
%Contact		-0.915^a	-0.812^a		-0.963^a	-0.871^a
		(0.182)	(0.179)		(0.168)	(0.164)
%Blacks			-0.323^a			-0.304^a
			(0.049)			(0.049)
Constant	-0.034^a	-0.035^a	-0.302^a	-0.027^a	-0.025^a	-0.279^a
	(0.010)	(0.009)	(0.041)	(0.010)	(0.009)	(0.043)
Time FE	yes	yes	yes	yes	yes	yes
Shea p. R^2	0.90	0.89	0.86	0.89	0.88	0.85
J-stat p-value	.29	.32	.042	.41	.75	.16
Cragg-Donald	2185.9	1851.9	1422.9	2029.0	1703.1	1344.1
obs.	480	480	480	480	480	480

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (4) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio, a black dummy and 12 occupation dummies; (iii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (v) The share of racial prejudice is instrumented by the shares of prejudice against communists and homosexuals ; (vi) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.

Table 17: Second-step results

	(1)	(2)	(3)	(4)	(5)	(6)
%Prejudice (ST) - Segregation	-0.201^a	-0.350^a	-0.182^a			
	(0.050)	(0.056)	(0.064)			
%Prejudice (ST) - Statistical				-0.343^a	-0.494^a	-0.382^a
				(0.053)	(0.057)	(0.064)
%Contact		-1.189^a	-1.110^a		-1.307^a	-1.267^a
		(0.189)	(0.187)		(0.181)	(0.178)
%Blacks			-0.388^a			-0.332^a
			(0.059)			(0.070)
Constant	-0.020^c	-0.021^b	-0.349^a	-0.018	-0.018^b	-0.299^a
	(0.012)	(0.010)	(0.051)	(0.012)	(0.009)	(0.060)
Time FE	yes	yes	yes	yes	yes	yes
R^2	0.132	0.255	0.337	0.226	0.387	0.442
obs.	363	363	363	276	276	276

Notes: (i) Weighted least squares regressions using the inverse of estimated variance of coefficients from first-step regression as weights; (ii) The first four regressions include the full vector of control variables from column (2) of Table 4 in the first step : an intercept, CZ X time dummies, CZ X time X Black dummies, three dummies for education levels, age, age squared, the inverse of Mills' ratio, a black dummy and 12 occupation dummies ; (iii) The sample includes all non-college men who were aged 20-64 and worked at least 35 hours a week and at least 45 weeks during the preceding year ; (iv) Hourly wages are defined as yearly wage divided by the product of weeks worked times weekly hours; (v) Standard errors are clustered at the CZ-decade level ; Significance levels: a: 1%, b: 5%, c: 10%.