

Socioeconomic Segregation in Large Cities in France and the United States

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Abstract Past cross-national comparisons of socioeconomic segregation have been undercut by lack of comparability in measures, data, and concepts. Using IRIS data from the French Census of 2008 and the French Ministry of Finance as well as tract data from the American Community Survey (2006–2010) and the U.S. Department of Housing and Urban Development Picture of Subsidized Households, and constructing measures to be as similar as possible, we compare socioeconomic segregation in metropolitan areas with a population of more than 1 million in France and the United States. We find much higher socioeconomic segregation in large metropolitan areas in the United States than in France. We also find (1) a strong pattern of low-income neighborhoods in central cities and high-income neighborhoods in suburbs in the United States, but varying patterns across metropolitan areas in France; (2) that high-income persons are the most segregated group in both countries; (3) that the shares of neighborhood income differences that can be explained by neighborhood racial/ethnic composition are similar in France and the United States; and (4) that government-assisted housing is disproportionately located in the poorest neighborhoods in the United States but is spread across many neighborhood income levels in France. We conclude that differences in government provision of housing assistance and levels of income inequality are likely important contributing factors to the Franco-U.S. difference in socioeconomic segregation.

Keywords Segregation · Income segregation · Socioeconomic status · Franco-U.S. comparisons · Urban demography

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Introduction

All major cities of the world exhibit the tendency among families to live near other families with similar levels of socioeconomic status (SES). Although some level of segregation on the basis of socioeconomic characteristics is present in all modern societies, the level of segregation varies across cities and countries (Maloutas and Fujita 2012). Beyond the variability, however, are few solid conclusions about cross-national variations in segregation, largely because of the lack of comparability in the methods and data used by separate teams analyzing national data sets.

International comparisons of the level of socioeconomic segregation are useful for at least three reasons. First, such comparisons place each country in a broader context that increases understanding about whether the level of socioeconomic variation is unusual. Second, comparisons of national levels of spatial segregation can inform discussion on how models developed to explain urban problems in one country may be usefully applied to another. Third, national contexts often differ in potentially important dimensions that are homogeneous across cities within a country, such as large-scale housing policy differences, and can provide insights into how these factors affect segregation.

In this study, we compare the level of socioeconomic segregation between large metropolitan areas in France and the United States. We define socioeconomic segregation along three dimensions: income, employment status, and education. We find significantly higher levels of socioeconomic segregation in the United States than in France. We consider several reasons for the Franco-U.S. difference in levels of socioeconomic segregation, and we find support for differences in levels of household income inequality and assisted housing policy as contributing factors.

Background

Socioeconomic segregation is the separation of populations into different neighborhoods based on SES. As socioeconomic segregation increases, low-SES families increasingly live in low-SES neighborhoods, and high-SES families increasingly live in high-SES neighborhoods. To the extent that a high-SES neighborhood is an important source of advantage in life chances and a low-SES neighborhood is an important source of disadvantage, socioeconomic segregation contributes to increasing advantage of the advantaged and increasing disadvantage of the disadvantaged.

A growing and increasingly convincing body of research indicates that the SES level of neighborhoods has important effects on their residents, especially for children. Disadvantaged children who grow up in impoverished neighborhoods have much lower incomes than adults than similar children who grow up in more affluent neighborhoods—30 % lower in a recent analysis of American children in the experimental Moving to Opportunity study (Chetty et al. 2015). Children who grow up in low-SES neighborhoods have lower test scores and reduced chances of finishing high school and entering college compared with those growing up in high-SES neighborhoods (Chetty et al. 2015; Quillian 2014; Wodtke et al. 2011). For adults, residence in poor neighborhoods has been linked to worse physical and mental health (Ludwig et al. 2011). Poor neighborhoods also tend to have high crime rates (Lagrange 2010; Peterson and Krivo 2010). In short, strong evidence indicates socioeconomic

segregation is an important condition that contributes to inequalities in quality of life and intergenerational inequalities among families.

Socioeconomic Segregation in France and the United States

Despite the importance of socioeconomic segregation, little is established about how its level varies across countries. Although several comparative studies have been conducted (e.g., Maloutas and Fujita 2012; Musterd 2005; Schnell and Osendorf 2002), their results do not allow precise comparisons of segregation levels. The problem is that the comparative studies rely on tabulations by national teams of researchers using their own countries' data, which were not designed for comparative purposes. For instance, Musterd (2005) presented indexes of segregation by socioeconomic levels for 17 cities in a variety of countries by culling segregation measures from prior studies. However, the measures of SES used differ considerably: in Copenhagen, segregation is calculated for lowest income quintile households versus other households; in Oslo, households receiving public assistance versus those not; in Milan, blue-collar workers versus other workers; and so on. Likewise, the unit used as "neighborhood" across studies range in population from around 2,000 to 100,000 or more. Because of these differences, past comparative studies have suggested possible differences rather than establishing them.

To overcome comparability problems, we need analyses that begin with the raw data for each country and attend to comparability in constructing measures. We contribute to the literature by producing comparable statistics on socioeconomic segregation for two countries: France and the United States. We know of no studies that compare the level of neighborhood socioeconomic segregation between France and the United States using directly comparable measures and data.

A combination of notable similarities and differences between the United States and France make the study of socioeconomic segregation in these two countries an interesting contrast. In both countries, many view poor and ethnoracially segregated neighborhoods as places that impede social mobility and school achievement. In both countries, crime in poor neighborhoods is of concern. Many researchers have viewed these similarities as suggesting a similar basis for urban social problems in the two countries (e.g., Lapeyronnie 2008; but see Wacquant 2007). Yet, a number of notable differences exist, including lower economic inequality in France than the United States (Atkinson et al. 2011), the lack in France of nonwhite groups who are not recent immigrants (such as blacks and native Americans), and the existence of a stronger welfare state in France than in the United States (Esping-Andersen 1990).

We know of no explicitly comparative studies focusing on socioeconomic segregation in France and the United States, but some works have examined dimensions of socioeconomic segregation in either the United States or France. We might hope to use these studies to make cross-national comparisons, but differences in these studies between countries undercut their usefulness for this purpose.

Studies of neighborhood segregation in the United States use several dimensions of SES: income, poverty status, occupational groups, and unemployment. Notable studies include Bischoff and Reardon (2014), Jargowsky (1996), and Massey and Eggers (1993) on income segregation; Jargowsky (1997) on poverty status segregation;

Simkus (1978) and Duncan and Duncan (1955) on segregation among occupational groups; and Quillian (2003) and Wagmiller (2007) on segregation on the basis of employment status.

The large majority of estimates of neighborhood socioeconomic segregation in France are based on occupational groups and employment status. We know of only one study that has examined income segregation for French metropolitan areas: a study focused on segregation measurement by Vincent et al. (2015).¹ This study, however, calculated income segregation based on consumption units rather than individuals or households. Consumption units adjust household income for the size and composition of families. Albeit desirable for some purposes, this adjustment makes the results noncomparable with the U.S. data because consumption unit tabulations are not available in the U.S. tract or other area data.

Most French studies of socioeconomic segregation are based in occupational categories. Occupational categories are groupings of similar occupations based on similarity in work tasks, such as managers, salaried professionals, educators, and manual workers. Studies that tabulate levels of residential segregation of occupational groups in France include Clapier and Tabard (1981), Prêteceille (2006), and Rhein (1998).²

Several differences between the U.S. and French studies using occupational categories undercut their comparability. First, the number and composition of the occupational categories between the U.S. and French studies do not match. Simkus (1978), for instance, computed segregation using 10 occupational categories in the United States; Prêteceille (2006) used 51 occupational categories in France. Many of the specific occupational categories used are different. Second, most of the French studies of socioeconomic segregation have covered metropolitan Paris only, while the U.S. studies have typically covered all medium and large metropolitan areas. Third, the studies are from different periods: the most recent U.S. study of residential segregation by occupation used data from the 1970 census (Simkus 1978), while most French studies of residential segregation by occupation have used data from 1990 and later. The result is that statistics on levels of occupational segregation from studies in the different countries are almost entirely noncomparable.

Because of these limitations, direct comparison of socioeconomic segregation in the United States and France by contrasting existing national studies of occupational segregation is impossible. To truly compare neighborhood socioeconomic segregation across countries, we need to analyze the raw data from both countries together.³

¹ François et al. (2011) provided a map-based analysis of neighborhood income in Paris but did not calculate indexes of segregation that could be used for comparisons. A handful of other French studies examined segregation for specific contexts or subgroups, such as Safi (2006, 2009) on immigrants and Pan Ké Shon (2009) on distressed neighborhoods.

² Pinçon and Pinçon-Charlot (2005) discussed segregation of the bourgeoisie in France.

³ The only other study of socioeconomic segregation in France that we know of is Kruythoff and Baart (1998), who calculated indexes of spatial segregation between employed and unemployed persons for the city of Lille. This is too limited a basis in terms of both geographic coverage and comprehensiveness of the indicator to be highly useful for comparisons.

Differences Between the United States and France in Factors Linked to Socioeconomic Segregation

Four factors that past work suggests may contribute to differences in socioeconomic segregation and that differ between the United States and France are (1) racial and ethnic neighborhood segregation, (2) programs of government housing assistance, (3) patterns of city-suburban differentiation, and (4) household income inequality. We discuss each factor briefly.

Racial and Ethnic Neighborhood Segregation

One of Massey and Denton's (1993: chapter 5) key arguments is that racial and ethnic segregation, combined with racial inequality, contributes to the creation of high-poverty neighborhoods (see also Quillian 2012). This argument implies that racial and ethnic segregation contributes to socioeconomic segregation by separating lower- and high-income racial and ethnic groups.

Levels of racial and ethnic segregation are lower in France than in the United States (Préteceille 2011, 2012). Studies in the United States, however, have shown that income segregation within racial/ethnic groups is not much lower than income segregation overall, suggesting that racial/ethnic segregation does not account for most income segregation (Bischoff and Reardon 2014; Jargowsky 2014). Nevertheless, the national difference in racial/ethnic segregation may account for at least some of the cross-national difference.

Government Housing Assistance Programs

Some low-income households in both the United States and France receive government housing assistance. In the United States, most housing assistance is administered federally by the U.S. Department of Housing and Urban Development (HUD), notably public housing, voucher assistance, and tax credit support for low-income housing development. A smaller category in the United States comprises affordable housing programs set up by local governments.⁴ In France, most housing assistance is in the form of housing with reduced rents, either government-owned or privately owned but subsidized by the government (*Habitation à Loyer Modéré* (HLM)).

There has long been a concern that housing assistance, especially large public housing developments, tends to increase segregation of households receiving it. In the United States, several studies have found that housing assistance has contributed to the segregation of the poor (Kucheva 2013; Massey and Kanaiaupuni 1993). In Europe, studies have focused on the effect of public housing on ethnic minority segregation rather than income segregation, finding that public housing tends to reinforce ethnic segregation of non-European immigrants within cities (Musterd and Deurloo 1997; Verdugo 2011).

⁴ Of households in rental housing in the 2013 American Housing Survey, 6.6 % lived in public housing, 7.2 % received a housing voucher, 2.4 % received some other form of subsidy (HUD low-income housing tax credit unit or affordable housing resulting from local programs), and 1.8% lived in a rent-controlled unit (American Housing Survey 2013).

Likewise, in both countries, policies have been adopted to try to reduce the segregation of households receiving housing assistance from other households. In the United States, this has taken the form of shifting assistance from public housing to voucher forms of assistance, which is thought to reduce segregation of assisted housing recipients; Owens (2015) found that this policy has had some of the desired effect, although voucher households remain highly segregated from other households (Newman and Schnare 1997). In France, a national policy instituted in 2000 requires that municipalities have at least 20 % of their housing stock as social (public) housing in order to spread assisted housing more evenly across space. However, the law allows municipalities to pay annual fees to the central government rather than meet the 20 % social housing requirement, and some wealthier municipalities have exercised this provision (Préteceille 2012). The law does nothing to reduce segregation within municipalities (Verdugo 2011).

Alongside these similarities are some major Franco-U.S. differences in housing assistance, reflecting market-oriented welfare policies in the United States and corporatist or statist policies in France (Esping-Andersen 1990; Hamnett 1996; Musterd and Ostendorf 2011). In the United States, housing assistance benefits cover only a small share of households and are means-tested; the large majority of recipients have very low income (Taghavi 2008). By contrast, in France, government-owned housing is a large sector of the housing market and is available to a greater range of incomes (Le Blanc et al. 1999). Approximately 5 % of households in the United States receive some form of federal housing assistance, contrasted with 16 % in France (American Housing Survey 2013; INSEE 2006).

City-Suburban Differentiation Patterns

Many have noted that low-income households in Paris and Lyon are concentrated in suburbs, in contrast with their concentration in central cities in most of the United States (e.g., INSEE 2015; Jackson 1985). In part, this result reflects historical patterns. The center of Paris was historically a center of the aristocracy; by contrast, black U.S. migration into cities after the two world wars resulted in black central-city neighborhoods near the inner-city factories of those times. Better public transit in suburban areas in France than the United States may also contribute to this difference (National Geographic Society 2012; World Bank 2013). Poor public transit in many U.S. suburbs tends to limit the residence of carless households, which are disproportionately lower-income, to the inner city and inner suburban areas (Glaeser et al. 2008).

Household Income Inequality

Wilson (1987) hypothesized that deindustrialization contributed to greater income inequality, which contributed to formation of poor neighborhoods and income segregation. Similarly, Sassen (1991) emphasized globalization as a force producing labor force polarization and inequality in large cities. Recent empirical studies of the United States have found that income inequality contributes to income segregation (Mayer 2001; Reardon and Bischoff 2011). As the income of households in the top percentiles of the income distribution has increased relative to other

households, these households have tended to reside increasingly separately from other households (Reardon and Bischoff 2011).

France has lower income inequality than the United States (Atkinson et al. 2011). The Gini index of household income inequality for the Paris Region, for instance, is .423; for the New York City metropolitan area, it is .502 (INSEE-DGFIP 2009; U.S. Census Bureau 2011). This factor should contribute to higher income segregation in the United States than France, but its importance is unclear.

Data

We compare France and the United States using the best available data and making the measures as comparable as possible. We examine segregation on the basis of income, employment status (employed/unemployed), and education. We do not contrast occupational segregation because of the fundamental noncomparability of occupational categories used in small area data in the two countries.

For France, we use population data from the 2008 census and income data from the Ministry of Finance. The French census data are from an ongoing rolling sample survey (a five-year survey) rather than a “census” in the typical English use of this term. The data are somewhat similar to the American Community Survey (ACS) in the United States. The French census survey asks about education and employment status but not income. For income, we use data available from the French Ministry of Finance that are based on tax records and are released at the neighborhood level. The neighborhood unit that we employ is an area of a few blocks, called an “IRIS” in French official statistics. On average, IRIS areas have a population of 2,000 persons and are defined by taking boundaries, such as streets and demographic patterns, into account (INSEE 2013a).

For the United States, we use data from the ACS, 2006–2010 (NGIS, Minnesota Population Research Center 2011). The neighborhood unit used is the census tract—that is, small areas of about 4,000 persons defined by the U.S. Census Bureau. For analyses of assisted housing, we merge this with data from the 2008 HUD Picture of Subsidized Households database on the number of households receiving HUD-assisted housing in each tract (U.S. Department of Housing and Urban Development 2012).

The smaller size of the French neighborhood units should boost the neighborhood segregation scores of France relative to the United States (Iceland and Steinmetz 2003). To check the effects on estimates, we computed our basic results for the United States using block groups as well as tracts, which have average populations of 1,500 and thus are somewhat smaller than the French IRIS units. The results are shown in Table 9 in the appendix. Segregation measures are consistently higher when using block groups as neighborhood units rather than tracts.

We study all metropolitan areas in the two countries with populations greater than 1 million. By “metropolitan area,” we mean a central city and its surrounding suburbs. For both countries, we use the basic metropolitan area unit applied in their national statistical reports. For the United States, we use core-based statistical areas as defined by the U.S. Census Bureau in 2010. These are geographic areas with an urban center of

at least 10,000 people and adjacent areas that are socioeconomically tied to the urban center by high levels of commuting (U.S. Census Bureau 2013). For France, we use the *unité urbaine* (UU), a grouping of local governments (communes) that form a single unbroken spread of urban development with no distance between habitations greater than 200 m and with a population of at least 2,000 (INSEE 2013b).

The United States has 51 metropolitan areas with a population of more than 1 million, and France has four (Paris, Lyon, Marseille, and Lille). We use two approaches to make cross-country comparisons. First, we compare the average or the aggregate of the 51 U.S. metropolitan areas to the average or aggregate of the four French metropolitan areas. Second, to further meaningful comparison in light of the much smaller number of large metropolitan areas in France, we compare the four French metropolitan areas with a paired sample of four U.S. metropolitan areas that we have chosen for similarities to the French cities.

Our pairings of the four French cities to U.S. comparison cities were as follows: Paris with New York City, New York; Marseille with New Orleans, Louisiana; Lyon with Denver, Colorado; and Lille with Raleigh, North Carolina. These contrasts were made based on our qualitative knowledge of cities in the two countries and similarities in major industries, metropolitan population, and geography. Paris and New York City have highly internationalized world-city economies, many affluent foreign residents, and large tourism sectors; these two cities are the largest metropolitan areas in their respective countries. Marseille and New Orleans are Southern port cities with large maritime and tourism economies and relatively high crime rates. Lyon and Denver are near mountainous areas, are the largest cities in their respective regions, have large transportation industries, and have similar populations. Finally, Lille and Raleigh are cities with large university sectors, a decayed industrial area, and similar populations. Table 1 shows summary statistics of basic characteristics of the four metropolitan areas from each country, as well as totals for the 51 U.S. metropolitan areas with populations greater than 1 million and the four French metropolitan areas with populations greater than 1 million.

For some analyses, we also make suburban versus central city contrasts. We define the “central city” as the central municipality for the four French cities. For the United States, we use the U.S. Census Bureau definition of principal city areas for each metropolitan area. The Census Bureau defines the central city as the largest municipality in each core-based statistical area (CBSA) plus other municipalities in a metropolitan area with a population of more than 50,000 and more persons working in the municipality than living there (indicating that it is an employment center for surrounding residential areas).

We also make an additional division into two suburban rings for the large metropolitan areas of New York City and Paris. For Paris, the inner suburbs are the first-ring *départements* (roughly equivalent to U.S. counties) around central Paris: *départements* 92, 93, 94. The outer suburbs of Paris are the second ring: *départements* 95, 78, 77, 91. For New York City, we define the central city as New York City (the five boroughs), the inner suburbs as all suburban counties in the metropolitan area that are contiguous to New York City, and the outer suburbs as all suburban counties in the metropolitan area that are not contiguous to New York City.

Table 1 Characteristics of French and U.S. cities in comparison and full samples

France	Population	Median Income (Euros)	UE Rate ^a	United States	Population	Median Income (Dollars)	UE Rate ^a
A. Paired Comparison Cities							
Paris				New York, NY			
Paris - City	2,167,285		11.0	New York - City	8,077,314		7.3
Paris - Inner Suburbs	4,346,347		12.3	New York - Inner suburbs	5,609,079		5.8
Paris - Outer Suburbs	3,739,339		9.8	New York - Outer suburbs	5,010,517		5.7
Paris - Region (total)	10,252,971	34,110	11.1	New York - Region (total)	18,696,910	63,915	6.4
Lille (excluding Belgian part)				Raleigh, NC			
Lille - City	230,000		17.0	Raleigh - City	518,568		6.4
Lille - Suburbs	784,000		14.4	Raleigh - Suburbs	551,126		5.1
Lille - Region	1,014,000	25,909	15.0	Raleigh - Region	1,069,694	60,026	5.6
Lyon				Denver, CO			
Lyon - City	472,000		11.1	Denver - City	944,719		5.0
Lyon - Suburbs	1,038,000		10.7	Denver - Suburbs	1,519,696		6.0
Lyon - Region	1,510,000	27,778	10.8	Denver - Region	2,464,415	60,137	5.6
Marseille				New Orleans, LA			
Marseille - City	807,000		17.5	New Orleans - City	498,646		7.9
Marseille - Suburbs	753,000		11.6	New Orleans - Suburbs	606,374		5.6
Marseille - Region	1,560,000	26,307	14.6	New Orleans - Region	1,105,020	47,647	6.7
B. All Metropolitan Areas With Population Above 1 Million: Total Populations and Mean UE Rates							
France (metropolitan <i>N</i> = 4)				United States (metropolitan <i>N</i> = 51)			
Cities	3,676,285		12.7	Cities	63,937,782		7.4
Suburbs	10,660,686		11.3	Suburbs	100,168,131		5.9
Region - Overall	14,336,971	31,964	11.6	Overall	164,105,913	61,263	6.5

Note: Metropolitan averages are computed weighted by households (income) or persons in the labor force (unemployment).

^a UE = unemployment.

Measures

We consider segregation on the basis of income, unemployment, and educational attainment. Income statistics are based on counts of households in income ranges (United States), deciles (France), and means of household income (United States and France) by neighborhood unit (IRIS or tract). In both countries, we use counts of employed and unemployed persons by neighborhood to examine unemployment segregation. The employed are those with paid jobs; the unemployed are those without paid jobs who are actively seeking employment (are in the labor force). Employment and unemployment are defined among persons aged 15 to 64 in France and aged 16 and older in the United States. Because of retirement laws in France, labor force participation rates after age 64 are low. Finally, in both countries, education is based on counts of completed education levels for persons aged 25 or older.

Results

Income Segregation

The first socioeconomic characteristic that we consider is income. Table 2 shows the distribution of households in tract or IRIS areas by relative median income categories (following Bischoff and Reardon 2014). We define categories for each metropolitan area based on ratios of tract or IRIS median household income to median household income for the metropolitan area overall. We use six neighborhood income categories:

1. Lowest income: tract median income is 0 % to 67 % of regional median income.
2. Tract median income is more than 67 % to 80 % of regional median income.
3. Tract median income is more than 80 % to 100 % of regional median income.
4. Tract median income is more than 100 % to 125 % of regional median income.
5. Tract median income is more than 125 % to 150 % of regional median income.
6. Highest income: tract income is more than 150 % of regional median income.

We then tabulate the share of population in each metropolitan area living in each neighborhood category.⁵ The top panel of Table 2 shows results for the four French metropolitan areas with a population greater than 1 million (Paris, Lille, Lyon, Marseille) and the results pooling IRIS from these four cities. The bottom panel shows the four U.S. comparison cities (New York, Raleigh, Denver, New Orleans) and the results pooling tracts from the 51 U.S. metropolitan areas with populations of more than 1 million.

A consistent result emerges: a greater share of population lives in areas with income far above (“high income”) and below (“low income”) the metropolitan median income in the United States than in France. By contrast, more neighborhoods are in the middle categories (with neighborhood median income close to the region median) in France

⁵ Tract and IRIS median incomes are directly available in the data for both countries. We draw metropolitan area median income from INSEE statistical reports for France and from U.S. Census Bureau metropolitan data files for the United States.

Table 2 Household income segregation

France: % Living in High-, Middle-, and Low-Income Neighborhoods					
	Paris	Lille	Lyon	Marseille	^a UU > 1 Million Population Pooled (N = 4)
Ratio, IRIS Median to Region Median					
Low income (≤67 %)	9.7	15.3	6.9	12.9	10.1
>67 % to 80 %	15.8	15.1	13.6	16.0	15.5
>80 % to 100 %	30.4	23.9	37.7	25.7	30.2
>100 % to 125 %	27.0	26.8	26.8	23.2	26.6
>125 % to 150 %	11.6	11.6	10.0	15.6	11.9
High income (>150 %)	5.5	7.4	5.0	6.5	5.7
Total	100.0	100.0	100.0	100.0	100.0
Number of Households	3,991,710	345,236	495,255	548,926	
Segregation Indexes (mean)					
Neighborhood sorting index (NSI)	0.254	0.324	0.250	0.272	0.261
Rank-ordered <i>H</i>	0.076	0.102	0.067	0.092	0.079

Table 2 (continued)

	United States: % Living in High-, Middle-, and Low-Income Neighborhoods				
	New York	Raleigh	Denver	New Orleans	CBSA > 1 Million Population, Pooled (N = 51)
Ratio, Tract Median to Region Median					
Low income (≤67 %)	23.0	12.5	21.9	14.5	17.8
>67 % to 80 %	9.3	16.2	12.7	13.2	11.4
>80 % to 100 %	15.0	23.9	18.3	17.7	19.4
>100 % to 125 %	16.2	18.6	15.2	24.0	20.9
>125 % to 150 %	14.8	13.9	13.1	15.6	14.0
High income (>150 %)	21.8	14.9	18.8	15.0	16.5
Total	100.0	100.0	100.0	100.0	100.0
Number of Households	6,809,386	407,344	978,799	416,300	
Segregation Indexes (mean)					
Neighborhood sorting index (NSI)	0.364	0.353	0.380	0.325	0.365
Rank-ordered <i>H</i>	0.138	0.111	0.140	0.098	0.116

Note: Metropolitan means are weighted by number of households.

^a UU = *unités urbaine* (i.e., urban units).

than in the United States. The difference is especially large in the high-income category: the United States has 2.9 times as many tracts in the high-income category as does France. The United States also has a higher share of tracts in the low-income category than does France: on average, 1.8 times as many tracts are low income in the United States as in France.

Segregation is most often examined using summary indexes. In Table 2, for each metropolitan area, we compute two indexes of segregation: Jargowsky's neighborhood sorting index (NSI) (see Jargowsky 1996) and Reardon's rank-order information theory index (H^R) (Reardon and Bischoff 2011). The NSI is the standard deviation of neighborhood mean incomes divided by the standard deviation of household income for a metropolitan area. H^R is a weighted sum of Theil's entropy index of segregation calculated across all percentiles of the income distribution. It is based on estimating Theil's entropy index of segregation for persons below versus above each point of the income distribution, and then taking a weighted average of these estimates. (See the appendix for more details on these statistics and their computation.) These indexes are designed to remove mechanical dependence with the variability of the household income distribution. Both indexes range from 0 (even distribution over space) to 1 (complete segregation).

The results using both indexes demonstrate much higher income segregation in American cities than French cities on average. For metropolitan areas with a population greater than 1 million, NSI is 40 % greater for American cities than French ones (.365 vs .261), and H^R is 47.5 % higher (.116 vs .079). French metropolitan areas with the highest income segregation have levels similar to American metropolitan areas with the lowest segregation scores.⁶

These statistics give average levels of income segregation, but we can also examine segregation at different points of the income distribution. To do so, we use the data on counts of households in income brackets (United States) or percentile points of the income distribution (France). From these data, we can compute segregation measures for households below and above points of the income distribution based on the counts available. Following Reardon and Bischoff (2011), we use a fourth-order quadratic fit through these estimated percentile-segregation points to estimate income segregation for other percentiles of the income distribution. The resulting curves are shown in Fig. 1, panels A (Theil's entropy index of segregation) and B (dissimilarity), for pooled IRIS or tract data for metropolitan areas with populations of more than 1 million (for discussion of these segregation indexes, see James and Taeuber 1985). Figure 2, panels A (Theil's entropy index of segregation) and B (dissimilarity), present segregation curves for each of the four French and U.S. comparison metropolitan areas. The height of the line at each point gives the estimated segregation index for households with income at the indicated percentile of the income distribution or below versus households above that percentile. The dissimilarity index can be interpreted as the percentage of households or persons from one of the groups who would need to move to achieve

⁶ Our income segregation measures are lower than similar measures reported in Bischoff and Reardon (2014). We found the main reason for the difference to be that Bischoff and Reardon uses family income, whereas we use household income. Household income best matches the data for France. We find lower NSI measures for France than Vincent et al. (2015) reported. We found that their NSI measures are higher is because they use income at the consumption unit rather than the household level. We reproduced their statistics with data at the consumption unit level, but these statistics cannot be calculated for U.S. area data.

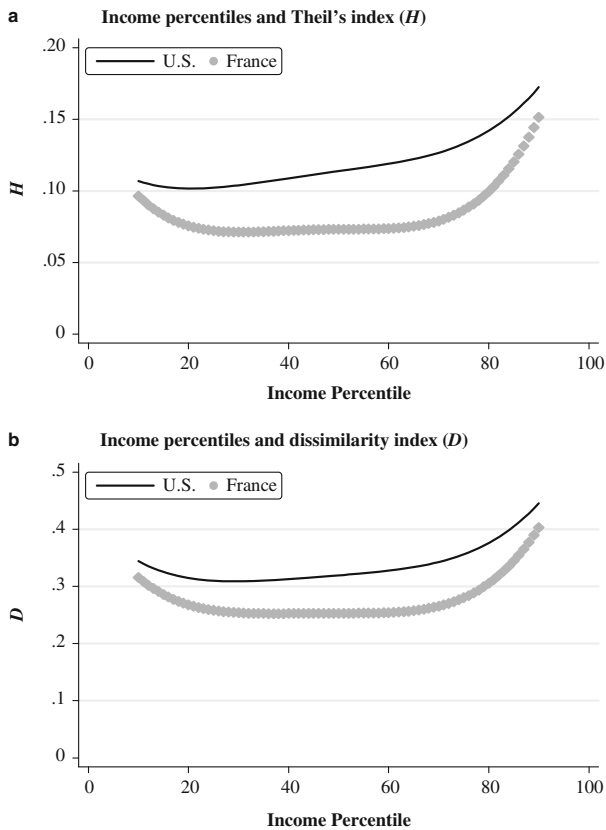


Fig. 1 Income percentiles and Theil's segregation index (H) (panel A) and dissimilarity index (D) (panel B): Large metropolitan areas pooled

an even spatial distribution across neighborhood units. The entropy index has no simple numeric interpretation, but 0 indicates no segregation and 1 reflects perfect segregation. We show results for the 10th to the 90th percentiles because above and below these percentiles, the results are mostly based on extrapolation. Further details of the calculations are discussed in the [appendix](#).

Figure 1 shows that the highest segregation levels in both countries are for high-income households; the lines are highest at the right of the graph, corresponding to the 90th percentile of the income distribution. The biggest differences between France and the United States in income segregation occur in the middle portion of the distribution, from about the 20th to the 80th percentiles.

Figure 2 shows income segregation profiles for the four paired French and U.S. metropolitan areas. U.S. metropolitan areas tend to have higher segregation—their curves are higher at most points—although segregation scores in the high-segregation French cities (Lille and Marseille) are close to the level of the U.S. cities with low segregation levels. Paris shows a unique pattern of high segregation at high-income percentiles, but low segregation at other points of the distribution. This pattern may reflect higher income levels of the highest-income households in Paris compared with other metropolitan areas in France.

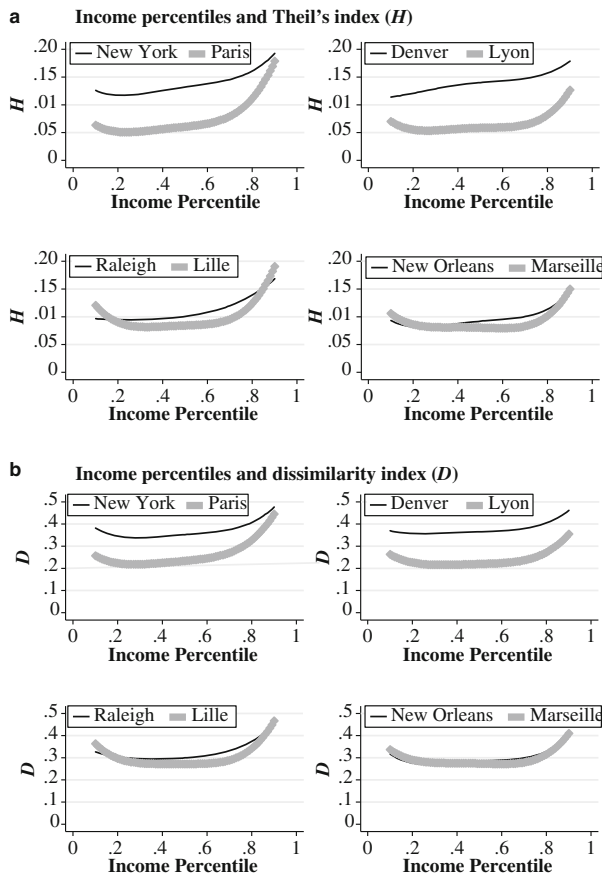


Fig. 2 Income percentiles and Theil's segregation index (H) (panel A) and dissimilarity index (D) (panel B): Paired metropolitan areas

Overall, we find substantially higher income segregation in American cities than in French cities. This is not just a mechanical reflection of higher household inequality in the United States: when we norm tract income variability relative to household income variability or apply Reardon's approach to segregation based on percentiles of the distribution, U.S. cities have segregation levels that are 40 % to 50 % higher than French cities.

Unemployment

Table 3 shows the distributions of population living in neighborhood areas by the neighborhood unemployment rate relative to the metropolitan unemployment rate. We use eight categories: very low unemployment (neighborhood unemployment rate is 50 % or less of the regional rate), more than 50 % to 67 %; more than 67 % to 80 %; more than 80 % to 100 %; more than 100 % to 125 %; more than 125 % to 150 %; more than 150 % to 200 %; and very high unemployment (neighborhood unemployment rate is more than 200 % or more of regional rate). During the period of our study,

Table 3 Segregation of employed vs. unemployed (UE)

	France: % Living in High-, Middle-, Low-UE Neighborhoods				UU ^a > 1 Million Population, Pooled (N = 4)
	Paris	Lille	Lyon	Marseille	
Ratio, IRIS UE to Region UE					
Very low UE (≤50 %)	7.4	13.9	9.9	9.3	8.3
>50 % to 67 %	17.1	20.7	16.9	20.5	17.6
>67 % to 80 %	15.9	9.7	13.7	14.3	15.1
>80 % to 100 %	19.2	18.4	20.0	16.0	18.9
>100 % to 125 %	15.2	9.0	14.9	15.9	14.8
>125 % to 150 %	9.3	9.0	9.0	5.8	8.9
>150 % to 200 %	10.8	10.8	8.3	8.8	10.4
Very high UE (>200 %)	5.1	8.5	7.4	9.3	6.0
Total	100.0	100.0	100.1	99.9	100.0
Segregation Measures: Unemployed vs. Employed					
Dissimilarity index (<i>D</i>)	0.197	0.259	0.204	0.240	0.206
Theil segregation index (<i>H</i>)	0.034	0.062	0.040	0.056	0.038
Number of Persons in Labor Force	5,171,958	460,440	711,184	668,687	7,012,269

Table 3 (continued)

	United States: % Living in High-, Middle-, Low-UE Neighborhoods					CBSA > 1 Million Population, Pooled (N = 51)
	New York	Raleigh	Denver	New Orleans		
Ratio, Tract UE to Region UE						
Very low UE (≤50 %)	12.9	14.9	19.0	25.0	18.1	
>50 % to 67 %	12.3	12.0	12.6	15.2	14.3	
>67 % to 80 %	8.6	14.7	11.6	8.3	11.4	
>80 % to 100 %	13.7	14.3	15.7	13.8	15.7	
>100 % to 125 %	15.7	19.3	12.9	13.3	14.7	
>125 % to 150 %	11.9	10.2	9.0	7.0	9.9	
>150 % to 200 %	14.0	9.2	12.0	9.0	9.7	
Very high UE (>200 %)	10.9	5.5	7.1	8.4	6.3	
Total	100.0	100.0	100.0	100.0	100.0	
Segregation Measures: UE vs. Employed						
Dissimilarity index (D)	0.237	0.225	0.240	0.296	0.242	
Theil segregation index (H)	0.047	0.043	0.045	0.081	0.050	
Number of Persons in Labor Force	8,088,243	489,140	1,142,874	458,243	70,550,928	

Note: Metropolitan means are weighted by number of persons in the labor force.

^a UU = unités urbaine (i.e., urban units).

the unemployment rate in large French metropolitan areas was above 10 %; the unemployment rate of large American metropolitan areas was 6.5 %, on average.

Similar to the pattern found for income segregation, Table 3 shows much higher shares of population in areas with very high and very low unemployment in the United States than in French metropolitan areas. The national difference is especially large for low-unemployment neighborhoods. More than 18 % of U.S. tracts have unemployment rates less than one-half the metropolitan rate, contrasted with 8 % of French IRIS areas. The United States also has a higher share of areas with unemployment rates more than twice the metropolitan rate than France does.

Table 3 also shows two segregation indexes calculated for employed versus unemployed persons, the dissimilarity index (D) and Theil's entropy index of segregation (H). The average index of dissimilarity is 17 % higher for U.S. than the French metropolitan areas, and the average Theil's index is 30 % higher.

Education

The last form of socioeconomic segregation that we consider is segregation on the basis of educational attainment. Differences in the educational systems of the two countries combined with limits of categories reported in tract and IRIS data, however, limit our ability to create comparable educational categories. We were able to create only two comparable categories: high school diploma or less (*baccalauréat*, or "Bac") versus having a degree beyond high school (two years of college or more in the United States; Bac+2 or more in France). Table 4 shows segregation measures between persons in these two categories. Cross-national differences in segregation are smaller on this measure, but the United States again has higher segregation than France.

Socioeconomic Segregation in Central Cities and Suburbs

We now turn to examining factors that may contribute to the Franco-U.S. difference in socioeconomic segregation. We begin by considering city-suburban differentiation.

Table 4 Segregation by educational attainment

	Associate's Degree or More (Bac.+2) vs. High School Diploma (Bac) or Less				
	Paris	Lille	Lyon	Marseille	Mean UU ^a > 1 Million Population, $N = 4$
France					
Dissimilarity index (D)	0.323	0.293	0.272	0.270	0.309
Theil segregation index (H)	0.103	0.094	0.078	0.077	0.097
United States					Mean CBSA > 1 Million Population, $N = 51$
Dissimilarity index (D)	0.333	0.338	0.323	0.317	0.329
Theil segregation index (H)	0.125	0.119	0.114	0.112	0.118

Note: Metropolitan means are weighted by number of persons for whom education is determined.

^aUU = unités urbaine (i.e., urban units).

Table 5 City and suburban proportions of households living in high-, middle-, and low-income neighborhoods

		France															
		Lille						Pooled: 4 UU ^a									
		Lille City		Lille Suburbs		Lyon City		Lyon Suburbs		Marseille City		Marseille Suburbs		Central Cities		Suburbs	
Ratio, IRIS to Region	City of Paris	Paris Inner Suburbs	Paris Outer Suburbs	Lille City	Lille Suburbs	Lyon City	Lyon Suburbs	Marseille City	Marseille Suburbs	Central Cities	Suburbs	Central Cities	Suburbs	Central Cities	Suburbs		
Low income ($\leq 67\%$)	5.8	13.9	7.2	22.5	12.6	5.1	8.3	18.5	3.8	9.2	10.6	9.2	10.6	9.2	10.6		
>67 % to 80 %	16.7	19.0	10.6	22.8	12.3	12.7	14.2	18.3	12.2	16.9	14.9	16.9	14.9	16.9	14.9		
>80 % to 100 %	38.4	26.8	28.8	30.1	21.6	38.3	37.3	28.8	20.6	36.0	27.6	36.0	27.6	36.0	27.6		
>100 % to 125 %	24.3	26.6	29.6	21.8	28.7	33.5	21.6	18.4	31.1	24.2	27.6	24.2	27.6	24.2	27.6		
>125 % to 150 %	8.7	9.7	16.7	2.9	14.8	8.0	11.6	12.9	20.1	9.1	13.1	9.1	13.1	9.1	13.1		
High income ($>150\%$)	6.1	4.1	7.1	0.0	10.1	2.4	7.0	3.0	12.2	4.7	6.2	4.7	6.2	4.7	6.2		
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
% of NSI Due to City-Suburb Difference	4.0			3.3		1.0		5.2		1.6							

Table 5 (continued)

		United States										
		Pooled: 51 CBSAs										
		New York City	NYC Inner Suburbs	NYC Outer Suburbs	Raleigh City	Raleigh Suburbs	Denver City	Denver Suburbs	No City	No Suburbs	Central Cities	Suburbs
Ratio, Tract to Region												
Low income (≤67 %)		38.2	11.1	10.0	13.6	11.4	36.0	12.4	20.9	8.6	30.8	9.1
>67 % to 80 %		12.6	7.2	5.9	18.2	14.2	15.5	10.8	18.1	8.8	13.9	9.8
>80 % to 100 %		17.1	14.8	11.6	22.3	25.6	21.7	16.0	20.2	15.4	18.9	19.8
>100 % to 125 %		12.9	17.1	21.0	15.1	22.1	13.2	16.5	16.3	31.0	16.3	23.9
>125 % to 150 %		9.4	18.4	19.9	12.5	15.4	7.5	16.9	14.4	16.7	9.6	17.0
High income (>150 %)		9.7	31.5	31.7	18.4	11.3	6.1	27.3	10.1	19.5	10.6	20.5
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
% of NSI Due to City-Suburb Difference		6.1			0.2		3.7		0.2		3.5	

^a UU = unités urbaine (i.e., urban units).

Table 5 presents shares of households living in high-, low-, and middle-income areas separately for city and suburban locations. For Paris and New York City, results are shown for inner and outer suburbs separately.

In U.S. metropolitan areas, low-income neighborhoods are disproportionately located in inner cities, and more affluent neighborhoods are located in the suburbs. Although there are certainly some low-income tracts in suburbs and some highly affluent tracts in cities, on average, suburbs are significantly more affluent. This pattern holds across the large majority of U.S. cities.

By contrast, for French metropolitan areas, city-suburban patterns vary across metropolitan areas. For Paris, the inner suburban ring is disproportionately low-income, while the outer suburban ring is disproportionately affluent. Lyon also follows an affluent city-poorer suburbs pattern. By contrast, in Lille and Marseille, low-income neighborhoods are more often found in the city than in the suburbs, a pattern similar to that found in most U.S. cities.⁷

Table 5 also shows the share of the income segregation index (NSI) that can be accounted for by city-suburban differences. To calculate this number, we regress the difference between mean neighborhood income and regional income (for each neighborhood) on a dummy variable for city-suburban location. The percentage of variance explained by this dummy variable is equal to the share of variation in neighborhood income differences that can be accounted for by city-suburban location. The square root of this number is the percentage reduction in NSI if we use only within-city/suburb differences (because the numerator in NSI is the standard deviation of variability across income means). These results indicate that although there are clear city-suburban differences in American cities and in some French cities, the overall share of income segregation that can be accounted for by city-suburban differences is fairly small: on average, 3.5 % for large American cities and 1.6 % for large cities in France.

Table 6 shows tract and IRIS unemployment rates relative to the unemployment rate of the metropolitan area in which the tract or IRIS area is located. We find patterns similar to what we found for city-suburban differences for income, although the city-suburb differences for unemployment are a bit greater. In two of four French cities—Paris and Lyon—suburbs tend to have both a higher share of low- and high-unemployment neighborhoods. Marseille and Lille follow a more U.S.-type pattern of high-unemployment inner cities and low-unemployment suburbs. From the pooled neighborhood distribution for France, the most notable pattern is the high prevalence of both high- and low-unemployment neighborhoods in the suburbs relative to the city. In contrast, the United States shows a general pattern of low-unemployment neighborhoods being disproportionately suburban and high-unemployment neighborhoods (especially) being disproportionately located in central cities.

We also calculate the share of Theil's entropy index of segregation of employed versus unemployed that can be accounted for by differences between cities and suburbs. Theil's entropy index can be decomposed into subparts within and between larger units: in this case, the larger units are cities and suburbs (for this decomposition, see Reardon et al. 2000); no similar decomposition is possible for the index of dissimilarity. For U.S. metropolitan areas, on average, 5.7 % of the difference in tract unemployment rate can be accounted for by city-suburban differences—a nonnegligible but also not large share.

⁷ This is also the case in Bordeaux.

Table 6 City and suburbs proportion of persons living in high-, middle-, and low-unemployment (UE) neighborhoods

France												
												Pooled: 4 UUs ^a
												Central Cities
												Marseille Suburbs
												Marseille City
												Lyon Suburbs
												Lyon City
												Lille Suburbs
												Lille City
												Paris Outer Suburbs
												Paris Inner Suburbs
												City of Paris
Ratio, IRIS UE to Region UE												
Very low UE (≤50 %)	2.7	5.5	12.7	17.2	1.2	13.7	7.2	12.0	3.3	10.0		
>50 % to 67 %	11.1	13.6	24.9	22.3	7.7	20.9	13.5	29.2	11.4	19.9		
>67 % to 80 %	18.9	13.7	16.8	8.7	14.3	13.4	9.3	20.6	16.1	14.9		
>80 % to 100 %	29.0	16.9	15.9	17.5	30.4	15.5	17.4	14.2	26.5	16.3		
>100 % to 125 %	19.9	15.8	11.6	7.5	26.8	9.8	18.0	13.1	20.1	13.0		
>125 % to 150 %	9.8	11.3	6.6	9.0	9.5	8.8	6.0	5.6	9.0	8.9		
>150 % to 200 %	6.9	15.3	7.7	10.2	6.6	9.0	12.6	4.1	8.3	11.0		
Very high UE (>200 %)	1.7	7.8	3.8	7.5	3.6	9.0	15.9	1.1	5.3	6.0		
Total	100.0	99.9	100.0	99.9	100.1	100.1	99.9	99.9	100.0	100.0		
% of H Due to	0.0			1.0	0.1		8.5		1.2			
City-Suburb												
Differentiation												

Table 6 (continued)

		United States										
		New York					Pooled: 51 CBSAs					
		New York City	NYC Inner Suburbs	NYC Outer Suburbs	Raleigh City	Raleigh Suburbs	Denver City	Denver Suburbs	No City	No Suburbs	Central Cities	Suburbs
Ratio, Tract UE to Region UE												
Very low UE (≤50%)	13.0	19.7	21.7	19.7	10.3	15.2	21.3	21.3	21.3	28.2	15.1	19.9
>50% to 67%	12.8	15.0	18.1	13.2	10.8	11.8	13.2	12.4	12.4	17.7	11.6	15.4
>67% to 80%	8.9	12.3	12.4	17.7	11.9	8.4	13.6	5.0	5.0	11.0	9.4	12.1
>80% to 100%	13.9	17.2	17.2	12.8	15.7	14.4	16.5	17.5	17.5	10.7	13.4	16.5
>100% to 125%	16.1	16.0	13.0	16.1	22.3	10.6	14.3	12.7	12.7	13.9	14.2	14.7
>125% to 150%	11.8	9.1	7.2	8.7	11.6	10.8	8.0	3.8	3.8	9.7	11.0	9.2
>150% to 200%	13.7	7.4	5.8	7.3	11.0	16.6	9.2	11.6	11.6	6.7	12.8	8.3
Very high UE (>200%)	10.0	3.2	4.5	4.5	6.5	12.3	4.0	15.7	15.7	2.1	12.4	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
% of H Due to City-Suburb Differentiation	5.9			2.6		4.1		5.6			5.7	

^a UU = unités urbaine (i.e., urban units).

For France, 1.2 % of IRIS city-suburban differences are between cities and suburbs. Little of the variation in neighborhood employment ratios, then, can be accounted for by city-suburban differences.

Racial and Ethnic Segregation and Income Segregation

In both France and the United States, racial and ethnic segregation is higher than SES segregation (Fischer et al. 2004; Prêteceille 2011). Because nonwhites in both countries have lower average SES than whites, we would expect that racial and ethnic segregation would contribute to socioeconomic segregation. Neighborhood segregation on the basis of race and ethnicity is higher in the United States than in France (Prêteceille 2011), suggesting that racial and ethnic segregation likely accounts for some of the difference in socioeconomic segregation between the United States and France.

To consider the role of racial and ethnic segregation in socioeconomic segregation in the two countries, we calculate the share of variation in neighborhood average income (about regional average income) that can be accounted for by racial and ethnic composition. We then use this to calculate the NSI segregation statistic with variation accounted for by neighborhood racial composition deleted. This estimate gives an upper-bound estimate of the importance of race and ethnicity for both countries (we explain the upper-bound statement shortly.)

To perform this calculation, we first regress a measure of the deviation of neighborhood average income from regional average income on measures of neighborhood racial composition (weighted by number of households). We then subtract the variation in neighborhood average income accounted for by racial/ethnic composition from total variation in neighborhood average income to compute neighborhood income variation independent of racial/ethnic composition. Finally, we take the square root of this adjusted variance in the numerator of an NSI statistic adjusted to remove racial/ethnic segregation. That is, we calculate the NSI segregation statistic with variation accounted for by neighborhood racial composition deleted. The resulting NSI statistic can be interpreted as an upper-bound estimate of the role of racial/ethnic segregation in the formation of socioeconomic segregation; it attributes all joint variation of neighborhood income to racial/ethnic segregation, but likely some variation results from socioeconomic factors causing racial/ethnic segregation (rather than racial/ethnic segregation causing socioeconomic segregation).

For the United States, we use percentage black and percentage Hispanic in each tract as racial/ethnic composition measures. Race and ethnicity are not asked or evaluated on the French census; the best proxies are reports of place of birth and country of origin. Like past studies (e.g., Pan Ké Shon 2009; Prêteceille 2011) we use percentage of African immigrants instead as a proxy measure for ethnicity, which includes immigrants from both sub-Saharan and Northern Africa as well as overseas French citizens.⁸

The results are shown in Table 7. In both the United States and in France, roughly 20 % of income segregation is accounted for by its association to racial and ethnic composition. We had expected the percentage to be greater for the United States than

⁸ Overseas French citizens are persons who were born in French overseas areas, such as Martinique or Réunion, who are predominately black. We also tried including separate percentages for sub-Saharan and North African immigrants, which produced nearly identical results.

Table 7 Income segregation and racial/ethnic segregation

	NSI	NSI Removing Racial/Ethnic and Income Covariation	% Change
France			
Paris	0.254	0.204	19.7
Lille	0.324	0.250	22.8
Lyon	0.250	0.187	25.2
Marseille	0.272	0.214	21.3
Weighted mean of <i>unité urbaine</i> > 1 million population, <i>N</i> = 4	0.261	0.207	20.7
United States			
New York	0.364	0.291	20.2
Raleigh	0.353	0.274	22.6
Denver	0.380	0.306	19.5
New Orleans	0.325	0.253	22.1
Weighted mean of CBSA > 1 million population, <i>N</i> = 51	0.370	0.296	19.9

for France, but we find similar shares of socioeconomic segregation accounted for by racial/ethnic segregation in the two countries. The major reason for this is because the racial/ethnic measure in France is somewhat more strongly predictive of IRIS average income in France than percentage of black and Hispanic are predictive of tract average income in the United States. Corresponding to higher segregation, U.S. variability of racial/ethnic composition over tracts is greater than in France. Overall similar shares of neighborhood income variance are accounted for by their linear relationship to neighborhood racial and ethnic composition in the two countries.

If we interpret the results as estimating the total role of race and ethnicity in the production of income segregation, we conclude that racial/ethnic segregation play roughly an equal role in producing income segregation in the two countries. Because income segregation is higher in the United States, racial/ethnic segregation's equal contribution to income segregation in both countries suggests a somewhat higher contribution in absolute terms in the United States. Nevertheless, this finding suggests that little of the France-U.S. difference can be accounted for by differences in racial/ethnic segregation between the two countries.

A more cautious interpretation is that these estimates provide upper bounds on the effect of racial/ethnic segregation on income segregation because these measures also capture SES segregation effects on race segregation. The estimated U.S. NSI removing the influence of racial/ethnic segregation remains significantly above unadjusted NSI for France. For all cities with greater than one million in population, the average NSI for U.S. cities removing racial/ethnic composition covariation is .296, which is higher than the unadjusted average for French cities of .261. These numbers indicate that racial/ethnic segregation explains *at most* about 70 % ($100 \times (.296 - .261) / (.370 - .261)$) of the Franco-U.S. difference in income segregation. Our preferred and less cautious interpretation suggests it accounts for much less than this.

Government-Assisted Housing

Finally, in Table 8, we examine the distribution of residents of government-assisted housing across neighborhoods categorized by income level. The U.S. figures include those receiving HUD housing assistance (living in public housing, receiving a housing voucher, or living in a unit developed with a low-income housing tax credit). The French figures are based on residents of HLMs (government-assisted low-rent housing developments, publicly and privately owned).

The results show major differences in the distribution of government-assisted forms of housing across countries. The government-assisted housing sector is much larger in France than in the United States: approximately 27 % of all households in large metropolitan areas live in assisted housing in France, compared with 3.5 % in the United States. In addition, assisted housing in France is spread across a much wider range of neighborhood income levels than in the United States. In the United States, 62 % of assisted housing households are in the lowest neighborhood income level, compared with 27 % for France. By contrast, assisted housing in France is prevalent in four of our six neighborhood income levels, with serious underrepresentation only in the two highest income neighborhood levels.

These results suggest a role for government housing assistance in explaining the difference between France and the United States in the level of economic segregation. In the United States, the assisted housing sector is small, and households receiving assistance mostly live in the poorest neighborhoods. By contrast, in France, the state-supported housing sector covers a much larger share of households, and it distributes households receiving assistance across a much wider range of neighborhood income levels.

Household Income Inequality

A plausible final explanation of the higher level of socioeconomic segregation in France than in the United States is that national differences in the level of income inequality among households may account for the difference in segregation. Income inequality is higher in the United States than in France, suggesting a potential role for higher income inequality in the United States in explaining the difference in economic segregation.

The average Gini of income inequality for the 51 U.S. metropolitan areas in our base sample is .48. For the four French cities, the average Gini is .41.⁹ Reardon and Bischoff (2011) and Bischoff and Reardon (2014) estimated that a one-point increase in the Gini index of income inequality is associated with an increase in the rank-order information theory index (H^R) of income segregation of about .46 of a point.¹⁰ This finding suggests that if the U.S. level of income inequality were reduced to the French level, the average

⁹ A limitation of this comparison is that the French Gini values are calculated at the consumption unit level, not the household level. Using national-level Gini values calculated for households in both countries leads to similar conclusions.

¹⁰ Reardon and Bischoff (2011) used pooled data from 1970 to 2000 and included metropolitan fixed effects. Their point estimate is a change in Gini from 0 to 1 increases income segregation by .467 of a point. Bischoff and Reardon (2014) used 2009 data and estimated a cross-sectional regression, finding that a change in Gini from 0 to 1 increases income segregation by .46.

Table 8 Income segregation and government-assisted housing

		% Living in High-, Middle-, and Low-Income Neighborhoods		
		Residents of HLM (France)/Assisted Housing (United States)	All Households	Of All Residents in the Neighborhood Income Type, % Residing in HLM (France) or Assisted Housing (United States)
France				
Ratio, IRIS median to region median				
Low income ($\leq 67\%$)	27.4		12.0	62.0
>67 % to 80 %	26.1		16.0	48.5
>80 % to 100 %	28.5		29.0	26.2
>100 % to 125 %	13.6		25.4	13.7
>125 % to 150 %	3.5		11.8	7.6
High income (>150 %)	0.9		5.8	3.9
Total	100.0		100.0	27.7
United States				
Ratio, tract median to region median				
Low income ($\leq 67\%$)	62.4		17.8	10.8
>67 % to 80 %	12.9		11.4	4.6
>80 % to 100 %	13.0		19.4	2.8
>100 % to 125 %	7.6		20.9	1.6
>125 % to 150 %	2.7		14.0	0.8
High income (>150 %)	1.4		16.5	0.4
Total	100.0		100.0	3.5

level of H^R would be reduced by about $.07 \times .46 = .032$, reducing the U.S. average to .084, just a bit above the French level of .079. This calculation suggests the possibility that much of the difference in income segregation might be explained by differences in household income inequality. We take these estimates as suggesting that a significant portion of the Franco-U.S. difference in income segregation likely results from higher income inequality in the United States.

Conclusion

We find strikingly higher levels of residential socioeconomic segregation in the United States than in France. This is true when we use measures of income, employment status, and educational attainment. We find fewer low-income, high-unemployment, low-education neighborhoods in large French metropolitan areas than in large U.S. metropolitan areas; likewise, we find fewer high-income, low-unemployment, high-education neighborhood areas in French cities than in American cities. Furthermore, because the neighborhood units that we use are smaller in France than in the United

States, and smaller units produce higher segregation statistics, the Franco-U.S. difference is underestimated in our basic results.

In the United States, low-income, high-unemployment areas are disproportionately located in the city; high-income, low-unemployment areas are disproportionately located in the suburbs. In France, by contrast, the distribution of high- and low-income and unemployment areas varies significantly by metropolitan area. Marseille and Lille follow a U.S.-style pattern with regard to suburbanization, with a poorer city and wealthier suburbs. The suburbs of Paris and Lyon have an elevated share of both poor and affluent neighborhoods relative to their central cities.

What might account for the large difference in socioeconomic segregation levels between the two countries? We provide evidence but do not resolve this question. Two plausible explanations that our evidence suggests are not important are differences in city-suburban patterns and racial/ethnic segregation. City-suburban differences in neighborhood income are greater in the United States, but too little of neighborhood income segregation is between cities and suburbs to explain much of the Franco-U.S. difference. On racial/ethnic segregation, we find that the covariation of neighborhood income and neighborhood racial/ethnic composition is similar in the two countries, and income segregation remains higher in the United States than in France even after all covariation is removed from the United States but left in the French measures.

One factor that we find likely contributes to the Franco-U.S. difference in socioeconomic segregation is differences in government-assisted housing. In the United States, government-assisted housing is a small sector that concentrates poor households in poor neighborhoods, contributing to economic segregation. In France, government-assisted housing is a large sector that is distributed across neighborhoods of many income levels, absent only from the highest-income neighborhoods.

A second factor that we believe to be important is the difference in household income inequality between France and the United States. Indeed, assuming the United States had the household inequality level of France and applying estimates relating income inequality and income segregation from Reardon and Bischoff (2011, 2014) suggests that most of the national difference in economic segregation may be explained by this factor. The results suggest that income inequality is likely the most important factor in producing the Franco-U.S. difference in neighborhood income segregation.

The four explanations considered here are not a complete list of likely factors that may contribute to the Franco-U.S. difference in socioeconomic segregation. We suspect the highly decentralized U.S. system of governance that allows separate municipalities and governance districts (most notably school districts) to set many of their own rules and practices, contrasted with more nationally uniform policies in France, probably contributes to greater economic segregation in the United States (Owens 2016). Affluent households in the United States respond by sorting into areas with better schools and, in some cases, using local housing policies to set up exclusionary barriers that reduce entry by low-income households (Pendall et al. 2006). The same processes occur in France but, we believe, to a much lesser extent.

Studies have found notable increases in income segregation over time in the United States, corresponding to rising income inequality (Bischoff and Reardon 2014). Our study adds results showing that income segregation in the United States appears much higher than income segregation in France. Firm comparisons with other countries remain to be established, but the connection of income segregation to income inequality, combined with high levels of U.S. income inequality, suggests that income segregation in the United States may be unusually high relative to most or all other affluent countries.

In the United States, then, individual poverty is likely more often accompanied by neighborhood poverty, and individual affluence is more often accompanied by neighborhood affluence, than is the case for France. The strong connection of income inequality to income segregation suggests that the United States probably has higher neighborhood income segregation than most other affluent countries. Combined with the increasingly convincing evidence of powerful neighborhood effects (e.g. Chetty et al. 2015), our results suggest that high U.S. spatial inequality is an underappreciated factor contributing to relatively high inequality, high rates of social problems, and low intergenerational mobility in the United States compared with other affluent countries.

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Appendix: Measures and Methods for Income Segregation Statistics

NSI Calculation

NSI for a metropolitan area is defined as follows:

$$NSI = \frac{\sigma_N}{\sigma_H} = \frac{\sqrt{\frac{\sum_{n=1}^N h_n (\bar{y}_n - \bar{y})^2}{H}}}{\sqrt{\frac{\sum_{i=1}^H (y_i - \bar{y})^2}{H}}},$$

where H is the number of households in the metropolitan area, h_n represents the number of households in the n th neighborhood, y represents income for the i th household, \bar{y}_n represents the average income for the n th neighborhood, and \bar{y} indicates metropolitan average income. The numerator may be calculated for both France and the United States directly from the French Ministry of Finance IRIS data and the ACS data, respectively. The denominator—the standard deviation of metropolitan household income—may be directly calculated from the IRIS data for France from summing within-IRIS deviation (provided in the data) and between-IRIS deviation (calculated from IRIS means). For the United States, we estimate the denominator from counts of

numbers of households in 16 income ranges in each metropolitan area. We do this by assuming a lognormal distribution of income and then using a maximum likelihood estimation to estimate the variability of tract income for each metropolitan income from the data. In practice, this is done using Stata's *intreg* command, estimating an intercept-only model of metropolitan income from tract income counts in categories, which also generates an estimate of the variability of income. We then calculate the mean and standard deviation of household income unlogged from the logged mean and standard deviation estimates produced by *intreg* using formulas from Johnson et al. (1994).

Theil's Segregation Index, Income Percentile Segregation Calculations, and Reardon's Rank-Ordered H

If p denotes income percentile ranks for an income distribution, for any value of p , we dichotomize the income distribution at p and compute the segregation between those with income ranks less than p and those with income ranks greater than or equal to p . If $H(p)$ is Theil's information theory index of segregation (see James and Taeuber 1985), and $E(p)$ is the entropy statistic for p (used in the calculation of $H(p)$), then the rank-order information theory index (H^R) is defined as follows:

$$H^R = 2\ln(2) \int_0^1 E(p)H(p)dp.$$

We calculate $H(p)$ and H^R using methods described in Reardon and Bischoff (2011:1110–1111, and appendix A). We also apply their method for making income percentile graphs developed with $H(p)$ to the standard index of dissimilarity, which is a straightforward extension.

We initially perform standard computations of Theil's entropy index of segregation ($H(p)$) and the index of dissimilarity ($D(p)$) for everyone below p and at or above p for each of the income cut points available in the two data sets.

In the U.S. data, counts of households are reported in 16 categories. For the French data, we have reports of income deciles, from which we calculated counts of households in 10 income categories. We also compute the percentile corresponding to each of these cut points on the income distribution from the data (p).

We then regress these calculated segregation indexes ($H(p)$) on the corresponding percentiles (p). Our specification uses a fourth-order quadratic for p to allow for nonlinearity. (We found very little predictive change from adding a fifth order term.) We use the resulting curve to predict the segregation scores for all percentiles of the income distribution from the 10th to the 90th percentile in the two countries. These are shown in the Figs. 1 and 2 for both entropy and the index of dissimilarity.

To compute the rank-ordered H^R statistic, we apply Reardon and Bischoff's (2011: appendix A) integral evaluation formula to the fourth-order quadratic coefficients. The formula evaluates the integral and also applies a set of weights, which weight percentiles of the income distribution toward the center of the income distribution more heavily and give little weight to percentiles at the extremes.

Table 9 Comparison of tract and block group segregation, United States

	% Living In High-, Low-, and Middle-Income Neighborhoods	
	Tract	Block Group
Ratio: Tract Median to Region Median		
Low income (67% or lower)	17.8	20.7
>67 % to 80 %	11.4	11.0
>80 % to 100 %	19.4	17.1
>100 % to 125 %	20.9	18.7
>125 % to 150 %	14.0	13.1
High income (>150 %)	16.5	19.4
Total	100.0	100.0
Means: CBSA > 1 Million Population, Pooled ($N = 51$)		
Segregation indexes income		
Neighborhood sorting index (NSI)	0.365	0.412
Rank-ordered H	0.116	0.163
Segregation indexes unemployed vs. employed		
Dissimilarity index (D)	0.242	0.299
Theil segregation index (H)	0.050	0.083
Segregation associate's degree vs. high school diploma or less		
Dissimilarity index (D)	0.329	0.359
Theil segregation index (H)	0.118	0.143

Note: Tabulations and means are weighted as indicated in main tables.

References

- American Housing Survey. (2013). *AHS table creator* [Data file]. Retrieved from <http://sasweb.ssd.census.gov/ahs/ahstablecreator.html>
- Atkinson, A. B., Piketty, T., & Saez, E. (2011). Top incomes in the long run of history. *Journal of Economic Literature*, 49, 3–71.
- Bischoff, K., & Reardon, S. F. (2014). Residential segregation by income, 1970–2009. In J. R. Logan (Ed.), *Diversity and disparities* (pp. 208–234). New York, NY: Russell Sage.
- Chetty, R., Hendren, N., & Katz, L. F. (2015). *The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment* (Working Paper No. 21156). Cambridge, MA: National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w21156>
- Clapier, P., & Tabard, N. (1981). *Transformation de la morphologie sociale des communes, et variation des consommation* [Transformation of the social morphology of communities, and changes in consumption]. *Consommation*, 28(2), 3–40.
- Duncan, O. D., & Duncan, B. (1955). Residential distribution and occupational stratification. *American Journal of Sociology*, 60, 493–503.
- Esping-Andersen, G. (1990). *The three worlds of welfare capitalism*. Princeton, NJ: Princeton University Press.

- Fischer, C. S., Stockmayer, G., Stiles, J., & Hout, M. (2004). Distinguishing the geographic levels and social dimensions of U.S. metropolitan segregation, 1960–2000. *Demography*, *41*, 37–59.
- François, J.-C., Ribardi re, A., Fleury, A., Mathian, H., Pavard, A., & Saint-Julien, T. (2011). *La disparit  des revenus des m nages franciliens, analyse de l' volution entre 1999 et 2007* [Income inequality of Paris households: Analysis of changes from 1999 and 2007]. Retrieved from <https://halshs.archives-ouvertes.fr/halshs-00737156>
- Glaeser, E. L., Kahn, M. E., & Rappaport, J. (2008). Why do the poor live in cities? *Journal of Urban Economics*, *63*, 1–24.
- Hamnett, C. (1996). Social polarization, economic restructuring and welfare state regimes. *Urban Studies*, *33*, 1407–1430.
- Iceland, J., & Steinmetz, E. (2003). *The effects of using census block groups instead of census tracts when examining residential housing patterns*. Retrieved from http://www.census.gov/housing/patterns/publications/unit_of_analysis.pdf
- INSEE. (2006). *Enqu te Logement en 2006, France m ropolitaine* [Housing Survey 2006, metropolitan France]. Retrieved from <http://www.insee.fr/fr/methodes/default.asp?page=sources/ope-enq-logement.htm>
- INSEE. (2013a). *IRIS* [Definition]. Retrieved from <http://www.insee.fr/en/methodes/default.asp?page=definitions/iris.htm>
- INSEE. (2013b). *Unit  urbaine* [Definition]. Retrieved from <http://www.insee.fr/fr/methodes/default.asp?page=definitions/unite-urbaine.htm>
- INSEE. (2015). *Une pauvret  tr s pr sente dans les centre villes des grands p les urbains* [A very present poverty in cities near major urban centers] (INSEE Premi re Report, No. 1552). Paris, France: Institute National de la Statistique et des  tudes  conomique.
- INSEE-DGFIP. (2009). *Indicateurs de distribution des revenus fiscaux d clar s par les m nages, ann e 2009* [Tax income distribution indicators reported by households, 2009] [Data Set].
- Jackson, K. T. (1985). *Crabgrass frontier: The suburbanization of the United States*. New York, NY: Oxford University Press.
- James, D. R., & Taeuber, K. (1985). Measures of segregation. *Sociological Methodology*, *14*, 1–32.
- Jargowsky, P. A. (1996). Take the money and run: Economic segregation in U.S. metropolitan areas. *American Sociological Review*, *61*, 984–998.
- Jargowsky, P. A. (1997). *Poverty and place: Ghettos, barrios, and the American city*. New York, NY: Russell Sage Foundation.
- Jargowsky, P. A. (2014). Segregation, neighborhoods, and schools. In A. Lareau & K. Goyette (Eds.), *Choosing homes, choosing schools* (pp. 97–136). New York, NY: Russell Sage Foundation.
- Johnson, N. L., Kotz, S., & Balakrishnan, N. (1994). *Continuous univariate distributions* (Vol. 1, 2nd ed.). New York, NY: John Wiley & Sons.
- Kruythoff, H. M., & Baart, B. (1998). *Towards undivided cities in Western Europe. New challenges for urban policy: Part 6 Lille*. Delft, The Netherlands: Delft University Press.
- Kucheva, Y. A. (2013). Subsidized housing and the concentration of poverty, 1977–2008: A comparison of eight U.S. metropolitan areas. *City & Community*, *12*, 113–133.
- Lagrange, H. (2010). *R ussite scolaire et inconduites adolescentes: Origine culturelle, mixit  et capital social* [School success and adolescent misconduct: Cultural origin, diversity, and social capital]. *Soci t s Contemporaines*, *80*, 73–111.
- Lapeyronnie, D. (2008). *Ghetto urbain: S gr gation, violence, pauvret  dans la France actuelle* [Urban ghetto: Segregation, violence, and poverty in France today]. Paris, France: Robert Laffont.
- Le Blanc, D., Laferr re, A., & Pigois, R. (1999). *Les effets de l'existence du parc HLM sur le profil de consommation des m nages* [Effects of HLMs on household consumption]. *Economie et Statistiques*, *328*, 37–60.
- Ludwig, J., Sanbonmatsu, L., Gennetian, L., Adam, E., Duncan, G. J., Katz, L. F., . . . McDade, T. W. (2011). Neighborhoods, obesity, and diabetes—A randomized social experiment. *New England Journal of Medicine*, *365*, 1509–1519.
- Maloutas, T., & Fujita, K. (Eds.). (2012). *Residential segregation in comparative perspective: Making sense of contextual diversity*. Burlington, VT: Ashgate.
- Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.
- Massey, D. S., & Eggers, M. L. (1993). The spatial concentration of affluence and poverty during the 1970s. *Urban Affairs Quarterly*, *29*, 299–315.
- Massey, D. S., & Kanaiaupuni, S. M. (1993). Public housing and the concentration of poverty. *Social Science Quarterly*, *74*, 109–122.

- Mayer, S. (2001). *How the growth in income inequality increased economic segregation* (JCPR Working Paper No. 230). Chicago, IL: Northwestern University/University of Chicago Joint Center for Poverty Research.
- Minnesota Population Center. (2011). *National historical geographic information system: Version 2.0* [Data set]. Minneapolis: University of Minnesota.
- Musterd, S. (2005). Social and ethnic segregation in Europe: Levels, causes, and effects. *Journal of Urban Affairs*, 27, 331–348.
- Musterd, S., & Deurloo, R. (1997). Ethnic segregation and the role of public housing in Amsterdam. *Tijdschrift voor Economische en Sociale Geografie*, 88, 158–168.
- Musterd, S., & Ostendorf, W. (Eds.). (2011). *Urban segregation and the welfare state: Inequality and exclusion in western cities* (Reprint ed.). New York, NY: Routledge. (Original work published 1998)
- National Geographic Society. (2012). *Greendex 2012: Consumer choice and the environment, a national tracking survey*. Toronto, Canada: GlobeScan, Inc.. Retrieved from http://images.nationalgeographic.com/wp/media-content/file/NGS_2012_Final_Global_report_Jul20-cb1343059672.pdf
- Newman, S. J., & Schnare, A. B. (1997). "... And a suitable living environment": The failure of housing programs to deliver on neighborhood quality. *Housing Policy Debate*, 8, 703–741.
- Owens, A. (2015). Housing policy and urban inequality: Did the transformation of assisted housing reduce poverty concentration? *Social Forces*, 94, 325–348.
- Owens, A. (2016). Inequality in children's contexts: Income segregation of households with and without children. *American Sociological Review*, 81, 549–574.
- Pan Ké Shon, J.-P. (2009). *Ségrégation ethnique et ségrégation sociale en quartiers sensibles* [Ethnic segregation and social segregation in distressed neighborhoods]. *Revue Française de Sociologie*, 50, 451–487.
- Pendall, R., Puentes, R., & Martin, J. (2006). *From traditional to reformed: A review of the land use regulations in the nation's 50 largest metropolitan areas* (Report). Washington, DC: The Brookings Institution. Retrieved from <http://www.brookings.edu/research/reports/2006/08/metropolitanpolicy-pendall>
- Peterson, R. D., & Krivo, L. J. (2010). *Divergent social worlds: Neighborhood crime and the racial-spatial divide*. New York, NY: Russell Sage Foundation.
- Pinçon, M., & Pinçon-Charlot, M. (2005). *Sociologie de la Bourgeoisie* [Sociology of the Bourgeoisie] (3rd ed.). Paris, France: La Découverte.
- Préteceille, E. (2006). *La ségrégation sociale a-t-elle augmenté?* [Has social segregation increased?]. *Sociétés Contemporaines*, 62, 69–93.
- Préteceille, E. (2011). Has ethno-racial segregation increased in the greater Paris metropolitan area? *Revue Française de Sociologie*, 52, 31–62.
- Préteceille, E. (2012). Segregation, social mix, and public policies in Paris. In T. Maloutas & K. Fujita (Eds.), *Residential segregation in comparative perspective: Making sense of contextual diversity* (pp. 153–176). Burlington, VT: Ashgate.
- Quillian, L. (2003). The decline of male employment in low-income black neighborhoods, 1950–1990. *Social Science Research*, 32, 220–250.
- Quillian, L. (2012). Segregation and poverty concentration the role of three segregations. *American Sociological Review*, 77, 354–379.
- Quillian, L. (2014). Does segregation create winners and losers? Residential segregation and inequality in educational attainment. *Social Problems*, 61, 402–426.
- Reardon, S. F., & Bischoff, K. (2011). Income inequality and income segregation. *American Journal of Sociology*, 116, 1092–1153.
- Reardon, S. F., Yun, J. T., & Eitle, T. M. (2000). The changing structure of school segregation: Measurement and evidence of multiracial metropolitan-area school segregation, 1989–1995. *Demography*, 37, 351–364.
- Rhein, C. (1998). Globalisation, social change, and minorities in metropolitan Paris: The emergence of new class patterns. *Urban Studies*, 35, 429–447.
- Safi, M. (2006). *Le processus d'intégration des immigrés en France: inégalités et segmentation* [The integration process of immigrants in France: Inequalities and segmentation]. *Revue Française de Sociologie*, 47, 3–48.
- Safi, M. (2009). *La dimension spatiale de l'intégration: évolution de la ségrégation des populations immigrées en France entre 1968 et 1999* [The spatial dimension of integration: Development of the segregation of immigrant populations in France between 1968 and 1999]. *Revue Française de Sociologie*, 209, 521–552.

- Sassen, S. (1991). *The global city: New York, London, Tokyo* (1st ed.). Princeton, NJ: Princeton University Press.
- Schnell, I., & Osendorf, W. (Eds.). (2002). *Studies in segregation and desegregation*. Burlington, VT: Ashgate.
- Simkus, A. A. (1978). Residential segregation by occupation and race in ten urbanized areas, 1950–1970. *American Sociological Review*, 43, 81–93.
- Taghavi, L. (2008). HUD-assisted housing 101: Using “A Picture of Subsidized Households: 2000.” *Cityscape*, 10(1), 211–220.
- U.S. Census Bureau. (2011). *U.S. neighborhood income inequality in the 2005–2009 period* (American Community Survey Report, No. ACS-16). Washington, DC: U.S. Census Bureau. Retrieved from <https://www.census.gov/prod/2011pubs/acs-16.pdf>
- U.S. Census Bureau. (2013). *Metropolitan and micropolitan statistical areas main* [Data set]. Retrieved from <http://www.census.gov/population/metro/>
- U.S. Department of Housing and Urban Development. (2012). *A Picture of Subsidized Households 2008* [Data set]. Retrieved from <http://www.huduser.org/portal/datasets/picture/about.html>
- Verdugo, G. (2011). Public housing and residential segregation of immigrants in France, 1968–1999. *Population-E*, 66, 169–194.
- Vincent, P., Chantreuil, F., & Tarrow, B. (2015, June). *Income segregation in large French cities*. Paper presented at the Meetings of the French Economic Association, Rennes, France.
- Wacquant, L. (2007). French working-class *bainlieus* and black American ghetto: From conflation to comparison. *Qui Parle?*, 16, 5–38.
- Wagmiller, R. L. (2007). Race and the spatial segregation of jobless men in urban America. *Demography*, 44, 539–562.
- Wilson, W. J. (1987). *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago, IL: University of Chicago Press.
- Wodtke, G. T., Harding, D. J., & Elwert, F. (2011). Neighborhood effects in temporal perspective: The impact of long-term exposure to concentrated disadvantage on high school graduation. *American Sociological Review*, 76, 713–736.
- World Bank. (2013). *Indicators* [Data Set]. Retrieved from <http://data.worldbank.org/indicator>