Mismatch of Jobs and People: Do Migration Constraints Put Racial Minorities at a Disadvantage?

CENTER FOR QUANTITATIVE ECONOMIC RESEARCH

CENTER FOR HUMAN CAPITAL STUDIES

CENTER FOR FINANCIAL INNOVATION AND STABILITY

CENTER FOR HOUSING AND POLICY

Kalee E. Burns

Andrew Young School of Policy Studies, Georgia State University

Julie L. Hotchkiss

Federal Reserve Bank of Atlanta

Summary:

Using the American Community Survey between 2005 and 2017, this article explores the evidence for potential migration constraints by comparing distributions of people and jobs across race and education. Using the Delta Index of dissimilarity, it illustrates a greater distributional mismatch between workers and jobs among racial minorities, relative to White non-Hispanics. This mismatch suggests greater migration constraints among racial minorities.

Key findings:

1. We determine that Black and Hispanic workers are more geographically mismatched with their job opportunities than Whites, suggesting racial minorities are more constrained in chasing better economic outcomes.

2. Although higher education significantly improves the geographic mismatch among Whites, this is not the case for either Blacks or Hispanics.

FEDERAL RESERVE BANK *of* ATLANTA

The Federal Reserve Bank of Atlanta's *Policy Hub*

leverages the expertise of Atlanta Fed economists and researchers to address issues of broad policy interest. Our research centers coordinate this work and seek to influence policy discussions. Areas of interest include: forecasting, fiscal policy, and macroeconomics (Center for Quantitative Economic Research); financial stability, innovation, and regulation (Center for Financial Innovation and Stability); human capital, labor markets, health, and education (Center for Human Capital Studies); and government-sponsored entity reform, mortgage markets, and affordable housing (Center for Housing and Policy). Sign up for email updates at **frbatlanta. org/research/publications/policy-hub.**

Mismatch of Jobs and People: Do Migration Constraints Put Racial Minorities at a Disadvantage?

Summary: Using the American Community Survey between 2005 and 2017, this article explores the evidence for potential migration constraints by comparing distributions of people and jobs across race and education. Using the Delta Index of dissimilarity, it illustrates a greater distributional mismatch between workers and jobs among racial minorities, relative to White non-Hispanics. This mismatch suggests greater migration constraints among racial minorities.

About the Authors:

Kalee E. Burns is a doctoral candidate in economics at Georgia State University. Her research interests are at the intersection of urban, labor, and public economics. She is currently a research assistant at the Federal Reserve Bank of Atlanta. In August, she will be joining the U.S. Census Bureau as an economist with the Social, Economic, Housing, and Statistics Division. Burns is originally from Pensacola, Florida, where she graduated from the University of West Florida with a bachelor of science degree in mathematics and economics.

Julie L. Hotchkiss is a research economist and senior adviser on the applied microeconomics team in the Research Department at the Federal Reserve Bank of Atlanta. She also serves as the executive director of the Atlanta Research Data Center. Prior to joining the Bank in 2003, Hotchkiss was professor of economics at the Andrew Young School of Policy Studies at Georgia State University and maintains an appointment as adjunct professor of economics in the Andrew Young School at Georgia State.

1. Introduction and Background

Longstanding disparities in labor market outcomes by race are well documented.[1] The Federal Reserve Board of Governors held a 2017 conference that highlighted these disparities and their sources. At its opening, Fed governor Lael Brainard affirmed that labor market disparities might have negative "implications for the growth capacity of the economy" (Brainard 2017). Many contributors to these disparities have been documented, including discrimination, educational opportunities, and social networks. It may also be the case that racial minorities are constrained in their migration decisions, limiting the ability to chase economic opportunity that could improve their labor market outcomes (see El Badaoui, Strobl, and Walsh 2017; Niebuhr et al. 2009; Davis and Haltiwanger 2014). For example, the Great Migration has been credited with significantly improving the economic conditions of Blacks from the U.S. South during the early 20th century (Boustan 2015).[2] Yet, in spite of episodes like the Great Migration, African Americans remain more geographically concentrated than Whites, which has been found to limit their economic opportunities (e.g., Stoll 2005).

The purpose of this article is to explore the broader evidence for migration constraints as a contributor to racial labor market disparities by documenting higher race-specific skill concentration among racial minorities than among White non-Hispanics. If migration was perfectly costless (that is, free of constraints), jobs requiring a certain level of education and workers with that education level would be equally distributed across states (or some other relevant geography). Of course, the degree to which these distributions differ merely suggests migration constraints. However, documenting a difference in the distributions is, in a sense, a necessary condition to make the argument that differences in migration patterns are contributing to observed labor market disparities. This analysis is related to, but differs from the longstanding literature on spatial mismatch, which in its most recent incarnation focuses on job decentralization as the dominant force in declining labor market outcomes among urban minorities.[3]

---

[1] For example, see Antecol and Bedard (2004); Biddle and Hamermesh (2013); Bradbury (2000); Cajner et al. (2017); Chetty et al. (2018); Engemann and Wall (2010); Fallick and Krolikowski 2018; Zavodny and Zha (2000); and Hotchkiss and Moore (2018).

[2] Not all outcomes from the Great Migration were positive. Black et al. (2015) provide evidence that migration by African Americans from rural southern states to northern urban locations resulted in increased mortality.

[3] For a comprehensive survey, see Kain 1968, Wilson 1990, and Ihlanfeldt and Sjoquist 1998. For more recent evidence, see Miller 2018.

Constraints to migration can take many forms, from social/cultural constraints to financial constraints.[4] R. Wilson (2018) demonstrates that access to information can be important for informing migration decisions. Cooke (2011) attributes 20 percent of the overall decline in migration rates between 1999 and 2009 to what he calls "secular rootedness," suggesting a social cost to migration. Spilimbergo and Ubeda (2004) also establish family ties as a factor affecting migration in their study for differences in migration rates between Whites and Blacks in the United States. They find that the reason that Blacks move less than Whites is—despite having many factors commonly associated with high migration—because Blacks have stronger family ties. Additionally, investigating migration patterns in the 1990s, Frey et al. (2005) confirm that cultural constraints to migration are more prevalent among racial minorities. This constraint would be in addition to any other differences across race that have been long known to have an impact on migration decisions, such as access to resources, information, and education (for example, see Greenwood 1975). There may be other indirect contributors to the relationship between migration and labor market outcome gaps. For example, Blair and Chung (2017) provide evidence that occupational licensing reduces racial and gender wage gaps, yet Johnson and Kleiner (2017) find that occupational licensing increases costs of interstate migration. Even though Blacks and Hispanics are less likely to be found in occupations that are licensed (Blair and Chung 2017), such institutional constraints may be contributing to labor market disparities in ways that are not obvious.

Whether or not racial minorities are geographically constrained has implications for how policy could improve labor market outcomes. At the very least, consideration of place-based or people-based policies should take potential constraints into account. These different considerations are discussed in the conclusion.

2. Race/Skill Specific Delta Index of Concentration

Our goal here is to compare the distribution of workers by education to the distribution of jobs requiring the same education in order to get a measure of mismatch between workers and jobs. We classify those distributions by race in order to determine whether the mismatch is greater among racial minorities than among whites. The identified difference in mismatch is the basis for claiming migration constraints (resulting in greater concentration) contribute to differential labor market outcomes.

---

[4] An additional constraint, theorized by Shimer (2007), could include irrational expectations about future local job prospects.

Jobs are classified not only by education but also by race because of work by Hellerstein, Neumark, and McInerney (2008), who find that an absence of the availability of jobs, generally, is not enough to explain lower employment rates of Blacks, but the absence of jobs *available to Blacks* is what matters. Accounting for the distribution of jobs only by education level would ignore this point. In other words, to accurately quantify job opportunities for racial minorities, jobs need to be classified by both education and race. What Hellerstein, Neumark, and McInerney (2008) call "racial mismatch" can occur (within education level, location, or both) because of discrimination, race-specific labor market networks, or neighborhood effects.

Indices of spatial concentration, within a much broader class of dissimilarity indices, have been used extensively to measure the degree of and changes in residential segregation (see Massey and Denton 1988; Iceland, Weinberg, and Steinmetz 2002). The "Delta" index of concentration was first proposed by Hoover (1941) and its use, often referred to as the "Duncan Index," became popular among labor economists to measure occupational segregation (Duncan and Duncan 1955; Watts 1998; Karmel and Maclachlan 2007; Silber 1992). Pertaining to the question in this article, the Delta Index can tell us how workers (of a certain education level and race) are distributed across the United States relative to the distribution of jobs requiring the same education level held by workers of the same race. If the distribution of jobs typically requiring, say, a college degree better matches the distribution of Whites with a college degree than the distribution of Blacks with a college degree, this difference suggests that Whites, compared to Blacks, are geographically less concentrated than the distribution of occupations. Hence, geography could be playing a role in observed labor market disparities. In other words, there is more of a geographic mismatch between Blacks with a college degree and college jobs than between Whites with a college degree and college jobs.

The Delta Index (D_e^r) that quantifies the difference between the distribution across some level of geography, *g*, of workers of racial group, *r*, and education level, *e*, and the distribution of jobs (or some other measure of labor market opportunity) across locations requiring that education level and held by workers of that racial group, is calculated as follows:

$$D_e^r = \frac{1}{2}\sum_{g=1}^{G}\left|\frac{n_{eg}^r}{N_e^r} - \frac{j_{eg}^r}{J_e^r}\right|,$$

where,

n_{eg}^r = number of people of racial group, *r*, in geographic location, *g*, with education, *e*

N_e^r = total number of people in the United States of racial group, *r*, with education, *e*

j_{eg}^r = number of jobs in location, *g*, requiring education, *e*, held by workers of racial group, *r*

J_e^r = total number of jobs in the United States requiring education, *e*, held by workers of racial group, *r*

G = total number of geographic locations across which the distributions are compared

The index falls between zero and one. If workers of a certain racial group, with a certain education, are distributed across locations identically to the distribution of jobs requiring that education level, then the Delta Index would be equal to zero (the smaller the Index, the lower the mismatch between distributions of jobs and people). The Delta Index tells us what share of the racial group (or jobs) that would need to be moved in order to produce an equal distribution (see Watts 1998). Of course, in the context of migration, it's more natural to think about changing the share of workers in a location (through migration) that would be needed to equalize the distributions, rather than changing the share of jobs in that location. We will consider three levels of geography: states, core-based statistical areas (CBSA), and commuting zones (CZ).[5] CBSA are restricted to more urban locations, while CZ are defined for both rural and urban areas, although identification of the CZ of a person living in a sparsely populated county is limited for confidentiality reasons.

One might argue for a more dynamic measure of job opportunities. However, we are not using merely the level of employment. In fact, in a separate working paper (Burns and Hotchkiss 2019), we made use of the CPS that allows linking individuals across time to construct an alternative measure of job opportunities (the distribution of race/education specific year-to-year unemployment-to-employment transitions), and our conclusions are unchanged. One might also argue that a measure of job vacancies would better reflect job opportunities, but because of the importance of identifying race-specific job opportunities, it is not possible to use vacancies for this purpose as specifying race when advertising a job opening is illegal.[6]

---

[5] Detailed information on CBSA can be found at https://www.census.gov/topics/housing/housing-patterns/about/core-based-statistical-areas.html. Since metropolitan identifiers change over time, we created a cross-walk to create synthesized CBSA. CZ definitions are based on county-to-county commuting patterns, and details can be found at https://usa.ipums.org/usa-action/variables/COMZONE#description_section.

[6] The U.S. Bureau of Labor Statistics provides measures of job openings (vacancies) in its Job Openings and Labor Turnover Survey (JOLTS). But these data are available only by industry or broad census region, not both. In addition, occupation reflects educational requirements more than industry, which will employ workers of a much broader range of educational attainment. But more importantly, neither online vacancy data nor JOLTS data are race-specific.

3. Data and Measurement Issues

The one-year American Community Survey (ACS) from 2005 to 2017 is used for the analyses in this paper. The ACS is a nationally representative cross-sectional survey and has been administered annually since 2005 to about 2 million households.[7] We make use of individual weights provided by the ACS, and we confine the analysis in this paper to men who are 25 to 54 years old.

3.1 Education "Required" for Each Occupation

For each year, among those employed (both men and women and all races), excluding the armed forces, we determine the median education level for each detailed occupation.[8] Table 1 reports the distribution of occupations across median education. Most occupations have a median education level of some college, followed by high school degree only and then college and above. Less than 1 percent of all occupation codes have a median education level of less than a high school degree.

Table 1: Distribution of Occupations by Median Education of Those Employed in the Occupation in 2005–17 in the United States

Median education in occupation	Percent of occupation codes across years
Less than high school	0.55
High school degree only	36.57
Some college	39.30
College degree and above	23.59

Source: American Community Survey and authors' calculations

3.2 Demand for Educational Skills—Labor Market Opportunities by Education and Race

Only two occupations have a median education level of less than high school: farm workers and graders and sorters of agricultural produce. The number of jobs (held by workers of any gender, within race groups) in each geographic location requiring a certain education level (j_{eg}^r) is simply the sum of people of that race group employed in that location in occupations requiring that education level, using the median education for occupations. Summing across locations yields the total number of jobs in the United States held by workers in that race group requiring that education level (J_e^r).

---

[7] https://www.census.gov/acs/www/methodology/sample-size-and-data-quality/sample-size/. The data used in this analysis were obtained via www.IPUMS.org, which provides harmonized variables (such as metro codes and occupation codes) across the entire sample period.

[8] Using the mode education level proved problematic since several occupations had multiple "modes" or, rather, multiple education levels that tied for mode status. We use ACS person weights when obtaining the median.

3.3 Supply of Workers by Race and Education

The supply of potential workers in each geographic location for each race and education group is calculated simply as the sum of workers in the location of that race with that education level (n_{eg}^r). The total number of workers (25-54 year old men) in the U.S. of that race with that education level, then, is just the sum across locations (N_e^r). Table 2 reports the distribution of 25- to 54-year-old men across race/ethnicity for each educational group for the full 2005–17 sample. White non-Hispanics make up the largest share in all education groups, except those with less than a high school degree. The shares of Black non-Hispanics and Hispanics declines in educational attainment, whereas the share of White non-Hispanics increases in education.

Table 2: Distribution of 25- to 54 Year-Old Men across Race/Ethnicity by Educational Attainment in the United States, 2005–17

	Percent of Education Category		
	White non-Hispanic	Black non-Hispanic	Hispanic
Less than high school	37	14	49
High school degree	65	16	19
Some college	71	14	15
College degree or more	83	8	9

Source: American Community Survey and authors' calculations

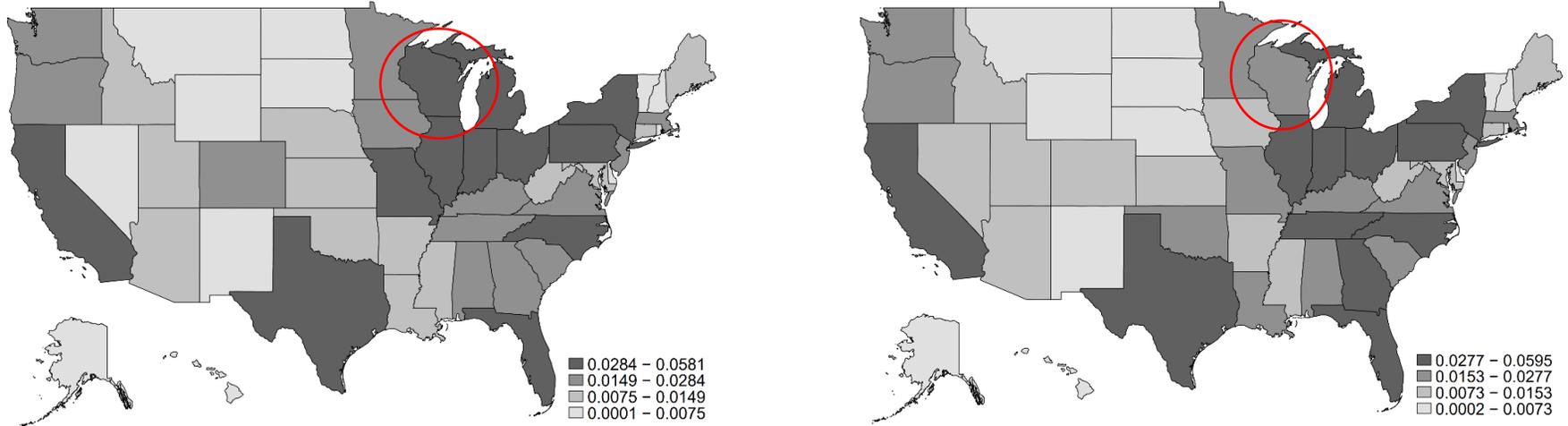## 4. Results

4.1 Distributions in the Data

Figure 1 illustrates the differences in the distributions of jobs and people for a specific race and education level that the Delta Index is designed to quantify. This figure compares the distribution differences for White (panel a) and Black (panel b) high school graduates only.[9] Figure 1 merely helps us visualize what the Delta Index is doing. As we will later illustrate more clearly, using states as the level of aggregation masks differences in distributions within the state.

The distributions in Figure 1 will reflect the largest states (California, Texas, and New York, for example) having among the greatest shares of both jobs and people of each race at each education level. However, the Delta Index is able to quantify the subtleties in relative distributional differences. For example, the share of jobs requiring a high school degree held by Whites in Wisconsin is greater than the share of Whites living in Wisconsin (highlighted with red circles in panel a). Similarly, the share of jobs requiring a high school degree held by Blacks in Pennsylvania is less than the share of Blacks living in Pennsylvania (highlighted with red circles in panel b).
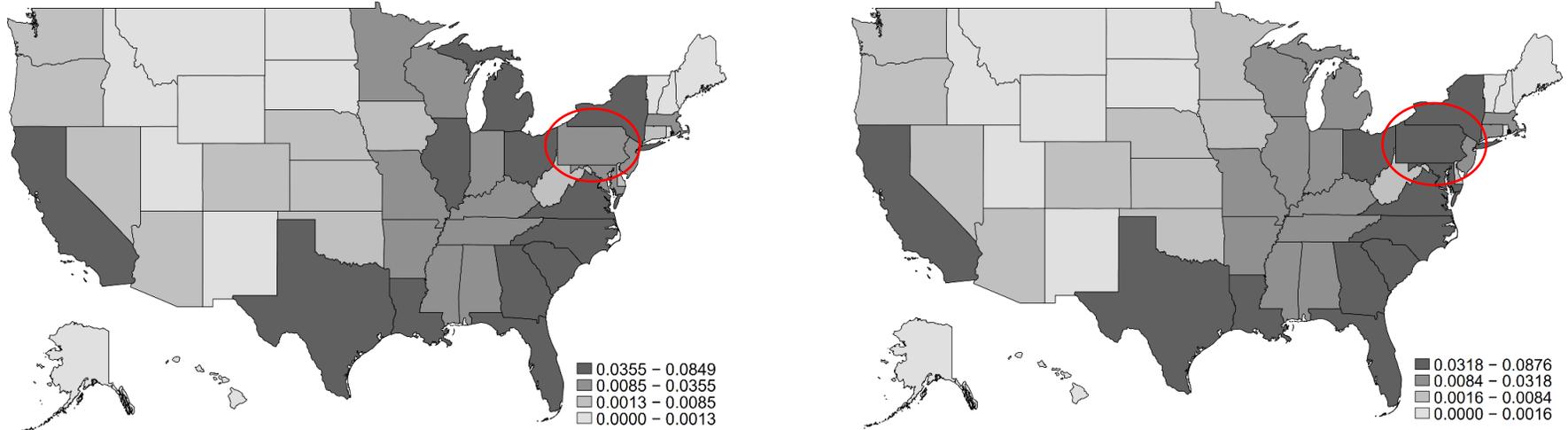
---

[9] Similar distributional comparisons can be made for CBSAs and CZs, but differences are much easier to see visually across states.

Figure 1: Maps of the Distribution of High School–Only Jobs by Race across States

Panel (a): Distribution of high school jobs held by White non-Hispanics versus the distribution of White non-Hispanics with a high school degree

Distribution of Jobs Requiring a High School Degree Held by White Non-Hispanics   Distribution of White non-Hispanics with a High School Degree

0.0284 − 0.0581
0.0149 − 0.0284
0.0075 − 0.0149
0.0001 − 0.0075

0.0277 − 0.0595
0.0153 − 0.0277
0.0073 − 0.0153
0.0002 − 0.0073

Panel (b): Distribution of high school jobs held by Black non-Hispanics versus the distribution of Black non-Hispanics with a high school degree

Distribution of Jobs Requiring a High School Degree Held by Black Non-Hispanics   Distribution of Black Non-Hispanics with a High School Degree

0.0355 − 0.0849
0.0085 − 0.0355
0.0013 − 0.0085
0.0000 − 0.0013

0.0318 − 0.0876
0.0084 − 0.0318
0.0016 − 0.0084
0.0000 − 0.0016

Note: The median education of people employed in an occupation determines the "required" education for that job. Data reflect the distribution of jobs in 2017. Source: Stata's map-creation program _maptile_ based on authors' calculations.

4.2 The Delta Index and Migration: Exploring Some Stylized Facts

We claim that the Delta Index will potentially reflect differential migration constraints. Specifically, in the presence of migration constraints, all else equal, we should see a greater mismatch between workers and job opportunities. A greater mismatch in the distributions of workers and jobs will produce a higher Delta Index. Therefore, we interpret a higher Delta Index as evidence consistent with lower migration. Of course, all else is not equal, and migration constraints are not the only potential sources of worker/job mismatch. Mismatch across locations might arise if there are differences in substitution elasticities between education groups (Ciccone and Peri 2005), amenities (Chen and Rosenthal 2008), or location-specific incentives designed to retain residents with higher levels of education (Clotfelter 1976; Strathman 1994). However, we can investigate whether the relationship between the Delta Index and migration is at least consistent with some stylized migration facts from the literature.

4.2.a The Delta Index and the Relationship between Migration and Education

A positive relationship between education and migration is well established in the literature (for example, see Molloy, Smith, and Wozniak 2011; Greenwood 1975). The theory behind this observation is that education reduces the informational cost of migrating, and moving yields a greater return on general human capital afforded to those with higher education levels. Figure 2 shows that this stylized fact generally holds for White non-Hispanics but not for the other racial groups. For all groups, those with less than a high school degree are most dissimilarly distributed across the locations relative to the jobs requiring that education level (not shown but available upon request). But, unexpectedly, there is greater mismatch between Hispanics with a college degree and jobs requiring a college degree, compared to those with high school or some college. This mismatch might suggest that differences in migration constraints by education level also vary by race. Specifically, Hispanic and Black non-Hispanic (until 2011 or so) workers at higher education levels might face more constraints than those workers at lower education levels, which could reflect the importance of considering racial specificity of job opportunities (see Hellerstein, Neumark, and McInerney 2008).[10] However, this apparent anomaly could also simply reflect the fact that more highly educated Hispanics (and, to a lesser extent, Blacks) in our sample tend to be older than their less-educated counterparts, whereas the opposite is true among Whites.[11] Since older people tend to be less mobile than younger people (see earlier references) the age of more highly educated Hispanics would be expected to reduce their migration, making them more concentrated.

---

[10] The longer-term trends in the Delta Index for Blacks with high school and college education levels merit further exploration in future analyses.

[11] The comparable average ages for high school and college graduates for Whites, Blacks, and Hispanics are (respectively) 53 and 50, 48 and 48, and 40 and 43.

Figure 2: The Delta Index by Race across Education and Time, Total Number of Jobs across U.S. States, CBSAs, and CZs
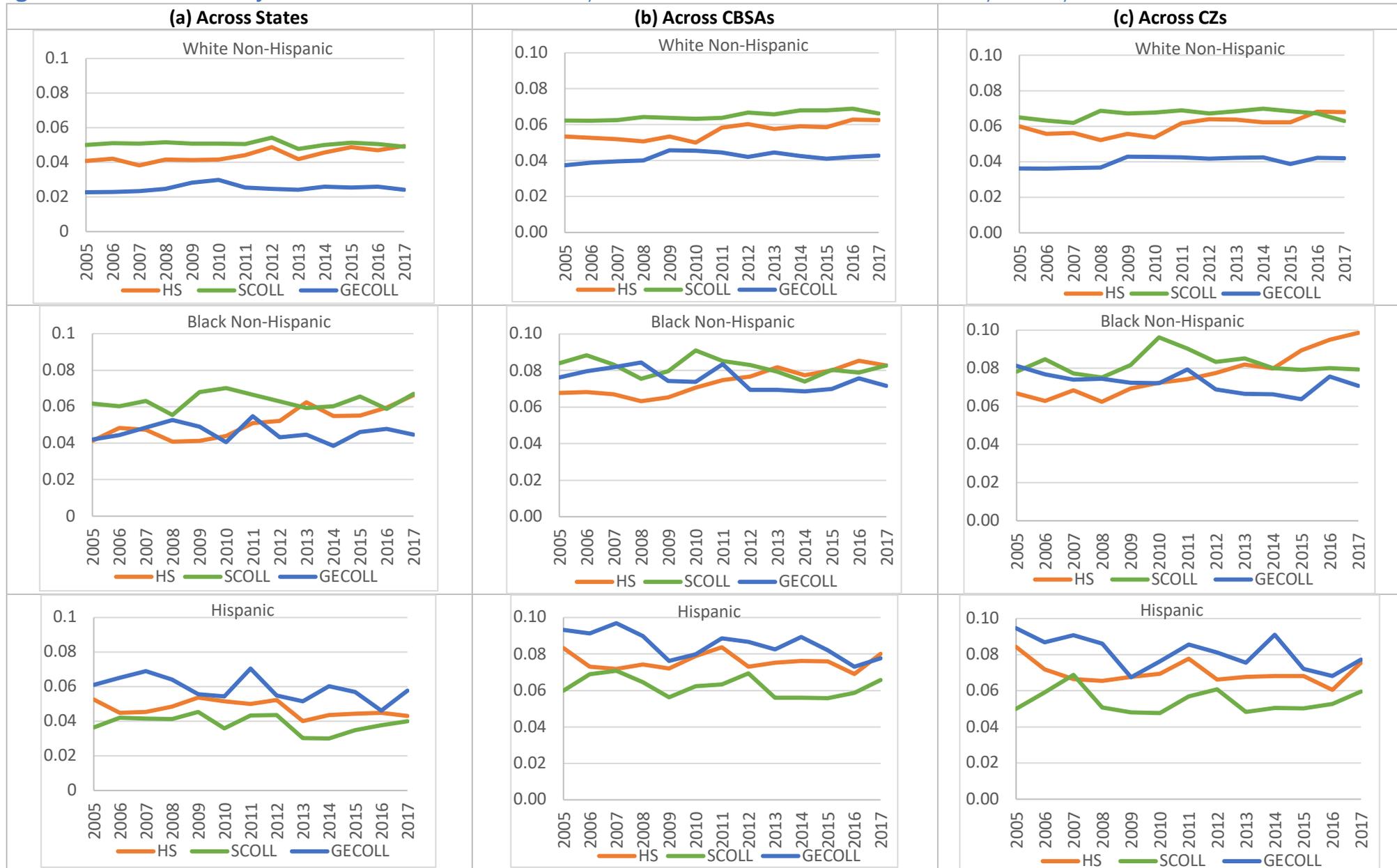
(a) Across States   **(b) Across CBSAs**   **(c) Across CZs**

Note: For illustrative purposes, we exclude educational levels less than high school. These data are available upon request.

Source: American Community Survey data (2005–17) and authors' calculations

Comparing across geographic locations, figure 2 also illustrates (for all racial/ethnic groups) how the broad geography of states masks the mismatch that exist at the narrower geography of CBSAs and CZs. The share of race/education specific jobs in a state is much too large a geography to capture the labor market opportunities for any one person or group. Notably, across all races, the Delta Index is higher and thus reflects a greater degree of mismatch than when the distribution across a narrower geography is considered. This makes sense, for example, since the share of Black college graduates in California might be exactly the same as the share of jobs held by Black college graduates there. However, the jobs might be concentrated in Los Angeles, whereas the population might be concentrated in San Francisco. The state-level Delta Index does not detect this mismatch, but the CBSA and CZ do.[12]

4.2.b The Delta Index and Migration Patterns over Time

Since at least the 1980s, overall declines in interstate migration are well-documented, and many explanations have been offered (for example, see Costa and Kahn 2000; Cooke 2013; Molloy, Smith, and Wozniak 2011; Kaplan and Schulhofer-Wohl 2017).[13] All racial and education groups have seen declining trends in migration. If lower migration is linked to greater dissimilarity between the distribution of jobs and workers, we would expect the downward trend in migration rates to manifest itself in rising Delta Indices.

We find the Delta Index to be unambiguously rising over the time period shown across all geographies for White non-Hispanic and Black non-Hispanic high school graduates, but not necessarily for other education groups or for Hispanics in any education group. This finding suggests that even if the Delta Index reflects a greater mismatch between people and job opportunities among racial/ethnic minorities than among Whites, linking this result to lower migration rates might be more tenuous than we thought. However, if falling migration rates relate more to the aging population or declines in geographic specificity of occupations (Kaplan and Schulhofer-Wohl 2017), then rising migration might not result in greater mismatches between job opportunities and the working-age population.

4.3 The Delta Index and Evidence of Greater Mismatch among Racial/Ethnic Minorities

To emphasize differences in geographic mismatch across race/ethnicity, figure 3 rearranges the Delta Indices presented in figure 2. Across all geographies and education levels, the Delta Index for

---

[12] Note that, mathematically, the Delta index approaches one in the limit as the size of the geographical unit shrinks to zero, which explains why higher levels of aggregation cannot capture a mismatch that exists at lower levels of aggregation.

[13] Also see Hall and Schulhofer-Wohl (2018), who document a reduction in job-matching efficiency between 2001 and 2013.

Figure 3 Delta Index by Education across Race and Time, Total Number of Jobs across States, CBSAs, and CZs
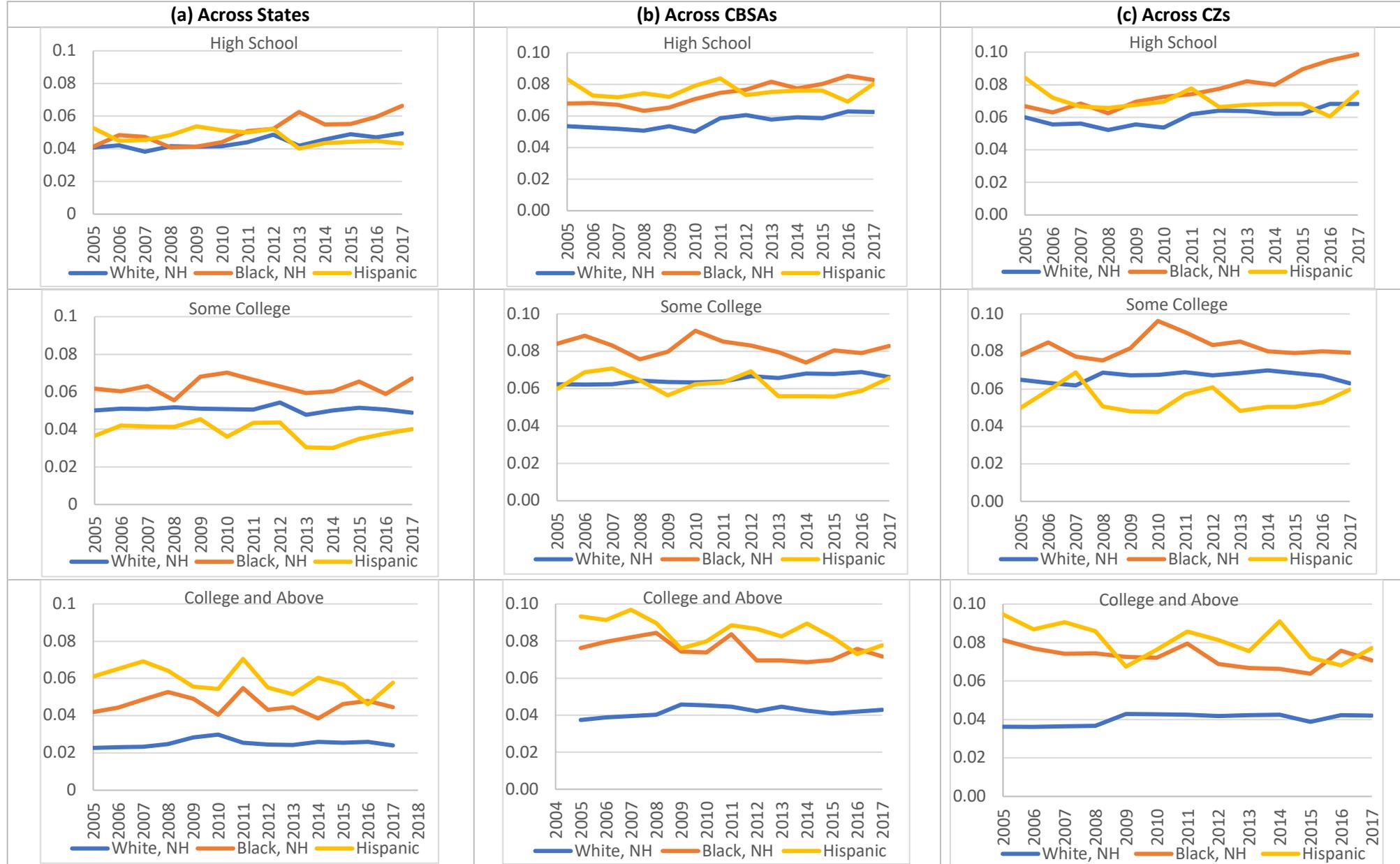
Note: For illustrative purposes, we exclude educational levels less than high school. These data are available upon request.

Source: American Community Survey data (2005–17) and authors' calculations

White non-Hispanics (the blue line in Figure 3) is everywhere below the Delta Index for Black non-Hispanics (the orange line) and nearly everywhere below the Delta Index for Hispanics (the yellow line), especially at the highest education levels. The implication is that White non-Hispanics are less concentrated and, thus, have a distributional advantage in job opportunities relative to Black non-Hispanics. White non-Hispanics also have a distributional advantage over Hispanics, except, however, for jobs requiring some college. If differences in the Delta Index across race/ethnicity reflect differences in migration constraints, then figure 3 suggests that racial/ethnic minorities (except Hispanics with some college) indeed face greater migration constraints than White non-Hispanics

5. Conclusions and Policy Considerations

Our analysis in this article finds that Black and Hispanic workers, at each education level (except Hispanics with some college), are more geographically concentrated than Whites, relative to race/education specific job opportunities. This result holds for different levels of geography, including states, CBSAs, and CZs. Finding evidence of greater job opportunity/population mismatch, however, is not sufficient to conclude that Blacks and Hispanics would be better off if they were spread more thinly across the United States to better align with the distribution of jobs matching their education. Some have found that racial and ethnic minorities experience significant gains from social and cultural networks that are accessible when living in close proximity with one another (see, for example, Montgomery 1991; Edin, Fredriksson, and Åslund 2003; Elliott 2005), which suggests that efforts directed toward decreasing disparate labor market outcomes should focus on adjusting the human capital of minorities (such as by improving educational opportunities) to better match the occupational demands of the area. Such efforts should also focus on improving economic opportunities that better match the educational attainment of the population, rather than necessarily promoting migration. On the other hand, Xie and Gough (2011) don't find any evidence that immigrants working in "ethnic enclaves" benefit compared to immigrants working outside of such an enclave. In addition, Dickerson (2007) finds that employment outcomes are worse for Blacks in segregated cities, suggesting that geographic concentration might indeed harm minorities' economic outcomes and that easing migration might prove useful for improving labor market disparities.

Picard and Zenou (2018) provide a theoretical model showing how minority workers, faced with a mismatch of location and jobs, could benefit from a variety of policy approaches. Place-based policies—such as neighborhood regeneration (which provides incentives for majority workers to move there, providing improved networking contacts) and establishment of enterprise zones (attracting firms providing additional employment opportunities)—are ways in which specific geographic locales can

attract both residents and firms. By way of contrast, people-based policies, such as the Moving to Opportunity programs, provide housing subsidies to improve outcomes by moving people closer to jobs.[14] Both of these first two types of policies would improve the measured locational mismatch between minorities and jobs. However, providing incentives to people to move is a tall order (for example, see Harrison and Raice 2018). Indirect policies, such as improving public transportation or access to information (see Waldrip et al. 2015; R. Wilson 2018), will also improve employment outcomes among minorities but might not alter the locational mismatch between minorities and jobs. This potential conflict in policies focused on *either* people *or* place is longstanding in the urban literature, described in a phrase coined by Winnick (1966): "Place Prosperity vs. People Prosperity" (also see Bolton 1992; Partridge and Rickman 2007).

Hellerstein, Neumark, and McInerney (2008) find that an absence of the availability of jobs, generally, is not enough to explain lower employment rates of Blacks, but the absence of jobs *available to Blacks* is what matters. This observation suggests that while Marinescu and Rathelot (2018) find that aggregate geographical mismatch between jobs and people might not be very important in the overall unemployment rate, education/race specific mismatch perhaps play a greater role in determining labor market outcome. In other words, combating discrimination and negative neighborhood effects (Cain and Finnie 1990) may be even more important than solving the distribution problem.

---

[14] Also see Mueller 1981, who describes the apparent success of a relocation assistance program in the 1970s in getting people to move to better job opportunities, even those who expressly indicated they didn't want to move.

References

Antecol, Heather, and Kelly Bedard. 2004. The racial wage gap. *Journal of Human Resources* 39 (2): 564.

Biddle, Jeff E., and Daniel S. Hamermesh. 2013. Wage discrimination over the business cycle. *IZA Journal of Labor Policy; Heidelberg* 2 (1): 1–19. http://dx.doi.org.ezproxy.gsu.edu/10.1186/2193-9004-2-7.

Black, Dan A., Seth G. Sanders, Evan J. Taylor, and Lowell J. Taylor. 2015. The impact of the Great Migration on mortality of African Americans: Evidence from the Deep South. *American Economic Review* 105 (2): 477–503. https://doi.org/10.1257/aer.20120642.

Blair, Peter, and Bobby Chung. 2017. Occupational licensing reduces racial and gender wage gaps: Evidence from the survey of income and program participation. Working Paper 2017-50. Human Capital and Economic Opportunity Working Group. https://econpapers.repec.org/paper/hkawpaper/2017-50.htm.

Bolton, Roger. 1992. "Place prosperity vs people prosperity" revisited: An old issue with a new angle. *Urban Studies* 29 (2): 185–203. https://doi.org/10.1080/00420989220080261.

Boustan, Leah Platt. 2015. The Great Black Migration: Opportunity and competition in northern labor markets. *Focus* 32 (1): 24–27.

Bradbury, Katharine L. 2000. Rising tide in the labor market: To what degree do expansions benefit the disadvantaged? *New England Economic Review* June: 3–33.

Brainard, Lael. 2017. Speech by Governor Brainard on why persistent employment disparities matter for the economy's health. Board of Governors of the Federal Reserve System. September 26. https://www.federalreserve.gov/newsevents/speech/brainard20170926a.htm.

Burns, Kalee, and Julie L. Hotchkiss. 2019. Migration constraints and disparate responses to changing job opportunities. Federal Reserve Bank of Atlanta working paper 2019-01. https://www.frbatlanta.org:443/research/publications/wp/2019/01-migration-constraints-and-disparate-responses-to-changing-job-opportunities-2019-02-08.

Cain, Glen G., and Ross E. Finnie. 1990. The Black-White difference in youth employment: Evidence for demand-side factors. *Journal of Labor Economics* 8 (1): S364–95.

Cajner, Tomaz, Tyler Radler, David Ratner, and Ivan Vidangos. 2017. Racial gaps in labor market outcomes in the last four decades and over the business cycle. Federal Reserve Board of Governors working paper 2017–071. Finance and Economics Discussion Series. Washington, DC.

Chen, Yong, and Stuart S. Rosenthal. 2008. Local amenities and life-cycle migration: Do people move for jobs or fun? *Journal of Urban Economics* 64 (3): 519–37. https://doi.org/10.1016/j.jue.2008.05.005.

Chetty, Raj, Nathaniel Hendren, Maggie R. Jones, and Sonya R. Porter. 2019. Race and economic opportunity in the United States: An intergenerational perspective. Mimeo. https://opportunityinsights.org/wp-content/uploads/2018/04/race_paper.pdf.

Ciccone, Antonio, and Giovanni Peri. 2005. Long-run substitutability between more and less educated workers: Evidence from U.S. states, 1950–1990. *The Review of Economics and Statistics* 87 (4): 652–63. https://doi.org/10.1162/003465305775098233.

Clotfelter, Charles T. 1976. Public spending for higher education: An empirical test of two hypotheses. *Public Finance = Finances Publiques* 31 (2): 177–95.

Cooke, Thomas J. 2011. It is not just the economy: Declining migration and the rise of secular rootedness. *Population, Space and Place* 17 (3): 193–203. https://doi.org/10.1002/psp.670.

———. 2013. Internal migration in decline. *The Professional Geographer* 65 (4): 664–75. https://doi.org/10.1080/00330124.2012.724343.

Costa, Dora L., and Matthew E. Kahn. 2000. Power couples: Changes in the locational choice of the college educated, 1940–1990. *The Quarterly Journal of Economics* 115 (4): 1287–315. https://doi.org/10.1162/003355300555079.

Davis, Steven J., and John Haltiwanger. 2014. Labor market fluidity and economic performance. NBER Working Paper 20479. National Bureau of Economic Research. https://ideas.repec.org/p/nbr/nberwo/20479.html.

Dickerson, Niki T. 2007. Black employment, segregation, and the social organization of metropolitan labor markets. *Economic Geography* 83 (3): 283–307. https://doi.org/10.1111/j.1944-8287.2007.tb00355.x.

Duncan, Otis Dudley, and Beverly Duncan. 1955. A methodological analysis of segregation indexes. *American Sociological Review* 20 (2): 210–17. https://doi.org/10.2307/2088328.

Edin, Per-Anders, Peter Fredriksson, and Olof Åslund. 2003. Ethnic enclaves and the economic success of immigrants—Evidence from a natural experiment. *The Quarterly Journal of Economics* 118 (1): 329–57. https://doi.org/10.1162/00335530360535225.

El Badaoui, Eliane, Eric Strobl, and Frank Walsh. 2017. Impact of internal migration on labor market outcomes of native males in Thailand. *Economic Development and Cultural Change* 66 (1): 147–77. https://doi.org/10.1086/694096.

Elliott, James R. 2005. Social isolation and labor market insulation. *The Sociological Quarterly* 40 (2): 199–216. https://doi.org/10.1111/j.1533-8525.1999.tb00545.x.

Engemann, Kristie M., and Howard J. Wall. 2010. The effects of recessions across demographic groups. Federal Reserve Bank of St. Louis.

Fallick, Bruce, and Pawel Krolikowski. 2018. Hysteresis in employment among disadvantaged workers. Working Paper 2018–01. Cleveland, Ohio: Federal Reserve Bank of Cleveland. https://www.clevelandfed.org/en/newsroom-and-events/publications/working-papers/2019-working-papers/wp1801r-excess-persistence-in-employment-of-disadvantaged-workers.aspx.

Frey, William H., Kao-Lee Liaw, Richard Wright, and Michael J. White. 2005. Migration within the United States: Role of race-ethnicity [with comments]. *Brookings-Wharton Papers on Urban Affairs*, 207–62.

Greenwood, Michael J. 1975. Research on internal migration in the United States: A survey. *Journal of Economic Literature* 13 (2): 397–433.

Hall, Robert E., and Sam Schulhofer-Wohl. 2018. Measuring job-finding rates and matching efficiency with heterogeneous job-seekers. *American Economic Journal: Macroeconomics* 10 (1): 1–32. https://doi.org/10.1257/mac.20170061.

Harrison, David, and Shayndi Raice. 2018. How bad is the labor shortage? Cities will pay you to move there. *Wall Street Journal*, April 30, sec. Economy. https://www.wsj.com/articles/how-bad-is-the-labor-shortage-cities-will-pay-you-to-move-there-1525102030.

Hellerstein, Judith K., David Neumark, and Melissa McInerney. 2008. Spatial mismatch or racial mismatch? *Journal of Urban Economics* 64 (2): 464–79. https://doi.org/10.1016/j.jue.2008.04.003.

Hoover, Edgar M. 1941. Interstate redistribution of population, 1850–1940. *Journal of Economic History* 1 (2): 199–205.

Hotchkiss, Julie L., and Robert E. Moore. 2018. Some like it hot: Assessing longer-term labor market benefits from a high-pressure economy. Atlanta, GA: Federal Reserve Bank of Atlanta Working Paper 2018–1. https://www.frbatlanta.org:443/research/publications/wp/2018/01-assessing-longer-term-labor-market-benefits-from-a-high-pressure-economy-2018-01-30.

Iceland, John, Daniel H. Weinberg, and Erika Steinmetz. 2002. Racial and ethnic residential segregation in the United States: 1980–2000. Washington, D.C.: U.S. Department of Commerce. https://www.census.gov/prod/2002pubs/censr-3.pdf.

Ihlanfeldt, Keith R., and David L. Sjoquist. 1998. The spatial mismatch hypothesis: A review of recent studies and their implications for welfare reform. *Housing Policy Debate* 9 (4): 849–92. https://doi.org/10.1080/10511482.1998.9521321.

Johnson, Janna E., and Morris M. Kleiner. 2017. Is occupational licensing a barrier to interstate migration? National Bureau of Economic Research Working Paper no. 24107. https://doi.org/10.3386/w24107.

Kain, John F. 1968. Housing segregation, Negro employment, and metropolitan decentralization. *The Quarterly Journal of Economics* 82 (2): 175–97. https://doi.org/10.2307/1885893.

Kaplan, Greg, and Sam Schulhofer-Wohl. 2017. Understanding the long-run decline in interstate migration. *International Economic Review* 58 (1): 57–94. https://doi.org/10.1111/iere.12209.

Karmel, T., and M. Maclachlan. 2007. Occupational sex segregation—Increasing or decreasing?* *Economic Record* 64 (3): 187–95. https://doi.org/10.1111/j.1475-4932.1988.tb02057.x.

Kureková, Lucia Mýtna, Miroslav Beblavý, and Anna Thum-Thysen. 2015. Using online vacancies and web surveys to analyse the labour market: A methodological inquiry. *IZA Journal of Labor Economics* 4 (1): 18. https://doi.org/10.1186/s40172-015-0034-4.

Marinescu, Ioana, and Roland Rathelot. 2018. Mismatch unemployment and the geography of job search. *American Economic Journal: Macroeconomics* 10 (3): 42–70. https://doi.org/10.1257/mac.20160312.

Massey, Douglas S., and Nancy A. Denton. 1988. The dimensions of residential segregation. *Social Forces* 67 (2): 281–315. https://doi.org/10.2307/2579183.

Miller, Conrad. 2018. When work moves: Job suburbanization and Black employment. National Bureau of Economic Research Working Paper no. 24728. https://doi.org/10.3386/w24728.

Molloy, Raven, Christopher L. Smith, and Abigail Wozniak. 2011. Internal migration in the United States. *Journal of Economic Perspectives* 25 (3): 173–96. https://doi.org/10.1257/jep.25.3.173.

Montgomery, James D. 1991. Social networks and labor-market outcomes: Toward an economic analysis. *The American Economic Review* 81 (5): 1408–18.

Niebuhr, Annekatrin, Nadia Granato, Anette Haas, and Silke Hamann. 2012. Does labour mobility reduce disparities between regional labour markets in Germany? *Journal of Regional Studies* 46(7): 841-58.

Partridge, Mark D., and Dan S. Rickman. 2007. Persistent pockets of extreme American poverty and job growth: Is there a place-based policy role? *Journal of Agricultural and Resource Economics* 32 (1): 201–24.

Picard, Pierre M., and Yves Zenou. 2018. Urban spatial structure, employment and social ties. *Journal of Urban Economics* 104: 77–93. https://doi.org/10.1016/j.jue.2018.01.004.

Shimer, Robert. 2007. Mismatch. *American Economic Review* 97 (4): 1074–1101. https://doi.org/10.1257/aer.97.4.1074.

Silber, Jacques. 1992. Occupational segregation indices in the multidimensional case: A note. *Economic Record* 68 (202): 276–77. https://doi.org/10.1111/j.1475-4932.1992.tb01773.x.

Spilimbergo, Antonio, and Luis Ubeda. 2004. Family attachment and the decision to move by race. *Journal of Urban Economics* 55 (3): 478–97. https://doi.org/10.1016/j.jue.2003.07.004.

Stoll, Michael A. 2005. Geographical skills mismatch, job search and race. *Urban Studies* 42 (4): 695–717. https://doi.org/10.1080/00420980500060228.

Strathman, James G. 1994. Migration, benefit spillovers and state support of higher education. *Urban Studies* 31 (6): 913–20. https://doi.org/10.1080/00420989420080741.

Waldrip, Kyle Fee, Lisa Nelson, and Stuart Andreason. 2015. Identifying opportunity occupations in the nation's largest metropolitan economies. Cleveland, Ohio: Federal Reserve Bank of Cleveland. https://www.clevelandfed.org:443/newsroom and events/publications/special reports/sr 20150909 identifying opportunity occupations.

Watts, Martin. 1998. Occupational gender segregation: Index measurement and econometric modeling. *Demography* 35 (4): 489–96. https://doi.org/10.2307/3004016.

Wilson, Riley. 2020. Moving to jobs: The role of information in migration decisions. Working Paper (February 18). Salt Lake City: Department of Economics, Brigham Young University. https://brightspotcdn.byu.edu/8c/d1/d7a9f583461abc91439710468bcd/miginfo-wilsonfeb2020.pdf

Wilson, William Julius. 1990. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Reprint edition. Chicago: University of Chicago Press.

Winnick, Louis. 1966. Place prosperity vs. people prosperity: Welfare considerations in the geographic redistribution of economic activity. In *Essays in Urban Land Economics in Honor of the Sixty-Fifth Birthday of Leo Grebler*, 273–83. Los Angeles, CA: Real Estate Research Program.

Xie, Yu, and Margaret Gough. 2011. Ethnic enclaves and the earnings of immigrants. *Demography* 48 (4): 1293–315. https://doi.org/10.1007/s13524-011-0058-8.

Zavodny, Madeline, and Tao Zha. 2000. Monetary policy and racial unemployment rates. *Federal Reserve Bank of Atlanta Economic Review* 85 (4): 1–59.