DETERMINANTS OF RESIDENTIAL SEGREGATION AND LOCATIONAL ATTAINMENTS: IMPLICATIONS OF DISCRETE CHOICE MODEL

A Dissertation

by

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ABSTRACT

Over the years, sociologists and demographers have proposed several segregation theories to explain the dynamics of residential segregation: (1) Discriminatory practices, (2) Social distance and preference dynamics, and (3) group differences of social resources and status. However, the debate over which factors contribute to residential attainments - and the extent to which they do so- remains unsettled. This study will investigate how multiple factors, including individual and household characteristics and also the attributes of neighborhoods of residence, contribute to sorting individuals across neighborhoods and the implications for segregation dynamics. Specifically, it addresses the following questions: (1) Can discrimination theoretical perspectives adequately explain sorting between individual race and neighborhood racial composition? (2) Can differences and distributions in social characteristics and acculturation adequately explain residential outcomes? (3) Do people choose a certain neighborhood due to racial or non-racial factors? (4) Can we distinguish between the importance of different neighborhood characteristics – racial composition, income level, etc. for residential sorting?

To address these questions, I use conditional logit models to estimate mechanisms of residential sorting based on associations between household characteristics and neighborhood attributes. The data source comes from the restricted 100% count IPUMS files, one of the few available data sets that can sustain conditional logit analyses for an individual metropolitan area. This dissertation will study San Antonio, TX, and Sacramento, CA. I will first estimate the residential contact with whites of different racial and ethnic groups by assimilation types. I next

estimate the in-group and out-group contact between the majority and the racial/ethnic minorities.

The results of my analyses suggest that preference perspectives play a very important role in constructing and sustaining segregation patterns. Spatial assimilation does not always apply to all racial and ethnic minorities. That means erasing group differences does not necessarily promote integration. White's aversion to minorities and in-group contact within each group may still cause segregation at some levels. I also find that racial proxy hypothesis weakly describes the process of households sorting into neighborhoods with higher income level, but that it is more relevant only when households decide where to buy or rent a real estate property. In other cases, however, race sorting is more pronounced.

DEDICATION

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CHAPTER I

INTRODUCTION

Since social resources are not evenly distributed across residential areas of cities, living in a given neighborhood differentially impacts people's education, social network, and even health. It is well-established that living in disadvantaged and predominately minority neighborhoods can have negative consequences for life circumstances and life chances (Krysan and Crowder 2017). Therefore, residential segregation has long been a central focus of sociology and demography. In the US, residential segregation is salient along with lines of race and ethnicities, as well as class and other factors. Many different mechanisms have been hypothesized to account for these patterns of segregation and the quantitative contributions of different factors have proven to be complicated to explain and understand. Over the years, social scientists have drawn some classic explanations that highlight the cause of residential segregation: (1) racial differences in residential preferences for the neighborhood; (2) discriminatory practice that restrains minorities to enter white neighborhoods; (3) group differences in social resources and characteristics.

There have been debates over what theoretical perspective better explains or predicts the segregation patterns observed in the US cities. For instance, Black-White segregation has long been a fundamentally important role in segregation analysis due to its severe nature and historical underpinning. Despite the steady decline of black-white segregation level in recent decades, black-white segregation still remains higher than other pairwise groups. Such segregation patterns can be plausibly attributed to whites' discriminatory practices against blacks. For example, Massey (1993) argues "Black entry leads to neighborhood racial turnover

not simply because of the interaction of white and black preferences but because the model implicitly assumes a racially segmented housing market maintained by discrimination. Whites can only avoid co-residence with blacks if mechanisms exist to keep blacks out of most white neighborhoods." At the same time, however, preference perspectives also are potential relevant for understanding black-white segregation. According to this theoretical line, differences in culture and preferences may increase the social distance between racial and ethnic groups which is then expressed in spatial separation in urban space (for a recent review see Fossett 2006). Through the economic and spatial competition for housing in urban areas, individuals and households from different racial and ethnic groups may lean toward particular patterns of choices regarding neighborhood of residence guided by a variety of preference promoting attraction to or avoidance of different neighborhoods of residence. Differences in microlevel choices and preferences are theorized to be capable of building and/or sustaining aggregate-level segregation (Schelling 1969, 1972). In more recent decades, the focus of preference theory has expanded to also focus on Latinos and Asian insofar as Latino have become the largest racial-ethnic minorities population in the US and have been growing rapidly and Asians, while still relatively small at the national level also are growing rapidly (U.S. Census 2010). The aforementioned debates thus get extended to white-Latino segregation. I will delve into the full details of this objective in the later chapters.

In part, the difficulty of setting these debates may be attributed to the limits of methodology and data availability. In regards to methodology, several methodological approaches have been established for segregation and locational attainment research over the years. One focuses on assessing residential segregation as measured by aggregate-level segregation indices. For example, the Index of Dissimilarity (D) was introduced and popularized

by Duncan and Duncan (1955a), and their work was then later built upon by Massey and Denton (1988a) who identified other dimensions of residential segregation. The other approach focuses on assessing the determinants of individual-level locational attainments (Alba & Logan 1993), specifically, testing the effects of individual and household characteristics (e.g., education and income) on neighborhood outcomes (e.g., racial composition and median income). A long line of segregation and locational attainment research use this methodological approach to explain the process by which households are sorted into neighborhoods. The neighborhood-level outcome could be either racial composition or median income. Scholars usually regress the outcome of interest on individual household characteristics (i.e. household income or language) to capture the sorting mechanism between households and neighborhoods (Quillian 2015). The limitation of this approach is that one can only regress one neighborhood attribute on household characteristics in a model. This overlooks the fact that households usually evaluate multiple neighborhood attributes simultaneously and make tradeoffs regarding attainments on the different attributes. Another methodological concern is that locational attainment models are typically estimated using national-level data sets and fail to adequately take account of community-level attributes such as racial composition which can potentially strongly condition on residential outcomes.

I will address these methodological concerns in two ways. First I will try to untangled the potential complex role of multiple neighborhood attributes in greater detail than is typical in previous studies by using discrete choice models, which allow neighborhoods to be characterized by distinct bundles of attributes to investigate location attainments (Sermons 2000; Bruch and Mare 2012; Bruch and Mare 2006; Quillian 2015, Goldsmith and Puga, 2019). Second, I will estimate these models using data for specific cities, instead of national samples, to perform a

more in-depth and comprehensive analysis of locational attainment patterns of different racial and ethnic groups in the context of the racial-ethnic composition of a particular community. I may be able to answer questions such as "Do all racial and ethnic groups tend to avoid neighbors of other races in favor of neighbors of their own race?" and "Minorities seek for residential proximity with whites when they accumulate assimilative factors because they like to live in a neighborhood with better amenities and higher housing values or because of race factors?" or "Does the effect of household characteristics on residential outcomes vary across demographic contexts?" The ability to address and develop better answers of these questions could help me conduct a more rigorous investigation of segregation theories.

In this study, I will also address the second limitation of data availability. Microdata[1] has been a major data source for residential attainment analysis. A long line of this research uses national sample data (i.e. PSID) to estimate the mechanism by which households are sorted into neighborhoods. While these studies have advanced the literature on residential segregation, the data has two major drawbacks: (1) its sample size is not large enough to draw conclusions regarding whether the patterns vary across individual communities; (2) it does not adequately address the ecological dependence problem of community variation in racial-ethnic composition and levels of segregation. The US cities are demographically diverse. Some are more racially diverse with a lower level of segregation, while some are more racially homogeneous. For instance, a household that lives in or moves to Minneapolis-St. Paul, Minnesota would encounter a very different distribution of attributes of potential neighborhoods in comparison to a household who live in or moves to Houston, Texas or Los Angeles, California, or Atlanta,

[1] Unlike aggregate data, the unit of a microdata is commonly individuals. A microdata usually has detailed information of individuals and households.

Georgia. Technically speaking, this reflects that the marginal distribution of potential neighborhoods influences the probability of choosing a neighborhood (Quillian 2015). Conventional methods and national sample data do not consider the distribution of neighborhood attributes on residential outcomes.

The second limitation is more about empirical analysis. Most classic segregation theories date back to the Chicago School in the early twentieth century (Park, Burgess, and McKenzie 1925; Park 1926; Burgess 1928). The discussions and theoretical formation were largely based upon the demographic landscape and socioeconomic conditions in Chicago around 1930 when European immigrants from central and southern Europe and African Americans from the South were the major component of immigrants to large cities (Lieberson 1981; Poston and Bouvier 2016). In the several decades following the major changes in U.S. immigration policy in 1965, Latinos and Asians have become the major groups of immigration to the US. Many segregation and locational attainment studies then use contemporary data to test theories that reflect different demographics. That is, there is a mismatch between data availability and the investigations of segregation theories. The limitations regarding data availability can be overcome by accessing the restricted 100% count IPUMS files 1940 available in a secured computing environment in Texas Research Data Center. The restricted IPUMS data has detailed information for every person and household in 1940. The restricted files also contain low-level geography; specifically, the Enumeration District (ED), a spatial unit roughly comparable to the census block group used in contemporary census tabulations[2]. The restricted IPUMS data provides a unique combination of having detailed geographic information, 100% coverage of individuals and households, and highly detailed data on demographic and social characteristics of individuals and households. I

[2] I will talk more about the enumeration district in the later chapters.

apply user-written programs to these data to create custom aggregate summary files for individual cities. This creates summary file data sets never before available for these cities. I then merge the neighborhood-level attributes in the summary files to the individual cases to prepare data sets that can sustain highly refined location attainment analyses for individual cities. Note that similar analysis files cannot be prepared for contemporary cities using public data as the combination of detailed geography and detailed personal characteristics cannot be achieved using public census data due to restrictions of federal guidelines to protect confidentiality. Such files can be prepared using restricted census files available in Federal Statistical Research Data Centers (e.g., see Fox 2014; Crowell and Fossett 2018, 2020). But analysis based on restricted contemporary census files suffers from the problem that the detailed social and economic information needed to measure multiple neighborhood attributes is limited to small samples (1%) producing complex problems for segregation research (Napierala and Denton 2017; Logan and Martinez 2018).[3] Analyses based on the restricted 1940 IPUMS file avoid these problems by having 100% coverage of the population in each neighborhood (ED).

In this study, I will use discrete choice models and restricted 100% count IPUMS files to overcome the methodological and data limitations in previous research. This study will serve multiple goals. First, I will perform a comprehensive analysis of residential sortings of not only racial minorities but also European immigrants in selected cities, with an innovative replication and expansion of discrete choice models, aiming to provide more evidence to explicate the structure of continuous debates of segregation theoretical perspectives. The second purpose of

[3] Fox (2014), Crowell and Fossett (2018; 2019) overcome this problem by measuring only a single neighborhood attribute – racial composition – using 100% decennial files. They do not measure neighborhood socioeconomic status.

this study is to use restricted 100% count IPUMS files 1940 to provide a more rigorous investigation to segregation theoretical perspectives.

The substantive goal is that this study will provide the first comprehensive analysis of segregation and residential sorting of race and ethnic groups across areas in 1940. In particular, this study will examine residential outcomes of Hispanics, blacks, Asian, and non-Hispanic whites, as well as European immigrants that have yet been extensively studied in previous research. Therefore, this study will fill the gap and potentially make an important contribution to the literature by employing a new way of studying residential sorting and segregation. Contemporary theories of segregation trace back to theories that were first advanced to account for patterns of segregation observed in the dynamic and rapidly growing metropolitan areas of the early Twentieth Century. But the patterns of segregation in these cities have not previously been studied using contemporary methods of quantitative analysis. It is valuable to apply contemporary methods to historical data to see if the theories offered to account for segregation patterns in these cities fare well when evaluated using more rigorous data and methods of analysis.

The chapters of this dissertation are organized as follows: Chapter II will provide an overview and discussion of different theoretical perspectives of segregation. Chapter III will identify the research gap in terms of methodology and data availability. Chapter IV will describe data sources, analysis units, methods of analysis, and the variables in the analysis. Chapter V is the first analysis chapter, presenting some descriptive statistics of the selected cities, their immigration history, and their segregation scores. Chapter VI will provide empirical results of estimating residential contact with whites. Chapter VII will provide empirical results of residential contact with the minorities. Chapter VIII will control the economic sorting to test

racial proxy hypothesis. Chapter IX, the last chapter of this dissertation, will summarize the results, draw conclusions, and outline directions for future research. This chapter will also review the limitation of the study and the method.

CHAPTER II

THEORETICAL BACKGROUND

Overview

Many factors contribute to creating and maintaining residential segregation between racial and ethnic groups. Social scientists typically attribute segregation to three major sources: preferences and social distance dynamics, discriminatory practices constraining minority access to white neighborhoods, and group differences in social characteristics and resources that enable and/or limit choice in urban housing markets. There has been intensive debate over which theory better explains or predicts the segregation patterns observed in the US cities. In this chapter, I will review and discuss the theoretical perspectives respectively, and try to decompose the theoretical discussions.

Racial Ethnic Preference and Residential Segregation

The preference theoretical perspective dates back to the Chicago School, which identified preference based upon social distance as one of the various mechanisms that cause residential segregation (Park, Burgess, and McKenzie 1925; Burgess 1928; Park 1925, 1936a, 1936b). For instance, the hypothesis of a relationship between social and spatial distance has its origin in a paper by Park in 1925 entitled “The Concept of Position in Sociology”, in which Park stated that “It is because geography, occupation, and all the other factors which determine the distribution of population determine so irresistibly and fatally the place, the group, and the associates with whom each one of us is bound to live that spatial relations come to have ... the importance which they do .... Social relations are ... frequently and ...inevitably correlated with spatial relations ... Physical distances are, or seem to be, the indexes of social distances.” In other words, differences

in preferences and/or differences in resources and means lead groups to live apart across the different districts of a city as they compete for residential locations in the housing market (Fossett 2005). Social groups with similar ethnic culture, sense of mutual acceptance, residential requirements, etc., tend to have low social distance, which further contributes to similar residential outcomes (Fossett 2005).

Later, economist Thomas Schelling popularized the preference perspective through his theory and analytic modeling. He assumes that people tend to live in proximity to those with whom they have the most in common, especially in terms of race. When individual in-group preferences shape choices on a city-wide scale, aggregate-level residential segregation occurs. Schelling's particular insight is that the impacts of preference-driven choices on aggregate patterns are more dramatic than commonly recognized (Schelling 1971).

Many subsequent studies have guided by this theoretical reasoning. Duncan and Duncan (1955b) conducted one of the first empirical tests of the Park hypothesis mentioned in the last paragraph in an analysis of the relationship between residential segregation and occupational differentiation in Chicago. They found a direct association between the residential segregation of any two occupational groups and the degree of social distance between the groups. Some other studies also have examined and largely confirmed various aspects of this hypothesis among groups and areas in the United States (Uyeki 1964; Fine, Glenn, and Monts 1971; Farley 1977; Massey 1979; Hwang et al. 1985; Massey and Denton 1987). Additional studies have confirmed similar versions of Park's hypothesis in England (Collison and Mogey 1959), India (Mehta 1968), Puerto Rico (Schwirian and Rico-Velasco 1971), Egypt (Latif 1974), and the Philippines (Costello and Palabrica-Costello 1984). Some contemporary studies focus more on individual's preference to neighborhood racial composition. For example, Clark (1986, 1988, 1991, 2002)

uses opinion study data and argues that racial/ethnic preference is segregation-promoting precisely because blacks and whites have different preferences to neighborhood racial composition, even though some variations exist between the sample cities. Segregation is reinforced by preferences for living with neighbors with similar race or class (Clark 1991). Moreover, he and Fossett (2008) pointed out that preferences are one major force in the choice of residential outcomes and that preferences have the potential to promote disproportionate in-group contact and aggregate-level segregation. Besides, the preference model notes that in-group residential preferences often persist over time, especially among newly arrived immigrants and other racial/ethnic groups drawn to enclave-based resources and support (Charles 2006; Clark 2002; Fossett 2011). Critiques of preference theory face a fundamental logical dilemma. Standard measures of segregation take low values only under conditions of exact or approximate even distribution of groups across areas. But no empirical studies of preferences for persons in the U.S. have reported distributions of preferences for all groups that are compatible with even distribution of group populations across neighborhoods (Fossett and Waren 2005).

Significantly, this statement applies to non-white minority groups – African Americans, Latino-Americans, and Asian-Americans – as well as the majority white population (Fossett 2006) because no group expresses a desire (as a first or second preference) to live in areas where their group is less than a majority of the population (Fossett 2006). Thus, while some studies show greater willingness of non-white minority groups to reside in areas that are ethnically diverse – typically with a 50/50 same-group other group mix), no groups express a preference to reside in areas where their group matches the racial composition of the broader urban or metropolitan area.

It is commonly overlooked that the preference perspective also includes locational preferences to avoid coresidence with out-group members based upon aversion to out-groups based on negative affects and/or negative stereotypes. This can be distinguished from discrimination when it does not involve a dynamic that constrains the location options of other groups. Thus, for example, it does not violate laws prohibiting housing discrimination. Some literature also reflects this aspect, shifting the focus from in-group preference to out-group avoidance brought by prejudice and stereotypes. The combination of same-group preference and out-group aversion leads to predictions of multi-way segregation among many groups, not just minority segregation from whites.

In contemporary U.S. urban areas, predominately white neighborhood tends to have better amenities such as better schools, fewer social problems, lower crime, etc. This creates the possibility that groups which do not specifically prefer neighborhoods where proportion white matches the city proportion overall – as an explicit goal for ethnic contact – may seek higher proportion white because it is correlated with other positively valued neighborhood characteristics. This would reinforce whites' expressed strong inclinations to live in predominantly white neighborhoods such that, while whites may be tolerant of the presence of a small number of equal status minorities in their neighborhoods, they are still reluctant to reside in areas with large minority proportions (Charles 2000; Clark 1988, 1991, 2002; Bobo and Zubrinsky 1996; Farley et al. 1978, 1997; Krysan 2002; Krysan and Farley 2002). The positive correlation of proportion white and positive amenities also potentially creates a competing preference moderating blacks exhibit a preference for racially-mixed neighborhoods on a 50/50 basis.

Bobo and Zubinsky (1996) decompose out-group aversion into three components and test them respectively using a large multiethnic sample survey in Los Angles. They find that racial stereotyping prejudice appears to be an important element of how people form their views on integrated neighborhoods and that ethnocentrism-based in-group preference and neighborhood economic status, however, play a trivial role (Bobo and Zubrinsky 1996). The stereotypes toward out-groups become more negative, segregation would rise. On the other hand, if there is a greater overlap of neighborhood preferences or aversions between the majority and the minority, segregation would decline (Farley et al 1997; Charles 2000).

To sum up, preference theorists believe that residential segregation can be created by preferences in the form of attraction to in-group contact and aversion to out-group contact based upon prejudice and negative effects. An area of particular distinction with other perspectives is that preference theory predicts multi-way patterns of segregation across groups, not just white-minority segregation.

Critique of Preference Perspective

The critique of the preference perspectives argues that preferences and prejudice dynamics do not necessarily bring out segregation, but instead, promote residential integration. This line of theoretical reasoning was set forth by Massey and Denton (1993) and John Yinger (1995). They argue that whites' aversion to living with minorities cannot create and sustain residential segregation in US cities and that without housing discrimination, minorities would be able to enter white-majority neighborhoods and turn them into integrated residential areas (Massey and Denton 1993). They also believe that although whites do not like to live with minorities, minorities with similar status (i.e. minorities who enjoy a similar socioeconomic status) would eventually find a white-majority neighborhood to accommodate themselves,

thereby, producing integration, only if there is no significant discrimination that would constrain minorities to enter white neighborhoods. Therefore, the observed residential segregation is not merely caused by whites' reluctance to living with minorities but by their resistance for minority entry, in this case, a practice of discrimination. Yinger (1995), on the other hand, argues that whites' aversion to co-residence with minorities is a consequence of long-term discrimination. He then points out that heterogeneous and competing preferences may undermine segregation-promoting forces. In this way, the preference perspective cannot sufficiently explain the observed segregation pattern (Yinger 1995). In general, the three of them are in agreement that preferences, including in-group preferences and out-group aversion, will lead to integration, not segregation.

Other analytical models and simulation studies question these conclusions noting that prevailing group preferences as measured by surveys can potentially support segregation in the absence of discrimination (Fossett 2006; Ellen 2000a; Young 2006). One counterpoint of this theoretical perspective is put forward by Fossett (2006) who notes that, even under the unrealistic scenario of strategic placement algorithms, group preference distributions as measured by surveys are not compatible with even distribution of racial groups in any multi-ethnic city in the U.S. Fossett (2006) uses segregation simulation models to provide evidence for those theoretical arguments, seeking to prove the effects of preference dynamics on segregation. He finds that the claims that minority preference and heterogeneity in preference will promote integration are not supported by formal models or simulation models. Fossett (2006) then argues segregation can be attributed to a combination of multiple sufficient causes including both discrimination and preference dynamics. In addition, this theoretical perspective is pronounced under ethnic compositions that are common in the US cities, which justify the need of directing

attention towards the various demographics of the US cities (Fossett and Waren 2005). Ellen (2000b) takes a more neutral stance that whites are less likely to move to neighborhoods with large black population because they may hold race-based neighborhood stereotyping posed by the long-term segregation. Although her argument does not incline strongly toward preference perspectives, she certainly implies that discrimination may not be the unique factor in causing segregation.

Discrimination Perspective

Discrimination perspectives, including informal and institutional exclusion and discriminatory practice, also originate from classic urban ecological theory established in the early twentieth century which emphasized group competition as well as individual competition in housing markets. According to urban ecological theory, variations in preferences, social distance dynamics, cultural background, and discriminatory practice, acting independently or collaboratively, would rise segregation through the spatially structured housing market (Fossett 2005). Discrimination perspectives serve at the supply side, highlighting the limited residential choices available to those with lower status, as well as some particular neighborhoods belonging to certain racial/ethnic groups based on discrimination and institutional constraints (Fossett 2005). Residential segregation occurs when certain groups have no access to certain neighborhoods, typically middle- or high-income neighborhoods. This perspective has gained prominence as many studies have offered supporting observations (Massey, 1993; Yinger 1995; Charles 2001; Pager and Shepherd 2008; Turner et al. 2005; 2013; Lewis, Emerson, and Klineberg 2011; Krysan et al. 2009; Havekes, Bader, and Krysan 2016). Place stratification theory is derived according to such a theoretical perspective. It hypothesizes that powerful groups manipulate and control access to space to maintain their advantaged residential positions

and sustain their physical and social separation from groups they view as undesirable (Logan 1978; Charles 2003; Logan and Molotch 1987; Crowder, Pais, and South 2012). It also draws attention to the residential mobility barriers faced by minorities and explains why the spatial assimilation process falls short for some groups (Crowell and Fossett 2018). A substantial literature finds support for place stratification theory that some minority groups cannot obtain residential integration with Whites via gains in socioeconomic status or acculturation simply due to race factors (Alba and Logan 1993; Denton and Massey 1989; Yinger 1998; Massey and Denton 1987) or misinformed by real estate agents (Galster1990).

Other scholars extend place stratification theory to cover two variants: a strong version and a weak version. The strong version implies that compared to whites, minorities are less able to convert their socioeconomic resources into advantaged locational attainments; the most successful members of the minority group may live in worse locations than even the lowest-status members of the majority group (Logan and Alba 1993). One application of this variant is the Redlining Policy from the 1930s, a discriminatory zoning practice of denying credit for mortgages and home recommendations in certain neighborhoods based on its demographics that constrained minority housing choices. Since residential segregation predated redline maps, redlining policies tended to reflect existing segregation, rather than creating new racial segregation. Evidence that redlining has independently contributed to maintaining segregation into current decades was reported in the literature and is estimated to be moderate (Aaronson, Hartley, and Mazumder 2019).

The weak version of place stratification theory takes the stance that minorities are forced to pay more than whites to achieve advantageous neighborhood outcomes because minorities face higher barriers to neighborhood entry. In other words, there is a status mismatch between

the majority and minorities. Although these two versions are compelling to frame the analysis of racial and ethnic variation in residential attainments, they do not make definitive predictions of relative contributions of discrimination in racial differences in residential outcomes (Tolnay 2003).

A more broadly-examined claim is the white flight hypothesis, which refers to the process of the white population systematically moving away from neighborhoods with an increasing level of diversity. This hypothesis continues to recognize whites' racially motivated preferences against, avoidance of, and departure from integrated neighborhoods as one of the key mechanisms responsible for the reproduction of a segregated metropolis (Crowder 2000; Kye 2018). Moreover, some view the act of white flight as discriminatory because it is usually followed by a sequent step of blocking the entry of the minorities, especially in the process of suburbanization (Massey and Denton 1988b, South and Crowder 1997; Kye 2018). This statement will be true when minorities confront significant barriers to follow whites to attain suburban residence and when middle-class integrated neighborhoods do not exist. However, “flight” and “discrimination” can logically vary independently, so it is desirable, if possible, to document them, not assume them, and assess their separate quantitative impacts.

More recent studies use geocoded individual-level sampled data to conclude that a local neighborhood's racial composition, economic levels, as well as the levels of minority concentration in surrounding neighborhoods, are strong, significant predictors of the relocation of white respondents, especially amongst those who have children approaching school age (Crowder 2000; Crowder and South 2008; Harris 1997; South, Crowder, and Pais 2008; Huang, South, and Spring 2017). Although such conditions separate whites from minorities, at least the

low-status minorities, more recent findings indicate that barriers to the entry of new immigrants are lower than before (Alba et al. 1999).

Differential Resources and Residential Attainments

Another approach common in this field of research documents the underlying correlation between non-racial factors (e.g., social status or access to social resources) and residential attainments. The expectation of a relationship between residential segregation and economic, occupational, and other aspects of socioeconomic status, in the words of Frisbie and Kasarda (1988: 640), "…resides in the inequalities that constitute the overall system of stratification .... Greater affluence allows some persons to acquire housing in more desirable areas, leaving other locales for the less wealthy." Hence the greater the socioeconomic dissimilarity between groups, the greater the residential dissimilarity or segregation between them. In addition, similar to preference perspective, this theoretical line also originates from the early Chicago School theorem, indicating that differential means and resources associated with intra- and inter- groups inequality plays an important role in competition for desirable housing and desirable neighborhoods (Fossett 2005). Due to the group differences in means to obtain desired housing, low-status and minority households can only choose neighborhoods characterized by lower living conditions, high crime rate, low-quality schools, declining housing values, and other social problems. That is, racial and ethnic gaps in income, wealth, and other social resources will cause residential segregation.

Evidence for this approach includes that high-status families tend to live near and interact with others with similar class background and that those lack of economic resources will live near and interact mainly with other low-status families (Massey 1993; Jargowsky 1996; Abrahamson 1996). Due to some historical and social factors, certain racial/ethnic groups may

appear disproportionally in poor neighborhoods, displaying a complex interaction of economic and racial segregation. This phenomenon is intensified by the fact that due to a reduction in housing discrimination, minority middle-class households (e.g. black households) are increasingly able to move out of ghetto neighborhoods, where they had previously been constrained despite economic success. Consequentially, low-status households were left in the poor neighborhoods, turning into concentrated poverty (Quillian 1999; 2002).

One major hypothesis derived from this theoretical reasoning is spatial assimilation theory, which posits that minorities tend to start at the bottom of the socioeconomic ladder at a large social distance from the majority, and therefore they live in low socioeconomics ethnic neighborhoods because of disadvantages in resources. Due to gains in socioeconomic status and the decline of cultural differences (e.g., language or generational), minorities are more likely to have sufficient means and also lower social distance needed to be accommodated in higher-status, predominantly white neighborhoods (Massey and Denton 1985).

One early empirical analysis of spatial assimilation theory is by Lieberson (1980) pointed out that European immigrants, especially those are from central or southern Europe, were viewed as non-whites by native-born whites. The prediction of segregation between foreign-born and native-born whites is also reinforced by a second dynamic in which white immigrants tend to form ethnic enclaves, which provide social and economic support. Their later generations, however, acculturate and lose need for and attachment to neighborhood-based institutions and also experience socioeconomic assimilation both of which lead to greater acceptance by the established native-born white population (Lieberson 1981).

In more contemporary studies, scholars find that higher income and education facilitates Hispanic and Asian to moving to neighborhoods with proportionally more non-Hispanic whites

to a greater degree than for African Americans (e.g., South, Crowder, and Pais 2008; Logan and Alba 1993). Asians, in particular, can convert income gains relative to whites into improved neighborhood socioeconomic status more than into increased residential integration with whites (Timberlake and Iceland 2007). In contrast, African Americans, victimized by centuries of slavery and legal, extra-legal, and institutional discrimination, face greater circumstances upon arrival and across subsequent generations than their European-origin counterparts (Lieberson 1980). Besides Asians and black, White-Latino segregation gains prevalence recently. For example, using the difference of means formulations of segregation scores that allow scholars to link segregation scores to individual characteristics (Fossett 2017), Crowell and Fossett (2018; 2020) find that when Latinos hold resources such as education, income, and citizenship, they are more likely to live in whiter neighborhoods, which is consistent with the expectations of spatial assimilation. However, such trends are less pronounced in the city where segregation is high. That is, in a highly segregated city, the rates of return of resources is a smaller component of overall White-Latino segregation, comparing with race group membership (Crowell and Fossett 2018; 2020).

CHAPTER III

STATEMENT OF RESEARCH GAP

Despite decades of research using a variety of methods and data, the debate over what theoretical perspective better explains and predicts residential attainments and segregation patterns remain unsettled. This is because there are limitations, ambiguities, and omissions in current studies. In this chapter, I use Table 1 to highlight where ambiguity exists and identify opportunities to test the theories reviewed in the previous chapter more rigorously. These opportunities come from identifying observable evidence where theories make contrasting, and in some cases, opposing predictions. For example, Table I indicates the different segregation patterns are predicted by a series of theoretical perspectives. The first column lists the theoretical perspectives, including conventional discrimination, discrimination variants (e.g., place stratification theory, white flight hypothesis), preference dynamics, and spatial assimilation. The other columns include three categories: white-minority, minority-minority, and social status. Each category has a set of potential pairwise groups. The "+" sign indicates that the two groups live together while "-" denotes otherwise.

The first thing the table makes clear is that the various theories are not mutually exclusive. Thus, for example, many segregation patterns are explained/predicted by multiple competing theoretical perspectives. For example, from the "white-black" and "white -Hispanics" columns (the groups that have been most extensively studied), we can see that all theoretical perspectives predict similar segregation patterns, namely, that whites do not share neighborhoods

with blacks. In this condition, one can attribute high black-white segregation to either whites' discrimination toward blacks or the groups' inclination to live with their own racial/ethnic groups and/or avoid living with other groups. That is, the evidence is not sufficient enough to separate competing theories to explain the segregation patterns. Such ambiguity has raised a long-time debate over either the in-group preference and out-group aversion or discrimination that shapes segregation patterns. In my view, this ambiguity mainly has five aspects: 1) Discrimination perspectives that constrain minority access to white residential areas does not provide an explicit prediction on minority-minority segregation, while social distance and preference perspectives may have the potential to predict medium to high segregation among minority groups. Current research extensively studied majority-minority segregation patterns, which have long been the case since the early twentieth century. However, minority-minority segregation is neglected. Discrimination perspectives predict median to high-level majority-minority segregation, yet do not necessarily predict medium to high-level minority-minority segregation. If I find minority groups do not live together, then I may find indirect evidence suggesting discrimination may not be the only factor in causing segregation. Please note that such ambiguity can be tangled when discrimination is explicitly obscured and hidden. However, unlike status and other individual characteristics, the subtle nature of contemporary discrimination means that it is difficult to precisely assess the extent and importance of discrimination (Quillian 2006). In addition, data needed to establish empirical estimates of the separate effects of discrimination and preferences on residential choices do not exist. Consequently, quantitative assessment of discrimination is hard to capture, especially in contemporary society where housing constraints for minorities are reduced. Therefore, in this

Table 1: Different Segregation Patterns Predicted by Various Theoretical Reasonings

Theoretical Reasonings	**Race/Ethnic Groups**								
	Majority-Minority				Minority-Minority		Group Difference in Social Characteristics		
	NH-W /Black	NH-W/H	NH-W /Asian	Hisp/ Asian	Black/ Black	Black/ Asian	High-income [NH-W/H]	Low-income [H/B]	High-income [A/H]
Conventional Discrimination									
White's intolerance for minorities	-	-	-	+	+	+	-	+	+
White Flight Hypothesis	-	-	-	+	+	+	-	+	+
Discrimination Variants Place Stratification									
Refusal to rent or sell	-	-	-	+	+	+	-	+	+
Refusal to share information to a certain group	-	-	-	+	+	+	-	+	+
Informal Network Restricts	-	-	-	+	+	+	-	+	+
Hostile toward minority households	-	-	-	+	+	+	-	+	+
Mortgage Loan Restricts	-	-	-	+	+	+	-	+	+
Place Stratification [Strong Version]									
Residential Zoning	-	-	-	-	+	-	-	+	-
Red Lining	-	-	-	-	+	-	-	+	-
Place Stratification [Weak Version]	-	-	+	-	+	-	+	+	+
Spatial Assimilation Theory									
Group differences in micro-level characteristics (e.g. education, income, occupation, family structures, etc.).	-	-	+	-	+	-	+	+	+
Group differences in acculturation	-	-	-	-	-	-	-	-	-
Racial Preferences	-	-	-	-	+	-	-	-	-

Note: + indicates live together; - indicates otherwise; "NH-W" is Non-Hispanic White; "B" is Black; "H" is Hispanics; "A" is Asian.

study, I do not quantitively examine the independent effect of discrimination but try to provide indirect evidence for this issue.

2) In addition, if the discrimination perspective explains all segregation patterns observed in the US cities, we would hardly see any mixed neighborhoods. Those all-white neighborhoods would restraint minorities' entry even though some high-status minorities have enough economic resources to afford a house in a predominantly white neighborhood. Most segregation and residential attainments studies measure neighborhood outcomes as either racial composition or income level[4] and regress the outcomes on individual characteristics. The coefficients generated by this model cannot reflect what kind of neighborhood do either white or minorities would be most likely to live in or how individuals select their neighborhood of residency as neighborhood racial composition changes. Lack of accurate information creates ambiguity.

3) The third aspect relates to preference and social distance perspectives. For instance, in a city where 70% of the total population is whites and about 30% is the minority. If the segregation is low (i.e. very low D), then what we expect to see is that almost all neighborhoods have 70/30 racial composition within the city. This is what segregation indices used by demographers and other researchers define as residential integration. However, this is somehow unrealistic because the gap in preferences of both whites and minorities for neighborhood racial composition is always compatible with the proportion of the city level. Racial minorities refer to live in a neighborhood with either 50% whites and 50% minorities or over 50% minorities while whites may be tolerant to a small fraction of minorities (Clark 1991; 1992; Fossett 2006). Not

[4] Crowder, Pais, and South (2012) measure neighborhood racial composition as a multicategory classification such as predominantly white, predominantly black, mixed white and other races, etc.

many studies have used observational data to estimate preference dynamics. This study will try to estimate residential sorting that may reflect the aforementioned preference dynamics.

4) The fourth aspect is associated with group differences in economic resources and characteristics. As mentioned above, place stratification theory is an extension of spatial assimilation theory and discrimination perspective, specifying how discrimination prevents some minority groups from obtaining residential proximity to whites. The evidence of this theory is unanimous that African Americans have the least capability to convert socioeconomic attainments to better residential outcomes. In order to provide a more rigorous investigation, I will include European immigrants who were also, at some level, viewed as ethnic minorities by native-born whites to the models.

5) The fifth aspect relates to Crowell and Fossett (2018) who have provided evidence about how group differences in characteristics and social resources play a different role in segregation dynamics in various ecological contexts. In other words, segregation theories may be tested differently due to the variations of racial composition in the US. In a city where established segregation patterns are largely established, theoretical explanations tend to cast societal divisions as issues of merely two races (i.e. white and blacks). In a multi-ethnic/racial context in which groups have different agendas, however, theoretical reasoning could point to different emphases. This is not very clear in existing research due to data availability. This study will try to tackle this issue by city-specific data.

Another ambiguity is about the discussion of the racial proxy hypothesis, which states that the desire of residential integration is actually a proxy for an expectation to live in well-administered, safe, and affluent neighborhoods, not simply a desire to live with whites. Generally speaking, higher-income neighborhoods in the US with better public amenities tend to have a

higher proportion of non-Hispanic whites. When minorities gain socioeconomic status, they are more likely to move to a more affluent neighborhood with a higher proportion of whites. The motivations underpinning the residential movements then can be explained by two competing theoretical perspectives: by the racial composition or by neighborhood attributes.

The racial proxy hypothesis has been tested by many studies to investigate issues of residential preference. The debate begins focusing on either race or race, per se, is a determinant in residential preference and satisfaction (Frey 1979; Krysan 1998). For example, Harris (1999) conducts hedonic price analysis to determine whether pure racial discrimination or racial proxy better describes the relationship between racial composition and housing price. He finds strong support for the racial proxy hypothesis that aversion to neighborhoods with a high black percentage is because housing value may drop when more blacks move in. Estimations of the effect of neighborhood racial composition on residential preference should first control for nonracial factors. Furthermore, Harris (2001) uses data from the Chicago Area Survey Project (CASP) to revisit the racial proxy hypothesis. The findings reiterate his earlier conclusions that both black and white households prefer whiter neighborhoods because these neighborhoods tend to have a lower level of poverty, fewer social problems, and good public education. Precisely because whites' aversion to black neighborhoods is based upon non-racial factors, he concludes that racial proxy hypothesis is supported.

Some scholars find otherwise. Krysan (2002), for example, studies what factors, racial or race-associated reasons, in determining white flight. She found that white flight subsequently endorses negative racial stereotypes against blacks, even after nonracial characteristics are controlled. The data even suggests that such phenomena do not vary by individual educational attainments, meaning that educated whites are as likely to leave integrated neighborhoods as

less-educated ones (Krysan 2002). Obviously, her findings are inconsistent with the racial proxy hypothesis. She then, in her another paper, further elucidates that race factors may be an important part of structuring those racial proxies because whites appear to over-state concerns about negative outcomes caused by increasing minority proportion in a given neighborhood (Krysan 2002). As the US gets racially diverse, scholars start investigating racial proxy hypothesis in a multiracial context. Emerson (2001) found that whites are reluctant to live in a neighborhood with a high black proportion even after controlling for trends in property values, crime, or local education quality. Meanwhile, they demonstrate less aversion to co-residence with Latino or Asians. In addition, Swaroop and Krysan (2011) use the updated Chicago Area Survey data with several administrative sources merged and basically refute racial proxy hypothesis. The hypothesis applies strongly for Latino and Asians, and only some of the whites' dissatisfaction in neighborhoods with a large minority proportion can be attributed to nonracial characteristics (Swaroop and Krysan 2011).

Questions and Hypothesis

1. Does discrimination theory adequately explain why two racial and ethnic groups live apart? The discrimination perspective explicitly predicts that whites tend not to share neighborhoods with minorities and demonstrate a low tolerance for minorities' entry. It, however, does not explicitly predict whether minorities would live together. Therefore, the hypotheses are:

a. Whites do not live with minorities.

b. European immigrants do not live with native-born whites.

c. Minorities and immigrant groups do not live with each other.

2. Do households of all races avoid neighbors of other races in favor of neighbors of their own race?

a. After controlling for other neighborhood-level attributes, all groups tend to live in a racial-ethnic-homophily neighborhood.

3. Do non-racial factors play an important role in explaining household residential choices? In general, this theoretical perspective predicts that minorities or immigrants could obtain residential proximity with native-born NH-whites through assimilation and acculturation. Given the high correlation between neighborhood racial composition and economic well-being, it is unclear whether households care more about neighborhood economic level, racial compositions, or other aggregate-level attributes. This set of hypotheses would address this issue.

a. As minorities gain assimilative factors, they are more likely to live in a whiter neighborhood.

b. As minorities gain assimilative factors, they tend to live apart from their own racial and ethnic group.

c. Assimilated households tend to live in a whiter neighborhood because they want a better residential outcome.

d. Assimilated households tend to live in a whiter neighborhood due to racial factors.

4. Does the magnitude of effects household-neighborhood sorting vary across ecological contexts?

a. In a city with higher racial diversity, non-racial factors would play a more important role in predicting household residential outcomes.

b. In a two-race city, race factors would play a more important role in predicting household residential outcomes.

CHAPTER IV

METHODS, DATA, AND RATIONALES

Overview

To address the research gaps as noted above, I will use the 100% count restricted IPUMS files 1940 to estimate discrete choice models to investigate how individual household characteristics interact with neighborhood characteristics and thereby gain a better understanding of the spatial sorting mechanisms associated with homophily in residential choice in the US cities. This approach captures which individual households are more likely to live in what kind of neighborhoods. By this approach, the goal of the study is to find new evidence to help evaluate and refine segregation theories.

Why Use the 100% Count Restricted IPUMS Files from the 1940 Census?

The Population Center at the University of Minnesota and the US Census Bureau together converted archived 1940 Census data to digital datasets when the census 72-year confidentiality restrictions expired (Ruggles et al. 2015). Only a small number of research groups in the US are able to possess the restricted version. Texas Research Data Center is one of them. The restricted IPUMS file for 1940 has unprecedented features. First of all, it has 100% coverage of the total US population of 1940. As mentioned above, competing theoretical reasonings make a similar prediction about classic majority-minority segregation (i.e. Black-White segregation). For instance, conventional discrimination theory has a strong prediction of white-black segregation patterns, indicating that high segregation between blacks and whites is due to whites'

discriminatory practices against blacks. However, it does not have an explicit prediction for whether minorities tend to live together. Similarly, preference perspectives predict that people will live with their own racial/ethnic group yet do not necessarily predict whether they will continue living together as they undergo social status changes. To test the segregation theories more rigorously, I need to investigate segregation patterns not only between majority and minority but also co-residence between minorities. That requires me to obtain as much individual household information as possible. This restricted 100% count IPUMD files cover all cases in US cities, especially for minorities that have not been extensively studied (i.e. Latinos or Asians) in 1940. Given that most cities were predominantly white in 1940, the restricted 100% count IPUMS files have noticeable minority size large enough to draw sociological implications.

Second, the restricted IPUMS file for 1940 has detailed information on demographics, family, social, and economic characteristics of all individuals and households. In order to better examine the theories, it is necessary to use detailed microdata. Segregation studies have relied primarily on aggregate-level summary file tabulations to measure residential segregation at the neighborhood level and provide descriptive results. Although summary file tabulations are adequate for capturing the general segregation patterns, the limited individual household information that summary files provide cannot sustain residential attainment analysis, which is essential for testing distinctions between segregation theories. For instance, spatial assimilation theory posits that with socioeconomic attainment and acceleration minority immigrants gain residential propinquity with native-born NH-white (Massey and Mullen 1984; Massey and Denton 1985; Alba and Nee 2003). Studies have overwhelmingly focused on how socioeconomic status predicts minorities' residential outcomes. However, according to the theoretical formation, several phases such as acculturation and institutional assimilation may also

promote minorities to live close proximity to whites. Phases other than socioeconomic status have not been extensively studied. This is in part due to the lack of detailed microdata and because acculturation has long been overlooked while examining spatial assimilation theory. Moreover, although minorities may move to predominantly white neighborhoods as they gain socioeconomic status, some may select something otherwise based upon their tastes and preferences (e.g. family structure, public transportation, etc.) as predicted by the racial proxy hypothesis. With the inclusion of detailed microdata, I can conduct a more rigorous examination of this theoretical line with more assimilation phases included.

The design of the 1940 U.S. Census makes it unique among all U.S. Censuses and surveys. It is the only Census in which detailed information on demographic, social, and economic characteristics were obtain for all individuals. Earlier censuses did not gather detailed information on social and economic characteristics. Later censuses gathered such information only for a sample. From 1950-2000 the "long-form" sample questionnaires covered from 1-in-6 to 1-in-4 households. After 2000, the long-form was discontinued and was replaced by the annual American Community Survey. The ACS covers only 1% of the population and even if one combines 3-5 years of data, the coverage is far below the coverage using long-form samples for previous decennial censuses. The 1940 Decennial Census thus, is uniquely suited among all available data sets for implementing the methods used in this study.

Third, it has detailed information on residential (e.g. households) and non-residential (e.g. group quarters) dwelling units. The non-residential dwelling units were fairly common in the 1940 Census. Many households were attached to them. For instance, a church may accommodate a large group of females (e.g., Catholic nuns) as a form of household. A large group of males with no kinship may live in a worker's dormitory at a worksite and they were classified as a

household too. These unconventional households should be identified and handled separately for evaluating the major segregation theories because the formation of these households does not fit the common process of residential sorting. People choose to live in these specific units for some particular reasons (i.e. religious purpose, working purpose, etc.). These patterns may be relevant for certain kinds of studies. But they are beyond the scope of this analysis. Summary files or other sampled micro-data do not take this factor into account. The restricted 100% count IPUMS files give researchers the option to overcome this issue by identifying different types of dwelling units and households.

Fourth, it has low-level geographic information including enumeration districts equivalent to block groups and street addresses for all individuals and households. To obtain accurate estimations of residential outcomes, defining a proper geographic unit as neighborhoods is crucial. Many segregation and residential attainment studies define census tract as neighborhoods. It is too large because a census tract normally has 3,000-6,000 residents. The enumeration districts are equivalent to block groups, a lower geographical level defined by the census. A smaller resident population may have a lower level of heterogeneity, which would generate more accurate estimations of residential sorting.

Fifth, the pre-WWII period was critical to the formation of residential patterns of racial and ethnic groups that continue to be reflected and to influence in U.S. urban areas to the present day. This period accommodates not only the rapid urbanization and emergence of large metropolitans but also the mass immigration from Europe and Central America. With such dynamic demographic change, sociologists and demographers offered theories of processes of segregation and assimilation explain the changing residential patterns of this era. However, due to data availability, it has not been impossible to test these theories directly using data

contemporary to the era, which tends to represent a different set of racial composition and housing-related public policies in urban areas. Conducting research using historical restricted data will provide a direct assessment of the aforementioned theories.

Lastly, this dataset barely has missing values. Unlike the contemporary census that can be completed online or by phone, the 1940 census, however, was taken entirely by census enumerators. The enumerators visited households one by one and wrote down information in the survey. This conventional way of collecting data can make sure that all individuals do not miss the questions. Therefore, missing values is not a big issue of the 1940 census.

Why Discrete Choice Models?

While attempting to understand the mechanism through which households are sorted into neighborhoods, demographers and sociologists have long been using individual locational attainment approaches to analyze micro-level data. This method usually accommodates geocoded micro-data with a selected neighborhood attribute (i.e. white percent) as the outcome variable regressing on household characteristics as individual variables (Alba and Logan 1993). Although widely used in various studies, this method has several limitations. One limitation of the approach is that it cannot specify multi-dimensional neighborhood attributes, which are considered simultaneously when households choose destinations. Instead, the outcome variable in locational attainment models is typically a single measure of either the economic or racial composition of the area, such as tract median income or percentage black residents (see Crowder 2000). The coefficients captured for each outcome show group differences in how individual characteristics affect outcomes. Therefore, locational attainment models have been criticized for not adequately representing the substantive process of locational attainment because of multiple attributes of a potential neighborhood matter simultaneously about residential choice. On that

basis, they are best suited to provide reduced form estimates of attainment of specific neighborhood characteristics and are less well-suited to discerning the factors that are most salient in residential location choices.

Discrete choice models provide a means for expanding location attainment models to better capture the role of a wide range of characteristics of housing and area of residence neighborhood outcomes as multidimensional attributes. The models build on the work of McFadden (1973 & 1978), who firstly introduced discrete choice models to the study of location decisions, which represent behaviors in which individuals choose one or more options from a set of given alternatives, typically under the assumption that they will select the option(s) with the greatest utility. In discrete choice models of residential mobility, the choice set may consist of housing units, neighborhoods, or other potential destinations. The outcome of interest is the specific location chosen in light of the set of available alternatives. The model captures the characteristics of choices and their variations among individuals as exploratory variables (Powers and Xie 2000).

It should be noted that unlike segregation indices, the model does not directly estimate segregation patterns. Also, the model cannot directly distinguish between the separate the effects of discrimination and preference and we need to make assumptions to say coefficients give estimates of preferences. However, it is able to capture sorting and matching between households and multiple neighborhood attributes which can be referred to as who lives in what kind of neighborhood. As such, how neighborhood attributes and household characteristics interactively determine residential choices among detail groups can then be estimated. In particular, it allows explanatory variables to vary across both individuals and outcomes while assuming that parameters remain constant overall outcomes (Powers and Xie, 2000: 239). Such advantages

have the potential to estimate whether ethnic concerns or the pursuit of a better neighborhood amenities (e.g., higher neighborhood-level average income) is compatible with where they live and where they might have lived.

At this point I should stress that the word "choice" in the preceding discussion should be taken in a very narrow statistical sense corresponding to the use of the term in the technical modeling literature. When applied in segregation analysis it should not be simplistically equated with an "unconstrained" choice. For example, housing in white neighborhoods may be included in the "choice" set of black households but be rarely "chosen" as a residential destination. While it could be that this is because black households preferred other locations, it is also possible, and indeed very likely that discrimination in various forms rendered many housing units located in white neighborhoods as "choices" that could not be chosen. This is the basis for my earlier statement that the model cannot directly distinguish between preference effects and discrimination effects. The problem is not unique to the use of discrete choice methodology. No method of analysis can overcome the basic problem that the census does not include the data needed to distinguish between census data has choices not chosen due to preferences and choices that were constrained by discrimination.

In this study, I will use a simple version of discrete choice models, conditional logit model. This model is equivalent to logistic model with a fixed individual household effect. In other words, the neighborhood of residence is modeled as a function of household characteristics and potential destination neighborhood attributes, with characteristics of households on the dependent variable being estimated by interacting with neighborhood attributes. For example, suppose 100 households could live in 20 potential neighborhoods. For a conditional logit data frame, each household would be represented by 20 observations, including its neighborhood of

residence and the rest 19 potential alternatives. In total, the analysis would be based on 2000 cases representing all households by potential neighborhood dyads. The advantage of using conditional logit model in this study is that I can capture the effect of spatial sorting mechanisms associated with racial and status homophily in residential choice by controlling for other neighborhood attributes (e.g., racial composition or median income).

As mentioned before, conditional logit model derives from the utility function in economics (McFadden 1978). It derives from discrete choice analysis, the work of McFadden (1973; 1978), representing behaviors in which individuals choose one or more options from a set of given alternatives, typically under the assumption that they will select the option(s) with the greatest utility (Train 2003).

$$U_{ij} = Z_{ij}\alpha + \varepsilon_{ij}$$

Where Z_{ij} denotes a vector of explanatory variables of jth alternatives for the ith individual households, and α represents the estimated parameters.

In this study, we will estimate the probability of households living in their own neighborhoods given a set of potential household characteristics and neighborhood attributes. That is, the equation should be sophisticated to capture he interactive effects of household and neighborhood characteristics on locational outcomes (Powers and Xie 2000; Bruch and Mare 2012; Logan, Grazuil, and Frey 2018):

$$\Pr(y_i = j | z_i, w_j) = P_{ij} = \exp(z_i w_j \alpha + w_j \gamma) / \sum_{k=1}^{j} exp\,(z_i w_j \alpha + w_j \gamma)$$

Where z_i denotes characteristics of ith household, and w_j indicates jth neighborhood.

If I rewrite the equation into a linear model, it should be:

$$U_{ij} = \alpha_i z_j + \beta_i z_j w_j + \varepsilon_{ij}$$

Where α_i and β_i are parameters to be estimated. As mentioned above, individual household characteristics do not directly have an influence on the general utility. When they interact with neighborhood attributes, the influence can be estimated (Quillian 2015).

Cities

In the early chapters, I have mentioned that many segregation and locational attainment studies tend to use national sample data I also have mentioned this research approach may have limitations. To deal with the limitations, using city-specific census data to conduct research may be an option. The next question is: What cities shall I pick?

The choice of cities is based on four conditions. First, cities should have distinct racial compositions. As mentioned above, one advantage of the conditional logit model is that it can take the marginal distribution of potential neighborhoods into account in the process of residential sorting. Variations of racial compositional across cities can be reflected in the choice sets that each household has. Different distributions of neighborhood attributes will have different effects on residential sorting. If the cities I select have similar demographics, the distributions would be trivial, thence the potential methodological advantage will not be reflected.

Second, it is desirable to include cities with notable numbers of Asian and Latino households as well as black households and foreign-born white households. Given those older metropolitan areas of the Northeast and Midwest regions of the US has more established residential patterns, and often have histories that included restrictive covenants and strict land-use regulations with higher levels of segregation (Farley and Frey, 1994; South and Crowder, 1997), these cities tend to have a high level of white-black segregation that has been extensively studied and segregation theories apply to this pairwise segregation. Asians and Latinos are less

studied in contemporary research and are rarely studied in a historical context. I like to fulfill the gap in understanding the segregation patterns of Asians and Latinos before the 1960's.

Third, the selected cities should have some demographic and sociological implications for contemporary dynamics. The demographic make-up of the US in 1940 was quite different from its current state. For instance, a predominantly white city in 1940 may become more racially diverse now (i.e. Chicago, Boston). Similarly, some cities with a certain racial composition in 1940 may become more racially diverse. One example is Houston, TX. In 1940, Houston virtually was a Black-White city, where non-Hispanic whites and non-Hispanic blacks account for 75,8% and 19.5%, respectively, making up over 95 percent of the total population. In 2019, according to the estimations of the US Census Bureau, Houston has become one of the most diverse cities in the US, with 24% non-Hispanic white, 44% Hispanics, 7% Asian, and 22% black.

Fourth, the cities ought to be computationally manageable. As mentioned above, the data structure for conditional logit models is a (household number * neighborhood number) matrix. Suppose one dataset designed for conditional logit analysis has 10 households with 10 neighborhood choices. The total cases would 10 * 10, 100. Given that the data source for this dissertation is 100% count, the overall cases of a medium-size city would reach above 1 million. It is computationally inefficient and time consuming to estimate models with such a large of sample size.

I selected two cities meeting these criteria for the analyses I report in my study: San Antonio, TX, and Sacramento, CA. I will talk more about the demographics of the cities in the following chapter.

This study establishes the value of conducting detailed city-specific attainment analyses using conditional logit models in combination with detailed data on 100% of the residential population. Based on this, I plan to extend the approach used here and perform similar analyses for additional cities in future studies.

Micro Unit, Contextual Unit, and Variables

The micro-unit of analysis for this study is non-Hispanic white, Hispanics, and Asian householders. Hispanic origin was not specifically defined in 1970s. Before 1980, Hispanic origin was imputed by IPUMS using several rules: (1) Individuals who were born in a Hispanic area. This covers two possibilities. (a) The persons were born in a Hispanic country. (b) The persons were born in Arizona, California, New Mexico, or New Mexico territory while the area was still under Spanish/Mexico jurisdiction. (2) The person's father or mother was born in a Hispanic country. (3) The person's grandparents were born in Hispanic countries. (4) The person's spouse is Hispanic because of the rules mentioned above. (5) The person is a relative of a householder who is Hispanic because of rule 1 to 4. (6) The person has Spanish surname. (7) A woman whose spouse qualifies as Hispanic. (8) The person is a relative of a householder who is Hispanic because rule 6 and 7. In this dissertation, I define those who conform to the rule 1 or 2 as Hispanic.

Householders are defined by their response to the relationship question on the census questionnaire. In order to make this study sociological meaningful, I exclude those who live in rural areas and group quarters. Households living in group quarters usually do not have a "typical" family structure and their residential location may be shaped by dynamics very different from those operating in residential housing markets. These so-called households could be a prison, a church, a hospital, a retirement home, a military barracks, or a labor dormitory.

For the selected “residential” households, all non-household head members will be omitted due to the fact that household heads tend to make the most significant influence over decisions, especially in the case of children, and so they usually do not make independent familial decisions (i.e. choice of residence). This approach may cause bias to multiracial families. However, the intermarriage rate in 1940 was estimated to be very low (Poston and Bouvier 2016), so the bias should be trivial.

The contextual unit of analysis for this study is Enumeration District (ED). An enumeration district is a geographical unit defined by the census that could be covered by a single enumerator in one census period. Enumeration districts varied in size from several city blocks in densely populated urban areas to an entire county in sparsely populated rural areas. In the restricted IPUMS files 1940, each case has a corresponding ED number essential in locating a specific address or a neighborhood where they live.

The smallest geographical unit defined by the US census blocks with approximately 100 residents each. Albeit its population size is similar to what one would think of a neighborhood, the restricted IPUMS files 1940 does not have a block code for each case. The next level above the census block is called block groups. A block group is a combination of several blocks that share the same first digit. Typically, block groups have approximately 1,500 residents with variation, ranging between 300 to 3,000. In this regard, the enumeration district used in this study is comparable to census block groups, and they are the finest geographical scale a person can be identified with in 1940 Census.

The dependent variable is a dichotomous variable with 1 indicating the neighborhood one household actually lives in and 0 meaning the alternative neighborhoods.

For micro-level characteristics (z_i), I use race coded as non-Hispanic whites, Asian, black, and Hispanics. Family income has two parts: wage income and nonwage income. Those who reported family income will be coded as categorical variables with 1 indicating "Low income", 2 "Medium-low income", 2 "Medium-high income", 4 "High income". However, some households reported "0" as family wage income but "non zero" as family nonwage. After scrutiny, I find that not all of these families are low income. For instance, some may rely on investments or retirement income and live in a middle-income neighborhood. It will be inappropriate to put them in the low-income category. Therefore, I would rely on the Duncan SEI score, family rent, and family housing value. For instance, household heads whose housing value is above the 75 percentiles, or whose SEI score is above the 75 percentiles, or whose rent is above the 75 percentiles would be categorized as "high income" as well.

There are three assimilation types in this study. They are all dummy variables. The first assimilation type is citizenship, with 1 indicating "citizen" and 0 "otherwise". The second assimilation type is family structure, with 1 indicating families with fewer than 2 adjacent generations and with no sub-family. The third assimilation type is socioeconomic status, with 1 indicating that the household head has finished high school and that the family has a medium-high- or above-income level. Assimilation on citizenship, family structure, and socioeconomic status will be considered on at a time in separate analyses.

In characterizing neighborhoods, I use six attributes: neighborhood proportion white, neighborhood proportion Hispanics, neighborhood proportion Asian, neighborhood proportion black, median income level, and housing values. For racial compositions, I code them as categorical variables, with 1 indicating "0-20%" of a given race and ethnic proportion in a neighborhood. The following values are coded by a 20% interval correspondingly. For

neighborhood income level, I characterize them into quantiles with equal probabilities, with the lowest 25% as “the lowest” while the top 25% as “the highest”. For property values, I create a new variable that takes both neighborhood housing values and rents into consideration. I use K-means clustering analysis to find four groups of observations with a minimum squared Euclidean distance. The new variable would be categorical, with “1” indicating the lowest and “4” as the highest.

Analysis Chapters

In the next three chapters, I will present the results of the main empirical analyses in this study and will proceed as follow. In Chapter V, I will present and discuss descriptive statistics and segregation scores of the selected cities. I then will start to present coefficients of pairwise group contact, demonstrating whether minorities live with the majorities or with each other in different ecological contexts (i.e. cities). In Chapter VI, I then will extend the models, by adding assimilative factors. I will estimate if households would live in a white neighborhood by gains of assimilative factors. In Chapter VII, I will also present the coefficients about if minorities tend not to live with their own groups as they become assimilated. In the final analysis, Chapter VIII, I will present how neighborhood economic variables would change the results in Chapter VI and Chapter VII. This chapter will serve to test the racial proxy hypothesis.

CHAPTER V

DESCRIPTIVE STATISTICS

Overview

In the first section of the analysis chapter, I will present descriptive statistics for the independent variables used in the later analyses for by race and ethnic groups in the selected cities: San Antonio, and Sacramento. As mentioned in the last chapter, variables are guided by the segregation theoretical perspectives. Some basic demographic variables such as age will also be included. I will start with San Antonio, TX.

Descriptive Statistics of San Antonio, TX

In 1940, about 338,905 people lived in the San Antonio metropolitan area, including both rural and urban areas. There was a total of 210 enumeration districts. Not surprisingly, the racial composition of San Antonio in 1940 was not greatly different from the contemporary. The total population in the metropolitan area was composed of 62.8% NH-white, 6.19% blacks, 30.85% Latinos, and less than 1% others (including Asian, Native Americans, and Others). About 76.8% lived in the urban, whereas 23.2% lived in rural. The sex ratio appears to be fairly balanced, with males accounting for 50.1% and females accounting for 49.9%. For housing ownership, about 40.15% of residents owned a house or real estate property in 1940. About 53.8% rented an apartment. The rest might be subfamilies living with their relatives or affiliated with military bases or churches.

Hispanics had the largest foreign-born population – over 26,600 Latinos were foreign-born, which accounted for 25.5% of the Latino population in the city. Despite its relatively small population size, Asian, however, had the highest percentage of foreign-born at 46%. It is equally noticeable that foreign-born whites (i.e. European immigrants) made up the second-largest

foreign-born group in San Antonio, TX. Over 7,200 European immigrants live in the metropolitan area.

As mentioned in the last chapter, I will only look at household heads who live in the urban area and do not live in group quarters. Therefore, the descriptive statistics would be about the cases that meet the criteria established in the later chapter. Given that I will examine how the residential sorting mechanism operates in a two-race city and their residential outcomes were greatly restricted by the Jim Crow regulations, black households' contact with other racial and ethnic groups will not be estimated in San Antonio.

Table 2: Descriptive Statistics for Latinos in San Antonio, TX, 1940

	Native-born Latinos	**Foreign-born Latinos**
Citizenship	99.95%	16.9%
2 Adjacent Generation Family	66.5%	52.9%
Number of Sub-family	0.11	0.15
Median Family Income	$500	$432
Mean Family Income	$592	$568
High School Education	6.3%	5.4%
Ownership	31.2%	32.4%
Age	39.8	47.4
Duncan Socioeconomic Index	23.4	24.5

Note: the sample size is 57,997. That is, 57,997 households are selected.

Table 3: Descriptive Statistics for Whites in San Antonio, TX, 1940

	Native-born Whites	Foreign-born Whites
Citizenship	99.95%	16.9%
2 Adjacent Generation Family	71.3%	56.1%
Number of Sub-family	0.07	0.1
Median Family Income	$1200	$1,200
Mean Family Income	$1384	$1,551
High School Education	39.9%	30.2%
Ownership	44.3%	67.3%
Age	44.7	57.3
Duncan Socioeconomic Index	42.2	50

Note: the sample size is 57,997. That is, 57,997 households are selected.

Descriptive Statistics of Sacramento, CA

Sacramento, CA the other selected city in this study. In 1940, about 171,198 residents lived in the Sacramento metropolitan area, including both rural and urban areas. There were 177 enumeration districts in total. Nearly 64% of the total population lived in the urban. Unlike San Antonio, Sacramento had a larger Asian population. About 6.5% of the total population was Asian, which was not very common back in 1940 when Asian was a very small racial and ethnic minority group at national level. Sacramento had the third-largest Asian population, following Honolulu, HI (nearly 50%), and Stockton, CA (8.1%).

Several other racial and ethnic groups were present in nontrivial numbers as well. The total population in the metropolitan was composed of 87.9% NH-white, 1.16% blacks, 4.34% Latinos, 6.45% Asians, and about 1% others (including Asian, Native Americans, and Others). About 64.02% of the total population lived in the urban portions of the metropolitan area, whereas nearly 36% lived in the rural portions. Sacramento then had a larger rural area than San Antonio did in 1940. The sex ratio appears to be fairly imbalanced, with males accounting for

53.3% and females accounting for 46.7%. For housing ownership, about 48.7% of residents owned a house or other kinds of real estate property in 1940. About 45.5% rented an apartment. The rest might be subfamilies living with their relatives or affiliated with military bases or churches.

Asians had the largest foreign-born percentage – over 4,825 Asians were foreign-born, which accounted for 43.72% of the total Asian population in the city. Similar to San Antonio, foreign-born Latinos also made up a noticeable percentage of 37.6%. It is equally noticeable that foreign-born whites (i.e. European immigrants) made up the largest foreign-born population in Sacramento, CA. Over 15,900 European immigrants lived in the metropolitan area, even though they only accounted for about 10.6% of the total white population.

Similar to San Antonio, I will only look at household heads who live in the urban area and do not live in group quarters. Therefore, the descriptive statistics would be about the cases that meet the criteria as well. Given that the black population is small and that I try to keep the analyses consistent with San Antonio, black households' contact with other racial and ethnic groups will not be estimated in San Antonio.

Table 4: Descriptive Statistics for Minorities in Sacramento, CA, 1940

	Latino	Asian	Black
Citizenship	44%	27.2%	99.1%
2 Adjacent Generation Family	73.7%	65.6%	75.7%
Number of Sub-family	0.07	0.06	0.11
Median Family Income	$750	$840	$900
Mean Family Income	$894	$892	$945
High School Education	13.4%	26%	19%
Ownership	23.2%	14.3%	33%
Age	41	45	44.3
Duncan Socioeconomic Index	23.4	39.9	15.8

Note: 884 Asian households, 980 Latino households, and 333 Black households

Table 5: Descriptive Statistics for Whites in Sacramento, CA, 1940

	Native-born Whites	Foreign-born Whites
Citizenship	100%	71%
2 Adjacent Generation Family	76.3%	64.6%
Number of Sub-family	0.04	0.06
Median Family Income	$1,600	$1,300
Mean Family Income	$1,672	$1,395
High School Education	43.1%	19%
Ownership	44.7%	38.3%
Age	44.5	53.3
Duncan Socioeconomic Index	41.4	33

Note: There were 22,232 native-born households and 3,890 foreign-born white households.

Segregation Scores of San Antonio and Sacramento

In this part, I will present segregation scores for the Dissimilarity Index and the Separation Index to provide an overview of segregation patterns in San Antonio and Sacramento, respectively.

Several dimensions of segregation have been defined. Massey and Denton (1988a) identify five dimensions of segregation: evenness, clustering, concentration, centralization, and exposure. Among these dimensions, evenness is the most widely studied. It indicates that "the degree to which the percentage of minority members within residential areas equals the citywide minority percentage; as areas depart from the ideal of evenness, segregation increases" (Massey and Denton, 1989:373). A perfect evenness indicates every neighborhood has exactly the same pairwise proportion as a city overall does. Exposure indicates "the degree of potential contact, or the possibility of interaction, between majority and minority group members within geographic areas of a city" (Massey and Denton 1988a). This measure is probably the second most widely used following evenness. Many studies use it to estimate the potential interactions of a group with members of other groups. Concentration refers to the "relative amount of physical space occupied by a minority group" (Massey and Denton 1988a). Centralization means "the degree to which a group is spatially located near the center of an urban area" (Massey and Denton 1988a). The last dimension is clustering, indicating "the degree of spatial clustering exhibited by a minority group – that is, the extent to which areal units inhabited by minority members adjoin on another, or cluster, in space" (Massey and Denton 1988a).

The Dissimilarity Index (D) and the Separation Index (S) are two classic measures of residential evenness. Although these two indices are typically seen as measuring one dimension of segregation, they actually have distinctive emphasizes. Fossett (2017) points out that when we estimate segregation, we cannot overlook the distinction of polarized displacement and dispersed displacement. When segregation occurs, one possibility is that white and minority population distributions are polarized such that minority groups could be concentrated in a few areas, forming an ethnic enclave. Another possibility is that members of a minority group that are

unevenly distributed can be dispersed "thinly" across neighborhoods within a city in a manner that does not necessarily form enclaves for both groups. The Dissimilarity Index actually registers the mean absolute deviation of every neighborhood's minority proportion from the city level proportion (James and Taeuber 1985). As such it will respond strongly to dispersed displacement from even distribution (Fossett 2017). The Separation Index serves a valuable supplement for D as it measures whether a minority is dispersed or polarized in a city. For example, when D is high and S is high, we can be certain to find homogeneous ethnic enclaves for both groups in the city[5]. However, when D is high and S is low, we can be certain that homogeneous ethnic enclaves are rare or absent altogether for at least one group. Fossett (2017) introduced a new "differences of means" computing formulas for to formulize D and S. For instance, for segregation scores between Whites and Latinos, the formulas for D and S can be constructed like this:

$$S = (1/W) \sum w_i y_i - (1/L) \sum l_i y_i$$

Where W and M are the city-wide totals for Whites and Latinos, respectively. w_i is the count of Whites in area i. l_i is the count of Latinos in area i taken as local neighborhoods. and y_i = p, where p is the pairwise proportion White in each area i.

$$D = (1/W) \sum w_i y_i - (1/L) \sum l_i y_i$$

Where the only change is the scoring of the residential outcome which is now y_i = 1 if p > P (the city-wide pairwise proportion White) and y_i = 0 otherwise.

I then present D and S in the two cities, respectively.

[5] For more information about D and S, please refer to *New Methods for Measuring and Analyzing Segregation* by Mark Fossett (2017)

Table 6: Segregation Indices of Sacramento and San Antonio

	Sacramento		San Antonio	
Groups	Dissimilarity	Separation	Dissimilarity	Separation
White-Black	60.1	8.3	74.0	45.7
White-Latino	58.1	16.7	62.8	43.7
White-Asian	77.9	42.8	N/A	N/A
Asian-Black	55.3	41.4	N/A	N/A
Asian-Latino	50.3	32.8	N/A	N/A
Black-Latino	41.4	23.7	74.7	54.5
White-FBWhite	16.2	1.8	21.1	2.7

Note: I omit segregation scores for the Asian population in San Antonio in 1940 because it is very small (under 10 persons).

The first pattern shown in Table 6 is that San Antonio is more racially segregated than Sacramento. For example, three Dissimilarity indices in are greater than 70 whereas only one pairwise group exceeds 70. In addition, groups in San Antonio tend to have a higher separation score. That is, in San Antonio, you would see two ethnic concentrated areas, black and Latino, and these two ethnic groups do not live together as well. In Sacramento however, only predominant Asian enclaves can be anticipated. Another observed pattern is that minorities do not live together. Segregation among minorities appears to be higher than majority-minority segregation, except that blacks are the least favorable group to live with, which is consistent with what preference perspectives predict.

However, not all segregated patterns involve residential polarization. For instance, the large difference between D and S shows that White-Black and White-Latino segregation in Sacramento and White-Asian segregation in San Antonio do not involve polarization. The observed discordance of D and S indicates that minorities are underrepresented in neighborhoods based on city-level proportion. Nevertheless, they are also spread out relatively “thinly” across neighborhoods so no enclave emerges.

Another noticeable finding is that Asian appears to be the most segregated minority in Sacramento. White-Asian pairwise group has the highest D and the highest S. This is inconsistent with the contemporary findings (Iceland et al. 2014). Unlike Asians nowadays, Asians in 1940 were mostly less educated, low-income labors who came to the US in seek for a higher wage. For instance, Golden rush and railway construction in the West Coast needed a great number of cheap labors. Chinese immigrants fulfilled the need. This condition partially explained why most of the Chinese immigrants were unschooled farmers (Frey 2014). Chinese immigration was restricted by the Chinese Exclusion Act of 1882. Until 1943, the introduction of the Magnuson Act, also known as the Chinese Exclusion Repeal Act of 1943, the Chinese American had confronted significant discrimination and exclusion. Another example is Japanese Americans. Most of early Japanese immigrants to the US were young males, searching for better economic conditions. The majority of them worked at railroad construction or logging camps. Their diligence was viewed as "yellow peril", which eventually became a anti-Japanese movement. As a consequence, several restricted laws such as the Gentlemen's Agreement of 1907 and the Immigration Act of 1924, pushed Japanese immigrants an isolated and marginalized condition.

Similar historical context also applies to Latinos. The high dissimilarity score and medium-high separation index indicate that Latinos, despite accounting for a fairly large proportion of the total population in San Antonio, were highly segregated from non-Hispanic whites. Mexicans used to be the majority San Antonio. After a couple of regime transitions and wars, non-Hispanic whites became the majority and then imposed discriminatory and restrictive practices on Latinos. High white-Latino segregation emerges (As shown in the following map).

Figure 1: Racial Distribution, Sacramento, CA, 1940 – A: Asian Distribution, B: Black Distribution, C: Foreign-born White Distribution, and D: Latino Distribution

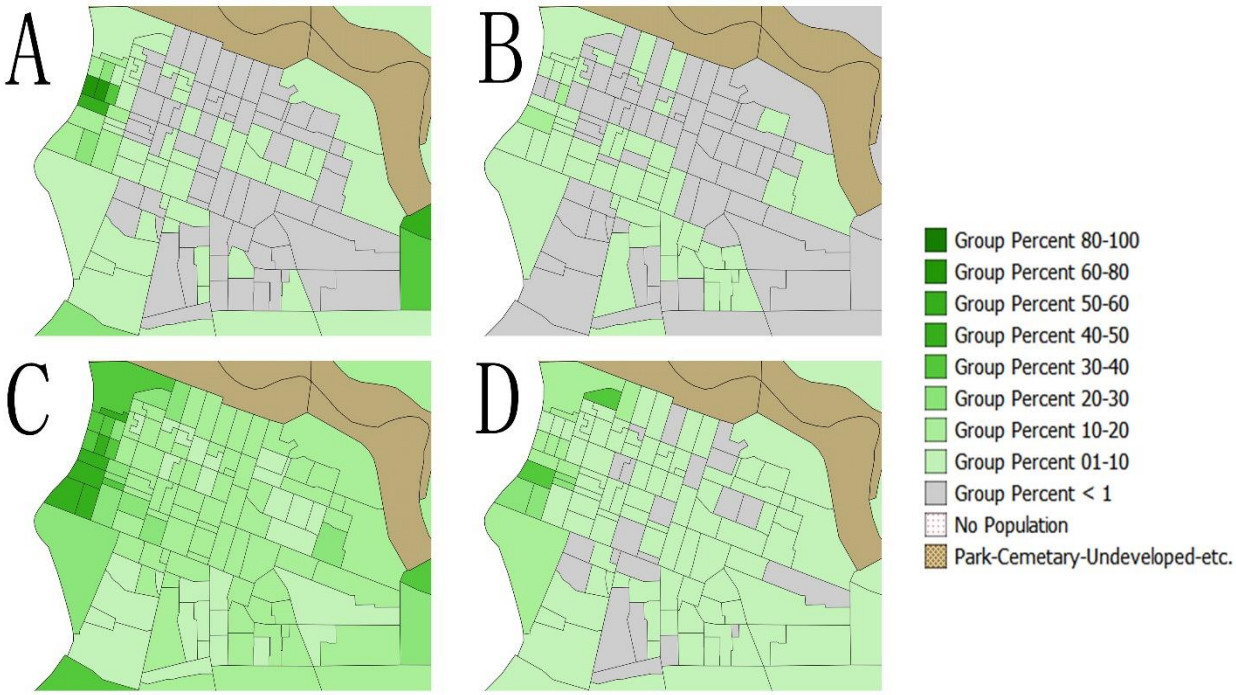
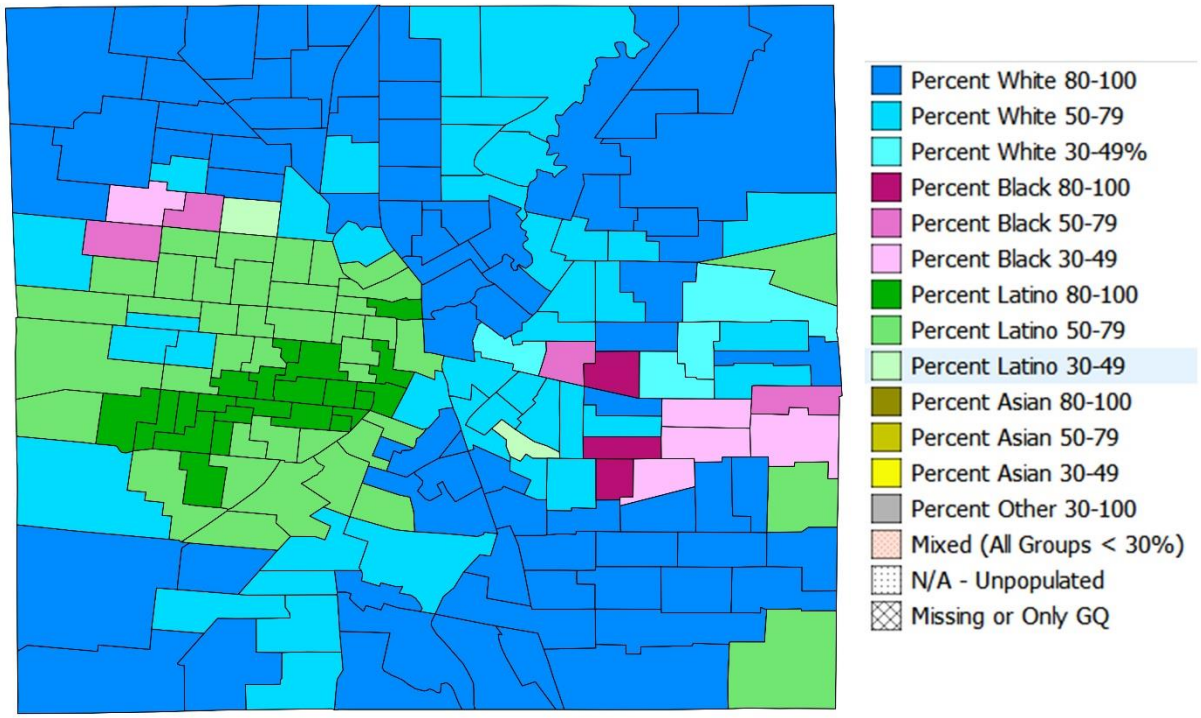


Figure 2: Racial Distribution, San Antonio, TX, 1940



Summary

In this descriptive chapter, I have talked about some basic demographics of Sacramento, CA and San Antonio, TX in 1940. I have also presented descriptive statistics of some household characteristics that are relative to the following empirical analysis. Then I tabulated segregation scores by race and ethnic groups in the two cities, respectively and found S does not always change in line with D, meaning unevenness does not always lead to ethnic enclaves. This is especially pronounced when calculating minority-minority segregation scores.

San Antonio could be viewed as the next phase of Sacramento in terms of segregation patterns. When minority population size is relatively small, they are more likely to scatter across except that Asian population has an established enclave.

One key finding is that Asian was the most segregated minority group in Sacramento. Given that most contemporary studies indicate that Asian is the least segregated group with whites and usually able to convert socioeconomic status into residential proximity with whites. This is not true, at least in 1940 Sacramento.

CHAPTER VI

CONDITIONAL LOGIT MODELS OF RESIDENTIAL CONTACT WITH WHITES

Overview

In the first phase of the empirical analysis, conditional logit coefficients are presented for residential contact between Whites and minorities according to assimilation types. The first set of results will be features of San Antonio, Texas and four groups will be estimated: foreign-born Latinos, US-born Latinos, foreign-born whites, and native-born whites. Following this, I will review the results for Sacramento, California. Because all minority groups constitute a relatively small percentage of the population in Sacramento, separate analysis is not carried out on the basis of national origin for Sacramento.

The outcome of the models is an estimation of the likelihood that individuals live in a particular neighborhood out of all urban neighborhoods in their city. Neighborhood attributes are used for the purpose of predicting the outcome both alone and in combination with individual household characteristics; that is, the models estimate the odds of living in the neighborhood of current residence relative to the other neighborhoods in the city, given the neighborhood attributes and their interactions with household characteristics. Although several models are reviewed in this chapter, the primary focus of this analysis is to determine whether assimilated minority groups are more likely to live in whiter neighborhoods and how the extent to which the impact of assimilative factors on residential contact varies across racial and ethnic groups in different ecological contexts.

One notable point is that residential contact with Blacks is not estimated for several reasons. The first reason is methodological: in this dissertation, conditional logit analysis is used

to estimate the effects of neighborhood attributes and their interactions with individual characteristics on residential choice from a set of alternatives. Therefore, if the residential outcomes are fairly homogeneous, the method's ability to estimate patterns is limited when one group is highly segregated and thus confined to a small set of neighborhoods. For instance, African Americans are highly segregated in several neighborhoods with the majority of Latinos and Whites not living in these neighborhoods in San Antonio, except for a handful of Latino households located in one predominantly black neighborhood. When estimating residential contact with black neighborhoods, the model does not generate any interpretable coefficients; the distribution of neighborhood black percent in the choice set does not affect the residential choice of either Latinos or whites. In this case, the model would not be concave as expected, and this deviation might indicate a methodological issue that needs more careful scrutiny. The second reason for the scope of this issue is more sociological. Jim Crow legislation largely determined black–white segregation in the early 20th century. Thus, the changes in individual characteristics of African Americans do not significantly affect their residential proximity to whites. In turn, whites' aversion to African Americans was much stronger than their aversion to other minority groups, thus depriving African Americans of alternatives to living in majority-black neighborhoods. However, Jim Crow legislation only applied to White-Black segregation in the American south. Thus, it did not apply to Sacramento, CA. However, given that residential contact with African Americans will not be estimated in San Antonio, I will not estimate it in Sacramento either for consistency.

San Antonio

In Table 7, the proportion of white population, measured in intervals of 20%, in a given neighborhood and its interaction between this proportion and several types of assimilation, as

measured according to a selection of characteristics, predict the outcomes of each of the four models. Model I presents the conditional logit regressions assessing residential sorting for household heads by race and only the neighborhood proportion of white. Models II–IV present similar analyses that additionally consider the role of assimilation on three different domains: citizenship, family structure, and socioeconomic status, respectively. I will start with the White–Latino comparison, and in this analysis, I do not subdivide the groups by birthplace (i.e., foreign-born and US-born).

Table 7: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Latinos and Whites in San Antonio, Texas

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Whites Contact with Whites				
20%-40% white	0.396***	0.157***	0.388***	0.395***
	(0.035)	(0.049)	(0.040)	(0.035)
40%-60% white	0.620***	-0.033	0.596***	0.604***
	(0.044)	(0.063)	(0.049)	(0.044)
60%-80% white	0.927***	0.075	0.834***	0.842***
	(0.059)	(0.079)	(0.063)	(0.058)
80%-100%white	0.826***	-0.515***	0.759***	0.659***
	(0.070)	(0.094)	(0.072)	(0.069)
Household Head Race * Neighborhood Proportion Whites				
Latino * 20%-40% white	-0.887***	-0.757***	-0.884***	-0.878***
	(0.038)	(0.042)	(0.038)	(0.038)
Latino * 40%-60% white	-2.100***	-1.786***	-2.092***	-2.069***
	(0.039)	(0.043)	(0.039)	(0.039)
Latino * 60%-80% white	-2.876***	-2.486***	-2.854***	-2.786***
	(0.405)	(0.045)	(0.041)	(0.041)
Latino * 80%-100% white	-4.564***	-4.034***	-4.543***	-4.411***
	(0.042)	(0.047)	(0.043)	(0.043)
Assimilation * Neighborhood Proportion White				
Assimilated * 20%-40% white		0.254***	0.030	0.446***
		(0.036)	(0.032)	(0.146)
Assimilated * 40%-60% white		0.691***	0.081**	1.152***
		(0.046)	(0.035)	(0.137)
Assimilated * 60%-80% white		0.909***	0.208***	2.037***
		(0.054)	(0.036)	(0.130)
Assimilated * 80%-100% white		1.417***	0.194***	2.576***
		(0.065)	(0.033)	(0.129)
Neighborhood proportion Hispanic	-1.043***	-1.043***	-1.043***	-1.043***
	(0.082)	(0.082)	(0.082)	(0.082)
Neighborhood proportion Black	-1.785***	-2.835***	-2.835***	-2.835***
	(0.044)	(0.044)	(0.044)	(0.044)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

In Model I, the first set of the coefficients is omitted because the conditional logit model is equivalent to the logistic regression model with a household fixed effect; we interpret individual characteristics through their interactions with neighborhood attributes.

When interpreting an interaction in conditional logit model, it is necessary to understand that coefficients of the interaction term cannot be interpreted independently. For example, the coefficient of "Latino * 20%–40% white" is -0.887; it is not therefore possible to conclude that Latinos are $e^{-0.887}$, or about 59% less likely to live in neighborhoods that are 20–40% white relative to the neighborhood that is 0–20%. There are two different effects of being Latino" one corresponds to 0.396, the coefficient of "20%–40% white" in the set of coefficients which applies to Whites, and the other coefficient, 0.396–0.887, corresponds to Latinos. The -0.491 indicates that Latinos are $e^{-0.491}$, about 40% less likely to live in neighborhoods than neighborhoods that are 0–20% white. For Latinos, the log-odds of living in neighborhood that are 20–40% white are therefore -0.887 higher than for whites. Similar calculations and states can be employed for other categories.

For whites, their odds ratios increase with neighborhood white percent until the category of "60%–80% white", which peaks at $e^{0.927}$, or about 2.53. The odds ratio then slightly drops to 2.3 yet still remains higher than those of the other categories. Latinos' odds ratios decrease as neighborhood white percent increases. Unlike whites, whose odds ratios peak before neighborhood white percent reaches the "80%–100% white" category, Latinos tend not to live with whites as neighborhood white percent increases. Therefore, there exists a huge gap in residential contact between Latinos and whites; whites are tolerant of only a small fraction of Latinos in a given neighborhood.

To facilitate interpretation, the coefficients shown in Table 7 will be converted into odds ratios that can be viewed in Figures 3, 4. The *y*-axis represents the odds ratios of living in neighborhoods according to the proportion of the White population.

Brief Comment on Quantitative Asymmetry of Positive and Negative Odds Ratios Effects

There is an inherent asymmetry in positive and negative effects in odds ratios. For example, an odds ratio of 2.0 indicates an 100% increase relative to an odds ratio of 1. When an odds ratio is 0.5, however, it means 50% decrease from 1.0. Although a positive doubling and a negative halving are the same relative effect, they are quantitatively reflected in a different scale. That is largely because in logistic models, regardless how small coefficients one would obtain, the odds ratio would never be negative. That is, odds ratios that are greater than 1 can be infinite because they are unbounded, while odds ratios that are smaller than 1 have a lower boundary. An odds ratio of 50 is mathematical larger in magnitude than an odds ratio of 0.2. But substantively their relative effect is identical. As we see in the figures above, the odds ratios in Figure 4 can reach above 20 and the odds ratios in Figure 5 are within 0 to 1, when the coefficients do not reflect such a great disparity.

This asymmetry problem would be relaxed if we take the ‘log’ of odds ratio. Taking the log of an odds ratio of 2 returns the value of log (2), 0.302, and taking the log of an odds ratio of 0.5 returns the value of log (0.5), -0.302. As you can see, the two asymmetrical odds ratios become symmetric. The advantage of taking the log of odds ratios is that the odds ratios of greater and less than 1 become quantitatively comparable. However, it also brings some difficulties of making substantive interpretations because odds ratios are more directly reflect the effects of neighborhood racial composition intervals on individual residential outcomes within each figure. In this dissertation, I will stick to presenting odds ratios without taking a log. I will

take a great care in describing the odds ratios and coefficients when they are presented as a pair of figures.

Figure 3: Predicted Odds of Whites Living in Whiter Neighborhoods by Assimilation Types in San Antonio, Texas 1940

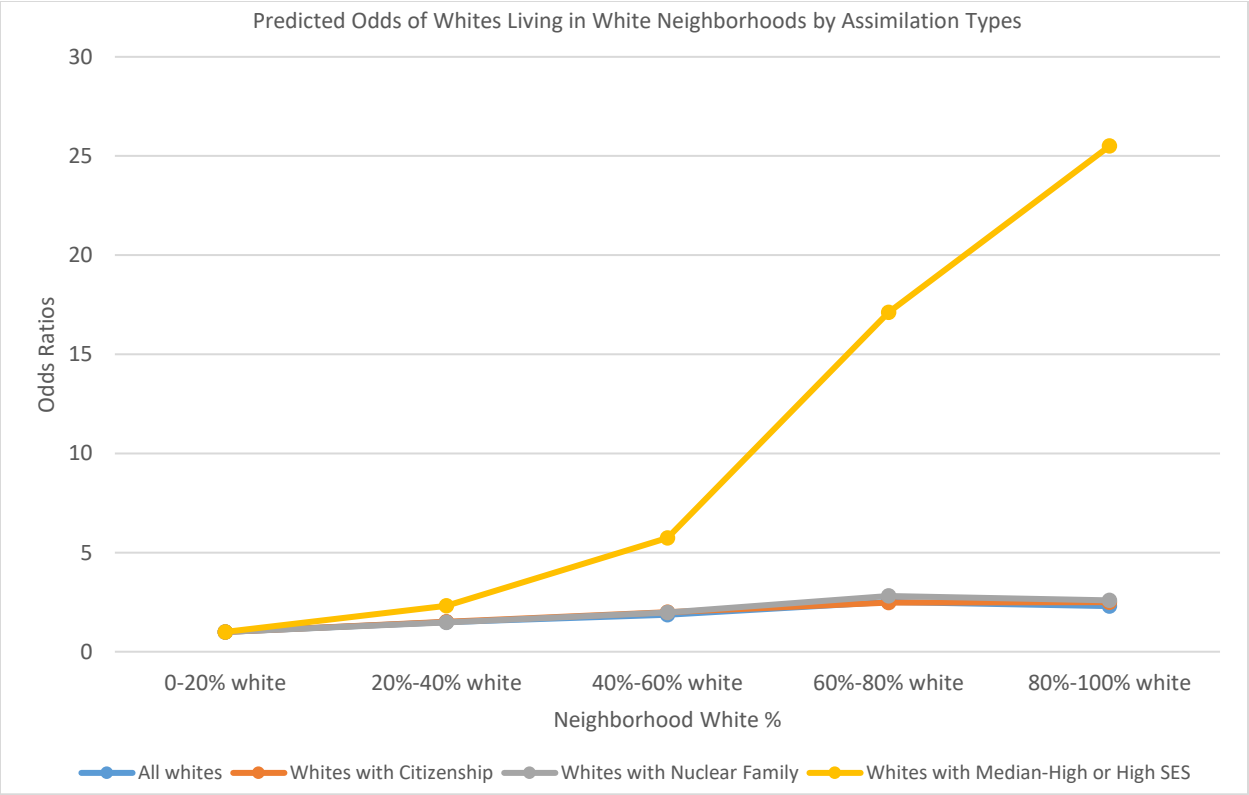


Figure 4: Predicted Odds of Latinos Living in Whiter Neighborhoods by Assimilation Types in San Antonio, Texas 1940

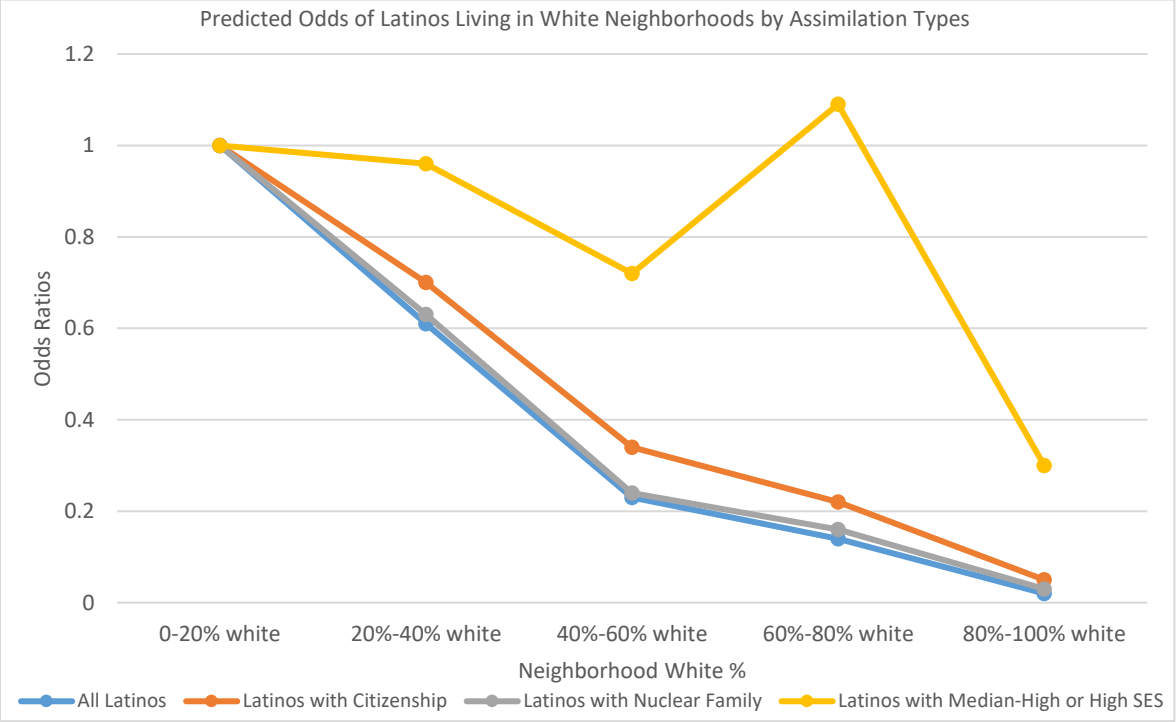


Figure 3 presents the odds ratios of Whites' residential contact with Whites. Figure 4 presents the odds ratios of Latinos' residential contact with Whites. As Figure 3 demonstrates, the odds ratios for "Family structure" and "Citizenship" are almost identical to those for "all whites." Thus, possessing US citizenship and belonging to a nuclear family does not greatly increase the odds of whites living with other whites. In contrast, the odds ratios for socioeconomic status increase dramatically as neighborhood white percent increases. The odds ratios peak at the category of "80%–100% white," with an odds ratio of 25.5. Unlike the other three curves that peak at the category "60%–80% white," whites with a higher socioeconomic status (SES) are able to live in a predominantly white neighborhood, which indirectly implies that these neighborhoods tend to comprise a higher-income population.

As Figure 4 displays, citizenship and SES appear to be supportive of spatial assimilation for Latinos. Although these two domains of assimilation do not greatly increase Latinos' odds ratios of living in neighborhoods in which whites constitute a greater proportion of the population, these domains indeed reduce the odds ratios of not living with whites. One notable point is that citizenship and high SES do not compel Latinos to relocate to predominantly white neighborhoods; the odds ratios of Latinos living in neighborhoods that are over 80% white are lower than the odds ratios for all other categories regardless of the domain of assimilation. For instance, the citizenship curve drops down to 0.03 at the category of "80%–100% white," which is only 0.01 higher than the odds ratio of the "all whites" curve. The "medium-high or high SES" curve peaks at category of "60%–80% white," with an odds ratio of 1.09, the only positive value in the figure. This notable break in the pattern reveals that Latinos with enough social and economic resources[6] are more likely to live in neighborhoods that are 60–80% white. I will explore in later chapters whether this phenomenon is due to in-group preference or discrimination.

I will now expand on the previous analysis by considering detailed groups; specifically, dividing whites and Latinos into two subgroups by birthplace. I will start with native-born and foreign-born Latinos.

[6] From the data, most high-SES Latinos are doctors, engineers, or administrative executives at universities.

Table 8: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Foreign-born and Native-born Latinos in San Antonio, Texas

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Foreign-born Latinos Contact with Whites				
20%-40% white	-0.097***	-0.140***	-0.111***	-0.100***
	(0.03)	(0.034)	(0.037)	(0.033)
40%-60% white	-0.324***	-0.490***	-0.321***	-0.345***
	(0.086)	(0.087)	(0.089)	(0.086)
60%-80% white	-0.121	-0.364***	-0.154	-0.147
	(0.141)	(0.144)	(-0.143)	(0.141)
80%-100%white	-1.299***	-1.962***	-1.482***	-1.435***
	(0.184)	(0.190)	(0.187)	(0.185)
Household Head Race * Neighborhood Proportion Whites				
US-born Latino * 20%-40%	0.201***	-0.136	0.197***	0.202***
	(0.049)	(0.083)	(0.049)	(0.049)
US-born Latino * 40%-60%	0.483***	-0.400***	0.485***	0.488***
	(0.124)	(0.144)	(0.125)	(0.125)
US-born Latino * 60%-80%	0.682***	-0.417*	0.672***	0.687***
	(0.204)	(0.216)	(0.204)	(0.204)
US-born Latino * 80%-100%	0.813***	-0.893***	0.762***	0.837***
	(0.264)	(0.273)	(0.264)	(0.265)
Assimilation * Neighborhood Proportion White				
Assimilated * 20%-40% white		0.381***	0.028	0.408*
		(0.075)	(0.039)	(0.220)
Assimilated * 40%-60% white		1.050***	-0.007	1.443***
		(0.085)	(0.047)	(0.210)
Assimilated * 60%-80% white		1.342***	0.066	1.632***
		(0.094)	(0.055)	(0.219)
Assimilated * 80%-100% white		2.369***	0.346***	3.158***
		(0.102)	(0.067)	(0.191)
Neighborhood proportion Hispanic	2.463***	2.463***	2.463***	2.463***
	(0.229)	(0.229)	(0.229)	(0.229)
Neighborhood proportion black	-1.587***	-1.587***	-1.587***	-1.587***
	(0.246)	(0.246)	(0.246)	(0.246)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

The second set of the coefficients show the odds of foreign-born Latinos living in different types of neighborhoods, with "20%–40%," "40%–60%," "60%–80%," and "80%–100%" relative to the baseline category, "0%–20%." For example, foreign-born Latino households are $e^{-0.097}$, about 10% less likely to be located in a 20–40% white neighborhood than in one that is less than 20% white.

Note that although the coefficient of "60%–80%" is not statistically significant, we cannot simply exclude the entire set of coefficients. The insignificant coefficient means that it is not significantly different from the baseline, which is 0–20% white neighborhoods in this analysis. If we exclude the insignificant coefficient, the other three coefficients in Model I would change accordingly, which could generate a completely different result. Thus, it is better to test the overall differences among the five categories, and if the result is significant, then we can also trust the trend presented by the coefficients. For overall significant testing of categorical variables, one option available is a multiple-parameter Wald test. Because the other three variables are significant and the Wald test is significant, I can conclude that foreign-born Latino households are less likely to be located in neighborhoods with a higher white proportion, and the insignificant coefficient only indicates that particular pairwise difference between the categories is insignificant.

Models II–IV specify the three separate domains of assimilation considered here, with Model II testing citizenship, Model III testing family structure, and Model IV testing SES. I have defined the three assimilation types in the early chapters. Because there are many coefficients in the models that are tedious to review in detail, I focus on the relationships depicted in graphical form in Figures 5 and 6.

Figure 5: Predicted Odds of US-Born Latinos Living in Whiter Neighborhoods by Assimilation Types in San Antonio, Texas 1940

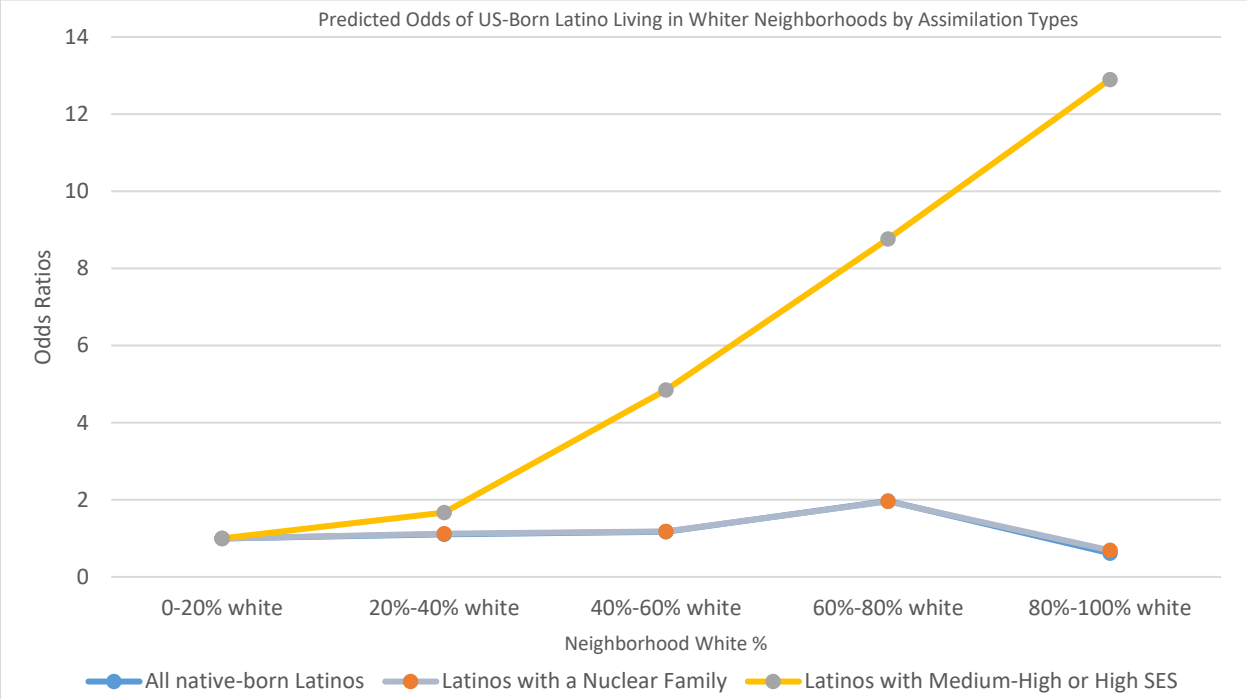


Figure 6: Predicted Odds of Foreign-Born Latinos Living in Whiter Neighborhoods by Assimilation Types in San Antonio, Texas 1940

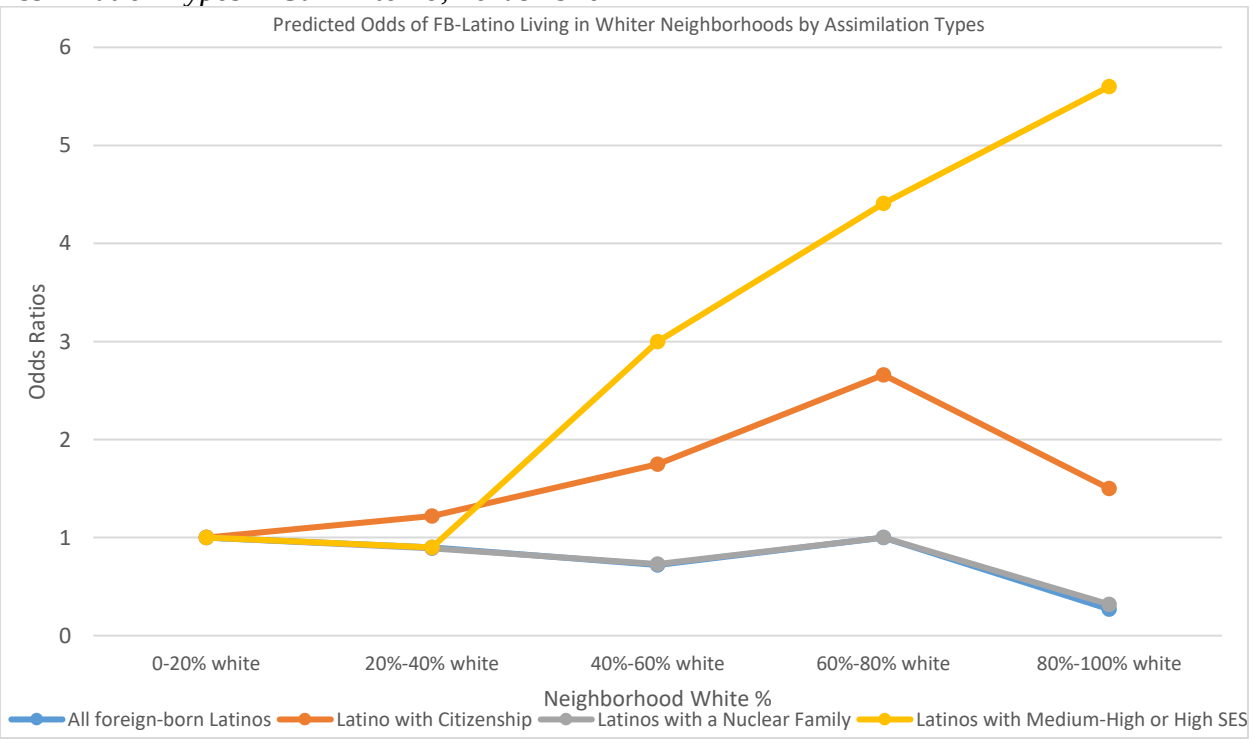


Figure 5 and 6 are not identical, with Figure 5 not having the "citizenship curve". That is because almost all US-born Latinos were US-citizens. Estimating the effects of citizenship on US-born Latinos' residential contact with either Whites or Latinos relative to its foreign-born counterpart would lead to multicollinearity. Therefore, I omit the "citizenship" curve in Figure 5.

Please note that the gray and blue curves in both Figures 5 and 6 are difficult to distinguish because the two curves are almost identical, indicating that having a nuclear family does not promote either foreign-born or native-born Latinos to reside in whiter neighborhoods. In addition to the family structure curve, there are several other patterns in the graphs. First, socioeconomic attainment appears to be the strongest predictor for co-residence with whites for both foreign-born and native-born Latino households, even though this element plays a more important role for native-born Latino households because the curve is identical to that of "all foreign-born Latinos" at the "0% to 20% white" interval. Unlike the other curves, the curve for "Latinos with medium-high or high SES" is greater than the "all Latinos" curves for both foreign-born and native-born Latinos. That means that higher-SES Latino households adapt spatial assimilation to a greater degree than households exhibiting other types of assimilation adapt. Second, as the scatterplots demonstrate, the curve for the odds ratios for "all native-born Latinos" are almost identical to the corresponding curves for "Latinos with a Nuclear Family" and "Latinos with citizenship." This means that, for US-born Latino households, having a nuclear family structure does not result in living in whiter neighborhoods. Third, for foreign-born Latinos, citizenship stands out as the second-most important factor in promoting residential proximity to whites. The curve for the odds ratio peaks at the category of "60%–80% white," with an odds ratio of 2.66, thus indicating that, after becoming US citizens, foreign-born Latinos are about 2.66 times more likely to live in a 60–80% white neighborhood than in one that has a

lower relative white population. Fourth, the spatial assimilation process for Latino households is not linear in San Antonio; most curves for the odds ratios, except those for SES, turn downward after peaking at the category of "60%–80% whites." In addition, two types of assimilation do not spur Latino households to be located in predominantly white neighborhoods, that is, neighborhoods that are 80% or more white. The odds ratios for the curves of "Latinos with citizenship" and "Latinos with nuclear family" are even lower than that of the reference group. Only Latino households who are assimilated and thus have higher income and educational attainment are strongly predicted to reside in predominantly white neighborhoods.

Table 9: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Foreign-born and US-born Whites in San Antonio, Texas

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Foreign-born Whites Contact with Whites				
20%-40% white	0.502***	0.187	0.533***	0.494***
	(0.145)	(0.336)	(0.152)	(0.145)
40%-60% white	0.263	-0.178	0.246***	0.234
	(0.201)	(0.349)	(0.205)	(0.201)
60%-80% white	0.276	-0.374	0.192	0.177
	(0.277)	(0.399)	(0.280)	(0.277)
80%-100%white	-0.084	-0.908**	-0.141	-0.251
	(0.332)	(0.421)	(0.335)	(0.332)
Household Head Race * Neighborhood Proportion of Whites				
US-born White * 20%-40%	-0.351**	-0.410**	-0.342**	-0.354**
	(0.150)	(0.083)	(0.049)	(0.150)
US-born White * 40%-60%	-0.328	-0.404*	-0.333	-0.339
	(0.207)	(0.144)	(0.208)	(0.208)
US-born White * 60%-80%	-0.289	-0.392	-0.313	0.328
	(0.286)	(0.293)	(0.286)	(0.286)
US-born White * 80%-100%	-0.303	-0.422	-0.319	-0.365**
	(0.343)	(0.349)	(0.343)	(0.344)
Assimilation * Neighborhood Proportion White				
Assimilated * 20%-40% white		0.373	-0.059	0.376*
		(0.364)	(0.071)	(0.202)
Assimilated * 40%-60% white		0.517	0.033	0.955***
		(0.349)	(0.067)	(0.186)
Assimilated * 60%-80% white		0.752***	0.154**	1.908***
		(0.094)	(0.065)	(0.180)
Assimilated * 80%-100% white		0.943***	0.104*	2.394***
		(0.102)	(0.061)	(0.177)
Neighborhood Proportion Hispanics	-2.487***	-2.487***	-2.487***	-2.487***
	(0.394)	(0.320)	(0.320)	(0.320)
Neighborhood Proportion Black	-2.519***	-2.519***	-2.519***	-2.519***
	(0.397)	(0.397)	(0.397)	(0.397)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

Table 9 presents the results of assessing residential contact with whites according to multiple types of assimilation for foreign-born and native-born, white household heads. The table's data demonstrates that many coefficients are not statistically significant in part because the foreign-born white population is relatively small; only 4% of the total households in San Antonio comprise European immigrants. However, this lack of statistical significance is not detrimental, and one advantage of the model specification is that those interactions allow for investigation of whether assimilative factors have a different impact on residential contact across racial and ethnic groups. If multiple coefficients of "neighborhood proportion white" and "household head race * neighborhood proportion white" are significant, this indicates that US-born whites do not tend to live in a whiter or less white neighborhood than their foreign-born counterparts do and that US-born whites do not tend to have a stronger spatial assimilation pattern than European immigrants in San Antonio have.

This finding is consistent with the results for the segregation scores represented in the last chapter, namely, that both D and S of foreign-born and native-born whites are very low, and when D and S are both low, it signifies that foreign-born whites do not disproportionately live in areas that fall short of racial parity in San Antonio. Instead, although these demographics might be underrepresented in some areas, these two groups are not geographically separated. Unlike some European immigrants in cities in New England who established ethnic enclaves, European immigrants in San Antonio do not live in obvious ethnic enclaves.

Two more pieces of evidence support the patterns of foreign-born white and native-born white residential contact. First, the descriptive statistics show that foreign-born whites in San Antonio tend to have a higher average family income than native-born whites have, and in addition, their SEI and home ownership rate are also higher than those of native-born whites; this

means that foreign-born Whites in San Antonio may not need an enclave to obtain economic and social support. Second, unlike early 20th-century immigrants, whose roots were predominantly in Central, Southern Europe, or Eastern Europe, the data used for this study shows that one of the largest European ethnic groups in San Antonio is German. There are about 770 German households in this study, making German Americans the largest European immigrant group. As members of an earlier wave of immigration whose entry to the US dates back to mid 1800s, German Americans had already become as an established group in the US by 1940. Newer German immigrants could rely on the descendants of these older immigrants to ease the transition to the US by providing economic and social support.

The coefficients of "Assimilation * 40%–60%," "Assimilation *60%–80%" and "Assimilation * 80%–100%" of Model IV are large and highly significant; this indicates that means white households with a higher SES have a higher rate of entry into whiter neighborhoods. In other words, when whites have more resources, they tend to live in predominantly white neighborhoods. Living in a mixed neighborhood can be viewed as a secondary choice or a compromise. More specifically, the effect of a foreign-born white household has a greater effect on the odds of residence in a predominantly white neighborhood because the coefficient of "US-born white * 80%–100% white" in Model IV is negative.

Table 10: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Foreign-born Whites and Foreign-born Latinos in San Antonio, Texas

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Foreign-born Latino Contact with Whites				
20%-40% white	-0.097***	-0.146***	-0.129***	-0.100***
	(0.033)	(0.034)	(0.040)	(0.032)
40%-60% white	-0.324***	-0.495***	-0.390***	-0.346***
	(0.086)	(0.087)	(0.091)	(0.201)
60%-80% white	-0.121	-0.368***	-0.251*	-0.154
	(0.141)	(0.143)	(0.146)	(0.141)
80%-100%white	-1.300***	-1.818***	-1.463***	-1.393***
	(0.184)	(0.186)	(0.187)	(0.184)
Household Head Race * Neighborhood Proportion Whites				
FB-White * 20%-40%	0.599***	0.343**	0.598***	0.595***
	(0.149)	(0.153)	(0.149)	(0.149)
FB-White * 40%-60%	0.587***	-0.077	0.585***	0.566***
	(0.219)	(0.234)	(0.219)	(0.219)
FB-White * 60%-80%	0.397	-0.439	0.394	0.366
	(0.311)	(0.315)	(0.311)	(0.311)
FB-White * 80%-100%	1.214***	-0.017	1.210***	1.129***
	(0.380)	(0.384)	(0.380)	(0.380)
Assimilation * Neighborhood Proportion White				
Assimilated * 20%-40% white		0.415***	0.066	0.372
		(0.070)	(0.046)	(0.242)
Assimilated * 40%-60% white		1.062***	0.133**	1.339***
		(0.079)	(0.059)	(0.233)
Assimilated * 60%-80% white		1.342***	0.256***	1.668***
		(0.087)	(0.068)	(0.228)
Assimilated * 80%-100% white		2.064***	0.320***	2.610***
		(0.093)	(0.068)	(0.230)
Neighborhood Proportion Hispanics	2.463***	2.457***	2.457***	2.462***
	(0.230)	(0.229)	(0.229)	(0.229)
Neighborhood Proportion Black	-1.588***	-1.591**	-1.591**	-1.588***
	(0.246)	(0.246)	(0.246)	(0.246)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

The objective of Table 10 is to estimate whether foreign-born whites and foreign-born Latinos have a similar process of spatial assimilation. This analysis is inspired by a research gap in which many empirical studies usually compare spatial assimilation process between racial and ethnic minorities and overlook the fact that the theoretical basis of spatial assimilation dates to the early 20th century, when the Chicago school emerged. The theoretical formation was largely based upon a demographic fact, namely, that immigrants, including both European immigrants and immigrants from other origins, relocated to the city. Such a large number of diverse immigrants encouraged sociologists and demographers to ponder whether the immigrants would spatially incorporate themselves into the US society. Therefore, comparing foreign-born whites and foreign-born Latinos is theoretically justifiable.

I will focus on plots of curves for odds ratios to depict the relationships predicted by the regression results.

Figure 7: Predicted Odds of Foreign-Born Whites Living in Whiter Neighborhoods by Assimilation Types in San Antonio, Texas 1940

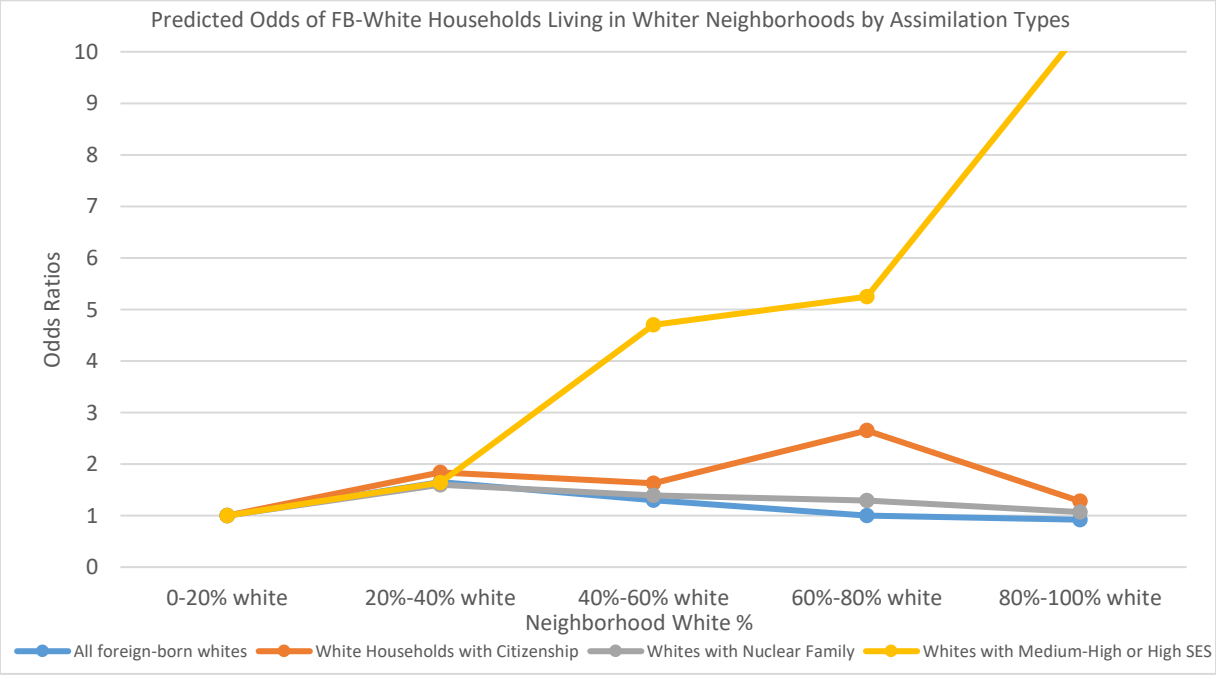
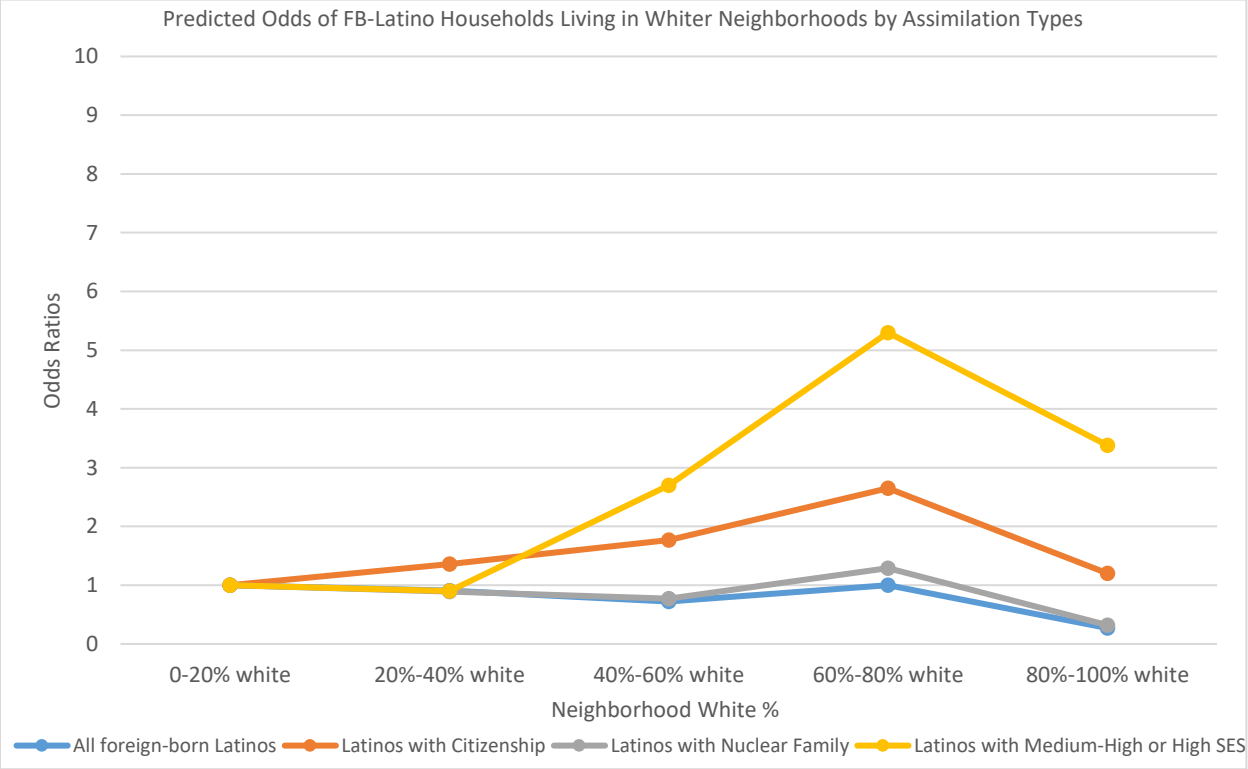


Figure 8: Predicted Odds of Foreign-Born Latinos Living in Whiter Neighborhoods by Assimilation Types in San Antonio, Texas 1940



First, all three assimilative factors encourage both foreign-born white households and foreign-born Latino households to be located in whiter neighborhoods because almost all coefficients of the "Assimilation * Neighborhood Proportion White" section are positive. However, there are some variations across the three domains of assimilation. First, higher SES can prompt European immigrants to live in predominantly white neighborhoods but does not have the same effect on foreign-born Latinos. For instance, in Figure 7, the odds ratios of socioeconomically assimilated foreign-born whites living in whiter neighborhoods increase constantly until the peak goes beyond the upper boundary at an odds ratio of $e^{(-1.393+1.129+2.610)}$, 10.4, which indicates that assimilated foreign-born Whites is over 10 times

more likely to live in predominantly white neighborhoods than in neighborhoods that are 0–20% white. For foreign-born Latinos, however, the effects socioeconomic assimilation is equally strong. In Figure 8, the curve of "Latinos with medium-high or high socioeconomic status" peaks at the category of "60%–80% white," with the odds ratio of 5.3. The odds ratio then declines to 3.4 when neighborhood white percent increases to "80%–100% white," indicating that high-status, foreign-born Latino households may not be able to convert their socioeconomic attainment into residence in predominantly white neighborhoods.

Additionally, the curve for the odds ratios for "citizenship" is almost identical for both groups, meaning that there is no group difference in the effect of citizenship on the odds of living in whiter neighborhoods. Similarly, in the foreign-born white households' line graph (Fig. 7), the odds ratios for family structure are almost identical to the curves for "all foreign-born whites"; this indicates that a nuclear family household structure (i.e., having a family with less than 2 generations) does not significantly prompt foreign-born white or Latino households to be located in whiter neighborhoods.

Sacramento

In the following several tables, I will present the results from a similar sequence of analyses for Sacramento. I will conduct three sets of analysis: Asian – native-born White, Latino – native-born White, foreign-born White – native-born White. I use native-born white as the reference group in each analysis.

Table 11: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Asians and Whites in Sacramento, California

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Whites Contact with Whites				
20%-40% white	1.943***	1.642***	1.451***	1.988***
	(0.163)	(0.275)	(0.214)	(0.171)
40%-60% white	0.884***	0.556*	0.633***	0.861***
	(0.141)	(0.286)	(0.195)	(0.151)
60%-80% white	2.764***	2.476***	2.035***	2.621***
	(0.176)	(0.267)	(0.202)	(0.182)
80%-100%white	3.653***	2.477***	3.864***	3.122***
	(0.203)	(0.287)	(0.220)	(0.208)
Household Head Race * Neighborhood Proportion Whites				
Asian * 20%-40%	-0.902***	-0.691***	-0.820***	-0.893***
	(0.166)	(0.234)	(0.165)	(0.165)
Asian * White * 40%-60%	-1.720***	-1.470***	-1.663***	-1.732***
	(0.159)	(0.242)	(0.160)	(0.155)
Asian * 60%-80%	-2.936***	-2.715***	-2.800***	-3.012***
	(0.129)	(0.198)	(0.129)	(0.130)
Asian * 80%-100%	-6.049***	-5.268***	-6.102***	-6.275***
	(0.132)	(0.183)	(0.137)	(0.142)
Assimilation * Neighborhood Proportion White				
Assimilated * 20%-40% white		0.301	0.587***	-0.185
		(0.221)	(0.188)	(0.163)
Assimilated * 40%-60% white		0.327	0.305*	0.079
		(0.248)	(0.168)	(0.149)
Assimilated * 60%-80% white		0.287	0.851***	0.444***
		(0.199)	(0.134)	(0.117)
Assimilated * 80%-100% white		1.175***	-0.275***	1.278***
		(0.201)	(0.118)	(0.113)
Neighborhood Proportion Hispanics	-8.846***	-8.846***	-8.846***	-8.846***
	(0.391)	(0.391)	(0.391)	(0.391)
Neighborhood Proportion Black	2.334***	2.334***	2.334***	2.334***
	(0.272)	(0.272)	(0.272)	(0.272)
Neighborhood Proportion Asian	2.885***	2.885***	2.885***	2.885***
	(0.237)	(0.237)	(0.237)	(0.237)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

As in the previous analyses for the Latino-White comparison, model one estimates the racial sorting of Asian and native-born white households into neighborhoods without introducing the assimilation factors. In general, we can see that coefficients of "Asian * neighborhood proportion white" are all negative and the magnitudes increase as neighborhood white percent increases meanwhile the coefficients of "White Contact with Whites" are all large and positive. That means, in general, all Asian households are much less likely to live in a white neighborhood than native-born white households. These two groups do not live together and there are few Asian-White mixed neighborhoods in the city.

Figure 9: Predicted Odds of Asians Living in Whiter Neighborhoods by Assimilation Types in Sacramento, California 1940

The magnitudes and trends of the coefficients are presented in Figure 9, and the substantive points gained from the results of the conditional logit analyses include the following. First, all curves peak at the 20–40% white neighborhood interval, with the highest odds ratio of $e^{(1.451-0.82+0.587)}$, 3.38. For example, Asian households comprising nuclear families are 3.4 times more likely to be located in neighborhoods that are 20–40% white than those that are less than 20% white. Further, socioeconomically assimilated Asian households are about three times more likely to be located in 20–40% white neighborhoods; this suggests that spatial assimilation spurs Asians to live in neighborhoods in which the white proportion of the population does not exceed 40% Second, the odds ratios of both assimilated and unassimilated Asians then drop dramatically below 0.5 in the interval "40%–60% white." Although the odds ratios slightly increase in the "60%–80% white" interval, only the "Nuclear Family" line in higher than 1, and only slightly higher than 1; this pattern demonstrates that Asians tend not to reside in majority-white neighborhoods even when they possess multiple assimilative factors. Therefore, Figure 9 indicates that most Asian households are located in neighborhoods that are 0–40% white; because all four curves are almost identical, spatial assimilation dynamics does not strongly apply to the Asian population of Sacramento in 1940. This finding appears to be consistent with what Asian–white segregation scores indicate, namely, that Asian households, even assimilated ones, are unlikely to be located in predominantly white neighborhoods.

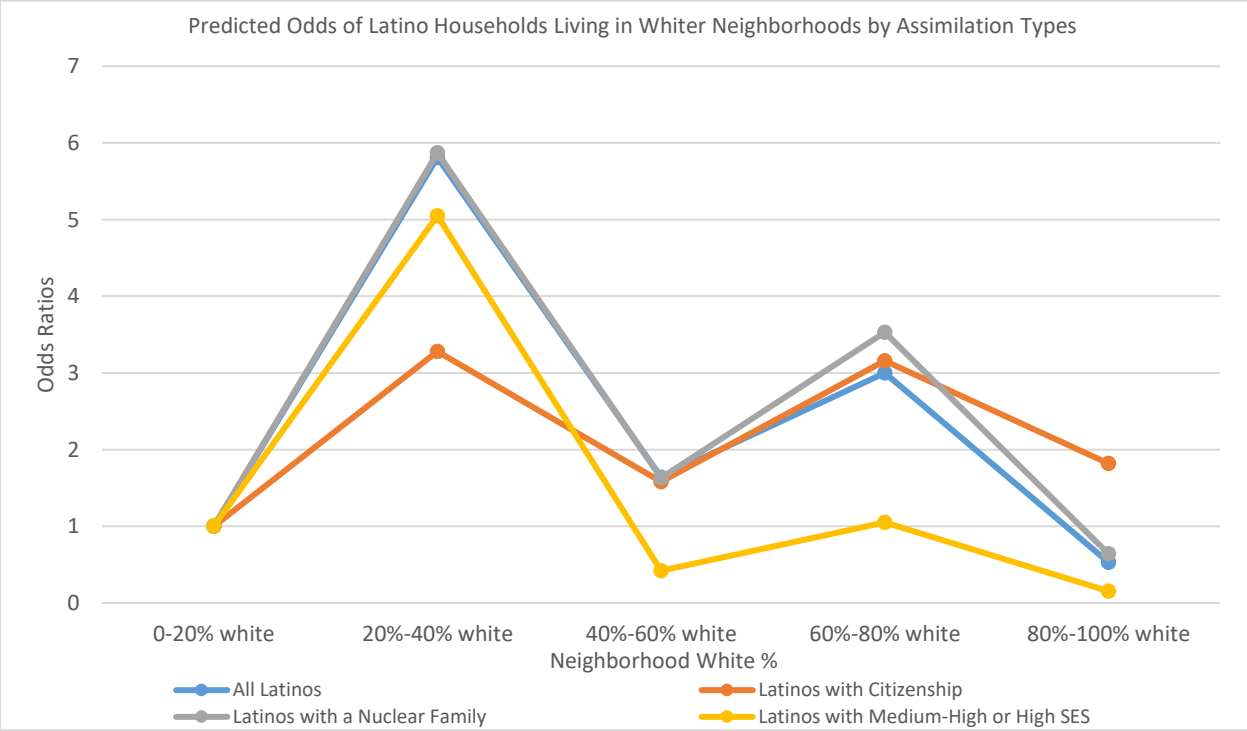
Table 12: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Latinos and Whites in Sacramento, California

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Whites' Contact with Whites				
20%-40% white	1.676***	1.189***	1.060***	1.628***
	(0.163)	(0.390)	(0.290)	(0.177)
40%-60% white	0.502***	0.610*	0.491**	0.492***
	(0.143)	(0.337)	(0.216)	(0.154)
60%-80% white	2.333***	2.532***	1.713***	2.110***
	(0.180)	(0.328)	(0.228)	(0.187)
80%-100%white	3.358***	1.608***	3.668***	2.733***
	(0.203)	(0.333)	(0.241)	(0.208)
Household Head Race * Neighborhood Proportion Whites				
Latino * 20%-40%	-0.291	-0.041	-0.236	-0.263
	(0.213)	(0.321)	(0.211)	(0.219)
Latino * 40%-60%	-0.074	-0.151	-0.073	-0.067
	(0.176)	(0.287)	(0.175)	(0.180)
Latino * 60%-80%	-1.225***	-1.376***	-1.169***	-1.100***
	(0.153)	(0.257)	(0.153)	(0.157)
Latino * 80%-100%	-3.675***	-2.751***	-3.717***	-3.354***
	(0.147)	(0.230)	(0.147)	(0.152)
Assimilation * Neighborhood Proportion White				
Assimilated * 20%-40% white		0.488	0.713**	0.214
		(0.353)	(0.288)	(0.291)
Assimilated * 40%-60% white		-1.106	0.011	0.048
		(0.304)	(0.206)	(0.251)
Assimilated * 60%-80% white		-1.196	0.716***	0.808***
		(0.274)	(0.183)	(0.209)
Assimilated * 80%-100% white		1.754***	-0.398**	1.681***
		(0.257)	(0.167)	(0.203)
Neighborhood Proportion Hispanic	3.408***	3.408***	3.408***	3.408***
	(0.266)	(0.266)	(0.266)	(0.266)
Neighborhood Proportion Black	-8.223***	-8.223***	-8.223***	-8.223***
	(0.393)	(0.393)	(0.393)	(0.393)
Neighborhood Proportion Asian	2.255***	2.255***	2.255***	2.255***
	(0.244)	(0.244)	(0.244)	(0.244)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

In Table 12, Model I presents the racial sorting of Latino and US-born white households into neighborhoods without introducing the assimilation factors. In general, we can see that coefficients of "Whites' contact with whites" are all positive and large, and the magnitudes increase as neighborhood white percent increases. However, the first two coefficients of "Latino * Neighborhood Proportion White" are insignificant, while the latter two are negative and robust; these two sets of coefficients indicate that the likelihood of whites living together correlates positively with the white percentage of a neighborhood's population. In contrast, Latinos tend to live in mixed neighborhoods rather than in predominantly white neighborhoods. Again, Model I only estimates the racial sorting of Latinos and whites; the results after introducing assimilation types are included in Figure 10.

Figure 10: Predicted Odds of Latinos Living in Whiter Neighborhoods by Assimilation Types in Sacramento, California 1940



One substantive finding is that the models in Table 11 and Figure 10 do not provide evidence of residential attainments consistent with spatial assimilation. In the figure above, the curves for assimilated households do not show a higher likelihood that Latinos will reside in whiter neighborhoods. Several findings support this conclusion. First, the odds ratios for "All Latinos" are almost identical to the values on the curve of "Latinos with a nuclear family," indicating that having a nuclear family does not prompt Latino households to be located in whiter neighborhoods. Moreover, the curve for "Latinos with medium-high or high SES" is below the curve for "All Latinos"; this indicates that socioeconomic assimilation even decreases the likelihood for Latino households to be located in whiter neighborhoods as the neighborhood proportion white increases. Second, the curves for "Latinos with medium-high or high status" and "Latinos with a nuclear family" drop below 1 in the "80%–100% white" interval, demonstrating that assimilated Latino households according to family structure and socioeconomic status are even less likely, about 30%, to be located in predominantly white neighborhoods. However, there is one exception: when a Latino head of household obtains US citizenship, the individual is 80% more likely to live in a predominantly white neighborhood than in one that less than 20% white.

In addition, the odds ratio curves do not follow the sequence one would expect if a strong assimilation dynamic were operating. All curves peak in the interval "20%–40% white," then drop in the interval "40%–60% white," and then rise in the "60%–80% white" interval; this counterintuitive pattern may potentially stem from a particular pattern of "service worker integration." In early 20th century, a large number of Latinos worked as domestic servers who provided daily household services and lived with their employers, which was indicative of a subtler segregation pattern called "back alley" segregation, whereby white families entered and

minority household workers were relegated to alleys (Grigoryeva & Ruef 2015; Logan 2017). In Sacramento in 1940, two types of Latino households were located in neighborhoods that were majority white: one was socioeconomically assimilated households. Those who belonged to socioeconomically assimilated households worked as engineers, college administrates, or dentists, and based on their status, they could afford many houses in Sacramento if no strict, exclusive rule were in operation. However, this kind of household only accounted for a small fraction of the total Latino households that were located in white-majority neighborhoods. A larger proportion of the households were domestic servers, and other household service-related labors such as plumbers, cooks, or other service-related workers,[7] and although they lived with white as measured by the empirical analysis, they remained socially and economically segregated from whites.

Additional indirect evidence can support the aforementioned results. The curve of "Latinos with medium-high and high socioeconomic status," as mentioned above, peaks in the interval "20%–40% white," with an odds ratio of 5.05, and then drops below 1 in the subsequent intervals; in other words, if a Latino head of household is well educated (i.e., has at least a high school diploma) and has a medium-to-high income level, the household is most likely to be located in a mixed, Latino-majority neighborhood. Thus, when Latinos are educated and have enough economic resources, they still prefer to live with other Latinos, whereas Latinos who live in white neighborhoods tend not to be educated or belong to a higher income bracket.

This type of segregation on a microscale cannot be easily captured when enumeration districts constitute the local geographical units. Successful detection of such segregations usually must rely on some lower-level spatial analysis. By using conditional logit models with a specific

[7] Over 75% of these household heads were domestic workers according to the SEI reported in the data.

interaction and detailed microlevel information, we might be able to obtain empirical evidence to capture indirectly these segregation patterns.

The final analysis for this chapter measures the odds for European immigrants to live in whiter neighborhoods in comparison to native-born whites by assimilation types. I will again use a curve graph to visualize the odds ratios converted from the coefficients.

Figure 11: Predicted Odds of Foreign-born Whites Living in Whiter Neighborhoods by Assimilation Types in Sacramento, California 1940

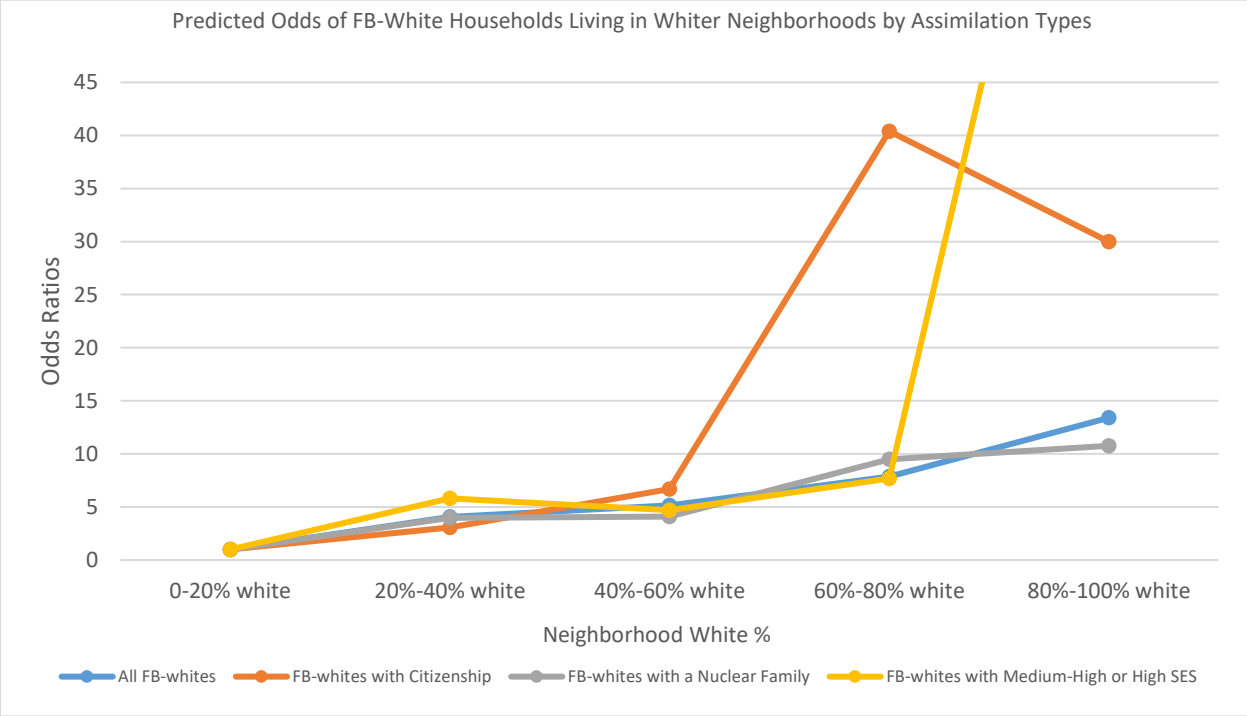


Table 13: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Foreign-born Whites and US-born Whites in Sacramento, California

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Neighborhood Proportion White				
20%-40% white	1.824***	0.705	1.379***	1.760***
	(0.161)	(0.457)	(0.331)	(0.177)
40%-60% white	0.785***	0.076	1.186***	0.789***
	(0.140)	(0.327)	(0.232)	(0.149)
60%-80% white	2.694***	1.946***	2.246***	2.453***
	(0.171)	(0.331)	(0.247)	(0.178)
80%-100% white	3.705***	1.830***	4.259***	3.081***
	(0.193)	(0.331)	(0.258)	(0.199)
Household Head Race * Neighborhood Proportion Whites				
FB-white * 20%-40%	-0.427*	0.195	-0.388	-0.393
	(0.248)	(0.339)	(0.246)	(0.254)
FB-white * 40%-60%	0.766***	1.194***	0.714***	0.761***
	(0.176)	(0.267)	(0.181)	(0.184)
FB-white * 60%-80%	-0.538***	-0.089	-0.499***	-0.416**
	(0.165)	(0.253)	(0.166)	(0.169)
FB-white * 80%-100%	-1.113***	-0.241***	-1.190***	-0.825***
	(0.156)	(0.242)	(0.157)	(0.160)
Assimilation * Neighborhood Proportion White				
Assimilated * 20%-40% white		1.118***	0.502	0.280
		(0.429)	(0.246)	(0.300)
Assimilated * 40%-60% white		0.709**	-0.492**	-0.022
		(0.296)	(0.221)	(0.248)
Assimilated * 60%-80% white		0.748***	0.502**	0.858***
		(0.286)	(0.211)	(0.214)
Assimilated * 80%-100% white		1.876***	-0.693***	1.676***
		(0.270)	(0.196)	(0.208)
Neighborhood Proportion Hispanic	2.963***	2.963***	2.963***	2.963***
	(0.266)	(0.266)	(0.266)	(0.266)
Neighborhood Proportion Black	-7.771***	-7.771***	-7.771***	-7.771***
	(0.252)	(0.252)	(0.252)	(0.252)
Neighborhood Proportion Asian	2.838***	2.838***	2.838***	2.838***
	(0.227)	(0.227)	(0.227)	(0.227)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

All curves rise steadily upward, indicating that European immigrants tend to live in whiter neighborhoods even when they are unassimilated. For instance, the four odds ratios for "All foreign-born whites" are 4.05, 5.16, 7.85, and 13.4, meaning that, for European immigrants, the odds of living in whiter neighborhoods increase as neighborhood white percent increases.

All four curves appear to be almost identical until the category of "40%–60% white"; neighborhoods that are less than 60% white are not indicative of the desired neighborhood white percent among assimilated foreign-born whites. For those with citizenship, the curve rises so rapidly that it peaks at 40.4. When the neighborhood percent white reaches, the effect of citizenship drops back to 30, a value that is still higher than that of other intervals.

The SES curve rises one interval later than the citizenship one. The three odds ratios for categories of "20% - 40% white", "40% - 60% white", and "60% - 80% white" are 5.81, 4.71, 7.67, respectively, which are almost identical to the "All Foreign-born White" curve. When the neighborhood proportion of whites reaches 80% or above, the odds ratio jumps to 90. That means if a European immigrant is educated and has a fairly high income, he or she usually does not consider any neighborhoods with a white percent that is lower than 80%.

In general, no evidence supports that European immigrants live apart from native-born whites regardless their assimilation status. Being assimilated greatly encourages them to live in a predominantly white neighborhood. For instance, among the three assimilation types, citizenship and SES play the most important roles in increasing the odds ratios of living in neighborhoods where whites account for over 60% of the population.

Summary

In the first analysis chapter, I use conditional logit models to explore the residential sorting between households and neighborhood percent white by different measures of

assimilation. These models are useful for capturing how the odds ratios change as proportion white goes from "0%–20% white" to "80%–100% white." It is important to capture these curvilinear relationships because, first, obtaining closer residential contact with whites is not always a simple linear relationship process; second, these curves provide insight into how minorities are distributes across neighborhoods with different white populations; and, third, racial and ethnic groups have preferences toward the racial composition of neighborhoods, both predominantly white neighborhoods and mixed ones (Charles 2000; Clark 2002). The analysis can also identify the group differences in performing spatial assimilation; the relationship between the race of household heads and neighborhood racial composition is indicative of how household head race influences residential choice relative to neighborhood racial composition.

In San Antonio, where the Latino population is substantial and predominantly Latino enclave neighborhoods have formed, socioeconomic attainment and citizenship appear to be the strongest predictors of greater residential contact with whites for both Latinos and European immigrants. However, there are some intra-group variations; spatial assimilation applies strongly to foreign-born Latinos, and although this may appear counterintuitive at first glance, it might be logically coherent after scrutiny. In cities where segregation levels are higher (i.e. S is higher), the minority population is larger, and ethnic enclaves have formed, minority immigrants tend to settle in ethnic enclaves to ease the transition to the US by receiving social and economic support from members of their own groups. Once they become more assimilated, for example, attaining citizenship and increasing their SES, changes in residential contact with whites occur when these immigrants start moving out of the enclaves. These trends also apply to European immigrants, yet in a slightly different way. Although being assimilated indeed encourages European immigrants to be more likely to live with Whites, their general tendency of living with Whites

does not change with or without being assimilated. Based on the segregation scores and coefficients obtained from conditional logit models, assimilation does not significantly increase the odds of European immigrants living in whiter neighborhoods in a sequential procedure; this implies instead that these immigrants are more evenly distributed than both foreign-born and US-born Latinos are in white-minority neighborhoods and that predominantly white neighborhoods are these immigrants' expected residential outcomes upon assimilation.

In contrast, spatial assimilation patterns are not significant for Asians and Latinos in Sacramento, where the white proportion of the population is greater than that in San Antonio. Neither Asians nor Latinos significantly realize higher levels of spatial assimilation when they assimilate in cultural and social characteristics; both of these groups are most likely to live in neighborhoods that are 20–40% white. For Asians, the odds of living in whiter neighborhoods drop constantly after the peak, and this pattern is reflected by the high Asian-White segregation scores (i.e. high D and medium-high S). For Latinos, residential contact with whites is not a linear trend: although the curves peak in the "20%–40% white" interval, Latinos are also likely to live in 60–80% white neighborhoods. This counterintuitive phenomenon is partially due to the fact that most Latinos who lived in such neighborhoods were domestic workers or had other service-related jobs closely attached to white families, and the low Latino–White separation index and the high Latino–White dissimilarity index may together reflect this pattern. European immigrants have similar patterns of residential outcomes in Sacramento as they do in San Antonio: unlike Asians and Latinos, they tend not to be gathered in enclave neighborhoods and rather are likelier to live in whiter neighborhoods. Assimilated European immigrants have high odds to live in predominantly white neighborhoods, but assimilated minorities do not.

Finally, although this chapter has estimated residential contact with whites under different assimilation conditions, segregation patterns within a given city originate not only from whether minority groups live with whites but also from sources such as in-group and out-group preferences. In the next chapter, I will extend the analysis above to in-group contact and out-group contact with minorities.

CHAPTER VII

CONDITIONAL LOGIT MODELS ON IN-GROUP CONTACT AND OUT-GROUP AVERSION

Overview

In the next phase of the analysis, I will switch the primary criteria to in-group contact and out-group avoidance under various assimilation conditions. According to spatial assimilation theory, as minorities become more assimilated, they will live in whiter neighborhoods; the previous chapter reviewed the evidence for this theoretical perspective. In contrast, this theory also predicts that, as minorities become more assimilated, they would live in neighborhoods with fewer minorities. Moreover, preference perspectives indicate that in-group co-residence and out-group avoidance under varying demographic conditions promote segregation. A reasonable question raised here is whether racial and ethnic groups will demonstrate less in-group contact and higher out-group avoidance, if any, as their individual characteristics, such as citizenship, education attainment, or income, change. For example, as Latinos become more assimilated, will they live in neighborhoods with lower proportions of Latinos? Similarly, regarding out-group avoidance, will whites tend not to live with minorities as they accumulate assimilative elements? In this chapter, I will present conditional logit coefficients and endeavor to answer the aforementioned questions. For San Antonio, I will estimate whether Latinos live in Latino-minority neighborhoods according to different assimilation phases and whether whites tend to avoid Latinos as assimilative factors are introduced. For Sacramento, I will investigate the in-group and out-group contact between Whites and Latinos and between Whites and Asians. However, I will not further divide the two minority groups by national origin because the early

exploratory analyses show that immigrant status does not show distinctive in-group contact or out-group aversion.

For San Antonio, I will estimate whether Latinos will live in a fewer Latino neighborhood by different assimilation phases and whether whites tend to avoid Hispanics as assimilative factors are introduced. For Sacramento, I will investigate the in-group and out-group contact of White-Latinos and White-Asians. However, I will not further divide the two groups by birthplace because the early exploratory analyses show that the birthplace does not show distinctive in-group contact or out-group aversion.

There are two objectives for this chapter: the first is to draw a substantive conclusion about whether minorities' in-group contact changes when they gain social resources and the means to live in neighborhoods with lower minority populations, and the second objective is to show how the methods may serve as informative tools for deeper understanding of the residential sorting processes that promote segregation. These two objectives would thus function as substantive evidence in the debate that preference perspectives cause residential segregation.

Table 14: Conditional Logit Regression Assessing Contact with Latinos by Different Assimilation Types for Whites and Latinos in San Antonio, Texas

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Whites Contact with Latinos				
20%-40% Latino	0.233***	0.748***	0.243***	0.354***
	(0.022)	(0.069)	(0.029)	(0.023)
40%-60% Latino	-0.04	0.741***	0.062	0.140***
	(0.038)	(0.073)	(0.043)	(0.038)
60%-80% Latino	-0.467***	0.789***	-0.357***	-0.260***
	(0.056)	(0.080)	(0.059)	(0.056)
80%-100% Latino	-0.745***	0.737***	-0.620***	-0.528***
	(0.071)	(0.092)	(0.074)	(0.071)
Household Head Race * Neighborhood Proportion Latinos				
Latino * 20%-40%	1.811***	1.668***	1.809***	1.730***
	(0.034)	(0.039)	(0.035)	(0.035)
Latino * 40%-60%	2.699***	2.460***	2.683***	2.577***
	(0.036)	(0.040)	(0.036)	(0.036)
Latino * 60%-80%	3.715***	3.265***	3.698***	3.576***
	(0.036)	(0.040)	(0.036)	(0.036)
Latino * 80%-100%	4.582***	4.010***	4.563***	4.435***
	(0.045)	(0.048)	(0.045)	(0.045)
Assimilation * Neighborhood Proportion Hispanics				
Assimilated * 20%-40% Latino		-0.518***	-0.015	-0.770***
		(0.066)	(0.027)	(0.041)
Assimilated * 40%-60% Latino		-0.789***	-0.154***	-1.549***
		(0.0.063)	(0.031)	(0.072)
Assimilated * 60%-80% Latino		-1.266***	-0.162**	2.106***
		(0.058)	(0.031)	(0.099)
Assimilated * 80%-100% Latino		-1.496***	-0.185***	-2.526***
		(0.058)	(0.031)	(0.147)
Neighborhood Proportion White	1.454***	1.454***	1.454***	1.454***
	(0.079)	(0.079)	(0.079)	(0.079)
Neighborhood Proportion Black	-0.901***	-0.901***	-0.901***	-0.901***
	(0.088)	(0.088)	(0.088)	(0.088)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

San Antonio

The conditional logit model estimates the residential sorting between household characteristics and neighborhood attributes, and because the theoretical origin of the conditional logit model is random utility models of choice, the real choice reflects the maximum utility. Strictly speaking, this utility is not naturally equivalent to preference because households usually make tradeoffs while searching for housing; therefore, the coefficients should not be viewed naively as a sign of preference. In this case, I continue to view these coefficients as sorting or matching between households and neighborhoods.

The odds ratios of whites living with Latinos increase to the peak of $e^{0.233}$, 1.26, in the "20%–40% Latino" interval and then decrease constantly down to $e^{-0.745}$, 0.47, in the "80%–100% Latino" interval. Meanwhile, the Latinos' odds ratios increase steadily as the neighborhood Latino percent increases, eventually reaching $e^{(-0.745+4.582)}$, 46.3. This increase indicates that sorting of Latinos into Latino neighborhoods is strong and becomes even stronger as the neighborhood Latino percent increases. However, whites appear to be tolerant of a small proportion of Latinos in white-majority neighborhoods; their aversion to Latinos become pronounced when the Latino population rises in a given neighborhood.

As before, the coefficients will be converted into odds ratios and will be presented in Figures 12 and 13 as curves. The *x*-axis represents the neighborhood Latino percent categories, and the *y*-axis represents the odds ratios of living in neighborhoods with a given Latino percentage interval relative to the baseline, namely, the odds ratios of living in neighborhoods with low Latino presence.

Figure 12: Predicted Odds of Latinos Living in Less Latino Neighborhoods by Assimilation Types in San Antonio, Texas 1940

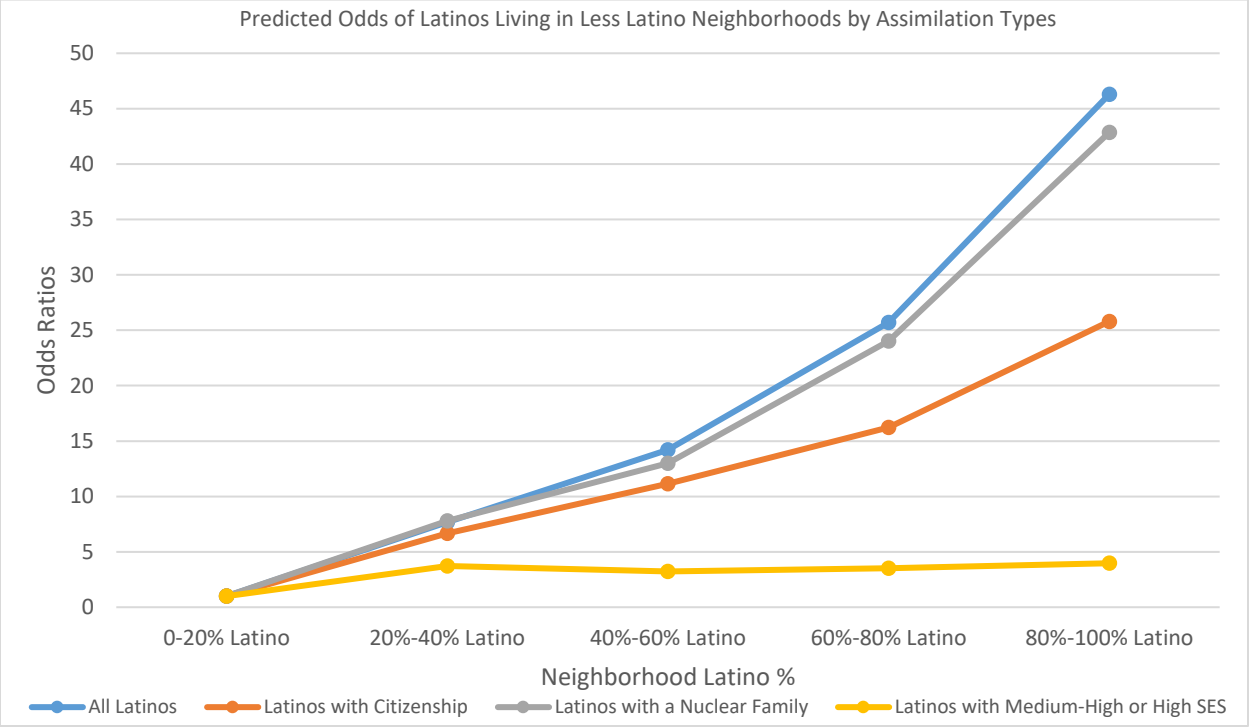
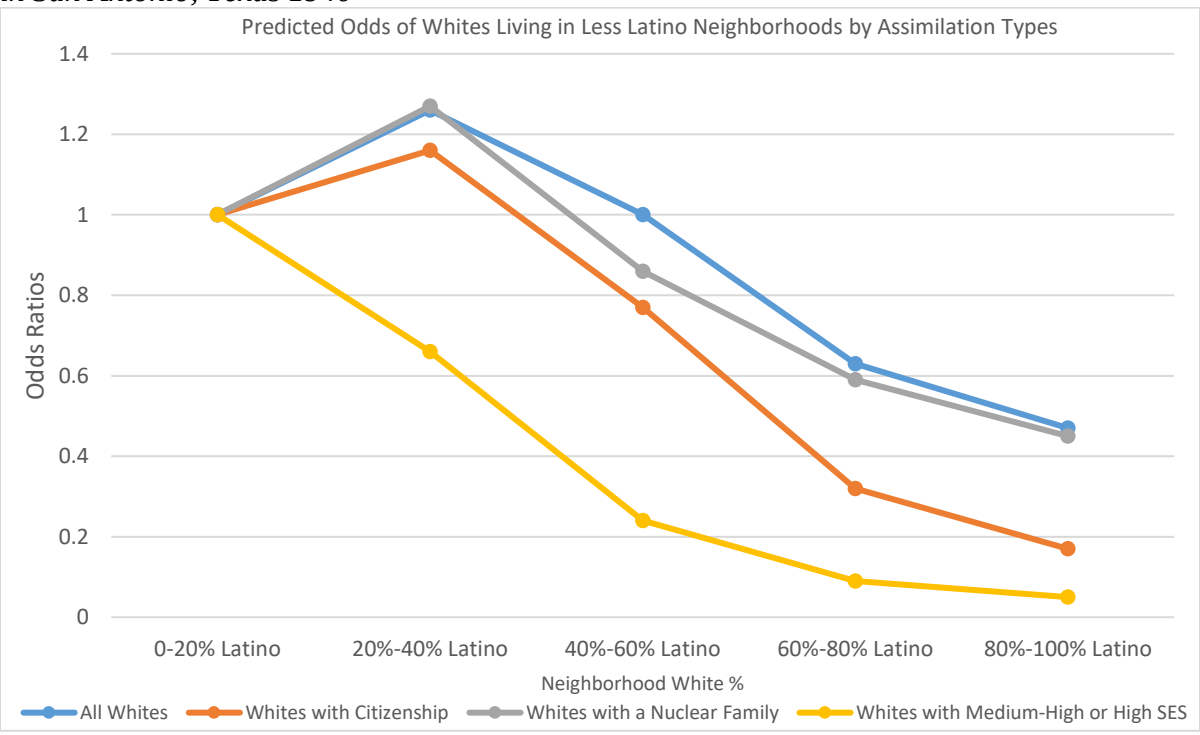


Figure 13: Predicted Odds of Whites living in Less Latino Neighborhoods by Assimilation Types in San Antonio, Texas 1940



In Figure 12, the curves show how the odds ratios change as the Latino proportion progresses from "0%–20%" to "80%–100%" by different assimilation types. When assimilation types are introduced, one of the most significant changes is that all three curves fall below that of "all Latinos"; this pattern indicates that the likelihood of Latinos living in predominantly Latino neighborhoods negatively correlates with assimilation because these assimilated Latinos may residential options in addition to Latino enclaves (or barrios). Furthermore, the curve of "medium-high or high SES" appears to be much flatter than the other three curves, demonstrating that SES again has the strongest impact on reducing the chances of Latinos being concentrated. For example, the four odds ratios of the "all Latinos" curve are 7.69, 14.2, 25.7, and 46.3, respectively, and the corresponding four odds ratios of the SES curve drop to 3.717, 3.22, 3.53, and 3.97, respectively. Because the SES curve is flatter, with four almost identical odds ratios, socioeconomically assimilated Latinos are thus more likely to scatter across the neighborhoods, and they do not particularly tend to live either in predominantly white neighborhoods or in mixed ones. Although socioeconomically assimilated Latinos may still be disproportionately underrepresented in some neighborhoods, they are much less likely to live in a barrio that is over 80% Latino.

In Figure 13, the curves demonstrate how the odds ratios of whites living with Latinos change as neighborhood proportion of Latinos increases from "0%–20%" to "80%–100%"; assimilation therefore further decreases whites' odds ratios of living with Latinos. All four curves eventually reach below 0.5, which means that whites, regardless of assimilation status, tend to avoid predominantly Latino neighborhoods but are not as sensitive to Latino–white mixed neighborhoods. Three curves peak in the "20%–40% Latino" interval, with odds ratios around 1.2, indicating that unassimilated whites, those who have become US citizens, and those

with nuclear families are most likely to live in mixed neighborhoods. Similar to the results for Latinos, SES is also the strongest predictor of whites' decisions to reside outside barrios. The SES curve starts to decrease at a constant rate from the baseline category nearly to the lower boundary of the table in the "80%–100% Latino" interval. This tendency both signifies that high-SES whites are least likely to share neighborhoods with Latinos and indirectly reflects that whites avoid living with Latinos when whites have resources enough to settle as desired.

Sacramento

Now I will present the results for Sacramento. Table 13 lists the coefficients of Asian and White contact with Asians.

Table 15: Conditional Logit Regression Assessing Contact with Asians by Different Assimilation Types for Whites and Asians in Sacramento, California

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
White contact with Asians				
20%-40% Asian	0.104	0.750***	-0.928***	0.626***
	(0.092)	(0.208)	(0.121)	(0.096)
40%-60% Asian	-0.168***	0.987***	-0.212***	0.357*
	(0.196)	(0.339)	(0.172)	(0.206)
60%-80% Asian	-0.695***	0.076	-0.859***	-0.213
	(0.257)	(0.195)	(0.268)	(0.264)
Household Head Race * Neighborhood Proportion of Asian				
Asian * 20%-40%	3.502***	3.063***	3.680***	3.683***
	(0.093)	(0.106)	(0.101)	(0.105)
Asian * 40%-60%	4.965***	4.119***	4.972***	5.142***
	(0.169)	(0.279)	(0.169)	(0.172)
Asian * 60%-80%	5.729***	5.222***	5.774***	5.871***
	(0.153)	(0.196)	(0.155)	(0.157)
Assimilation * Neighborhood Proportion Asian				
Assimilated * 20%-40% Asian		-0.646***	1.222***	-1.293***
		(0.184)	(0.099)	(0.775)
Assimilated * 40%-60% Asian		-1.155***	0.556	-1.299***
		(0.275)	(0.177)	(0.165)
Assimilated * 60%-80% Asian		-0.735***	0.254**	-1.027***
		(0.174)	(0.128)	(0.127)
Neighborhood Proportion White	1.381***	1.381***	1.381***	1.381***
	(0.372)	(0.372)	(0.372)	(0.372)
Neighborhood Proportion Black	-7.193***	-7.193***	-7.193***	-7.193***
	(0.394)	(0.394)	(0.394)	(0.394)
Neighborhood Proportion Latino	0.165	0.165	0.165	0.165
	(0.408)	(0.408)	(0.408)	(0.408)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

In Model I, the two sets of coefficients display that Asians are more likely to live with one another as the neighborhood proportion of Asians increases. The coefficients of the sorting of Asians toward Asian neighborhoods increase with the neighborhood Asian percent, and this

trend is not counterintuitive due to the high D and S of Asian–white segregation mentioned in Chapter V. Models II–IV provide coefficients pertaining to whether the tendency changes when individual assimilation status changes, and the odds ratios converted from the coefficients can be viewed in Figures 14 and 15.

Figure 14: Predicted Odds of Asians Living in Less Asian Neighborhoods by Assimilation Types in Sacramento, California 1940

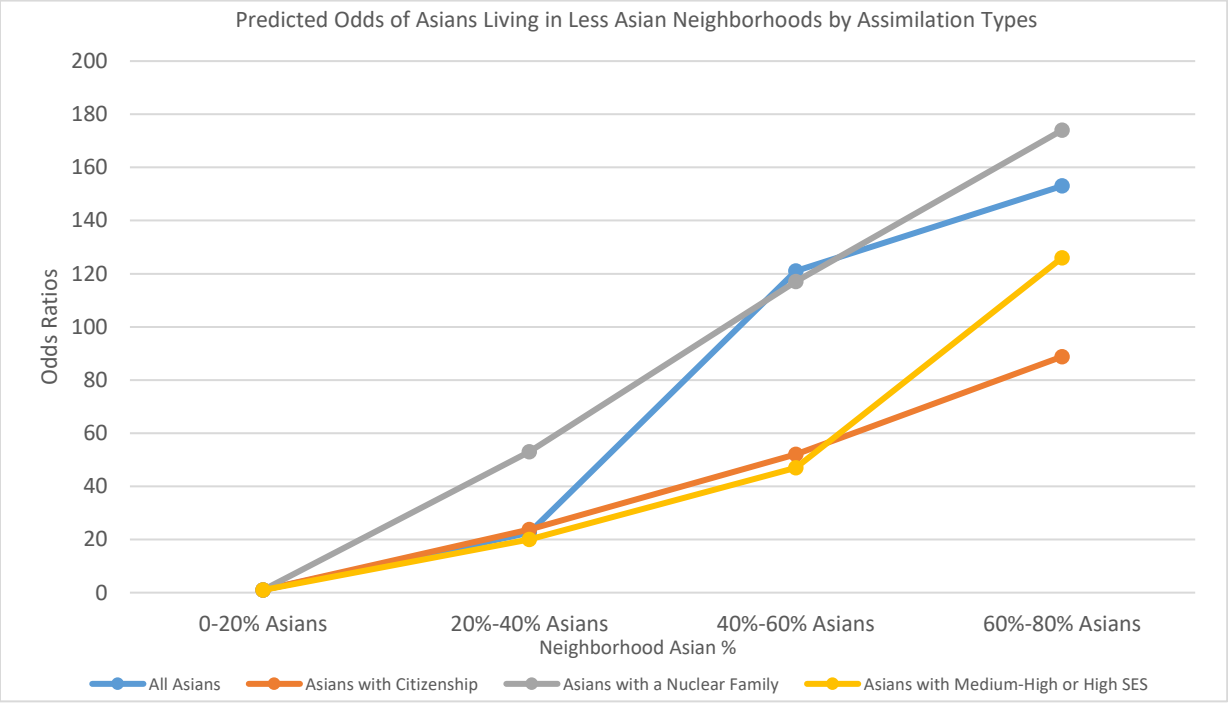
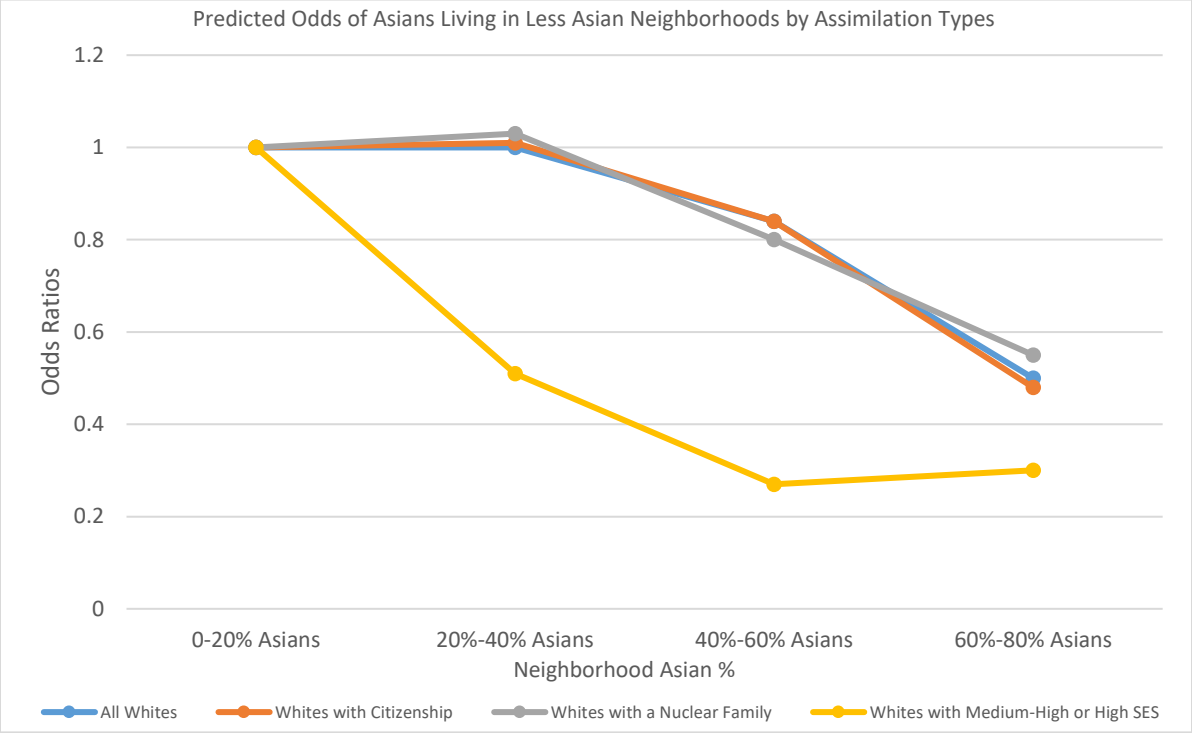


Figure 15: Predicted Odds of Whites Living in Less Asian Neighborhoods by Assimilation Types in Sacramento, California 1940



The settings of Figures 14 and 15 are the same as the early ones; however, because no neighborhood is over 80% Asian, each figure contains only four intervals along its *x*-axis. In Figure 14, almost all odds ratios are large, indicating that the odds of Asians living in Asian neighborhoods strongly correlate with neighborhood Asian percent. The S-shaped curve of "All Asians" indicates that the odds ratios of Asians' in-group contact increase greatly in the "40%–60% Asian" interval because this range is where the slope of the S curve is steepest. Because the Asian population is highly segregated in Sacramento, with high D and medium-high S, most Asians appear to be sorted into Asian-majority neighborhoods.

SES and citizenship are the two strongest predictors of reducing in-group contact among Asians because these curves are both below the "All Asians" curve. Although SES does not

greatly decrease the odds ratio of living in "20%–40% Asian" neighborhoods, it does largely reduce the chances of living in Asian-majority neighborhoods. For socioeconomically assimilated Asians, the odds ratio of living in 40–60% Asian neighborhoods is lower than the odds ratio of "All Asians" by approximately 80. Similarly, the odds ratio of living in a predominantly Asian neighborhood is lower than that of the "All Asians" curve by about 30. Please note that, although SES greatly reduces the odds ratio of Asians residing in predominantly Asian neighborhoods, it does not necessarily prompt Asians to leave these enclaves and live with whites because these odds ratios are still large and robust. In this case, a reasonable interpretation could be that socioeconomically assimilated Asians may be more scattered across the neighborhoods in the city although their in-group contacts still remain high. Citizenship is another strong factor in reducing Asians' in-group contact; Asian Americans (Asians with citizenship) have the lowest odds ratio of living in Asian enclaves, and this tendency may be associated with potential racial identity changes or intermarriage through Asians who live outside enclaves.

Figure 15 represents how whites' odds ratios change as the percentage of the Asian population increases. The curves reflect the Asian–white segregation of high D and medium-high S. The odds ratios for "all whites" remain roughly constant until the "40%–60% Asian" interval because a small fraction of Asians is disproportionately underrepresented across the neighborhoods in Sacramento while most Asians are concentrated in Asian enclaves. This fact is why whites' odds ratios drop so rapidly when the Asian percent exceeds 40%: when a neighborhood's Asian percent becomes large enough, whites are increasingly reluctant to live there. SES appears to be the strongest predictor; the curve decreases to $e^{(0.626-1.293)}$, 0.51, at "20%–40% Asian," meaning that socioeconomic assimilated whites are about 50% less likely to

live in neighborhoods that are 20–40% Asian than in those that are below 20% Asian. The curve further flattens with odds ratios of 0.27 and 0.3, respectively, indicating that whites tend to choose not to live with Asians once whites have the economic resources to live elsewhere.

Table 16: Conditional Logit Regression Assessing Contact with Latinos by Different Assimilation Types for Whites and Latinos in Sacramento, California

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted
Whites Contact with Latinos				
20%-40% Latino	-1.251*** (0.060)	-0.142 (0.174)	-1.443*** (0.093)	-0.765*** (0.067)
Household Head Race * Neighborhood Proportion of Latino				
Latino * 20%-40%	2.795*** (0.093)	2.092*** (0.145)	2.806*** (0.086)	2.495*** (0.088)
Assimilation * Neighborhood Proportion Latinos				
Assimilated * 20%-40% Latino		-1.107*** (0.163)	0.247*** (0.092)	-1.160*** (0.095)
Neighborhood Proportion White	1.765*** (0.087)	1.765*** (0.087)	1.765*** (0.087)	1.765*** (0.087)
Neighborhood Proportion Black	-6.781*** (0.394)	-6.781*** (0.394)	-6.781*** (0.394)	-6.781*** (0.394)

Note: Coefficients are "logit" coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

Table 16 shows the coefficients of Latinos' in-group contact and whites' out-group aversion. Similar to the early analyses, Model I estimates racial sorting, indicating that whites are less likely to reside in neighborhoods that are 20–40% Latino, while Latinos are much more likely to live there. The odds ratios are $e^{-1.251}$, 0.29 and $e^{(-1.251+2.795)}$, 4.68, respectively, indicating that whites are about 70% less likely to live in neighborhoods with a higher Latino

percentage and that Latinos are 4.68 times more likely to live in neighborhoods that are 20–40% Latino than in those that are less than 20% Latino. Having US citizenship or medium-high to high SES reduces Latinos' odds ratios of living in neighborhoods with higher Latino populations by 1.107 and 1.16, respectively, and SES plays a more important role than citizenship in Latinos' odds ratios of living apart from their own group. The coefficient of "Assimilation * Neighborhood proportion Latinos" in Model IV is -1.16, meaning that being Latinos would have another 1.16 lower odds of living in neighborhoods with higher Latino populations. Simultaneously, citizenship and medium-high or high SES further decrease whites' odds of living in neighborhoods with higher Latino populations.

Summary

In this chapter, I estimate minorities' in-group contact and whites' aversion to minorities in both San Antonio and Sacramento to gain insight into how preference theoretical perspective affects residential dynamics that may have implications for segregation patterns. In general, minority in-group contact is fairly strong, and high-status whites have the least out-group contact. In most cases in this chapter, citizenship and nuclear family membership greatly reduce the gap of residential outcomes between whites and minorities. However, SES may be a stronger predictor of residential contracting with minorities; for instance, in San Antonio, where about 30% of the total population is Latino, those with nuclear families or US citizenship still show a strong tendency of in-group contact, while the effects of citizenship and family structure are almost negligible. Obtaining socioeconomic status is a positive predictor of in-group contact of minorities and out-group aversion of Whites.

Asians might prove the exception to the above patterns. In Sacramento, their in-group contact does not diminish when assimilation dynamics are considered; high-status Asians still

live in predominantly Asian neighborhoods. As explained before, this tendency may stem from the fact that most Asians contended with segregationist laws and a sex ratio in which males greatly outnumbered females.

However, the tendency of not living with minorities is not linear. Whites appear to be more tolerant toward neighborhoods where 20–40% of the residents are minorities even though whites are still reluctant to live in predominantly minority neighborhoods. Albeit high-SES Latinos' patterns result in a flatter curve, some high-SES Latinos are able to leave the barrios and move to mixed neighborhoods; these Latinos may be pioneers in white neighborhoods. Another notable point is that US citizenship among whites also greatly contributes to their contact with Latinos. When European immigrants obtain citizenship, their chances of living with Latinos drops greatly. This finding is consistent with what social distance and preference perspective indicate, namely, that whites usually choose neighborhoods with a greater white population, though not all whites tended to live in predominantly white neighborhoods in 1940, when discrimination was not yet illegal. The complex of whether the findings in this chapter have implications on the debates about preference and social distance dynamics and discrimination perspective will be addressed in the conclusion chapter.

CHAPTER VIII

CONDITIONAL LOGIT MODEL ON RACIAL PROXY HYPOTHESIS

Overview

In this final chapter, I try to use conditional logit models to test the racial proxy hypothesis. The objective of the chapter is to determine a new means of identifying evidence of the racial proxy hypothesis through the use of observational data, and conditional logit models may have the potential to help achieve this goal. As mentioned in early chapters, residential segregation studies that examine individual residential attainments usually regress one crucial neighborhood attribute (i.e. the white percentage of a neighborhood) on multiple individual household characteristics. In addition, one advantage of conditional logit models is that they allow for estimation of individual residential choice relative to neighborhood attributes and individual characteristics. Hence, I can estimate both the relative importance of each neighborhood attribute in determining outcomes and how the effects of neighborhood attributes vary with household characteristics. In this chapter, I will assess whether residential sorting is largely based on race or on factors that transcend race and will provide further evidence to support the racial proxy hypothesis.

I will add the interactions among household and neighborhood economic variables (i.e., median income levels and property values) to the analyses in Chapters 7 and 8., and I will then see how the coefficients of the interactions between household head race and neighborhood race composition change. I will emphasize the case of Sacramento because the city's majority–

minority segregation is more diverse than that in San Antonio,[8] the latter of which might produce distinctive evidence pertaining to the racial proxy hypothesis.

Residential Contact with Whites, Controlling for Income and Property Values

Table 17 presents how the log of odds changes as white percent increases according to different assimilation types. The columns "Models V" through "Model VII" present the models that control for neighborhood income level, and the columns "Model VII" through "Model X" present the models that control for property values and costs. When both race and income sorting are controlled together in Models V–VII, two notable patterns emerge. First, both groups are less likely to live in neighborhoods with higher median income levels, but Asians' odds ratios of living in higher-income neighborhoods are much lower, by roughly 70%, than those of whites. An additional result similar to the findings discussed in previous chapters is that Asians are highly segregated and that spatial assimilation applies weakly to Asians. These results are not quite counterintuitive because the Chinese Exclusive Act of 1882 was active at that time and most Chinese immigrants were less skilled male labors who worked at railway construction sites. They were highly segregated by both race and economic factors. Second, the coefficients of "Neighborhood Proportion White" and "Asian * Neighborhood Proportion White" are slightly smaller than those in Models II–IV. For instance, the four coefficients of "Neighborhood Proportion Whites" in Model IV are 1.988, 0.861, 2.621, and 3.122, but when race and income sorting are controlled, these coefficients decrease to 1.876, 0.767, 2.443, and 3.032. The sorting of household head race and neighborhood income level thus ostensibly diminishes the effects of racial sorting, and these changes indicate that some of the sorting into whiter neighborhoods

[8] Asian - White segregation in Sacramento is high with high D and medium-high S. Hispanic-White segregation, however, is complicated with medium-high D and low S.

reflects sorting into higher-income neighborhoods. Some of the apparent instances of sorting of Asians from neighborhoods with higher white populations is because Asian people cannot afford to live in white neighborhoods; the correlation between household head race and neighborhood income level is masked by the correlation between household head race and neighborhood white percent. One possible explanation for this result is that assimilated Asians do not evaluate neighborhoods only by their white populations but rather also consider local income levels. However, the effects of controlling the sorting of race and economic variables are small, especially compared to racial sorting, and racial sorting thus plays a determinant role in Asian inclusion in or exclusion from whiter neighborhoods.

When property values and cost are controlled, as Table 17 shows, the direction of the change is inversed. The coefficients of "Neighborhood Proportion White" in Models VIII–X become slightly stronger than the ones in Modes II–IV; for example, the coefficients of "Neighborhood Proportion White" in Model IV are 1.988, 0.861, 2.621, and 3.122, while those in Model X become 2.230, 0.963, 2.716, and 3.344. These changes indicate that racial sorting is more pronounced when assimilated white households take housing values or rent into consideration, and the substantive implication is that when assimilated living with whites appears to be more important.

Latinos' residential sorting mechanism is slightly different from that of the Asian population. When race and income sorting are controlled in Table 18, Models V–VII demonstrate that the relationships between race and neighborhood white percent become weaker. For example, the two significant coefficients of "Latino * Neighborhood Proportion White" in Model IV change from -1.1 and -3.354 to -1.007 and -2.780 in Model VII, respectively, thus potentially indicating that race and income sorting may also play a role in Latinos' residential

sorting and racial sorting alike. The tendency of Latinos to live apart from whites is because their family income levels are often not high enough to sort Latinos into whiter neighborhoods, which tend to have a higher median income. When race and housing values are added in Table 18, however, Models VIII–X demonstrate that some of the coefficients of race sorting at low to medium white percent become stronger and more significant for Latinos. In addition, some of the coefficients of "Latino * Housing Property and Expenditure" are significant and positive. These changes suggest that the apparent tendency of Latinos to live in neighborhoods with higher housing values and rent reflects their residential sorting into whiter neighborhoods, which tend to have higher housing values. For assimilated Latinos, the decision of whether to live in whiter neighborhoods is not the only determinant of residential outcomes.

Residential Contact with Minorities, Controlling for Income or Property Values

Tables 19 and 20 present a similar set of analyses to the last section except that these tables' coefficients denote the tendency of both whites and minorities to avoid Asians or Latinos as neighborhood minority percent increases. In the Asian–White pairwise group, when race and income sorting are controlled, the coefficients in Model VI become insignificant and weaker, which indicates that the sorting of high SES Whites into neighborhoods with lower Asian populations actually reflects the sorting between household race and neighborhood income level. In contrast, the changes in the coefficients of "Asian * Neighborhood Proportion Asian" are similar. Some of the apparent sorting of Asians living in Asian-majority neighborhoods is only partial because Asians tend not to live in high-income neighborhoods in Sacramento. Please note that all coefficients that reflect Asian in-group contact remain high and robust, which indicates that, although the economic sorting can partially explain Asians' tendency of living among other Asians, racial in-group contact still largely determines the Asian–White segregation patterns.

Table 20 presents the models of residential contact with Latinos, with neighborhood income level or housing values and costs controlled. When household race and income sorting is controlled in Models V–VII, all coefficients of race sorting become weaker, especially for Latinos. This pattern indicates that Latinos' in-group contact mostly reflects their sorting into relatively low-income neighborhoods; in comparison with Asians, the in-group inclination among Latinos is weaker. Living with whites instead of other Latinos may not be what Latinos seek when they have resources, and instead, the apparent in-group reflects the fact that economic conditions do not allow Latinos to live in neighborhoods with higher average income levels or housing values.

Table 17: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Whites and Asians in Sacramento, California 1940
(Neighborhood Median Income level or Housing Values are Controlled.)

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Whites Contact with Whites										
20%-40% white	1.943***	1.642***	1.451***	1.988***	1.531***	1.339***	1.876***	1.883***	1.692***	2.230***
	(0.163)	(0.275)	(0.214)	(0.171)	(0.276)	(0.214)	(0.171)	(0.278)	(0.217)	(0.174)
40%-60% white	0.884***	0.556*	0.633***	0.861***	0.461	0.538***	0.767***	0.656**	0.733***	0.963***
	(0.141)	(0.286)	(0.195)	(0.151)	(0.289)	(0.198)	(0.155)	(0.288)	(0.198)	(0.155)
60%-80% white	2.764***	2.476***	2.035***	2.621***	2.297***	1.858***	2.443***	2.569***	2.130***	2.716***
	(0.176)	(0.267)	(0.202)	(0.182)	(0.270)	(0.208)	(0.189)	(0.266)	(0.201)	(0.180)
80%-100%white	3.653***	2.477***	3.864***	3.122***	2.388***	3.776***	3.032***	2.699***	4.086***	3.344***
	(0.203)	(0.287)	(0.220)	(0.208)	(0.293)	(0.230)	(0.218)	(0.290)	(0.224)	(0.212)
Household Head Race * Neighborhood Proportion Whites										
Asian * 20%-40%	-0.902***	-0.691***	-0.820***	-0.893***	-0.691***	-0.820***	-0.893***	-0.309	-0.440**	-0.511***
	(0.166)	(0.234)	(0.165)	(0.165)	(0.234)	(0.164)	(0.165)	(0.261)	(0.201)	(0.201)
Asian * 40%-60%	-1.720***	-1.470***	-1.663***	-1.732***	-1.472***	-1.664***	-1.733***	-1.295***	-1.489***	-1.557***
	(0.159)	(0.242)	(0.160)	(0.155)	(0.242)	(0.160)	(0.155)	(0.267)	(0.194)	(0.188)
Asian * 60%-80%	-2.936***	-2.715***	-2.800***	-3.012***	-2.382***	-2.468***	-2.679***	-2.569***	-2.656***	-2.867***
	(0.129)	(0.198)	(0.129)	(0.130)	(0.200)	(0.132)	(0.133)	(0.206)	(0.139)	(0.139)
Asian * 80%-100%	-6.049***	-5.268***	-6.102***	-6.275***	-3.944***	-4.779***	-4.950***	-4.965***	-5.801***	-5.971***
	(0.132)	(0.183)	(0.137)	(0.142)	(0.206)	(0.172)	(0.177)	(0.197)	(0.154)	(0.157)
Assimilation * Neighborhood Proportion White										
Assimilated * 20%-40% white		0.301	0.587***	-0.185	0.301	0.586***	-0.185	0.301	0.587***	-0.184
		(0.221)	(0.188)	(0.163)	(0.221)	(0.188)	(0.163)	(0.221)	(0.188)	(0.163)
Assimilated * 40%-60% white		0.327	0.305*	0.079	0.327	0.305*	0.079	0.327	0.305*	0.078
		(0.248)	(0.168)	(0.149)	(0.248)	(0.168)	(0.149)	(0.248)	(0.168)	(0.149)
Assimilated * 60%-80% white		0.287	0.851***	0.444***	0.287	0.850***	0.444***	0.287	0.851***	0.446***
		(0.199)	(0.134)	(0.117)	(0.199)	(0.134)	(0.117)	(0.199)	(0.134)	(0.117)
Assimilated * 80%-100% white		1.175***	-0.275***	1.278***	1.175***	-0.276***	1.278***	1.175***	-0.275***	1.279***
		(0.201)	(0.118)	(0.113)	(0.201)	(0.118)	(0.113)	(0.201)	(0.118)	(0.113)
Whites * Median Income										
Medium-Low					0.026	0.026	0.026			
					(0.028)	(0.028)	(0.028)			
Medium-High					-0.277***	-0.277***	-0.277***			
					(0.026)	(0.026)	(0.026)			
High					-0.193***	-0.193***	-0.193***			
					(0.027)	(0.027)	(0.027)			
Household Head Race * Median Income										
Asian * Medium-Low					-1.359***	-1.359***	-1.359***			
					(0.157)	(0.157)	(0.157)			
Asian * Medium-High					-1.165***	-1.165***	-1.165***			
					(0.193)	(0.193)	(0.193)			

Table 17 Continued

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Asian * High					-2.250***	-2.250***	-2.250***			
					(0.251)	(0.251)	(0.251)			
Whites * Property Expenditure & Values										
Medium-Low								-0.165***	-0.165***	-0.165***
								(0.056)	(0.056)	(0.056)
Medium-High								-0.265***	-0.265***	-0.265***
								(0.056)	(0.056)	(0.056)
High								-0.455***	-0.455***	-0.455***
								(0.058)	(0.058)	(0.058)
Household Head race * Property Expenditure & Values										
Asian * Medium-Low								0.122	0.122	0.122
								(0.142)	(0.142)	(0.142)
Asian * Medium-High								-0.259*	-0.259*	-0.259*
								(0.144)	(0.144)	(0.144)
Asian * High								-0.189	-0.189	-0.189
								(0.244)	(0.244)	(0.244)
Neighborhood Proportion Black	-8.846***	-8.846***	-8.846***	-8.846***	-8.537***	-8.537***	-8.537***	-9.936***	-9.936***	-9.936***
	(0.391)	(0.391)	(0.391)	(0.391)	(0.428)	(0.428)	(0.428)	(0.403)	(0.403)	(0.403)
Neighborhood Proportion Hispanics	2.334***	2.334***	2.334***	2.334***	1.956***	1.956***	1.956***	2.199***	2.199***	2.199***
	(0.272)	(0.272)	(0.272)	(0.272)	(0.280)	(0.280)	(0.280)	(0.293)	(0.293)	(0.293)
Neighborhood Proportion Asian	2.885***	2.885***	2.885***	2.885***	2.557***	2.557***	2.557***	3.066***	3.066***	3.066***
	(0.237)	(0.237)	(0.237)	(0.237)	(0.261)	(0.261)	(0.261)	(0.232)	(0.232)	(0.232)

Note: Coefficients are “logit” coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

Table 18: Conditional Logit Regression Assessing Contact with Whites by Different Assimilation Types for Whites and Latinos in Sacramento, California 1940
(Neighborhood Median Income level or Housing Values are Controlled.)

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Whites Contact with Whites										
20%-40% white	1.676***	1.189***	1.060***	1.628***	1.087***	0.958***	1.526***	1.458***	1.330***	1.898***
	(0.163)	(0.390)	(0.290)	(0.177)	(0.391)	(0.289)	(0.178)	(0.393)	(0.293)	(0.182)
40%-60% white	0.502***	0.610*	0.491**	0.492***	0.547	0.428*	0.429***	0.724**	0.609***	0.612***
	(0.143)	(0.337)	(0.216)	(0.154)	(0.339)	(0.219)	(0.158)	(0.339)	(0.219)	(0.158)
60%-80% white	2.333***	2.532***	1.713***	2.110***	2.405***	1.586***	1.982***	2.654***	1.844***	2.241***
	(0.180)	(0.328)	(0.228)	(0.187)	(0.331)	(0.234)	(0.192)	(0.327)	(0.227)	(0.184)
80%-100%white	3.358***	1.608***	3.668***	2.733***	1.565***	3.624***	2.689***	1.863***	3.923***	2.988***
	(0.203)	(0.333)	(0.241)	(0.208)	(0.339)	(0.250)	(0.218)	(0.337)	(0.247)	(0.215)
Household Head Race * Neighborhood Proportion of Whites										
Latino * 20%-40%	-0.291	-0.041	-0.236	-0.263	0.041	-0.236	-0.263	0.750**	0.473**	0.447*
	(0.213)	(0.321)	(0.211)	(0.219)	(0.321)	(0.211)	(0.219)	(0.331)	(0.226)	(0.234)
Latino * 40%-60%	-0.074	-0.151	-0.073	-0.067	-0.152	-0.073	-0.067	0.341	0.418**	0.421**
	(0.176)	(0.287)	(0.175)	(0.180)	(0.287)	(0.175)	(0.180)	(0.293)	(0.185)	(0.190)
Latino * 60%-80%	-1.225***	-1.376***	-1.169***	-1.100***	-1.283***	-1.077***	-1.007***	-0.909***	-0.706***	-0.637**
	(0.153)	(0.257)	(0.153)	(0.157)	(0.260)	(0.157)	(0.161)	(0.258)	(0.155)	(0.160)
Latino * 80%-100%	-3.675***	-2.751***	-3.717***	-3.354***	-2.104***	-3.073***	-2.708***	-2.124***	-3.090***	-2.728***
	(0.147)	(0.230)	(0.147)	(0.152)	(0.248)	(0.176)	(0.180)	(0.236)	(0.157)	(0.163)
Assimilation * Neighborhood Proportion White										
Assimilated * 20%-40% white		0.488	0.713**	0.214	0.488	0.713**	0.214	0.489	0.714**	0.214
		(0.353)	(0.288)	(0.291)	(0.353)	(0.288)	(0.291)	(0.353)	(0.288)	(0.291)
Assimilated * 40%-60% white		-1.106	0.011	0.048	-1.106	0.011	0.048	-1.001	0.013	0.048
		(0.304)	(0.206)	(0.251)	(0.304)	(0.206)	(0.251)	(0.303)	(0.206)	(0.251)
Assimilated * 60%-80% white		-1.196	0.716***	0.808***	-1.196	0.716***	0.808***	-0.187	0.716***	0.808***
		(0.274)	(0.183)	(0.209)	(0.274)	(0.183)	(0.209)	(0.274)	(0.183)	(0.209)
Assimilated * 80%-100% white		1.754***	-0.398**	1.681***	1.754***	-0.398**	1.681***	1.755***	-0.398**	1.681***
		(0.257)	(0.167)	(0.203)	(0.257)	(0.167)	(0.203)	(0.257)	(0.167)	(0.203)
White * Neighborhood Median Income										
Medium-Low					0.009	0.008	0.008			
					(0.027)	(0.027)	(0.027)			
Medium-High					-0.286***	-0.286***	-0.286***			
					(0.025)	(0.025)	(0.025)			
High					-0.197***	-0.197***	-0.197***			
					(0.026)	(0.026)	(0.026)			
Household Head Race * Neighborhood Median Income										
Latino * Medium-Low					-0.235**	-0.231**	-0.234**			
					(0.102)	(0.103)	(0.103)			
Latino * Medium-High					-0.813***	-0.810***	-0.812***			
					(0.142)	(0.143)	(0.142)			

Table 18 Continued

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Latino * High					-1.048***	-1.045***	-1.047***			
					(0.143)	(0.143)	(0.143)			
White * Property Expenditure & Values										
Medium-Low								-0.286***	-0.285***	-0.284***
								(0.056)	(0.056)	(0.056)
Medium-High								-0.365***	-0.364***	-0.363***
								(0.057)	(0.057)	(0.057)
High								-0.548***	-0.548***	-0.546***
								(0.058)	(0.058)	(0.058)
Household Head Race * Property Expenditure & Values										
Latino * Medium-Low								1.068***	1.075***	1.071***
								(0.136)	(0.137)	(0.137)
Latino * Medium-High								0.359**	0.365***	0.360**
								(0.144)	(0.144)	(0.144)
Latino * High								-0.011	-0.004	-0.009
								(0.197)	(0.198)	(0.198)
Neighborhood Proportion Hispanics	3.408***	3.408***	3.408***	3.408***	2.951***	2.951***	2.951***	3.106***	3.106***	3.106***
	(0.266)	(0.266)	(0.266)	(0.266)	(0.271)	(0.271)	(0.271)	(0.285)	(0.285)	(0.285)
Neighborhood Proportion Black	-8.223***	-8.223***	-8.223***	-8.223***	-7.754***	-7.754***	-7.754***	-9.402***	-9.402***	-9.402***
	(0.393)	(0.393)	(0.393)	(0.393)	(0.425)	(0.425)	(0.425)	(0.405)	(0.405)	(0.405)
Neighborhood Proportion Asian	2.255***	2.255***	2.255***	2.255***	1.994***	1.994***	1.994***	2.563***	2.563***	2.563***
	(0.244)	(0.244)	(0.244)	(0.244)	(0.266)	(0.266)	(0.266)	(0.242)	(0.242)	(0.242)

Note: Coefficients are “logit” coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

Table 19: Conditional Logit Regression Assessing Contact with Asians by Different Assimilation Types for Whites and Asians in Sacramento, California 1940 (Neighborhood Median Income level or Housing Values are Controlled.)

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Whites Contact with Asians										
20%-40% Asian	0.104	0.750***	-0.928***	0.626***	0.786***	-0.891***	0.662***	0.538***	-1.139***	0.415***
	(0.092)	(0.208)	(0.121)	(0.096)	(0.206)	(0.121)	(0.095)	(0.210)	(0.126)	(0.099)
40%-60% Asian	-0.168***	0.987***	-0.212***	0.357*	1.147***	-0.053	0.517***	0.548	-0.651***	-0.083
	(0.196)	(0.339)	(0.172)	(0.206)	(0.340)	(0.224)	(0.209)	(0.348)	(0.231)	(0.219)
60%-80% Asian	-0.695***	0.076	-0.859***	-0.213	0.262	-0.674	-0.027	-0.649*	-1.581***	-0.938***
	(0.257)	(0.195)	(0.268)	(0.264)	(0.314)	(0.273)	(0.268)	(0.334)	(0.294)	(0.291)
Household Head Race * Neighborhood Proportion of Asian										
Asian * 20%-40%	3.502***	3.063***	3.680***	3.683***	1.22***	1.842***	1.846***	2.885***	3.501***	3.502***
	(0.093)	(0.106)	(0.101)	(0.105)	(0.163)	(0.116)	(0.121)	(0.171)	(0.121)	(0.124)
Asian * 40%-60%	4.965***	4.119***	4.972***	5.142***	2.286***	3.135***	3.305***	3.743***	4.595***	4.762***
	(0.169)	(0.279)	(0.169)	(0.172)	(0.283)	(0.179)	(0.182)	(0.294)	(0.195)	(0.198)
Asian * 60%-80%	5.729***	5.222***	5.774***	5.871***	3.387***	3.939***	4.036***	4.852***	5.402***	5.497***
	(0.153)	(0.196)	(0.155)	(0.157)	(0.201)	(0.165)	(0.168)	(0.216)	(0.182)	(0.184)
Assimilation * Neighborhood Proportion Asian										
Assimilated * 20%-40% Asian		-0.646***	1.222***	-1.293***	-0.646***	1.222***	-1.293***	-0.646***	1.222***	-1.293***
		(0.184)	(0.099)	(0.775)	(0.184)	(0.099)	(0.775)	(0.184)	(0.099)	(0.775)
Assimilated * 40%-60% Asian		-1.155***	0.556	-1.299***	-1.155***	0.556	-1.299***	-1.155***	0.556	-1.299***
		(0.275)	(0.177)	(0.165)	(0.275)	(0.177)	(0.165)	(0.275)	(0.177)	(0.165)
Assimilated * 60%-80% Asian		-0.735***	0.255**	-1.027***	-0.735***	0.255**	-1.027***	-0.735***	0.255**	-1.027***
		(0.174)	(0.128)	(0.127)	(0.174)	(0.128)	(0.127)	(0.174)	(0.128)	(0.127)
White * Median Income										
Medium-Low					0.011	0.011	0.011			
					(0.030)	(0.030)	(0.030)			
Medium-High					-0.275***	-0.275***	-0.275***			
					(0.029)	(0.029)	(0.029)			
High					-0.231***	-0.231***	-0.231***			
					(0.030)	(0.030)	(0.030)			
Household Head Race * Median Income										
Asian * Medium-Low					-2.014***	-2.014***	-2.014***			
					(0.159)	(0.159)	(0.159)			
Asian * Medium-High					-2.309***	-2.309***	-2.309***			
					(0.163)	(0.163)	(0.163)			
Asian * High					-3.394***	-3.394***	-3.394***			
					(0.229)	(0.229)	(0.229)			
White * Property Expenditure and Values										
Medium-Low								0.120***	0.121***	0.120***
								(0.046)	(0.045)	(0.046)

Table 19 Continued

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Medium-High								0.048	0.049	0.048
								(0.046)	(0.046)	(0.046)
High								-0.142***	-0.140***	-0.142***
								(0.049)	(0.049)	(0.049)
Household Head Race * Property Expenditure and Values										
Asian * Medium-Low								0.176	0.177	0.176
								(0.146)	(0.146)	(0.146)
Asian * Medium-High								-0.168	-0.167	-0.168
								(0.153)	(0.153)	(0.153)
Asian * High								-0.842***	-0.841***	-0.842***
								(0.246)	(0.246)	(0.246)
Neighborhood Proportion	1.381***	1.381***	1.381***	1.381***	1.791***	1.791***	1.791***	0.465	0.465	0.465
White	(0.372)	(0.372)	(0.372)	(0.372)	(0.313)	(0.313)	(0.313)	(0.333)	(0.333)	(0.333)
Neighborhood Proportion	-7.193***	-7.193***	-7.193***	-7.193***	-0.298	-0.298	-0.298	-9.137***	-9.137***	-9.137***
Black	(0.394)	(0.394)	(0.394)	(0.394)	(0.423)	(0.423)	(0.423)	(0.581)	(0.581)	(0.581)
Neighborhood Proportion	0.165	0.165	0.165	0.165	-6.54***	-6.54***	-6.54***	-1.261***	-1.261***	-1.261***
Latino	(0.408)	(0.408)	(0.408)	(0.408)	(0.510)	(0.510)	(0.510)	(0.471)	(0.471)	(0.471)

Note: Coefficients are “logit” coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

Table 20: Conditional Logit Regression Assessing Contact with Latinos by Different Assimilation Types for Whites and Latinos in Sacramento, California 1940
(Neighborhood Median Income level or Housing Values are Controlled.)

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Household Head Race	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Whites Contact with Latinos										
20%-40% Latino	-1.251*** (0.060)	-0.142 (0.174)	-1.443*** (0.093)	-0.765*** (0.067)	0.007 （0.174）	-1.306*** (0.092)	-0.628*** (0.067)	-0.156 (0.175)	-1.458*** (0.095)	-0.780*** (0.070)
Household Head Race * Neighborhood Proportion Latino										
Latino * 20%-40%	2.795*** (0.093)	2.092*** (0.145)	2.806*** (0.086)	2.495*** (0.088)	1.006*** (0.149)	1.728*** (0.096)	1.418*** (0.099)	1.272*** (0.152)	1.988*** (0.101)	1.677*** (0.104)
Assimilation * Neighborhood Proportion Hispanics										
Assimilated * 20%-40% Latino		-1.107*** (0.163)	0.247*** (0.092)	-1.160*** (0.095)	-1.120*** (0.163)	0.249*** (0.093)	-1.162*** (0.094)	-1.109*** (0.163)	0.248*** (0.092)	-1.160*** (0.094)
White * Median Income Level										
Medium-Low					0.081*** (0.030)	0.081*** (0.030)	0.080*** (0.030)			
Medium-High					-0.182*** (0.029)	-0.182*** (0.029)	-0.182*** (0.029)			
High					-0.129*** (0.030)	-0.129*** (0.030)	-0.129*** (0.030)			
Household Head Race * Median Income Level										
Latino * Medium-Low					-1.202*** (0.085)	-1.202*** (0.085)	-1.201*** (0.085)			
Latino * Medium-High					-2.073*** (0.112)	-2.073*** (0.112)	-2.073*** (0.112)			
Latino * High					-2.309*** (0.112)	-2.309*** (0.112)	-2.308*** (0.112)			
White * Property Values and Expenditure										
Medium-Low								0.234*** (0.055)	0.234*** (0.055)	0.234*** (0.055)
Medium-High								0.146*** (0.055)	0.146*** (0.055)	0.146*** (0.055)
High								-0.004 (0.058)	-0.004 (0.058)	-0.004 (0.058)
Household Head Race * Property Values and Expenditure										
Latino * Medium-Low								-0.098 (0.136)	-0.098 (0.136)	-0.098 (0.136)
Latino * Medium-High								-1.045*** (0.152)	-1.045*** (0.152)	-1.045*** (0.152)
Latino * High								-1.856*** (0.197)	-1.856*** (0.197)	-1.856*** (0.197)

Table 20 Continued

Variable	Model I	Model II (Citizenship)	Model III (Family)	Model IV (Status)	Model V (Citizenship)	Model VI (Family)	Model VII (Status)	Model VIII (Citizenship)	Model IX (Family)	Model X (Status)
Neighborhood Proportion White	1.765*** (0.087)	1.765*** (0.087)	1.765*** (0.087)	1.765*** (0.087)	1.986*** (0.093)	1.987*** (0.093)	1.986*** (0.093)	1.775*** (0.273)	1.775*** (0.273)	1.775*** (0.273)
Neighborhood Proportion Black	-6.781*** (0.394)	-6.781*** (0.394)	-6.781*** (0.394)	-6.781*** (0.394)	-6.609*** (0.394)	-6.606*** (0.394)	-6.609*** (0.394)	-7.367*** (0.398)	-7.367*** (0.398)	-7.367*** (0.398)

Note: Coefficients are “logit” coefficients. Standard errors are reported in parentheses.
*p < 0.01 **p < 0.05 ***p < 0.01

Summary

In this chapter, I extend the analyses by controlling neighborhood economic variables and compare the coefficients of race sorting before and after the economic variables are controlled. After controlling for economic sorting, the effects of race sorting still persist in most cases, even though economic factors diminish these effects, thus supporting the idea that, in addition to non-racial factors, racial factors played a decisive role in propelling residential outcomes in 1940. This applies strongly to Asians and Whites in Sacramento. What is inconsistent with some contemporary findings is that, compared to Latinos, race sorting is more descriptive of Asians' or Whites' in-group contact or out-group aversion; whites hardly live in neighborhoods with large minority populations not just because these neighborhoods tend to be relatively low-income but also because of their aversion to large proportions of minorities in neighborhoods, and Asians tend to live with their own group, even when they have the resources to live in whiter neighborhoods, due to various reasons, including historical context and institutional exclusion.

The racial proxy hypothesis applies to Latinos more strongly, which is consistent with many contemporary findings. Latinos are more likely to be sorted into neighborhoods by economic factors (e.g., median income) than merely by race.

CHAPTER IX

CONCLUSIONS

Overview

In this dissertation, my goals have been to use conditional logit models to provide more comprehensive and rigorous estimations of segregation theories. I investigate how individual characteristics relative to the attributes of potential neighborhoods contribute to sorting individuals into these neighborhoods, and I use the results to find implications for segregation dynamics. I have stated the advantages of conditional logit models in Chapter IV, among which is that neighborhood attributes and individual characteristics are independent variables. Neighborhood attributes and their interactions with individual characteristics influence whether an individual lives in a particular neighborhood among a set of choices, and therefore, more than one neighborhood attribute can be used to estimate residential sorting. Another advantage of the conditional logit models is that they consider the marginal distribution of the attributes of potential neighborhoods; the neighborhood of residence of each individual is a relative outcome of the options available. When confronted by a fixed distribution of neighborhoods that an individual would consider, the estimates could be more accurate.

In addition to these methods, I have also explained the benefits of using the restricted 100% count historical IPUMS files as the data source of the study. The advantages of using this source include the following: first, the data is appropriate for testing some classic segregation theories established in the early 20th century; second, the data has rich micro information that can be aggregated to form summary files; and third, it provides opportunities to study cities in-depth to gain detailed and comprehensive understanding to residential sorting at a micro-level.

I accomplished these objectives by studying two cities in depth that I chose to represent areas with differing demographics and segregation patterns. Sacramento has a significant Asian population, who appears to be the most segregated group in the city. Latinos are the second-largest minority group in Sacramento and are less segregated than Asians. The largest minority group in San Antonio is Hispanics, who account for about 30% of the total population. I mainly study Latinos, Asians, white immigrants, and US-born white people; I do not study African Americans in this dissertation because their residential outcomes were largely manipulated by strict segregation regulations (e.g., Jim Crow laws in American South) and their historical racial relationships with white people (e.g., slavery), which diminish the effects of social-economic conditions on residential attainments. However, I will conduct a separate study specifically on African Americans in the future.

In Chapter VI, I present the results of conditional logit model of residential contact with whites in San Antonio and Sacramento, respectively. By examining the relationship between household head race and neighborhood proportion of whites by different assimilation types, I am able to estimate the group difference in performing spatial assimilation; in particular, I can test if whites have a better capability of converting assimilative factors to closer residential proximity to other whites. I then extend the analyses to estimating minorities' in-group contact and whites' aversion to out-group members in Chapter VII. The objective of this latter chapter is to find evidence that in-group contact and out-group aversion can spur two racial and ethnic groups to live apart. I then further refine race sorting by controlling neighborhood economic variables, and by comparing the coefficients of race sorting before and after the economic variables are controlled, I distinguish whether race sorting or economic sorting plays a more important role in

guiding residential attainments, which could serve as implications for the racial proxy hypothesis.

Substantive Findings

The answer to the primary question proposed for this dissertation—what theoretical perspective better explains the segregation patterns in the US—is likely to be complicated and varies across different ecological contexts. Nevertheless, some facts are compatible with social distance and preference perspective; this theoretical line posits that individual residential preference establish and sustain macro-level segregation. The large gap in groups' preference for neighborhood racial composition promotes groups to live apart, in particular, polarized displacement. For example, in San Antonio, Latinos want to live in neighborhoods that are mixed with at least 50% of their own group, while whites tend to live in neighborhoods with small proportions of minorities (i.e. 80% to 100% White). This is supported by the residential outcomes of high-status Whites and minorities. The second most likely residential outcomes tend to be the ones with greater levels of in-group contact. This is supported by the residential outcomes of unassimilated Whites and minorities. Although this set of preferences superficially indicates that minorities are more tolerant of out-group contact than whites are, that does not necessarily lead to residential integration as defined by demographers but, if realized, would instead produce a substantial level of segregation (Clark 1991; 1992, Fossett 2006). In particular, San Antonio is a city in which about 30% of the total population was Hispanic in 1940; its white–Latino segregation was medium-high, with D about 60 and S equal to about 40, indicating that Latinos are not only disproportionately underrepresented in most neighborhoods but also are spatially separated from Whites. From the population distribution map, the Latino barrios are clearly visible. Among the empirical results, the conditional logit coefficients reveal that whites

are the most likely to live in neighborhoods that are 0–40% Latino largely because low-status and unassimilated Whites view this racial composition acceptable and some high-status Latinos are able to enter the predominantly white neighborhoods as "pioneers." Such phenomena can serve as evidence of promoting integration, which is defined as a situation in which all neighborhoods have a racial composition that reflects the city's racial mix. When high-status Latinos are willing to live in predominantly white neighborhoods, their entry may increase the Latino population of these neighborhoods to about 20%. That is why segregation indices in San Antonio are medium-high. However, White–Latino segregation still persists because, when Latinos do not have enough resources to select their neighborhoods while Whites do, both groups tend to live with their own groups. The evidence for these trends includes the following: Whites do not live in neighborhoods where Latinos tend to be the majority, high-status whites tend to avoid all Latinos, Latinos are inclined to live with one another, and high-status Latinos are more dispersed. Because Whites, on average, have higher incomes than Latinos have in San Antonio, more Whites have social and economic resources to choose their desired neighborhoods: the ones with substantial white populations. Therefore, the huge gap in in-group contact and social distance generated by group differences in social resources explains the segregation patterns in San Antonio measured as high D and medium-high S.

Housing discrimination was virulent in the early twentieth century. Although it is not possible to directly measure discriminatory practice, certain findings indirectly support this discrimination perspective. For example, in San Antonio, assimilated European immigrants are more likely to live in predominantly white neighborhoods than assimilated Latinos do. This can be attributed to the fact that Latinos voluntarily live in a neighborhood where Latino presence is not extremely low or the fact that Latinos' chances of entering a predominantly white

neighborhood are constrained by some unobserved discriminatory practices. If the latter is true, then this is supportive of the discrimination perspective. However, some evidence might undermine the discrimination perspective. In a conventional framework, discrimination refers to exclusive practices operated by whites to stop minorities from entering white neighborhoods. This perspective is compelling to explain high majority-minority segregation yet has a limited prediction of whether minority groups would live together. The segregation indices for the two cities document that minorities groups live apart from each other in both cities. In addition, if the discrimination perspective is true, one extreme case would be that all predominantly white neighborhoods block minorities' entry. The study, however, does not show such evidence. For example, in San Antonio, some high-status Latinos successfully settle in white neighborhoods as "pioneers". That means not all white neighborhoods implement discriminatory practices. Therefore, it is too bold to say that discriminatory and exclusive practice causes segregation. Based upon the evidence shown in this dissertation, both discrimination and preference dynamics cause residential segregation. Discrimination, however, does not necessary leads to polarized displacement as racial/ethnic enclaves but actually impedes segregation levels decline to even distribution. In other words, if we measure segregation by using both D and S, the potential discordances of the two indices may help us separate the effect of preference and discrimination on segregation patterns more efficiently.

Moreover, if the theoretical discussion goes beyond the conventional paradigm, asking whether or not race overall plays a more important role than class in determining segregation, the answer would be "Yes." Based on the results of the estimation of racial proxy hypothesis, race sorting appears to be robust and strong. Although some apparent race sorting is attributed to the gap in income between Whites and minorities, race sorting remains strong and robust after

controlling for class sorting. More importantly, when people take housing values or rent into account, race sorting becomes even more pronounced. Evidence obtained from both San Antonio and Sacramento is consistent with this argument. Generally speaking, we see it is strong race sorting combined with the economic sorting that account for most of the racial gap in residential outcomes, which is consistent with the contemporary findings.

During the debate over the theoretical perspective that best explains segregation patterns, we cannot overlook the variations among different ecological contexts. For example, in Sacramento, Asian–white segregation was also high, with high D and medium-high S. However, the segregation patterns might not be explained the same way as in San Antonio; the high D and medium-high S are indicative of disproportionate underrepresentation of Asians across the neighborhoods in Sacramento, thus demonstrating that Asians and whites tended to live separately and that there were few neighborhoods with mixed racial compositions for either group to choose to promote integration. Segregation between Asian and whites is largely attributed both to preference and social distance dynamics as well as discrimination, and because high-status whites have a stronger aversion to Asian presence in a given neighborhood, group differences in social resources and characteristics would exaggerate the effects of racial preference and discrimination on the existing segregation levels.

Of special note is Latino–white segregation in Sacramento. As the second-largest minority group, Latinos are disproportionately underrepresented across the neighborhoods. Though they are not quite excluded by whites, according to the results from the racial proxy hypothesis, Latinos' residential outcomes are largely due to economic sorting. In other words, when Latinos who live in Sacramento have sufficient resources to select neighborhoods, the desired neighborhoods should be compatible with their economic capability; living with whites is

neither the sole nor the primary purpose in the housing search process. Further evidence to support whether whites would be reluctant to live with Latinos as its population size gets noticeable is currently lacking, but based on the results that this dissertation presents, increasing the affluence of Latinos may promote residential integration in Sacramento.

Therefore, the next argument would be if spatial assimilation would promote integration, but this argument is contingent upon several assumptions. First, some of my findings are supportive of spatial assimilation. For instance, in San Antonio, the group differences between whites and Latinos of social and economic characteristics are partially attributed to white–Latino segregation. Latinos' gains in socioeconomic status promote them to leave predominantly Latino neighborhoods and live in a whiter one, which might be reflected as a lower S. However, that does not necessarily lead to even distribution as expected by the spatial assimilation theory. In other words, increasing the affluence level of minorities will not ultimately lead to even distribution, especially when city-wide racial composition is taken into account. If minorities tend to live in a mixed neighborhood, as shown in the dissertation, then uneven distribution would persist at some levels, even if the gap in economic resources is largely reduced.

In addition, the analyses of detailed groups, however, reveal that the rate of returns that different groups get on assimilative factors are not unified. Socioeconomic status and citizenship have a larger effect on spatial assimilation for foreign-born groups than their native-born counterparts. However, family structure has a trivial effect on spatial assimilation in many cases. European immigrants tend to have a higher rate of returns. Therefore, the results of testing spatial assimilation theory are twofold. Spatial assimilation would reduce polarized displacement and uneven distribution. However, it does not necessarily promote integration because we cannot overlook the effects of preference and social distance dynamics.

Methodological Conclusions

The conditional logit model, as a subset of discrete choice models, provides an alternative approach to study micro-level residential outcomes that may have implications for aggregate-level segregation patterns. There are multiple approaches to specify models for different research focuses: to study the effects of neighborhood attributes on residential outcomes, researchers can exclude individual characteristics, and to test how neighborhood attributes perform differently across groups, researchers can examine interactions between the attributes and individual characteristics. Each approach requires the same data structure, though the latter approach is usually more time-consuming.

This method also has several disadvantages. First, conditional logit models do not return interpretable coefficients when a group is overwhelmingly concentrated within a handful of neighborhoods, and when estimating, Stata may return extremely large coefficients, or in most cases, the models were not concave. Many factors may cause this issue, but my understanding is that, when cases are not diverse in terms of some characteristics defined within a model, the outcome will not significantly change relative to the distribution of neighborhood attributes. The model estimation algorithms can then encounter difficult problems and fail to reach a solution. In addition, the model has a greater complexity of estimation and interpretation. For a medium-sized city such as San Antonio or Sacramento, several hours are required to run all models. The time-consuming nature of exploratory analyses further limits researchers' abilities to test different model specifications.

Limitations

No study is exempt from limitations. Although I used a newly-popularized method and restricted historical data and endeavored to conduct a more rigorous investigation of segregation

theories, there are limitations worth mentioning that hinder the ability to answer more sophisticated questions. One such limitation is that this study utilizes 1940 100% IPUMS files as the data source; although it is appropriate to test segregation theories established before 1965, the results based upon the 1940 census may not have direct implications for contemporary demographics. Many social-economic conditions and immigration rules have changed over the past 80 years; for example, Asians were one of the most segregated minority groups in 1940 because of many demographic and institutional factors. In the 2010s, however, Asians were among the least segregated racial and ethnic minorities in the US. The theoretical implications obtained from the results of Asians in 1940 cannot be directly used to explain Asian–white segregation in the 2010s or even 2020s without a proper assumption. However, they can explain segregation patterns in a broader scope and identify similar residential choices among highly segregated groups.

A second limitation is that the estimated coefficients are not directly associated with segregation scores. Over the years, sociologists and demographers have attempted to link individual characteristics to aggregate segregation scores. With this approach, we can estimate how variations among individual characteristics affect aggregate-level segregation dynamics. Fossett (2017) accomplished one landmark of this task and applied this to empirical studies (Crowell and Fossett 2018). Although the conditional logit model can incorporate the multiple dimensions of neighborhoods and estimate curvilinear relationships between neighborhood characteristics and the likelihood of a household's location in certain neighborhoods, this method does not provide a quantitative approach to link coefficients to aggregate-level segregation patterns. Coefficients of conditional logit models in residential attainment studies represent a general tendency of selecting neighborhoods as its attributes change; for instance, the

coefficients decline from a positive number down to. However, such implications are fairly crude, and researchers must be careful to draw strong conclusions.

Further Studies

Future studies can address the limitations mentioned in the previous section. The dissertation only examines the effects of the circumstances in the year 1940, and because demographics and immigration laws change substantially over time, studying how residential segregation patterns transit over multiple decades would be highly informative and necessary to answer questions about what causes segregation or what promotes integration. Therefore, I will expand on this study further by introducing restricted 100% IPUMS files from 1930 or more contemporary micro-level data, such as the restricted IPUMS files from the 2020s.

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