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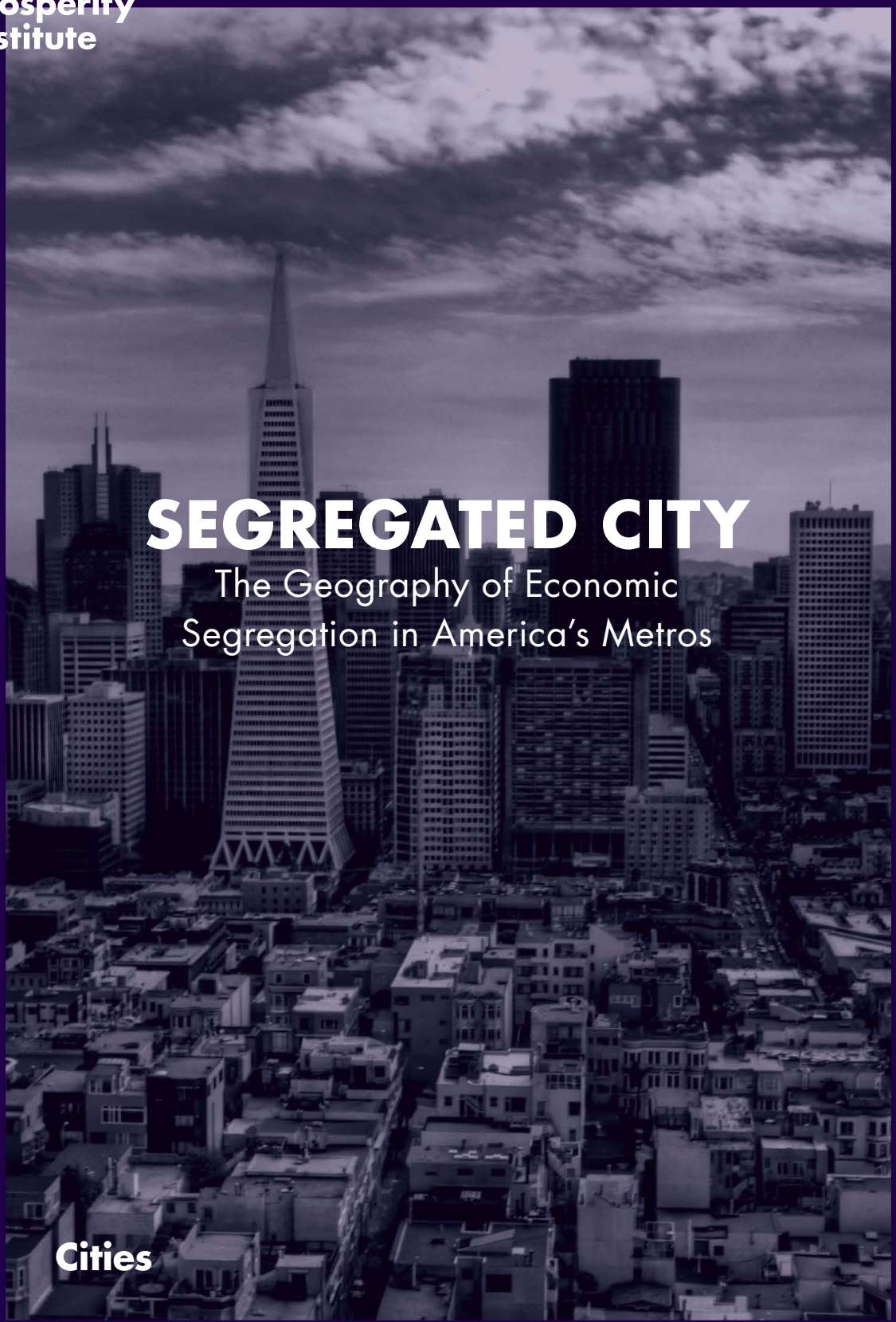

SEGREGATED CITY

The Geography of Economic Segregation in America's Metros

Cities

Rotman

The Martin Prosperity Institute, housed at the University of Toronto's Rotman School of Management, explores the requisite underpinnings of a democratic capitalist economy that generate prosperity that is both robustly growing and broadly experienced.

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Richard Florida
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1. Executive Summary

Americans have become increasingly sorted over the past couple of decades by income, education, and class. A large body of research has focused on the dual migrations of more affluent and skilled people and the less advantaged across the United States. Increasingly, Americans are sorting not just between cities and metro areas, but within them as well.

This study examines the geography of economic segregation in America. While most previous studies of economic segregation have generally focused on income, this report examines three dimensions of economic segregation: by income, education, and occupation. It develops individual and combined measures of income, educational, and occupational segregation, as well as an Overall Economic Segregation Index, and maps them across the more than 70,000 Census tracts that make up America's 350-plus metros. In addition, it examines the key economic, social, and demographic factors that are associated with them. Its key findings are as follows.

The following metros have the highest and lowest levels of economic segregation:

- Tallahassee and Trenton have the highest levels of overall economic segregation in the U.S., followed by Austin, Tucson, San Antonio, Houston, Ann Arbor, Bridgeport, and Los Angeles.
- Four of the ten most segregated large U.S. metros, those with populations of one million or more, are in Texas: Austin, San Antonio, Houston, and Dallas. Almost all of the most segregated smaller metros are college towns.
- Among large metros, New York, Dallas, Philadelphia, Chicago, and Memphis also exhibit high degrees of economic segregation.
- The metros with the lowest levels of economic segregation are mainly medium-sized and smaller. There are more than 200 small and medium-sized metros with levels of overall segregation that are less than even the least segregated of the 51 large metros. The ten least segregated metros all have 300,000 people or less.
- The least segregated large metros include Orlando, Portland, Minneapolis-St. Paul, Providence, and Virginia Beach. Rustbelt metros like Cincinnati, Rochester, Buffalo, and Pittsburgh also have relatively low levels of economic segregation.

The three types of segregation—income, educational, and occupational—are related to one another in the following ways:

- All three types of segregation—income, educational, and occupational—are associated with one another. If a metro is segregated on one dimension, it increases the likelihood of it being segregated on the others.
- Of the three main types of segregation, income segregation is the most marked, followed by educational and occupational segregation.
- Economic segregation appears to be conditioned by the location decisions of more advantaged groups. The creative class is more segregated than either the working class or service class. College grads are more segregated than those who did not graduate from high school. The wealthy are more segregated than the poor—indeed they are the most segregated of all, and by a considerable margin.

The following social, demographic and economic factors are associated with economic segregation:

- Economic segregation is positively associated with population size and density. It is also positively correlated to two other sets of factors that follow from metro size and density: how people commute to work and the breakdown of liberal versus conservative voters.
- Economic segregation tends to be more intensive in high-tech, knowledge-based metros. It is positively correlated with high-tech industry, the creative class share of the workforce, and the share of college grads. In addition, it is associated with two key indicators of diversity, the share of the population that is gay or foreign-born, which tend to coincide with larger, denser and more knowledge-based metros.
- Economic segregation is connected to the overall affluence of metros, with positive correlations to average metro wages, income, and economic output per capita.
- Race factors in as well. Economic segregation is positively associated with the share of population that is black, Latino, or Asian, and negatively associated with the share that is white.
- Economic segregation is associated with income inequality and even more so than with wage inequality. Its effects appear to compound those of economic inequality and may well be more socially and economically deleterious than inequality alone.

It is not just that the economic divide in America has grown wider; it's that the rich and poor effectively occupy different worlds, even when they live in the same cities and metros.

2. Introduction

Economic inequality has been apparent within cities since ancient times. Indeed, it was Plato, in *The Republic*, who wrote that: "any city, however small, is in fact divided into two, one the city of the poor, the other of the rich."[1]

America has long been divided between rich and poor. But the gap has been widening. As *The Economist's* Ryan Avent has noted, "income gaps between metropolitan areas are simply staggering. Personal income per person in the San Francisco metropolitan area (the richest large metro) is $66,591. In Riverside (the poorest large metro), income per person is less than half that at $31,900. Taking smaller metros the difference is bigger; Bridgeport, Connecticut's personal income per person is $81,068, to $22,400 in McAllen, Texas. So one way America defuses its inequality problem is by separating the rich from the poor by hundreds of miles."[2]

These divides are also growing within cities and regions—where the rich and poor are increasingly geographically separated as well. A 2012 report by the Pew Research Center found that the segregation of upper- and lower-income households had risen in 27 of America's 30 largest metros.[3]

A large number of studies have documented the sharp rise in the inequality of nations over the past several decades.[4] Other studies have documented the worsening geography of inequality across U.S. cities and metros.[5] But if cities and urban areas have always been unequal, economic segregation—the geographical sorting of people by income, education, and socio-economic class—has been growing.[6]

Most studies of economic segregation focus on income.[7] But sociologists have long noted the intersection and interplay of three factors in the shaping of socio-economic status and class position: income, education, and occupation.[8] This report seeks to add to our understanding of the geography of economic segregation by providing an empirical examination of all three of its core dimensions.

Our measures of segregation compare the distribution of different groups of people in metro neighborhoods to the rest of the population. We introduce seven individual and combined measures of income, educational, and occupational segregation, and an Overall Economic Segregation Index. The individual indexes are based on the Index of Dissimilarity developed by sociologists Douglas Massey and Nancy Denton, which compares the spatial distribution of a selected group of people with all others in that location,[9] and they are calculated across the more than 70,000 census tracts that make up America's 350-plus metros.[10] (The Appendix provides more detail on our measures, variables, and methods.)

This report begins with detailed maps that track the geography for each of the individual and combined measures of income, educational, and occupational segregation. The metros with the highest levels of segregation are shaded dark purple; blue indicates moderate levels of segregation; and light blue, lower levels of segregation. We then compare these various types of segregation, identifying the types that are more or less severe. After that, we introduce an Overall Economic Segregation Index, a composite measure based on the three main types of segregation.

This report also explores the key economic, social, and demographic factors that bear on economic segregation, summarizing the key findings of our correlation analysis. (We note that correlation does not imply causality; it simply points to associations between variables.) The concluding section summarizes the key findings and discusses their implications.

3. Mapping Economic Segregation

This section presents the seven individual and combined measures for income, educational, and occupational segregation and maps them across U.S. metros.

3.1 Income Segregation

We begin with the geography of income segregation in America. We first examine the segregation of poverty—the extent to which poor people live in neighborhoods where the majority of residents are poor. We then turn to the segregation of the wealthy—the extent to which rich people live in neighborhoods with other rich people. After this, we combine the two measures in an overall index of income segregation.

3.1.1 Segregation of the Poor

Poverty in America is an enormous problem. According to the United States Census Bureau, 15 percent of Americans or 46.5 million people lived below the poverty line in 2012.[11] And those poor are increasingly segregated and isolated. As Cornell University's Kendra Bischoff and Sean Reardon of Stanford University note, "the proportion of [poor] families in poor neighborhoods doubled from 8 percent to 18 percent between 1970 and 2009 and the trend shows no signs of abating."[12]

Poverty is not just a lack of money. In his classic book *The Truly Disadvantaged*, William Julius Wilson called attention to the deleterious social effects that accompany spatial concentration of poverty, which "include the kinds of ecological niches that the residents of these neighborhoods occupy in terms of access to jobs and job networks, availability of marriageable partners, involvement in quality schools, and exposure to conventional role models."[13] The Harvard sociologist Robert Sampson highlights the enduring effects that accompany concentrated poverty, noting that: "the stigmatization heaped on poor neighborhoods and the grinding poverty of its residents are corrosive," leading ultimately to "greater 'moral cynicism' and alienation from key institutions," setting in motion a "cycle of decline."[14]

We define poverty according to the Census definition[15] of $11,485 for a single person and $23,000 for a family of four.

Exhibit 1 maps the segregation of the poor across U.S. metros. It is important to remember that we are not measuring the extent of poverty per se, but the extent to which the poor are geographically separated and segregated from more affluent populations. A metro can have high levels of poverty but relatively low levels of poverty segregation if the poor are evenly spread and mixed in with the broader population.

Exhibit 1.1 shows the ten largest metros—those with one million or more people—where the poor face the highest and lowest levels of segregation.

The large metros where the poor are most segregated are mainly in the Midwest and the Northeast. Milwaukee is first, followed by Hartford, Philadelphia, Cleveland, and Detroit.

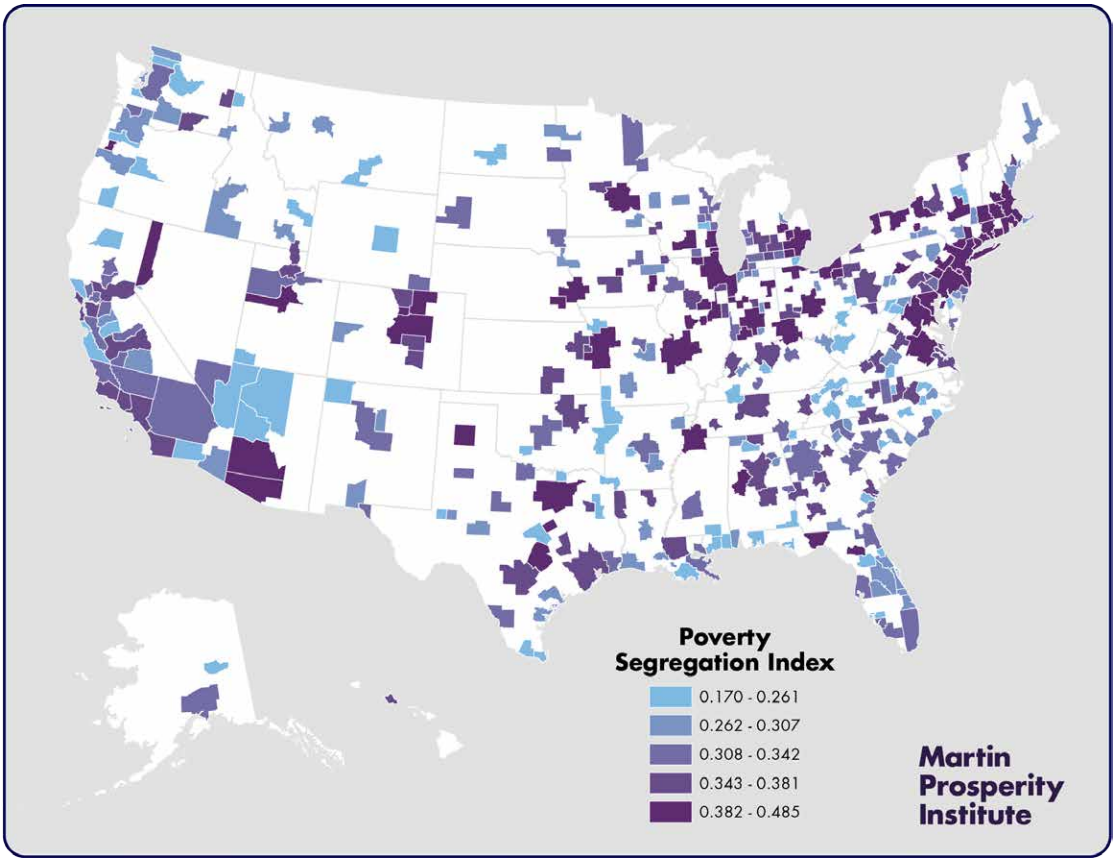


Exhibit 1: Segregation of the Poor

New York, Buffalo, Denver, Baltimore, and Memphis round out the top ten. With the significant exceptions of New York and Denver, most of these are Rustbelt metros that have been hard hit by deindustrialization. Having seen outmigration of their wealthy and middle class populations, the "back to the city" movement has mostly passed them by.

When we look across all 350-plus U.S. metros, the picture changes somewhat. Seven of the ten most segregated metros are small and medium-sized *(see Exhibit 1.2)*. Only three large metros—Milwaukee, Philadelphia, and Hartford—remain on this list. Many of these smaller metros are college towns. State College, Pennsylvania (home to Penn State) has the highest level of poverty segregation in the country; Ann Arbor (University of Michigan) ranks fifth; Ames, Iowa (Iowa State) eighth, and New Haven (Yale University) is tenth. Madison, Wisconsin (University of Wisconsin); Boulder, Colorado (University of Colorado); Iowa City, Iowa (University of Iowa); and Champaign-Urbana, Illinois (University of Illinois) all register relatively high levels of poverty segregation as well. All of these communities suffer from the classic town-gown split, as university faculty, students, and administrative staff cluster around campuses and the rest of the city is left to service workers. Often this pattern of economic segregation has been exacerbated by university expansion efforts that encroached upon and displaced urban neighborhoods.

Rank	Metro	Index	Rank Out of All Metros
1	Milwaukee-Waukesha-West Allis, WI	0.478	2
2	Hartford-West Hartford-East Hartford, CT	0.462	6
3	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.455	9
4	Cleveland-Elyria-Mentor, OH	0.435	15
5	Detroit-Warren-Livonia, MI	0.433	16
6	New York-Northern New Jersey-Long Island, NY-NJ-PA	0.428	20
7	Buffalo-Niagara Falls, NY	0.416	28
8	Denver-Aurora-Broomfield, CO	0.413	30
9	Baltimore-Towson, MD	0.413	33
10	Memphis, TN-MS-AR	0.410	34

Exhibit 1.1: Large Metros where the Poor are Most Segregated

The large metros where the poor are the least segregated *(Exhibit 1.3)* are divided between Sunbelt service and tourism-based economies and four metros with substantial tech sectors—San Jose, in the heart of Silicon Valley, Seattle, Portland, Oregon, and Salt Lake City. Four of the ten metros with the lowest levels of poverty segregation are in Florida—Orlando, Tampa, Miami, and Jacksonville. Other large metros with relatively low levels of poverty segregation include Los Angeles, ranked 228th overall; Atlanta, 204th; and Houston, 241st.

When the list is extended to include all metros, the metros with the least poverty segregation are all small *(Exhibit 1.4)*. In fact, there are 86 smaller and medium-sized metros where the poor are less segregated than in the least segregated of the 51 large metros. Jacksonville, North Carolina has the lowest level of poverty segregation in the country, followed by Medford, Oregon; Hinesville-Fort Stewart, Georgia; and Prescott, Arizona. But, what are the factors that bear on the segregation of the poor across metros?

The poor face higher levels of segregation in larger, denser metros. The segregation of the poor is closely associated with density (0.54) and population size (0.43).

The segregation of the poor is more pronounced in more affluent metros. The segregation of the poor is associated with key markers of regional development like income (0.40), wages (0.46), and economic output per capita (0.34). Though San Jose, Seattle, Portland, and Salt Lake City are obvious exceptions, the poor also face greater levels of segregation in more advanced, knowledge-based metros. The segregation of the poor is positively associated with human capital (0.51), and creative class (0.48). This likely reflects the fact that size, density, affluence, and knowledge-based economies all tend to go together. That said, the segregation of the poor is more modestly correlated with housing costs (0.29).

The association between race and the segregation of the poor across America's metros is weaker than one might think. The segregation of the poor is positively associated with the

Rank	Metro	Index
1	State College, PA	0.485
2	Milwaukee-Waukesha-West Allis, WI	0.478
3	Reading, PA	0.476
4	Decatur, IL	0.469
5	Ann Arbor, MI	0.468
6	Hartford-West Hartford-East Hartford, CT	0.462
7	Bridgeport-Stamford-Norwalk, CT	0.460
8	Ames, IA	0.458
9	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.455
10	New Haven-Milford, CT	0.450

Exhibit 1.2: Metros where the Poor are Most Segregated

Rank	Metro	Index	Rank Out of All Metros
1	Orlando-Kissimmee-Sanford, FL	0.274	87
2	Portland-Vancouver-Hillsboro, OR-WA	0.299	123
3	Tampa-St. Petersburg-Clearwater, FL	0.319	171
4	San Jose-Sunnyvale-Santa Clara, CA	0.322	178
5	Jacksonville, FL	0.325	183
6	Miami-Fort Lauderdale-Pompano Beach, FL	0.327	185
7	Seattle-Tacoma-Bellevue, WA	0.331	191
8	Salt Lake City, UT	0.334	199
9	Oklahoma City, OK	0.336	202
10	Riverside-San Bernardino-Ontario, CA	0.337	203

Exhibit 1.3: Large Metros where the Poor are Least Segregated

share of the population that is black (0.12) and Asian (0.22), but is not significantly associated with the share that is white or Latino. It's important to point out that our analysis does not consider the long-held connection between race and poverty at the individual level, but rather the connection between race and the segregation of the poor across metros.

Almost by definition, one would think that the places where the poor are more segregated would be beset with higher levels of economic inequality. But interestingly, we find only a modest relationship between the segregation of the poor and inequality. The segregation of the poor is modestly associated (0.22) with income inequality, which includes dividends, royalties,

Rank	Metro	Index
1	Jacksonville, NC	0.170
2	Medford, OR	0.185
3	Hinesville-Fort Stewart, GA	0.189
4	Prescott, AZ	0.190
5	Idaho Falls, ID	0.190
6	Palm Coast, FL	0.192
7	Dover, DE	0.193
8	Morristown, TN	0.193
9	Punta Gorda, FL	0.195
10	Carson City, NV	0.211

Exhibit 1.4: Metros where the Poor are Least Segregated

and interest, though it is more strongly associated with wage inequality (0.42). This underlines the fact that income inequality and income segregation, while related, are not necessarily the same thing.

The segregation of the poor does appear to be strongly affected by the location choices of the wealthy, the subject to which we now turn.

3.1.2 Segregation of the Wealthy

The top 1 percent of American earners take home 25 percent of the nation's annual income and control 35 percent of its wealth.[16] Increasingly, they live in their own exclusive enclaves as well. As the Nobel Prize-winning economist Joseph Stiglitz scathingly put it, they "have the best houses, the best educations, the best doctors, and the best lifestyles, but there is one thing that money doesn't seem to have bought: an understanding that their fate is bound up with how the other 99 percent live."[17]

The substantial and growing gap between the rich and everyone else is not just an economic divide—it is inscribed on our geography. While there have always been affluent neighborhoods, gated enclaves, and fabled bastions of wealth like Newport, East Hampton, Palm Beach, Beverly Hills, and Grosse Pointe, the people who cut the lawns, cooked and served the meals, and fixed the plumbing in their big houses used to live nearby—close enough to vote for the same councilors, judges, aldermen, and members of the board of education. That is less and less the case today.

Exhibit 2 maps the segregation of wealthy households, which we define as households with annual incomes of $200,000 or more, the highest income group reported in the Census and close to the $232,000 threshold for the top 5 percent.[18]

Exhibit 2.1 shows the ten large metros where the wealthy are the most segregated from other income groups.

Memphis tops the list, followed by Louisville and Birmingham. The top ten also includes Rustbelt metros like Cleveland and Detroit, which have lost industry and blue-collar jobs, and Sunbelt metros like Charlotte, Miami, and San Antonio.

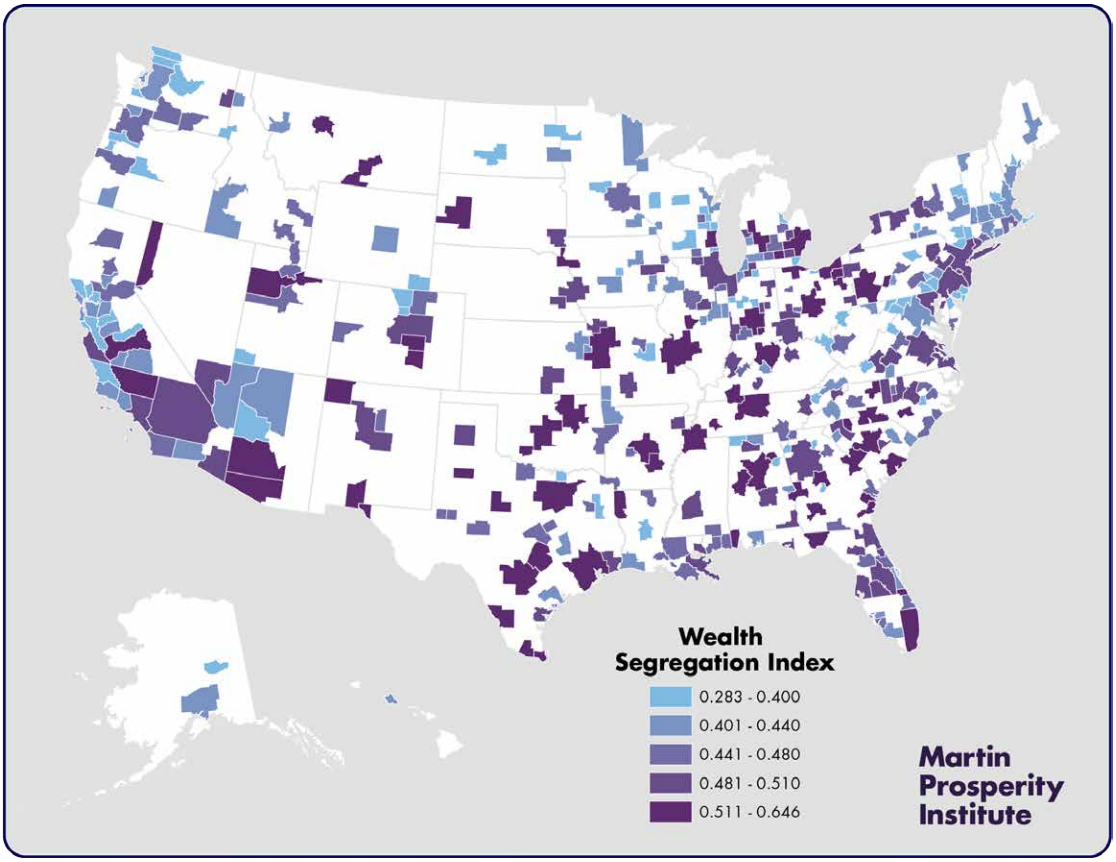


Exhibit 2: Segregation of the Wealthy

When we extend the list to include all metros *(Exhibit 2.2)*, a number of smaller and medium-sized metros rise to the top. In fact, smaller metros take the top four spots and account for six of the ten most wealth-segregated metros. Laredo, Texas ranks first, followed by Jackson, Tennessee; El Paso, Texas; and Great Falls, Montana. Memphis is fifth, with Tucson, Arizona and Columbus, Georgia sixth and seventh. Birmingham, Louisville, and San Antonio drop to eighth, ninth, and tenth respectively. Sioux City, Iowa (11th); Tallahassee, Florida (12th); Toledo (14th) and Akron, Ohio (18th); Fresno, California (15th); Brownsville, Texas (16th); Las Cruces, New Mexico (19th); Reno, Nevada (20th); Spartanburg, South Carolina (21st); Augusta, Georgia (22nd), and Mansfield, Ohio (24th) also number among America's 25 most segregated metros on this score.

Interestingly, the large metros where the wealthy are least segregated *(Exhibit 2.3)* are mainly on the East and West Coasts and include some of America's leading high-tech knowledge centers, which have some of the highest income levels in the nation. San Jose is the metro where the wealthy are the least segregated from other segments of the population, followed by nearby San Francisco, Washington, D.C., Seattle, Hartford, Boston, Providence, Portland, Oregon, Minneapolis-St. Paul, and Sacramento. The relatively high wages that knowledge and professional workers receive enable them to share some neighborhoods with

Rank	Metro	Index	Rank Out of All Metros
1	Memphis, TN-MS-AR	0.582	5
2	Birmingham-Hoover, AL	0.576	8
3	Louisville-Jefferson County, KY-IN	0.575	9
4	San Antonio-New Braunfels, TX	0.567	10
5	Cleveland-Elyria-Mentor, OH	0.560	13
6	Detroit-Warren-Livonia, MI	0.552	17
7	Nashville-Davidson-Murfreesboro-Franklin, TN	0.549	23
8	Columbus, OH	0.547	25
9	Charlotte-Gastonia-Rock Hill, NC-SC	0.541	29
10	Miami-Fort Lauderdale-Pompano Beach, FL	0.540	31

Exhibit 2.1: Large Metros where the Wealthy are Most Segregated

Rank	Metro	Index
1	Laredo, TX	0.646
2	Jackson, TN	0.617
3	El Paso, TX	0.611
4	Great Falls, MT	0.601
5	Memphis, TN-MS-AR	0.582
6	Tucson, AZ	0.581
7	Columbus, GA-AL	0.578
8	Birmingham-Hoover, AL	0.576
9	Louisville-Jefferson County, KY-IN	0.575
10	San Antonio, TX	0.567

Exhibit 2.2: Metros where the Wealthy are Most Segregated

the super-wealthy, even though the gap between rich and poor may be substantial in these places.

Though it might seem counterintuitive that the wealthy would be less segregated in these metros, it may simply reflect the fact that a larger number of households in these metros are at or above the $200,000 income cutoff for the wealthy (the highest cut-off in the Census data), so a larger share of this population ends up being distributed across tracts in similar concentrations to other groups, instead of concentrating in just a few tracts. If the income cutoff were higher, we would likely see greater segregation of the truly rich. As it stands, there appears to be more mixing of higher-income professional and knowledge workers alongside the super wealthy in these metros.

Rank	Metro	Index	Rank Out of All Metros
1	San Jose-Sunnyvale-Santa Clara, CA	0.378	45
2	San Francisco-Oakland-Fremont, CA	0.418	106
3	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.428	119
4	Seattle-Tacoma-Bellevue, WA	0.430	124
5	Hartford-West Hartford-East Hartford, CT	0.431	125
6	Boston-Cambridge-Quincy, MA-NH	0.440	144
7	Providence-New Bedford-Fall River, RI-MA	0.447	150
8	Portland-Vancouver-Hillsboro, OR-WA	0.460	179
9	Minneapolis-St. Paul-Bloomington, MN-WI	0.461	180
10	Sacramento-Arden-Arcade-Roseville, CA	0.462	181

Exhibit 2.3: Large Metros where the Wealthy are Least Segregated

In general, the wealthy are less segregated in smaller metros *(Exhibit 2.4)*. There are 44 smaller and medium-sized metros that have lower levels of wealth segregation than San Jose and more than a hundred with lower levels than San Francisco. The metros with the very lowest levels of wealth segregation are all smaller, such as Barnstable Town on Cape Cod in Massachusetts, which has the lowest level of wealth segregation in the country, Warner Robins, Georgia; Fond du Lac, Wisconsin; St. George, Utah; and Kingston, New York.

But what are the underlying factors that are associated with the geographic segregation of the wealthy?

It might seem reasonable to presume that the overall affluence and economic status of a metro would have some bearing on how segregated its wealthy are, but that is not what we find. In fact, the segregation of the wealthy is weakly and negatively associated with per capita incomes across metros (with a correlation of -0.15), and not statistically associated with average wages or economic output per capita. This is less of a mystery than it seems. As noted above, this may reflect the fact that professionals and knowledge workers earn enough in those places to live in neighborhoods alongside the truly rich.

In contrast to almost every other type of segregation we examine here, the segregation of the wealthy is not statistically associated with either the wealth of metros (income, wages or economic output) or with key indicators of the transition to more knowledge-driven economies (the share of adults that are college grads or the share of the workforce in the creative class), though it is modestly associated with the concentration of high-tech industry (0.26).

The segregation of the wealthy is greater in larger metro areas (with a correlation of 0.38 to population size), though the correlation to density is considerably weaker (0.17).

The geographic segregation of the wealthy overlaps long standing racial cleavages. The wealthy are less segregated in metros where white people make up a greater share of the total population (with a negative correlation of -0.29). And they are more segregated in metros

Rank	Metro	Index
1	Barnstable Town, MA	0.283
2	Warner Robins, GA	0.305
3	Fond du Lac, WI	0.308
4	Madera, CA	0.309
5	Lewiston, ID-WA	0.312
6	St. George, UT	0.314
7	Jefferson City, MO	0.317
8	Sherman-Denison, TX	0.318
9	Kingston, NY	0.318
10	Monroe, MI	0.321

Exhibit 2.4: Metros where the Wealthy are Least Segregated

that have higher shares of black residents (with an even higher positive correlation of 0.34). The segregation of the wealthy is more modestly associated with the share that is Latino (0.15); there is no statistical correlation with the share that is Asian.

The segregation of the wealthy is modestly related to income inequality (0.31), though less so to wage inequality (0.22). Part of this may be due to the simple numerical fact that the population we are considering here is already a very exclusive group of people, roughly one percent of the population by definition.

It is worth noting that the economic segregation of the wealthy is more marked than the segregation of the poor. It is in fact the most severe of any of the types of segregation we examined. The mean or average metro scores 0.456 on the segregation of the wealthy compared to 0.324 for the segregation of the poor and even lower values for the other types of economic segregation we discuss below.

It is not so much the size of the gap between the rich and poor that drives segregation as the ability of the super-wealthy to isolate and wall themselves off from the less well-to-do. The Harvard political philosopher Michael Sandel has dubbed this phenomenon the "skyboxification" of American life.[19]

3.1.3 The Geography of Overall Income Segregation

We now turn to overall income segregation, using an index that combines the segregation ranks for both the poor and the wealthy into a single measure. While the two measures above capture the levels of segregation in metros for each group, this combined index shows the relative segregation of each metro as compared to all the other metros included in the study.

Exhibit 3 maps the geography of overall income segregation.

Exhibit 3.1 lists the ten large metro areas with the highest levels of overall income segregation. Cleveland comes in first, followed by Detroit, Memphis, Milwaukee, and Columbus, Ohio. Philadelphia, Phoenix, Buffalo, Kansas City,

and Nashville round out the top ten. These are mainly Rustbelt metros which have experienced considerable white flight and deindustrialization and which have not experienced a back to the city movement.

When we include all metros in our rankings *(Exhibit 3.2)*, Tallahassee rises to the top spot, Cleveland and Detroit fall to second and third, and Akron, Reno, Toledo, and Tucson enter the top ten.

Exhibit 3.3 shows the large metros with the lowest levels of overall income segregation. Knowledge-based, high-tech metros like Washington, D.C., Seattle, Portland, San Francisco, San Diego, and San Jose are among the ten least segregated large metros by income. Boston (ranked 238th) and Los Angeles (283rd) also have relatively low levels of overall income segregation. This likely reflects the lower levels for segregation of the wealthy based on the income cutoff of $200,000 as discussed above. It is also worth noting that that the segregation of poverty remains considerable in many of them.

When the list is extended to include all metros *(Exhibit 3.4)*, the ones with the lowest levels of overall income segregation turn out to be smaller. 85 smaller and medium-sized metros have lower levels of income segregation than the least segregated large metro. Fond du Lac, Wisconsin has the lowest level of income segregation of any metro in the country, followed by Wenatchee, Washington; St George, Utah; Glens Falls, New York; and Prescott, Arizona.

Overall, we find income segregation to be the highest in older Rustbelt metros. These findings are in line with other research. In their detailed study of income segregation, Reardon and Bischoff conclude that: "Most of the metros that experienced large increases in segregation from 1970–2007 were in the Northeast or the Rustbelt. The long-term increases in income segregation in these metropolitan areas may have been fuelled by both the growth of the suburbs in many of these places and by the rising income inequality that accompanied the decline of the manufacturing sector in the Rustbelt and the mill towns of the Northeast."[20]

But what factors bear on the geography of overall income segregation?

Overall income segregation is greater in larger, denser regions. It is positively associated with population size (0.53) and density (0.44).

Overall income segregation is somewhat associated with more advanced knowledge-based metros. It is modestly associated with both the share of adults who are college graduates (0.30) and the share of the workforce in the creative class (0.35) and even more so with the concentration of high-tech industry (0.48). Though some of the biggest and most important tech centers—San Jose, Seattle, and San Francisco—have relatively low levels of overall income segregation, these metros appear to be exceptions to a general rule. Across all metros, overall income segregation remains associated with the clustering and concentration of high-tech industry, knowledge, and talent.

Race factors in as well. Overall income segregation is higher in metros where black people make up a larger share of the population (with a positive correlation of 0.30) and lower in metros where white people make up a larger share (-0.25). However it is not statistically associated with the share of people who are Latino, Asian, or foreign-born.

Overall income segregation is higher in metros that are more unequal. It is positively associated with wage inequality (0.40) and more modestly so with income inequality (0.32).

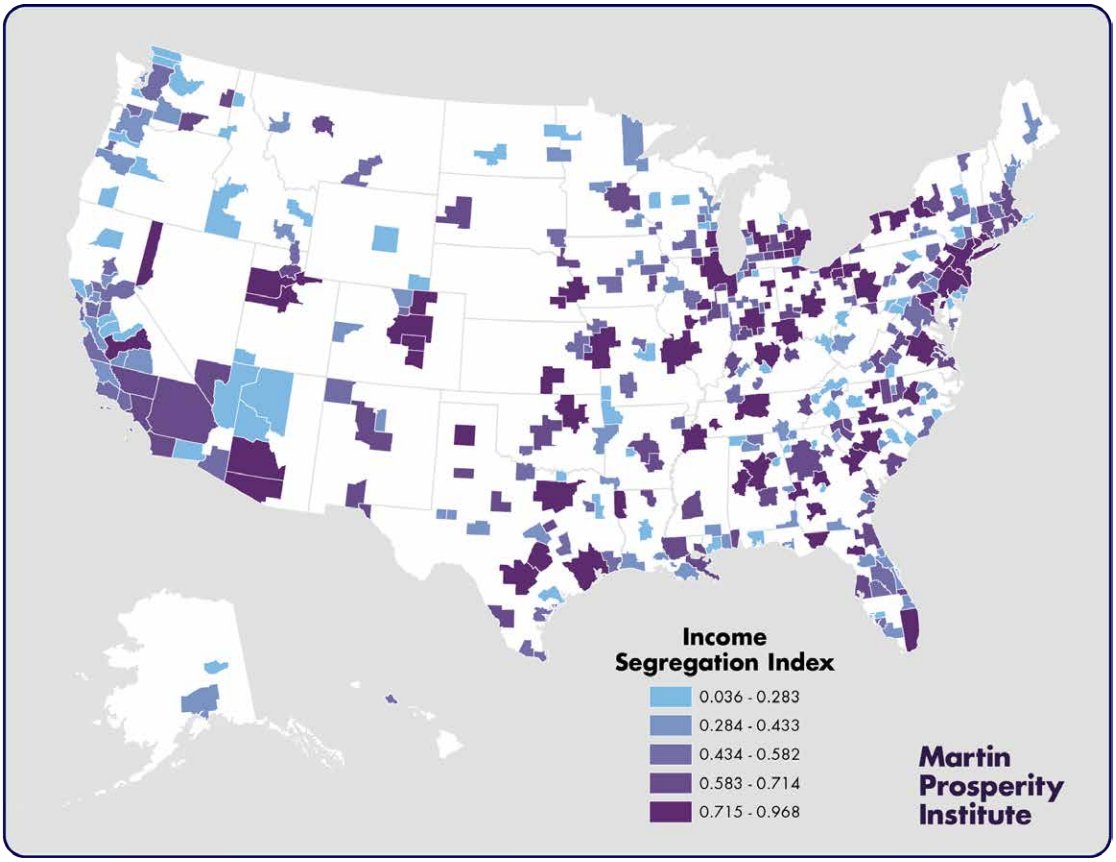


Exhibit 3: Overall Income Segregation

Economic segregation is not just about income; it reflects and drives our deeper class divisions. The following sections cover education and occupation, which figure into the equation as well.

Rank	Metro	Index	Rank Out of All Metros
1	Cleveland-Elyria-Mentor, OH	0.964	2
2	Detroit-Warren-Livonia, MI	0.957	3
3	Memphis, TN-MS-AR	0.948	4
4	Milwaukee-Waukesha-West Allis, WI	0.935	5
5	Columbus, OH	0.912	8
6	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.887	11
7	Phoenix-Mesa-Scottsdale, AZ	0.882	12
8	Buffalo-Niagara Falls, NY	0.864	16
9	Kansas City, MO-KS	0.861	17
10	Nashville-Davidson-Murfreesboro-Franklin, TN	0.858	19

Exhibit 3.1: Large Metros with the Highest Levels of Income Segregation

Rank	Metro	Index
1	Tallahassee, FL	0.968
2	Cleveland-Elyria-Mentor, OH	0.964
3	Detroit-Warren-Livonia, MI	0.957
4	Memphis, TN-MS-AR	0.948
5	Milwaukee-Waukesha-West Allis, WI	0.935
6	Akron, OH	0.933
7	Reno-Sparks, NV	0.921
8	Columbus, OH	0.912
9	Toledo, OH	0.904
10	Tucson, AZ	0.900

Exhibit 3.2: Metros with the Highest Levesl of Income Segregation

Rank	Metro	Index	Rank Out of All Metros
1	San Jose-Sunnyvale-Santa Clara, CA	0.311	86
2	Portland-Vancouver-Beaverton, OR-WA	0.421	134
3	Seattle-Tacoma-Bellevue, WA	0.439	146
4	Orlando-Kissimmee, FL	0.447	151
5	San Francisco-Oakland-Fremont, CA	0.485	166
6	Sacramento-Arden-Arcade-Roseville, CA	0.563	211
7	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.579	214
8	San Diego-Carlsbad-San Marcos, CA	0.586	218
9	Riverside-San Bernardino-Ontario, CA	0.589	222
10	Las Vegas-Paradise, NV	0.617	234

Exhibit 3.3: Large Metros with the Lowest Levels of Income Segregation

Rank	Metro	Index
1	Fond du Lac, WI	0.036
2	Wenatchee, WA	0.042
3	St. George, UT	0.054
4	Glens Falls, NY	0.057
5	Prescott, AZ	0.058
6	Longview, TX	0.075
7	Monroe, MI	0.077
8	Fairbanks, AK	0.088
9	Bend, OR	0.091
10	Dover, DE	0.095

Exhibit 3.4: Metros with the Lowest Levels of Income Segregation

3.2 Educational Segregation

Education is a key factor in economic success, whether of individuals, nations, or cities. Economists have long noted a close correlation between educational attainment or human capital and economic success.[21] Jane Jacobs and Robert Lucas showed how the clustering of people in cities drives innovation and economic growth.[22] Harvard economist Edward Glaeser and his collaborators have documented the growing divergence of educated populations across U.S. cities and metro regions, a process Florida dubbed "the means migration."[23]

But while the dynamics of talent clustering across cities and metro areas has been closely examined, there are fewer studies of the ways that educational groups sort and segregate within them.

To get at this, we examine the educational segregation of two groups: the less educated, those who did not complete high school, and the highly educated, those with a college degree and above. We then develop a composite index of overall educational segregation to determine which metros are the most segregated in terms of education.

3.2.1 Segregation of the Less Educated

Exhibit 4 maps the segregation of the less educated, which we measure as the share of adults who did not complete high school.

Exhibit 4.1 shows the large metros where those without a high school degree are the most segregated. The pattern here is quite a bit different from income segregation. In contrast to income segregation, where Rustbelt metros were the most segregated, all ten of the metros where the less educated are most segregated are in the Sunbelt and the West. In fact, eight of the ten are either in Texas or California. Austin tops the list, followed by Denver, Los Angeles, Phoenix, and Dallas. San Diego, San Antonio, Houston, San Francisco, and San Jose round out the top ten. Interestingly, a number of metros on this list—San Francisco, San Jose, and San Diego among them—have relatively low levels of overall income segregation and especially of segregation of the wealthy.

When we include all metros in our rankings *(Exhibit 4.2)*, two college towns—Santa Cruz and Boulder—rise to the very top of the list. This again reflects the long-standing town-gown divide in educational attainment. Salinas and Oxnard, California and Tucson, Arizona, another college town, also enter the top ten. Sunbelt metros again dominate this list.

Exhibit 4.3 lists the ten large metros where those without high school degrees are the least segregated. In contrast to the pattern for income segregation, a series of Rustbelt metros are the least segregated on this score. Pittsburgh tops the list, followed by Orlando, Louisville, Buffalo, and Tampa. New Orleans, St. Louis, Cincinnati, Virginia Beach, and Portland round out the top ten. This is a mix of older industrial metros and tourist and service-based metros in the Sunbelt. Detroit also exhibits a relatively low level of educational segregation, ranking 244th of all metros. The low level of educational segregation in the Rustbelt likely stems from the legacy of its once relatively high wage, but low skill, working class neighborhoods as well as its relatively low housing costs.

When the list is extended to include all metros *(Exhibit 4.4)*, smaller ones rise to the top. There are 117 smaller and medium-sized metros with lower levels of educational segregation than the least segregated of the 51 large metros.

We now turn to the factors that are associated with the segregation of the less educated.

Less educated groups face higher degrees of segregation in larger, denser metros. Educational segregation is positively correlated with both density (0.63) and population size (0.58). As noted above, housing costs tend to be higher in larger, denser metros and the segregation of the less educated is significantly associated with housing costs (0.52).

The less educated also face higher levels of segregation in more affluent, knowledge-based metros. The segregation of non-high school grads is positively associated with income (0.37), wages (0.54), and economic output (0.41). It is strongly associated with both the share of adults who are college graduates (0.47) and the share of the workforce in the creative class (0.48), and even more so with the concentration of high-tech industry (0.58). While the pattern for individual metros differs, these findings are similar to those for income segregation. The segregation of the less educated is also associated with two measures of diversity: the share of population that is foreign-born (0.57) and gay (0.52), two factors that are also associated with larger, more affluent, more knowledge-based metros.

The segregation of the less educated is negatively associated with the share of the workforce in the blue-collar working class (-0.39). As noted above, a large working class means relatively well-paying jobs for less educated people. The segregation of the less educated is positively

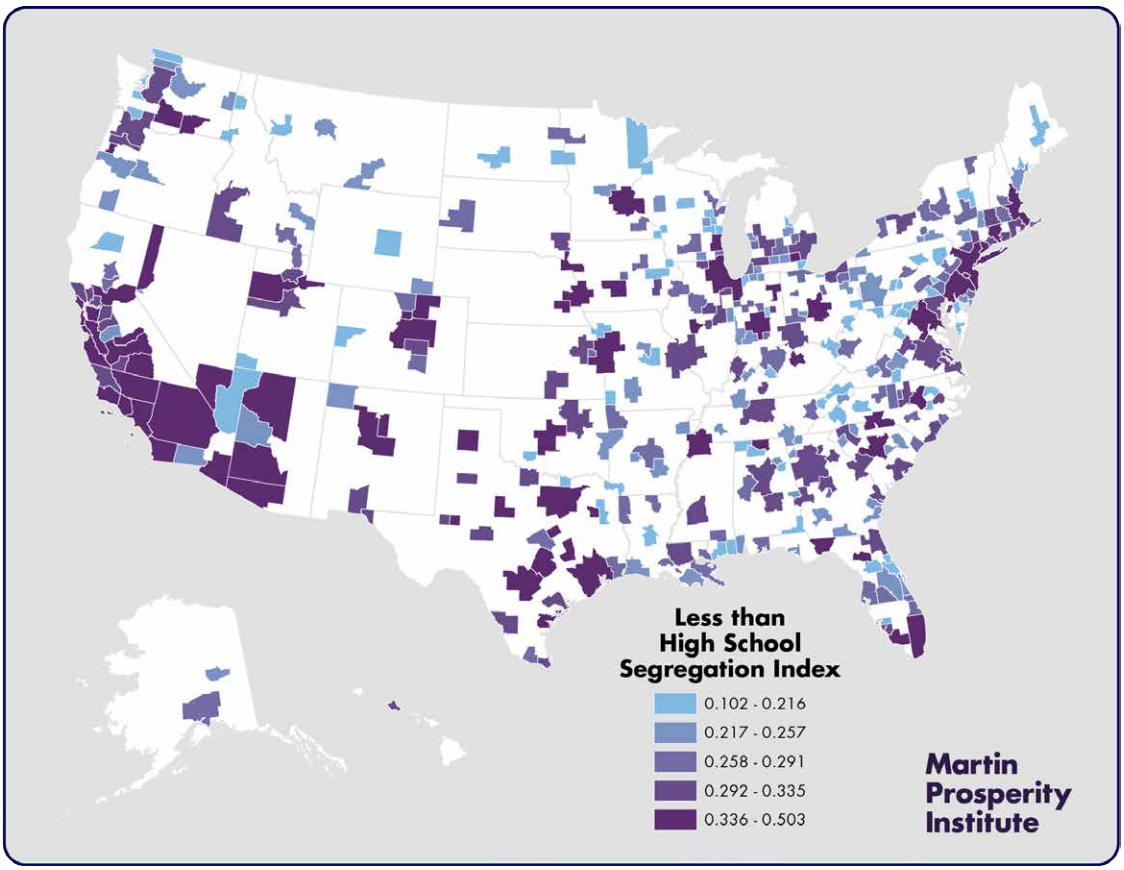


Exhibit 4: Segregation of the Less Educated (without a high school degree)

Rank	Metro	Index	Rank Out of All Metros
1	Austin-Round Rock-San Marcos, TX	0.451	4
2	Denver-Aurora-Broomfield, CO	0.446	6
3	Los Angeles-Long Beach-Santa Ana, CA	0.442	7
4	Phoenix-Mesa-Glendale, AZ	0.428	8
5	Dallas-Fort Worth-Arlington, TX	0.428	9
6	San Diego-Carlsbad-San Marcos, CA	0.412	11
7	San Antonio-New Braunfels, TX	0.406	14
8	Houston-Sugar Land-Baytown, TX	0.398	18
9	San Francisco-Oakland-Fremont, CA	0.395	20
10	San Jose-Sunnyvale-Santa Clara, CA	0.393	21

Exhibit 4.1: Large Metros where those without a High School Degree are Most Segregated

Rank	Metro	Index
1	Santa Cruz-Watsonville, CA	0.503
2	Boulder, CO	0.456
3	Salinas, CA	0.455
4	Austin-Round Rock-San Marcos, TX	0.451
5	Oxnard-Thousand Oaks-Ventura, CA	0.449
6	Denver-Aurora-Broomfield, CO	0.446
7	Los Angeles-Long Beach-Santa Ana, CA	0.442
8	Phoenix-Mesa-Glendale, AZ	0.428
9	Dallas-Fort Worth-Arlington, TX	0.428
10	Tucson, AZ	0.421

Exhibit 4.2: Metros where those without a High School Degree are Most Segregated

associated with wage inequality (0.58), though less so with income inequality (0.36).

Race plays a role in predictable but also in less obvious ways. The segregation of the less educated is negatively associated with the share of the population that is white (-0.42). Conversely it is positively associated with the share of the population that is Latino (0.46) and Asian (0.36). But it is not statistically associated with the share of population that is black.

This observation doesn't contradict the long-documented fact that black people have less access to better schools and lower overall levels of education. It simply means that there is no connection between the share of black residents in a metro and the segregation of the less educated

Rank	Metro	Index	Rank Out of All Metros
1	Pittsburgh, PA	0.244	118
2	Orlando-Kissimmee-Sanford, FL	0.255	142
3	Louisville-Jefferson County, KY-IN	0.281	199
4	Buffalo-Niagara Falls, NY	0.284	202
5	Tampa-St. Petersburg-Clearwater, FL	0.287	208
6	New Orleans-Metairie-Kenner, LA	0.287	210
7	St. Louis, MO-IL	0.291	217
8	Cincinnati-Middletown, OH-KY-IN	0.294	219
9	Virginia Beach-Norfolk-Newport News, VA-NC	0.301	229
10	Portland-Vancouver-Hillsboro, OR-WA	0.303	238

Exhibit 4.3: Large Metros where those without a High School Degree are Least Segregated

Rank	Metro	Index
1	Lewiston, ID-WA	0.102
2	Palm Coast, FL	0.103
3	Fond du Lac, WI	0.122
4	Williamsport, PA	0.136
5	Coeur d'Alene, ID	0.141
6	Danville, VA	0.145
7	Altoona, PA	0.150
8	Huntington-Ashland, WV-KY-OH	0.155
9	Hagerstown-Martinsburg, MD-WV	0.157
10	Morristown, TN	0.160

Exhibit 4.4: Metros where those without a High School Degree are Least Segregated

overall. It also does not mean that Asians and Latinos are more segregated than black people, just that less educated groups are more segregated in metros where shares of Latinos and Asians are higher.

It's also worth pointing out that white people make up more than 50 percent of the populations of 350 out of the 359 metros covered. In 233 metros they make up more than 75 percent of the population and in 50 metros they make up 90 percent or more. Black people made up the majority in only one U.S. metro in 2010, while their share was less than 5 percent in 143 metros. Places with higher shares of black people and Latinos have also faced higher levels

of income inequality than places with higher shares of white people, and this may be a reflection of that.

It is important to remember that this study examines the associations between geographic segregation in metros by income, education, and occupation and the shares of various racial and ethnic groups within those metros. It does not consider whether those places are more or less segregated along racial and ethnic lines.

We now turn to the flip side of educational segregation—the segregation of the highly educated.

3.2.2 Segregation of Highly Educated

Exhibit 5 maps the geographic segregation of the highly educated, which we measure as the share of adults who have completed college.

Exhibit 5.1 shows the ten large metros where college graduates are the most segregated.

They are mainly in the Sunbelt, with Birmingham, Alabama topping the list. The rest of the top ten includes Houston, Los Angeles, Columbus, Memphis, San Antonio, Louisville, Dallas, Charlotte, and Chicago.

When we look at the pattern across all 350 plus U.S. metros *(Exhibit 5.2)*, a number of smaller and medium-sized metros rise to the very top, especially college towns. State College, Pennsylvania (home of Penn State University) has the highest level of human capital segregation of any metro in the country. Salinas, California is second; Trenton-Ewing, New Jersey (home of Princeton University) is third; Bloomington, Indiana (home of the University of Indiana) is fourth; and College-Station-Bryan, Texas (Texas A&M) is fifth. Birmingham, Alabama falls to sixth; Houston is seventh; Los Angeles eighth; and Columbus, Ohio (Ohio State University) drops to ninth. Blacksburg, Virginia (Virginia Tech) is now tenth overall. The highly educated are also quite segregated in college towns like Durham-Chapel Hill (University of North Carolina and Duke), Tucson (University of Arizona), Tallahassee (Florida State), Gainesville (University of Florida), Morgantown (West Virginia University), Athens (University of Georgia); and Auburn, Alabama (Auburn University). Here again we see the divide between professors, doctors, researchers, and administrators and the low skill workers who provide the colleges with basic services.

The large metros where highly educated people are the least segregated *(Exhibit 5.3)* include Orlando, Tampa, Miami, and Las Vegas in the Sunbelt as well as such northern cities as Providence, Hartford, Minneapolis-St. Paul, Rochester, and Buffalo. The highly educated are more modestly segregated in several larger, knowledge-based metros, including Portland (246th), Pittsburgh (257th), Boston (274th), San Jose (305th), and Seattle (296th).

When smaller metros are included *(Exhibit 5.4)*, the picture changes. There are 165 small and medium-sized metros where college grads are less segregated than in the least segregated of the 51 large metros. St. George, Utah has the lowest level of human capital segregation of all, followed by Lewiston, Idaho; Sherman, Texas; Fond du Lac, Wisconsin; Elizabethtown, Kentucky; Mankato, Minnesota; Great Falls, Montana; Joplin, Missouri; and Barnstable, Massachusetts on Cape Cod.

So what factors are associated with greater or lesser levels of geographic segregation of the highly educated?

For all of the disparities between town and gown in college towns, the segregation of highly educated people is greatest in larger, denser metros. The geographic segregation of the highly educated is modestly associated with density (0.39) and population size (0.54).

Despite the long established connection between education, or human capital, and income, we find the segregation of the highly educated to be only weakly associated with income (0.15), though it is more closely associated with wages (0.34) and economic output per capita (0.34).

The segregation of the highly educated is more pronounced in high-tech, knowledge-based regions. It is correlated with the concentration of high-tech industry (0.50) and the creative class (0.42) but less so with the share of adults that are college grads (0.32). These patterns mirror those we have seen for the segregation of the less educated as well as for income segregation. The segregation of college grads is also positively associated with two measures of diversity, the proportion of the population that is gay (0.39) and foreign-born (0.33), factors that are also associated with larger, more affluent, more knowledge-based economies. Conversely, it is modestly negatively correlated with the working class (-0.25).

The segregation of the highly educated is connected to race. It is positively associated with the share that is black (0.34), Latino (0.25), and Asian (0.24) and negatively associated with the share that is white (-0.45). This is a different pattern than the segregation of the less educated and more in line with what we would expect.

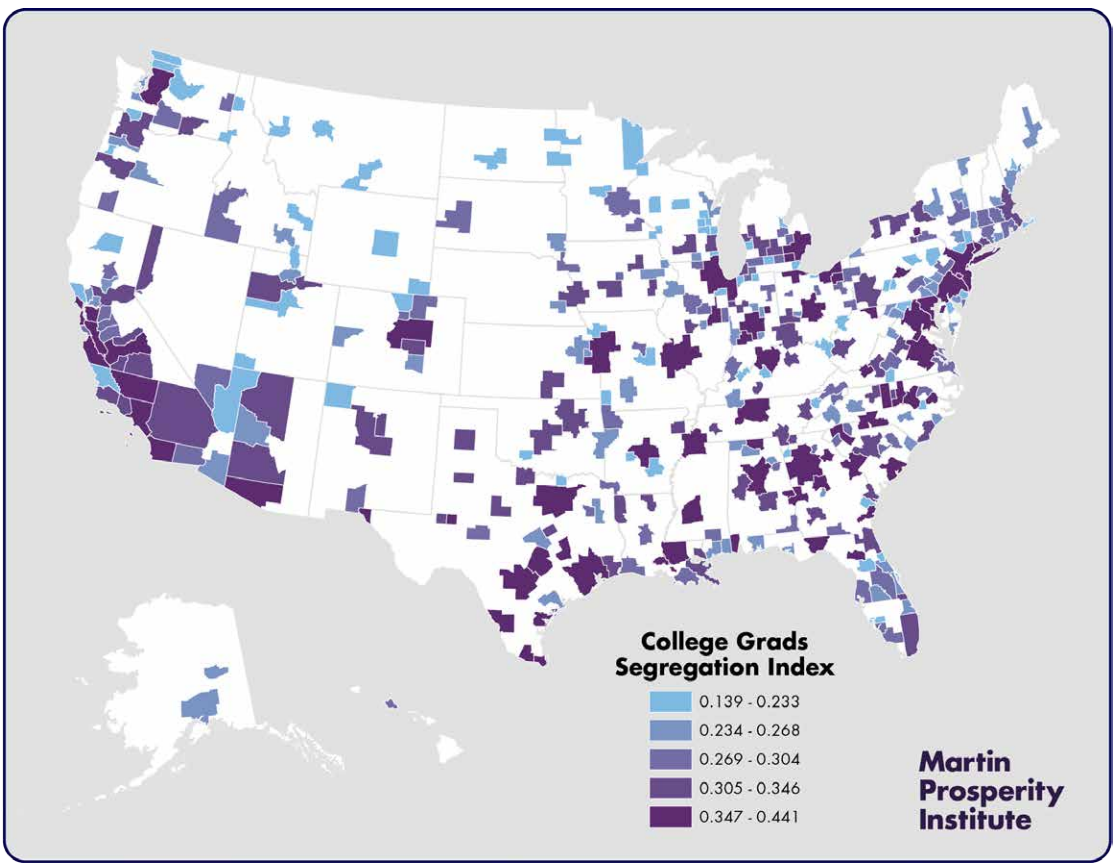


Exhibit 5: Segregation of the Highly Educated (College Grads)

The segregation of the highly educated is higher in metros with greater levels of economic inequality (0.58) and wage inequality (0.55).

Unlike the segregation of the poor and the uneducated, which reflects a lack of options, the more highly educated have the means to separate themselves; they self-segregate by choice. But those choices limit and constrain the options open to the less educated. To get at that connection, we now turn to our measure of overall educational segregation.

Rank	Metro	Index	Rank Out of All Metros
1	Birmingham-Hoover, AL	0.424	6
2	Houston-Sugar Land-Baytown, TX	0.419	7
3	Los Angeles-Long Beach-Santa Ana, CA	0.406	8
4	Columbus, OH	0.403	9
5	Memphis, TN-MS-AR	0.399	11
6	San Antonio-New Braunfels, TX	0.395	12
7	Louisville-Jefferson County, KY-IN	0.388	16
8	Dallas-Fort Worth-Arlington, TX	0.387	17
9	Charlotte-Gastonia-Rock Hill, NC-SC	0.384	20
10	Chicago-Joliet-Naperville, IL-IN-WI	0.380	23

Exhibit 5.1: Large Metros where College Grads are Most Segregated

Rank	Metro	Index
1	State College, PA	0.441
2	Salinas, CA	0.435
3	Trenton-Ewing, NJ	0.431
4	Bloomington, IN	0.429
5	College Station-Bryan, TX	0.426
6	Birmingham-Hoover, AL	0.424
7	Houston-Sugar Land-Baytown, TX	0.419
8	Los Angeles-Long Beach-Santa Ana, CA	0.406
9	Columbus, OH	0.403
10	Blacksburg-Christiansburg-Radford, VA	0.399

Exhibit 5.2: Metros where College Grads are Most Segregated

Rank	Metro	Index	Rank Out of All Metros
1	Orlando-Kissimmee-Sanford, FL	0.281	166
2	Virginia Beach-Norfolk-Newport News, VA-NC	0.284	171
3	Las Vegas-Paradise, NV	0.288	178
4	Providence-New Bedford-Fall River, RI-MA	0.290	184
5	Hartford-West Hartford-East Hartford, CT	0.294	195
6	Minneapolis-St. Paul-Bloomington, MN-WI	0.297	201
7	Tampa-St. Petersburg-Clearwater, FL	0.300	205
8	Rochester, NY	0.316	235
9	Miami-Fort Lauderdale-Pompano Beach, FL	0.316	236
10	Buffalo-Niagara Falls, NY	0.317	237

Exhibit 5.3: Large Metros where College Grads are Least Segregated

Rank	Metro	Index
1	St. George, UT	0.139
2	Lewiston, ID-WA	0.141
3	Sherman-Denison, TX	0.155
4	Fond du Lac, WI	0.167
5	Elizabethtown, KY	0.169
6	Great Falls, MT	0.171
7	Joplin, MO	0.174
8	Barnstable Town, MA	0.174
9	Monroe, MI	0.174
10	Missoula, MT	0.175

Exhibit 5.4: Metros where College Grads are Least Segregated

3.2.3 The Geography of Overall Educational Segregation

Exhibit 6 maps the overall geography of educational segregation based on our composite index, which combines the ranks of segregation of both the highly and the less educated.

Exhibit 6.1 lists the ten large metros with the highest levels of overall educational segregation. Seven of the top metros are in the West or Southwest. Los Angeles tops the list followed by four Texas metros: Houston, Dallas, San Antonio, and Austin. San Diego, Chicago, Columbus, Charlotte, and San Francisco round out the top ten. The list is substantially different from that of income segregation, where Rustbelt metros predominated.

When we extend the list to all metros *(Exhibit 6.2)*, Salinas displaces Los Angeles as the metro with the highest overall level of educational segregation. Bakersfield and Fresno, California also enter the top ten, along with Trenton-Ewing. All four large Texas metros remain on the list.

Exhibit 6.3 shows the large metros with the lowest levels of overall educational segregation. Orlando tops the list, followed by Pittsburgh, Virginia Beach, Tampa, and Buffalo. Providence, Portland, Rochester, Minneapolis-St. Paul, and Hartford round out the list.

A number of other large metros have relatively low to moderate levels of educational segregation. These include New Orleans (ranked

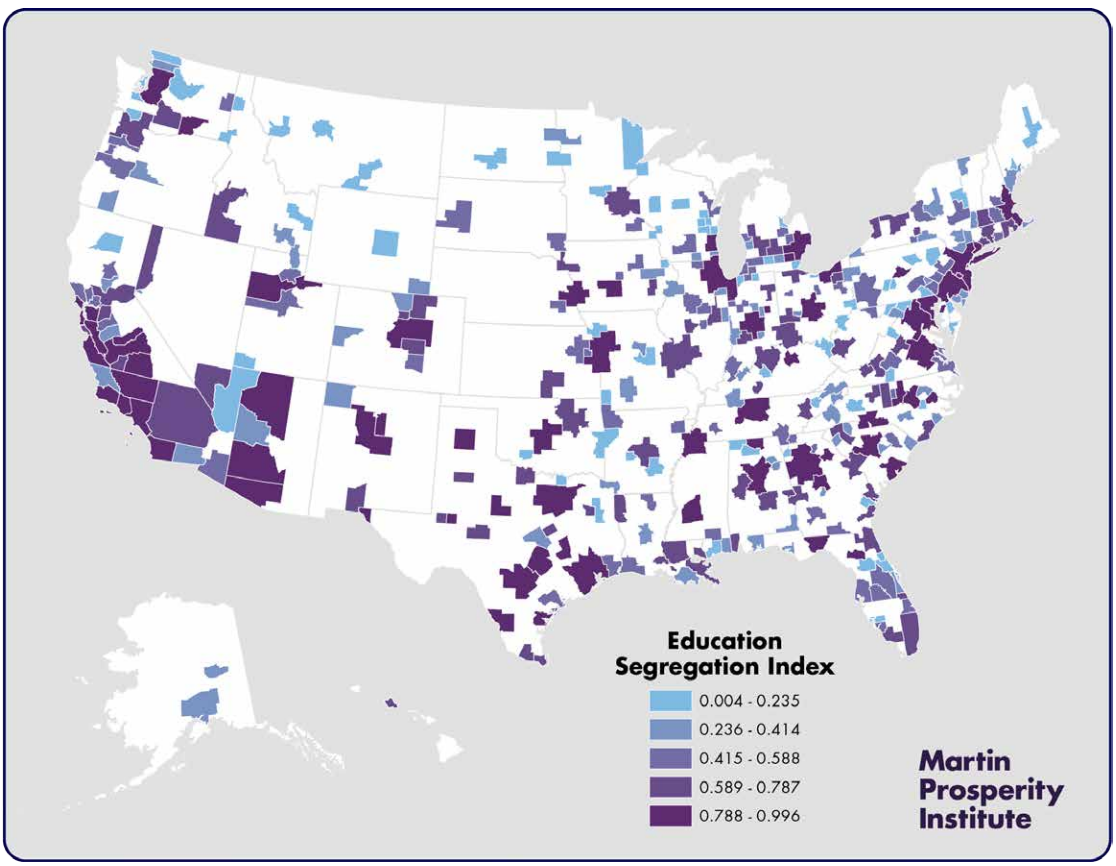


Exhibit 6: Overall Educational Segregation

Rank	Metro	Index	Rank Out of All Metros
1	Los Angeles-Long Beach-Santa Ana, CA	0.982	2
2	Houston-Sugar Land-Baytown, TX	0.968	3
3	Dallas-Fort Worth-Arlington, TX	0.967	4
3	San Antonio, TX	0.967	4
5	Austin-Round Rock, TX	0.955	7
6	San Diego-Carlsbad-San Marcos, CA	0.937	10
7	Chicago-Naperville-Joliet, IL-IN-WI	0.932	11
8	Columbus, OH	0.922	15
9	Charlotte-Gastonia-Concord, NC-SC	0.908	19
10	San Francisco-Oakland-Fremont, CA	0.907	20

Exhibit 6.1: Large Metros with the Highest Levels of Overall Educational Segregation

Rank	Metro	Index
1	Salinas, CA	0.996
2	Los Angeles-Long Beach-Santa Ana, CA	0.982
3	Houston-Sugar Land-Baytown, TX	0.968
4	Dallas-Fort Worth-Arlington, TX	0.967
4	San Antonio, TX	0.967
6	Trenton-Ewing, NJ	0.961
7	Austin-Round Rock, TX	0.955
7	Bakersfield, CA	0.955
9	Fresno, CA	0.950
10	San Diego-Carlsbad-San Marcos, CA	0.937

Exhibit 6.2: Metros with the Highest Levels of Overall Educational Segregation

256th overall), Las Vegas (262nd) as well as Miami (282nd) and Detroit (291st).

Once again, the picture changes when smaller metros are included. In addition to the top ten metros listed in *Exhibit 6.4*, there are 149 other small and medium-sized metros that have lower levels of educational segregation than the least segregated of the 51 large metros.

Our correlation analysis backs this up. We find overall educational segregation to be greater in larger, denser metros. It is positively associated with density (0.56) and even more so with population size (0.62).

Overall educational segregation is also greater in more high-tech, knowledge-based regions. Our overall measure of educational segregation

Rank	Metro	Index	Rank Out of All Metros
1	Orlando-Kissimmee, FL	0.429	150
2	Pittsburgh, PA	0.522	187
3	Virginia Beach-Norfolk-Newport News, VA-NC	0.557	201
4	Tampa-St. Petersburg-Clearwater, FL	0.575	211
5	Buffalo-Niagara Falls, NY	0.611	223
6	Providence-New Bedford-Fall River, RI-MA	0.631	229
7	Portland-Vancouver-Beaverton, OR-WA	0.674	246
8	Rochester, NY	0.677	248
9	Minneapolis-St. Paul-Bloomington, MN-WI	0.687	251
10	Hartford-West Hartford-East Hartford, CT	0.688	252

Exhibit 6.3: Large Metros with the Lowest Levels of Overall Educational Segregation

Rank	Metro	Index
1	Lewiston, ID-WA	0.004
2	Fond du Lac, WI	0.010
3	Elizabethtown, KY	0.026
4	Hagerstown-Martinsburg, MD-WV	0.035
5	Monroe, MI	0.036
5	Williamsport, PA	0.036
7	Joplin, MO	0.039
8	St. George, UT	0.042
9	Coeur d'Alene, ID	0.045
10	Sheboygan, WI	0.047

Exhibit 6.4: Metros with the Lowest Levels of Overall Educational Segregation

is positively associated with both the share of the work force in the creative class (0.50) and even more so with the concentration of high-tech industry (0.59). Educational segregation is also higher in metros where immigrants and gay people make up greater shares of the population (both correlations are 0.48), factors that are associated with larger, more knowledge-based metros.

Even though education correlates closely with income, overall educational segregation is only modestly associated with regional income (0.28), though it is more closely correlated with both wages (0.47) and economic output per person (0.41).

Educational segregation is connected to race. It is lower in metros where white people make up

a greater share of the population (-0.48) and it is higher (though more modestly correlated) in metros where black people (0.23), Latinos (0.38), and Asians (0.32) make up greater shares of the population.

Educational segregation is also associated with higher levels of inequality. Overall educational segregation is closely associated with income inequality (0.51) and even more so with wage inequality (0.61).

While the most segregated metros by income and education differ, the general pattern is the same: Both types of segregation are greater in larger, denser, more knowledge-based metros.

Education is the most important economic asset a person can have. Growing up in an area with good schools and low dropout rates is a huge benefit but it is one that is increasingly available to the affluent alone. Underfunded, over-crowded schools and a lack of positive role models are neighborhood effects that compound and perpetuate the cycle of disadvantage.

A third component of socio-economic class is occupation. In the next section, we examine the extent to which the different occupational groups or classes are geographically segregated.

3.3 Occupational Segregation

The kind of work a person does stands alongside income and education as a key marker of socio-economic class. America has seen widespread deindustrialization and the decline of its once dominant blue-collar working class as its labor market has bifurcated into high-skill, high-pay jobs that turn on technology, ideas, and creativity, and low-skill, low-pay service work.

In this section, we examine the segregation of the three major occupational classes—the creative class of knowledge workers, the even faster growing but lower-paid service class, and the declining blue-collar working class.

3.3.1 Creative Class Segregation

We begin with the creative class, which makes up about a third of the U.S. workforce.[24] Its 40 million plus members work in occupations spanning computer science and mathematics; architecture, engineering; life, physical, and social science; education, training, and library science; arts and design, entertainment, sports, and media; and management, business and finance, law, sales management, healthcare, and education. Creative class workers earn an average of $70,000 per year, accounting for roughly half of all U.S. wages.[25]

Exhibit 7 maps the segregation of the creative class across U.S. metros.

There is substantial overlap between this map and the map of college grads above. This makes sense as both reflect concentrations of talent and skill, though it should be remembered that the two are not identical. While roughly nine in ten college grads hold creative class jobs, just 60 percent of the creative class are college graduates.[26]

Exhibit 7.1 shows the large metros where the creative class is most segregated. Los Angeles is in first place, followed by Houston, San Jose, San Francisco, New York, Austin, San Antonio, San Diego, and Chicago. While older Rustbelt metros topped the list for income segregation and sprawling Sunbelt metros dominated where educational segregation was concerned, the metros where the creative class is most segregated tend to be large and knowledge-based. Four of the ten are in Texas.

When we expand the list to include all metros *(Exhibit 7.2)*, a number of smaller ones also show substantial levels of segregation. Trenton-Ewing (which includes Princeton University) rises to

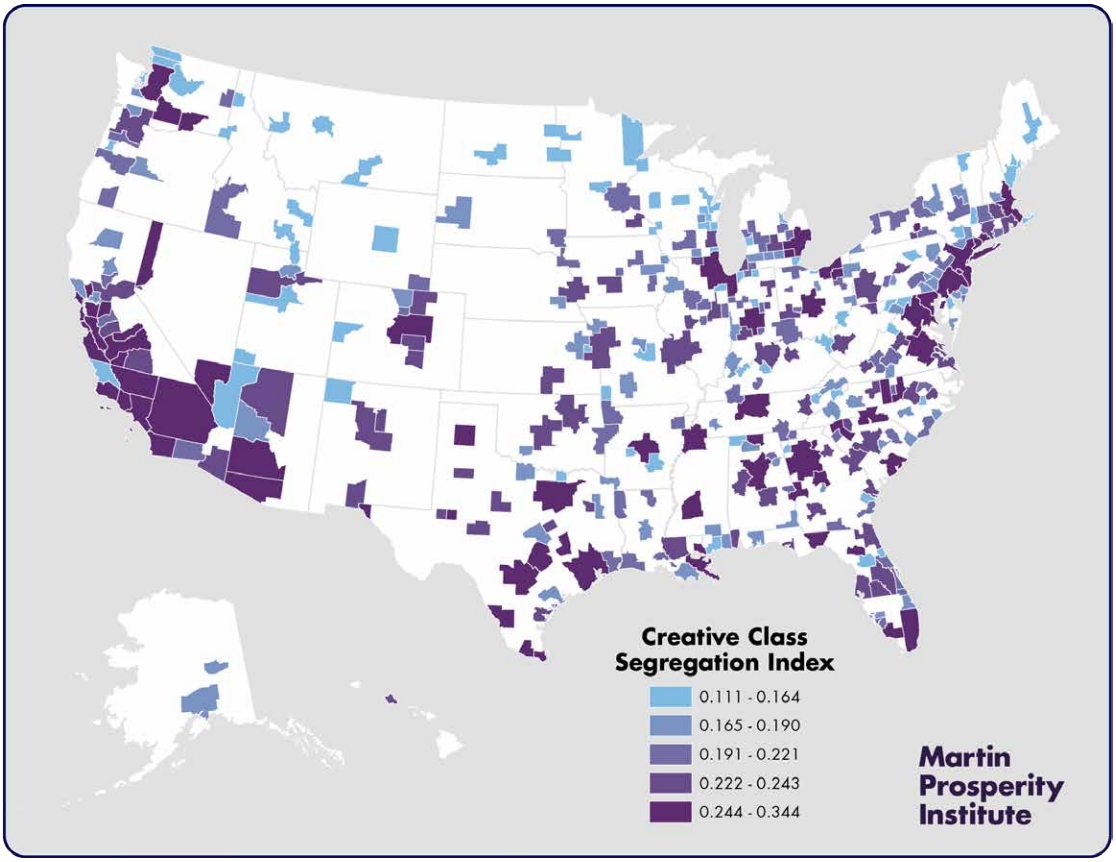


Exhibit 7: Segregation of the Creative Class

second place, and Salinas is the third most highly segregated metro in the country on this score. Houston falls to fourth overall, while San Jose moves to fifth.

Two smaller metros in California's San Joaquin Valley, Hanford-Corcoran and Bakersfield-Delano, rank sixth and seventh. San Francisco, Dallas, and New York drop to eighth, ninth, and tenth overall.

The creative class is also highly segregated in college towns like Ann Arbor, Durham-Chapel Hill, Tucson, Gainesville, and College Station, where educated residents are also highly segregated. The two kinds of segregation are closely correlated with one another (with a correlation of 0.89).

As seen in *Exhibit 7.3*, Minneapolis-St. Paul is the large metro where the creative class is least segregated, followed by Rochester, Buffalo, Cincinnati, Providence, Milwaukee, and Hartford. Jacksonville, Tampa, and Virginia Beach round out the top ten.

When the list is extended to include all metros *(Exhibit 7.4)*, the metros where the creative class is least segregated all turn out to be small. In fact, there are more than 161 smaller and medium-sized metros where the creative class is less segregated than it is in the least segregated large metro. Many of these smaller places, especially in the Northeast and the Midwest, are struggling manufacturing cities, where the creative class comprises a relatively small share

Rank	Metro	Index	Rank Out of All Metros
1	Los Angeles-Long Beach-Santa Ana, CA	0.344	1
2	Houston-Sugar Land-Baytown, TX	0.327	4
3	San Jose-Sunnyvale-Santa Clara, CA	0.310	5
4	San Francisco-Oakland-Fremont, CA	0.301	8
5	New York-Northern New Jersey-Long Island, NY-NJ-PA	0.300	9
6	Dallas-Fort Worth-Arlington, TX	0.294	10
7	Austin-Round Rock-San Marcos, TX	0.284	15
8	San Antonio-New Braunfels, TX	0.284	16
9	San Diego-Carlsbad-San Marcos, CA	0.282	17
10	Chicago-Joliet-Naperville, IL-IN-WI	0.281	18

Exhibit 7.1: Large Metros where the Creative Class is Most Segregated

Rank	Metro	Index
1	Los Angeles-Long Beach-Santa Ana, CA	0.344
2	Trenton-Ewing, NJ	0.336
3	Salinas, CA	0.335
4	Houston-Sugar Land-Baytown, TX	0.327
5	San Jose-Sunnyvale-Santa Clara, CA	0.310
6	Hanford-Corcoran, CA	0.308
7	Bakersfield, CA	0.305
8	San Francisco-Oakland-Fremont, CA	0.301
9	New York-Northern New Jersey-Long Island, NY-NJ-PA	0.300
10	Dallas-Fort Worth-Arlington, TX	0.294

Exhibit 7.2: Metros where the Creative Class is Most Segregated

of the workforce. Mankato, Minnesota has the lowest level of creative class segregation in the country, followed by Lewiston-Auburn, Maine; St. Cloud, Minnesota; Joplin, Missouri; and Rome, Georgia.

But what factors are associated with higher and lower levels of creative class segregation? Creative class segregation is closely correlated with population (0.60) and density (0.56). The segregation of the creative class is also positively associated with the share of residents using transit to get to work (0.42), another indicator of greater density and connectivity. The geographic segregation of the creative class is somewhat higher in metros where housing prices eat

Rank	Metro	Index	Rank Out of All Metros
1	Minneapolis-St. Paul-Bloomington, MN-WI	0.200	162
2	Rochester, NY	0.214	199
3	Buffalo-Niagara Falls, NY	0.216	206
4	Cincinnati-Middletown, OH-KY-IN	0.221	216
5	Providence-New Bedford-Fall River, RI-MA	0.222	220
6	Milwaukee-Waukesha-West Allis, WI	0.222	222
7	Hartford-West Hartford-East Hartford, CT	0.222	224
8	Jacksonville, FL	0.223	226
9	Tampa-St. Petersburg-Clearwater, FL	0.225	236
10	Virginia Beach-Norfolk-Newport News, VA-NC	0.226	239

Exhibit 7.3: Large Metros where the Creative Class is Least Segregated

Rank	Metro	Index
1	Lewiston-Auburn, ME	0.111
2	St. Cloud, MN	0.117
3	Joplin, MO	0.119
4	Rome, GA	0.120
5	Bay City, MI	0.122
6	Wausau, WI	0.123
7	St. George, UT	0.124
8	Elizabethtown, KY	0.125
9	Missoula, MT	0.125
10	Hinesville-Fort Stewart, GA	0.125

Exhibit 7.4: Metros where the Creative Class is Least Segregated

up greater shares of household incomes (with a correlation of 0.28).

Not surprisingly, creative class segregation goes along with the wealth and affluence of regions. The segregation of the creative class is positively associated with average wages (0.48), but less so with economic output per person (0.35) and per capita income (0.24). Creative class segregation is higher in metros with larger concentrations of high-tech industry (0.55). The creative class is also more segregated in metros with higher percentages of foreign-born residents (0.59) and gay residents (0.52).

As with other forms of economic segregation,

the segregation of the creative class is bound up with long standing racial cleavages. Creative class segregation is higher in metros where black people make up a greater share of the population (0.22), and even more so with shares of population that are Latino (0.45) and Asian (0.37). Creative class segregation is lower in metros where white people make up a greater share of the population (-0.51).

The segregation of the creative class is connected to the level of income inequality (0.48) and even more so to wage inequality (0.58). The bigger the gap between the rich and the poor, and the bigger the split between high-paid knowledge and low-wage service work, the greater the segregation of the classes tends to be. Here again, we see that while individual metros score differently on each measure, the underlying factors that bear on the different types of economic segregation are similar.

Creative class workers have the most skills and the most education, and they earn the highest wages. When they are concentrated in their own enclaves, they magnetize resources, amenities, and investments away from less-advantaged neighborhoods.

3.3.2 Service Class Segregation

With sixty million plus members, the service class is the largest occupational class, encompassing 46 percent of the U.S. workforce. Its members toil in the fastest growing but lowest paid job categories in the United States, such as food preparation and service, retail sales, and personal care, earning an average of $30,000 per year, less than half of what the members of the creative class earn.[27]

Exhibit 8 maps the segregation of the service class across the United States.

Exhibit 8.1 lists the large metros where the service class is most segregated. It reads like a who's who of large knowledge-based metros. San Jose tops the list and Washington, D.C. is second, followed by San Francisco, New York, and Boston. Philadelphia, Baltimore, San Diego, Austin, and Los Angeles complete the top ten.

When the list is extended to include all metros *(Exhibit 8.2)*, it's striking how many college towns come to the fore. Ithaca (Cornell), Ann Arbor (University of Michigan), Trenton-Ewing (Princeton), Gainesville (University of Florida), and Tallahassee (Florida State) are in the top five. San Jose, in the heart of Silicon Valley, remains in the top ten, as do Washington, D.C. and San Francisco, both with very high creative class shares. Interestingly, Atlantic City makes the list, despite its very high share of service employment.

Exhibit 8.2 lists the large metros where the service class is least segregated. Salt Lake City takes the top spot, followed by Minneapolis-St. Paul, Riverside, Kansas City, and Cincinnati. Charlotte, Portland, Milwaukee, St. Louis, and Jacksonville round out the list. Other large metros with relatively low levels of service class segregation include Phoenix, which ranks 220th, Oklahoma City (204th), Dallas (203rd) and Atlanta (173rd).

When the list is extended to include all metros *(Exhibit 8.4)*, five of the top ten least segregated are in Michigan and Wisconsin.

But what economic and demographic factors are associated with the segregation of the service class?

The segregation of the service class tracks the size and density of regions, though less so than for the creative class. Service class segregation is positively associated with density (0.39) and more modestly with the size of population (0.28).

The service class faces higher levels of segregation in more affluent metros, but here again the correlations are more modest than for the creative class. The segregation of the service class is only modestly associated with income (0.33) and economic output per person (0.33), but more so with wages (0.41). It is only modestly associated with housing costs (0.30).

The segregation of the service class is more strongly associated with key markers of knowledge-based regions, especially the share of adults who are college graduates (0.46) and the share of the workforce in the creative class (0.47). Conversely, the segregation of the service class is negatively associated with the share of the workforce in the working class (-0.46).

The segregation of the service class is higher in more diverse metros. It is positively associated with the share of population that is gay (0.42) and more modestly associated with the share that is foreign-born (0.26).

Race plays a modest role in the segregation of the service class. Service class segregation is most closely associated with the share of population that is Asian (0.36) and it is more modestly associated with the share that is black (0.17). It is modestly negatively associated with the share that is white (-0.28). It is not statistically associated with the share that is Latino.

The segregation of the service class is greater in metros with higher levels of socio-economic

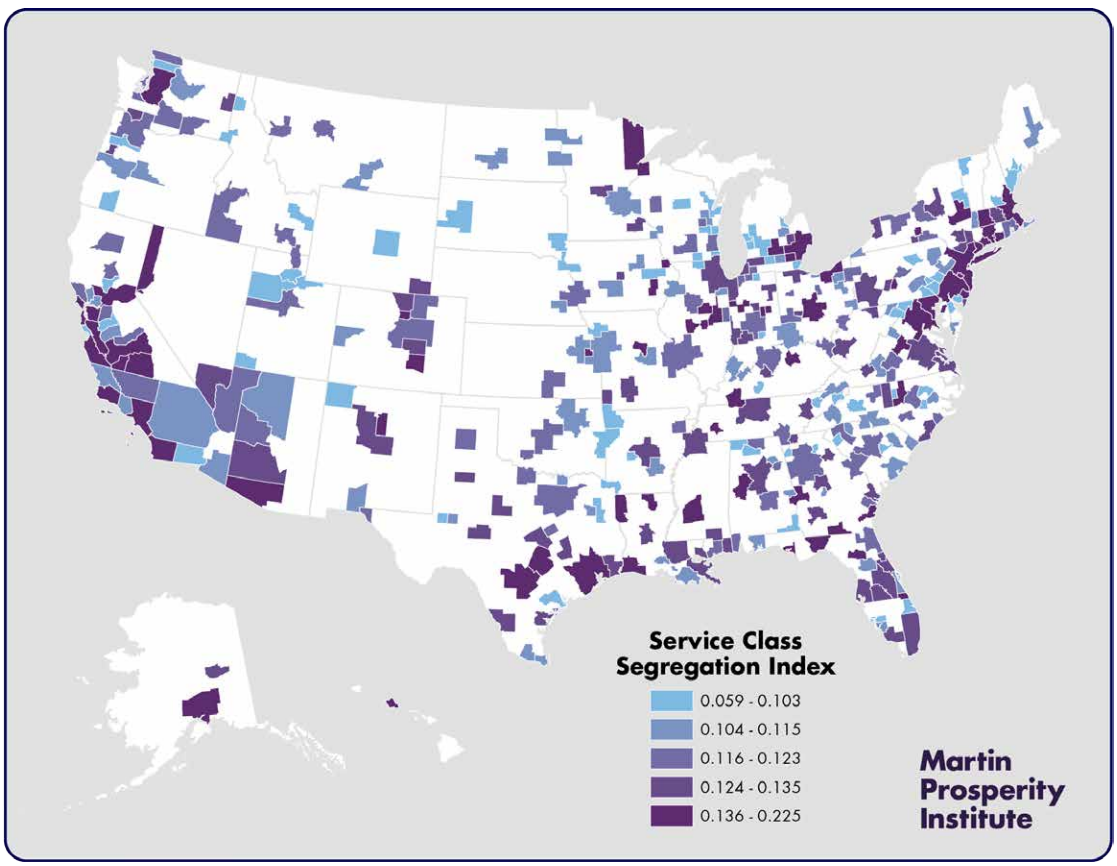


Exhibit 8: Segregation of the Service Class

inequality. It is modestly associated with income inequality (0.35) and more so with wage inequality (0.41).

It is important to remember that service class segregation is more reflective of the residential choices of the creative class than those of the service class itself, whose members live where they can afford to. It's also important to remember that the majority of American workers belong to the service class, which has absorbed many formerly blue-collar workers. The rise of the service class goes along with the decline of the working class, which we turn to next.

Rank	Metro	Index	Rank Out of All Metros
1	San Jose-Sunnyvale-Santa Clara, CA	0.185	6
2	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.181	7
3	San Francisco-Oakland-Fremont, CA	0.178	9
4	New York-Northern New Jersey-Long Island, NY-NJ-PA	0.176	11
5	Boston-Cambridge-Quincy, MA-NH	0.161	18
6	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.158	19
7	Baltimore-Towson, MD	0.154	24
8	San Diego-Carlsbad-San Marcos, CA	0.150	29
9	Austin-Round Rock-San Marcos, TX	0.149	33
10	Los Angeles-Long Beach-Santa Ana, CA	0.142	49

Exhibit 8.1: Large Metros where the Service Class is Most Segregated

Rank	Metro	Index
1	Ithaca, NY	0.225
2	Ann Arbor, MI	0.202
3	Trenton-Ewing, NJ	0.197
4	Gainesville, FL	0.194
5	Tallahassee, FL	0.192
6	San Jose-Sunnyvale-Santa Clara, CA	0.185
7	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.181
8	Salinas, CA	0.180
9	San Francisco-Oakland-Fremont, CA	0.178
10	Atlantic City-Hammonton, NJ	0.176

Exhibit 8.2: Metros where the Service Class is Most Segregated

3.3.3 Working Class Segregation

The past several decades have been marked by the steady decline of the working class. The working class made up 21 percent of the workforce in 2011—down substantially from 40 percent in 1970. It spans not just factory production but installation, maintenance and repair, transportation, and construction occupations. Its members average roughly $37,000 a year in salary and wages.[28]

Exhibit 9 maps the segregation of the working class across the United States.

Exhibit 9.1 lists the large metros where the working class is most segregated. This list includes

Rank	Metro	Index	Rank Out of All Metros
1	Salt Lake City, UT	0.093	36
2	Minneapolis-St. Paul-Bloomington, MN-WI	0.104	75
3	Riverside-San Bernardino-Ontario, CA	0.110	111
4	Kansas City, MO-KS	0.113	127
5	Cincinnati-Middletown, OH-KY-IN	0.114	138
6	Charlotte-Gastonia-Rock Hill, NC-SC	0.115	142
7	Portland-Vancouver-Hillsboro, OR-WA	0.117	163
8	Milwaukee-Waukesha-West Allis, WI	0.117	165
9	St. Louis, MO-IL	0.117	167
10	Jacksonville, FL	0.117	170

Exhibit 8.3: Large Metros where the Service Class is Least Segregated

Rank	Metro	Index
1	Fond du Lac, WI	0.059
2	Muskegon-Norton Shores, MI	0.067
3	Hot Springs, AR	0.069
4	Sheboygan, WI	0.072
5	Odessa, TX	0.072
6	El Centro, CA	0.075
7	Ogden-Clearfield, UT	0.076
8	Battle Creek, MI	0.078
9	Monroe, MI	0.079
10	Casper, WY	0.080

Exhibit 8.4: Metros where the Service Class is Least Segregated

centers of the idea economy (Austin, Washington, D.C., San Francisco, San Jose, Raleigh-Cary, and Charlotte) and one beacon of the knowledge-energy economy (Houston).[29]

When the list is expanded to all metros *(Exhibit 9.2)*, Los Angeles and Austin remain in first and second places, but a number of college towns come to the fore: Durham-Chapel Hill (Duke and the University of North Carolina). Bloomington (University of Indiana), Ann Arbor (University of Michigan), and Blacksburg (Virginia Tech).

Exhibit 9.3 lists the large metros where the working class is least segregated. Hartford comes in first, followed by Providence, Buffalo, Virginia Beach, and Orlando. Milwaukee, New Orleans, Rochester, Las Vegas, and Cincinnati round out the list. Other large metros with relatively low levels of working class segregation include Tampa, which ranks 290th, Jacksonville (271st), Detroit (268th), and Cleveland (261st).

When the list is extended to include all metros *(Exhibit 9.4)*, smaller places like Kokomo, Indiana; Madera-Chowchilla, California; Wenatchee, Washington; Racine, Wisconsin; and Lewiston, Idaho rise to the fore. All in all, there are more than 185 small and medium-sized metros where the working class is less segregated than the least segregated of the 51 large metros.

But what broader factors bear on the segregation of the working class?

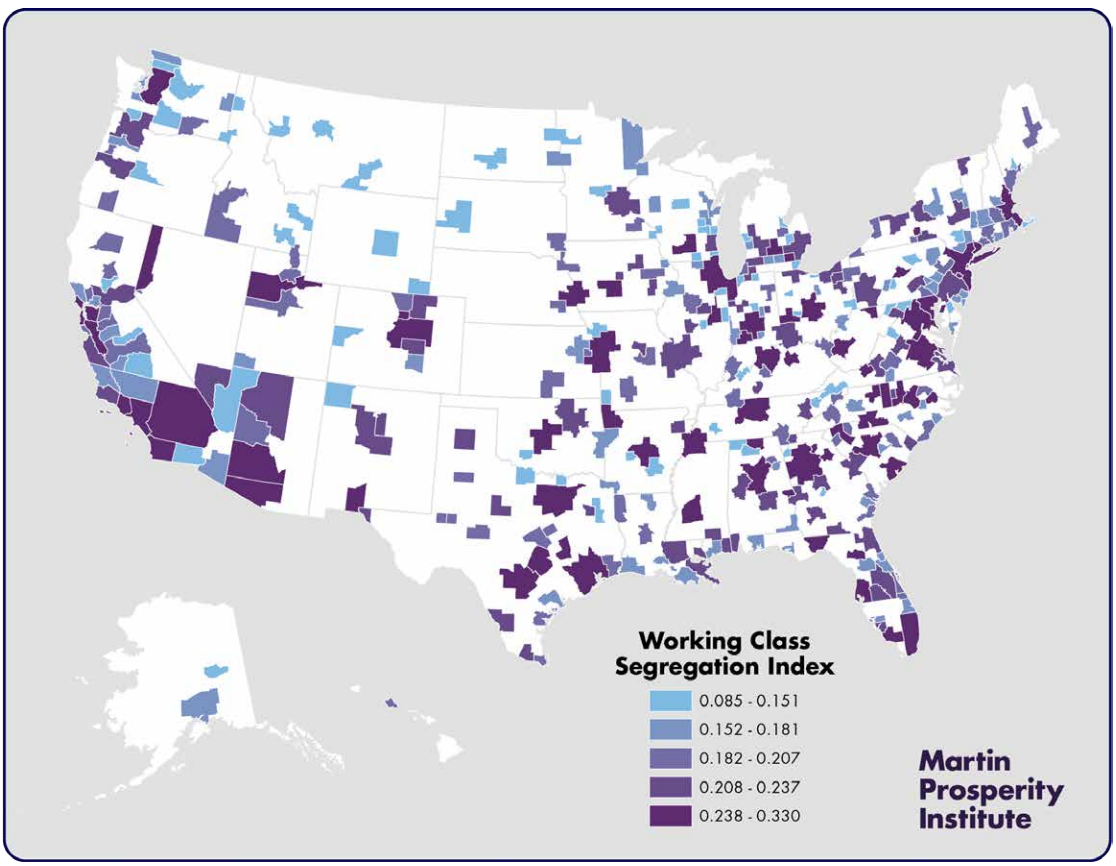


Exhibit 9: Segregation of the Working Class

The segregation of the working class is greater in larger, denser metros. It is positively associated with density (0.42) and even more so with population (0.61). It correlates with wages (0.44) and economic output per person (0.43), but more modestly with income (0.34).

The working class is more segregated in advanced knowledge-based metros. It is positively associated with the share of the workforce in the creative class (0.59), the share of adults with college degrees (0.57), and the concentration of high-tech industry (0.65).

Race plays a role as well. The segregation of the working class is greater in metros with higher concentrations of black (0.23) and Asian (0.33) residents and lower in those with greater levels

Rank	Metro	Index	Rank Out of All Metros
1	Los Angeles-Long Beach-Santa Ana, CA	0.330	1
2	Austin-Round Rock-San Marcos, TX	0.321	2
3	Dallas-Fort Worth-Arlington, TX	0.304	6
4	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.303	7
5	Raleigh-Cary, NC	0.301	8
6	San Francisco-Oakland-Fremont, CA	0.300	9
7	San Jose-Sunnyvale-Santa Clara, CA	0.296	12
8	Houston-Sugar Land-Baytown, TX	0.295	13
9	Charlotte-Gastonia-Rock Hill, NC-SC	0.287	17
10	Columbus, OH	0.287	18

Exhibit 9.1: Large Metros where the Working Class is Most Segregated

Rank	Metro	Index
1	Los Angeles-Long Beach-Santa Ana, CA	0.330
2	Austin-Round Rock-San Marcos, TX	0.321
3	Durham-Chapel Hill, NC	0.315
4	Bloomington, IN	0.308
5	Ann Arbor, MI	0.305
6	Dallas-Fort Worth-Arlington, TX	0.304
7	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.303
8	Raleigh-Cary, NC	0.301
9	San Francisco-Oakland-Fremont, CA	0.300
10	Blacksburg-Christiansburg-Radford, VA	0.300

Exhibit 9.2: Metros where the Working Class is Most Segregated

Rank	Metro	Index	Rank Out of All Metros
1	Hartford-West Hartford-East Hartford, CT	0.195	186
2	Providence-New Bedford-Fall River, RI-MA	0.196	189
3	Buffalo-Niagara Falls, NY	0.202	203
4	Virginia Beach-Norfolk-Newport News, VA-NC	0.209	223
5	Orlando-Kissimmee-Sanford, FL	0.215	239
6	Milwaukee-Waukesha-West Allis, WI	0.220	248
7	New Orleans-Metairie-Kenner, LA	0.223	253
8	Rochester, NY	0.223	255
9	Las Vegas-Paradise, NV	0.223	256
10	Cincinnati-Middletown, OH-KY-IN	0.224	257

Exhibit 9.3: Large Metros where the Working Class is Least Segregated

of white residents (-0.32). Working class segregation is also greater in more diverse metros, being positively associated with both the share of population that is foreign-born (0.34) and gay (0.46).

The segregation of the working class is also greater in metros with higher levels of inequality. It is positively associated with both income (0.50) and wage inequality (0.63).

Having considered each of the major socio-economic classes, we now look at occupational segregation overall.

3.3.4 The Geography of Overall Occupational Segregation

Our measure of overall occupational segregation combines the three separate measures of creative, service, and working class residential segregation into a single index. If the individual measures chart the extent to which the members of one occupational class or another predominate within individual census tracts, the overall measure captures the extent to which the members of the three classes are segregated from one another.

Exhibit 10 maps the geography of over-all occupational segregation across the United States.

Exhibit 10.1 shows the large metros with the highest levels of overall occupational segregation. Not surprisingly, knowledge and tech hubs top the list. San Jose has the highest level of occupational segregation, followed by San Francisco, Washington, D.C., and Austin. Los Angeles, New York, Houston, San Diego, San Antonio, and Columbus, Ohio round out the top ten. This pattern is quite a bit different than for income segregation, where Rustbelt metros

Rank	Metro	Index
1	Kokomo, IN	0.085
2	Madera-Chowchilla, CA	0.088
3	Wenatchee-East Wenatchee, WA	0.098
4	Racine, WI	0.102
5	Lewiston, ID-WA	0.106
6	Fond du Lac, WI	0.108
7	Hot Springs, AR	0.113
8	Grand Junction, CO	0.115
9	Mount Vernon-Anacortes, WA	0.117
10	Michigan City-La Porte, IN	0.118

Exhibit 9.4: Metros where the Working Class is Least Segregated

predominate, or educational segregation, where Sunbelt metros were at the top. Three of the ten most segregated metros are in Texas.

When we extend the list to all metros *(Exhibit 10.2)*, Trenton-Ewing jumps to first place. The college towns of Ann Arbor and Durham-Chapel Hill also join the top ten. Here again we see the effects of the town-gown divide.

Exhibit 10.3 lists the large metros with the lowest levels of occupational segregation. The least segregated is Minneapolis-St. Paul. The list includes older industrial metros like Cincinnati, Milwaukee, Rochester, and Buffalo, as well as Sunbelt metros like Salt Lake City, Jacksonville, Portland, and Virginia Beach. Other large metros with relatively low levels of occupational segregation are Orlando (272nd), Kansas City (265th), and St. Louis (242nd).

Again, the places with the lowest levels of occupational segregation are all small metros. More than 163 small and medium-sized metros have lower levels of overall occupational segregation than the least segregated of the 51 large metros. But what underlying factors bear on the broad patterns of occupational segregation?

As we saw with the individual measures for occupational and almost every other type of economic segregation, size matters. Overall occupational segregation is positively correlated with density (0.52) and even more strongly with population size (0.60). Since larger metros tend to attract more knowledge work, they experience a more intensive polarization of skills.

Overall occupational segregation is greater in wealthier, more affluent regions. It is correlated with average wages (0.48), economic output per person (0.41), and somewhat less so with per capita income (0.32). Occupational segregation is also modestly associated with median monthly housing costs (0.34).

Occupational segregation is bound up with the transition from the manufacturing to the creative economy. The three major classes are more separated in metros with larger concentrations of the creative class (0.55) and college grads (0.50), and even more so in those with

larger concentrations of high-tech industry (0.60). Occupational segregation is also greater in more diverse metros—those with higher percentages of foreign-born (0.42) and gay residents (0.51).

Occupational segregation is lower in metros with greater shares of the working class (-0.43). It is not statistically associated with the shares of service class.

Occupational segregation is bound up with long standing racial cleavages, though the correlations are generally modest. It is higher in metros where black people (0.26) and Latinos (0.24) make up greater shares of the population, and even more so with the share of population that is Asian (0.36). Conversely, occupational segregation is lower in metros where white residents make up a greater share of the population and the magnitude of the correlation is larger (-0.42).

Occupational segregation is positively associated with the level of income inequality (0.53) and even more so with wage inequality (0.63).

Again, despite the differences in the ranks of individual metros, there are broad commonalities in the factors underpinning the various types of economic segregation.

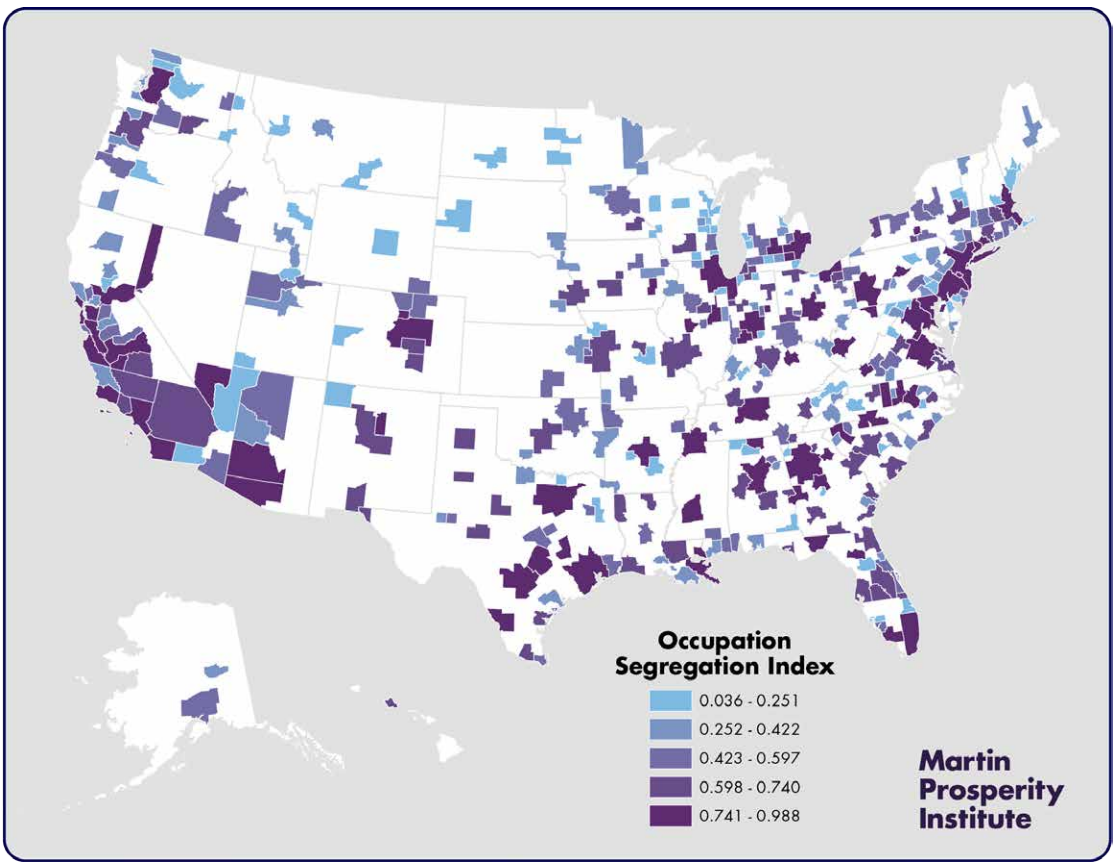


Exhibit 10: Overall Occupational Segregation

Rank	Metro	Index	Rank Out of All Metros
1	San Jose-Sunnyvale-Santa Clara, CA	0.981	2
2	San Francisco-Oakland-Fremont, CA	0.979	3
3	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.971	4
4	Austin-Round Rock, TX	0.956	7
5	Los Angeles-Long Beach-Santa Ana, CA	0.955	8
6	New York-Northern New Jersey-Long Island, NY-NJ-PA	0.953	9
7	Houston-Sugar Land-Baytown, TX	0.936	13
8	San Diego-Carlsbad-San Marcos, CA	0.924	14
9	San Antonio, TX	0.918	15
10	Columbus, OH	0.904	16

Exhibit 10.1: Large Metros with the Highest Levels of Overall Occupational Segregation

Rank	Metro	Index
1	Trenton-Ewing, NJ	0.988
2	San Jose-Sunnyvale-Santa Clara, CA	0.981
3	San Francisco-Oakland-Fremont, CA	0.979
4	Washington-Arlington-Alexandria, DC-VA-MD-WV	0.971
5	Ann Arbor, MI	0.968
6	Durham, NC	0.964
7	Austin-Round Rock, TX	0.956
8	Los Angeles-Long Beach-Santa Ana, CA	0.955
9	New York-Northern New Jersey-Long Island, NY-NJ-PA	0.953
10	Bridgeport-Stamford-Norwalk, CT	0.946

Exhibit 10.2: Metros with the Highest Levels of Overall Occupational Segregation

As with educational and income segregation, occupational segregation appears to be more closely related to the locational choices of the affluent. The well-paid members of the creative class are both more mobile and have more discretion about where they choose to live than the members of the other two classes—and they mostly choose to cluster together. The mean segregation score for the creative class across all U.S. metros is 0.206 compared to 0.196 for the working class and 0.120 for the service class.

The previous sections have examined the geography and levels of income, educational, and occupational segregation. In the next section,

we compare them to one another, examining to what extent they correlate with one another, which is to say, whether higher levels of one kind of segregation increase the likelihood that others will be higher as well.

Rank	Metro	Index	Rank Out of All Metros
1	Minneapolis-St. Paul-Bloomington, MN-WI	0.464	164
2	Cincinnati-Middletown, OH-KY-IN	0.567	199
3	Providence-New Bedford-Fall River, RI-MA	0.577	204
4	Salt Lake City, UT	0.579	206
5	Milwaukee-Waukesha-West Allis, WI	0.590	214
6	Rochester, NY	0.594	216
7	Buffalo-Niagara Falls, NY	0.608	222
8	Jacksonville, FL	0.619	231
9	Portland-Vancouver-Beaverton, OR-WA	0.626	233
10	Virginia Beach-Norfolk-Newport News, VA-NC	0.636	238

Exhibit 10.3: Large Metros with the Lowest Levels of Overall Occupational Segregation

Rank	Metro	Index
1	Racine, WI	0.036
2	Fond du Lac, WI	0.038
2	Monroe, MI	0.038
4	Bay City, MI	0.056
5	Hot Springs, AR	0.059
6	Lewiston, ID-WA	0.068
7	Elkhart-Goshen, IN	0.072
8	Lewiston-Auburn, ME	0.074
9	Farmington, NM	0.084
10	Hagerstown-Martinsburg, MD-WV	0.084

Exhibit 10.4: Metros with the Lowest Levels of Overall Occupational Segregation

3.4 How do different types of economic segregation compare?

We now turn to the connections between these various types of segregation. To what degree are income, educational, and occupational segregation related to, or different from, one another?

To get at this, *Exhibit 11* summarizes the correlations among the various types of economic segregation.[30]

As one might expect, the various segregation measures are associated with one another, some closely, some more modestly. The specific correlations range from 0.25 to 0.86, with the majority over 0.40 and many in the range of 0.50 to 0.80. The bottom line: When a metro is segregated on one measure, it is likely to be segregated on the others as well. While some metros rank higher and some lower on individual types of economic segregation, the troubling reality is that segregation is all of a piece.

We know that the various types of segregation are related. But are some types more severe than others? To get at this, we examined how segregated the average or "mean" metro is for each of the seven measures. We also looked at the range of segregation across metros, charting the lowest and highest levels of segregation for each segregation measure.

Exhibit 12 compares the segregation scores for the average metro as well as the values for the most and least segregated metros for each of our segregation measures. Smaller values reflect lower levels of segregation; higher values reflect greater segregation.

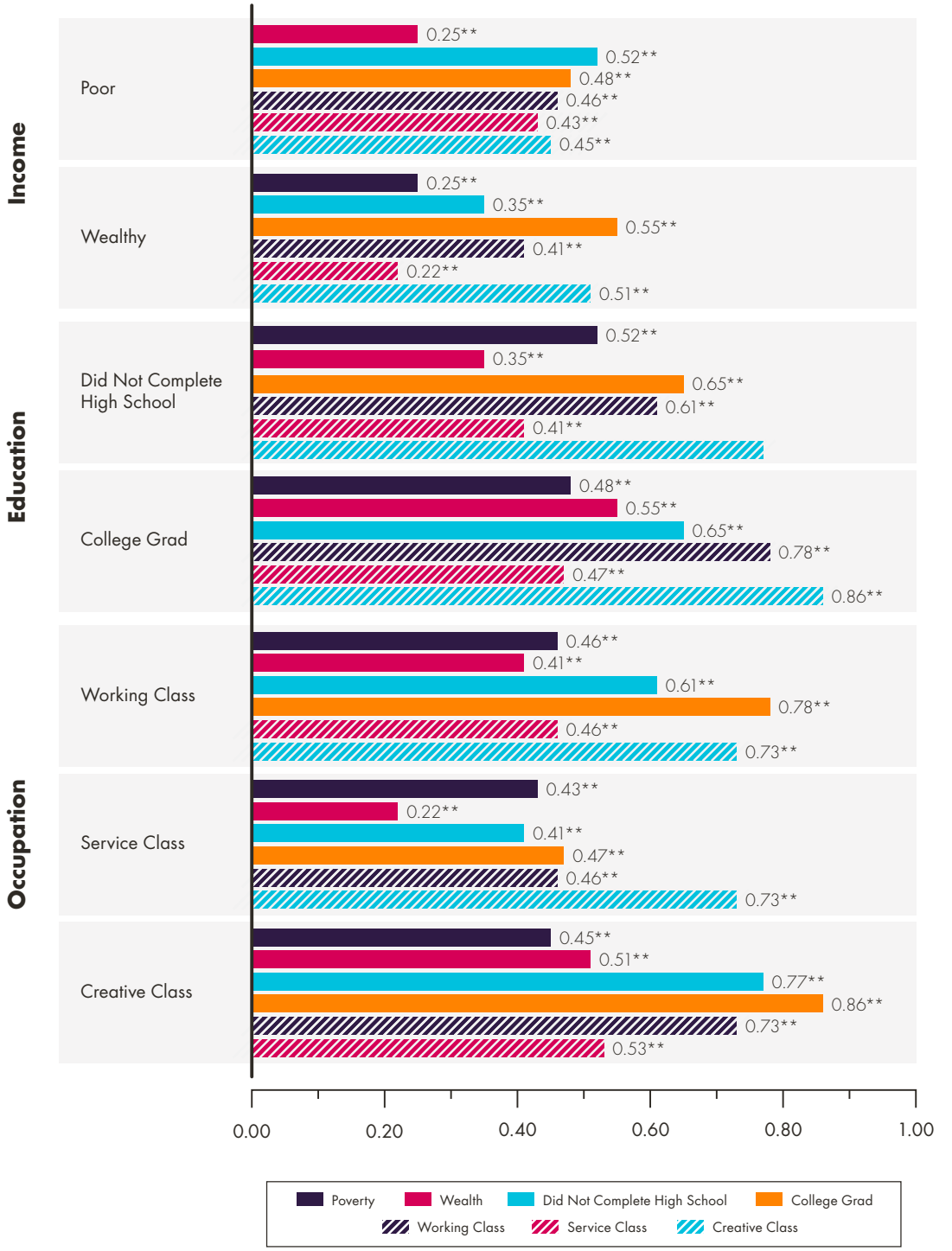
Of the three types of economic segregation, occupational segregation is the least severe. The segregation of the creative class is slightly higher (0.206) than that of the working class (0.196). The segregation of the service class is quite a bit lower (0.120). This likely reflects the fact that the service class makes up nearly half of all occupations across the United States and is therefore more evenly spread out geographically across tracts within metros.

Educational segregation occupies the middle ground between income and occupational segregation. The mean values for the less educated and the highly educated are quite similar (0.277 and 0.288 respectively). That said, the range for less educated groups is greater, indicating a broader range of segregation, even though the means are similar.

The segregation of poverty has a mean value of 0.323, higher than any type of occupational or educational segregation. But the most severe form of segregation by far is the segregation of the wealthy, with a mean value of 0.456.

These findings suggest that economic segregation is driven by the behavior and location choices of more advantaged groups. In each case—for income, educational, and occupational segregation—the mean scores for more advantaged groups are higher than for less advantaged groups. This is so for occupational segregation, where the creative class has a higher mean segregation score than either the working class or service class; for educational segregation, where college grads have a slightly higher mean segregation score than do those who did not graduate from high school; and it is especially true for income segregation, where wealth segregation has a much higher score than poverty segregation.

We now turn to a single omnibus index that combines all of these measures: the Overall Economic Segregation Index.



** indicates significance at the 1 percent level.

Exhibit 11: Correlates for the Various Types of Economic Segregation

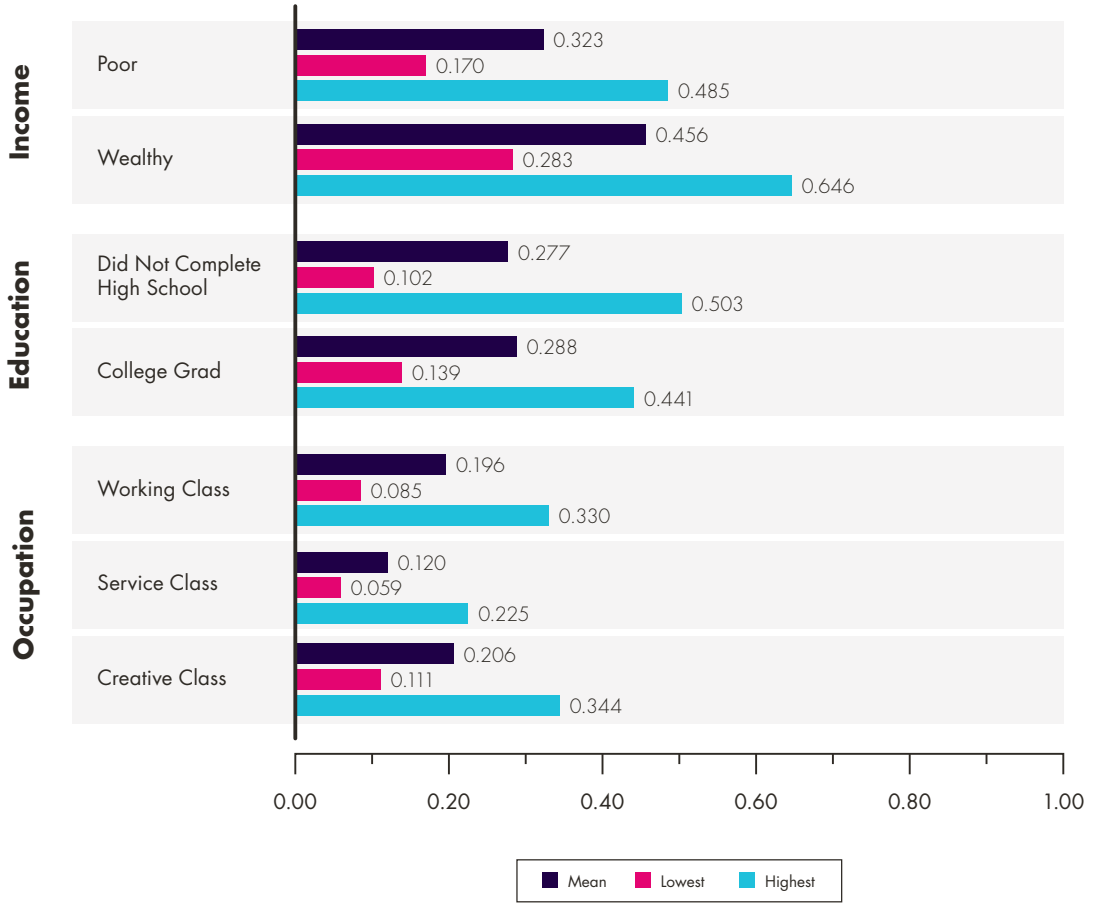


Exhibit 12: Values for Mean, Lowest, and Highest Levels of Economic Segregation

3.5 The Overall Economic Segregation Index

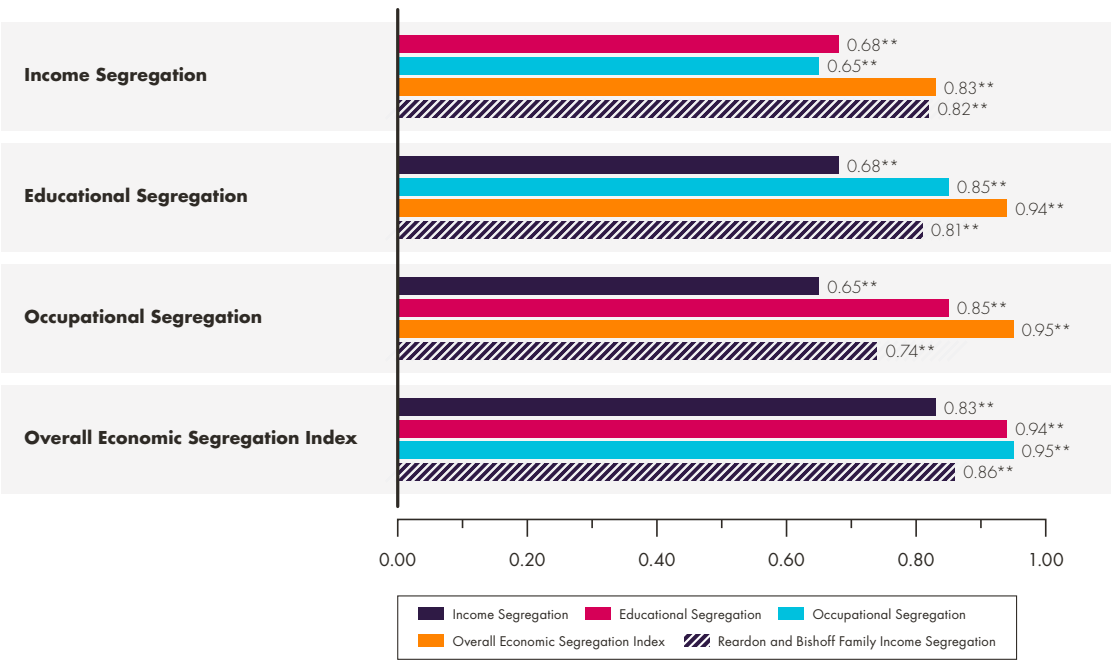
The Overall Economic Segregation Index is based on the ranks of all seven measures of income, educational, and occupational segregation that were discussed above (see the Appendix for more detail on this).

Exhibit 13 shows the correlations between the Overall Economic Segregation Index and the three major indexes of income, educational, and occupational segregation. All are fairly closely correlated with it as well as with one another (with correlations ranging from 0.65 to 0.94). We also examined the correlations between our measures and a commonly cited measure of family income segregation by Reardon and Bischoff. Even though their study covers only the largest 117 metropolitan areas, those with more than 500,000 people, the correlations are again considerable, ranging from 0.74 to 0.86.[31]

Exhibit 14 maps the Overall Economic Segregation Index across the U.S. metros.

Exhibit 14.1 lists the ten large metros with the highest values on the Overall Economic Segregation Index. Austin is first, followed by Columbus, San Antonio, Houston, and Los Angeles. New York, Dallas, Philadelphia, Chicago, and Memphis round out the top ten. America's six largest metros are on the list. Four of the most segregated large metros are in Texas.

A number of college towns rise to the top when we expand the list to cover all metros *(Exhibit*



** indicates significance at the 1 percent level.

Exhibit 13: Correlates for the Various Segregation Indexes

14.2). Tallahassee (home to Florida State University) jumps to first place and Trenton-Ewing (Princeton University) to second, while Austin falls to third. Tucson (University of Arizona) and Ann Arbor (University of Michigan) also make the list, along with Bridgeport-Stamford-Norwalk.

Exhibit 14.3 lists the large metros with the lowest values on the Overall Economic Segregation Index. Orlando ranks first followed by Portland, Oregon; Minneapolis-St. Paul, Providence, and Virginia Beach. Tampa, Jacksonville, Riverside, Cincinnati, and Hartford round out the ten least segregated large metros. Other large metros with relatively low levels of overall economic segregation include Rochester (264th), Buffalo (267th), Pittsburgh (268th), and New Orleans (275th).

Exhibit 14.4 extends the list to all metros. The metros with the lowest levels of overall segregation are all smaller. There are more than 200 small and medium-sized metros where overall segregation is less than in the least segregated of the 51 large metros. All of the top ten least segregated metros have fewer than 300,000 people.

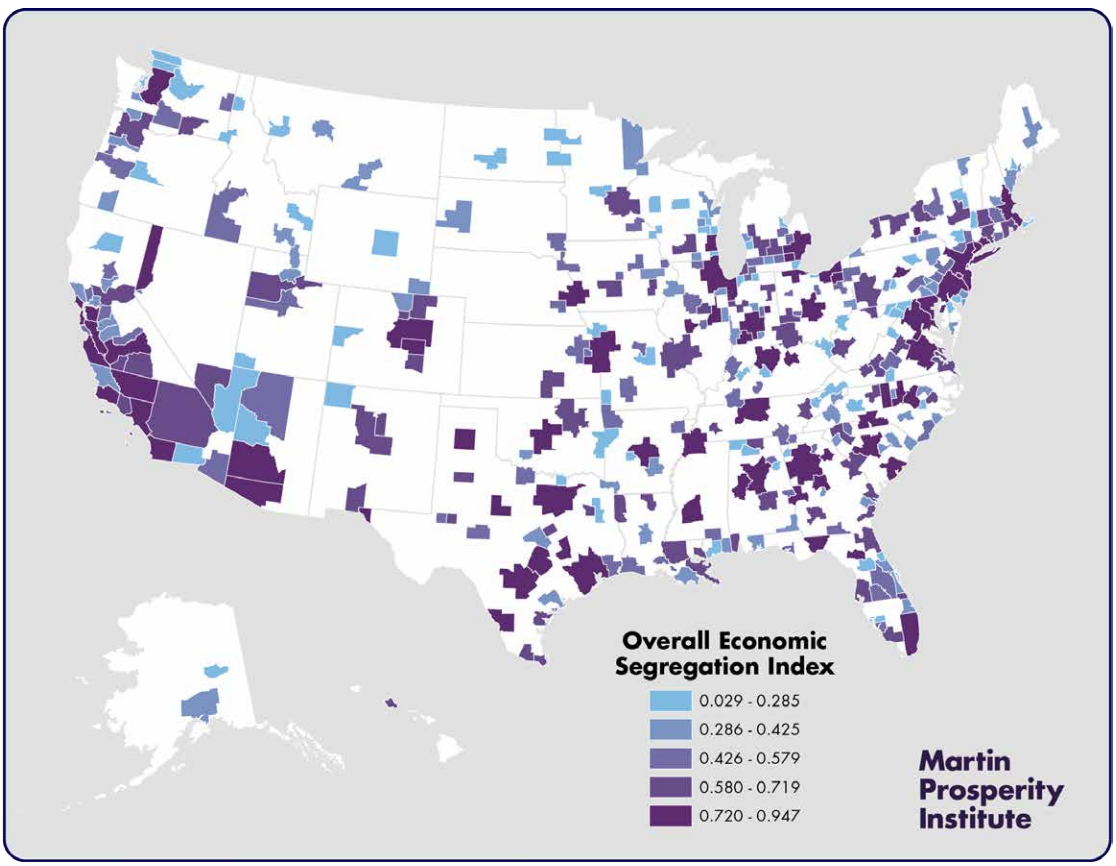


Exhibit 14: Overall Economic Segregation Index

Rank	Metro	Index	Rank Out of All Metros
1	Austin-Round Rock, TX	0.925	3
2	Columbus, OH	0.912	4
3	San Antonio, TX	0.903	6
4	Houston-Sugar Land-Baytown, TX	0.903	7
5	Los Angeles-Long Beach-Santa Ana, CA	0.893	10
6	New York-Northern New Jersey-Long Island, NY-NJ-PA	0.889	11
7	Dallas-Fort Worth-Arlington, TX	0.875	12
8	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	0.873	13
9	Chicago-Naperville-Joliet, IL-IN-WI	0.868	15
10	Memphis, TN-MS-AR	0.867	16

Exhibit 14.1: Large Metros with the Highest Levels of Overall Economic Segregation

Rank	Metro	Index
1	Tallahassee, FL	0.947
2	Trenton-Ewing, NJ	0.933
3	Austin-Round Rock, TX	0.925
4	Columbus, OH	0.912
5	Tucson, AZ	0.906
6	San Antonio, TX	0.903
7	Houston-Sugar Land-Baytown, TX	0.903
8	Ann Arbor, MI	0.902
9	Bridgeport-Stamford-Norwalk, CT	0.898
10	Los Angeles-Long Beach-Santa Ana, CA	0.893

Exhibit 14.2: Metros with the Highest Levels of Overall Economic Segregation

Rank	Metro	Index	Rank Out of All Metros
1	Orlando-Kissimmee, FL	0.548	203
2	Portland-Vancouver-Beaverton, OR-WA	0.581	217
3	Minneapolis-St. Paul-Bloomington, MN-WI	0.596	223
4	Providence-New Bedford-Fall River, RI-MA	0.611	233
5	Virginia Beach-Norfolk-Newport News, VA-NC	0.634	239
6	Tampa-St. Petersburg-Clearwater, FL	0.646	244
7	Jacksonville, FL	0.649	246
8	Riverside-San Bernardino-Ontario, CA	0.672	256
9	Cincinnati-Middletown, OH-KY-IN	0.673	259
10	Hartford-West Hartford-East Hartford, CT	0.674	260

Exhibit 14.3: Large Metros with the Lowest Levels of Overall Economic Segregation

Rank	Metro	Index
1	Fond du Lac, WI	0.029
2	Monroe, MI	0.049
3	St. George, UT	0.074
4	Lewiston, ID-WA	0.075
5	Dover, DE	0.089
6	Coeur d'Alene, ID	0.097
7	Morristown, TN	0.099
8	Bay City, MI	0.113
9	Sherman-Denison, TX	0.115
10	Hagerstown-Martinsburg, MD-WV	0.116

Exhibit 14.4: Metros with the Lowest Levels of Overall Economic Segregation

4. What kinds of metros are more segregated than others?

We have seen which metros have the highest and lowest levels of overall economic segregation. We know that being segregated along one dimension increases the likelihood that a metro will be segregated along others. And we have seen that the geography of income segregation is more severe than either educational or occupational segregation.

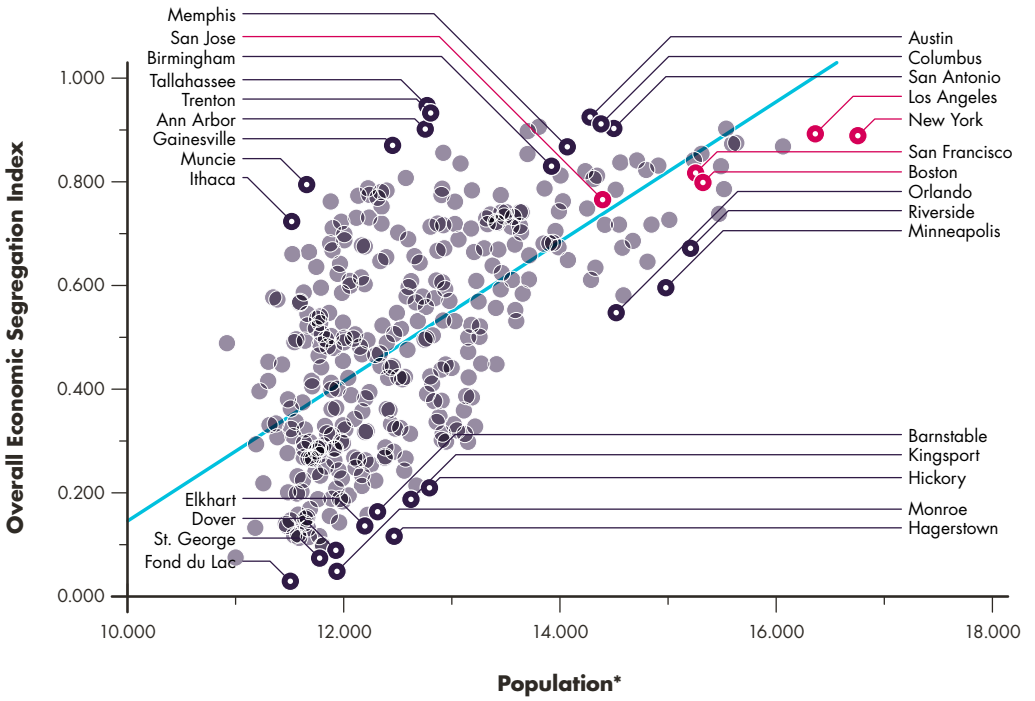
We now turn to the underlying factors and characteristics of metros that are associated with higher or lower levels of overall economic segregation.

4.1 Size and Density

The Overall Economic Segregation Index is closely associated with the size (0.64) and density (0.56) of metros *(Exhibit 15, 16, and 17)*. The correlations across all measures are positive and significant, with many in the 0.5s and 0.6s. Economic segregation clearly appears to be a feature of larger, denser metros.

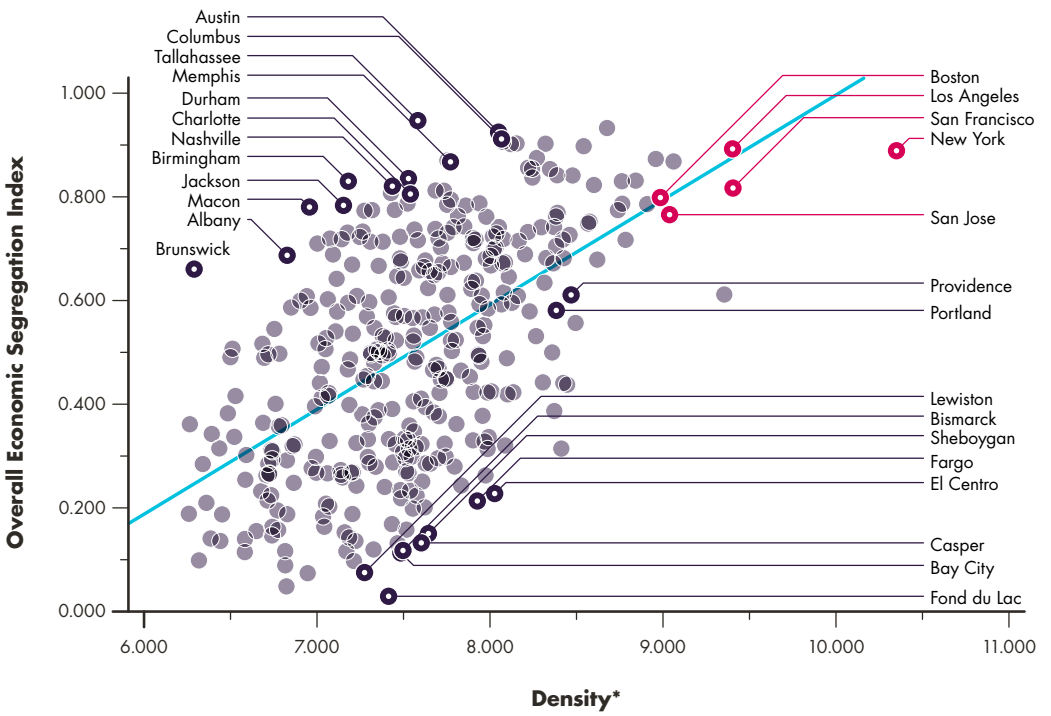
4.2 Wealth and Affluence

Economic segregation is related to the wealth and affluence of metros *(see Exhibit 18)*. The Overall Economic Segregation Index is positively associated with wages (0.46) and economic output per capita (0.41), and somewhat less so with per capita income (0.29). These factors play a bigger role for occupational and educational segregation than for income segregation. The correlations are mainly positive and significant, with many in the high to mid-0.4s. The big exception is the segregation of the wealthy, where the correlations are either not significant or mildly negative and significant.



*Note: Logged

Exhibit 15: Overall Economic Segregation Index and Population



*Note: Population Weighted

Exhibit 16: Overall Economic Segregation Index and Density

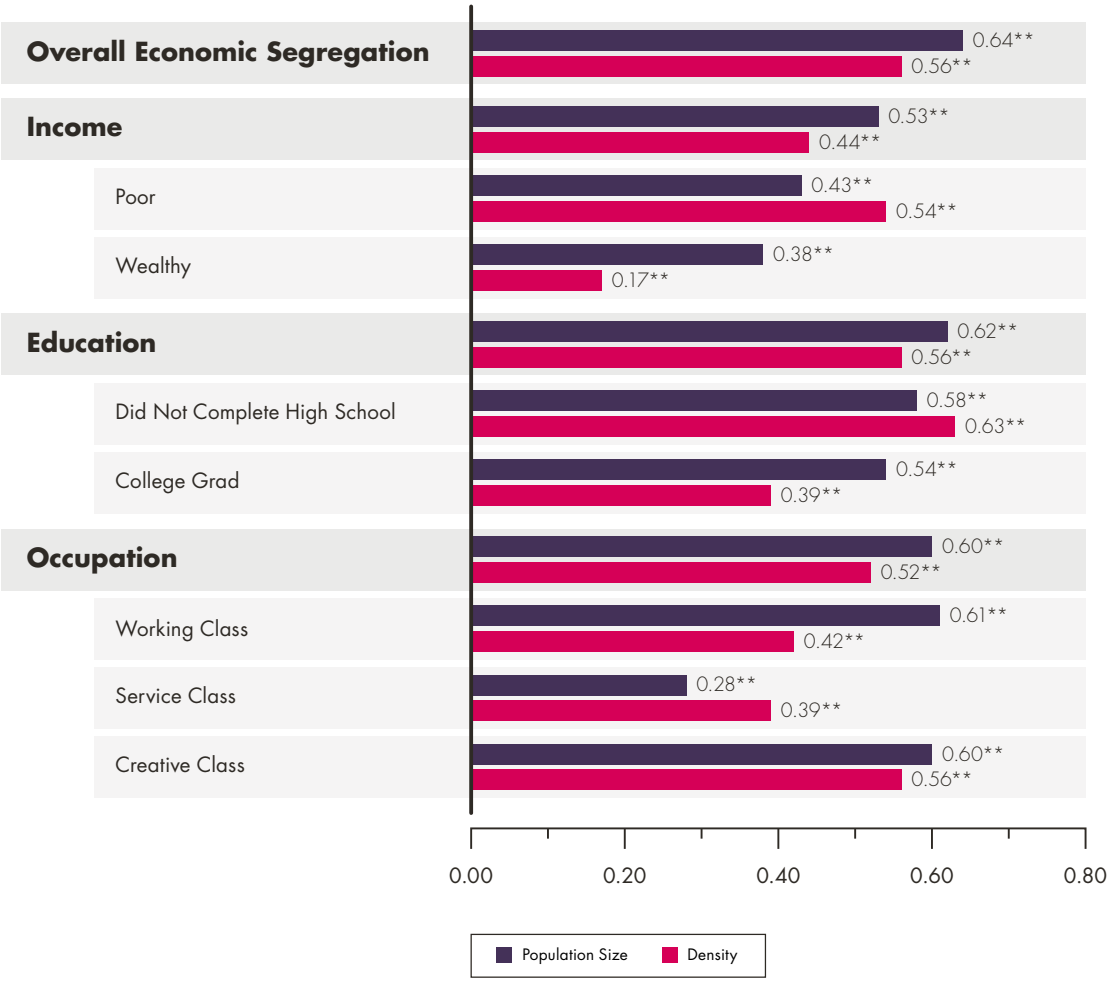


Exhibit 17: Correlates Population Size and Density

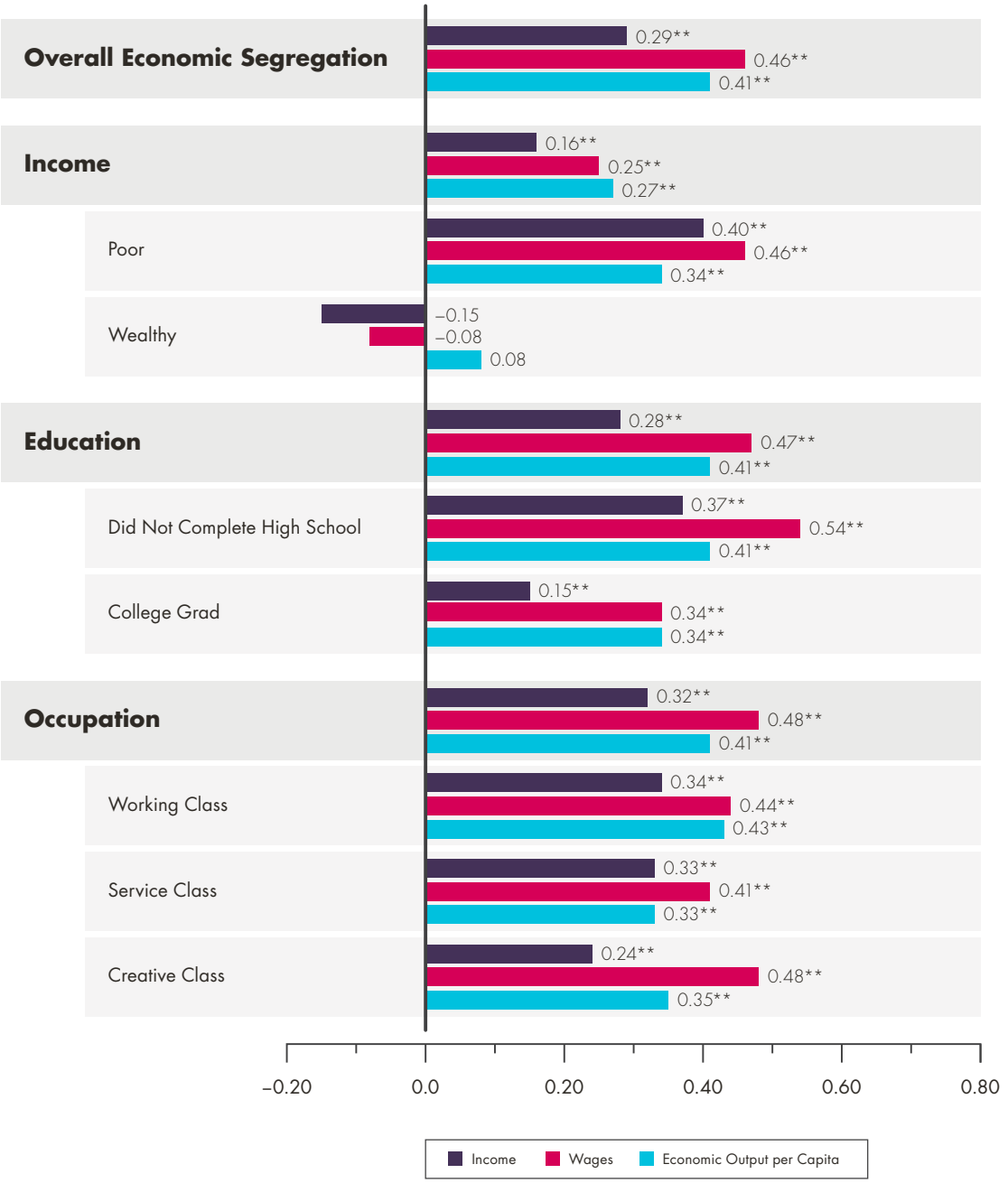


Exhibit 18: Correlates for Income, Wages, and Economic Output per Capita

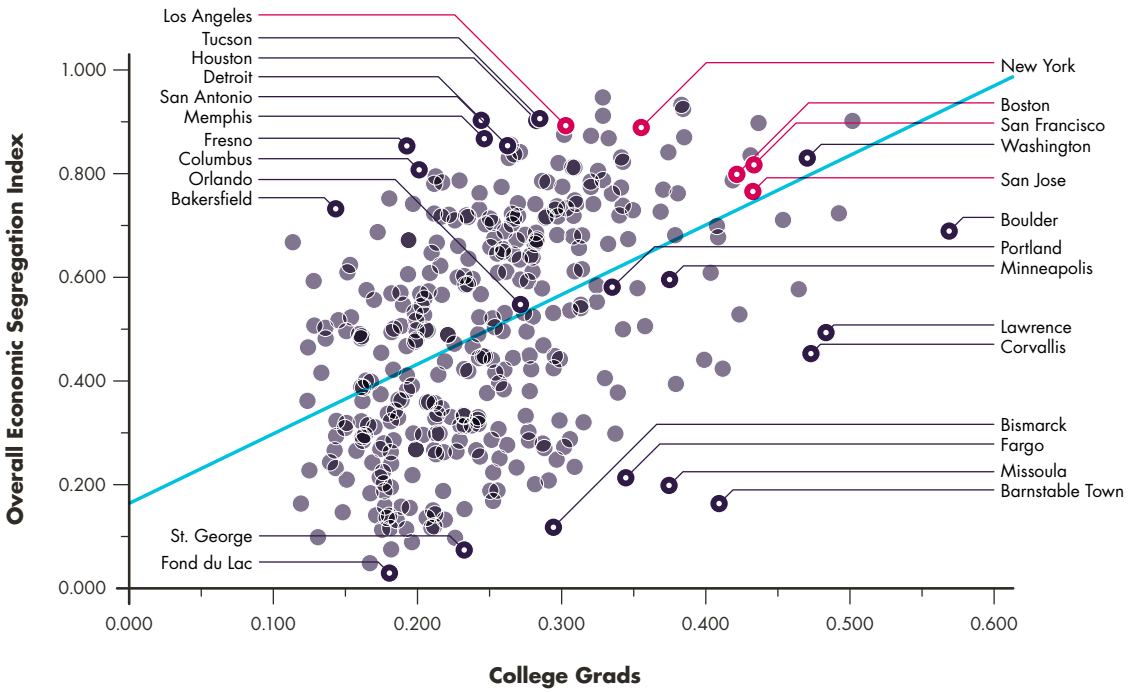


Exhibit 19: Overall Economic Segregation Index and College Grads

4.3 Knowledge-Based Economies

Economic segregation is even more closely associated with key markers of the knowledge economy than it is with affluence *(see Exhibit 19, 20, 21, and 22)*. The Overall Economic Segregation Index is positively associated with the share of adults who hold college degrees (0.47), the creative class share of the workforce (0.53), and even more so with the concentration of high-tech industry (0.62). These correlations are among the highest in our analysis.

The biggest outlier is the segregation of the wealthy, where the correlations are smaller or statistically insignificant. The segregation of the poor, on the other hand, is substantially associated with college grads, high-tech industry, and the creative class.

Conversely, we find *(see Exhibit 23 and 24)* that economic segregation is negatively associated with the level of unionization (-0.18) and the share of workers in blue-collar working class occupations (-0.37), key indicators of traditional industrial economic structures. Having a larger working class appears to militate against economic segregation.

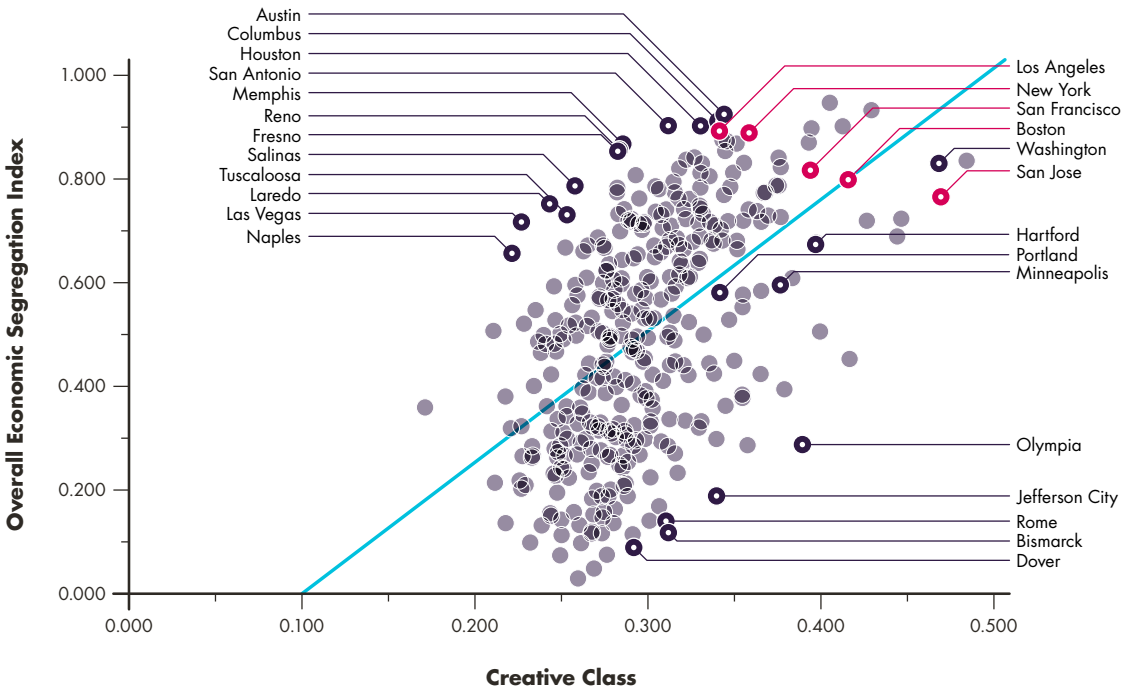


Exhibit 20: Overall Economic Segregation Index and Creative Class

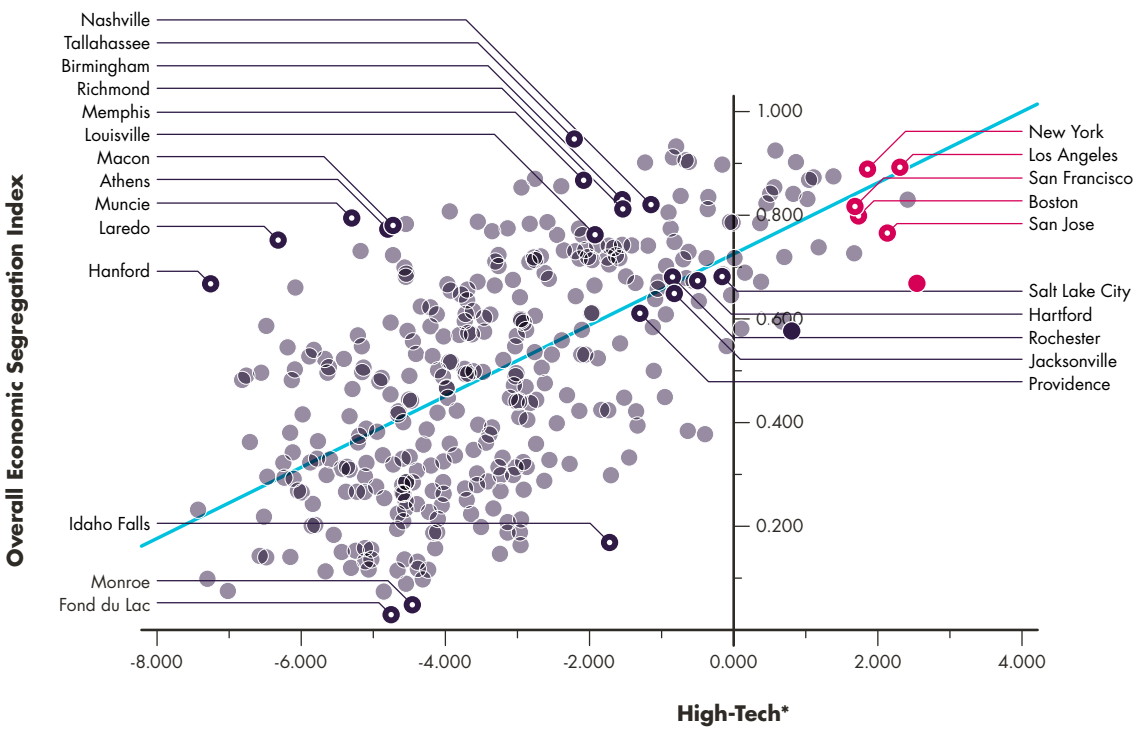


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Exhibit 21: Overall Economic Segregation Index and High-Tech

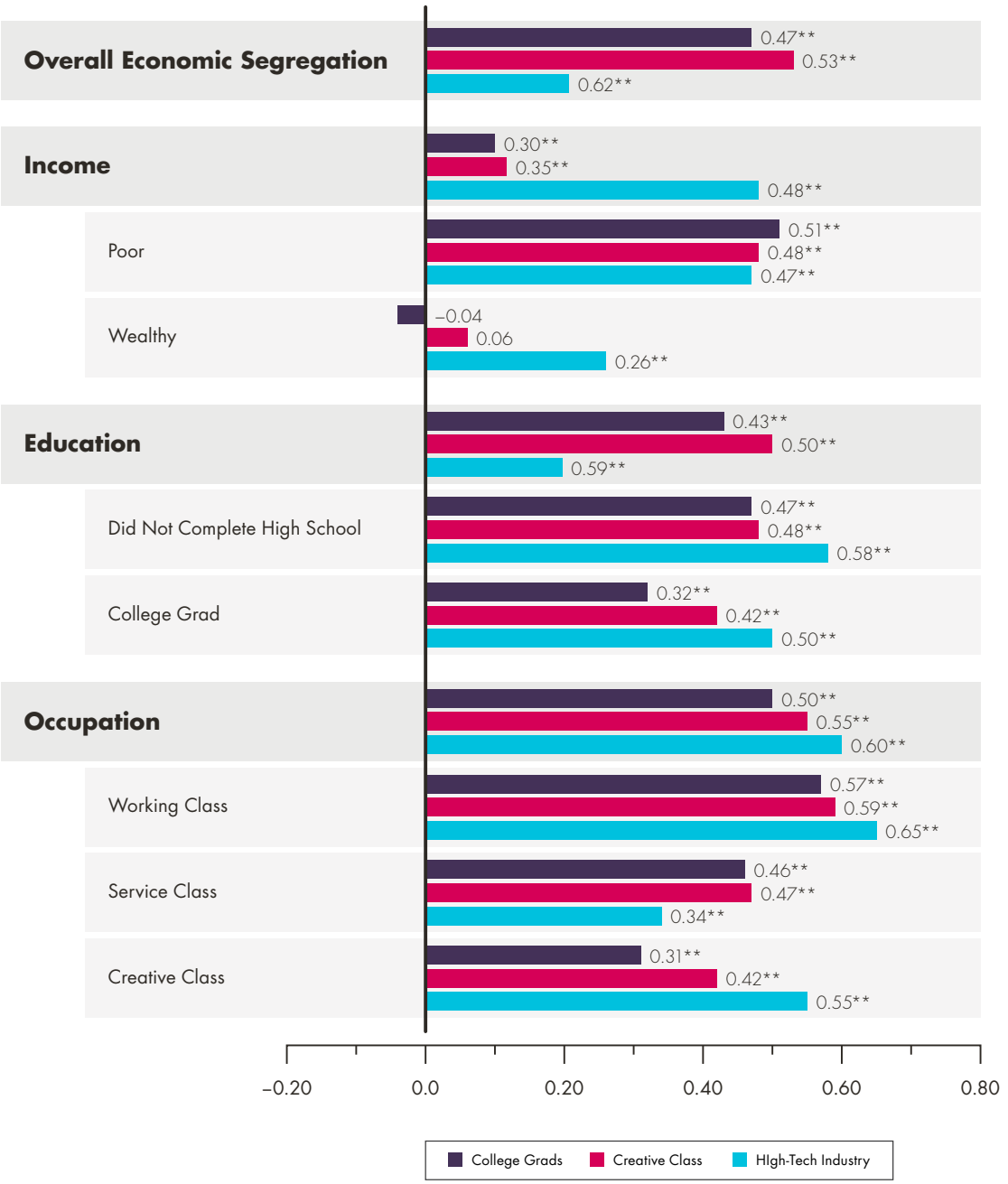

Exhibit 22: Correlates for College Grads, Creative Class, and High-Tech Industry

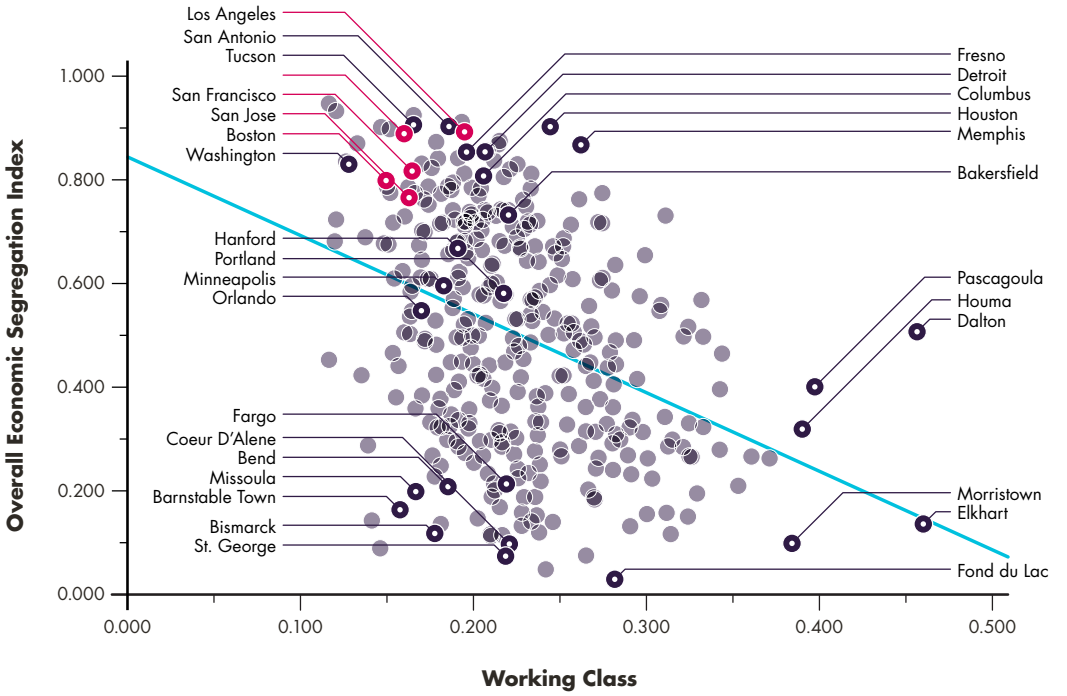

Exhibit 23: Overall Economic Segregation Index and Working Class

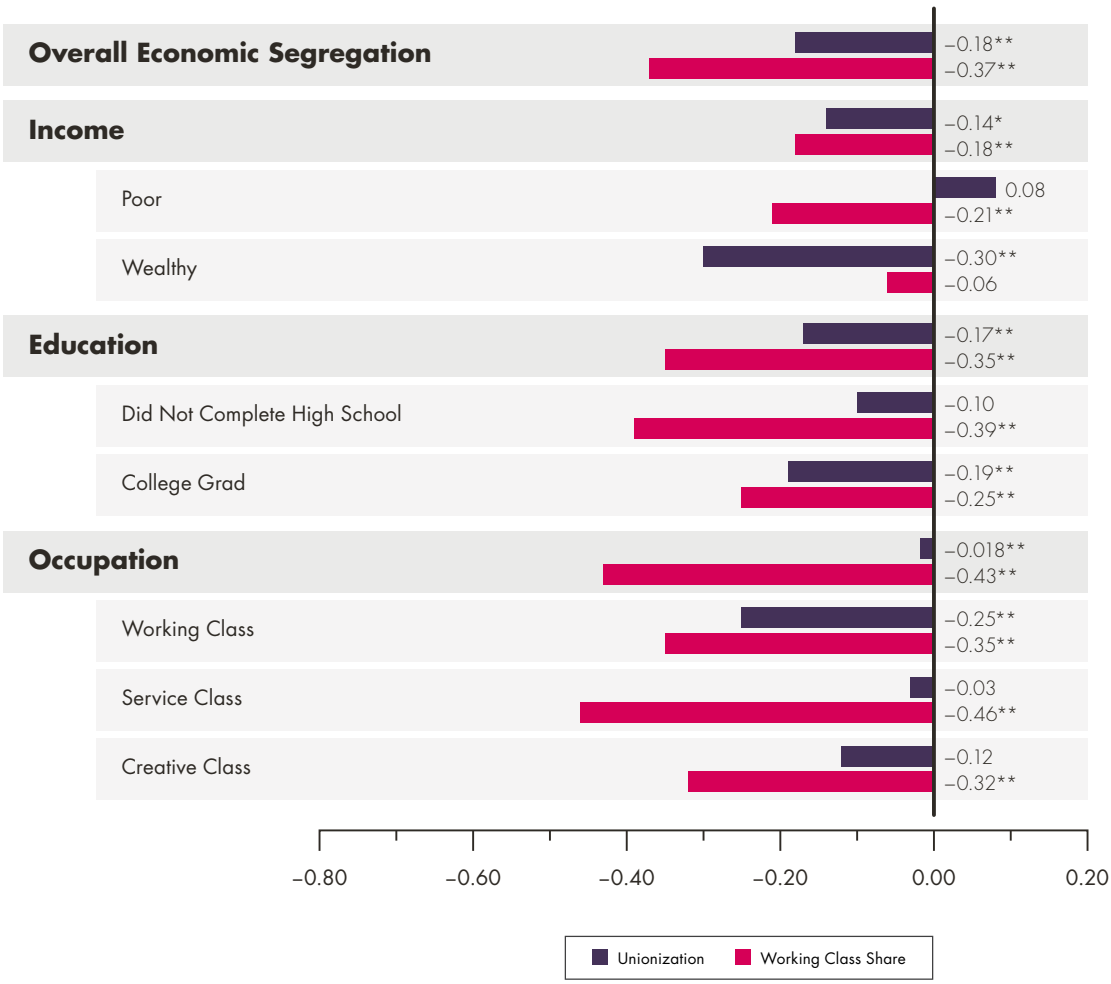

Exhibit 24: Correlates for Industrial Economic Structures: Unionization and Working Class Share

4.4 Housing Costs

Many point to gentrification and the rising real estate values that go along with it as a key factor in the displacement and isolation of lower income groups.

Interestingly enough, we find only modest associations between median housing costs and overall economic segregation *(see Exhibit 25)*. There is a modest correlation between median housing costs and the Overall Economic Segregation Index (0.31) and an even weaker one between housing costs as a share of income and overall economic segregation (0.17).

Housing costs appear to play a greater role in occupational and educational segregation than in income segregation, where the correlations are insignificant. This result again seems to be driven by the relationship between housing costs and the segregation of the wealthy, which is negative. Housing costs are modestly associ-

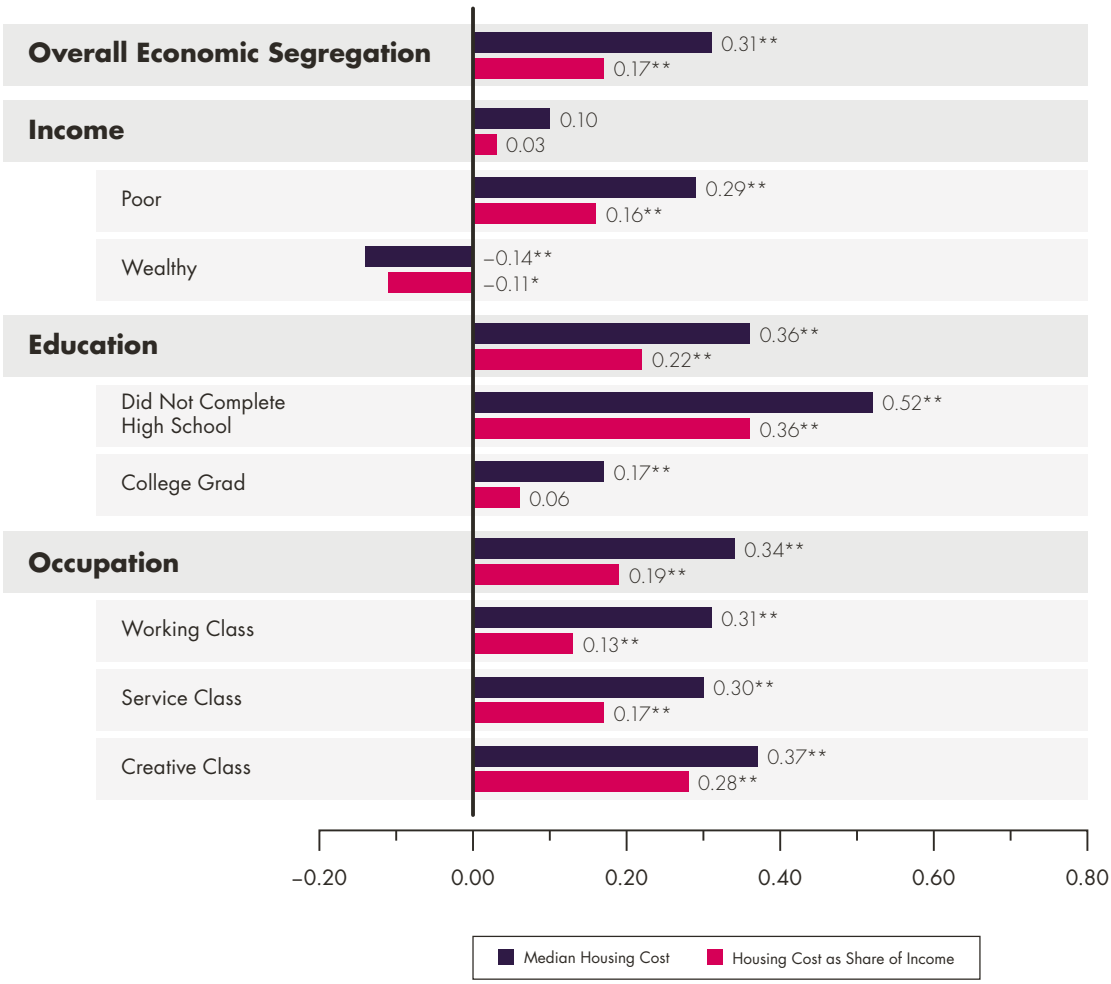

Exhibit 25: Correlates for Housing Costs

ated with the segregation of the poor. Overall housing costs appear to play a bigger role than housing costs as a share of income.

It's important to remember that we are looking at median values, which do not capture the distribution of housing costs within a metro. A metro with little variation in costs for housing can end up with the same median value for housing as a metro where the variation ranges from very cheap to very expensive. It's also important to remember that our analysis covers all 350-plus U.S. metros. Housing costs in high-cost metros like New York or San Francisco likely play a much larger role in residential segregation than they do on average.

4.5 How We Get to Work

Economic segregation is also bound up with whether we take transit or drive a car to work *(see Exhibit 26)*.

The Overall Economic Segregation Index is positively associated with the share of commuters who take transit to work (0.49). The correlations are similar for each of the three major segregation measures, though they are stronger for occupational (0.50) and educational segregation (0.44) than for income segregation (0.37). This again appears to be mainly driven by the result for the segregation of the wealthy. Ironically and troublingly, access to transit tends to raise housing values, meaning that the poor—the people who need transit the most—have the least access to it, and hence to economic opportunity.

On the flip side, overall economic segregation is lower in metros where greater shares of commuters drive to work alone (-0.22). This association is stronger for occupational segregation (-0.31) and educational segregation (-0.26) than for income segregation (where it is not statistically significant). These results likely reflect the broader effects of size and density. Transit

Exhibit 26: Correlates for Transit and Drive to Work Alone

is associated with larger denser regions; commuters are more likely to drive to work alone in smaller and more sprawling metros.

4.6 Political Orientation

Economic segregation is connected to the long-standing divisions between conservative and liberal places—but not in the way that liberals and conservatives might suppose *(see Exhibit 27)*. The Overall Economic Segregation Index is positively associated with liberalism, measured by the share of voters who cast their ballots for Obama in 2012 (0.32) and it is negatively associated with conservatism, measured by the share that voted for Romney (-0.31). The correlations are relatively similar for all the major segregation measures, though once again the associations for the segregation of the wealthy are statistically insignificant.

This also likely reflects the broader effects of size and density. Larger, more diverse, and more knowledge-based metros tend to lean liberal. And liberal politics are closely associated with density. According to one analysis, metros reach a tipping point where they turn from liberal to conservative at a density of roughly 700 to 800 people per square mile.[32]

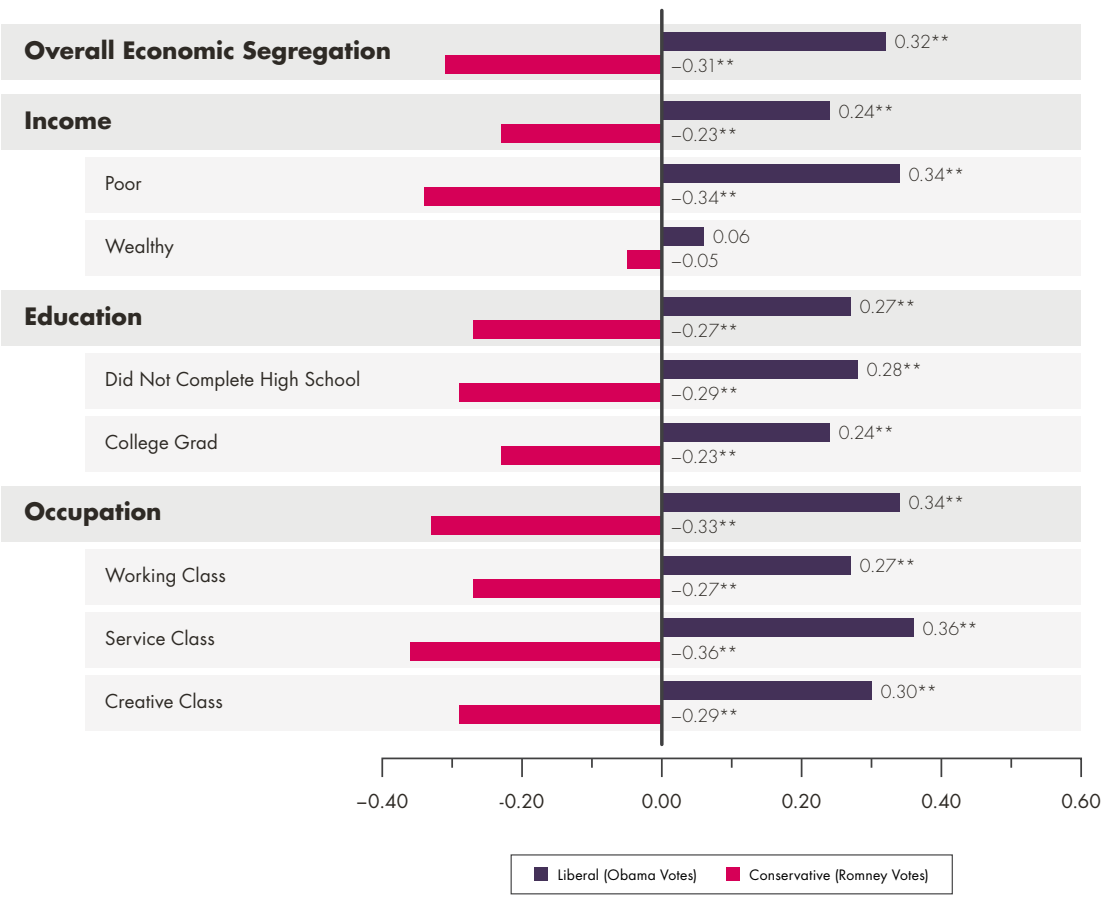

Exhibit 27: Correlates for Liberal and Conservative Politics

4.7 Race

Race remains a key marker of stratification in American society. A broad body of studies documents the connection between race, poverty, and segregation.[33] NYU sociologist Patrick Sharkey points out that "two-thirds of black children who were raised in the poorest quarter of U.S. neighborhoods a generation ago now raise their own children in similarly poor neighborhoods. About half of all black families have lived in the poorest American neighborhoods over the last two generations, compared to just 7 percent of white families."[34]

Economic segregation and race are correlated, as we have seen *(Exhibit 28, 29, and 30)*. The Overall Economic Segregation Index is negatively associated with the share of residents that are white (-0.43) and positively associated with the shares that are black (0.29), Latino (0.24) and Asian (0.30). Generally speaking, race plays a relatively larger role in educational and occupational segregation than income segregation, with the exception of black population shares. The share of the population that is black is positively related to all three main types of economic segregation. It is slightly more closely related to income segregation, though the differences are modest.

The Latino share of population is also positively related to all three types of segregation, though it is not statistically associated with the segregation of poverty or of the service class. The Asian share of the population is positively related to educational and occupational segregation, but is not statistically associated with income segregation. This again reflects the effect of the segregation of the wealthy.

Conversely, the share of the population that is white is negatively associated with all three types of economic segregation—income, educational, and occupational segregation, though it appears to play a larger role in educational and occupational separation than in income segregation. It has a weak relationship to the segregation of the poor, where it is statistically insignificant.

Generally speaking, our findings suggest that the white share of the population plays a relatively greater role in economic segregation than the shares of racial and ethnic minorities.

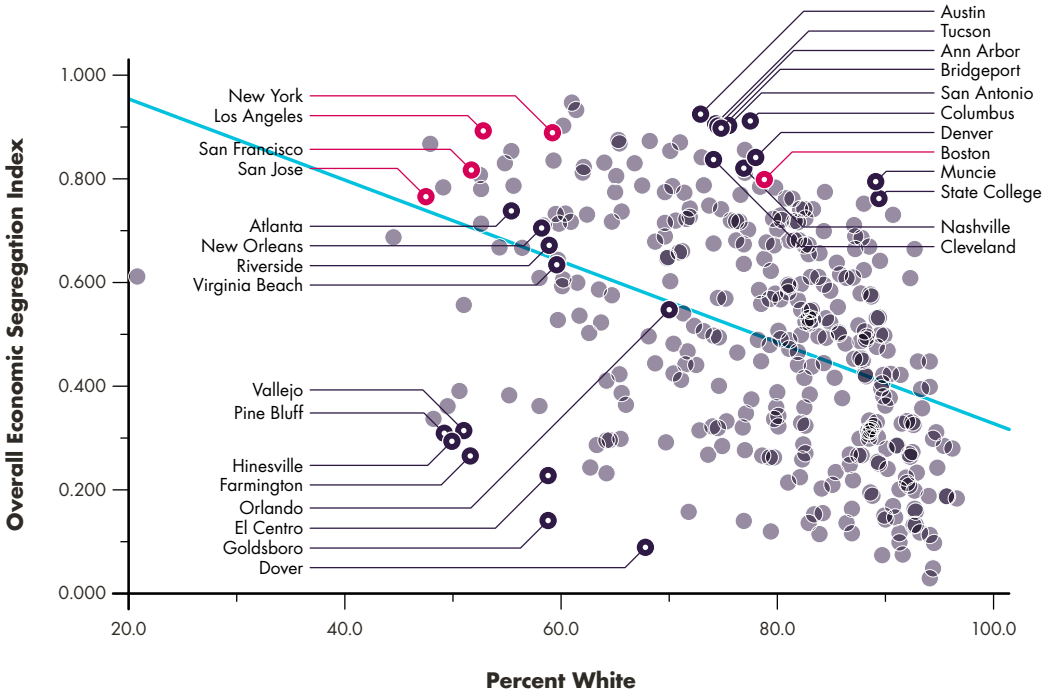

Exhibit 28: Overall Economic Segregation Index and White

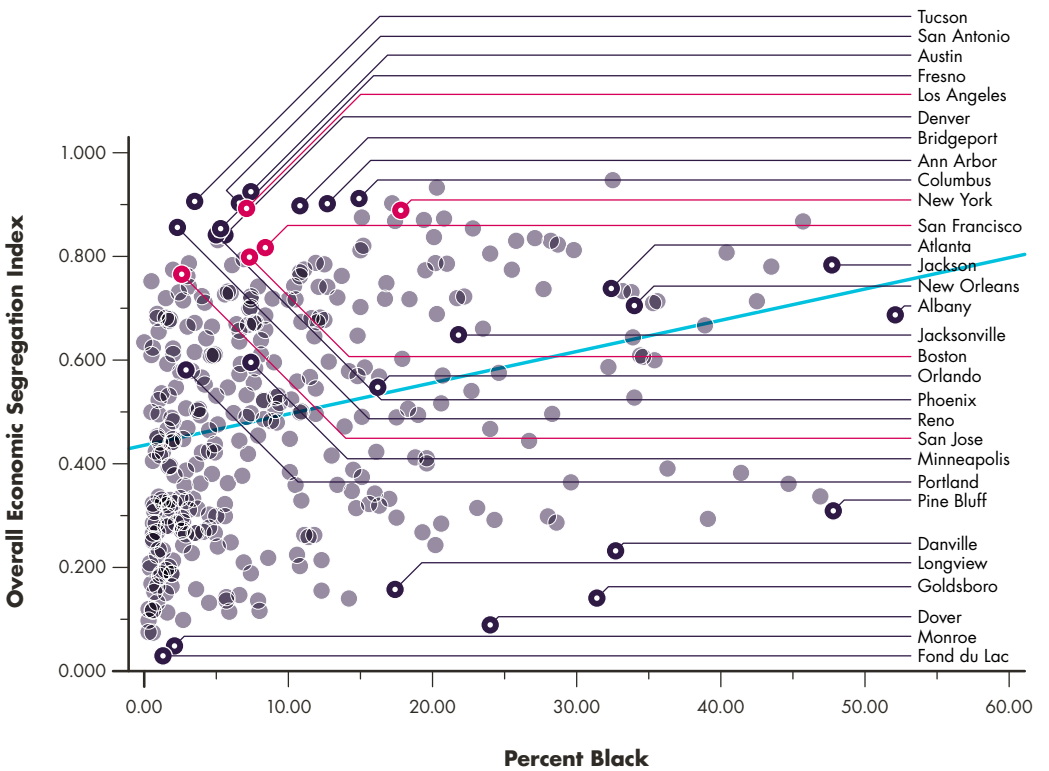

Exhibit 29: Overall Economic Segregation Index and Black

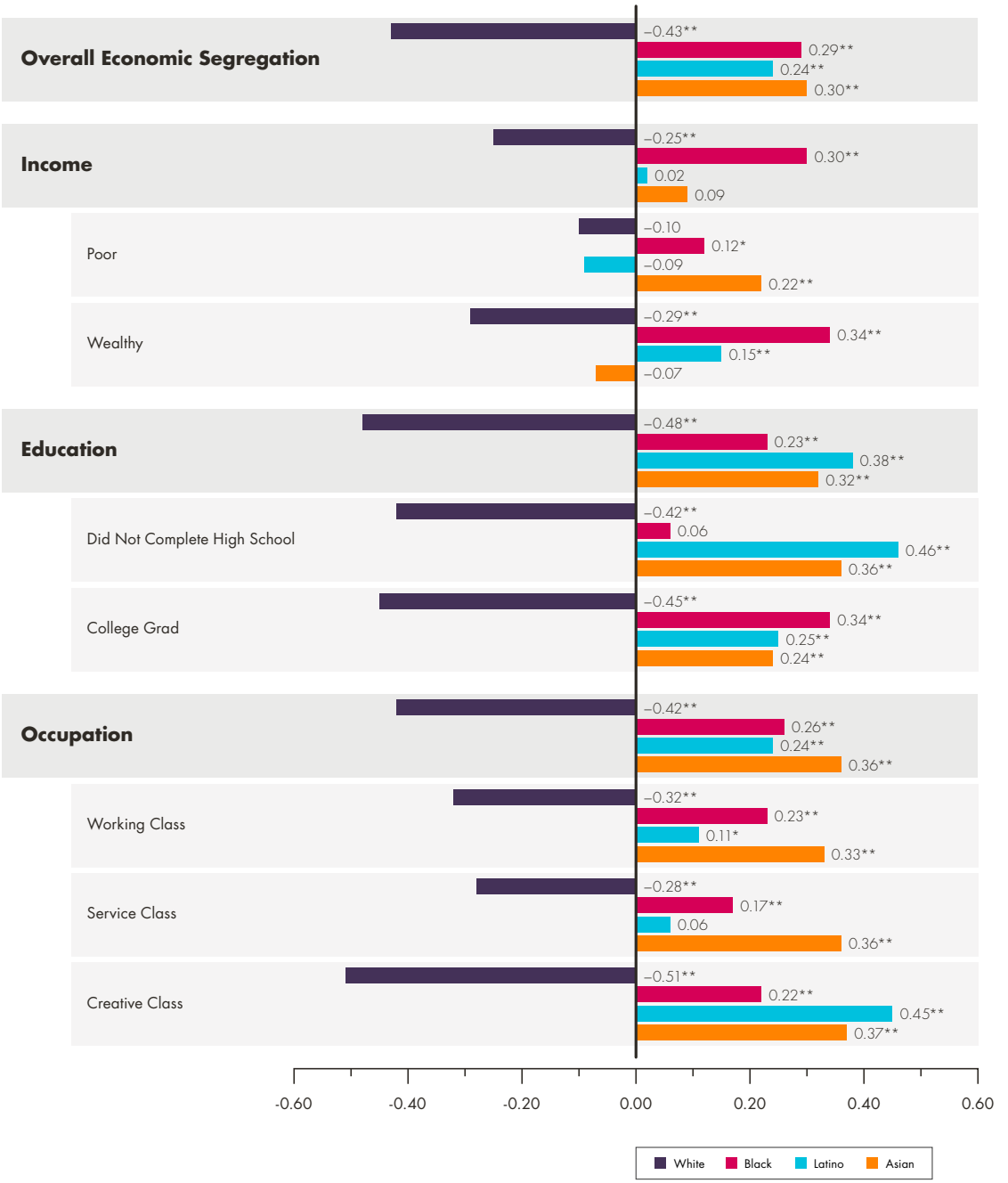

Exhibit 30: Correlates for Race

4.8 Inequality

One might think that metros with higher levels of economic inequality would also be beset with higher levels of economic segregation, almost by definition.

Our analysis confirms that inequality and economic segregation are related *(see Exhibit 31, 32, and 33)*. The Overall Economic Segregation Index is positively associated with income inequality (0.52) and even more so with wage inequality (0.62). The correlations between inequality and the various measures of economic segregation are positive and range from a low of around 0.20 to a high of more than 0.60. The majority of correlations fall into the range of the high 0.40s to 0.50. Once again, the correlations are higher for educational and occupational segregation than for income segregation.

While income inequality and residential segregation do go together, it is important to remember that they are not the same thing. As Reardon and Bischoff note, "although income inequality is a necessary condition for income segregation, it is not sufficient."[35] A city or metro might be quite unequal but not particularly segregated if lower and upper income groups are distributed evenly across neighborhoods. Likewise, a city or metro could be highly segregated but relatively equal if its different economic groups reside in different neighborhoods.

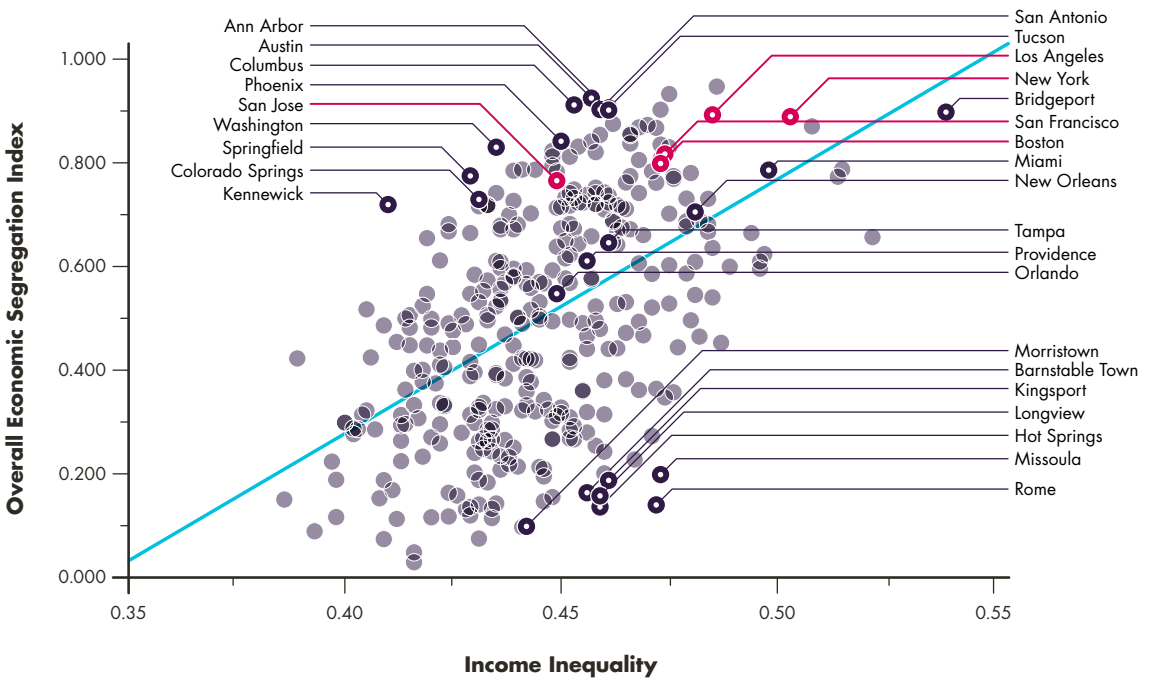

Exhibit 31: Overall Economic Segregation Index and Income Inequality

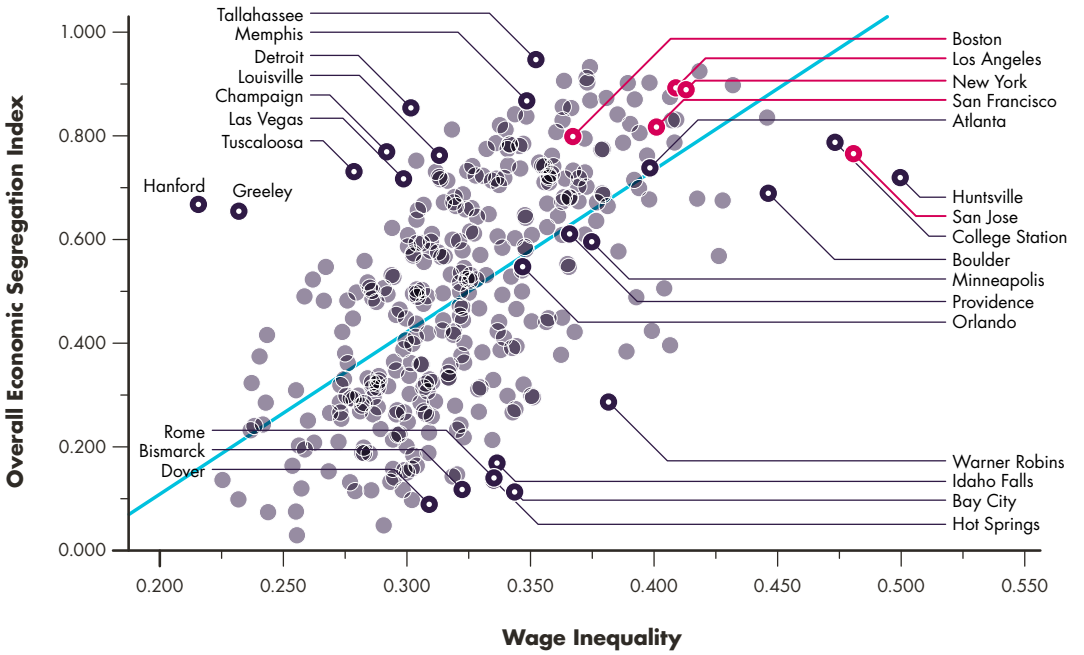

Exhibit 32: Overall Economic Segregation Index and Wage Inequality

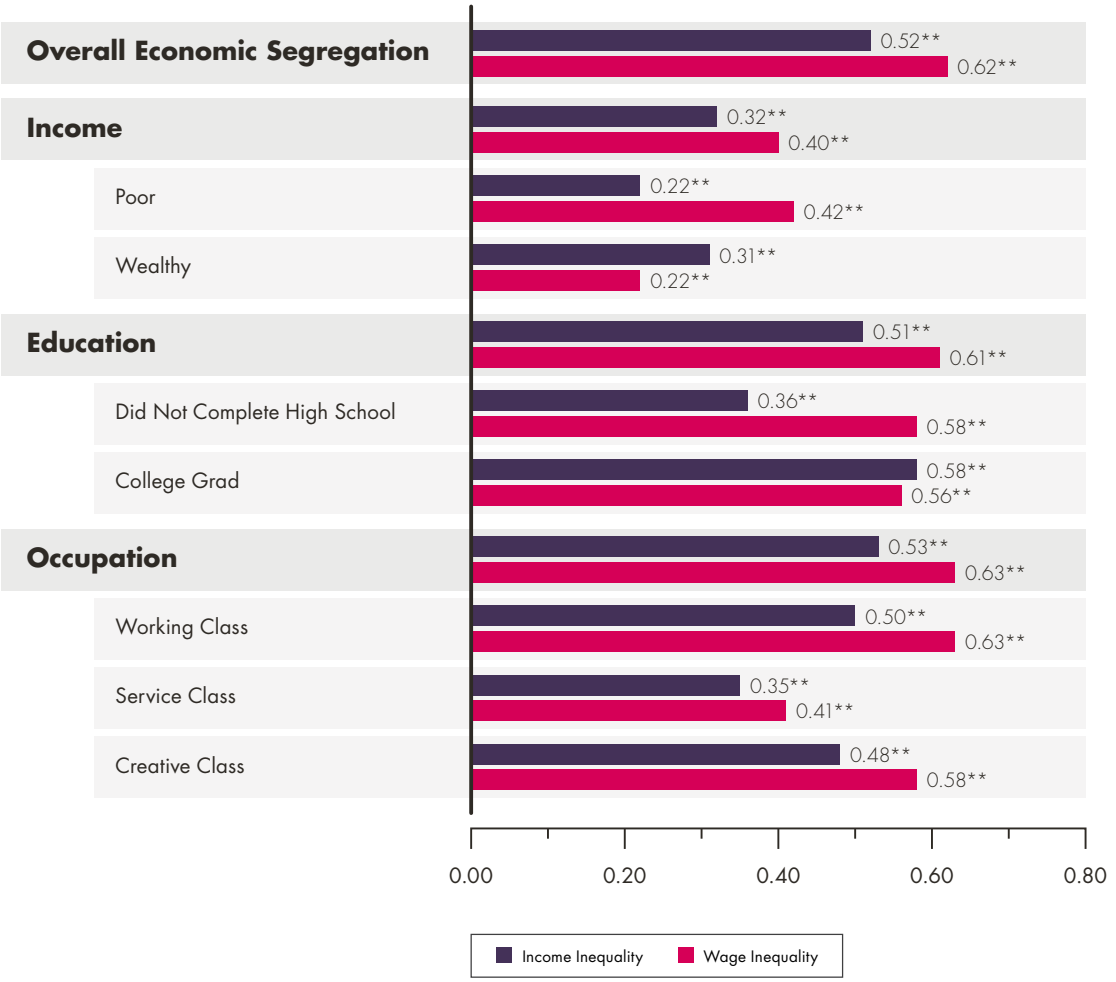

Exhibit 33: Correlates for Inequality

5. Conclusion

This report has mapped measures of economic segregation spanning income, education, and occupation; developed an overall index of economic segregation which combines all three; and examined the key factors associated with economic segregation across U.S. metros.

Our key findings with regard to the geography of economic segregation are as follows.

- Older Rustbelt metros top the list on income segregation. More sprawling Sunbelt metros top the list on educational segregation. And larger and more knowledge-based metros top the list on occupational segregation.
- While larger metros generally experience higher levels of economic segregation, two medium-sized ones—Tallahassee and Trenton—register the highest levels of overall economic segregation in the country.
- Among large metros, Los Angeles, Austin, Houston, New York, Dallas, Philadelphia, Chicago, and Memphis face high degrees of segregation.
- Four Texas metros—Austin, San Antonio, Houston, and Dallas—rank among the ten most segregated large metros. Most of the higher-ranking smaller metros are college towns.
- The metros with the lowest levels of overall economic segregation are mainly smaller and medium-sized ones. There are more than 200 small and medium-sized metros where overall segregation is less than in the least segregated of the 51 large metros. All ten of the least segregated metros in the country have 300,000 people or less.
- The least segregated large metros include Orlando, Portland, Minneapolis-St. Paul, Providence, and Virginia Beach. Rustbelt metros like Cincinnati, Rochester, Buffalo, and Pittsburgh also have relatively low levels of overall economic segregation.

When we compare the types of economic segregation to one another we find that:

- All three types of segregation—income, educational, and occupational—are associated with one another. If a metro is segregated on one dimension, it increases the likelihood that it is segregated on the others.
- Economic segregation appears to be conditioned by the behavior and location choices of more advantaged groups. The creative class is more segregated than either the working class or service class. College grads are more segregated than those who did not finish high school. The wealthy are more segregated than the poor—indeed they are the most segregated of all and by a considerable margin. These more advantaged groups have the resources to isolate themselves from less advantaged groups.

This last finding is in line with other research on the subject. A Pew study found that the population of high-income residents living in high-income neighborhoods or tracts doubled between 1980 and 2010 compared to the population of low-income households living in low-income neighborhoods, which grew by just 5 percentage points over the same period.[36] Or as Reardon and Bischoff note, "During the last

four decades, the isolation of the rich has been consistently greater than the isolation of the poor."[37]

Even though different metros stand out on different types of economic segregation, our correlation analysis reveals that the same underlying economic and demographic factors are associated with each of the major types of segregation and with economic segregation overall.

- Economic segregation is associated with the size and density of metros. The correlations for each are among the highest in our analysis. It is also related to two other sets of factors that follow from metro size and density: the way that people commute to work and the breakdown of liberal versus conservative voters.
- Economic segregation is connected to the overall wealth and affluence of metros, with positive correlations to wages, economic output per capita, and income.
- Economic segregation tends to be higher in knowledge-based metros, with positive correlations to high-tech industry, the creative class, and college grads. These correlations are among the very highest in our analysis.
- Economic segregation is also associated with two key indicators of diversity—the share of the population that is gay or foreign-born—which tend to coincide with larger, denser, and more knowledge-based metros.
- Economic segregation is related to race. It is positively associated with the share of the population that is black, Latino, or Asian, and negatively associated with the share that is white. Economic segregation is more closely associated with the share that is white than with others, which suggests that it is driven by the locational patterns and decisions of those at the top of the socio-economic order.
- Economic segregation is closely connected to income inequality and even more so with wage inequality.

Segregation and inequality appear to compound and exacerbate each other's effects. Research by economist Rebecca Diamond has shown that high-skill, high-pay workers derive additional advantages from living in safer neighborhoods with better schools, better health care, and a wider range of services and amenities.[38] The inequality of overall "well-being" that they enjoy is 20 percent higher than the simple wage gap between college and high school grads can account for.

Conversely, less advantaged communities suffer not just from a lack of economic resources but from related neighborhood effects like higher rates of crime and drop-outs, infant mortality, and chronic disease. NYU's Sharkey argues that disadvantaged groups are literally "stuck in place," pointing out that "neighborhood inequality is multigenerational, something that is passed down from parents to children in the same way that genetic background and financial wealth are transmitted across generations."[39]

A widely cited 2014 study by researchers at Harvard and the University of California at Berkeley examined how racial segregation, family structure, school quality, and social capital affected lower income children's ability to move up the economic ladder, based on a sample of more than 40 million children born between 1980 and 1991 and their parents.[40] Economic segregation was negatively associated with absolute upward mobility, the ability of low-income children to move up the economic ladder, and positively associated with relative mobility, the gap between low and high-income children.

As family-supporting manufacturing jobs have disappeared, so have America's once middle-income neighborhoods. In 1970, roughly two-thirds (65 percent) of Americans lived in neighborhoods that could be described as middle income; today that number is just slightly more than four in ten (42 percent), according to

Bischoff and Reardon.[41] Over the same time span, the proportion of families living in affluent neighborhoods rose from 7 to 15 percent and the share living in poor neighborhoods increased from 8 to 18 percent. Income segregation grew in nearly nine in ten U.S metros with populations over 500,000.

A decade or so ago, Bill Bishop noted how talented and educated people were concentrating more in some places than others, a tendency he dubbed "the big sort."[42] The big sort has now become an even bigger sort. America's cities and metropolitan areas have cleaved into clusters of wealth, college education, and highly-paid knowledge-based occupations that are juxtaposed to concentrations of poverty, low levels of education, and poorly-paid service occupations.

Where cities and neighborhoods once mixed different kinds of people together, they are now becoming more homogenous and segregated by income, education, and occupation. Separating across these three key dimensions of socio-economic class, this bigger sort threatens to undermine the essential role that cities have played as incubators of innovation, creativity, and economic progress.

6. Appendix

6.1 Variables, Data, and Methodology

This section presents our variables, data, and methodology. The data cover the more than 70,000 U.S. tracts across all 359 U.S. metropolitan regions.

6.1.1 Segregation Measures

Our key measures of economic segregation are as follows:

Income Segregation

- *Segregation of the Poor:* This covers households below the poverty level in 2010.
- *Segregation of the Wealthy:* This covers households with an income above $200,000, the highest income group reported by tract by the Census in 2010.
- *Overall Income Segregation:* This combines the two measures above into a single index. All data are from the 2010 U.S. Census.[43]

Educational Segregation

- *Segregation of Non-High School Grads:* This measures the residential segregation of adults with less than a high school degree.
- *Segregation of College Grads:* This measures the segregation of adults with a college degree or more.
- *Overall Educational Segregation:* This combines the two educational measures into a single index. All data are from the 2010 U.S. Census.

Occupational Segregation

- *Creative Class Segregation:* This measures the residential segregation of the creative class.
- *Service Class Segregation:* This measures the residential segregation of individuals who hold low-skill, low-pay service jobs.
- *Working Class Segregation:* This measures the residential segregation of the blue collar working class.
- *Overall Occupational Segregation:* This is an index of the three occupational segregation measures above. All data are from the 2010 American Community Survey.

Overall Economic Segregation Index

This index combines the rank of the seven income, education, and occupation measures into an index of overall economic segregation.

6.1.2 How We Define and Measure Segregation

The seven individual indexes are all calculated based on the Index of Dissimilarity.[44] Developed by sociologists Douglas Massey and Nancy Denton, it compares the distribution of a selected group of people with all others in that location. The more evenly distributed a group is compared to the rest of the population, the lower the level of segregation. This Dissimilarity Index ranges from 0 to 1, where 0 reflects no segregation and 1 reflects complete segregation.

The Dissimilarity Index, D, can be expressed as:

$$D = \frac{1}{2}\sum_{i=1}^{n} \left| \frac{x_i}{X} - \frac{y_i}{Y} \right|$$

where x_i is the number of individuals in our selected group in tract *i*, *X* is the number of the selected group in the metropolitan area, *yi* is the number of "others" in the Census tract, and Y is the corresponding number in the metropolitan area. N is the number of Census tracts in the metropolitan area. *D* gives a value to the

degree to which our selected group is differently distributed across Census tracts within the metropolitan area, compared to all others. *D* ranges from 0 to 1, where 0 denotes minimum spatial segregation and 1 the maximum segregation. The more evenly distributed a group is compared to the rest of the population, the lower the level of segregation.

The combined measures of income segregation, educational segregation, and occupational segregation as well as the Overall Economic Segregation Index are created by combining rankings on each of these individual indexes. Thus, we no longer can interpret the index value as 0 equal to no segregation and 1 equal to complete segregation. These combined index values create a relative measure where the highest index value indicates the most segregated metro.

6.1.3 Economic, Social, and Demographic Variables

We also examine the relationships between economic segregation and the following demographic, economic, and social variables.

Income per Capita: Average income per capita from the 2010 American Community Survey (ACS).[45]

Wages: Average metro wage level from the United States Bureau of Labor Statistics (BLS) for the year 2010.[46]

Economic Output per capita: Based on Gross Regional Product per capita, data are from United States Bureau of Economic Analysis (BEA) for 2010.[47]

College Grads: The share of adults with a college degree or more from the 2010 ACS.[48]

Creative Class: The regional share of employment in the following occupational groups: computer science and mathematics; architecture, engineering; life, physical, and social science; education, training, and library science; arts and design work, entertainment, sports, and media; and professional and knowledge work occupations in management, business and finance, law, sales management, healthcare, and education. This is based on 2010 data from the BLS.[49]

Working Class: The regional share of employment in manufacturing, construction and extraction, installation, maintenance and repair, production, transportation and material moving occupations. Also based on 2010 data from the BLS.[50]

Service Class: The regional share of employment in low-skill, low-wage service class jobs including: food preparation and food-service-related occupations, building and grounds cleaning and maintenance, personal care and service, low-end sales, office and administrative support, community and social services, and protective services. Also based on 2010 BLS data.[51]

High-Tech Industry: Based on the Tech-Pole Index developed by Ross Devol of the Milken Institute,[52] which measures the percentage of total economic output that comes from high-technology industries compared to the nationwide percentage of high-technology industrial output as a percentage of total U.S. high-technology industrial output. These data are from the Census County Business Patterns for 2010.[53]

Unionization: The share of the employed workers that are union members. From the Current Population Survey available at http://unionstats.com for the year 2010.[54]

Median Housing Costs: We include two measures: median monthly housing costs and housing costs as a share of household income, both from the 2010 ACS.[55]

Population Size: Metro population based on 2010 ACS. A logged version is used for the correlation analysis.

Density: This is "population-weighted density" based on distance from the city center or city hall. This comes from the United States Census and is for the year 2010.[56]

Transit: The share of the population that uses public transportation to get to work, from the 2010 ACS.[57]

Drive to Work Alone: The share of population that drives to work alone, a proxy for sprawl, also from the 2010 ACS.[58]

Race: We measure four major racial groups per the 2010 ACS: the share of population that is white, black, Asian, and Hispanic.[59]

Foreign-Born: The percentage of population that is foreign-born, from the 2010 ACS.[60]

Gay Index: A location quotient for the concentration of gay and lesbian households from the ACS for the years 2005–2009.[61]

Liberal or Conservative: The share of metro voters who voted for Obama versus Romney in 2012. The metro data are compiled from county level figures published in *The Guardian*.[62]

Inequality: Income inequality is based on the conventional Gini Coefficient measure and is from the 2010 ACS. Wage Inequality is calculated based on the Theil index, an entropy measure that captures differences in wage between the three major occupational classes from the 2010 BLS.[63]

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