Chapter 1 Introduction



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1.1 Overview

The purpose of this book is to describe and analyze patterns and trends in racial and ethnic residential segregation across the United States over time and across communities. With new methods to expand our scope of analysis beyond what has been done before, we cover recent decades in a variety of settings including metropolitan and micropolitan areas and rural communities (i.e., noncore counties). We direct our primary focus to residential segregation between major panethnic racial groups -Non-Hispanic White, Black, Latino, and Asian households in 2010 - and to broad changes in segregation from 1990 through 2010. But we also give attention to several more detailed aspects of trends and patterns in residential segregation. While the literature in sociology, demography, urban planning, and geography is rich with studies of residential segregation patterns, we believe this book establishes an important baseline for placing recent segregation research in a new context and for informing segregation research going forward. The basis for this is that we apply new methods for measuring and analyzing segregation that can at times drastically alter results obtained using more traditional approaches. In particular, we argue that these new methods of measurement and analysis address and overcome important methodological problems that have limited past research and, as a result, allow us to expand the scope of segregation studies and the quality of measurement to obtain improved findings that more accurately capture and reflect the demographic reality we are seeking to document.

With the exception of Chap. 2, which reviews and explains our methodology and study design, the chapters in this book give attention to a set of important substantive concerns addressed in the broader sociological and demographic research literature on residential segregation. Even as we describe and analyze patterns of residential segregation between panethnic racial and ethnic groups, an area that has been heavily researched already, we bring significant improvements in strategies of

measurement and analysis when covering this familiar territory. Additionally, we expand the analysis to give close attention to segregation trends in nonmetropolitan and rural settings that are less frequently studied. We also give special attention to segregation patterns in communities that are seeing new and increasing presence of racially and ethnically minoritized populations as the population of the United States steadily becomes more diverse, not only in immigrant gateway cities and areas with established minoritized group presence, but also in metropolitan and nonmetropolitan settings across all regions of the country. Finally, we take the analysis of segregation to a further stage of innovation, where we use new methods to conduct community-specific analyses of micro-level segregation dynamics that shape overall segregation patterns.

The common theme connecting all of the empirical chapters is that we are able to delineate the levels, patterns, and trends in segregation more clearly and accurately than has been possible in previous research by drawing on attractive new options for measuring and analyzing segregation. We necessarily provide an overview of these new methods and note the advantages we gain by using them in Chap. 2. But we do not intend this work to be primarily a study of segregation methodology. Indeed, this is not necessary because the methods we use have been previously introduced and reviewed in depth in a recent work by one of the authors of this book (Fossett, 2017) and we have previously empirically demonstrated the advantages of these new methods of segregation measurement and analysis in earlier work by both authors (Crowell & Fossett, 2018, 2020, 2022). Instead, we intend the main contribution of this study to be to demonstrate the value of applying new methods to help obtain improved answers both to basic questions that have been neglected in past research due to the limitations of earlier methodological practices.

In some cases, as in the study of nonmetropolitan segregation, the previous research literature has been extremely limited in scope and in the conclusions that are drawn because conventional methods of segregation measurement are known to be untrustworthy and potentially misleading for the analysis of interest. This issue is crucially relevant, for example, when investigating segregation in nonmetropolitan settings where it is necessary to use units that are smaller in spatial scale and population size (e.g., census blocks) to measure segregation (Fossett, 2017; Lichter et al., 2010, 2016) and also when the groups in the analysis are imbalanced in size as is certain to be the case in new destination communities and in other communities where new groups are taking on an increasing presence in the population (Hall, 2013; Lichter et al., 2010; Saenz, 2010; Frey, 2018; Winkler & Johnson, 2016; Vásquez et al., 2008). The methodologies we use overcome the challenges that rendered previous measurement strategies untrustworthy and potentially misleading in these situations. This is all to say that we are not necessarily exploring or identifying new areas of segregation research, but rather we are revisiting established areas of research with new and improved methods for understanding the dynamics of residential segregation in a variety of demographic contexts.

Ultimately, this book provides a comprehensive overview of residential segregation in the United States from 1990 up to and through 2010. In addition to describing

residential segregation patterns in all areas of the United States, including Latino and Asian new destinations, we test major sociological hypotheses about the mechanisms and dimensions of segregation, highlight new methodological approaches to measuring and analyzing segregation, and offer suggested paths to continue the work of understanding residential segregation in the United States in the twenty-first century. The phenomenon of racial residential segregation shows little sign of abating or becoming an object of backward-looking historical interest. To the contrary, it appears the study of residential segregation unfortunately will be a priority issue in demographic and social science research well into the future. We hope to help improve the efforts in this field by demonstrating the advantages of new methods of measurement and analysis and showing how they make it possible to expand the scope of feasible research on segregation. These efforts will make segregation research more comprehensive and inclusive of a broader range of group comparisons and community settings. Finally, we believe that improving the quality of measurement and the scope of analysis that is possible in segregation research will not only clarify patterns and trends in residential segregation but also contribute to better evaluation and refinement of existing theories that stimulate new insights into the social dynamics that produce residential segregation.

1.2 Brief Note on Measurement and Implications for Future Research

While we review the value of the methods we use in this study in detail in Chap. 2, we want to emphasize here that our approach to measuring segregation is the basis for one of the major contributions of this book. As far back as Winship (1977) it has been acknowledged that commonly used measures of segregation have inherent flaws that lead to upward bias of segregation index scores that can be concerning in general and deeply troubling under certain conditions, particularly when analyses involve small areas or groups that are vastly disproportionate in size. The most common approach in the literature since Winship (1977) has been to simply restrict the scope of segregation studies to avoid conditions where inherent bias in index scores is most worrisome. This has resulted in certain populations and communities being neglected in the broader literature, either directly through outright exclusion from analysis or indirectly by down-weighting segregation comparisons in empirical analyses, and it has resulted in foregoing research in smaller communities where it is necessary to operationalize neighborhoods at small spatial scales. However, the need to adopt broad restrictions on study design to avoid examining segregation in settings that pose challenges for conventional methodological approaches is no longer warranted. Fossett (2017) has introduced refined formulations of all popularly used segregation indices that eliminate the upward bias inherent in their original formulations. With these new formulas, we proceed in this book to reexamine segregation across the United States free of concern for those particular problems that plagued segregation research in the past.

Additionally, we pick up the conversation begun by Fossett (2017) on segregation indices that diverge from one another and demonstrate in each empirical chapter the care that is needed in deciding which segregation index is most appropriate for capturing the most important aspects of the dimension of uneven distribution in any particular scenario. We also take advantage of an innovation to Fossett's (2017) segregation index reformulations which is that they can now be easily disaggregated and understood as measuring the difference in group means on individual residential outcomes. Placing segregation indices in a conceptual framework where index scores correspond to group-level aggregations of individual-level residential outcomes opens up new and exciting opportunities to analyze segregation as a group-level outcome driven by micro-level dynamics and use the toolkit of methods popular in inequality studies. This in particular builds a bridge between two traditions in the segregation literature that are described in more detail in a later section of this chapter.

The final methodological innovation that we mention here is that we build on the work of Fossett (2017) to call attention to the finding that problems associated with measuring residential segregation using data for persons – which is by far the most common approach used in the research literature – are greater than is generally realized. We first establish that the problems are substantial, and we then review methods that deal with them successfully to permit more accurate and trustworthy measurements of segregation. Our findings on this point have important implications for future research including research using the newly released data files from the 2020 Census of Population and Housing. Specifically, our findings show that analysis of levels and trends in segregation based on index scores computed using tabulations of persons in combination with conventional formulas will consistently overstate levels of segregation by greater amounts than is currently appreciated.

Furthermore, since the impact of index bias, the technical problem that inflates levels of segregation above their true value, varies across cases in complicated ways, there are no easy ways to address the problems when following conventional practices of measuring segregation using data for persons. Happily, we show here that superior, trustworthy measurements of segregation can be achieved. But we also show that it requires using both different measurement approaches and different data. Specifically, it requires using methods for unbiased measurement outlined in Fossett (2017), and these measurement methods must be applied either in combination with data for households or with detailed data for persons by size of household. We review these and other methodological choices we adopt and encourage other researchers to consider in Chap. 2.

1.3 The Continuing Relevance of Residential Segregation

Residential segregation is a distinct and fundamental feature of urban areas across the United States (Fong et al., 2022; Frey, 2018; Iceland, 2014). It is of major interest to social scientists because it involves pronounced and enduring patterns of uneven

spatial distribution of resources and opportunities tied to housing and residential location (Charles, 2003; Fong et al., 2022; Krysan & Crowder, 2017; Massey & Denton, 1993; Sharkey & Faber, 2014). Patterns of residential segregation are characterized by high levels of inertia at a macro level. Individual neighborhoods sometimes change dramatically over a relatively short period of time (e.g., one or two decades), but these changes typically occur on the margins of broader spatial patterns that generally are more stable and rarely change rapidly over short time intervals. This is why Fong et al. (2022) describe segregation as "both dynamic and durable" (6). Consequently, contemporary urban residential patterns are strongly shaped by and reflective of urban history extending back many decades (Charles, 2003; Frey, 2018; Massey & Denton, 1993).

The massive tide of urban and suburban development associated with the transition of U.S. society from predominantly rural to urban and metropolitan during the twentieth century occurred at a time when racism and discrimination directed toward racially minoritized populations were pervasive, were sanctioned by law, and were deeply embedded in institutional practices in housing and mortgage lending markets (Charles, 2003; Frey, 2018; Massey & Denton, 1993; Rothstein, 2017; Taylor, 2019). These conditions enabled White households to settle in new neighborhoods that were marked by their racial exclusivity and also served to protect established White neighborhoods from minoritized group entry. Segregation policies served to inflate the value of properties in White neighborhoods by enabling resource accumulation in contrast to properties in Black neighborhoods marred by public and private disinvestment in addition to predatory real estate practices (Taylor, 2019).

Black households bore the brunt of these policies as they were left behind in disintegrating urban neighborhoods with declining property values, unable to share in the benefits White households gained from federal support and subsidies for new suburban development (Glotzer, 2020). Later in the century, industrial restructuring that saw manufacturing jobs decline with only partial replacement by information and technology jobs reduced employment opportunities that had previously sustained many Black neighborhoods, first inducing and then accelerating the decline of economic opportunity and wellbeing for segregated Black families in larger industrial urban areas of the North and Midwest (Wilson, 1987). These multiple dynamics served to create structured residential patterns that have persisted long after the era of legally sanctioned, or de jure, segregation ended. In the post-Civil Rights era, low-income Black families encountered continuing barriers to entry in White neighborhoods not only because of ongoing overt and covert racial discrimination but also because of the complex web of suppressed wealth accumulation due to depressed housing values and deleterious consequences of concentrated poverty that White households rarely experienced (Massey, 1990). Today, segregation continues to determine and reproduce unequal access to opportunities and resources (Massey, 2020).

Latino and Asian households, while apparently experiencing lower barriers to entry into White neighborhoods, nevertheless also experience moderate levels of segregation from White households on average and evidence suggests these levels are stable or even rising for Latino and Asian households as segregation for Black

households is falling very slowly, albeit steadily (Frey, 2018; Iceland, 2014). Although Latino and Asian households to varying degrees experience historically rooted patterns of segregation from White households and may experience significant housing discrimination, especially for those Latino residents who are racialized as Black, the combination of historical and contemporary dynamics are more complicated due to the role of immigration. Latino and Asian immigrant families also may at first segregate because of the initial practical attractions of existing ethnic immigrant enclaves, or neighborhoods defined by a supportive economic and social infrastructure controlled by the ethnic group that lives there (Charles, 2003; Iceland & Scopilliti, 2008; Portes, 1981). For example, some historical Chinatowns emerged in response to racial discrimination against Asian immigrants but have persisted and thrived as ethnic communities, providing positive human capital to their residents (Zhou & Logan, 1989). In similar ways, Latino enclaves today may exist to support new arrivals seeking protection from discrimination and in need of a welcoming community with shared language that can facilitate entry into the housing and labor markets (Xie & Gough, 2011). The relative impact of beneficial aspects of enclaves serving to attract and retain immigrant populations versus enclaves being areas of last resort and a refuge from discrimination for groups excluded from alternative locations continue to be debated in the literature, but it is nevertheless the case that concentrated immigrant communities are detectable and persistent and are affected by unique dynamics that are distinct from other historical structural causes of racial segregation.

Other than the fact that most areas are still to some degree segregated and in certain metropolitan areas continue to experience extreme levels of White-Black segregation in particular (Frey, 2018; Massey, 2020), there is also other substantial evidence that ongoing *de facto* mechanisms of segregation have carried on past the Civil Rights era to reinforce spatial residential separation by race and class into the twenty-first century. Research on behalf of the Department of Housing and Urban Development (HUD) has revealed that as recently as 2013 Black families seeking housing still experience discrimination in comparison to White families, although they, along with other recent research, also found that the extent of these occurrences is on the decline (Quillian et al., 2020; Turner et al., 2013). Home loan discrimination also still occurs, echoing the nation's history of redlining, with Black potential homeowners, especially those buying homes in predominately Black neighborhoods, less likely to be approved for bank loans or more likely to receive subprime loans. Quillian et al. (2020) found that although housing discrimination is on the decline, racial gaps in mortgage lending are persistent.

The hypothesis that segregation is solely a product of mutual preference is not credible. Preferences are a potential contributing factor. But racial and ethnic segregation is an over-determined outcome supported by multiple causes including not only preferences, as one contributing factor among many, but also overt and informal discrimination, group differentials in resources, and a variety of structural barriers. Each of these can independently foster segregation and they can operate in combination to create and maintain segregation at high levels with White neighborhoods continuing to enjoy more resources, better infrastructure and amenities, and

higher home values. As Douglas Massey and Nancy Denton assert in their influential book, *American Apartheid* (1993), the persistence of segregation, in addition to the meaningful consequences of segregation for racial and economic equality, justify that social scientists maintain the conversation on segregation rather than let it slip out of the discourse on our present social conditions.

Though often associated with early- to mid-twentieth century laws and housing policies, residential segregation today is one of the more persistent visible manifestations of racial conflict, separation, and inequality in the United States. Both the causes and consequences of racial residential segregation have implications for racial and ethnic relations and disparate outcomes by race, class, and other sociologically meaningful group identities. In this book we do not directly explore the individualand group-level outcomes that can result from residing in racially and economically segregated neighborhoods because the data needed for a comprehensive study are not available. But we note these disparate outcomes to highlight the sociological importance of accurately documenting levels, patterns, and trends in segregation and understanding the dynamics that give rise to them. A broad range of studies on health disparities, environmental exposures, educational opportunity gaps, wealth gaps, and housing stability find important correlations with neighborhood characteristics and residential segregation (Sharkey & Faber, 2014). In the case of health and environmental inequalities, segregation consolidates the power of White neighborhoods to block development that could undermine their health, wealth, and wellbeing, which means that industrial plants and freeways are more likely to be constructed in poor communities of color (Sharkey, 2013; Trounstine, 2018). Educational opportunities are largely tied to the quality of public schooling and other location-based enrichment resources. White wealthy children living in homogenous affluent neighborhoods have the privilege of attending well-funded schools, while racially minoritized children and poor children systematically encounter inferior educational opportunities in understaffed and under-resourced schools located in racially segregated areas of concentrated poverty (Kozol, 1991). Wealth and housing are also anchored to residential location as most families build wealth through homeownership. The value of homes in White, affluent neighborhoods are inflated due to subjective assessments of locational value that are grounded in historically racist practices in the real estate and banking industries of assigning less investment and more loan risk to neighborhoods where minoritized racial groups predominate (Howell & Korver-Glenn, 2018; Korver-Glenn, 2021; Quillian et al., 2020; Taylor, 2019). This practice, commonly known as "redlining," is often associated with the FHA underwriting rules that were used in the 1930s and 1940s during the New Deal Era. But those rules were widely adopted by the real estate and mortgage industries and live on today in informal practices and statistical discrimination embedded in risk and value projection models. Segregation contributes to creating and maintaining White wealth, much of which, especially for the middle-class, derives from the appreciation of the values of their homes and the neighborhoods where they are located (Shapiro, 2006).

1.4 Theories of Segregation

The sociological literature on residential segregation has traditionally organized discussion of segregation dynamics around three dominant theoretical frameworks which focus on different but potentially interlocking and simultaneously operating dynamics that shape the level, patterns, and trends in segregation in a given area. The first of these is the spatial assimilation framework, which emphasizes the role of group differences in cultural, social, and economic characteristics in contributing to patterns of racial segregation (Alba & Logan, 1993; Charles, 2003; Massey & Denton, 1985). The explanation for segregation at the center of the spatial assimilation framework is that minoritized racial groups and immigrants are segregated from U.S.-born White households because of group differences in language, culture, nativity, and citizenship, as well as differences in resources crucial for residential attainment and location such as education, occupation, income, and wealth. Especially for immigrants, differences in language and culture can combine with relations of mutual support based on kinship and common origin to create ties to enclave neighborhoods. Additionally, differences in language, culture, and social status increase social distance from U.S.-born White residents and can foster avoidance and exclusion. Deficits in attainment resources such as income and wealth also limit the ability to purchase or rent homes in predominantly White neighborhoods with higher housing costs. These multiple effects are predicted to fade as groups steadily assimilate on language, culture, education, and socioeconomic standing with the central assumption being that assimilation weakens ties to enclaves, reduces social distance from middle-class White households, and reduces deficits in resources relevant for locational attainment.

The spatial assimilation model has roots in the mid-twentieth century "classical" assimilation models of the Chicago School which were developed based primarily on observations of the experiences of White ethnic immigrants of the 1860–1920 era who, over time and across generations, became for the most part socially and spatially indistinguishable from one another and from third-generation White populations (Alba et al., 1997; Lieberson, 1962). The major shortcoming of this perspective is that it has had little value for understanding persistent high levels of White-Black segregation, which is observed regardless of income or educational differences (Crowell & Fossett, 2022). Thus, the model became less relevant to understanding segregation in the United States in the decades following World War II. However, the model has received renewed attention in recent decades following the resumption of sustained, large-scale immigration, especially from countries of Latin America and Asia, after the reforms of the Immigration and Nationality Act of 1965.

Competitive ethnic relations theory also emerged from the Chicago School urban ecology/race relations cycle tradition which identified group-level competition as a powerful factor in social dynamics (Hawley, 1944; Barth & Noel, 1972; Lieberson, 1961, 1980; Fossett & Cready, 1998). The views of this perspective offset what many perceive as undue "optimism" of spatial assimilation theory by stressing the

harsh reality that assimilation sequences are not inevitable as inter-group stratification and inequality can and do arise and endure when group relations harden around group competition and conflict. In particular, these perspectives posit broad regimes of intergroup inequality are especially likely to emerge and persist when majority groups directly and indirectly benefit from racial and ethnic stratification and view the presence and growth of culturally and racially distinctive minoritized populations as a threat to the majority group's social and material advantages, who then discriminate broadly along group lines to preserve majority group position (Blalock, 1956, 1957, 1959, 1967; Frisbie & Niedert, 1977; Olzak & Nagel, 1986; Fossett & Cready, 1998). In recent decades the dynamics of discrimination that are central in competitive ethnic relations theory are more often explored in the context of a more general perspective that stands as an alternative to spatial assimilation theory.

The second dominant theory is often referred to as the *place stratification* model. The general premise of this approach as introduced by Logan (1978) and subsequently expanded by many others is that segregation is an outgrowth of group conflict and is the product of discriminatory behaviors at individual and institutional levels that function to preserve majority group advantages. For understanding racial residential segregation, this framework centers the role of racism which serves to create location-based disparities that privilege White neighborhoods through the exclusion of other racial groups while simultaneously fostering disadvantage, decline, and disinvestment in segregated neighborhoods for racially minoritized (Logan, 1978; Massey, 2007; Trounstine, 2018). This framework focuses attention on a wide range of well-documented discriminatory practices of local, state, and federal governments as well as discriminatory behavior by individual actors such as realtors, speculators, and homeowners. Public housing programs, suburban development, federal home-purchasing loans, and other subsidized housing efforts reached their height prior to the passage of federal fair housing laws and often were designed with explicit intentions to maintain racially segregated neighborhoods (Massey & Denton, 1993; Taylor, 2019). However, even after fair housing laws were enacted, research continues to document persistent racial discrimination in the housing market in addition to racist stereotypes and ideologies that continue to motivate White homeowners to express preferences to live in predominately White neighborhoods (Farley et al., 1994). The place stratification framework attempts to capture these dynamics that emerge from systemic racism within the housing market and how they contribute to ongoing segregation, especially White-Black segregation, which is most strongly reinforced by racism as it manifests as anti-Blackness.

Finally, the third major perspective receiving extended attention in the segregation literature emphasizes the role of preferences in shaping residential patterns in communities. This perspective directs attention to the implications and consequences of the choices individuals and families make when moving to a particular residential location which involves choosing not only a housing unit to serve as their home but also, and perhaps more importantly, choosing a neighborhood to reside in (Krysan & Crowder, 2017). Preferences are obviously strong drivers of residential sorting. Decisions to buy or rent a home are not made casually and families weigh many factors when making these choices, including the safety and orderliness

(or lack thereof) of neighborhoods, the quality of the local schools, accessibility to work and shopping options, property values, and more. In the racialized social context of U.S. urban areas families typically are mindful of neighborhood racial composition both for its own sake and because it is often seen as a proxy for other characteristics of neighborhoods that are correlated with racial composition (Krysan & Crowder, 2017). With regards specifically to racial composition, preferences that do not align proportionately with the overall racial composition of the community can contribute to patterns of segregation. Relatedly, in a city that is predominantly White, minoritized group households that seek to live in "integrated" – or, more precisely, "diverse" – neighborhoods to avoid being "isolated" in predominantly White neighborhoods also will promote uneven distribution. ¹

The feature that distinguishes preference theory from general discrimination theory is the former's focus on consequences of unconstrained choice in contrast to the consequences of constraints on choice resulting from exclusion and other acts of direct discrimination. For example, if households prefer neighborhoods where their racial-ethnic group is present in proportions exceeding parity, their choice behavior can create and maintain racial segregation. Survey research indicates that households from all major racial-ethnic groups express preferences for levels of same-group and cross-group contact that are not compatible with even distribution (Clark, 1991; Fossett, 2006). Preference theory stresses that ethnic demography interacts with preferences in ways that often are not fully appreciated. For example, in most U.S. communities, preferences by minoritized racial groups to live in neighborhoods that are diverse would, if realized, produce many disproportionately White neighborhoods (Fossett, 2006, 2011). Similarly, preference theory is potentially relevant for explaining the moderate-to-high levels of segregation observed among minoritized racial groups while theories emphasizing exclusion and discrimination by White residents have limited relevance. Findings from hedonic price analyses suggest preferences are consequential and are reflected by price premiums households pay for housing located in areas with desired racial composition (Yinger, 2016). Preference theory is controversial in some quarters, but it is readily accepted in others and is not easily dismissed. It warrants more attention both as a matter of basic science and also because standard anti-discrimination laws and policies have no effect on the consequences of choice behavior.

It is standard for segregation studies to identify and draw on the three frameworks just noted (Crowder & Krysan, 2016). Sometimes the frameworks are presented as identifying and emphasizing competing, mutually exclusive forces but more nuanced presentations recognize that logically all three dynamics can operate simultaneously and thus all must be acknowledged and considered together to capture the

¹The term "integration" is used to convey a variety of meanings that, unfortunately, are in some cases inconsistent and incompatible. Under the accepted tenets of segregation measurement theory, integration defined as even distribution holds when all neighborhoods exactly match the ethnic composition of the city as a whole. Consequently, diverse neighborhoods are compatible with integration in cities with diverse ethnic composition but substantial segregation must occur for such neighborhoods to exist in cities that are not demographically diverse.

full complexity of residential segregation (Fossett, 2006, 2011; Fossett & Crowell, 2018; Crowell & Fossett, 2022). However, as popular and dominant as it has become to frame segregation theory in relation to these three perspectives, Maria Krysan and Kyle Crowder (2017) make the case that segregation researchers must recognize the limitations of these lines of demarcation and be open to reconsidering and refining segregation theory.

In particular, Krysan and Crowder criticize the "big three" for relying on the same single assumption that families make rational residential choices with a complete set of information about all possible neighborhood options (Krysan & Crowder, 2017). Their contribution to the literature is packaged in their response to this critique, which is to develop a new framework that emphasizes the parameters of residential sorting, factoring in that stratified groups do not move around within the same housing market but rather are stratified into different and more often than not disparate markets. Thus, as White, Black, Latino, and Asian households seek out new places to live, they move within spheres that have varying degrees of overlap, with the least amount of overlap occurring between White and Black residents. This framework incorporates useful elements of the three traditional theoretical approaches including the way in which residential sorting is driven by racist animosity, the desire to maximize resources, and preferences influenced by perceptions of neighborhoods with different racial compositions, but it brings to the forefront the more dynamic churning of residential sorting at a micro level.

1.5 Segregation as a Multilevel Process

The study designs adopted by empirical studies in the research literature on residential segregation can for the most part be grouped into one of two traditions, each of which focuses on aspects of segregation that are separate and distinct but also clearly inter-connected. The first of these traditions is to conduct comparative analyses of segregation across communities using summary scores to measure segregation. This approach gained renewed popularity following work by Massey and Denton (1988) which brought greater clarity and coherence to discussing and measuring the different dimensions of segregation at macro-scales. For this reason, and also due to the increased computational power that became available to process large census summary files in the latter half of the twentieth century, this tradition in the segregation literature undertakes large-scale studies of cross-area and over-time variation in aggregate-level segregation patterns in communities. This work commonly involves analyzing the associations and relationships of overall segregation with characteristics of communities including factors such as population size, the percent of the population that is not White, and median income differences (Farley & Frey, 1994; Iceland & Scopilliti, 2008; Lichter et al., 2010). A significant contribution of these studies is to establish that, while segregation is an almost universal phenomenon in the metropolitan United States, segregation levels vary across group comparisons, across communities, and over time and this variation can be linked to a variety of social, economic, demographic, and political characteristics of communities.

Many of the chapters in this monograph focus on the first task that must be accomplished by studies in this research tradition; namely, accurately measuring segregation so it can be described well. It may seem unnecessary to state that this first task is essential to documenting variation in segregation across areas and over time. But the fact is, there is substantial room for improvement in accurately measuring segregation for particular group comparisons in particular communities at given points in time. Many of the concerns about the current state of measurement that we review are already known to researchers. Thus, the more valuable contribution we make is to identify and implement methods of measurement that overcome known problems to achieve superior measurements and understandings of segregation patterns. A related goal is to achieve measurements of segregation that can sustain close analysis of individual cases and micro-level patterns. To the non-specialist, this may seem a low bar to reach. In fact, however, much previous research in this area has necessarily had to draw on index scores that often cannot sustain close case analysis because the scores that summarize particular segregation comparisons are sometimes distorted by index bias. Close case analysis becomes difficult and often highly questionable because the impact on index scores can be non-trivial and can vary in complex ways across individual segregation comparisons. Until recently no proven methods were available for eliminating these problems. We implement recently developed methods for measuring segregation that yield unbiased index scores that are superior to scores used in past research. We confine ourselves here to primarily reporting descriptive analyses of patterns and trends. But the contribution is valuable because the results and findings we report are often fundamentally different from those one would obtain using past measurement practices.

The second major research tradition in segregation research gained popularity later in the history of the literature. It is to conduct micro-level locational attainment analyses that focus on the residential outcomes of households and relate those outcomes to characteristics of the household including, for example, race, income, education, language, and nativity (Alba & Logan, 1991, 1992, 1993; South et al., 2008). This approach is relevant for understanding segregation because segregation for the community overall must in a certain sense be determined by the aggregation of the locational attainment outcomes of individual households at a micro level. Until recently, however, it has not been possible to make clear and precise connections between segregation as observed in individual communities and the findings from micro-level attainment analyses. Most studies of micro-level locational attainments have used national-level, sample survey datasets that cannot sustain analysis in individual communities. Yet crucial measures relevant for computing segregation indices for communities – for example, the value of racial composition as measured by proportion White (P) in the community - vary across communities. Consequently, predictions for proportion White in a neighborhood for individual households (p) with particular characteristics based on a national-level regression analysis will not have the same implications for segregation across communities. The predicted value of p may well be above the level expected under even distribution in some communities and below the level expected under even distribution in other communities. So, implications for segregation must be teased out at a more general

and abstract level of a mythical "average community" and cannot be applied effectively in individual communities that differ from the average.

What should become clear, especially as one understands and appreciates the insights gleaned from locational attainments research, is that we intuitively understand segregation to be the product of micro-level processes that determine where individual households reside. Yet the empirical study of micro-level locational attainments and the empirical study of macro-level segregation patterns, up until recently, could not be directly linked in any definite way. Many important studies, including for example the work of Alba and Logan (1991, 1992, 1993) and the work of South and colleagues (2008) made significant strides in this direction. But missing from this work and from the broader literature was a method for quantitatively joining research on individual locational attainments and research measuring segregation at the community level. Our previous work in this area (Crowell & Fossett, 2018, 2020, 2022) provides the missing link by drawing on methods set forth by Fossett (2017) that seamlessly join aggregate-level segregation measurement with micro-level locational attainment outcomes in a way that can directly establish the quantitative implications of micro-level attainment effects for the level of segregation measured in a given community. We continue that work in this book by building on our prior published work and going beyond by applying the new methods to a broader range of analyses.

1.6 Chapter Overview

This book is organized to give a broad overview of segregation trends from 1990 to 2010, followed by analyses of segregation in more specific and detailed contexts, which we selected by giving consideration to how segregation can vary by populations and community types. Thus, we examine segregation in metropolitan and nonmetropolitan areas and in areas of established immigrant settlement and new immigrant destinations. We also analyze the link between micro-level processes of locational attainment and overall segregation patterns in a selection of metropolitan areas. Throughout these analyses, we are able to go beyond previous research in significant ways by taking advantage of new developments in methods of measurement and analysis, by explaining the advantages of these methodological innovations and showing how they bring practical improvements to empirical studies, and by using new techniques to help us answer both new and longstanding questions about the connections between micro-level locational attainment processes and overall levels of segregation.

Before we delve into the substance of our empirical work, we first lay out the technical foundation of the methods that support the contributions of this book. Thus Chap. 2 reviews our research design and major methodological choices and, in particular, describes in detail how we measure and analyze segregation using the methods developed in Fossett's *New Methods for Measuring and Analyzing Segregation* (2017). In addition to presenting and explaining all relevant formulas, in this

chapter we also exercise our methods through several small examples to highlight some of the problems that can arise using conventional methodological approaches and how they can be addressed with the methodology that we promote in this book. These methodological tools are essential for understanding the contributions of our book as a whole because while they are new and innovative in many ways, they also provide continuity with past approaches and thus lay out a clear way forward for segregation research. We hope that this chapter in particular will inspire new segregation research in understudied areas and encourage the reader to learn more in Fossett's, 2017 monograph, but we expect the empirical demonstrations in the chapters that follow to more clearly showcase opportunities for innovative analysis.

With our methodology established, Chap. 3 begins the presentation of our empirical studies with an overview of racial segregation patterns across the United States from 1990 to 2010. Our analyses cover the entirety of the U.S. including nearly all metropolitan areas, micropolitan areas, and noncore counties (i.e., counties that do not have a significant urban center or "core"). In this chapter we establish the basic format that we will adopt in most successive chapters by presenting findings for familiar majority-minority panethnic comparisons for White-Black, White-Latino, and White-Asian segregation and describing the implications of methodological choices for the results we obtain including the choice of segregation index, the unit of analysis used for assessing spatial distributions, and the very conception of segregation and group disparity in residential outcomes. Also in Chap. 3 we provide, for the benefit of the reader, comparisons between segregation measured using different indices that we describe in Chap. 2 and use moving forward.

Following the comprehensive overview of segregation across the United States given in Chap. 3, we direct special attention to segregation in micropolitan and noncore areas, which we refer to collectively as nonmetropolitan communities, in Chap. 4. Many of the issues that arise using conventional approaches for measurement and analysis become especially prominent in nonmetropolitan communities because they hold so many of the characteristics that raise red flags such as small population sizes and substantial imbalance in the size of groups. Each of these concerns is addressed in this chapter, allowing us to showcase what more is possible with improved methodology as well as contribute to the limited knowledge that we have on racial segregation in nonmetropolitan contexts.

Chapter 5 enters into a timely conversation about the migration of Latino and Asian immigrants into the interior of the United States that has been occurring over the last four decades. In the decades following the Immigration and Nationality Act of 1965 many Latino and Asian immigrants have tended to settle in certain areas, including major "gateway" metropolitan areas such as Houston, Los Angeles, Chicago, Miami, and New York and also other metropolitan areas near international borders, where new immigrants may, by some mixture of choice and necessity, settle in established ethnic communities and contribute to patterns of segregation in complex ways. A growing number of immigrants and their families have settled in what are referred to as "new destinations" that are primarily located in the Midwest and South and include not only many metropolitan areas but also a much larger number of nonmetropolitan communities encompassing both micropolitan areas and

rural (non-core) counties which have historically been predominately White, with the exception of some Southern Black Belt communities. The settlement of new racial groups in these areas has raised questions about their reception, which can in part be reflected in where they residentially locate in relation to White households. In Chap. 5 we describe segregation patterns in new destinations for Latino and Asian groups and how these areas are spatially transforming over time in comparison to traditional areas of settlement, taking advantage of three decades' worth of census data that capture this phenomenon.

The analyses we present in Chaps. 3 through 5 generally follow many familiar conventions in the literature of approaching segregation at an aggregate level, with the major contributions being to implement significant improvements in measuring segregation that allow us to document levels and trends in segregation more fully and accurately than has previously been possible. The analyses we present in Chap. 6 build on the methodological innovations we review in Chap. 2 in a different way; namely, by working with detailed microdata for individual communities to take advantage of new opportunities to directly link aggregate-level segregation patterns to the micro-level locational dynamics of households. Specifically, we review results from a series of locational attainment analyses - that is, micro-level regression analyses predicting residential outcomes for individual households – where group means on the residential outcomes being predicted in the regression analyses exactly determine the values of aggregate-level index scores that summarize the level of segregation in the community. Thus, these particular locational attainment models create a quantitative bridge joining the two main empirical research traditions in the literature on residential segregation. This framework allows us to answer questions such as "How do group differences in characteristics and resources relevant for locational attainments contribute to creating the level of segregation observed in the community?" and, alternatively, "How much of the level of segregation observed in the community rests on group differences that remain net of controls for relevant characteristics and resources?" Moreover, we are able to answer these and other related questions separately for multiple group comparisons and for a sizeable sample of large metropolitan areas. As of this writing, we are the only researchers to use these methods, in part because using them effectively requires working with data that are restricted and not generally available to researchers. So, the analyses we present in this chapter have no parallel in previous research, other than our own, and provide new insights that cannot be gleaned from research by others.

In our seventh and concluding chapter we summarize the substantive and methodological contributions from the previous chapters and review their implications for future directions in segregation research. One point that we hope will become very clear is that the methodological approaches adopted have enabled us to set new, more trustworthy benchmarks for studying segregation trends over time and across communities. We also hope these methods will be adopted in future segregation research, as they are a clear improvement over traditional methods while also providing continuity with past approaches. In discussing the future, we also consider the timing of this book. We wrote this book while anticipating the release of 2020 census data products, which for a variety of reasons may pose significant challenges

for demographers and other social scientists eager to document recent trends in segregation. The political climate at the time preceding the 2020 census in addition to the upheaval caused by the COVID-19 pandemic can be expected to affect the response rate of major populations discussed in this book including Latino immigrants and rural residents, potentially undermining success in meeting the decennial census goal of obtaining a full count of the population by their demographic characteristics.

One thing we do know is that racial and ethnic diversity will be increasing across communities as Asian and Latino populations increase in size nationally and diffuse across a wider range of communities, leading to the creation of more new destination communities and causing earlier new destination communities to transition toward areas of established presence. Additionally, we also believe that, due to the heightened social and political divergence between large metropolitan areas and nonmetropolitan areas, social scientists will be giving greater attention to nonmetropolitan communities which previously were largely neglected in segregation research. The findings here demonstrate that research investigating patterns and trends in segregation across communities that are increasingly diverse with respect to race and ethnicity will benefit from using the new methods we use in this study, especially in nonmetropolitan communities and smaller metropolitan areas where it is necessary to use smaller spatial units to measure segregation in a satisfactory manner.

In brief, the new methods we use here address and overcome difficult problems in measurement that have posed major challenges for segregation research. Some, like the previously intractable problem of inherent upward bias in index scores that varies in magnitude across different group comparisons and research situations, are well-known and have long motivated researchers to adopt a host of questionable ad hoc strategies for analyzing inherently flawed scores. The efficacy of ad hoc strategies used in past research has never been rigorously demonstrated and, candidly, is at best questionable (Fossett, 2017). Accordingly, there can be no dispute that the approach adopted here of obtaining unbiased scores at the point of initial measurement is clearly superior and renders the discussion of past practices moot, as the need to consider ad hoc practices for dealing with flawed index scores is entirely eliminated when one has the option of obtaining technically sound, unbiased scores.

Relatedly, the new methods we draw on lead to insights that increase the relevance of both the consequences of index bias and the benefits of being able to compute unbiased index scores. The relevant insight comes into focus when we adopt the difference-of-means framework for calculating segregation scores set forth in Fossett (2017). This framework establishes that a segregation index score can be understood not only as an aggregate-level summary measure indicating the level of segregation in a community, but also as a quantitative estimate of the impact of group membership on residential outcomes for households as shaped by a microlevel locational attainment process in which group membership is one among many potential predictors. From this vantage point it becomes clear that the residential outcomes in question – which are scored from area group composition – cannot be treated as independent across persons because most individuals locate in

coordination with other individuals within a household that is homogeneous on racial and ethnic composition.

This new perspective leads directly to three technical insights about the measurement and analysis of segregation. The first is that locational attainment regression models relevant for analyzing segregation cannot treat individuals as independent observations. The second insight is that previous research, already profoundly influenced by concerns about the problem of index bias, had in fact significantly underestimated the magnitude of the problem by not recognizing the implications of the fact that individuals locate as part of ethnically homogeneous households. And, more happily, it also leads to the third technical insight that the problem of bias can be addressed and eliminated by applying refined formulas for unbiased index scores in combination with data for households instead of persons. We believe these insights must be acknowledged in research going forward and that studies of segregation that fail to consider these issues and take appropriate action will be open to question.

1.7 Final Thoughts: Why This Book Now?

Some readers may ask, "Why publish a study of trends and patterns in segregation in 2023 that reviews results based on data for 1990 to 2010 but does not also include results based on data from the 2020 Census?". It is a fair question. Our answer notes multiple reasons why our study has value and should be shared with the research community. First, and most importantly, we believe the findings our study presents make important contributions to the existing literature that should be shared as soon as feasible. Doing so accomplishes more than just improving our understanding of patterns and trends in segregation over the period 1990 to 2010. It also can influence research practices going forward in ways that we believe will bring important benefits for developing better assessment of the most recent patterns and trends in segregation when relevant data are available. This leads to a second reason for publishing our study. It is that, as of this writing, the kinds of data that are crucial to implementing our methods of measuring and analyzing segregation have not yet been released and distributed for the 2020 Census.² So, it was literally not possible for us to include these data in our study. Waiting for these data to be released would lead to delays in sharing important findings that demonstrate the benefits of using new methods for

²Our study reports findings based on aggregate tabulations of households for small geographic domains (e.g., census blocks) and also findings based on microdata for households that incorporates information about similar low-level census geography. As of this writing, the Census Bureau has not released aggregate tabulations of households by race for the low levels of geography we use in this study and, likewise, they have not yet released the relevant microdata for the years needed to replicate our analyses based on data for 2010.

measuring and analyzing segregation and in sharing results that challenge some past conclusions regarding levels, patterns, and trends in segregation. In light of this, we stress that the central contribution of our study is not the currency of the data. Instead, it is that our study applies new approaches to measuring and analyzing segregation that enhance our ability to document segregation in the recent past with greater accuracy and nuance. In doing so it provides examples to consider for research going forward. More specifically, we use new methods to obtain segregation index scores with superior technical properties. The resulting measurements often depart significantly from measurements obtained using past practices. When differences emerge, the results we obtain are more accurate and trustworthy because they implement refinements that eliminate multiple sources of bias and distortion associated with previous approaches measuring uneven distribution. Additionally, we demonstrate the value of carefully comparing findings obtained using multiple measures of uneven distribution. Accordingly, we argue our study makes valuable contributions to improving research focusing on segregation before 2020 and benefitting future research focusing on 2020 and beyond.

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