

Segregation by Household Composition and Income across Multiple Spatial Scales

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Abstract

Households' preferences, constraints, and resources shape residential segregation patterns. These factors vary according to their demographic features, including the composition of the household. Drawing on U.S. Census and American Community Survey data, I estimate segregation of households with and without children between neighborhoods, places, and cities and suburbs in the 100 most populous metropolitan areas in the US from 1990 to 2014. Households with and without children became less segregated and the city-suburban divide in their location weakened over time. I then examine income segregation among households with and without children among these same three geographies. Income segregation is higher and increased more among households with children, and high- and low-income parents are increasingly separating across municipalities. However, high- and low-income households with children are segregating more between suburbs, not between cities and suburbs. Together, these analyses reveal how household demography shapes residential sorting within and between places.

Keywords

Income segregation, segregation decomposition, household composition, residential segregation

Residential segregation is a persistent feature of the American metropolis and of metropolitan areas around the world. Households' residential outcomes depend on their demographic and socioeconomic characteristics, which shape the preferences, opportunities, and constraints they consider when choosing where to live. In particular, race/ethnicity and class stratify residential outcomes, which creates longstanding patterns of spatial inequality and residential segregation.

Both classic and recent research demonstrates that household composition also contributes to residential patterns and segregation. For example, in this volume, BråmÅ and Andersson (Chapter X) examine segregation by age and family composition in Sweden and Boterman (Chapter X) examines how segregation by age intersects with segregation by racial/ethnic and income segregation in Amsterdam. In this chapter, I focus on segregation patterns in the US by household composition, comparing households with and without children. Residential outcomes are shaped by economic resources and constraints (including state-supplied subsidies), racial/ethnic inequality, the spatial distribution of housing supply, and knowledge and preferences about housing units and neighborhoods, among other factors. These characteristics and the way they play out in the residential landscape may vary by the presence of children in a household. For example, families with children have different preferences and priorities about housing unit size and type and about neighborhood safety and child-friendly amenities than households without children. Therefore, households with and without children may live in different neighborhoods. Moreover, past research shows that segregation by race/ethnicity and income is higher among households with children than among those without children (Owens, 2017; Jargowsky, 2014; Owens, 2016; Logan et al., 2001). High-income and white parents, in particular, live in exclusive, homogenous residential enclaves, to a greater degree than do high-income and white childless residents. Higher income inequality among families with children than childless households enables this residential spatial separation (Western, Bloome and Percheski, 2008; Owens, 2016).

In this paper, I extend past research on segregation along the dimension of household composition—whether or not children live in a household. I estimate segregation in the 100 most populous areas of the US from 1990 to 2014, considering multiple levels of geography: segregation between neighborhoods, segregation between places (i.e., towns and municipalities), and segregation between a metropolitan area's major city and its suburban and outlying areas. First, I estimate segregation between households with and without children, demonstrating the degree to which these households share neighborhoods and places from 1990 to 2014. Second, I estimate income segregation among households with and without children, examining whether the spatial scale of economic inequality varies by household composition. Together, results highlight the intersection of household composition and economic inequality in contributing to segregation across space.

Household Composition and Segregation

Life cycle stages and household formation factors shape households' residential searches and outcomes (Rossi, 1955; Brown and Moore, 1970). Households filter through housing of different type, age, and location according to demographic factors like family structure and age (Grigsby, 1965; Ratcliff, 1949). Older and younger residents may have different economic resources and different preferences for particular neighborhood amenities, proximity to the central business district, and residential composition. Similarly, single adults or couples without children may have different resources, constraints, and priorities than families with children.

While racial/ethnic identity and socioeconomic status may receive more attention in the contemporary segregation literature, family structure and demographic features are identified as an important dimension in classic models of residential location. Social area analysis research identified family status as a key feature of indices of neighborhood types (Shevky and Bell, 1955; Shevky and Williams, 1949). The Chicago model predicts that single adults, predominantly working-age men, populate the central business district, with families with children increasingly prevalent as one moves through the “concentric zones” to the outer suburbs (White, 1987; Burgess and Locke, 1960). This “urbanism-familism” scale is consistent with factorial ecology models of concentric patterning according to age structure, which posit the prevalence of housing suitable for large families with children at the edge of the city and apartment complexes suitable for smaller, older families without children in the center (Berry, 1965). Recent empirical research shows that household composition is a factor in residential outcomes, though residential segregation by age or family structure is lower than segregation by race/ethnicity or class (Fischer et al., 2004; Marsh and Iceland, 2010; Owens, 2016). From 1960 to 2000, segregation between married and unmarried residents increased substantially (from 0.037 to 0.072 on a 0 to 1 scale), as did segregation between young adults (18-29 year olds) and all others (more than doubling from 0.019 to 0.054) (Fischer et al., 2004).

Other research examines the intersection of household structure and race/ethnicity or social class to ask: Does racial/ethnic or income segregation vary by household composition? Racial segregation between black and white households is lower among single adults living alone (SALA households) than among married-couple families (Marsh and Iceland, 2010). Similarly, income and racial segregation between neighborhoods is higher among families with children than among childless households (Owens, 2016, 2017; Jargowsky, 2014; Logan et al., 2001). Income segregation between neighborhoods increased *only* among families with children from 1990 to 2010; income segregation actually decreased among childless households during this time (Owens, 2016; Reardon et al., 2018). Similarly, residential racial segregation declined the least and was most persistent among families with children (Owens, 2017).

Differences in economic resources account in part for these differences: economic inequalities are smaller among childless households than among families with children, and among SALA than married households (Owens, 2016; Marsh and Iceland, 2010). Larger economic gaps mean that high-income families can more easily achieve their residential goals than low-income families, and this economic inequality is larger among married households and households with children. Moreover, families with children might hold strong preferences to live in neighborhoods seen as beneficial for their children, and economic resources provide high-income families with children the ability to achieve this goal. These preferences—e.g., a suburban community, a particular school district, a neighborhood with single family homes—may be more segregating than the preferences of high-income childless households, who may not seek the same degree of spatial separation. For example, Owens (2016) shows that school district boundaries contribute to neighborhood segregation among households with children, while these boundaries are less stratifying for childless households.

Supply and Demand of Place-Based Amenities

Local amenities and features play a role in residential choices. The classic Tiebout theory posits that households seek the greatest public goods they can obtain within their economic constraints (Tiebout, 1956). Therefore, both the spatial distribution of supply of different housing and neighborhood features and differential demand for these features will shape segregation.

The supply of different types of housing in different locations influences residential outcomes. Longstanding patterns of housing development in the US locate single-family homes—larger and potentially more attractive to families with children—in suburbs or urban edges and multifamily unit buildings—smaller and potentially more attractive to childless adults or older adults—in the urban core. Beyond the private market, subsidized housing in the US is also spatially patterned. The housing subsidy program in the US is small, housing only about 25% of low-income families and subsidizing less than 4% of all housing units (Center on Budget and Policy Priorities, 2017). Of those receiving federal rental assistance, about 35% are households with children, and 35% are elderly. Families with children predominantly receive housing assistance in the form of a housing voucher, which they use to rent an apartment on the private market (Sard et al., 2018). Subsidized housing tends to cluster residents in high-poverty city neighborhoods (Schwartz, 2015). For example, in 2013, nearly $\frac{3}{4}$ of households with children that used housing vouchers lived in highly-distressed neighborhoods, characterized by high rates of poverty, female-headed households, unemployment, public assistance receipt, and low levels of educational attainment (Schwartz, McClure and Taghavi, 2016). Overall, the supply of private and state-subsidized housing likely does not promote integration by family type or income.

Households' preferences and demands for residential amenities also shape their residential outcomes. Suburbanization in the US in the mid-20th century spurred demand among middle- and upper-class families, especially those with children, for large single family homes and grassy yards (Jackson, 1985). However, economic shifts to the service economy and cultural shifts that viewed suburbs as mass-produced and inauthentic led to preferences for city living, spurring gentrification since the 1970s (Ley, 1996). Family structure influences the type of public goods households prioritize. Families with children consider schooling options when making residential decisions (Lareau and Goyette, 2014). Most US school districts have residential-based school assignment systems, and attending school outside one's school district is rare and often costly (National Center for Education Statistics, 2008). Even when parents activate school choice or enroll their child in private schools, they prioritize geographically proximate schools (Hastings, Kane and Staiger, 2005). Segregation between school districts accounts for the majority of total racial/ethnic and economic segregation between schools in metropolitan areas (Stroub and Richards, 2013; Owens, Reardon and Jencks, 2016), and residential segregation between districts is higher among households with children than childless households (Owens, 2016). This implies that patterns of segregation may occur at larger spatial units than neighborhoods, and that school districts seem to be a boundary parents consider. In particular, the division between central cities and suburban areas likely stratifies residential outcomes. Many metropolitan areas consist of large urban school districts surrounded by smaller suburban districts.¹ In addition to delineating school districts, city-suburban distinctions are often evident in other public goods, commercial amenities, physical structures, crime levels, and area reputations.

[Figure 1]

Past research shows that residential segregation across places—cities, towns, and municipalities—contributes significantly to total residential segregation in a metropolitan area. Figure 1 illustrates this “macro segregation” between places conceptually. Each panel represents a metropolitan area (outlined in dashed lines) consisting of two places. The cells inside each place represent six neighborhoods of equal population. In both metropolitan areas, segregation by household composition between neighborhoods is complete—gray-shaded neighborhoods

consist completely of childless families and white-shaded neighborhoods consist completely of families with children. In metropolitan area A (upper panel), 100% of residential segregation is between places—one place is entirely composed of childless families and one place is entirely composed of families with children. In metropolitan area B (lower panel), 0% of residential segregation is between places—neighborhood segregation is still complete, but each place consists of half childless households and half households with children. The household type composition of each place matches that of the larger metropolitan area. Lichter, Parisi and Taquino (2015) find that about a quarter of total racial segregation between neighborhoods in large metropolitan areas occurs between places, and that proportion increased from 1990 to 2010. Even as total racial segregation between neighborhoods declined slightly, segregation between places increased. Segregation between central cities and suburban places in metropolitan areas accounted for about half of racial segregation between places in 2010, a slightly lower proportion than in 1990, indicating that racial sorting between suburbs, rather than between the city and suburbs, had increased. Residential segregation between cities and suburbs is also evident by household composition: single adults living alone tend to disproportionately cluster in central cities, compared to married-couple families, and segregation by household type between cities and suburbs increased from 1960 to 2000 (Frey and Berube, 2002; Fischer et al., 2004). In this study, I extend research on the demographic dimension of residential segregation by examining segregation between households with and without children between neighborhoods, places, and cities and suburbs.

Data and Methods

The Decennial Census in 1990 and 2000 and the five-year American Community Survey (ACS) estimates starting in 2005-09 provide counts of households by family type and in household income categories (e.g., income less than \$10,000; \$10,000-\$14,999, \$15,000-19,999, etc.) in each Census tract in the US. I obtain population counts of households with and without children and counts of households by income category for households with and without children in 1990, 2000, 2005-09, and 2012-16 (henceforth, I refer to the ACS years by their midpoints, 2007 and 2014). I measure segregation using an evenness measure of segregation, which indicates how evenly households with different traits are distributed across geographic units. Specifically, I use the information theory index, H (Reardon 2011). H compares the variance of the distribution of groups (like households with or without children) within smaller units (like neighborhoods) to the variance within larger units (like metropolitan areas). H ranges from 0 to 1, with 0 indicating no segregation (each neighborhood has an identical distribution to the larger metropolitan area) and 1 indicating complete segregation (each neighborhood is comprised of only one group). I estimate binary H for segregation of households with and without children between neighborhoods. I then estimate income segregation between neighborhoods among households with children and among households without children using the rank-order information theory index. This version of H , which also has a theoretical range of 0 to 1, is appropriate for variables with categories in ranked order, like household income categories. Technical details of estimating H are available elsewhere (Reardon 2009; Reardon and Firebaugh 2002). Recent research raises the issue of bias when estimating H (and other measures of segregation based on estimates of variance) based on sample rather than population data in small geographic areas (Logan et al. 2018; Reardon et al. 2018). I apply the estimation method described by Reardon et al. (2018) to correct for bias when estimating income segregation and

segregation by household type in the ACS, where counts are derived from sample data rather than full count data.

I estimate segregation within the 100 most populous US metropolitan statistical areas or divisions as of 2010, using definitions from the Office of Management and Budget (OMB). I estimate segregation within metropolitan areas between three different geographies. First, I estimate segregation between neighborhoods (Census tracts) within metropolitan areas, following most literature on residential segregation. Tracts are administrative units drawn by the Census with an average of 1600 households in 2014 in my metropolitan area sample. Second, I estimate segregation between places—municipalities, cities, and towns—within metropolitan areas. Places are larger than tracts, with an average of 13,000 households in 2014 in my sample. Third, I estimate segregation between cities and suburban or “fringe” communities, following Lichter et al (2015). I identify one city per metropolitan area, based on the first city listed in the OMB definition (e.g., Chicago for the Chicago-Naperville-Joliet, IL, metropolitan division). About 15% of tracts are located in unincorporated areas, not places. I consider these tracts together as one fringe area within each metropolitan area, so I measure segregation among all established places and one fringe area.

H can be decomposed into its geographic components (Theil 1972). Therefore, I estimate (1) total segregation between neighborhoods; (2) total segregation between all places; and (3) total segregation between the major city and all other places in the metropolitan area. Then I estimate (4) the proportion of total segregation between neighborhoods that occurs between places; (5) the proportion of total segregation between neighborhoods that occurs between cities and suburban or fringe places; and (6) the proportion of total segregation between places that occurs between cities and suburban or fringe places. For example, I estimate segregation between all census tracts in the Los Angeles metropolitan area, between all places in the metropolitan area, e.g., the cities of Los Angeles, Pasadena, or Beverly Hills, and segregation between Los Angeles and all other places in the metropolitan area. Then, I determine the proportion of total segregation between neighborhoods due to segregation between places, and the proportion of neighborhood and place segregation that occurs between the city of Los Angeles and all other places.

To decompose segregation into its geographic components, the geographic boundaries of the smaller units, tracts, must be nested within the larger units, places, which must be nested within metropolitan area boundaries. I link census tracts to places using tract-to-place crosswalks created by the GeoCorr system at the University of Missouri (Missouri Census Data Center 2012). For 1990, 2000, and 2010, GeoCorr provides a crosswalk based on block-level population data that indicates the proportion of a tract’s population located in a place. About 2/3 of tracts are completely nested within one place; in an additional 15% of tracts, over 90% of the population of is entirely within one place in 1990, 2000, and 2010.² Only about 10% of tracts are nearly split, with 40 to 60% of their population in two places. I preserve tract boundaries, so I assign each tract to the place where the largest proportion of its population is located. I aggregate tract-level data to the place-level based on this reassignment, so my place-level data includes all households from any tract predominantly in that place. I privileged the preservation of tract boundaries rather than proportionately splitting tracts across places because when many tracts are split into small slivers, the bias in estimating segregation from sample-based data is very high. My decision to preserve tract boundaries may result in a conservative estimate of the proportion of neighborhood segregation occurring between places. I assign tracts to metropolitan areas based on their county using the county-metropolitan area crosswalk provided by the OMB. About 2%

of places span multiple metropolitan areas. Because I am preserving tract and metropolitan area boundaries, I effectively split places across metropolitan areas by aggregating tract data to the place level within metropolitan areas.

Results

Segregation of Households With and Without Children

Do households with and without children share neighborhoods? Table 1 shows that segregation of households with and without children between neighborhoods in the 100 most populous US metropolitan areas is fairly low, about 0.04 from 1990 to 2014. This implies that neighborhoods are about 4% less diverse than they would be if there were no sorting by household composition at all. Metropolitan areas in rustbelt areas including Gary, IN, Allentown, PA, Worcester, MA, and Akron, OH, had the lowest rates of segregation in both 1990 and 2014. Childless households include both households that never had children and households where children have grown up and left, so these metropolitan areas could have low levels of mobility among older “empty nesters,” who still live in neighborhoods that appeal to families with children. Metropolitan areas with large populations of older retirees, like West Palm Beach, Phoenix, and Fort Lauderdale, had the highest rates of segregation between households with and without children from 1990 to 2014, likely because planned retirement communities create neighborhoods composed entirely of childless households. Segregation by household type declined from 1990 to 2014 by about 19%. Therefore, households with and without children increasingly share neighborhoods in the 100 largest metropolitan areas. This trend toward integration may be due to households staying in place when they have children or after their children grow up, or households may be moving in ways that increase integration by household type. Aggregate counts by household type at the tract level cannot adjudicate between these explanations.

[Table 1]

Segregation by household type between neighborhoods within metropolitan areas may be due to sorting between places or sorting between neighborhoods *within* places. Column 2 of Table 1 shows estimates of total segregation between places, and segregation between places also declined from 1990 to 2014, by about 27%. Table 1, Column 4, shows that segregation of households with and without children between places accounts for 35 to 38% of total segregation between neighborhoods in a metropolitan area, on average, from 1990 to 2014. That is, more than a third of total segregation by household type between neighborhoods is due to households sorting across municipality lines, residing in particular cities or towns. Because segregation between *places* declined more than segregation between *neighborhoods*, the proportion of total neighborhood segregation due to sorting across places declined, from 38 to 35% from 1990 to 2014.

Places include cities, suburbs, and outlying fringe areas. I next estimate segregation by household type between each metropolitan area’s main city and all other places in the metropolitan area. Table 1, Column 3, shows that segregation of households with and without children between cities and suburbs is very low and declined from 1990 to 2014, perhaps as more families with children remained in or moved back to gentrifying city neighborhoods (Boterman, Karsten and Musterd, 2010; Karsten, 2003). In 2014, the five metropolitan areas with the highest levels of segregation between cities and suburban or fringe areas were San Francisco, Seattle, El Paso, Honolulu, and Washington, DC. San Francisco, Seattle, and Washington, DC, are booming cities with an influx of young workers in new economy jobs like technology, and El

Paso is home to a large state university and multiple military complexes, so many residents in these cities are childless. The Honolulu metropolitan area has high levels of segregation in both 1990 and 2014 between the city of Honolulu and the rest of the island of Oahu—75% of city households are childless, compared to 66% in the larger metropolitan area.

[Figure 2]

Table 1, Column 5, shows that segregation between cities and suburbs or fringe areas account for 9-11% of total neighborhood segregation and for 25-28% of total place segregation between households with and without kids during this time (Column 6). Figure 2 illustrates the decomposition of total segregation into its within and between place components.³ The gray region shows that over 60% of segregation by household type occurs between neighborhoods, *within* places, and this proportion increased over time. The black region shows that segregation between cities and suburbs accounts for a declining proportion of total neighborhood or place segregation over time, as the band slightly narrows. Finally, the white region shows that about a quarter of total between-neighborhood segregation is due to segregation between suburban communities within a metropolitan area. Overall, residential segregation by household type is low, declined slightly from 1990 to 2014, and is mainly due to segregation within places, with the city-suburban divide between households with and without children weakening over time.

Income Segregation among Households With and Without Children

Next, I examine income segregation among households with and without children. Do high- and low-income households with children share neighborhoods and places? Are they more or less segregated by income than households without children? Table 2 presents average levels of income segregation for households with and without children in the 100 most populous metropolitan areas from 1990 to 2014. First, consistent with prior research (Owens, 2016; Reardon et al., 2018), income segregation is higher among households with children than without children, and income segregation only increased among households with children. By 2014, income segregation among households with children was more than twice as high as among households without children, and income segregation among households with children had increased by nearly 20% since 1990. In contrast, income segregation declined about 11% among childless households. By 2014, the level of income segregation among households with children was 0.182, implying that the income distribution of households with children in the average neighborhood deviated from the metropolitan area income distribution by about 18%.

[Table 2]

Past research has not extensively examined income segregation at different levels of geography, e.g., between municipalities rather than between neighborhoods, nor whether patterns in place segregation vary by household type. Table 2, Columns 2 and 4, show that income segregation between places is higher and accounts for more of total income segregation between neighborhoods among households with children than among childless households. Among households with children, the proportion of income segregation between neighborhoods that occurs between places rose, from 43 to 45% from 1990 to 2014 (Column 4). Nearly half of total income segregation among households with children occurs between places, suggesting that higher-income children live not only in different neighborhoods than lower-income children but also in different towns within metropolitan areas. Segregation between places accounts for slightly less of the total income segregation among childless households, 38 to 40%. From 1990 to 2014, place segregation declined among childless households (Column 2), and the proportion of total segregation occurring between places rose by 1 percentage point (Column 4).

Finally, I examined how segregated households with and without children were by income between cities and suburban or fringe places. Table 2, Column 3, shows that income segregation between a metropolitan area's major city and its suburban or fringe areas remained stable between 1990 and 2014 among both households with and without children. Among both households with and without children, income segregation between cities and surrounding areas was highest in rustbelt metropolitan areas like those of Milwaukee, Rochester, and Detroit, where low-income central cities are surrounded by higher-income suburbs and counties. For example, segregation between Milwaukee and other municipalities in its metropolitan area accounted for 41% of total between-neighborhood income segregation among households without children and 55% of total between-neighborhood income segregation among households with children in 2014.

[Figure 3]

Figure 3 provides a decomposition of income segregation between neighborhoods from 1990 to 2014.⁴ Panel A shows that, among households with children, the proportion of total neighborhood segregation occurring within places declined slightly from 1990 to 2014 (light gray shaded region). The proportion of total segregation that occurs between city and suburban places also declined (black shaded region; Table 2, Column 5). In contrast, we see growth in the proportion of total neighborhood segregation and segregation between places occurring among suburban or fringe communities (white region). Higher-income families with children became more spatially separated from lower-income families with children between suburban areas, rather than between cities and suburbs. This may reflect the increasing location of poor families in suburbs rather than cities (Kneebone and Berube, 2013).

A different story emerges for households without children. Figure 3, Panel B, shows that segregation between city and suburban or fringe places accounts for a slightly greater proportion of total segregation between neighborhoods in 2014 than 1990 (black shaded region; Table 2, Column 5). While income segregation between neighborhoods among childless households declined by 11%, segregation between cities and suburban or fringe areas changed little from 1990 to 2014. By 2014, the city-suburban divide accounted for a greater proportion of income segregation between *places* among childless households than among households without children (Table 2, Column 6). This may reflect a growing divide of higher-income childless households in cities, perhaps young households or those who will remain childless, and lower-income childless households in suburbs, perhaps older empty-nesters.

Together, these estimates of income segregation at different levels of geography reveal several trends. First, income segregation between neighborhoods and places is higher and increased only among households with children. Second, segregation between places accounted for a higher and faster-growing proportion of total income segregation among households with children than childless households. Third, the proportion of total segregation occurring between cities and suburbs was higher in 1990 among households with children but declined, while the proportion increased slightly among childless households. The city-suburban income divide is weakening for households with children.

Discussion

Research on residential segregation extensively documents segregation of households by race/ethnicity and income. This article focuses on an additional household characteristic that spatially stratifies residents: household composition, specifically whether children reside in a household. First, I show that households with and without children are increasingly *integrated* in

metropolitan areas between neighborhoods and places. The city-suburban distinction has declined over time, and the majority of segregation by household type occurs between neighborhoods, *within* places. Future research should investigate the mechanisms underlying these trends, including the role of empty nesters aging in place, young childless households moving to suburbs, families remaining in cities as they have children, and families returning to the city, perhaps to gentrifying areas (Hankins, 2007; South and Crowder, 1997; Kneebone and Berube, 2013).

Second, I confirm past research to show that trends in income segregation differ between households with and without children. Income segregation is higher and increased more among households with children. Moreover, high- and low-income parents are increasingly segregating across places. However, the city-suburban divide is decreasing, accounting for a declining proportion of total segregation (about 12% by 2014). In contrast, households without children, while increasingly integrated by income between neighborhoods, experienced a growing city-suburban divide. Even as neighborhood segregation declined, segregation between cities and suburbs persisted. Future research should examine the city and suburban preferences of high- and low-income households with and without children, including the role of the location of the service- and technology-based economy and how school district boundaries map on to the urban-suburban divide, as well as whether the suburbanization of poverty is driven by families with children.

Examining how household composition shapes residential patterns has important implications. First, high levels of segregation by household composition may decrease the likelihood of localities supporting measures that promote children's well-being. If childless residents interact primarily with other childless residents, they may not be compelled to vote for tax increases, for example, to support local schools. Second, high levels of segregation by household composition may imply social isolation, reducing both intergenerational support for younger households with children and social support for needy elderly residents. My results show that segregation by household type is declining, which indicates higher levels of social cohesion along these dimensions. Finally, examining household composition alongside racial/ethnic and income segregation reveals important differences in preferences, resources, and constraints among households with and without children that account for patterns in residential segregation.

Bibliography

Berry, B.J., 1965. Internal Structure of the City. *Law and Contemporary Problems*, 30, pp.111–119.

Boterman, W.R., Karsten, L. and Musterd, S., 2010. Gentrifiers settling down? Patterns and trends of residential location of middle-class families in Amsterdam. *Housing Studies*, 25(5), pp.693–714.

Brown, L.A. and Moore, E.G., 1970. The Intra-Urban Migration Process: A Perspective. *Geografiska Annaler: Series B*, 52(1), pp.1–13.

Burgess, E.W. and Locke, H., 1960. *The Family: From Institution to Companionship*. New York: American Book Company.

Center on Budget and Policy Priorities, 2017. *Policy Basics: Federal Rental Assistance*. Washington, DC.

Fischer, C., Stockmayer, G., Stiles, J. and Hout, M., 2004. Distinguishing the Geographic Levels and Social Dimensions of U.S. Metropolitan Segregation, 1960-2000. *Demography*, 41(1), pp.37–59.

Frey, W.H. and Berube, A., 2002. *City Families and Suburban Singles: An Emerging Household Story from Census 2000*. Washington, DC: The Brookings Institution.

Grigsby, W., 1965. *Housing Markets and Public Policy*. Philadelphia, PA: University of Pennsylvania Press.

Hankins, K.B., 2007. The Final Frontier: Charter Schools as New Community Institutions of Gentrification. *Urban Geography*, 28(2), pp.113–128.

Hastings, J.S., Kane, T.J. and Staiger, D.O., 2005. *Parental Preferences and School Competition: Evidence from a Public School Choice Program*. NBER Working Paper 11805.

Cambridge, MA: National Bureau of Economic Research.

Jackson, K.T., 1985. *Crabgrass Frontier: The Suburbanization of the United States*. New York: Oxford University Press.

Jargowsky, P.A., 2014. Segregation, Neighborhoods, and Schools. In: A. Lareau and K. Goyette, eds., *Choosing Homes, Choosing Schools*. New York, NY: Russell Sage Foundation, pp.97–136.

Karsten, L., 2003. Family gentrifiers: challenging the city as a place simultaneously to build a career and to raise children. *Urban Studies*, 40(12), pp.2573–2584.

Kneebone, E. and Berube, A., 2013. *Confronting Suburban Poverty in America*. Washington, DC: Brookings Institution.

Lareau, A. and Goyette, K.A. eds., 2014. *Choosing Homes, Choosing Schools*. New York, NY: Russell Sage Foundation.

Ley, D., 1996. *The New Middle Class and the Remaking of the Central City*. New York, NY: Oxford University Press.

Lichter, D.T., Parisi, D. and Taquino, M.C., 2015. Toward a New Macro-Segregation? Decomposing Segregation within and between Metropolitan Cities and Suburbs. *American Sociological Review*, 80(4), pp.843–873.

Logan, J.R., Oakley, D., Smith, P., Stowell, J. and Stults, B., 2001. *Separating the children*. Lewis Mumford Center Working Paper. Albany, NY: SUNY Albany.

Marsh, K. and Iceland, J., 2010. The Racial Residential Segregation of Black Single Living Alone Households. *City & Community*, 9(3), pp.299–319.

National Center for Education Statistics, 2008. *Schools and Staffing Survey (SASS)*, “Public School District Data File,” 2007-08. Table 11.

Owens, A., 2016. Inequality in Children’s Contexts: Income Segregation of Households with and

without Children. *American Sociological Review*, 81(3).

Owens, A., 2017. Racial Residential Segregation of School-Age Children and Adults: The Role of Schooling as a Segregating Force. *The Russell Sage Foundation Journal of the Social Sciences*, 3(2), pp.63–80.

Owens, A., Reardon, S.F. and Jencks, C., 2016. Income Segregation between Schools and School Districts. *American Educational Research Journal*, 53(4), pp.1159–1197.

Ratcliff, R.U., 1949. *Urban Land Economics*. New York: McGraw-Hill Book Company, Inc.

Reardon, S.F., Bischoff, K., Townsend, J.B. and Owens, A., 2018. Has Income Segregation Really Increased? Bias and Bias Correction in Sample-Based Segregation Estimates. *Demography*, 55(6), pp.2129–2160.

Rossi, P.H., 1955. *Why Families Move: A Study in the Social Psychology of Urban Residential Mobility*. New York: The Free Press.

Sard, B., Rice, D., Bell, A. and Mazzara, A., 2018. *Federal Policy Changes Can Help More Families with Housing Vouchers Live in Higher-Opportunity Areas*. Washington, DC.

Schwartz, A., McClure, K. and Taghavi, L.B., 2016. Vouchers and Neighborhood Distress: The Unrealized Potential for Families with Housing Choice Vouchers to Reside in Neighborhoods with Low Levels of Distress. *Cityscape: A Journal of Policy Development and Research*, 18(3), pp.207–227.

Schwartz, A.F., 2015. *Housing Policy in the United States*. Third Edit ed. New York: Taylor & Francis Group.

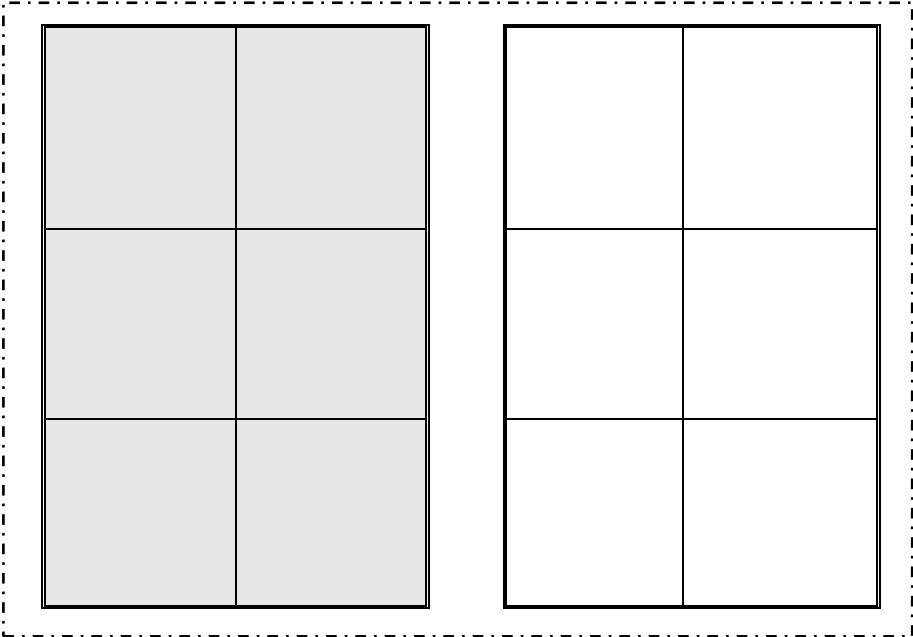
Shevky, E. and Bell, W., 1955. *Social Area Analysis*. Stanford, CA: Stanford University Press.

Shevky, E. and Williams, M., 1949. *The Social Areas of Los Angeles*. Berkeley: University of California Press.

- South, S.J. and Crowder, K.D., 1997. Residential Mobility between Cities and Suburbs: Race, Suburbanization, and Back-to-the-City Moves. *Demography*, 34(4), pp.525–538.
- Stroub, K.J. and Richards, M.P., 2013. From Resegregation to Reintegration: Trends in the Racial/Ethnic Segregation of Metropolitan Public Schools, 1993-2009. *American Educational Research Journal*, 50(3), pp.497–531.
- Tiebout, C.M., 1956. A pure theory of local expenditures. *The Journal of Political Economy*, 64(5), pp.416–424.
- Western, B., Bloome, D. and Percheski, C., 2008. Inequality among American Families with Children, 1975 to 2005. *American Sociological Review*, 73(6), pp.903–920.
- White, M.J., 1987. *American Neighborhoods and Residential Differentiation*. New York: Russell Sage Foundation.

Figure 1. Decomposition of Neighborhood Segregation between Places

Metropolitan Area A: 100% of Segregation between Places



Metropolitan Area B: 0% of Segregation between Places

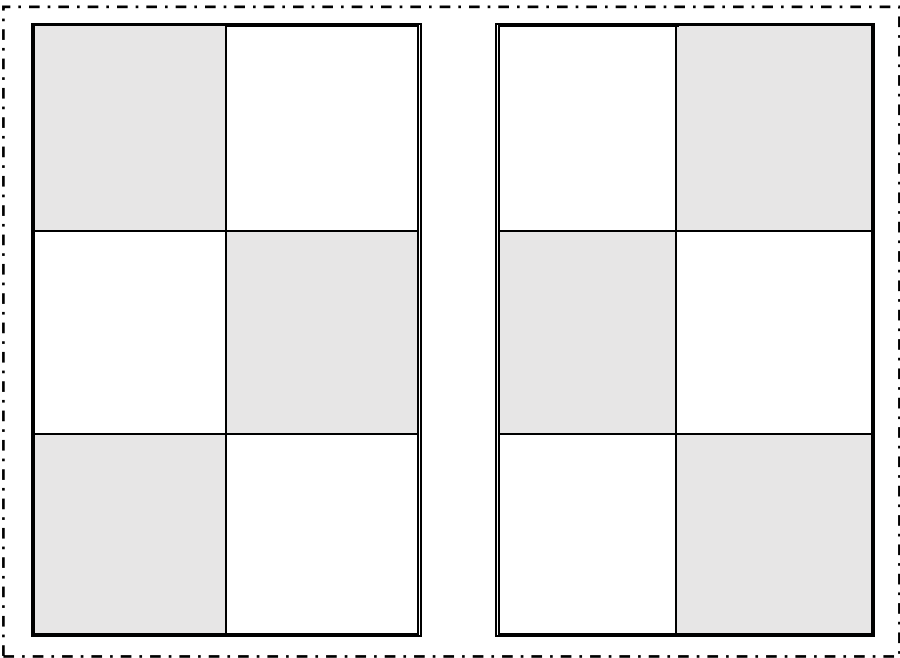


Figure 2. Decomposition of Segregation by Household Type, 1990-2014, 100 Largest Metropolitan Areas

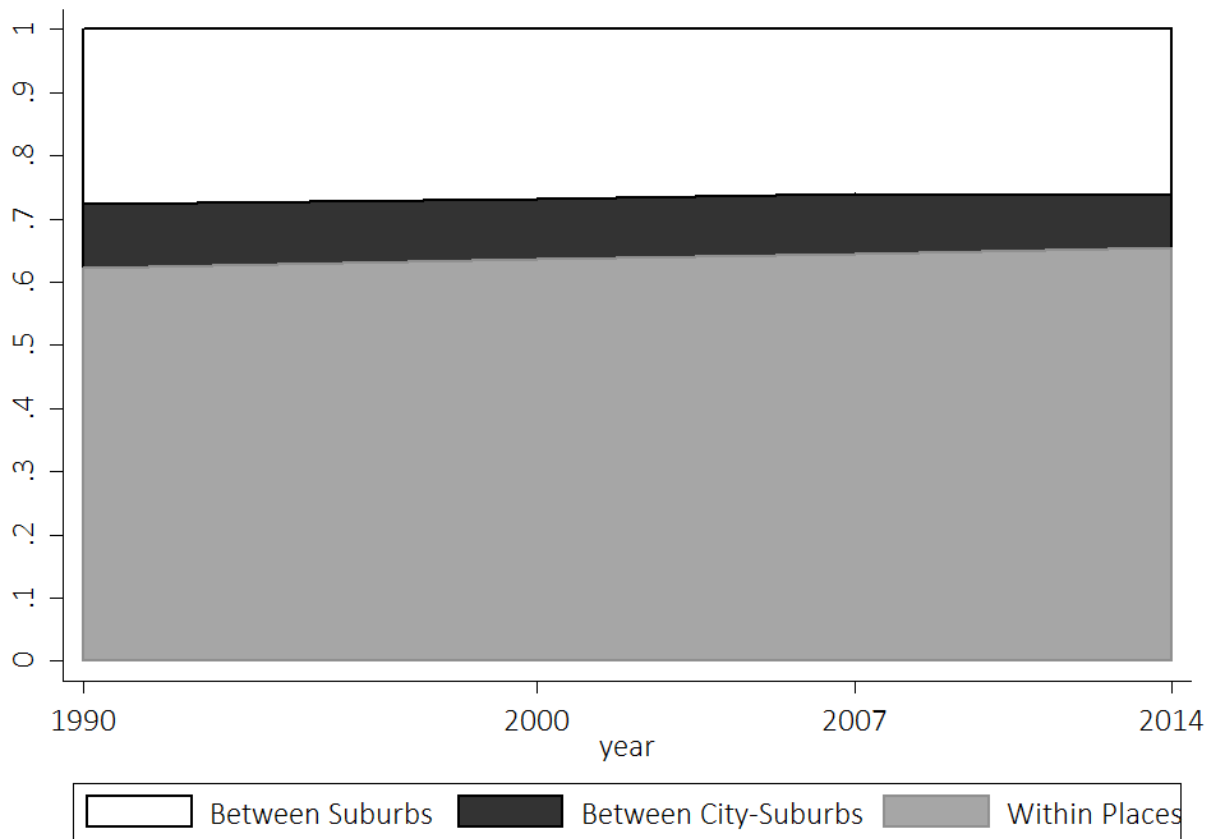
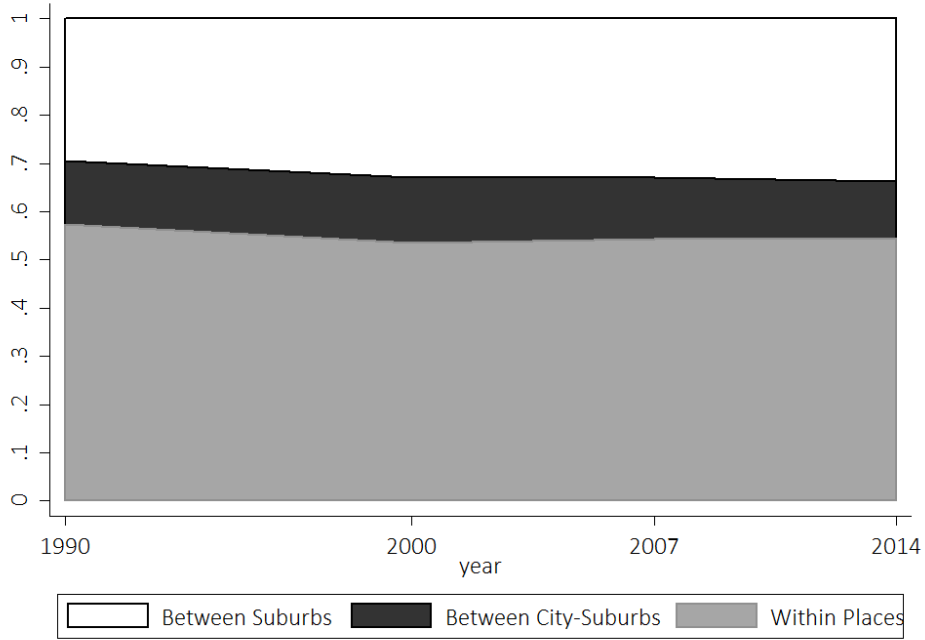


Figure 3. Decomposition of Income Segregation by Household Type, 1990-2014, 100 Largest Metropolitan Areas

A. Households with Children



B. Households without Children

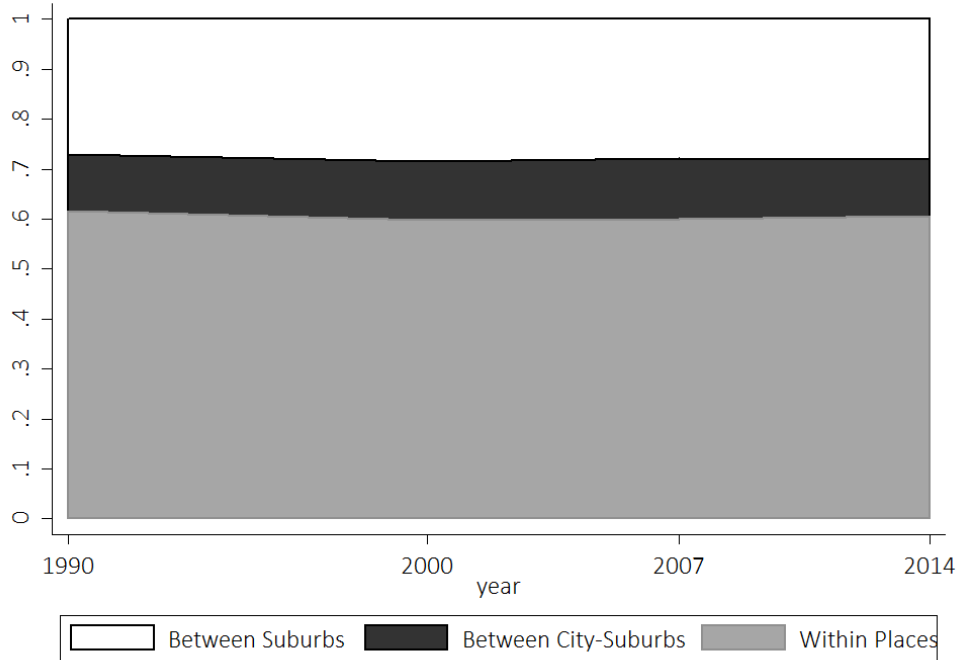


Table 1. Estimates of Segregation between Households With and Without Children, 1990 to 2014, Averaged Across the 100 Most Populous Metropolitan Areas

	Segregation Levels			Decomposition		
	(1)	(2)	(3)	(4)	(5)	(6)
	Between Tracts	Between Places	Between Cities and Suburbs/Fringe	Proportion Tract Seg between Places	Proportion Tract Seg between City and Suburbs/Fringe	Proportion Place Seg between City and Suburbs/Fringe
1990	0.043 (0.020)	0.017 (0.013)	0.005 (0.006)	37.84% (14.96)	10.22% (9.52)	27.59% (23.16)
2000	0.039 (0.020)	0.015 (0.011)	0.004 (0.005)	36.46% (14.30)	9.66% (9.46)	26.94% (23.76)
2007	0.036 (0.017)	0.013 (0.009)	0.004 (0.005)	35.60% (14.52)	9.50% (9.04)	27.94% (28.43)
2014	0.035 (0.016)	0.012 (0.009)	0.003 (0.004)	34.54% (14.62)	8.22% (8.23)	24.15% (23.73)

Notes: Cells present average among 100 most populous metropolitan areas in the U.S. as of 2010, with standard deviations in parentheses.

Table 2. Estimates of Income Segregation Among Households With and Without Children, 1990 to 2014, Averaged Across the 100 Most Populous Metropolitan Areas

	Segregation Levels			Decomposition		
	(1)	(2)	(3)	(4)	(5)	(6)
	Between Tracts	Between Places	Between Cities and Suburbs/Fringe	Prop. Tract Seg between Places	Prop. Tract Seg between City and Suburbs/Fringe	Prop. Place Seg between City and Suburbs/Fringe
Households With Children						
1990	0.153 (0.034)	0.067 (0.036)	0.023 (0.024)	42.64% (17.83)	13.17% (12.00)	29.18% (20.51)
2000	0.157 (0.030)	0.075 (0.037)	0.024 (0.025)	46.58% (18.17)	13.74% (12.66)	27.05% (19.92)
2007	0.172 (0.033)	0.080 (0.039)	0.024 (0.025)	45.77% (16.95)	12.76% (11.69)	26.36% (19.82)
2014	0.182 (0.034)	0.084 (0.038)	0.023 (0.026)	45.42% (16.47)	11.73% (12.06)	23.57% (19.51)
Households Without Children						
1990	0.085 (0.018)	0.033 (0.017)	0.010 (0.010)	38.29% (16.60)	11.15% (10.32)	27.54% (20.60)
2000	0.077 (0.015)	0.031 (0.014)	0.009 (0.009)	40.20% (16.43)	11.67% (10.56)	26.75% (19.18)
2007	0.076 (0.015)	0.030 (0.014)	0.010 (0.009)	39.96% (15.24)	12.03% (10.38)	28.46% (19.21)
2014	0.076 (0.015)	0.030 (0.013)	0.009 (0.009)	39.42% (14.85)	11.28% (10.62)	26.08% (19.51)

Notes: Cells present average among 100 most populous metropolitan areas in the U.S. as of 2010, with standard deviations in parentheses.

¹ Southern states in the U.S. tend to delineate school districts as county boundaries, so the city-suburban division is not as evident in this region.

² I use the 1990 crosswalk for 1990 data, the 2000 crosswalk for 2000 and 2007 data, and the 2010 crosswalk for 2014 data.

³ The gray region shows the proportion of neighborhood segregation *within* places, which equals 1-the value in Table 1, Column 4. The black region represents Table 1, Column 5. The white region represents Table 1, Column 4-Table 1, Column 5.

⁴ The gray region shows the proportion of neighborhood segregation within places, which equals 1-the value in Table 2, Column 4. The black region represents Table 2, Column 5. The white region represents Table 2, Column 4-Table 2, Column 5.