DOES RESIDENTIAL SEGREGATION EXACERBATE METROPOLITAN-LEVEL POVERTY AND EXCESSIVE HOUSING COST BURDENS?

FINDINGS FROM THE 2016 AMERICAN COMMUNITY SURVEY

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INTRODUCTION

Notwithstanding today's politically-charged times, most Americans believe that racial, ethnic, and gender discrimination are fundamentally wrong, and that governments at all levels have an affirmative responsibility to enforce anti-discrimination laws.[i] This responsibility is enshrined in the 14th Amendment to the U.S. Constitution, enacted in 1868; as well as in the Civil Rights Act of 1964, the Voting Rights Act of 1965, the Equal Employment Opportunity Act of 1972, and the Fair Housing Acts of 1968 and 1988.

Unfortunately, when it comes to housing, this responsibility has all too often been honored in its breach. Longstanding works by Logan and Schneider (1984), Jackson (1987), Massey and Denton (1993), Farley and Frey (1994), Yinger (1995), Logan, Stults, and Farley (2004), Ross and Turner (2005), and Reardon, et.al (2008); and more recent works by Glaeser and Vigdor (2012), Sugrue (2014), and Rothstein (2017) have documented how America's federal housing and mortgage programs have all too often been administered in a racially discriminatory manner resulting in a substantial worsening of residential segregation. Still, as the results of a series of national fair housing audits conducted in 1977, 1989, 2000, and 2012 indicate, the incidence of all forms of housing discrimination has declined significantly over the last 40 years (Oh and Yinger).

This decline in housing discrimination has been accompanied by a slower fall-off in residential segregation (Krysan and Crowder 2017). Nationally, the Black-White dissimilarity index, a measure of how many resident households of U.S. metropolitan areas would have to move to

achieve complete Black-White integration, has declined from its all-time high of .73 in 1980

(Iceland and Weinberg 2002), to .47 in 2016. While several U.S. cities remain "hyper-segregated" along Black-White lines—defined as a dissimilarity index value of .70 or higher—most U.S. cities and metropolitan areas have witnessed notable declines in Black-White segregation since 1990. Unfortunately, the same cannot be said for Latinos, for whom residential segregation is generally on the upswing: among America's 360+ metropolitan areas, the average Hispanic dissimilarity index value[ii] rose from .31 in 2000 to .35 in 2016.

The assumption when looking at these trends is that reduced residential segregation is automatically a good thing. Well before its landmark 1954 ruling in *Brown v. Board of Education* in which the U.S. Supreme Court unanimously declared racially segregated schools to be inherently unequal and therefore a violation of the 14th Amendment's Equal Protection Clause, the federal courts have looked at housing discrimination as a fundamental societal ill requiring active government intervention to remedy. [iii]

The key question, of course, is *how active?* For the most part, the federal courts have left this question to the states, which except for the New Jersey Supreme Court in its three Mt. Laurel decisions (Massey, et.al 2013), have largely stayed on the sidelines. This is why the Supreme Court's recent 5-4 decision in *Texas Dept. of Housing and Community Affairs v. Inclusive Communities Project, Inc., 576 U.S.* (2015) to re-enter the segregated housing field—and its finding that well-intended government housing programs which had the effect of generating a "disparate racial impact" constituted a violation of the Fair Housing Act—was such a surprise. Following up on the Supreme Court's decision, the Obama Administration promulgated the Affirmatively Furthering Fair Housing Rule (AFFH) requiring cities and towns receiving federal housing and community development funds to identify the extent of residential segregation in their communities, to determine whether and how local policies might be worsening residential segregation, and to create plans to affirmatively reduce fair housing barriers. (U.S. Department of Housing and Urban Development 2015) HUD's original due date for these AFFH plans of January 2018 has since been extended by Trump Administration HUD Secretary Ben Carson until after 2020 (https://www.hudexchange.info/programs/affh/ extracted August 30, 2018)

At the heart of the Supreme Court's reasoning in the *Texas Dept. of Housing and Community Affairs* case is the view that racially segregated housing markets continue to constitute a threat to individual and community welfare. This was certainly the case in 1968 when The National Advisory Commission on Civil Disorders, (better known as the Kerner Commission) issued its warning that worsening residential discrimination and segregation were putting the U.S. on a path to becoming "two societies, one black, one white—separate and unequal" (Report Summary, Chapter 17, 1968). Indeed, it was the Kerner Commission's strong condemnation of residential segregation as the principal cause of the nation's urban riots, and the subsequent assassination of Dr. Martin Luther King that encouraged an otherwise indifferent Congress to enact the Fair Housing Act of 1968.

The argument that living in a segregated neighborhood adversely affects individual outcomes is mostly borne out by the available data. A series of articles by James Rosenbaum

and colleagues (1995; 2002; 2005) pointed to the generally salutary effect of the Gautreaux court decree, which enabled African-American residents of segregated public housing projects in Chicago to move to integrated suburban communities. A 2005 Brookings collection by de Souza-Briggs entitled *The Geography of Opportunity: Race and Housing Choice in Metropolitan America,* reviewed the many connections between government housing policy segregated housing markets, and reduced economic and social opportunity. More recently, a series of longitudinal studies by Chetty, Hendren and others (2014; 2016; 2018) of children growing up in low-opportunity neighborhoods have pointed to residential segregation as principal cause of the persistent gap in economic achievement levels between comparably-educated African Americans and Whites.

This article takes a fresh look at this question--whether heightened levels of metropolitan residential segregation are associated with reduced economic opportunity through higher poverty rates and higher housing cost burdens—using 5-year estimates from the 2016 American Community Survey.[iv] Until recently, researchers had to wait for the publication of the Decennial Census for this type of data. Fortunately, in 2015 the Census Bureau added census tract-level tabulations of demographic and economic data to the American Community Survey (ACS) making it possible to track neighborhood and metropolitan-level changes at more frequent intervals. With such data in hand, it is now possible to look past simple averages and trends at the full range of contemporary metropolitan segregation patterns and outcomes.

This was not the case forty years ago when minority populations were limited to central cities; and when suburban municipalities routinely relied on a combination of restrictive zoning, realtor steering, and discriminatory mortgage lending to exclude Black and Hispanic residents. Such practices, while hardly unknown, are far less common today. Precisely because the incidence of discriminatory practices has been so substantially reduced—although by no means eliminated—today's Black and Hispanic households seeking to improve their housing and neighborhood conditions have many more geographic options than did their counterparts a generation ago. Whether they can take advantage of those options in a manner that reduces residential segregation or contributes to a reduction in poverty or an increase in housing affordability is the subject of this article.

This analysis adds to the discussion about residential segregation and opportunity in three ways. First, as noted above, it is as up-to-date as the data will allow. Second, it considers Black-White and Hispanic-non-Hispanic segregation in parallel, gaining mutual insights from each. Third and most important, it is undertaken at the metropolitan scale, the geography at which today's housing markets function. Currently, there are 383 metropolitan areas in the United States.

The great strength of this analysis, its comprehensive and comparative focus on metropolitan-level indices and outcomes, is also its Achilles heel. Today's housing and labor markets function at a metropolitan scale, but the outcomes generated by those markets are mostly experienced at an individual, household, or neighborhood level. For the Latino high-school graduate unable to find a good job

within easy commuting distance, or for the poor African-American family looking for a nearby affordable rental unit, the fact that their metropolitan area is less segregated along Black-White or Hispanic lines than most is irrelevant. What matters is how the forces of discrimination and segregation affect them in their neighborhood.

The remainder of this working paper is organized into four parts. Part I looks at the current state of Black-White and Hispanic segregation among America's 383 metropolitan areas using two complementary measures of residential segregation: dissimilarity indices, and Moran's I, a measure of spatial autocorrelation. Part II uses regression analysis to explore some of the metropolitan-scale factors responsible for changes in Black-White and Hispanic segregation since the year 2000. Part III looks at the association between Black-White and Hispanic segregation and changes in Black and Hispanic poverty and decreases in housing affordability. Part IV concludes with a summary of the major findings and their implications for federal, state, and local residential integration policy.

A few notes on measurement before we get to our key findings. Following the literature, the principle measure of residential segregation used in this article is the *dissimilarity index*, or DI.[v] DIs combine small area (e.g., census tracts or zip code districts) differences in racial or demographic makeup to generate larger area (e.g., city- or metropolitan area-level) summaries of residential segregation. DIs vary between 0 and 1: A DI value of 0 indicates complete integration while a value of 1 indicates complete segregation. DIs are easy to compute. And because they are linear, they are easy to interpret--a DI of .5 means that half the population would have to move to achieve an integrated outcome; a value of .75 means that three-quarters of residents would have to move.[vi]

Dissimilarity indices have limitations. They can only be used to compare segregation across two groups (e.g., Blacks vs. Whites or Hispanics vs. non-Hispanics) and they can be less than reliable when used in highly diverse communities. To get around this problem, I report both Black-White DIs and Hispanic-Non-Hispanic DIs.[vii] This use of dichotomous groupings oversimplifies internal differences within groups. For example, while most African-Americans identify themselves as being Black or of mixed race, not all Cuban-Americans see themselves as being within the same Hispanic ethnic group as Puerto Ricans or Mexican-Americans—even though the Census Bureau reports them as such. For many Hispanics, immigration status is more important than ethnicity.

Dissimilarity indices summarize segregation. They do not measure spatial concentrations. To understanding the difference, consider the following example. In metro area A, the White population is dispersed on the east side of town while the Black population is dispersed on the west side. In metro area B, the Black population is concentrated in the central city while the White population is dispersed throughout the suburbs. Both metro area A and B are highly segregated and have similar DI values, but in metro area B, the Black population is also spatially clustered.

To measure spatial concentrations, or more precisely, the degree to which population characteristics are spatially auto-correlated, geographers use a statistic known as *Moran's I*.[viii] Moran's I typically varies between -1 and +1: A Moran's I value of 1 indicates that a

population or activity is completely concentrated at one point in space. A Moran's I value of 0 indicates that a population or activity

is located randomly in space, while a Moran's I value of -1 indicates complete dispersal—that the population or activity is distributed along the edge of the space of interest. Moran's I values follow a statistical distribution, meaning that their statistical significance can be assessed. For most urban activities, Moran's I values fall between -.1 and +.3. Values greater than .5 indicate extreme spatial concentration, or, in language of sociologists, the presence of a ghetto. Readers should exercise caution in interpreting Moran's I values: unlike dissimilarity index values, Moran's I values are not linear.

Finally, readers should remember that all measures calculated from the American Community Survey are based on counts from a sample survey, not a comprehensive census. This means that they are subject to the problem of sampling error, especially in smaller census tracts (Napierala and Denton 2017). Measures and indices constructed from ACS data should therefore be interpreted with caution, especially when observed differences over time and space are small.

I. CURRENT BLACK-WHITE AND HISPANIC SEGREGATION LEVELS AMONG U.S. METRO AREAS

To orient readers to the extent of segregation in America, I start the way many segregation studies do: with listings of the nation's most segregated metropolitan areas. Because segregation varies by metro area size—larger metro areas are consistently more segregated than smaller ones—I divide the listings into three metro area size categories: (i) Table 1 includes large metro areas with more than one million residents in 2016; (ii) Table 2 includes mid-sized metro areas having a 2016 population between 250,000 and one million; and (iii) Table 3 includes small metro areas with fewer than 250,000 residents in 2016 (These same metro area size category distinctions will remain in use throughout this article.). Rosters include the 25 most segregated metro areas in each category as well as the category average. Dissimilarity index values are listed for 2000 and 2016, while Moran's I statistics are listed just for 2016. Black-White values are listed in the top block of each table; Hispanic values are listed in the bottom block.

Black-White and Hispanic Segregation Trends in Large Metropolitan Areas (Tables 1A and 1B)

As of 2016, the nation's 48 largest metropolitan areas included 55% of its African-American population and 62% of its Hispanic population. In the year 2000, the average Black-White dissimilarity index value among these 48 large metro areas stood at .61. Eleven large metro areas met the criterion of being hyper-segregated—meaning that their Black-White DI values exceeded .70. The set of hyper-segregated metro areas was led by former

industrial giants with shrinking central cities in the Midwest: notably Detroit, Milwaukee, Chicago, Buffalo, Cleveland, and St. Louis. The Greater New York City metro area, which includes Newark and adjacent communities, Westchester County, Nassau and Suffolk counties on Long Island as well as New York City, also met the hyper-segregation threshold in 2000. While there are also a good number of Northeastern and Southern metro areas on the top 25 Black-White segregation list for 2000, the only western metro areas to appear are Los Angeles-Long Beach, San Francisco-Oakland, and Denver.

Sixteen years later, by 2016, the African-American population of the country's largest metro areas had grown by 21%, raising the African-American population share from 15% in 2000 to 15.6% in 2016. These increases were accompanied by a decrease in Black-White segregation, with the average Black-White dissimilarity index among large metro areas declining from .61 in 2000 to .55 in 2016. Along similar lines, the roster of hyper-segregated large metropolitan declined from eleven to seven. The decline in Black-White DI values was widespread, with most large metro areas experiencing DI value declines in the range of 4 to 8 points. Among the notable exceptions were Providence, where the DI value fell by only 1 point; and Milwaukee, St. Louis, and Pittsburgh, where DI values fell by just 3 points. On the positive side of the ledger, Black-White DI values fell by 13 points in Kansas City between 2000 and 2016, by 12 points in Detroit, and by 9 points in Indianapolis. Comparing regions, the largest Black-White DI value declines between 2000 and 2016 were among metro areas in the West.

The third column in Table 1 lists metro areas according to their Moran's I values. As noted previously, Moran's I is a non-linear measure of spatial autocorrelation, or the extent to which spatial entities with high characteristic values (e.g. Black population shares by census tract) are tightly clustered in space. Despite its limitations,[ix] Moran's I is arguably a more reliable measure than the dissimilarity index of how residential segregation is personally experienced by minority populations. With a few notable exceptions, the Top 25 list of large metros based on 2016 Moran's I values corresponds closely to the Top 25 2016 list based on DI values. The major exceptions—metro areas that appear on the 2016 Moran's I list but not on the DI list—are mostly in the South, and include Jacksonville, Orlando, Nashville, Charlotte, Raleigh, and San Diego. African-American residents of these metro areas are likely to experience extreme spatial separation racial isolation from Whites, even though the metro area is not highly segregated along Black-White lines.

Turning to measurements of Hispanic segregation, the trends run in the opposite direction, with the average Hispanic DI among large U.S. metropolitan areas having risen modestly from .40 in 2000 to .41 in 2016. This increase was accompanied by a whopping 52% increase in the Hispanic population, bringing the Hispanic population share of large U.S. metros to 21.8% in 2016. Seven large metros had Hispanic DI values above .5 in 2016: Providence (.56), Milwaukee (.54), Boston (.53), Chicago (.53), Miami-Ft. Lauderdale (.52), Cleveland (.51), and Los Angeles-Long-Beach (.51). This number was down slightly from 2000, when nine large metro areas, including these seven plus Greater New York City and Philadelphia had had Hispanic DI values above

.50. Milwaukee, Chicago, Greater New York and Cleveland were also on the list of Black-White hyper-segregated metro areas in 2016, giving them the dubious distinction of topping two 2016 segregation lists. Other large metros with high levels of Black-White and Hispanic segregation in 2016 included Detroit, Boston, Buffalo, and Indianapolis. Unlike the Top 25 segregation list for African-Americans, the 2016 Top 25 list for Hispanics was not dominated by any geographic region.

The list of large metros in which Hispanics were spatially concentrated in 2016 was notably different from the 2016 segregation list. Among the metro areas with very high Hispanic Moran's I values in 2016 but with lower DI values were Tampa-St. Petersburg (Moran's I = .56), San Jose (.56), San Antonio (.52), San Diego (.50), and Orlando (.46). Among all large U.S. metro areas, the average 2016 Hispanic Moran's I value stood at a relatively low .28.

Black-White and Hispanic Segregation Trends in Mid-Sized Metropolitan Areas (Tables 2A and 2B)

As of 2016, the nation's 103 mid-sized metropolitan areas, those with populations between 250,000 and one million, included 14% of its African-American population and 16% of its Hispanic population. Going back to the year 2000, the average Black-White dissimilarity index value among these metro areas stood at .54. This was eight points below the comparable value for large metro areas. The nine metro areas that met the criterion for being hyper-segregated along Black-White lines—Provo, Orem, Flint, McAllen, Dayton, Syracuse, Youngstown, York-Hannover, Birmingham, and Toledo—were mostly but not entirely in the industrial Midwest. These same metro areas also topped the list of most segregated mid-sized metropolitan areas in 2016, although none were hyper-segregated. The average 2016 Black-White DI value for these mid-sized metros was .49, down from five points from 2000.

The third column in Table 2 lists metro areas according to their Moran's I values. With a few notable exceptions, the Top 25 list of large metros based on 2016 Moran's I values corresponds closely to the Top 25 2016 list based on DI values. African-American residents of mid-sized metropolitan areas in Pennsylvania and Connecticut were far more likely to live in conditions of extreme spatial segregation—close together with one another and far away from Whites--than Black residents of mid-sized metros in other states.

Turning to measurements of Hispanic segregation, the trends run in the opposite direction, with the average Hispanic DI among large U.S. metropolitan areas having risen modestly from .35 in 2000 to .37 in 2016. This change was accompanied by a whopping 72 increase in the Hispanic population, bringing the Hispanic population share of mid-sized U.S. metros up to 18% in 2016 from 13% in 2000. Seven mid-sized metros had Hispanic DI values above .50 in 2016: Reading (.62), Scranton-Wilkes Barre (.56), Springfield, MA (.55), Salinas (.54), Allentown (.53), Hartford (.51), and Oxnard, CA (.50). As with African-Americans, Pennsylvania was over-represented on the list of mid-sized metros suffering from heighted Hispanic segregation levels in 2016.

The list of mid-sized metros in which Hispanics were spatially concentrated in 2016 was similar in composition to the 2016 segregation list to its immediate left. Four of the nine mid-size metro areas with 2016 Hispanic Moran's I values

above .60—a value indicating a level of spatial concentration corresponding to ghettoization—were in Pennsylvania. Among all mid-sized metro areas, the average 2016 Hispanic Moran's I value stood at a relatively low .27.

Black-White and Hispanic Segregation Trends in Small Metropolitan Areas (Tables 3A and 3B)

As of 2016, the nation's 200-plus small metropolitan areas[x], those with a population less than 250,000, included 7% of its African-American population and 6% of its Hispanic population. Going back to the year 2000, the average Black-White dissimilarity index value among these metro areas stood at .49. This was 12 points below the comparable value for large metro areas, and 5 points below the comparable value for mid-sized metro areas. By 2016, the average Black-White dissimilarity index value among small metro areas had declined further to .44. Seventeen small metro areas met the criteria of being hyper-segregated along Black-White lines in 2000; by 2016, the roster of hyper-segregated small metro areas had fallen to just three: Lewiston, ID, Muskegon, MI, and Niles-Benton Harbor, MI. As with the set of mid-sized metros profiled in Table 2, a disproportionate share of Black-White-segregated small metropolitan areas were in Michigan and Pennsylvania. The third column in top of Table 3 lists small metro areas according to the degree to which their Black residents are extremely spatially concentrated. The 13 metros at the top of this list, those with a 2016 Moran's I value of .4 or greater, are a diverse set that follow no regional or state pattern. Among all small metro areas, the average 2016 Black Moran's I value stood at a relatively low .22.[xi]

Turning to measurements of Hispanic segregation among small metro areas, the trends are much more worrisome. From a relatively low base of .26 in the year 2000, the average Hispanic DI value for small metropolitan areas increased seven points to .33 in 2016. Befitting the general state of population flux in many small metro areas, the list of metros with higher levels of Hispanic segregation in 2016 (in the middle column of the lower block of Table 3) did not match the comparable list in the left-hand column for the year 2000. The right-hand side list of small metros in which Hispanics were spatially concentrated in 2016 was similarly diverse. Given their small size to begin with, large influxes of any demographic group to the set of small metro areas will tend to generate significant changes in segregation and spatial concentration patterns.

Table 1A: Top 25 Large Metro Areas Ranked by 2000 and 2016 Black-White Segregation Measures

Large Metro Areas: 2016 Population gt. 1 million	2000 Black-White Dissimilarity Index Value	Large Metro Areas: 2016 Population gt. 1 million	2016 Black-White Dissimilarity Index Value	Large Metro Areas: 2016 Population gt. 1 million	2016 Moran's I for Black Share of Tract Population
Detroit, MI	0.86	Milwaukee, WI	0.79	Detroit, MI	0.88
Milwaukee, WI	0.82	Detroit, MI	0.73	Milwaukee, WI	0.76
Chicago, IL-IN-WI	0.79	Chicago, IL-IN-WI	0.72	Jacksonville, FL	0.71
Buffalo, NY	0.79	Greater New York, NY-NJ	0.71	Washington, DC-VA-MD	0.67
Cleveland, OH	0.78	Cleveland, OH	0.71	Providence, RI-MA	0.66
Greater New York, NY-NJ	0.75	St. Louis, MO-IL	0.71	Philadelphia, PA-NJ-DE	0.66
St. Louis, MO-IL	0.74	Buffalo, NY	0.70	Baltimore, MD	0.65
Cincinnati, OH-KY-IN	0.73	Cincinnati, OH-KY-IN	0.65	Atlanta, GA	0.61
Indianapolis, IN	0.71	Pittsburgh, PA	0.65	Boston, MA-NH	0.60
Philadelphia, PA-NJ-DE	0.70	Philadelphia, PA-NJ-DE	0.65	Indianapolis, IN	0.60
Kansas City, MO-KS	0.70	Boston, MA-NH	0.63	Orlando, FL	0.57
Memphis, TN-MS-AR	0.69	Baltimore, MD	0.63	Tampa-St. Petersburg, FL	0.57
New Orlean, LA	0.69	Indianapolis, IN	0.62	Cleveland, OH	0.55
Baltimore, MD	0.69	New Orlean, LA	0.62	St. Louis, MO-IL	0.53
Pittsburgh, PA	0.68	Memphis, TN-MS-AR	0.61	Nashville, TN	0.52
Boston, MA-NH	0.67	Miami-Ft. Lauderdale, FL	0.60	Charlotte, NC-SC	0.52
Miami-Ft.Lauderdale, FL	0.66	Washington, DC-VA-MD	0.59	Pittsburgh, PA	0.51
Los Angeles-Long Beach, CA	0.64	Denver, CO	0.59	Louisville, KY-IN	0.50
Atlanta, GA	0.63	Kansas City, MO-KS	0.57	Columbus, OH	0.48
San Francisco-Oakland, CA	0.63	Columbus, OH	0.56	Raleigh, NC	0.45
Louisville, KY-IN	0.63	Atlanta, GA	0.56	San Diego, CA	0.42
Washington, DC-VA-MD	0.63	Louisville, KY-IN	0.56	Cincinnati, OH-KY-IN	0.41
Columbus, OH	0.63	Providence, RI-MA	0.55	Denver, CO	0.40
Tampa-St. Petersburg, FL	0.62	San Francisco-Oakland, CA	0.55	Chicago, IL-IN-WI	0.38
Denver, CO	0.62	Minneapolis-St. Paul, MN	0.53	Buffalo, NY	0.38
Large Metro Average (N=48)	**0.61**	**Large Metro Average (N=48)**	**0.55**	**Large Metro Average (N=48)**	**0.39**

Table 1B: Top 25 Large Metro Areas Ranked by 2000 and 2016 Hispanic Segregation Measures

Large Metro Areas: 2016 Population gt. 1 million	2000 Hispanic Dissimilarity Index Value	Large Metro Areas: 2016 Population gt. 1 million	2016 Hispanic Dissimilarity Index Value	Large Metro Areas: 2016 Population gt. 1 million	2016 Moran's I for Hispanic Share of Tract Population
Providence, RI-MA	0.60	Providence, RI-MA	0.56	Miami-Ft.Lauderdale, FL	0.71
Chicago, IL-IN-WI	0.59	Milwaukee, WI	0.54	Providence, RI-MA	0.69
Boston, MA-NH	0.56	Boston, MA-NH	0.53	Milwaukee, WI	0.67
Cleveland, OH	0.56	Chicago, IL-IN-WI	0.53	Tampa-St. Petersburg, FL	0.56
Milwaukee, WI	0.56	Miami-Ft.Lauderdale, FL	0.52	San Jose, CA	0.56
Miami-Ft.Lauderdale, FL	0.56	Cleveland, OH	0.51	San Antonio, TX	0.52
Greater New York, NY-NJ	0.53	Los Angeles-Long Beach, CA	0.51	San Diego, CA	0.50
Philadelphia, PA-NJ-DE	0.52	Greater New York, NY-NJ	0.48	Philadelphia, PA-NJ-DE	0.49
Los Angeles-Long Beach, CA	0.52	Philadelphia, PA-NJ-DE	0.48	Orlando, FL	0.46
Phoenix, AZ	0.49	Detroit, MI	0.47	Oklahoma City, OK	0.46
Buffalo, NY	0.49	Oklahoma City, OK	0.46	Boston, MA-NH	0.44
San Antonio, TX	0.47	Phoenix, AZ	0.45	Detroit, MI	0.38
Dallas-Fort Worth, TX	0.47	Memphis, TN-MS-AR	0.45	Charlotte, NC-SC	0.38
Denver, CO	0.47	Denver, CO	0.45	Nashville, TN	0.36
Atlanta, GA	0.46	Buffalo, NY	0.43	Greater New York, NY-NJ	0.34
Houston, TX	0.45	Nashville, TN	0.43	Jacksonville, FL	0.32
San Jose, CA	0.45	Indianapolis, IN	0.43	Atlanta, GA	0.32
San Diego, CA	0.44	San Diego, CA	0.42	Indianapolis, IN	0.30
Detroit, MI	0.44	San Jose, CA	0.42	Austin, TX	0.28
Charlotte, NC-SC	0.42	Dallas-Fort Worth, TX	0.42	Cleveland, OH	0.27
Oklahoma City, OK	0.42	Richmond, VA	0.41	Denver, CO	0.26
Nashville, TN	0.42	Atlanta, GA	0.41	Houston, TX	0.26
Minneapolis-St. Paul, MN	0.41	Cincinnati, OH-KY-IN	0.41	Seattle, WA	0.25
Washington, DC-VA-MD	0.41	Houston, TX	0.40	Las Vegas, NV	0.25
Austin, TX	0.41	San Antonio, TX	0.40	Dallas-Fort Worth, TX	0.24
Large Metro Average (N=48)	**0.40**	**Large Metro Average (N=48)**	**0.41**	**Large Metro Average (N=48)**	**0.28**

Table 2A: Top 25 Medium-sized Metro Areas by 2000 and 2016 Black-White Segregation Measures

Mid-sized Metro Areas: 2016 Population between 250,000 and 1 million	2000 Black-White Dissimilarity Index Value	Mid-sized Metro Areas: 2016 Population between 250,000 and 1 million	2016 Black-White Dissimilarity Index Value	Mid-sized Metro Areas: 2016 Population between 250,000 and 1 million	2016 Moran's I for Black Share of Tract Population
Provo-Orem, UT	0.79	Peoria, IL	0.67	Lancaster, PA	1.05
Flint, MI	0.76	Flint, MI	0.66	York-Hanover, PA	0.84
McAllen, TX	0.75	Dayton, OH	0.65	Worcester, MA	0.84
Dayton, OH	0.73	Birmingham, AL	0.65	Bridgeport, CT	0.80
Syracuse, NY	0.71	Syracuse, NY	0.65	Hartford, CT	0.78
Youngstown, OH-PA	0.71	Youngstown, OH-PA	0.65	Portland, ME	0.76
York-Hanover, PA	0.71	Rochester, NY	0.64	Dayton, OH	0.75
Birmingham, AL	0.70	Harrisburg, PA	0.62	Flint, MI	0.73
Toledo, OH	0.70	Chattanooga, TN-GA	0.60	New Haven, CT	0.66
Chattanooga, TN-GA	0.69	Bridgeport, CT	0.60	Knoxville, TN	0.63
Harrisburg, PA	0.69	Jackson, MS	0.60	Harrisburg, PA	0.61
Cape Coral-Fort Myers, FL	0.69	Albany, NY	0.60	Rochester, NY	0.58
Fort Wayne, IN	0.69	Toledo, OH	0.60	Winston-Salem, NC	0.58
Rochester, NY	0.69	Grand Rapids, MI	0.60	Wilmington, NC	0.58
Peoria, IL	0.68	Columbus, GA-AL	0.59	Huntsville, AL	0.57
Sarasota, FL	0.67	Hartford, CT	0.59	Durham, NC	0.55
Scranton-Wilkes-Barre, PA	0.67	Sarasota, FL	0.59	Cape Coral-Fort Myers, FL	0.54
Omaha, NE-IA	0.66	Shreveport, LA	0.58	Syracuse, NY	0.54
Boise City-Nampa, ID	0.66	Omaha, NE-IA	0.58	Youngstown, OH-PA	0.53
Beaumont, TX	0.65	Scranton-Wilkes-Barre, PA	0.58	Akron, OH	0.52
Akron, OH	0.65	Cape Coral-Fort Myers, FL	0.58	Asheville, NC	0.51
Brownsville, TX	0.65	Springfield, MO	0.57	Poughkeepsie-, NY	0.51
Mobile, AL	0.64	Wichita, KS	0.57	Birmingham, AL	0.48
Bridgeport, CT	0.64	Akron, OH	0.57	Daytona Beach, FL	0.48
Lancaster, PA	0.63	McAllen, TX	0.57	Trenton, NJ	0.46
Mid-sized Metro Average (N=103)	**0.54**	**Mid-sized Metro Average (N=103)**	**0.49**	**Mid-sized Metro Average (N=103)**	**0.34**

Table 2B: Top 25 Medium-sized Metro Areas by 2000 and 2016 Hispanic Segregation Measures

Mid-sized Metro Areas: 2016 Population between 250,000 and 1 million	2000 Hispanic Dissimilarity Index Value	Mid-sized Metro Areas: 2016 Population between 250,000 and 1 million	2016 Hispanic Dissimilarity Index Value	Mid-sized Metro Areas: 2016 Population between 250,000 and 1 million	2016 Moran's I for Hispanic Share of Tract Population
Reading, PA	0.67	Reading, PA	0.62	Lancaster, PA	1.08
Lancaster, PA	0.60	Scranton-Wilkes-Barre, PA	0.56	Allentown, PA-NJ	0.75
Hartford, CT	0.58	Springfield, MA	0.55	Poughkeepsie-, NY	0.74
Allentown, PA-NJ	0.57	Salinas, CA	0.54	York-Hanover, PA	0.68
Springfield, MA	0.57	Allentown, PA-NJ	0.53	Hartford, CT	0.68
York-Hanover, PA	0.57	Hartford, CT	0.51	Reading, PA	0.68
Salinas, CA	0.56	Oxnard, CA	0.50	Bridgeport, CT	0.67
Oxnard, CA	0.52	Montgomery, AL	0.48	Salinas, CA	0.67
Worcester, MA	0.52	Omaha, NE-IA	0.48	Daytona Beach, FL	0.64
New Haven, CT	0.50	Lancaster, PA	0.48	New Haven, CT	0.59
Bridgeport, CT	0.50	Grand Rapids, MI	0.47	Rochester, NY	0.55
Grand Rapids, MI	0.48	Trenton, NJ	0.47	Tucson, AZ	0.52
Rochester, NY	0.48	Fayetteville, AR-MO	0.46	Trenton, NJ	0.51
Tucson, AZ	0.47	York-Hanover, PA	0.46	Scranton-Wilkes-Barre, PA	0.5
Durham, NC	0.47	Birmingham, AL	0.46	Salem, OR	0.47
Bakersfield, CA	0.47	Worcester, MA	0.45	Portland, ME	0.42
Trenton, NJ	0.46	Bridgeport, CT	0.45	Youngstown, OH-PA	0.42
Naples, FL	0.46	Youngstown, OH-PA	0.45	Springfield, MA	0.42
Omaha, NE-IA	0.45	Jackson, MS	0.45	Santa Barbara, CA	0.42
Manchester, NH	0.45	Des Moine, IA	0.45	Reno-Sparks, NV	0.41
Harrisburg, PA	0.45	Bakersfield, CA	0.45	Cape Coral-Fort Myers, FL	0.38
Fayetteville, AR-MO	0.44	New Haven, CT	0.45	Fort Wayne, IN	0.38
Sarasota, FL	0.44	Santa Barbara, CA	0.44	Sarasota, FL	0.38
Corpus Christi, TX	0.44	Manchester, NH	0.44	Modesto, CA	0.37
Santa Barbara, CA	0.43	Tucson, AZ	0.43	Oxnard, CA	0.37
Mid-sized Metro Average (N=103)	**0.35**	**Mid-sized Metro Average (N=103)**	**0.37**	**Mid-sized Metro Average (N=103)**	**0.27**

Table 3A: Top 25 Small Metro Areas Ranked by 2000 and 2016 Black-White Segregation Measures

Small Metro Areas: 2016 Population less than 250,000	2000 Black-White Dissimilarity Index Value	Small Metro Areas: 2016 Population less than 250,000	2016 Black-White Dissimilarity Index Value	Small Metro Areas: 2016 Population less than 250,000	2016 Moran's I for Black Share of Tract Population
Missoula, MT	0.96	Lewiston, ID-WA	0.74	Niles-Benton Harbor, MI	0.85
St. George, UT	0.95	Muskegon, MI	0.71	Kingston, NY	0.77
Lewiston, ID-WA	0.89	Niles-Benton Harbor, MI	0.70	Spartanburg, SC	0.72
Prescott, AZ	0.88	Fort Smith, AR-OK	0.69	Pittsfield, MA	0.60
Glens Falls, NY	0.82	Monroe, LA	0.67	Janesville, WI	0.54
Bismarck, ND	0.81	Glens Falls, NY	0.66	Holland-Grand Haven, MI	0.53
Wausau, WI	0.79	Lake Charles, LA	0.64	Springfield, OH	0.46
Mount Vernon, WA	0.77	Pocatello, ID	0.62	Danville, IL	0.46
Coeur d'Alene, ID	0.77	Pine Bluff, AR	0.61	Anniston, AL	0.45
Muskegon, MI	0.75	Laredo, TX	0.61	Auburn, AL	0.45
Bend, OR	0.74	Saginaw, MI	0.61	Decatur, IL	0.44
Niles-Benton Harbor, MI	0.74	Utica-Rome, NY	0.61	Utica-Rome, NY	0.41
Saginaw, MI	0.72	Johnstown, PA	0.60	Atlantic City, NJ	0.41
Medford, OR	0.72	Erie, PA	0.60	Bremerton	0.39
Logan, UT-ID	0.71	Rochester, MN	0.59	Sandusky, OH	0.38
Lake Havasu City, AZ	0.71	Billings, MT	0.59	Duluth, MN-WI	0.37
Monroe, LA	0.70	St. Cloud, MN	0.59	Morristown, TN	0.35
Waterloo, IA	0.68	Waterloo, IA	0.59	Lafayette, LA	0.35
Redding, CA	0.68	Sheboygan, WI	0.58	Saginaw, MI	0.35
Billings, MT	0.67	Abilene, TX	0.58	Binghamton, NY	0.34
Kankakee, IL	0.66	Atlantic City, NJ	0.57	Huntington, WV-KY-OH	0.33
Oshkosh-Neenah, WI	0.66	Jackson, MI	0.56	Johnson City, TN	0.33
Vero Beach, FL	0.66	Great Falls, MT	0.56	Panama City-, FL	0.33
Casper, WY	0.65	Mansfield, OH	0.56	Pascagoula, MS	0.32
Johnstown, PA	0.65	Huntington, WV-KY-OH	0.56	Lynchburg, VA	0.32
Small Metro Average (N=208)	**0.49**	**Small Metro Average (N=208)**	**0.44**	**Small Metro Average (N=208)**	**0.22**

Table 3B: Top 25 Small Metro Areas Ranked by 2000 and 2016 Hispanic Segregation Measures

Small Metro Areas: 2016 Population less than 250,000	2000 Hispanic Dissimilarity Index Value	Small Metro Areas: 2016 Population less than 250,000	2016 Hispanic Dissimilarity Index Value	Small Metro Areas: 2016 Population less than 250,000	2016 Moran's I for Hispanic Share of Tract Population
Glens Falls, NY	0.54	Lebanon, PA	0.51	Holland-Grand Haven, MI	0.91
Tyler, TX	0.53	Pine Bluff, AR	0.50	Mount Vernon, WA	0.77
Santa Cruz-Watsonville, CA	0.51	Decatur, AL	0.49	Madera, CA	0.71
Decatur, AL	0.50	Fort Smith, AR-OK	0.49	Santa Cruz-Watsonville, CA	0.70
Green Bay, WI	0.50	Weirton-, WV-OH	0.49	Boulder, CO	0.58
Kennewick-Richland, WA	0.49	Yuma, AZ	0.48	Gainesville, GA	0.48
Yakima, WA	0.48	Santa Cruz-Watsonville, CA	0.48	Dalton, GA	0.42
Holland-Grand Haven, MI	0.47	Yakima, WA	0.47	Morristown, TN	0.41
Utica-Rome, NY	0.47	Bangor, ME	0.47	Rome, GA	0.41
Fond du Lac, WI	0.46	Utica-Rome, NY	0.47	Vineland, NJ	0.40
Vineland, NJ	0.45	Joplin, MO	0.47	Medford, OR	0.40
Midland, TX	0.44	Holland-Grand Haven, MI	0.46	Bay City, MI	0.39
Erie, PA	0.44	Morristown, TN	0.46	Fort Smith, AR-OK	0.35
Mount Vernon, WA	0.43	Gainesville, GA	0.46	Lebanon, PA	0.35
Fort Smith, AR-OK	0.43	Huntington, WV-KY-OH	0.46	Norwich, CT	0.32
Lebanon, PA	0.42	Spartanburg, SC	0.46	Greeley, CO	0.32
Morristown, TN	0.42	Springfield, OH	0.45	Joplin, MO	0.31
Ocean City, NJ	0.41	Niles-Benton Harbor, MI	0.44	Atlantic City, NJ	0.29
Amarillo, TX	0.41	Green Bay, WI	0.44	Sandusky, OH	0.29
Madera, CA	0.41	Tyler, TX	0.44	Amarillo, TX	0.29
Norwich, CT	0.41	Cleveland, TN	0.44	Hanford-Corcoran, CA	0.29
Gainesville, GA	0.40	Vineland, NJ	0.43	Carson City, NV	0.29
Yuma, AZ	0.40	Williamsport, PA	0.43	Punta Gorda, FL	0.28
Dalton, GA	0.40	Rocky Mount, NC	0.43	Utica-Rome, NY	0.27
Sioux City, IA-NE-SD	0.40	Madera, CA	0.43	Santa Fe, NM	0.26
Small Metro Average (N=208)	**0.26**	**Small Metro Average (N=208)**	**0.33**	**Small Metro Average (N=208)**	**0.22**

II. PATTERNS OF CHANGE

Having identified contemporary metropolitan Black-White and Hispanic segregation levels, we now turn to analyzing patterns of segregation change. As we have seen, Black-White segregation is in decline nationally, while Hispanic segregation is on the rise. These broad national trends mask sharp differences among individual metropolitan areas. For example, in Los Angeles, America's second largest metropolitan area,[xii] the Black-White DI fell by an impressive 19 points between 2000 and 2016, from .64 to .45. Meanwhile, In Chicago, the nation's third largest metro, the Black White DI fell by a less impressive 7 points, from .79 to .72. In Orlando, the Hispanic DI rose by 3 points between 2000 and 2016, while 90 miles away, in Tampa-St. Petersburg, it fell by 4 points.

Metro area size mattered more for Hispanics than African-Americans. Black-White DIs declined by an average of .06 between 2000 and 2016 among large metro areas (those with a population of one million or more), by .05 among mid-sized metro areas (those with a 2016 population between 250,000 and 1 million) and by .05 among smaller metro areas (those with a 2016 population less than 250,000). The corresponding changes for Hispanic DIs were +.01 for large metro areas, +.02 for mid-sized metro areas, and +.06 for small metro areas.

Beyond size, what other metro area-specific factors were consistently associated with recent changes in Black-White and Hispanic DI values? To find out, I regressed 2000 DIs against their 2016 counterparts along with fifteen other metro area-specific factors often thought to affect segregation levels. These included:

- Population growth rate and initial share: Faster-growing metros should find it more difficult to coordinate exclusionary practices than slower-growing ones. Likewise, metro areas with large minority populations may find it politically difficult to impose additional formal and informal restrictions. To test these propositions, I included the overall population growth rate for each metro area between 2000 and 2016, as well as Black and Hispanic population growth rates. Among the full metro area sample, the 2000-2016 population growth rate ranged from a high of +123% in Gainesville, Florida to a low of -16% in Johnstown, Pennsylvania. The African-American population growth rate over the same period ranged from a high of +770% in Prescott, Arizona to a low of -50% in Valdosta, Georgia. The Hispanic population growth rate varied from a low of 15% in the Los Angeles metro area to a high of +550% in the Scranton-Wilkes-Barre, Pennsylvania. I also included the 2000 Black and Hispanic population shares of each metropolitan area.

- Residential mobility rates: All else being equal, we should expect residential segregation to be less severe in places where people move more frequently, whether in search of a better job, or to improve their neighborhood and housing situations.[xiii] Information on moving activity is published annually in the American Community Survey. Among the full sample of metropolitan areas, the share of homeowners who moved at least once between 2000 and 2009 ranged from a low of only 24% in Johnstown, Pennsylvania, to a high of 63% in Las Vegas, Nevada. The share of renters who moved at least once

between 2000 and 2009 varied more narrowly, ranging from 63% in the Greater New York region to 94% in Provo-Orem, Utah.

- Demographic and income characteristics: Recent attitudinal studies have found younger residents, immigrants, and those with more education to generally be more willing to live in integrated neighborhoods than older residents, native-borns, and those with less education (Frey 2014). To test whether these relationships apply at the metropolitan as well as neighborhood level, I included variables measuring the share of foreign-born residents as of the Year 2010; the share of adults with a bachelor's degree (also as of 2010); and the median population age (also as of 2010). To test whether there might be an association between income and segregation, I also included a variable measuring median household income in 2010. Among the full metro area sample, the share of foreign-born residents in 2010 ranged from a low of .8% in Parkersburg (West Virginia) to a high of 38% in Miami-Ft. Lauderdale. The share of adults with bachelor's degrees in 2010 ranged from a low of .8% in Dalton (Georgia) to a high of 32% in Boulder (Colorado). Median age varied from a low of 24.3 years in Provo-Orem (Utah) to a high of 54.8 years in Punta Gorda (Florida); and 2010 median household income varied between $31,264 in Brownsville (Texas) to $86,286 in San Jose (California).

- Non-traditional land use regulatory regimes: Historically, the most common approach used by communities to exclude unwanted residents was to zone out apartments and homes on smaller lots (Pendall 2000). A 2006 Brookings report by Pendall, Puentes and Martin identified those states that rely on zoning as their principal approach to land use regulation, as well as those that have adopted alternative approaches. They characterized these alternative approaches as Reform (adding growth management regulations on top of zoning), Wild West Texas (loosening the ability of zoning to limit land uses), and Exclusionary (allowing individual municipalities to specifically exclude apartment projects). Metro areas in states in each of these non-traditional regulatory regime categories were identified using fixed-effect variables. A fourth fixed effect variable was used to denote metros in Florida, which was a member of the Reform group of states until 2009.

Six sets of regression results are presented in Table 4, three each for Blacks and Hispanics, and two for each metro size category—large, mid-sized, and small. Recognizing that some of the included variables were unlikely to be statistically significant, but that including them might bias the effects of those that are, I used backward stepwise regression to limit the set of included variables to those determined to be statistically significant.[xiv] Because the dependent variables are measured using different scales, the coefficient estimates are all presented in standardized form, making it possible to compare the relative importance of each included variable. To allow for the possibility that Black-White segregation levels might affect changes in Hispanic segregation, and vice-versa, I included Year 2000 Black-White and Hispanic DI levels in every regression, along with Black and Hispanic population growth rates and initial population shares. Among the key results:

- For both African-Americans and Hispanics, Year 2000 DI values were better predictors of Year 2016 DI values for larger metropolitan areas than for smaller ones. This suggests that segregation is characteristically more embedded in larger metro areas. Supporting this finding of embeddedness, 2000 Black-White DI values were generally three to ten times more important than other potential factors as predictors of 2016 Black DI values. For Hispanics, Year 2000 DI values were generally twice as important as other factors, suggesting a reduced degree of embeddedness.

- Higher levels of Hispanic segregation in 2000 in large and small metro areas were strongly correlated with higher rates of Black-White segregation in 2016. Similarly, higher levels of Black-White segregation in 2000 were associated with higher rates of Hispanic segregation among large and mid-sized metro areas in 2016. This suggests that the same practices that further Black-White segregation also serve to promote Hispanic segregation, and vice versa.

- The effect of population growth, while generally favorable to integration, varies by metro area size. Population growth was associated with a decline in Black-White segregation levels between 2000 and 2016 in mid-sized metro areas, but not in large or small ones. Population growth was strongly associated with a decline in Hispanic segregation levels during the 2000-2016 period, but only in large metropolitan areas.

- The population growth-integration association is different for African-Americans than Hispanics. Higher rates of African-American population growth were associated with reductions in Black-White segregation levels in mid-sized and small metro area. Conversely, higher rates of Hispanic population growth were associated with an increase in Hispanic segregation levels in large metropolitan areas.

- Greater residential mobility—that is, having more opportunities to change house or move—seems to promote greater integration. This was especially true for African-American renters in large metro areas and for Hispanic renters in mid-sized and smaller metro areas. It was also true for African-American and Hispanic homeowners in small metro areas.

- Measured at the metropolitan scale, median age and the share of foreign-born residents exerted no effect, positive or negative, on 2016 DI values for either African-Americans or Hispanics. This finding runs somewhat contrary to the conventional wisdom which suggests that younger residents and immigrants are more tolerant of diversity and more interested in living in integrated neighborhoods.

- Income levels, by contrast, do matter: wealthier populations are more inclined to favor integration. Hispanic DI values for 2016 were substantially lower in wealthier mid-sized and small metro areas (measured by median household income), while 2016 Black-White DI values were slightly lower among wealthier and smaller metro areas.

- The assumption that better-educated populations look upon integration more favorably is not born out by the data. Quite the contrary: in three of the six metro area size categories, two Black and one Hispanic, a better-educated population (measured as

the share of adults with a bachelor's degree) was associated with higher, not lower levels of segregation in 2016.

- How communities regulate land uses affects metropolitan segregation levels only slightly. Mid-sized metro areas located in states with so-called Reform land use regulatory regimes experienced larger declines in Black-White segregation than mid-sized metros in other states. This was not true for Hispanics. Being in a state with an exclusionary land use regime or in Texas, where land use regulations are less onerously applied, had no effect on 2016 segregation levels. By contrast, residents of large metro areas in Florida—which switched from a quasi-reformed regulatory regime back to a zoning-based regime in 2009—experienced lower levels of Hispanic segregation in 2016 than in 2000.

Table 4: Stepwise Regressions Comparing 2016 Black-White and Hispanic Dissimilarity Indices to 2000 Levels and Metro Characteristics

Dependent Variable & Metro Sample >>	2016 Black-White DI values in Metros with 1+ million residents	2016 Black-White DI values in Metros with 250,000 to 1 million residents	2016 Black-White DI values in Metros with 250,000 or fewer residents	2016 Hispanic DI values in Metros with 1+ million residents	2016 Hispanics DI values in Metros with 250,000 to 1 million residents	2016 Hispanic DI values in Metros with 250,000 or fewer residents
Independent Variable	Standardized Coefficient	Standardized Coefficient	Standardized Coefficient	Standardized Coefficient	Standardized Coefficient	Standardized Coefficient
2000 Black-White Dissimilarity Index	**0.804****	**.77****	**.70****	**0.39****	**.12***	DNE
2000 Hispanic Dissimilarity Index	**0.11***	DNE	**0.09**	**0.46***	**.69****	.60**
2000-2016 Population Growth Rate	Did not enter (DNE)	**-.19****	DNE	-.33**	DNE	DNE
2000-2016 Black Population Growth Rate	DNE	**-.19****	**.-12**	**.52****	DNE	DNE
2000-2016 Hispanic Population Growth Rate	DNE	DNE	DNE	DNE	**.23****	**.22****
2000 Black Population Share	DNE	DNE	DNE	DNE	DNE	DNE
2000 Hispanic Population Share	DNE	DNE	DNE	0.17	DNE	DNE
Reform LU Regime (0/1)	DNE	**-.10***	DNE	DNE	DNE	DNE
Exclusionary LU Regime (0/1)	DNE	DNE	DNE	DNE	DNE	DNE
Florida Location (0/1)	DNE	DNE	DNE	-.17*	DNE	DNE
Texas Location (0/1)	DNE	DNE	DNE	DNE	DNE	DNE
% of Owners who Moved, 2000-2009	DNE	DNE	**-.26****	DNE	DNE	**-.16***
% of Renters who Moved, 2000-2010	-0.083	DNE	DNE	DNE	**.-28****	**-0.32****
2010 Median Household Income	DNE	DNE	**-0.11**	DNE	**-0.1**	**-.30****
2010 Median Age	DNE	DNE	DNE	DNE	DNE	DNE
2010 Percent College Graduates	DNE	**0.10**	**.23***	DNE	DNE	**.23****
2010 Percent Foreign-born	DNE	DNE	DNE	DNE	DNE	DNE
Constant	0.215	0.215	0.399	-.032*	0.65	0.215
r-squared	0.934	0.78	0.49	0.75	0.69	0.52
Observations	46	102	204	47	102	205

* Indicates statistical significance at the .05 level
** Indicates statistical significance at the .01 level

III. METROPOLITAN-SCALE POVERTY and HOUSING COST BURDEN OUTCOMES

Having explored the factors associated with recent changes in metropolitan-level segregation, I now turn to the related question of whether higher levels of Black-White and Hispanic segregation are correlated with increases in poverty and excess housing cost burdens when considered at the metropolitan level.[xv] As with the previous analysis, I use regression analysis for this purpose. Following the poverty and housing literatures, I would expect higher segregation levels to be systematically associated with higher poverty rates and higher housing cost burdens (Jargowsky 1997, Yinger 2001). In terms of poverty, residential segregation functions to separate minority workers from job opportunities, the effect of which should be to reduce employment levels and wages, thereby heightening poverty rates (Kain 1992, Jargowsky 2002). In terms of housing costs, by reducing the supply of available units to potential renters and homebuyers, segregation enables apartment landlords and home sellers to extract higher-than market rents and home prices (Yinger 2005, Cutler, Glaeser, and Vigdor 1999). When coupled with lower wage and income levels, this should result in renters and homebuyers having to devote a greater proportion of their limited incomes to paying monthly rent or monthly mortgage payments. These relationships between segregation and poverty and housing cost burdens have their genesis at the transaction level; whether they are also manifest at the metropolitan scale is an open question.

Tables 5 through 8 present the regression results for 2016 Black poverty rates, 2016 Hispanic poverty rates, 2016 excess homeowner cost burden rates, and 2016 excess renter cost burden rates. Separate coefficients are estimated for large, mid-sized and small metro areas. As with the DI regression results presented earlier, the regression models all take a similar form: they compare 2016 poverty rates and housing cost burdens to prior poverty rates and burdens, while also including measures of Black-White and Hispanic segregation, as well as population growth rate measures and regulatory regime fixed-rate variables. All else being equal we should expect poverty rates and housing cost burdens to be higher in communities which explicitly allow residents to limit new apartment construction (e.g., an "Exclusionary" regulatory regime) or otherwise use zoning for that purpose. Unlike the regressions presented in Table 4, we do not include demographic or residential mobility variables. The smaller number of included variables and their orthogonal nature eliminates the need to use stepwise regression. Lastly, the estimated coefficients are reported in their nominal rather than standardized forms.

Starting with the regression results for 2016 Black poverty rates (Table 5), we observe a positive effect of 2000 Black-White dissimilarity index values in mid-sized and small metropolitan areas. Controlling for 2008 Black poverty rates, this indicates that higher Year 2000 Black-White segregation levels were associated with higher Black poverty rates in 2016. Among the sample of mid-sized metro areas, the other factor associated with higher Black poverty rates in 2016 was being in in a "Reform" state with growth management requirements. The fact

that this effect is positive suggests that growth management requirements contribute to higher rather than lower poverty rates. Among mid-sized metro areas, being in Texas or a state that permits communities to exclude apartments appears to reduce Black poverty rates. Higher Year 2000 Black-White DIs are also associated with higher 2016 Black poverty rates among smaller metropolitan areas. Faster population growth is also associated with higher 2016 Black poverty rates. Overall, the combination of 2008 Black poverty rates, 2000 Black-White DIs, and the six other variables explain 63% of the variation in 2016 Black poverty rates among large metro areas, 65% among mid-sized metro areas, and 36% among small metro areas.

Turning to Hispanic poverty rates (Table 6), the connection between higher (or lower) levels of Hispanic segregation in the Year 2000 and higher Hispanic poverty rates in 2016 is absent. Among large metro areas, and holding 2008 poverty rates constant, the only factor associated with higher 2016 Hispanic poverty rates is population growth. Among small metro areas, being in Texas was associated with a much lower 2016 Hispanic poverty rate.

Nor are higher levels of Black-White or Hispanic segregation systematically associated with higher 2016 homeowner cost burdens when summarized at the metropolitan scale (Table 7). The one exception to this is among mid-sized metro areas, where, somewhat surprisingly, a higher level of Black-White segregation in 2000 was associated with lower 2016 average homeowner cost burdens. The other factor consistently associated with higher homeowners cost burdens is the presence of a state growth management law. In the past, growth state growth management regulations were often adopted in the name of coordinating growth across communities to promote housing affordability. The results presented in Table 7 suggest they are having the opposite effect.

Lastly, we come to the renter cost burdens (Table 8). Among large metro areas, the only factor consistently associated with higher 2016 excess burden rates among renters was the 2010 excess burden rate. Among mid-sized metro areas, higher levels of Hispanic segregation in the Year 2000 were also associated with higher 2016 renter housing burdens. Among small metro areas, the effect went the other way: higher Hispanic segregation levels (in the Year 2000) were associated with lower renter cost burdens. As with homeowner cost burdens, being in a state with growth management requirements served to raise rather than lower average renter cost burdens.

All in all, the results presented in Tables 5 through 8 suggest that higher levels of Black-White and Hispanic segregation, when measured at the metropolitan scale, have little systematic effect on metropolitan-level poverty rates or housing cost burdens. The existence of highly segregated communities and neighborhoods may adversely affect individual outcomes, but it does not appear to affect overall poverty rates or housing cost burdens when measured at the metropolitan level.

Table 5: Regression Results Comparing 2016 Black Poverty Rates to 2000 Black-White and Hispanic Segregation Levels in Large, Mid-sized, and Small Metropolitan Areas

Mean Value of the Dependent Variable: 2016 Black Poverty Rate	25.3%	28.3%	32.2%
Independent Variable	Estimated Coefficients for Large Metropolitan Areas	Estimated Coefficients for Mid-sized Metropolitan Areas	Estimated Coefficients for Small Metropolitan Areas
2008 Black Poverty Rate	**0.56****	**0.49****	**0.20****
2000 Black-White Dissimilarity Index	5.71	**9.84****	**19.58****
2000 Hispanic Dissimilarity Index	-0.74	-5.70	0.48
Percent Population Change, 2000-2016	-2.57	-1.97	**-6.27****
Reform Regulatory Regime (0/1)	-1.64	**2.84****	-1.29
Exclusionary Regulatory Regime (0/1)	-3.72	**-4.26***	**-11.45****
Florida Location (0/1)	1.72	0.34	-4.16**
Texas Location (0/1)	-2.98	**-4.44****	-2.91
Constant	**9.85***	**12.52****	**19.12****
r-squared	0.63	0.65	0.36
Metros in Sample	47	88	111

* Indicates statistical significance at the .05 level

** Indicates statistical significance at the .01 level

Table 6: Regression Results Comparing 2016 Hispanic Poverty Rates to 2000 Black-White and Hispanic Segregation Levels in Large, Mid-sized, and Small Metropolitan Areas

Mean Value of the Dependent Variable: 2016 Hispanic Poverty Rate	23.4%	26.7%	27.4%
Independent Variable	Estimated Coefficient Values for Large Metropolitan Areas	Estimated Coefficient Values for Mid-sized Metropolitan Areas	Estimated Coefficient Values for Small Metropolitan Areas
2008 Hispanic Poverty Rate	**0.74****	**.45****	**0.32****
2000 Black-White Dissimilarity Index	9.12	3.82	2.00
2000 Hispanic Dissimilarity Index	1.27	3.05	8.42
Percent Population Change, 2000-2016	**8.18****	4.07	1.93
Reform Regulatory Regime (0/1)	-0.08	-2.25	-1.32
Exclusionary Regulatory Regime (0/1)	-1.82	-1.70	-2.89
Florida Location (0/1)	1.16	-1.23	-0.04
Texas Location (0/1)	-3.18	-3.12	**-4.03****
Constant	0.79	0.79	**15.23****
r-squared	0.68	0.43	0.25
Metros in Sample	46	94	113

* Indicates statistical significance at the .05 level

** Indicates statistical significance at the .01 level

Table 7: Regression Results Comparing 2016 Excess (Homeowner) Housing Cost Burden Rates to 2000 Black-White and Hispanic Segregation Levels in Large, Mid-sized, and Small Metropolitan Areas

Mean Value of the Dependent Variable: 2016 Share of Homeowners with > 30% Housing Cost Burden	0.25	0.23	0.21

Independent Variable	Estimated Coefficient Values for Large Metropolitan Areas	Estimated Coefficient Values for Mid-sized Metropolitan Areas	Estimated Coefficient Values for Small Metropolitan Areas
2010 Excess (Homeowner) Burden Rate	**.89****	**0.80****	**.89****
2000 Black-White Dissimilarity Index	-0.03	**-0.06****	-0.03**
2000 Hispanic Dissimilarity Index	0.05	0.04	0.01
Percent Population Change, 2000-2016	-0.06	-0.01	0.00
Reform Regulatory Regime (0/1)	**0.034****	**0.02****	**0.02****
Exclusionary Regulatory Regime (0/1)	0.01	0.02	**0.04****
Florida Location (0/1)	0.01	-0.01	0.01
Texas Location (0/1)	0.02	0.01	0.01
Constant	0.07	**0.098****	**.065****
r-squared	0.65	0.75	0.79
Metros in Sample	47	101	200

* Indicates statistical significance at the .05 level
** Indicates statistical significance at the .01 level

Table 8: Regression Results Comparing 2016 Excess (Renter) Housing Cost Burden Rates to 2000 Black-White and Hispanic Segregation Levels in Large, Mid-sized, and Small Metropolitan Areas

Mean Value of the Dependent Variable: 2016 Share of Renters with > 30% Housing Cost Burden	0.47	0.47	0.46
Independent Variable	**Estimated Coefficient Values for Large Metropolitan Areas**	**Estimated Coefficient Values for Mid-sized Metropolitan Areas**	**Estimated Coefficient Values for Small Metropolitan Areas**
2010 Excess (Renter) Burden Rate	**1.01****	**0.67****	**.67****
2000 Black-White Dissimilarity Index	-0.03	-0.03	0.00
2000 Hispanic Dissimilarity Index	-0.01	**.04****	**-0.04***
Percent Population Change, 2000-2016	-0.03	0.00	0.00
Reform Regulatory Regime (0/1)	0.00	**0.03****	**0.03****
Exclusionary Regulatory Regime (0/1)	-0.01	0.00	**0.04****
Florida Location (0/1)	0.00	0.01	0.01
Texas Location (0/1)	0.00	0.00	0.00
Constant	0.02	**0.15****	**.16****
r-squared	0.88	0.76	0.65
Metros in Sample	47	101	200

* Indicates statistical significance at the .05 level

** Indicates statistical significance at the .01 level

IV. SUMMARY OF FINDINGS AND KEY TAKEAWAYS

This brief working paper uses recently-available Census data to provide a contemporary picture of Black-White and Hispanic residential segregation levels among U.S. metropolitan areas. It offers new findings in a number of areas:

- Measured at the metropolitan scale, Black-White residential segregation continues to decline while Hispanic segregation is on the rise. The decline in Black-White segregation levels is fairly consistent across metropolitan area size categories, although larger metro areas remain much more segregated along Black-White lines than smaller ones. Recent increases in Hispanic segregation levels have been more pronounced among smaller metro areas.

- Falling segregation levels are associated with population growth, but the effect varies by metro area size. For African-Americans, this growth-reduced segregation effect was greatest among mid-sized metro areas. For Hispanics, the effect was most pronounced in large metro areas. Higher rates of residential mobility, especially among renters, are also associated with declining residential segregation.

- When it comes to reducing segregation, community demographic characteristics matter less than incomes. The argument that better-educated metro areas (measured as the share of adults with Bachelor's degrees) and those with proportionately more immigrants should look upon integration more favorably is not born out by the recent data. By contrast, segregation levels did decline more between 2000 and 2016 in metropolitan areas with higher median incomes. For Hispanics, the income-segregation reduction effect was more pronounced in mid-sized and small metro areas. For African-Americans, it was more pronounced among small metro areas.

- Segregation adversely affects poverty among African-Americans but not Hispanics. Controlling for Black poverty rates in 2008, Black poverty rates in 2016 were higher in more segregated metropolitan areas. No such connection was apparent for Hispanics.

- Higher levels of Black-White and Hispanic segregation were not associated with rising homeowner or renter cost burdens. By contrast, the presence of a state growth management law was found to be associated with recent increases in homeowner cost burdens.

These results raise almost as many issues as they resolve; two of which are foremost. The first concerns the choice of spatial unit at which to analyze the connections between racial segregation, poverty, and housing market mobility. The second, which is informed by the first, concerns the appropriate role for federal policy.

Starting with the first issue, the results presented in this paper suggest that when measured at the metropolitan scale, the connections between Black-White and Hispanic segregation, poverty, and excessive housing cost burdens are fairly weak, especially in large metropolitan areas where the majority of the

nation's African-American and Hispanic populations are concentrated. This does not mean that such connections do not exist. Rather, to the extent that they do, they are manifest at a smaller scale—most likely that of the neighborhood. This suggests that anti-segregation, anti-poverty, and residential mobility programs should be expressly targeted to those neighborhoods where nearby job opportunities are few, and where minority residents are least able to secure better-quality and/or more affordable housing in the private marketplace. An increasing number of public housing agencies around the country are administering the Housing Choice Voucher program in this manner, and their progress should be closely followed. By contrast, efforts designed to promote residential integration at the metropolitan scale as a means of reducing minority poverty levels or housing cost burdens might best be left on the back burner.

This paper's other major finding of policy relevance is that metro areas with higher rates of residential mobility—defined as the frequency with which people change house—have also seen disproportionate reductions in Black-White and Hispanic segregation levels since 2000, especially in smaller metropolitan areas. This suggests that federal fair housing efforts should be focused on expanding residential mobility, particularly for minority populations. This can be done in several ways, starting with the aforementioned targeting of vouchers to eligible households willing and able to move to high-opportunity neighborhoods. It can also be done through the creation of partnerships between the GSEs, local housing agencies, and qualified community development organizations to carefully expand the supply of mortgage credit available to eligible minority and low-income renters seeking to move up to the first rung of homeownership. Lastly, and perhaps most effectively, it can be done by removing zoning and other entitlement barriers to housing production in general, and to the construction of affordable housing in particular. To the extent possible, such efforts should be coordinated at the metropolitan level, but where this is not realistic, individual municipalities should be incentivized to act on their own.

So where does this leave fair housing and the Obama Administration's AFFH rule? Assuming AFFH survives the Trump Administration in some form—and there is currently every likelihood that it will not--AFFH should be rejiggered from an information-generating requirement to one that ties CDBG and Low Income Housing Tax Credit (LIHTC) allocations to local adoption of meaningful inclusionary housing programs and the replacement of discretionary zoning reviews with as-of-right development permissions in neighborhoods with adequate public transportation services and school facilities. The evidence is clear: more housing production equates to greater residential mobility opportunities to reduced residential segregation. Although such efforts will have greater efficacy when undertaken on a metropolitan basis, actions by individual municipalities are also welcome. Efforts that would prioritize trying to spatially balance the limited supply of government-subsidized affordable housing to avoid "disparate racial impacts," while perhaps well-intended, are likely to be too modest in their effects when compared with larger-scale efforts to expand production.

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[i] The Institute of Government and Public Affairs at the University of Illinois has compiled the results of national surveys summarizing Americans' attitudes toward race from the 1940s until the present. A digest of those results is available at https://igpa.uillinois.edu/programs/racial-attitudes

[ii] Comparing the numbers and locations of census respondents who self-identified as "Hispanic" or "Latino" to those who did not identify as such.

[iii] The U.S. Supreme Court ruled racially-restrictive zoning to be unconstitutional in *Buchanan v. Wharley* in 1917, and racially restrictive covenants to be unconstitutional in *Shelley v. Kraemer in* 1948.

[iv] The Census Bureau now publishes three sets of ACS estimates: (1) 1-year estimates based on sample data collected over a 1-year period and covering places larger than 65,000 residents; (2) 3-year estimates based on sample data collected over a 3-year period and covering places larger than 20,000 residents; and (3) 5-year estimates based on sample data collected over a 5-year period and covering all places, including census tracts. Going forward, the 3-year series has been discontinued. Dollar values and ranges in multi-year ACS samples are adjusted for inflation, The Census Bureau samples the population by households. The national ACS sample is based on a sample factor of 1.6%. State sample factors vary from a low of 1.3% in Florida, Georgia, Texas, and Mississippi, to a high of 2.7% in Minnesota, Wisconsin, and Alaska.

[v] The basic formula for the index of dissimilarity comparing two groups, A and B is: $\frac{1}{2} * \sum_i (| a_i/A - b_i/B |)$ where a_i is the population of group A in the *i*-th area; A is the total population of group A; b_i = the population of group B in the *i*-th area; and B is the total population of group B.

[vi] Researchers have proposed numerous segregation measures in addition to the dissimilarity index. These can be grouped into exposure measures (including the dissimilarity index, the isolation index, and the entropy index), concentration measures (including Massey and Denton's absolute concentration index), centrality measures, and clustering measures. Exposure and concentration measure values tend to have similar magnitudes, which are different from centrality and clustering values. The Census Bureau (https://www.census.gov/hhes/www/housing/resseg/pdf/app_b.pdf)) identifies and compares seventeen such measures

[vii] Following Census Bureau practice, I refer to census respondents who identify themselves as either Hispanic or Latino as Hispanic.

Moran's *I* is defined as

$$I = \frac{N}{W} \frac{\sum_i \sum_j w_{ij}(x_i - \bar{x})(x_j - \bar{x})}{\sum_i (x_i - \bar{x})^2}$$

where N is the number of spatial units indexed by i and j; x is the variable of interest; $\bar{x}$ is the mean of x; w_{ij} is a matrix of spatial weights with zeroes on the diagonal (i.e., $w_{ii} = 0$); and W is the sum of all w_{ij}.

[viii]

[ix] Estimated Moran's I values are sensitive to the number, area, and perimeter values of the spatial units included in the Moran's I calculation

[x] According to the U.S. Office of Management and Budget (OMB) metropolitan areas are defined as one or more adjacent counties or county equivalents that have at least one urban core area of at least 50,000 population. Micropolitan areas are defined similarly but include more than 10,000 residents and less than 50,000.

[xi] This does not include the 98 metro areas for which the calculated Moran's I values were not statistically significant.

[xii] The Los Angeles metropolitan area includes Los Angeles and Santa Ana counties, but not Ventura, Ontario, and Riverside counties. Ventura County is identified as the Oxnard metropolitan area, while Ontario and San Bernardino counties comprise the Riverside-San Bernardino metropolitan area.

[xiii] Residential mobility is correlated with population growth, but it is not the same thing. Among the full sample of metro areas, the correlation coefficient between 2000-2016 population growth rates and 2000-to-2009 residential mobility rates were .46 for renters and .58 for homeowners.

[xiv] Backward stepwise regression includes all potential independent variables in the initial regression model, and then sequentially eliminates those not determined to be statistically significant. As implemented in SPSS, backward stepwise regression also checks that previously-eliminated variables might subsequently re-enter the modeL

[xv] As determined by the U.S. Department of Housing and Urban Development (HUD), households should spend no more than 30% of their incomes to meet their housing needs. Those that do are counted as suffering from an excess housing cost burden.