ORIGINAL RESEARCH



Racial Separation at Home and Work: Segregation in Residential and Workplace Settings

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Abstract

Racial segregation has long characterized urban life in the U.S., with research consistently showing that minority groups occupy different social spaces than whites. While past scholarship has focused largely on residential contexts, a considerable portion of individuals' days is spent outside of the home and existing research misses the potential for cross-group contact in non-residential contexts. In this paper, we assess the levels and patterns of segregation in the environments where people spend their workday, for white, black, Hispanic, and Asian workers. Using commuting data from the Census Transportation Planning Package, we construct measures of racial composition in "workhoods" and compare metropolitan-level segregation in places of work and home. Results indicate that workhood segregation is substantially lower than residential segregation. Black-white segregation in work settings is, for example, half the level of black-white segregation in residential settings. Multivariate analyses also reveal that workhood segregation, for all groups, is higher in metropolitan areas with greater residential segregation. For Hispanic workers, areas with larger immigrant populations have higher workhood segregation, and for blacks, workhood segregation is lower in metropolitan areas with large military populations. Our findings also consistently show that black and Hispanic workhood segregation is lower in areas where minority groups are more occupationally disadvantaged.

Keywords Segregation · Race/ethnicity · Workplaces

The segregation of racial/ethnic minorities into distinct neighborhoods of cities has been a defining attribute of urban America for nearly a century. While ethnoracial diversity has altered the structure of segregation in many cities, and overall levels



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of segregation have visibly declined in others, U.S. communities and the neighborhoods within them remain highly stratified by race (Logan and Stults 2011). The impacts of racialized residential contexts are both pernicious and pervasive: concentrating poverty and related social ills (Massey and Denton 1993); reducing housing values and wealth accumulation in minority neighborhoods (Flippen 2001); eroding the quality of local public services; and magnifying the impacts of racial differences in educational attainment, family stability, exposure to crime, and health and mortality (Cutler and Glaeser 1997). Given these substantial individual and collective costs, researchers have long employed measures of residential segregation as barometers for assessing racial/ethnic inequality more broadly.

Because residential context is so strongly linked to formative social institutions—the family, friendship networks, the housing unit, the school, and the voting booth—its influence on individual and social outcomes is particularly powerful. Yet, it is also true that Americans spend a great deal of time outside of the neighborhoods in which they live. Indeed, the typical American worker spends less than half of their non-sleeping hours at home (Bureau of Labor Statistics 2015). Moreover, as Americans continue to work long hours and make more distant commutes, time away from home has increased (Mishel 2013; McKenzie and Rapino 2011). To the extent that exposure to diverse populations differs outside of the residential context, its implications for understanding group positioning, racial contact, and racial attitudes are, thus, potentially large.

Our purpose in this paper is to provide a first look at how ethnoracial segregation differs in environments where people live and where they work for those in all U.S. metropolitan areas. We focus analytically on the micro-environments where people spend their workday, what we refer to as "workhoods." These spaces lack the material connections that characterize residential areas, but afford opportunities for both formative and incidental contact that has the potential to shape the lived experience of segregation and integration in daily lives. Our approach is purely descriptive in orientation: seeking to assess how levels and trends in segregation differ in residential and place-of-work settings and documenting metropolitan variation in these measures. We then test the extent to which workhood segregation is associated with a metropolitan area's residential segregation, immigration level, and economic base. To shed light on these issues, we use decennial census and American Community Survey data on workers from 2000 to 2010, combined with special tabulations from the 2000 and 2010 Census Transportation Planning Package, which summarizes the racial composition of census tracts where people work.

Background

There is a vast literature documenting patterns and trends in ethnoracial residential segregation. These studies have shown that black-white segregation has declined moderately over the past several decades, while there has been relatively little change in the segregation of Hispanics and Asians from non-Hispanic whites (or "whites" for short). The dissimilarity index, the most commonly used measure of segregation, which ranges from 0 to 100, with 0 indicating total integration and 100



indicating total segregation, indicates that black-white segregation declined from 79 in 1970 to 59 in 2010. Hispanic-White segregation has, by contrast, largely remained in the 48–51 range since 1980; and Asian-white dissimilarity has stayed between 41 and 42 over the 1980 to 2010 period (Logan and Stults 2011).

Studies of residential segregation in recent decades have explored segregation using an array of measures (e.g., dissimilarity and exposure indices) and have also grappled with the challenge of defining residential neighborhoods. For example, studies of segregation have typically used "census tracts" to represent neighborhoods, which encompass between 2500 and 8000 residents. Other studies that have used more sophisticated spatial measures of segregation, where the clustering of census tracts, the scale of tracts, and the distance of tracts from each other, are taken into account, provide greater nuance into residential segregation patterns, but also tend to tell a similar story about broad patterns and trends in residential segregation between groups (Lee et al. 2008; Reardon et al. 2008).

While these studies, along with many others, have described residential segregation patterns and their correlates in considerable detail, there is comparatively less research on the characteristics of the other contexts that people occupy. Recent research has explored local patterns of segregation in the "activity spaces" that residents of various cities navigate, representing the different areas that individuals interact with throughout their day and spend their time (e.g., places of worship, stores, recreational areas) (see Browning et al. 2017a; Graif et al. 2017; Krivo et al. 2013; Kwan 2009; Matthews 2011). Studies from this line of work highlight that activity spaces extend beyond people's residential areas (Browning et al. 2017b) and differ in their racial composition (see, for example, Zenk et al. 2011; Wong and Shaw 2011). Jones and Pebley (2014) find, for a sample of respondents in Los Angeles, a close correspondence between the racial makeup of residential neighborhoods and the areas people regularly frequent, but also that activity spaces tend to be less racially isolated than home neighborhoods.

Other relevant research has leveraged firm-level data on employees to assess racial segregation within establishments, finding broadly that firms have become more diverse over time—due in part to government efforts to promote integration and eliminate hiring and workplace discrimination (see Estlund 2003; Tomaskovic-Devey et al. 2006). Most notably, Hellerstein et al. (2008) use employee–employer linked data from the 1990 Census to assess patterns of educational and racial segregation across establishments, conditional on racial distributions of the labor markets in which they are embedded. Their findings point to substantial segregation of minority workers from white workers, with the sorting of Hispanics into establishments unique from whites being particularly strong. Yet, little is known about the local conditions that shape these patterns, nor to the broader (inter-firm) potential for racial contact.

Our focus in this study is on segregation in the neighborhoods where people work, or what we call, "workhoods." These areas embody the social settings where people spend their workdays, including their worksite or office, as well as proximal locations that workers frequent for business and routine activities, such as leisure, shopping, or meals. Workhoods thus extend beyond the firms or establishments where individuals work to encompass the broader spatial contexts that



people navigate through the workday. These units may be particularly relevant to understanding the extent to which individuals experience racial/ethnic diversity in their daily lives. As Blumen and Zamir (2001, p. 1767) note, "This social environment—the social milieu in industrial localities—is based, among other things, on routine social interactions that occur inside, outside, and in the surrounding areas of the specific workplace. This daily routine constructs diverse social networks and sociospatial realms within the labour market."

Thus, workhood segregation may be particularly salient for shaping race relations. On the one hand, racial diversity in workhoods may contribute to the erosion of racial prejudice not only from the exposure of people to racial 'others' but also because it may bring people together through instrumental or purposeful, as well as incidental, contact. Under ideal conditions, workhood environments may form, what Anderson (2011) refers to as the "cosmopolitan canopy": a neutral social setting where normative expectations encourage people to "behave civilly to one another; at times, [being] solicitous and extraordinary helpful to complete strangers" (p. 21). By this logic, even incidental contact may help to erode racial prejudice and promote racial tolerance. On the other hand, workhoods may perpetuate racial dissonance to the extent that power structures govern the nature of interactions taking place. The potential for racial contact to lead to tolerance thus depends on the social distance between groups and whether shared goals exist. Race-based relationship hierarchies—e.g., where minority workers are servicing white ones—may increase social distance, reaffirm stereotypes, and reinforce racial division (see Blalock 1967; Blumer 1958).

While we cannot adjudicate between these arguments, the relevance of work-hoods for shaping racial contact is clear. Our focus here is simply to describe overall levels of workhood segregation in metropolitan America, and to assess basic conditions under which levels vary.

Explanations for Workhood Segregation

Existing scholarship on the factors contributing to contemporary patterns of segregation tend to focus on the role of three differentiating factors in the residential domain: economic resources, discriminatory barriers, and preferences for living near members of racial/ethnic groups (see Krysan and Crowder 2017 for a recent summary). We draw on related arguments to describe features of metropolitan areas that are likely to contribute to workhood segregation.

Perhaps most importantly, the potential for segregation in workhoods will be partly determined by the extent of residential segregation in an area. First, people often learn about jobs from their personal social networks (Bayer et al. 2008; Bygren 2013) and these job-fulfilling social networks are often residentially grounded (Patacchini and Zenou 2015). Hellerstein and Neumark (2011) find, for example, that workers in establishments come disproportionately from the same sets of residential neighborhoods—more so than would be expected if the establishments' workers were randomly distributed across neighborhoods. They conclude that residential market networks play an important role in determining where people work.



Second, jobs closer to home are easier to find and access, in terms of both commuting costs and distance (Simpson 1992). There are also supply-side factors that affect proximity of place of work to place of residence; for instance, employers sometimes prefer to hire workers who live nearby to reduce absenteeism (Hanson and Pratt 1992). Accordingly, a large literature has emerged to test the impact of the "spatial mismatches" between minority neighborhoods and job opportunities that characterize labor markets with high residential segregation (see Gobillon et al. 2007; Holzer 1991; Kain 1968; Wilson 1987). Recent evidence reveals, however, that racial sorting within jobs plays a more prominent role in hiring patterns than do spatial mismatches (Hellerstein et al. 2008) and that growing minority suburbanization has softened the link between residence and workplace (Boustan and Margo 2009).

There is empirical support for the notion that residential segregation is directly associated with workhood segregation. In an examination of residential and workhood segregation of different immigrant groups in Los Angeles, Ellis et al. (2004) finds that workhood segregation (measured in terms of segregation in the census tracts where work places are located) is higher for groups that are more residentially segregated. Likewise, Stromgren et al. (2014), in a study of residential and workplace segregation in Sweden, find that while workplace segregation is lower than residential segregation, the two are positively associated.

Sociodemographic characteristics of groups are also likely to contribute to variability in workhood segregation. Residential research has long documented the positive connection between nativity and segregation (Massey 1985; Iceland 2009), and workhood segregation is also likely to be shaped by levels of immigration in a metropolitan area. More specifically, the strong reliance of immigrants on social networks as sources of information about housing and work (Alba and Nee 2003; Bailey and Waldinger 1991; Hagan et al. 2011; Light and Bonacich 1988; Portes and Rumbaut 2006) suggests greater shares of foreign-born persons in an area should be positively associated with workhood segregation. In fact, immigrant enclaves may even draw ethnic group members who are residentially dispersed to a common area (e.g., Chinatown). Accordingly, Ellis et al. (2004) find that immigrants in Los Angeles tend to cluster more at work than the native-born because of the strength of these immigrant networks. One counterargument is that metropolitan areas with a high proportion of immigrants might have lower levels of black-white residential segregation (which could extend to workhoods); as such, immigrants (or the presence of multiple groups more generally) may serve as a "buffer" and reduce tensions that might otherwise be more likely to occur in mainly black-white contexts (Logan and Zhang 2010; Frey and Farley 1996; Iceland and Sharp 2013; Defina and Hannon 2009).

The economic positions of racial groups may also contribute to levels of work-hood segregation. Research on residential segregation has consistently demonstrated that when minority group members are positioned relatively closer to whites in terms of income, education, or other indicators of SES, neighborhood segregation tends to be lower. The same basic logic may apply to workhood segregation, in that when there is greater parity between racial groups, they may be more likely to occupy similar spaces during the workday. However, an alternative argument suggests that, net of residential segregation, racial disadvantage may generate more



racially diverse workhood settings as US labor markets have become increasingly bifurcated along both skills and race in ways that bring workers with very different backgrounds together in physical space (Adler and Adler 2004).

Lastly, the economic base of a metropolitan area is also likely to structure patterns of workhood segregation. In particular, certain institutions may value diversity more than others and areas with densities of such organizations—especially military, colleges, and government agencies—should have lower levels of segregation (Farley and Frey 1994; Logan et al. 2004). These large institutions may also have more structured and formal human resources departments and hiring practices that are sensitive to potential violation of Equal Employment Opportunity (EEO) laws, in part because they are often perceived to be under greater scrutiny (Leasher and Miller 2012; Statinback and Irvin 2012).

Contributions and Hypotheses

Our study contributes to the literature on workplace segregation described above in a few important respects. First and foremost, the empirical literature comparing residential and workplace segregation is very small. None of the studies reviewed above have examined the issue in metropolitan areas across the United States. Ellis et al. (2004) examined workhood segregation in Los Angeles, Blumen and Zamir (2001) focused on Tel Aviv, and Stromgren et al. (2014) used data from Sweden. Studies of "activity space" segregation have also focused on specific locations (e.g., Wong and Shaw 2011; Zenk et al. 2011). Thus, our study is the first to provide a descriptive look at the variation in workhood segregation across all metropolitan areas in the United States. We also examine workhood patterns for different groups, including black-white, Hispanic-white, and Asian-white segregation.

Our exploration of "workhoods"—the neighborhoods where people work—also represents a contribution to segregation scholarship. While establishment level analyses, like those undertaken by Hellerstein and Neumark (2008), provide a fine-grained assessment of segregation within-firms, they ignore the possibility of interfirm ethnoracial contact, including collaborative engagements, local consumption, and casual exposure through public space. While the extent to which these spaces of diversity define ethnoracial interaction is likely to be highly variable by occupation, industry, and location, workhoods better characterize the *potential* for inter-group contact that takes place during the workday (see Anderson 2011; Estlund 2003). Thus, even if workers are racially segregated within establishments (or by skills within establishments), racial contact may form through the proximity and connectedness of firms within proximate areas. In practical terms, segregation analyses based on establishment data are also hampered by incomplete (or non-existent) data for workers employed in small firms or who are self-employed. EEO data, for example, capture about 40% of total employment in the US (Robinson et al. 2005).

We also provide valuable information on the correlates of workhood segregation among the different groups. Specifically, we test theoretical arguments about the potential importance of residential segregation, immigration, SES, and the economic base of metropolitan areas in explaining workhood segregation across



metropolitan areas. For reasons detailed above, we expect that areas with greater residential segregation will also have more workhood segregation. Those with relatively high immigrant shares are also expected to have more workhood segregation, particularly for Hispanic-white and Asian-white segregation. Finally, we expect that metropolitan areas with higher concentrations of the workforce in the government, military, and university settings to have lower levels of workhood segregation. With these analyses, we aim to provide the first detailed look at ethnoracial workhood segregation in metropolitan areas across the United States.

Data and Methods

Primary data for this project come from the U.S. Department of Transportation's Census Transportation Planning Package (CTPP), a set of special tabulations from the Census Bureau that summarizes census data on respondents' places of work, rather than places of residence. To construct measures of workhood segregation, we use data from the 2000 and 2006–2010 (which we refer to as "2010") CTPP files, which are drawn from the 2000 Decennial Census and the 2006–2010 American Community Surveys (ACS), respectively. Corresponding measures of residential segregation are constructed using the main Census files of the 2000 decennial and 2006–2010 ACS. Our focal geographic unit is the metropolitan core-based statistical areas (CBSA), which we have defined commonly over the entire period using the 2010 definitions of the U.S. Office of Management and Budget.

Segregation, in this analysis, is measured along two dimensions: evenness and exposure. Pairwise evenness—e.g., that between whites and blacks—is assessed using the mainstay of segregation analysis, the index of dissimilarity (D), which is expressed as follows:

$$D_{kmt} = \frac{1}{2} \sum_{i=1}^{N} \left| \frac{k_{imt}}{K_{mt}} - \frac{w_{imt}}{W_{mt}} \right|,$$

where D_{kmt} is the dissimilarity score of minority group k from whites (w) in metro m at time t. For both residential and workhood segregation, i indicates census tracts, which approximate neighborhoods and serve as the lower-order unit through which segregation is assessed. Accordingly, for residential segregation, k_{imt} represents the number of minority group members living in census tract i, while for workhood segregation k_{imt} refers to the number of minority group members working in tract i. Dissimilarity scores range from 0 to 1 and indicate the proportion of minority group residents/workers that would need to change tracts of residence/work in order to reach an even distribution (with whites). To ease interpretation, D scores are multiplied by 100.

To capture evenness in the distribution of multiple racial groups simultaneously, we also calculate Theil's H, which is defined as

$$H_{mt} = \sum_{i=1}^{N} \left[\frac{p_{imt}(E_{mt} - E_{imt})}{E_{mt} * P_{mt}} \right],$$



where H_{mt} is the multigroup evenness index for metro m at time t; p refers to total population; and E represents a five-group (Hispanics and non-Hispanic whites, blacks, Asians, and others) entropy score. Like D values, H varies from 0 (complete integration) to 1 (complete segregation) and indicates the extent to which diversity at the tract level corresponds with diversity at the metropolitan level.

Exposure measures, which describe the likelihood that a group member will share a residential/workhood tract with members of other groups, are based on the P^* suite of measures. Specifically, interaction between groups is expressed as follows:

$$P_{(kj)mt} \sum_{i=1}^{N} \left[\left(\frac{k_{imt}}{K_{mt}} \right) * \left(\frac{j_{imt}}{p_{imt}} \right) \right],$$

where P_{kj} represents the proportion group j in the average group k person's tract of residence or work. The isolation index (P_{kk}) indicates own-group proportion in the typical group k person's tract of residence/work.

We calculate each of these measures for metropolitan areas at both the residential and 'place of work' levels. The building pieces of each measure are census tracts, and for ease of interpretation, we refer to these units as 'neighborhoods' and 'workhoods,' respectively. The racial composition of workhoods is based on the race/ethnicity of workers employed in each census tract, including non-civilian workers, self-employed persons, and other persons who work in the same tract. To maintain consistency in the underlying population being studied, neighborhood racial composition is also based on the race/ethnicity of workers. Since segregation measures are less stable for small population groups, we limit all analyses to metropolitan areas that, in 2010, have at least 3000 members of the relevant minority group and in the case of the multigroup measures, at least 3000 members of each minority group.

In the explanatory portion of our analysis, we incorporate several group- and metropolitan-level measures plausibly correlated with place-of-work segregation.

³ For disclosure protection, the Census imposes rounding rules on CTPP population estimates (e.g., 0 kept as 0; values between 1 and 7 rounded to 4; values above 7 rounded to the nearest multiple of 5) (Srinivasan 2004). We simulated the impact of these rounding rules (available on request) on residential data and found these rules produce segregation scores that are virtually identical to scores based on unrounded data, suggesting that the CTPP rounding rules are unlikely to influence our results.



¹ The main assumption of this operationalization is that workers are present in a workhood at the same time during the day and that they have no contact with non-working persons during the workday. This is clearly a strong assumption to make, so we considered multiple alternative measures of the workhood that incorporate residential populations plausibly present during the workday: unemployed and out-of-the-labor-force adults, elderly persons, and school-aged children. The inclusive approach is similar to the Census Bureau's "daytime" population estimates (McKenzie et al. 2013) but is less ideal for the purposes of this project given that non-workers and children are not strictly home-based (e.g., many non-working adults have responsibilities that require them to leave their residential neighborhood and children are likely to be in schools that may be located outside of their census tracts of residence). Nevertheless, segregation scores based on alternative conceptualizations of the workhood are shown in Appendix Table 5. Our conclusions do not change when using alternative definitions of the workhood population.

² Dissimilarity scores for workers are moderately lower than for the total population. In 2010, black-white residential dissimilarity for workers was 60.4 and, for all residents, it was 64.9 (see Appendix Table A1). The two measures are, however, nearly perfectly related (r=0.98).

To capture potential positional power in a labor market, we include the minority group's share of the total population in that metropolitan area. To assess arguments that immigrant workers' tendency to reside and work in ethnically dense parts of a city enhances segregation, we include the percent of a minority group that is foreign-born. Socioeconomic and labor market position are assessed by (1) the ratio of the median household incomes of the minority group to that of whites; and (2) the degree of occupational inequality between minority group workers and whites via Lieberson's (1975) index of net difference.⁴

At the metropolitan level, we include three measures commonly associated with residential segregation, that plausibly influence workhood segregation, as well: total population (logged), the suburban share of the population (percent living outside central city), the percent of the housing stock built within the last 10 years, and change in rates of unemployment between 2000 and 2010 to capture impacts of the recession and housing crisis on segregation patterns. To examine the possibility that diversity-promoting institutions affect workhood segregation, we identify metropolitan areas with a functional specialization in the armed forces, higher education, or government employment. Specifically, 'military metros' (N=31) are areas in which the proportion of the population serving in the armed forces is at least one standard deviation above the mean for all metropolitan areas; 'higher education metros' (N=50) are those in which the proportion of students enrolled in a college or university is one or more standard deviations above the mean for all metropolitan areas; and similarly, 'government metros' (N=56) are where the proportion employed by the local, state, or federal government is at least one standard deviation above the mean for all metropolitan areas.⁵

Analytically, the regression models we estimate seek to explain variation in work-hood segregation across metropolitan areas in 2010. These are expressed as OLS models in the following general form:

$$WD_{jm} = \beta_0 + \beta_1 RD_{jm} + \beta_2 \mathbf{Grp}_{jm} + \beta_3 \mathbf{Metro}_m + U_{jm},$$

⁵ In supplemental analysis, we considered a range of additional metropolitan-level correlates including measures of modes of transportation (e.g., percent of workers that drive to work), industrial heterogeneity, cost of living, and residential and occupational sprawl and density. None of these measures explained substantively meaningful variation in workhood segregation and their inclusion does not alter the point estimates shown in Table 4.



⁴ The index of net difference (*ND*) is an ordinal measure of occupational differentiation and measures the extent to which a randomly selected minority worker is likely to be working in a higher- or lower-ranked job than a randomly selected white worker. It ranges from – 1 to + 1, with negative values indicating that minority workers tend to work in higher-ranking jobs than whites; positive values implying that minorities work in lower-ranking jobs; and a value of 0 meaning that they work in equally ranked jobs. For our measure, we rank jobs based on reported wages in the 2006–2010 ACS PUMS and then map these to the Census Bureau's 2006–2010 EEO tabulations of workers in specific occupations to summarize occupational inequality from whites for each metropolitan area. In our analytic sample, the black-white *ND* scores are positive for all metropolitan areas indicating that white workers are more likely to be employed in higher-ranked occupations than are black workers in every metropolitan area.

Table 1 Metro racial evenness in neighborhoods and workhoods, for workers, 2000–2010

	N of metros	2000	2010
Residential			
Black-white	238	62.6	60.5
Hispanic-white	253	49.7	50.4
Asian-white	152	44.2	46.5
Multigroup	130	28.5	27.4
Workplace			
Black-white	238	28.5	30.3
Hispanic-white	253	25.2	27.6
Asian-white	152	27.1	29.2
Multigroup	130	7.3	8.7

Includes metros with at least 3000 minority group members; *D* scores weighted by minority group size; *H* scores are weighted by total population

where WD_{jm} is workhood dissimilarity for group j in metro m; RD refers to residential dissimilarity; \mathbf{Grp} is a vector of group-level correlates; and \mathbf{Metro} is a vector of metro-level correlates described above.⁶

Results

As a first step in understanding the extent of workhood segregation, we summarize segregation scores across all metropolitan areas for workers in each minority group in 2000 and 2010. Table 1 reports dissimilarity scores—weighted by minority group size—in both neighborhoods and workhoods. Several observations are noteworthy from these results. First, workhood segregation—as expected—is, for all groups, lower than residential segregation. In terms of black-white dissimilarity, workhood segregation is (on average) less than half as severe as residential segregation. Similarly, for both Hispanics and Asians, dissimilarity in workhoods is substantially lower than in residences. The difference in the multigroup index is particularly apparent, with multigroup workhood segregation being about one-fourth the size of their residential counterparts. Second, there are signs that residential and workhood segregation are trending in opposite directions: while black-white residential dissimilarity continued its slow decline during the 2000s, black-white workhood segregation increased. For Hispanics, residential segregation between 2000 and 2010 was mostly stable, while workhood segregation increased modestly. Asian-white segregation is the exception, increasing moderately at both the residential and workhood levels. Lastly, while residential segregation continues to be structured by a rigid

⁶ Given well-known regional differences in residential segregation, we also considered statistical controls for Census region. In the final models, the coefficients on these terms never reached statistical significance (at 10% level) and their inclusion did not meaningfully alter the estimates of other variables.



Table 2 Metro racial contact in neighborhoods and workhoods, for workers, 2010

	Average e	xposure to:		
	Whites	Blacks	Hispanics	Asians
Residential				
Whites	0.82	0.06	0.09	0.03
Blacks	0.37	0.45	0.14	0.04
Hispanics	0.39	0.10	0.45	0.06
Asians	0.51	0.08	0.18	0.23
Workplace				
Whites	0.78	0.08	0.10	0.03
Blacks	0.58	0.24	0.14	0.05
Hispanics	0.49	0.10	0.34	0.07
Asians	0.54	0.11	0.20	0.15

Includes metros with at least 3000 focal (row) group members; italicized values refer to same-group exposure (i.e., isolation); weighted by focal (row) group size

racial hierarchy with black segregation from whites being particularly pronounced, workhood dissimilarity is relatively stable across groups with no minority group appearing to be distinct in its levels of segregation.

Evenness measures provide a basic understanding of the geographic distribution of workers, but do not describe the possibility for interaction between workers. Table 2 provides a summary of racial/ethnic exposure (and isolation) for workers in their typical tract of residence and tract of work. The rows in the table represent the focal racial/ethnic group and the columns indicate their average exposure to other group members and to their own group (italicized along the diagonal). To illustrate, the average white worker lives in a neighborhood that is 80% white, 7% black, 9% Hispanic, and 4% Asian.

The workhood exposure scores reveal two important contrasts. First, workhoods appear to be less racially homogenous than residential spaces. For example, isolation scores—the percent of the work tract that shares the same race as the focal group—are lower in places of work for all groups. For blacks and Latinos, this translates into considerably greater exposure to whites: the typical black person lives in a residential neighborhood that is 37% white, but works in a tract in which 58% of other workers are white, for example. The same pattern holds for Asians, but the difference in exposure to whites between workhood and residential tracts is comparatively small.

A second important takeaway from Table 2, and perhaps the more striking one, is that while minorities tend to work in settings with greater exposure to other groups—mainly whites—this same integrative dynamic is considerably less pronounced for white workers. Indeed, the racial compositions of the typical white worker's residential and workplace settings are nearly equivalent, with other whites making up 82% of residential neighbors and 78% of workhood compatriots. Thus, to the extent that places of work provide enhanced opportunities for social interaction



Table 3 Metros with highest and lowest workhood segregation, 2010

Highest		Lowest	
Black-White D			
Detroit, MI	41.4	Hinesville, GA	7.7
Cleveland, OH	41.2	Salisbury, MD	10.1
Chicago, IL-IN-WI	40.9	Greenville, NC	12.9
Milwaukee, WI	40.9	Longview, TX	13.3
Scranton, PA	40.5	Florence, SC	14.4
Hispanic-White D			
Miami, FL	48.7	Wichita Falls, TX	11.8
Pittsburgh, PA	40.5	Odessa, TX	12.0
Montgomery, AL	40.1	Cheyenne, WY	12.0
Youngstown, OH-PA	39.1	Victoria, TX	12.1
Akron, OH	38.6	Pueblo, CO	12.2
Asian-White D			
Lafayette, IL	46.7	Olympia, WA	15.8
Mobile, AL	46.2	Salinas, CA	20.2
Knoxville, TN	45.9	Salem, OR	21.2
Pittsburgh, PA	45.7	Fresno, CA	21.8
Birmingham, AL	45.2	Seattle, WA	21.9
Multigroup H			
Miami, FL	14.9	Crestview, FL	3.8
Detroit, MI	14.9	Fayetteville, NC	3.8
Cleveland, OH	13.9	Palm Bay, FL	4.1
Pittsburgh, PA	12.4	Colorado Springs, CO	4.2
St. Louis, MO-IL	12.2	Salt Lake City, UT	4.3

Limited to metros with at least 3000 minority group members; some metropolitan (CBSA) names have been shortened

across racial and ethnic boundaries, it does so by substantially increasing minority workers' exposure to whites while only slightly increasing whites' exposure to non-whites.

Metropolitan Variation in Workhood Segregation

Next, we document how metropolitan areas differ in their levels of workhood segregation. To provide a glance into the types of places with higher and lower levels of workhood segregation, Table 3 lists the most- and least-segregated metropolitan areas in terms of workhood segregation. Workhood dissimilarity between blacks and whites is especially high in the Rust Belt cities of Detroit, Cleveland, Chicago, and Milwaukee, which all rank among the most residentially segregated cities. Yet even for these cities, black segregation is considerably lower at work than at home (i.e., black-white residential segregation in each of these cities is greater than 0.75).



Metropolitan areas with the lowest black-white workhood segregation are clustered largely in smaller southern metros and include the military hub of Hinesville (home to Fort Stewart) and college town of Greenville (East Carolina University).

Hispanic-white segregation is most pronounced in Miami and in several cities home to relatively small Hispanic populations (Pittsburgh, Montgomery, Akron). By contrast, Texan metropolitan areas and others with a long-standing Hispanic presence exhibit very low levels of Hispanic-white segregation in places of work. Similarly, Asian segregation is particularly heightened in areas where their presence is modest and/or recent and much lower in Western cities, like Seattle and Fresno, with longer histories of Asian migration. Lastly, multigroup indices reveal that the most-segregated metros in terms of workhoods are also among the most-segregated metropolitan areas in terms of the other end of the spectrum, the least-segregated metropolitan areas in terms of the multigroup index include three areas with large military bases (Crestview, Fayetteville, and Colorado Springs), providing some support to the idea that concentrations of diversity-promoting organizations reduce segregation in places of work.

Explaining Workhood Segregation

The rankings in Table 3 provide some clues into why some metropolitan areas are more or less segregated in places of work than others and offer some initial support for conceptual arguments. To explore these issues further, we estimate OLS models of workhood segregation that account for metropolitan variation in residential segregation, demographic and socioeconomic characteristics of groups, and relevant structural features of metropolitan areas. Estimated coefficients and their standard errors from these models on data from 2010 are presented in Table 4.8 The table presents models of minority group dissimilarity from whites for blacks, Hispanics, and Asians. For each minority group, three models are presented: one including just residential segregation, another adding group characteristics, and a final model including metropolitan features.

The first column in Table 4 shows the estimated relationship between workhood dissimilarity and residential dissimilarity for black and white workers. Consistent with our hypothesis, the coefficient is strongly positive but lower than 1 indicating that workhood segregation tends to be about 43% as large as residential segregation, and that metropolitan areas with highly segregated residential neighborhoods also tend to have highly segregated workhoods. The second model incorporates group-specific characteristics and suggests that workhood segregation is lower in metropolitan areas with larger black shares but higher in those areas where a greater percentage of black workers are foreign-born. Perhaps surprisingly, measures of group-level socioeconomic characteristics operate in unexpected directions; black workers in



⁷ Corresponding models of residential dissimilarity are shown in Appendix Table 6, and indicate that the correlates predict residential segregation in the expected directions.

⁸ Parallel estimates for 2000 data are shown in Appendix Table 7.

 Table 4
 OLS regression estimates of workhood segregation (from whites) in 2010, by minority group

o	,								
	Blacks			Hispanics			Asians		
	1	2	3	1	2	3	_	2	3
Group characteristics									
Residential segregation from whites (D)	0.43***	0.42***	0.32***	0.46***	0.49***	0.46***	0.59***	0.52***	0.53***
	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Percent of metro population		-0.17***	-0.19***		-0.04*	-0.04*		-0.24***	-0.24**
		(0.03)	(0.03)		(0.02)	(0.02)		(0.07)	(0.08)
Percent immigrant		0.14***	0.03		0.07**	**80.0		90:0	90.0
		(0.04)	(0.04)		(0.03)	(0.03)		(0.06)	(0.07)
Income ratio with whites (×100)		0.03	0.01		0.02	0.04		-0.03*	-0.05*
		(0.04)	(0.04)		(0.04)	(0.04)		(0.02)	(0.03)
Occupational inequality with whites (×100)		-0.25***	-0.20***		-0.19***	-0.18***		-0.02	- 0.04
		(0.07)	(0.06)		(0.05)	(0.05)		(0.03)	(0.03)
Metro characteristics									
Metro total population			2.20***			0.56*			-0.26
			(0.28)			(0.31)			(0.41)
Metro suburbanization			0.03*			0.03*			-0.01
			(0.02)			(0.02)			(0.02)
Metro new housing			-0.11**			-0.04			0.00
			(0.05)			(0.06)			(0.06)
Military metro			-1.33*			-0.43			2.95
			(0.76)			(1.09)			(1.64)
Higher education metro			2.23**			0.80			-0.77
			(0.92)			(0.98)			(1.46)
Government metro			0.76			0.63			-1.04
			(0.80)			(0.90)			(1.25)



Table 4 (continued)

	Blacks			Hispanics			Asians		
	1	2	3	1	2	3	1	2	3
Δ unemployment rate, 2000–2010			-0.19			-0.41**			-0.08
			(0.15)			(0.17)			(0.27)
Constant	3.21*	10.61**	-12.73***	5.06***	*92.9	-1.73	4.34*	7.86	12.40
	(1.79)	(4.92)	(5.41)	(1.47)	(3.90)	(6.07)	(2.24)	(5.11)	(8.98)
R squared	0.42	99.0	0.74	0.43	0.51	0.54	0.50	0.56	0.58
N of metropolitan areas		238			253			152	

 $^*p < 0.10; \ ^**p < 0.05; \ ^***p < 0.01;$ standard errors in parentheses; limited to metropolitan areas with 3000 minority group members



metropolitan areas where they are *more* occupationally *disadvantaged* relative to whites are working in *less segregated* workhoods.⁹

The final model for blacks adds metropolitan characteristics and finds that, as with residential segregation, larger metropolitan areas tend to be more segregated in places of work, recent housing construction is associated with lower segregation, and more suburbanized metros are more highly segregated. As was suggested earlier, metropolitan areas with a large military presence also tend to have lower black-white segregation levels in workhoods. Yet, counter to our hypothesis, the opposite is found for college towns that have significantly higher workhood segregation between blacks and whites.

The findings for Hispanic workers largely mirror those for blacks, with residential segregation exerting a very strong, positive association on workhood segregation and with metropolitan areas where a greater share of the Hispanic population is foreign-born being more highly segregated. Also, as was true with black segregation, occupational inequality is negatively linked to workhood segregation, implying that Hispanic-white segregation is lower in cities where Hispanics are more occupationally disadvantaged. Among the metropolitan characteristics, suburbanization is positively related to Hispanic-white segregation.

For Asians, residential segregation plays a powerful role in determining workhood segregation, with the bivariate relationship explaining half of the total variation in workhood dissimilarity. The relative size of the Asian population is also strongly linked to segregation, with a one-point increase in percent Asian being associated with a 0.24-point reduction in Asian-white dissimilarity. The only other coefficient that is significantly related to Asian-white workhood segregation is the income ratio. The positive slope estimate on this term indicates that—unlike for blacks and Hispanics—workhood segregation for Asians is lower when their incomes are closer to those for whites.

Conclusion

Commonly noted as the "structural linchpin" of American race relations (Bobo 1989; Sugrue 2008), racial residential segregation has long been viewed as an indicator of racial/ethnic inequality. Yet, the vast majority of prior work on segregation has focused almost exclusively on residential settings and largely ignored other contexts where individuals spend considerable time. In this analysis, we have sought to provide a comprehensive overview of patterns of segregation in workplace contexts

⁹ The correlations between occupational inequality and group income ratios are moderate (for blacks, r=-0.63; for Hispanic, r=-0.42; and for Asians, r=-0.24) but variance inflation statistics are low (e.g., $\sqrt{\text{VIF}}=1.57$ for black occupational inequality), suggesting that multicollinearity is not a serious threat to estimation of these models. In addition, we considered—in supplemental analysis—several alternative SES measures, including indicators of occupational segregation (D), group educational attainment, and group occupational concentration. These measures all produce substantively similar findings indicating that workhood segregation between blacks and whites is lower in areas with more disadvantaged black populations.



and to provide some initial clues into why workhood segregation differs across metropolitan areas. In doing so, we have taken a broad exploratory approach, assessing levels of workhood segregation across all metropolitan areas and for blacks, Hispanics, and Asians.

Consistent with our expectations, ethnoracial segregation is less pronounced in work settings than in residential ones. In every metropolitan area we assessed, and across all groups and all measures, racial segregation in workplace neighborhoods is revealed to be lower than neighborhood-based residential racial segregation. The magnitude of the difference is also quite substantial. In 2010, for example, the national estimate of black-white residential dissimilarity was about 60; the same estimate for workhood segregation is half as large. Measures of ethnoracial contact reach similar conclusions with the typical black worker living in a neighborhood that is almost majority black (45%) but working in one that is less than one-quarter black (24%). Similar differences between work and residential contexts are apparent for Hispanics and (to a lesser extent) Asians.

Focusing exclusively on racial segregation in residence thus paints an incomplete picture of the degree of racial separation people experience in their day-to-day lives. And it appears, from this analysis, that there is a great deal more racial contact—or at least potential for it—in people's work settings than in their residential neighborhoods. On the one hand, this could lead to less social distance between groups. Not only has cross-group interaction in transactional settings been shown to diminish racial stereotypes (Allport 1954), but there is some evidence that, when repeated, mere exposure to out-groups fosters positive interracial affect (Dixon 2006; Dixon and Rosenbaum 2004; Harmon-Jones and Allen 2001; Zebrowitz et al. 2008). On the other hand, the finding that workhood segregation is so much lower than residential segregation underscores the exceptionalism of residential space, which dictates access to many public goods and services (e.g., schools), governs social and financial capital (e.g., in terms of property values), and continues to serve as an indicator of societal status. These findings suggest that while legal protections and other proactive diversity efforts in employment may have been successful in partly integrating workplaces, diversifying residential contexts may be difficult if racial groups are willing to work alongside each other but are not willing to call the same neighborhoods home. By this account, racial inequality in housing continues to act as the "structural linchpin" of American race relationship and may, thus, remain the primary focus of policy efforts to promote racial integration, including in the workhood.

The extent of workhood segregation varies considerably across metropolitan areas. Unsurprisingly, workhood segregation for all groups tends to be high in metropolitan areas where residential segregation is also high. The relationship between the two is clearly symbiotic, with residential and workplace segregation serving as multipliers of one another (see Scott 1988), but the linkage underscores the role that race-based social networks and capital likely play in shaping both residential and employment decisions. Our analysis consistently finds that immigration increases workhood segregation, particularly among Hispanics, above and beyond its well-known effect on residential sorting (Iceland 2009). Our results support prior research indicating that immigrants are more likely to both live and work in enclaves



densely populated with co-ethnics, in part because they tend to be more reliant on the resources and protections offered within these communities. Also confirming our hypothesis, workhood segregation between whites and blacks seems to be reduced in areas with a large military presence. In fact, many of the metropolitan areas with the least black-white workhood segregation are home to some of the largest military bases, including Fayetteville NC (Fort Bragg), Jacksonville NC (Camp Lejeune), and Clarksville TN-KY (Fort Campbell).

Our multivariate analysis also reveals that socioeconomic position shapes levels of workhood segregation, but in unexpected ways. Specifically, for both blacks and Hispanics, cities where minority workers are most disadvantaged in terms of their occupational position tend to be less segregated at work. The theoretical implications of this finding are not entirely clear, but may relate to the fact that high-skill labor often demands a low-skill labor pool to provide complementary services (i.e., where white professionals are interacting with minority service workers) (Adler and Adler 2004). Alternatively, the potential for racial integration may be particularly strong in firms that maintain a racial power structure with whites (and perhaps Asians) situated on top and black and Hispanic workers below (e.g., white managers and black janitors). Exploratory data work reveals a few commonalities to areas with high occupational inequality and low workhood segregation. For blacks, this pattern is especially evident in metros with large tourism industries (Naples, FL) and in smaller southern metros (Tyler TX, Jackson MS). For Hispanics, those types of areas are found in affluent and high-tech cities (San Jose, Santa Barbara, Durham) and in metros with large agricultural sectors (Salinas, Wenatchee, Napa). We encourage researchers to further unpack these dynamics in future work.

While this article provides greater insight into the extent of workhood segregation and its correlates, it raises a number of questions for future research. A closer examination of the types of tracts with racially diverse workplace populations would be a fruitful next step, especially those areas in which the racial contexts of the residential and workplace populations sharply diverge. Another important avenue for future work would evaluate how individual attributes of workers (e.g., occupation, age, education) not only shape the relationship between racial contexts at home and work, but whether these associations vary by race. Our focus on "workhoods" also precludes us from understanding the scale of work-based racial segregation. Combining these data with firm-level measures of racial composition would illuminate the extent to which the racial integration within workhoods exists within establishments or across them.

While the "workhood" offers a valuable context for understanding broadscale patterns of racial segregation outside of the home, both our operationalization of it and its broader conceptualization are admittedly limited. For one, we are only able to capture the racial contexts of workers. Yet, the environments where people work are likely to include non-trivial numbers of non-workers who contribute to the social life of "workhoods." Future work should build from recent innovations in the estimation of daytime populations in order to more fully describe these social environments (see Boeing 2018). Similarly, the workhood environment captures only one of the many locations that individuals navigate in their daily lives, that include—for example—areas for shopping, leisure, and prayer. The growing body of scholarship



on activity spaces helps us understand racial variation in how individuals traverse urban areas, but has not fully explored how activity spaces themselves undergo demographic change throughout the day. Additional work would profit from developing analytic tools to explore these issues, particularly in ways that facilitate comparisons of changing social environments across communities.

Of course, all of these questions are of interest because of their possible implications for race relations. An improved understanding of whether and how divergent racial contexts at home and work foster racial tolerance or breed racial animus would be a valuable contribution. Though this article raises many questions about the explanatory mechanisms behind our findings, this descriptive exercise provides valuable insights on patterns of racial segregation in work settings on a national scale. Perhaps most importantly, this research highlights that while residential segregation remains both high and stubborn to change, segregation in work environments is substantially lower and may afford enhanced opportunities for racial integration to take root.

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Appendix

See Tables 5, 6 and 7.

Table 5 Measures of neighborhood and workhood racial evenness, 2010

Pairwise whites	dissimilaritie	s from	Multigroup segregation
Blacks	Hispanics	Asians	
60.5	50.4	46.5	27.4
64.9	52.1	44.8	28.6
30.3	27.6	29.2	8.7
43.2	36.4	33.3	10.8
49.1	40.9	35.8	13.0
	whites Blacks 60.5 64.9 30.3 43.2	whites Blacks Hispanics 60.5 50.4 64.9 52.1 30.3 27.6 43.2 36.4	Blacks Hispanics Asians 60.5 50.4 46.5 64.9 52.1 44.8 30.3 27.6 29.2 43.2 36.4 33.3

Includes metros with at least 3000 minority group members



Table 6 OLS regression estimates of residential segregation (from whites) in 2010, by minority group

	Blacks	Hispanics	Asians
Group characteristics			
Workhood segregation from whites (D)	0.82***	0.63***	0.76***
	(0.09)	(0.06)	(0.08)
Percent of metro population	0.11**	0.04	0.19*
	(0.05)	(0.02)	(0.10)
Percent immigrant	0.01	0.13***	0.14*
	(0.07)	(0.04)	(0.08)
Income ratio with whites ($\times 100$)	-0.24***	-0.21***	-0.03
	(0.06)	(0.04)	(0.03)
Occupational inequality with whites (×100)	0.15	0.15**	-0.03
	(0.10)	(0.06)	(0.04)
Metro characteristics			
Metro total population	0.50	0.73**	-0.41
	(0.51)	(0.36)	(0.49)
Metro suburbanization	0.02	0.03	0.02
	(0.02)	(0.02)	(0.03)
Metro new housing	-0.45***	-0.34***	-0.14*
	(0.08)	(0.06)	(0.08)
Military metro	-3.42**	-0.25	-5.00***
	(1.61)	(1.27)	(1.82)
Higher education metro	-4.07***	-2.38**	-3.30*
	(1.49)	(1.12)	(1.72)
Government metro	-1.05	-1.77*	0.44
	(1.30)	(1.05)	(1.50)
Δ unemployment rate, 2000–2010	0.68***	0.30	0.21
	(0.24)	(0.18)	(0.33)
Constant	38.48***	26.31***	22.95**
	(8.96)	(6.98)	(10.65)
R squared	0.72	0.70	0.59
N of metropolitan areas	238	253	152

^{*}p < 0.10; **p < 0.05; ***p < 0.01; standard errors in parentheses; limited to metropolitan areas with 3000 minority group members



 Table 7 OLS regression estimates of workhood segregation (from whites) in 2000, by minority group

	Blacks	Hispanics	Asians
Group characteristics			
Residential segregation from whites (D)	0.40***	0.46***	0.42***
	(0.03)	(0.05)	(0.05)
Percent of metro population	-0.18***	-0.03	0.08
	(0.03)	(0.03)	(0.09)
Percent immigrant	0.00	0.03	0.08
	(0.05)	(0.03)	(0.08)
Income ratio with whites $(\times 100)$	0.09	0.18*** - 0.05	
	(0.06)	(0.05)	(0.03)
Occupational inequality with whites (×100)	-0.16**	-0.13**	-0.14***
	(0.07)	(0.06)	(0.04)
Metro characteristics			
Metro total population	2.58***	0.95***	-0.71*
	(0.30)	(0.35)	(0.41)
Metro suburbanization	0.02	0.04**	0.01
	(0.02)	(0.02)	(0.02)
Metro new housing	0.06	-0.02	-0.12**
	(0.03)	(0.04)	(0.05)
Military metro	1.65	1.79	3.52*
	(1.18)	(1.43)	(1.98)
Higher education metro	1.79*	1.56	3.58**
	(0.99)	(1.18)	(1.38)
Government metro	1.34	0.09	-1.74
	(0.86)	(1.07)	(1.27)
Unemployment rate	0.35	0.53**	0.57**
	(0.23)	(0.22)	(0.26)
Constant	-39.10***	-25.00***	20.29**
	(5.41)	(7.44)	(10.10)
R squared	0.77	0.51	0.59
N of metropolitan areas	238	253	152

^{*}p < 0.10; **p < 0.05; ***p < 0.01; standard errors in parentheses; limited to metropolitan areas with 3000 minority group members



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