New Urban Structural Change and Racial and Ethnic Inequality in Wages, Homeownership, and Health

by

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Dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in the Department of Sociology
in the Graduate School of Duke University
2013

Abstract

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Abstract

In 2010, approximately 84% of the American population lives in a metropolitan area (Wilson et al. 2012). Different metropolitan areas are characterized by distinct labor markets and economies (McCall 2001a; Sassen 1990), housing markets and residential patterns (Flippen 2010; Massey and Denton 1993), socioeconomic and demographic factors (Mellor and Milyo 2002; Frey and DeVol 2000), and according to some, even distinct 'spirits' (Bell and de Shalit 2011; Florida 2002). The nature and influence of such structural factors lie at the heart of urban sociology, and have particularly profound effects on patterns of racial and ethnic stratification (Massey and Denton 1993; McCall 2001a; O'Connor 2001b; Sugrue 1996; Wilson 1987, 2009). This dissertation examines new urban structural changes arising within recent decades, and their implications for racial/ethnic stratification. Specifically, I study the transition to the 'new economy' and racial/ethnic wage inequality; increases in the level and inequality of housing prices and racial/ethnic stratification in homeownership; and increased income inequality, combined with population aging, and racial/ethnic disparities in disability and poor health. I measure metropolitan-level structural factors and racial/ethnic inequalities with data from 5% samples of the 1980, 1990, and 2000 Censuses; the 2010 American Community Survey (ACS); and the 1999–2001 and 2009–2011 Current Population Surveys (CPS). Cross-sectional multilevel regression models examine the spatial distributions of structural factors and racial/ethnic inequality, and the fixed-effects regression models identify the impact of changes in

structural factors over time on observed trends in racial stratification. Additionally, I distinguish between effects on minority-white *gaps* in resource access, and minorities' *levels* of resource access. This dissertation also makes novel contributions to the field by empirically documenting complex patterns of inequalities among the country's four largest racial and ethnic groups. Perhaps most relevant to theories of racial stratification, this dissertation demonstrates seemingly race-neutral structural changes can have racially stratified effects.

Chapter 1 describes the foundational literature in urban sociology and racial/ethnic stratification, and provides an overview of the subsequent chapters. Chapter 2 measures the transition to the 'new economy' with six structural factors of labor markets: skill-biased technological change, financialization, the rise of the creative class, employment casualization, immigration, and deunionization. Overall, the results indicate the observed Latino-white wage gap may be up to 40% larger in 2010 than in the theoretical absence of the new economy, and the black-white wage gap may be up to 31% larger. Chapter 3 focuses on the long-term trend toward higher and more unequally distributed home prices within local housing markets, epitomized by the housing crisis of the late 2000s. Increases in housing market inequality worsen the Asian-white homeownership gap, but narrow the black-white and Latino-white gaps. However, the level of homeownership is reduced for all groups. Chapter 4 empirically tests the frequently-debated Income Inequality Hypothesis, that macro-level income inequality undermines population health, and hypothesizes any negative effect on health is stronger in areas with greater population aging. The results provide no support for the Income Inequality Hypothesis or any of its proposed extensions, but the chapter's analytic approach may be fruitfully applied to future examinations of structural determinants of health. The theoretical and substantive conclusion of the dissertation is that metropolitan areas represent salient, and changing structural contexts that significantly shape patterns racial/ethnic stratification in America.

Dedication

To my family: Michael, Pamela, and Jesse Finnigan. Their unending faith and support made this dissertation and so many other things possible.

And to my mother. Ely Finnigan inspired my sociological imagination long before I knew it by name.

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1

Introduction

Dating back to at least the Chicago School of the 1920s and 30s, sociology has maintained an enduring interest in the modern American metropolis as a distinct human environment, with salient influences on its residents' life chances (Short 1971; Small and Newman 2001). The social and economic dynamics within cities create and maintain local markets and communities that are stratified along race and class lines. Cities' labor markets characterize demand for various skills and people, leading to differential opportunities for workers with different characteristics (McCall 2001a). Meanwhile, local neighborhoods and their related housing markets create a spatial distribution of (dis)advantage, and geographically stratify access to opportunities and resources (Logan 1978, 1987; Massey and Denton 1993). Much of the literature in urban inequality has focused on the effects of context or broad changes in urban areas. Many studies, for example, examine the effects of industrial restructuring or racial residential segregation on the concentration of poverty among inner-city minorities, blacks in particular (Massey 1990; Massey and Denton 1993; O'Connor 2001a; Tomaskovic-Devey 1991; Wilson 1987, 1996). One of the compelling contributions of such literatures has been to emphasize the salience of structural changes

for urban life. More specifically, such studies have highlighted the role of macro-level social and economic factors on urban inequalities.

Despite the continued relevance of extant literatures, new structural changes have emerged in recent decades. First, the rise of the new economy, frequently characterized by the transition to an information and service economy, as well as the polarization of job quality, has occurs alongside increasingly complex patterns of racial/ethnic wage inequality (Florida 2002; Leicht 2008; McCall 2001a). Second, housing markets are substantially more unequal than any other time in the post-World War II era given the rising level and spread of home prices (Glaeser et al. 2005; Shiller 2005). Third, unprecedented levels of economic inequality may have implications for population health, and potentially in combination with combined with the rapidly increasing population of older adults (Kawachi and Kennedy 2002; Wilkinson and Pickett 2006, 2009b).

Empirical examinations of structural effects on racial and ethnic inequalities are far from rare in sociology. Many studies have highlighted the effects of residential segregation, declining manufacturing employment, occupational segregation, and concentrated poverty on racial and ethnic disadvantage in a variety of domains. However, the literature necessarily lags behind social changes and many of the newly emerging urban structural changes described above have received less attention. When studied, there has especially been a neglect of investigation into what these structural changes mean for racial/ethnic stratification. Though these structural changes might appear race-neutral in their origin, they potentially have racially/ethnically-stratified impacts with implications for longstanding disparities. Finally, this dissertation supplies a distinctively longitudinal focus on how structural changes shape urban racial inequalities. As will be detailed below, the existing urban inequalities literature has provided comparatively little attention to the effects of changes in structural conditions over time in large-scale empirical studies.

Each of the dissertation's empirical chapters examine trends in three traditionally salient outcomes in research on racial and ethnic stratification: wage inequalities, homeownership gaps, and health disparities. Yet, this dissertation scrutinizes what the three new structural changes mean for these well-studied urban inequalities. The primary research questions for the dissertation's three empirical chapters are:

1. How do labor market changes associated with the 'new economy' contribute to racial/ethnic wage inequality?

2. How does growth in the level and dispersion of local house prices affect racial and ethnic gaps in homeownership?

3. What are the implications of increasing income inequality for racial and ethnic health disparities? How might any relationship vary among aging populations?

This examination of new urban inequalities and racial/ethnic stratification makes multiple contributions. This dissertation updates the literature by documenting and describing several recent changes in urban social, demographic, and economic structures. This study contributes to a more sociological understanding of how the structural contexts in which individuals and households are embedded affect long-standing racial/ethnic inequalities. The dissertation focuses on changes over time within local urban areas, and their dynamic relationships to trends in racial and ethnic disparities. The project also examines Latino and Asian inequalities, reflecting the increasingly complex and multi-ethnic nature of the American racial stratification system. Finally and perhaps most relevantly, this study explores the extent to which there is an overall trend toward increasing racial and ethnic stratification due to seemingly non-racialized structural changes. Potentially, this study can illuminate the deep connections between the social construction of racial/ethnic categorization, and the relegation of minority groups to disadvantaged and vulnerable positions within urban social and economic structures (Bonilla-Silva 1997; Winant 2000).

The dissertation evaluates these research questions using data primarily from

the micro-data samples of the 1980 to 2000 decennial Censuses, the 2010 American Community Survey (ACS), and the 1999–2001 and 2009–2011 waves of the March Current Population Survey (CPS). All data are accessed through the Integrated Public Use Micro-Data Series at the University of Minnesota (King et al. 2010; Ruggles et al. 2010). These data include relevant demographic and socioeconomic information for individuals and households, and metropolitan statistical area (MSA) identifiers allow for estimation of relevant contextual variables, including housing and labor market characteristics over time. This procedure results in a cross-classified data structure, with individuals or households nested within MSAs and years. I then estimate the relationship between the racial/ethnic disparities in question and changes in local demographic and economic contexts using a variety of regression models.

The next section of the introductory chapter discusses relevant literature that serves as a foundation for the present study. The discussion also identifies gaps in previous research to highlight the project's relevance. The following section describes the theoretical framework for the dissertation, including conceptual models depicting the relationships between structural and individual factors, and racial/ethnic inequalities. The final sections provide an overview of the dissertation's empirical chapters, and their findings.

1.1 Foundational Literature on Urban Inequalities

Traditionally, the study of urban inequality has been oriented around race and class stratification. Large, influential bodies of research examine the effects of deindustrialization and racial residential segregation on the concentration of poverty among inner-city black neighborhoods, as well as a host of related racial disparities (Massey and Denton 1993; Small and Newman 2001; Wilson 2009). Such macro-level forces have enduring relevance for urban inequalities and racial stratification

today, and studies documenting their effects contribute to a well-developed theoretical framework of urban decline (Sampson 2009; Sugrue 1996; Wilson 1996). I summarize classic work in this area to motivate my conceptual model for the newly emerging structural changes shaping urban inequalities as described in the next section.

The widespread deindustrialization of the Rust Belt is one of the cornerstones of sociology's understanding of "modern" urban inequality (Bluestone and Harrison 1982; Kasarda 1995). This transformation, which started as early as the 50s in heavily industrialized cities like Detroit (Sugrue 1996), peaked in the late 1970s and 1980s. The decline of manufacturing employment and transition to a service economy, along with the diminishment of labor unions, led to substantially lower wages and fewer employment opportunities for the working class (Morris and Western 1999; Western 1997). Downward mobility had enormous ramifications for the social and geographic distribution of disadvantage in American cities. As manufacturing in industrial cities declined, many production centers moved either into suburban areas or outside of the metropolitan area entirely. Meanwhile, service jobs moved into the cores of metropolitan areas (Katz 2001). These jobs came from the expansion of service sector areas like finance, health care, technology, and hospitality (Flynn 2007). Such jobs were unsuitable replacements for the relatively high-wage factory employment available to less-educated workers. The resulting spillover effects increased inner-city poverty (Brady and Wallace 2001).

The deindustrialization of local metropolitan labor markets also had profound social and economic implications for racial inequalities in urban America. In large part, this was because deindustrialization interacted with severe and persistent racial residential segregation (Massey and Fischer 2000). Explanations for this relationship include the closely related spatial and skills mismatch hypotheses (Ihlanfeldt and Sjoquist 1998; Kain 1968, 1992; Kasarda 1995; Kasarda and Ting 1996). The

spatial mismatch hypothesis posits that the geographic shift of employment opportunities away from segregated, predominantly black inner-city neighborhoods represents a structural barrier to black employment. Racial segregation limits black workers' proximity and access to the remaining lower-skill, higher-wage employment in metropolitan suburbs. Meanwhile, the skills mismatch hypothesis holds that high education and high skill requirements limit black workers' employment opportunities among the growing service sector in metropolitan core. These mismatches lead to inner city labor markets characterized by insecure, low-skill and low-wage service jobs (Kasarda 1995; Mouw 2000). At the same time, the expansion of high skill occupations and higher employment growth in suburbs than in cities' cores worsened the relative labor market position of many black workers (Kasarda 1995).

The racially disparate effect of urban deindustrialization intensified the geographic concentration of poverty among inner city black neighborhoods (Jargowsky 1997; Quillian 1999). However, fervent debate surrounds the extent of the social consequences of the economic transformation of American cities. Following Wilson's (1987; 1996; 2009) influential paradigm, a vast literature has examined the deleterious effects of living in high poverty areas. The experience of chronic poverty, family dissolution, incarceration, scarce employment and educational opportunities, and even the intergenerational transmission of poverty are all frequently examined outcomes (Small and Newman 2001). Wilson argues that a new form of "ghetto" poverty arose following deindustrialization in the 1970s. The shift to high-skill service jobs in the inner city created high unemployment and plummeting wages among the working class. The less vulnerable black middle class moved closer to the growing employment opportunities of the suburbs (Pattillo 2005). The already hard hit working-class black households remained trapped in neighborhoods stripped of their socioeconomic resources as a result, with few opportunities to pull them out.

Other related bodies of literature examine the same relationships between local

structural forces and racially stratified outcomes, but with key distinctions from Wilson's argument. The literature on racial segregation and the concentration of poverty put forth by Massey and colleagues (Massey 1990; Massey et al. 1994; Massey and Denton 1993) is perhaps foremost among these. These studies define dimensions of segregation, and establish a widely used analytical approach for future work (Massey and Fischer 2000; Massey and Denton 1988). The key substantive distinction from the Wilsonian vision of urban inequality is that race and class segregation are the root causes of concentrated poverty and its associated ills. The focus is on residential segregation that is actively created and perpetuated by whites (Massey and Denton 1993).

Historically and contemporaneously, many white households discriminate against non-white households seeking residence in predominantly white neighborhoods. In the pre-Civil Rights era, white neighborhoods banded together to form restrictive covenants, contractual agreements barring the sale of any homes in the neighborhood to black families. Meanwhile, loan companies discriminated against black homebuyers through redlining, the systematic denial of mortgage applications for houses in predominantly black neighborhoods (Massey and Denton 1993). Even continuing in the post-Civil Rights era, white landlords have lied to minority applicants about the availability of vacant rental units (Yinger 1995). Real estate agents consistently lead minority potential homebuyers away from white neighborhoods in a process known as racial steering (Galster 1992). Minority households also suffer from substantially worse mortgage terms and experience less equity accumulation than most white households (Flippen 2004; Krivo and Kaufman 2004).

Aside from the geographic exclusion of black households, segregation is also maintained through the movement of white households. Even small differences in racial groups' preferences for neighborhood composition can create rigid patterns of residential segregation (Clark 1991; Schelling 1971). While blacks express a preference for

racially balanced and integrated neighborhoods, whites tend to prefer mostly white neighbors, with only a few minority households within their neighborhoods (Schuman et al. 1997). As the proportion of black residents in a neighborhood surpasses whites' preferences, "white flight" begins and the neighborhood "tips" from predominantly white to predominantly black (Crowder 2000; Frey 1979). Whites often cite fear of crime and lowered property values for their avoidance of black neighbors (Emerson et al. 2001; Farley et al. 1994), despite black households' higher average socioeconomic status when living in predominantly white neighborhoods (Crowder and South 2005).

Despite the enduring and significant impacts on our understanding of urban inequalities, one could argue that these and related literatures on urban inequality plateaued around the late 1990s and early 2000s. Indeed, the Multi-City Study of Urban Inequality largely epitomizes and exemplifies such scholarship toward the end of the twentieth century. Funded by the Russell Sage and Ford Foundations, an interdisciplinary team of scholars launched the Multi-City Study in the early 1990s in Atlanta, Boston, Detroit, and Los Angeles. Investigators used household and employer surveys to examine how the demographic and economic transformations of these four metropolitan areas contributed to observed patterns of race, class, and gender inequality (O'Connor et al. 2001).

Building upon the findings and methodologies of prior research, the Multi-City Study documents complex patterns of racial attitudes, spatial segregation, discrimination, and economic inequality. The Multi-City Study also reveals complicated relationships among racial preferences, information about local housing and labor markets, socioeconomic status, and patterns of residential segregation. While stereotypes help create and maintain racial segregation, segregated neighborhoods also become geographic signals that are associated with racial stereotypes. For instance, Tilly et al. (2001) analyze interview data with employers to show that local businesses often

move out of inner cities to distance themselves from minority populations. Some employers also discriminate against applicants from predominantly minority areas because they associate them with negative racial stereotypes.

The Multi-City Study's unique combination of household and workplace data also facilitates a more complete analysis of racial disparities at multiple points in the labor market experience. Employer and household data allow for comparison of supply- and demand-side labor market compositions. Results from the Multi-City Study indicate that elements of both the spatial and skills mismatch hypotheses map very well onto racial lines and stereotypes (Holzer and Danziger 2001; Moss and Tilly 2001). This finding supports the argument that the mismatch is not a race-neutral structural change, but a stratification process actively generated by many white employers.

The bodies of literature described above create a deep sociological understanding of urban inequality. Racial disparities are the product of dynamic relationships between individual and broader structural characteristics of the local social and economic environments. Despite debates over various mechanisms, this literature portrays the complex nature of urban structural changes. Deindustrialization, residential segregation, and other structural factors interact with each other to create and maintain the concentration of black poverty in the inner city. Additionally, these studies implicitly, if not explicitly, describe these processes as temporally ordered, with one structural change preceding, and then interacting with the next.

The face of urban inequalities has changed in many ways since the 1990's, however. The following section outlines a conceptual model for examining the effects of newly emerging urban structural changes on racial/ethnic inequalities, contextualized within previously described urban inequalities. It then adapts the general model to the three specific research topics at hand: the evolution of the new economy creating more complex patterns of racial/ethnic wage inequality, rising housing

market inequality and racial/ethnic homeownership gaps, and rising economic inequality affecting health in an aging population. Though some existing literature examines these relationships, they have not been examined with comparable attention to temporal change, or to the pre-existing structural contexts of racial and ethnic stratification.

1.2 New Urban Structural Changes

Economic restructuring was the cornerstone of the transformation of American cities in 1970s and 80s, but many new and understudied structural changes have occurred in the wake of deindustrialization. The rise of the 'new economy' has redistributed the skill requirements and earnings distributions of jobs, with stratified effects on workers of different racial/ethnic groups. The level and dispersion of house prices within local housing markets climbed at an unprecedented rate. Finally, population aging creates an increasingly substantial population of older adults at heightened risk of the potentially deleterious health consequences of soaring economic inequality.

These macro-level shifts may have important implications for the contemporary evolution of racial/ethnic stratification. It is crucial to examine them in the contexts of cities' pre-existing patterns of structural inequality, however. The longstanding social and economic structural factors contributing to urban racial/ethnic inequalities have continued relevance into the present day. Figure 1.1 shows the conceptual model depicting these relationships.

The link between individual- and household-level characteristics and racial/ethnic inequality is perhaps the most readily apparent relationship to consider. Observable demographic and socioeconomic characteristics are generally the first factors included when predicting outcomes like wages (Leicht 2008), homeownership (Haurin et al. 2007), and health (Kawachi and Kennedy 1999; Link and Phelan 1995). Declining

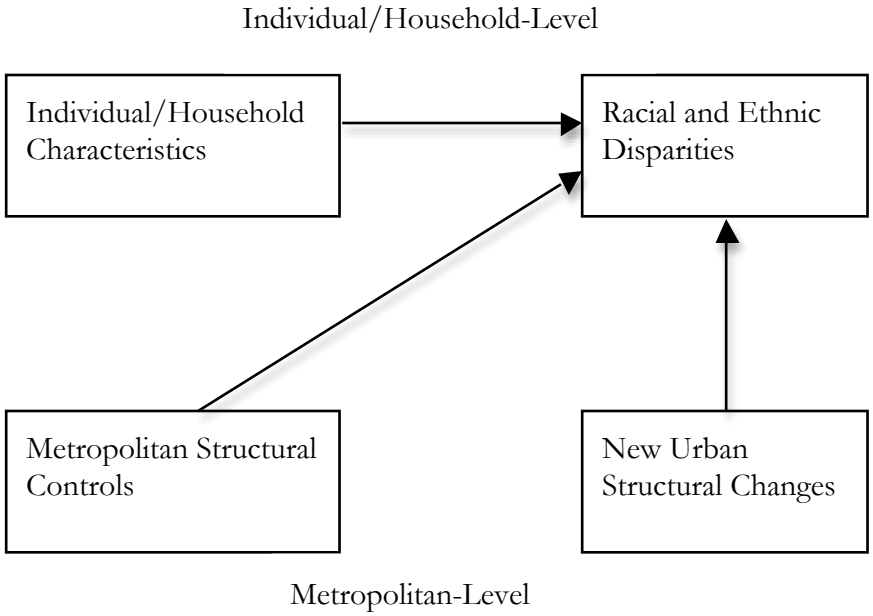

FIGURE 1.1: Conceptual Model Depicting the Relationships Between New Urban Structural Changes and Racial/Ethnic Inequalities.

overt discrimination in the post Civil-Rights Era lead to advances in black educational and occupational opportunities (Waters and Eschbach 1995). These changes in the distribution of individual/household-level resources represent compositional effects on racial/ethnic inequalities over time and between local areas.

The metropolitan-level factors represent contextual effects on racial/ethnic inequalities, once compositional differences have been accounted for. Metropolitan Structural Controls include the enduring effects of the factors described in the previous section, including local demographic composition, racial/ethnic residential segregation, and economic contexts. These factors precede the new urban inequalities that are described in the following sections, but may still have concurrent effects.

The New Urban Structural Changes, such as rising housing prices and the growth of high-skill occupations, also may have direct effects on local racial/ethnic stratification. These factors are considered jointly with prior structural conditions. The

examination of both sets of structural elements accommodates the relationship between earlier and later demographic and economic changes. This also ensures that any apparent effects of new urban inequalities are not actually the continued legacy of previous structural transformations.

The dissertation adapts the conceptual model depicted in Figure 1.1 for three different racially/ethnically stratified outcomes: wages, homeownership, and health.

1.2.1 The New Economy and Racial/Ethnic Stratification in Wages

For over two decades, numerous scholars have studied the relationship between the 'new economy' and various labor market outcomes. However, the new economy lacks a coherent definition as a structural process in the study of social stratification. Research on this broadly defined topic examines a range of structural factors, from financialization (Tomaskovic-Devey and Lin 2011), to creativity (Florida 2002), to precarious labor force attachment (Kalleberg 2009). Meanwhile, recent studies of earnings inequality create a much more complex picture of racial and ethnic wage stratification than previously established (Leicht 2008). Racial and ethnic wage gaps vary considerably between local labor markets with different structural characteristics, patterns of inequality vary for black, Latino, and Asian workers (McCall 2001a,b).

Chapter 2 examines variation in the transition to the new economy between local labor markets over time, and their relation to trends in racial/ethnic wage stratification. I conceptualize the new economy as a general pattern of polarized job quality, with high-quality jobs in skill- and knowledge-based industries at one end, and insecure low-skill and low-wage jobs at the other. Figure 1.2 applies the dissertation's over-arching conceptual model to the chapter's research question. The transition to the new economy is represented by the box in the lower right, and the arrow to racial/ethnic wage inequality represents its effects. The analyses also

condition on the compositional effects of workers' characteristics on wage inequality, and other metropolitan-level characteristics that may be jointly correlated with the new economy and wages.

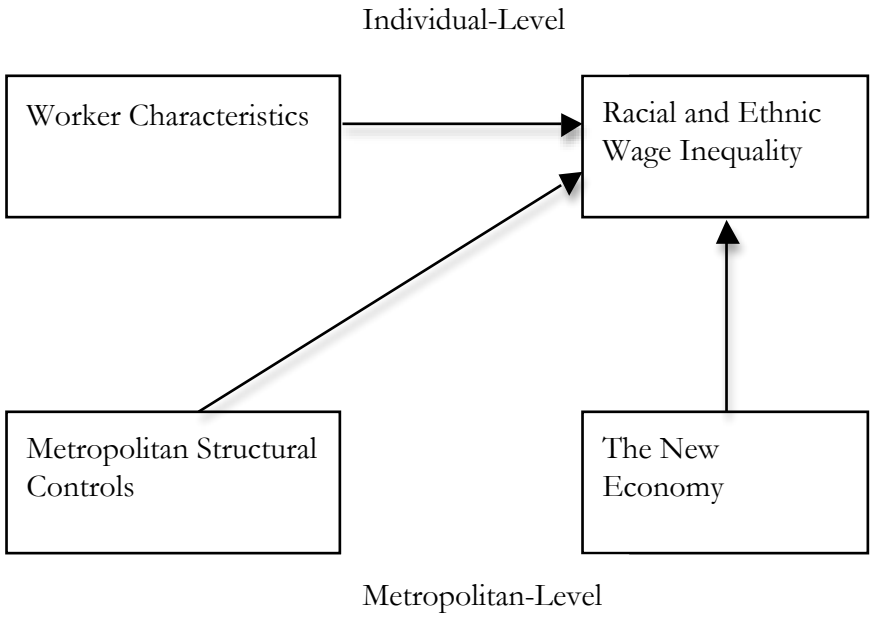

FIGURE 1.2: Conceptual Model Depicting the Relationship Between the New Economy and Racial/Ethnic Wage Inequalities.

Drawing on the political-cultural theory of markets (Fligstein 1996, 2001) and structural theories of racial stratification (Bonilla-Silva 1997, 2001; Feagin 2006; Lipsitz 2006), I argue that the transition to the new economy reproduces long-standing racial/ethnic wage gaps. Larger and incumbent firms use their initial advantages, and regulation by the state, to dictate the power structure in emerging markets and during market transitions. This process tends to reproduce these firms' advantaged structural positions and associated logics of action (Fligstein 1996, 2001). However, incumbent market actors' logics of operation are embedded within structures of racial/ethnic stratification (Bonilla-Silva 1997; Feagin 2006; Lipsitz 2006). Thus, the reproduction of advantage by market actors reinforces racial and ethnic labor

market inequalities.

Overall, the results support this theoretical argument. Regression results find complex patterns of relationships among the different labor market variables measuring the new economy, and the different minority-white wage gaps. Counterfactual simulations estimate the Latino-white wage gap is up to 40% larger in 2010 under observed labor market conditions than in the theoretical absence of the new economy, and black-white gaps are up to 31% larger. There is relatively little impact of the new economy on Asian-white wage differences, however. Altogether, the chapter's empirical results support the theoretical argument that seemingly non-racialized structural changes can profoundly influence observed patterns of inequality.

1.2.2 Racial/Ethnic Stratification in Homeownership and Housing Market Dynamics

The housing crisis of the late 2000s, and ensuing wave of home foreclosures, dramatically highlights the salience of housing market inequality for racial and ethnic stratification in homeownership. However, housing prices have steadily become higher and more unequally distributed for decades (Glaeser et al. 2005; Shiller 2005). Existing research on racial/ethnic homeownership gaps has recently documented an array of relevant structural factors maintaing or ameliorating these gaps (Flippen 2001, 2010; Lee and Myers 2003; Myers et al. 2005), but a thorough examination of rising housing market inequality and long-term trends in homeownership stratification is notably absent.

Figure 1.3 adapts the dissertation's over-arching conceptual model to explicitly depict the relationships among these sets of structural factors and racial/ethnic homeownership gaps. The new urban structural change this chapter analyzes is rising housing market inequality. Specifically, the chapter examines the distinct effects of a) the rising level of local housing prices, and b) the inequality of housing prices

within local housing markets. Again, the analyses estimate these relationships to homeownership stratification conditional on relevant household and contextual characteristics established in previous literature.

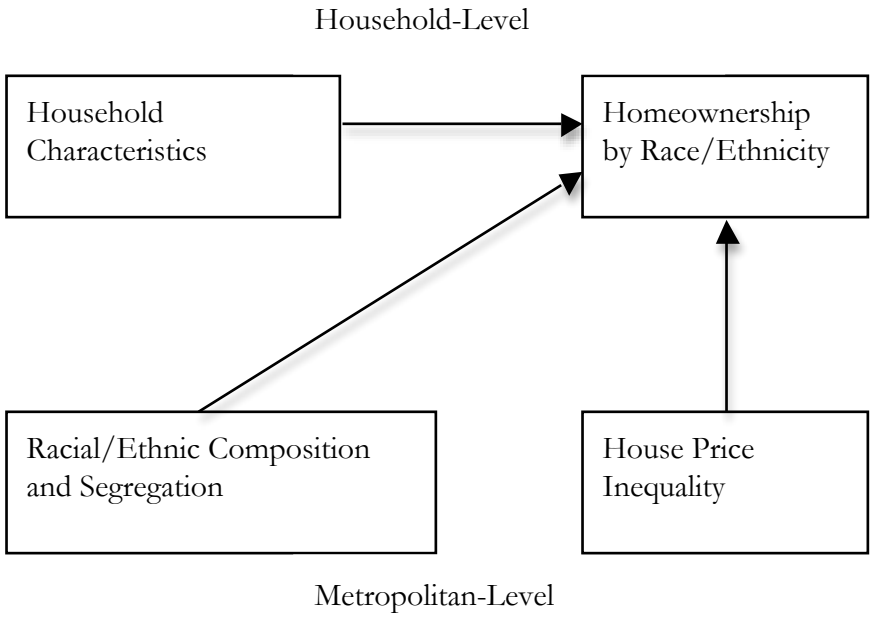

FIGURE 1.3: Conceptual Model Depicting the Relationships Between Housing Market Inequality and Racial/Ethnic Stratification in Homeownership.

The chapter's results suggest housing market inequality is significantly associated with compressed black-white and Latino-white gaps, and slightly widened Asian-white gaps. However, homeownership rates for all groups are constrained by rising house price inequality. The narrowing gaps result from a differentially negative impact on white and Asian homeownership relative to black and Latino rates. These findings speak to debates about the relative importance of minority-white gaps in access to resources, and absolute (i.e., not relative to whites) levels of minority access to resources for minorities' well-being.

1.2.3 Income Inequality, Population Aging, and Racial/Ethnic Health Disparities

Hundreds of studies examine the relationship between income inequality and population health. The Income Inequality Hypothesis argues that macro-level income inequality undermines individuals' health, regardless of individuals' own income (Kawachi and Kennedy 2002; Wilkinson and Pickett 2006, 2009b). Empirical evidence for the hypothesis is mixed (Eberstadt and Satel 2004; Judge et al. 1998; Subramanian and Kawachi 2004), but recent growth in income inequality within the U.S. (McCall and Percheski 2010; Piketty and Saez 2006; Volscho and Kelly 2012) may have substantial consequences for health if the hypothesis holds. Additionally, population aging increases the size of the at-risk population for many health problems (Frey and DeVol 2000; Martin and Preston 1994; Suzman 2010), and may exacerbate any impact of income inequality. Disproportionately poor health among racial/ethnic minorities (Martin and Soldo 1997; Williams and Collins 1995), combined with stratified access to health-promoting resources (Williams et al. 2003), suggests income inequality may also worsen already substantial racial/ethnic health disparities.

This study tests the Income Inequality Hypothesis, and the potential moderating effect of population aging, on racial/ethnic differences in disability and self-rated health among U.S. metropolitan areas. Figure 1.4 adapts the dissertation's main conceptual model to depict the chapter's hypotheses. The Income Inequality Hypothesis and its extension to racial/ethnic health disparities are represented by the arrow from Income Inequality in the lower right to Racial and Ethnic Health Disparities in the upper right. The potentially moderating effect of population aging is represented by the intersecting arrow from Population Aging in the bottom middle to the previously described arrow linking Income Inequality and Health Disparities. Finally, all relationships are conditional on relevant individual characteristics and

metropolitan factors.

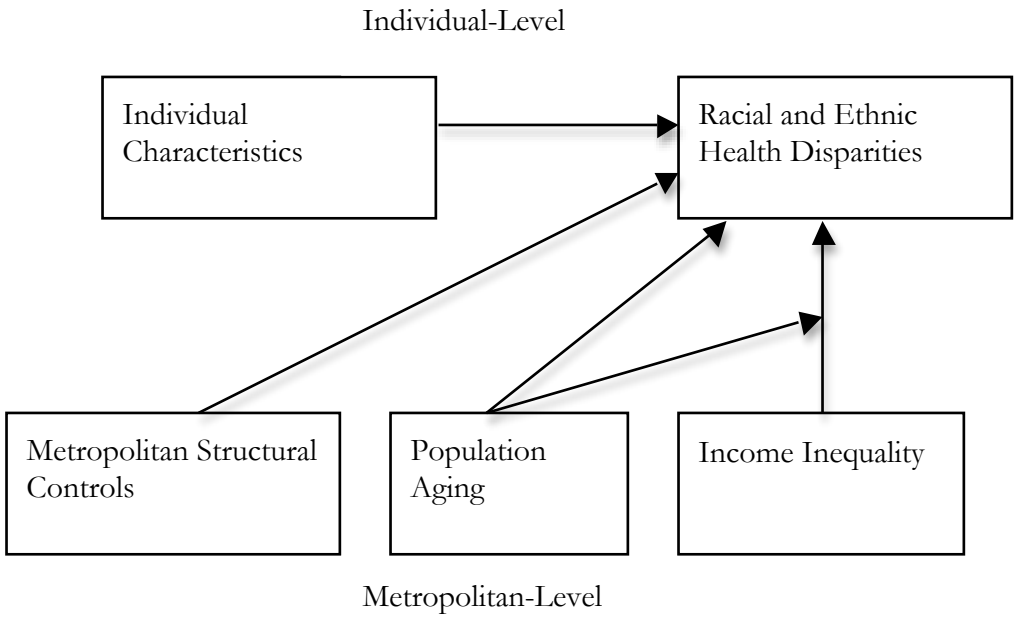

FIGURE 1.4: Conceptual Model Depicting the Relationships between Economic Inequality, Population Aging, and Racial/Ethnic Health Disparities.

Results yield no support for the Income Inequality Hypothesis, or for any moderating effect of population aging. Moreover, there is some indication that rising income inequality is associated with narrowing racial/ethnic disparities. The conclusions emphasize the importance of considering multiple geographic scales and time points to test the Income Inequality Hypothesis more rigorously, and the applicability of this analytic approach to studies of other structural determinants of health.

1.3 Conclusion

The vast literature on the urban social and economic structures and patterns of racial and ethnic inequality richly describe the salience of contexts differentially shaping life chances for individuals of different racial and ethnic categories. This dissertation builds on this foundational work by empirically evaluating the influence

of three new urban structural changes on racial/ethnic stratification in three different elements of well-being. The project also explicitly analyzes the relationships among structural *change* and observed *trends* in racial/ethnic inequalities over time. This approach illuminates the spatial distribution of inequality, and structural factors contributing to *increases* and *decreases* in inequality.

The dissertation also highlights the complexity of the American multi-ethnic stratification system. Some structural factors worsen black-white and Latino-white disparities, but have no relationship to Asian-white differences. Similarly, the distribution of different racial/ethnic groups across different metropolitan areas differentially exposes them to local structural changes. A particular structural change may have the same conditional effect on two different groups, but the groups' uneven exposure to this change partly determine the implications for aggregate levels of inequality. Finally, this dissertation projects examines a variety of urban structural changes and outcomes, and generally finds that seemingly non-racialized structural changes can have stratified effects.

2

The Transition to the New Economy and Racial and Ethnic Wage Inequality in the United States

The 'new economy' has been a popular subject of discussion within both scholarly work and the public discourse for decades. The new economy constitutes a diverse but linked set of profound transformations in the American economy and labor market, most notably increasing demands for high-skilled and creative workers (Glaeser 2000; Florida 2002; Powell and Snellman 2004) and rising employment insecurity (Kalleberg 2009; McCall 2001a). The magnitude of these changes and their consequences for workers are readily visible. McCall's (2000a; 2000b; 2001a; 2001b) work is perhaps most notable in the sociological study of the new economy and race, class, and gender inequality in earnings. However, the impact of individual labor market factors of the new economy are also studied in a variety of contexts and disciplines (Hollister 2011; Hout 2012; Powell and Snellman 2004; Tomaskovic-Devey and Lin 2011; Western and Rosenfeld 2011). Despite large bodies of research on various economic changes and consequences for workers, the sociological literature lacks sufficient examination of

the new economy as a coherent set of structural changes in recent years.[1] Moreover, racial and ethnic stratification in earnings may be a particularly salient outcome of the new economy that is relatively understudied in current research.

The persistence of significant wage gaps are an important and tangible manifestation of racial and ethnic stratification in the American labor market. Recent studies of earnings inequality create a more complex picture of racial and ethnic wage stratification than previously established (Leicht 2008). Average black-white and Latino-white earnings differences grew during the 1980s and 90s, and earnings inequalities within groups became as large as the inequalities between them (Morris and Western 1999). Black-white wage gaps are traditionally the most commonly studied form of racial wage inequality. More recently, scholars have also highlighted Latino-white disparities (Frank et al. 2010; Semyonov and Herring 2007; Morales and Bonilla 1993). Wages for Asian American male workers exhibit relative parity with whites until accounting for their higher average human capital, which reveals a slight pay gap (Kim and Sakamoto 2010). The size and durability of these earnings inequalities alone highlight the importance of understanding how recent economic changes may improve or worsen conditions for minority workers.

A substantial body of sociological theory and research moves toward a structural understanding of the ways labor markets can marginalize minority groups (Grodsky and Pager 2001; Huffman 2004; Huffman and Cohen 2004; Leicht 2008). Local labor markets are often measured as Metropolitan Statistical Areas (MSAs) (Leicht 2008), which represent salient concentrations of people and economic activity (Alderson et al. 2010; Florida 2002; Glaeser 2011; Sassen 1991).[2] Metropolitan ar-

[1] By jointly analyzing multiple structural factors comprising the new economy, studies can assess the relative salience of each factor compared to the others. Additionally, studies focusing only on individual economic changes may inappropriately infer significant effects on inequality because they omit a common and relevant intervening variable.

[2] Metropolitan Statistical Areas are geographically defined to capture local labor markets by the U.S. Office of Management and Budget (2010). Metropolitan areas are composed of core counties

eas exhibit wide variation in industrial composition and overall levels of economic activity (Glaeser 2000; McCall 2001a). Even the degree of racial/ethnic earnings stratification varies widely between local labor markets (Huffman and Cohen 2004). The emphasis and rigor of spatial studies continues to advance in the stratification literature with growing adoption of geographic data and spatially oriented analytic approaches (Logan 2012).

Two factors limit a more rigorous evaluation of the impact of the new economy, however. First, there is little coherence in the conceptualization of the new economy as a distinct set of related structural changes in stratification research. Second, most studies examine variation in levels of economic structural characteristics between local economies, or national-level trends. This strategy necessarily precludes conceptualization of the new economy as a structural process, occurring with differential speed and intensity between local economies over time. Ultimately, these limitations greatly reduce scholars' ability to understand how recent economic changes are related to either the distribution of racial/ethnic wage gaps, or their persistence. Such studies pointedly lack joint examination of trends in wage inequalities and economic structural conditions over time, and the variation of these trends between local labor markets. Equal consideration of both temporal and spatial variation are necessary, because the level of any given factor at a point in time may not be representative of that factor's trajectory.

This chapter addresses these limitations by evaluating the relationship between the new economy and racial/ethnic earnings inequalities between different local labor markets over the last three decades. Specifically I examine trends in black-white, Latino-white, and Asian-white wage gaps, and their relationships to six labor market factors associated with the new economy: skill-biased technological change, finan-

with urban populations over 50,000, and adjacent counties with high degrees of economic integration as measured by employment and commuting.

cialization, the rise of the creative class, employment casualization, immigration, and deunionization. I formulate and empirically test alternative hypotheses with data from the 5% samples of the 1980, 1990, and 2000 decennial Censuses, and the 2010 ACS. Evidence from regression results and counterfactual estimates suggests the transition to the new economy significantly contributes to the persistence of the black-white and Latino-white wage gaps during the 30-year period. Consistent with political-cultural theory (Fligstein 1996, 2001) and structural theories of racial stratification (Bonilla-Silva 1997, 2001; Feagin 2006; Lipsitz 2006), I argue these empirical patterns reflect the reproduction of advantage for dominant groups through seemingly non-racialized structural changes.

2.1 The Transition to the New Economy

There is wide variability in the economic and labor market factors that scholars use to characterize the new economy (Hutton 2009; Perrons et al. 2005; Starks 2003). Literatures in sociology, economics, and geography document recent trends in labor market restructuring ranging from deindustrialization (McCall 2001a; Wilson 1978) to immigration (Bean et al. 2001; Borjas et al. 1996) to workers' creativity (Florida 2002; Florida et al. 2008). Many of these trends stem from more fundamental shifts in the globalized economy (Wallace and Brady 2001), but the impact of globalization on workers manifests through the resulting changes in domestic labor markets (Brady and Wallace 2000). Leslie McCall's (2000a; 2000b; 2001a; 2001b) work is particularly notable for its explicit focus on the relationship of race, class, and gender inequality to the new economy as a coherent set of economic factors. McCall examines a large set of structural factors, including "the transition to a service economy, an increase in international competition and immigration, the spread of new technologies, the casualization of the employment relationship, the loss of job security, and the decline

of formal wage-setting institutions" (2001a, p. 9).[3] Unfortunately, no definitive conceptualization of the new economy arises from the diversity of substantive emphases in related literature, limiting the evaluation of changing structural conditions for social stratification more broadly. However, the most recurrent elements fall into two broad categories: the prominence of high-skill and knowledge-based industries and occupations (Glaeser 1998; Hutton 2009; Krippner 2005; Tomaskovic-Devey and Lin 2011), and flexible and insecure employment conditions (Hollister 2004; Kalleberg 2008, 2009; McCall 2001a).

Following deindustrialization in the 1960s through the early 80s, technological advances such as widespread computerization of production and adoption of the internet facilitate rapid growth in knowledge-intensive and high-skill service industries (Powell and Snellman 2004). This general trend is described in different fashions as skill-biased technological change (SBTC), the knowledge economy, or the rise of the creative class. This multifaceted process purportedly alters the wage distribution by increasing the demand for high-skilled and highly educated workers, leading to greater employment opportunities and higher wages for these workers (Fernandez 2001; Levy and Murnane 1992). At the same time, diminishing demand for low-skill workers in medium-wage industries like manufacturing relegates low-skill workers to low-wage service jobs. The resulting skills mismatch between workers and occupations is often pointed out as the reason for the bifurcation of the wage distribution in the latter part of the twentieth century (Morris and Western 1999; Mouw and Kalleberg 2010b). There is little debate that SBTC is a widespread and relevant trend in the American labor market, but there is some doubt that SBTC alone adequately

[3] These studies significantly contribute to the sociological understanding of the spatial distribution of economic conditions and intersectional inequalities (Leicht 2008). However, these studies are also limited to evaluation of levels of inequality and economic factors, rather than changes over time as McCall notes (2001b, p. 524). The data are restricted to the year 1990 only, and patterns of labor market structures and inequality may exhibit significant change in the decades following. Additionally, studies with single time points are much more vulnerable to biases from unobserved, stable characteristics of local places. This chapter returns to each of these points in later sections.

explains observed trends in wage inequality overall, or by race and gender (Card and DiNardo 2002; Handel 2003).

Aside from changes in the skill demands of the labor market, the new economy is also characterized by changes in the distribution of economic capital. The U.S. economy has become increasingly financialized over the past few decades (Krippner 2005). Financialization refers broadly to the accumulation of profits through liquid capital, such as interest, dividends, or capital gains, versus the trade or production of goods (Krippner 2005). Some scholars extend this definition to include the relevance and influence of financial markets and institutions in the broader economy (Epstein 2005; Palley 2007). Financialization is also commonly defined as the share of total economic activity within the finance, real estate, and insurance (FIRE) sector (Assa 2012; Tomaskovic-Devey and Lin 2011). The FIRE economy is less spatially constrained than many other industries, and was highly concentrated in the country's largest cities in the 1980s (Sassen 1990). However, the FIRE economy grew steadily and substantially between 1980 and 2001, measured by both share of the labor force and proportion of total corporate profits (Krippner 2005; Tomaskovic-Devey and Lin 2011).

Financialization has been linked to income polarization and increasing income inequality (Sassen 1991). The relationship operates partly through the shift of profits and capital away from labor-intensive and production-oriented industries (Epstein 2005), while incomes among financial-sector employees and managers increase (Goldstein 2012). Some more critical analyses argue that financialization has also contributed to the stagnation of the lower end of the wage distribution by deliberately divorcing wage returns from total productivity (Freeman 2010; Palley 2007). There is even growing consensus that financialization, combined with market deregulation, is one of the root causes of the financial crisis and recession of the late 2000s (Freeman 2010; Tomaskovic-Devey and Lin 2011).

An active literature in urban economics and economic geography focuses on local economies' levels of human capital and growth. Stemming from theories about the attraction of diverse people and ideas to cities (Jacobs 1968), the human capital theory of growth posits that the enhanced productivity of agglomerations of workers is the key driver of regional economic expansion (Lucas 1988). The relationship between human capital and growth is stronger in recent years (Glaeser and Marè 2001), and may reflect the increasing value of idea creation and knowledge sharing over time (Glaeser and Resseger 2010). This notion is popularly articulated by Florida's (2002) concept of the 'creative class.'

The relationships among human capital, economic growth, and creativity is not completely straight-forward. For example, scholars debate whether regional economic benefits stem from the productivity benefits of high human capital or the innovation from concentrated creativity (Florida 2002, 2003; Glaeser 2005; Marrocu and Paci 2012). Evidence supports both arguments to varying degrees, and scholars at least agree that the economic opportunities and cultural amenities of industrial and urban agglomerations help attract skilled and creative workers (Florida 2002; Glaeser 2011). The benefits of local economic growth are shared by workers themselves. Wages are significantly higher in larger metropolitan labor markets (Glaeser 1998), and both industrial and urban agglomeration are related to higher wages through various mechanisms (Fullerton and Villemez 2011). Ultimately, concentrations of workers in creative occupations represent a new trend in urban labor market restructuring that significantly varies between places.[4]

The growth of high-skill and knowledge-based industries contribute to the polar-

[4] Another frequently highlighted contributor to urban economic development is the growing concentration of workers in medical and educational occupations, or "meds and eds" (Adams 2003). Additional analyses not shown indicate the proportion of workers in the local labor market employed in medical and educational occupations is unrelated to wage inequalities. The variable is highly correlated with the creative class measure, however. The creative class likely captures the broader economic shift toward high-skill and knowledge-based work, so I choose this trend to represent part of the new economy over medical and educational employment.

ization of job quality primarily by improving employment conditions and wages for the upper end of the distribution. However, the new economy is also characterized by declining job quality at the lower end of the distribution and increasingly insecure employment relations (McCall 2001a; Starks 2003). Workers' tenure with employers and within occupations has decreased over time (Hollister 2011; Jaeger and Stevens 1999), particularly for those with low education and black men (Marcotte 1995). Transitions between employers frequently lead to negative wage changes (Fuller 2008; Hollister 2012), and contribute to higher wage inequality overall (Mouw and Kalleberg 2010a). Non-standard work arrangements, in particular, have been highlighted as a contributor to deteriorating job quality in low-skill occupations (Kalleberg 2003; Kalleberg et al. 2000). Non-standard work arrangements, or employment casualization, refer to insecure or precarious labor force attachment through part-time or temporary work, or non-formal self-employment (Kalleberg 2000, 2009; McCall 2001a). High levels of casualization are associated with lower wages and fewer benefits like health insurance and retirement for low-skill workers (Kalleberg et al. 2000; McCall 2000a, 2001b), significantly reduced long-term economic well-being (McGrath and Keister 2007), and higher earnings inequality (DiPrete 2005).

Employment casualization is indicative of broader deinstitutionalization of the labor market, which may be even more starkly illustrated by deunionization. Labor unions traditionally increase wages for blue-collar workers and decrease wage inequality (Card 2001; Freeman and Medoff 1984). However, union membership declines from approximately one third of private-sector workers in the 1970s to below one tenth in the 2000s (Western and Rosenfeld 2011). The dramatic trend toward deunionization is related to changes in the political and legal environment, globalization, and the concentration of labor market power among large corporations in recent decades (Wallace et al. 2009). The diminution of unions' collective bargaining power accounts for a significant portion of increases in wage inequality during this

period (Card 2001; Hanley 2011; Western and Rosenfeld 2011). However, decreases in wages due to declining unionization is not solely a compositional effect (Leicht 1989). Labor unions support norms for greater equity and institutionalize worker protection even in non-unionized occupations (Western and Rosenfeld 2011). Despite historically discriminatory practices, black and Latino workers have relatively high rates of union membership compared to whites (Rosenfeld and Kleykamp 2009, 2012). Deunionization is then particularly detrimental to average wages for these groups.

The final element of the new economy examined in this study is the rapid increase of immigration. A variety of theoretical perspectives debate whether immigration undermines the relative labor market position of native-born workers, and particularly black workers (Bonacich 1972; Waldinger 1997; Waters and Eschbach 1995). The empirical support for such effects are also mixed (Borjas et al. 1996; Ottaviano and Peri 2008). One argument holds that immigrant workers may have lower reservation wages for low-skill work than the native born. As a result, employers may displace relatively more costly low-skill, native-born workers in favor of immigrants. The competition may also occur for predominantly minority jobs (Bean et al. 2001).

2.2 The New Economy and Racial/Ethnic Wage Inequality

2.2.1 The Equalizing Hypothesis

There are compelling reasons to believe that racial and ethnic wage gaps may decrease in the transition to the new economy. Changes in economic, social, and institutional factors suggest discrimination should be lower. Following a neoclassical economic perspective, rising labor costs in the increasingly service-dominated economy make discrimination more inefficient (Becker 1971; Cohn 2000). Knowledge-based firms and industries are in a 'war for talent,' and seek the most creative and skilled employees. Such competition makes ascribed characteristics like race and

ethnicity less relevant than workers' productivity. High labor costs also make employment discrimination against racial/ethnic minorities inefficient among low-skill occupations. Employers seeking to reduce labor costs may be more willing to hire minority workers, whom they perceive to have lower reservation wages.

Discrimination may also decrease with the rising average education of the labor force. Those with higher education have lower levels of expressed racial prejudice (Schuman et al. 1997). Relatively high levels of education among high-skill industries implies less discrimination as a compositional effect. However, rising average education may also have an emergent effect reducing discrimination. High prevalence of advanced education, and accompanying low levels of prejudice, may strengthen norms against racial discrimination.

Finally, an institutional emphasis on diversity should contribute to greater racial and ethnic equality. Some research in management studies finds productivity benefits from workforce diversity because diverse groups of workers have access to a wider range of knowledge, skills, and social networks (DiTomaso et al. 2007). Following such logic, many firms, particularly those in high-skill and knowledge-based industries, explicitly value multi-cultural work environments. The emphasis on diversity is institutionalized through diversity training requirements and particularly through diversity recruitment (Rivera 2012a). As such practices are increasingly normative among high-skill industries, firms in low-skill industries may also adopt them through processes of isomorphism. Following these three perspectives, racial and ethnic discrimination should decrease in the transition to the new economy, attenuating racial/ethnic wage gaps. This argument motivates the first hypothesis,

Hypothesis 1 (The Equalizing Hypothesis): Racial and ethnic wage gaps decrease in the transition to the new economy.

2.2.2 The Stratifying Hypothesis

Despite reasonable arguments to the contrary, I propose racial and ethnic wage gaps do not decrease with the transition to the new economy. Returning to the neo-classical economic perspective, fine-grained and unmeasured forms of human capital may be both more prevalent, and more relevant in the new economy (Lemieux 2006). Workers may seek greater differentiation for employment in knowledge-based industries. Frequently unobserved worker characteristics like occupational certification and specialized training are unevenly distributed between groups, and explain significant variation in earnings between groups (Tam 1997; Weeden 2002). Racial and ethnic wage gaps may increase to the extent that these characteristics are relatively more common among whites, and that they become a more important criterion for earnings in the new economy.

Sociological theories provide greater insight into structural relationships between the new economy and racial/ethnic inequality. Specifically, I draw primarily upon Fligstein's (1996; 2001) political-cultural theory of markets, and structural theories of race and ethnicity (Bonilla-Silva 1997, 2001; Feagin 2006; Lipsitz 2006) to argue that racial/ethnic wage gaps are reproduced in the transition to the new economy. The convergence of these arguments represents the second hypothesis,

Hypothesis 2 (The Stratifying Hypothesis): The transition to the new economy reproduces or increases racial/ethnic wage gaps.

The political-cultural theory views markets as fields, populated by a hierarchy of firms as the primary actors. Firms establish market relations with suppliers, consumers, the state, and each other to improve or stabilize their positions within markets. Larger and incumbent firms use their initial advantages, and regulation by the state, to dictate the power structure in emerging markets and during market transitions. This process tends to reproduce these firms' advantaged structural

positions and associated logics of action (Fligstein 1996, 2001).[5] Following this perspective, the transition to the new economy likely reproduces pre-existing market hierarchies, and reinforces the modes of operation that produce them.

The labor market changes associated with the transition to the new economy should then reflect the interests of dominant market actors in growing industries. However, the employment practices and modes of evaluation used by market actors are also embedded within prevailing social and cultural norms. Most notably, the hierarchical categorization of people into racial/ethnic groups has profound influence on many economic and political practices (Bonilla-Silva 1997; Winant 2000). Just as incumbent firms use their advantaged economic positions and methods of action to reproduce their advantage, whites as the dominant racial group in the United States maintain a hegemonic control over the hierarchical ranking of racial and ethnic groups (Bonilla-Silva 2001).

Lipsitz (2006) argues that a "possessive investment in whiteness" motivates a combination of private prejudice, political, and economic subjugation of minority groups to maintain whites' long-standing material and psychological advantages over minority groups. Similarly, Feagin's (2006) systemic racism theory traces the origins of racial and ethnic stratification to the very foundation of American society. Feagin argues that racism, referring to the structural reproduction of whites' material and social advantages over minority groups, permeates all facets of modern social, economic, and political processes. The crux of the argument is that racism is so deeply ingrained, it is reproduced in everyday processes and interactions from the micro to macro level. Ultimately, both theories argue that whites as a collective group actively exploit and oppress those classified as racial and ethnic minorities to

[5] Market transformations often provide opportunities for institutional and economic change (King and Pearce 2010). However, these transformations generally occur within bounds of established market hierarchies. Substantial reorganization of market hierarchies generally occur only during large economic crises (Fligstein 2001).

maintain their own advantaged group position.[6]

The implication of Lipsitz's (2006) and Feagin's (2006) theories is that predominantly white incumbent market actors in Fligstein's (1996; 2001) political-cultural theory apply inherently racially stratified practices in the transition to the new economy. Thus, material advantages for whites and economic marginalization for minorities are reproduced. These perspectives emphasize white actors' awareness of their own group advantage, and subsequent efforts to reproduce it.

Bonilla-Silva's (1997) theory of racialized social systems contends that whites may be largely unaware of the reproduction of their group advantage, however (Bonilla-Silva 2003). The racial/ethnic hierarchy is ingrained in institutional norms and operations, making white actors' efforts to sustain their advantage appear non-racialized and rational (Bonilla-Silva 1997, p. 475-6). Particularly among professional-service and financial firms, employer-applicant "cultural matching" is an important criterion in the hiring process (Rivera 2012b). Racialized forms of cultural capital (Yosso 2005) may then greatly reduce the perceived compatibility of minority applicants at such firms, and reproduce racial stratification in the absence of deliberate discrimination. Regardless of the extent of whites' awareness or explicitly racialized motivations, each of these theories argues that economic structural changes are inherently racialized processes.

The extent and nature of inequality between whites and blacks, Latinos, and Asians exhibits large variation, and is contingent on the racialized attributes associated with each group. Black-white inequality is certainly the most commonly studied and perhaps most prominent form of racial stratification in the contemporary U.S.

[6] The social constructions of race and ethnicity represent distinct processes. Similarly, racial and ethnic stratification may take very different forms cross nationally. However, the largest groups classified as ethnic minorities in the United States include those of Latin-American decent, and various groups subsumed in the "Asian" racial category. Though these groups largely stand outside the traditionally strict racial dichotomy of the United States, there are many indications they are incorporated into a relatively vertical hierarchy of racial categories in the American stratification system (Bonilla-Silva 2004; Frank et al. 2010; Hitlin et al. 2007).

More recent studies indicate that Latino workers experience large inequalities, as well (Frank et al. 2010; Morales and Bonilla 1993). However, Asians exhibit similar socioeconomic attainment as whites. This relative parity is counterbalanced by an exclusionary discourse surrounding Asians as the "model minority" (Sakamoto et al. 2009; Wing 2007). Multi-group racial/ethnic stratification in the U.S. manifests differently in social, cultural, economic, and political realms. In the contexts of labor markets, white workers clearly represent the dominant majority, Asians may experience relatively little inequality, while black and Latino workers experience the greatest marginalization (Bonilla-Silva 2004).

The linkage of the political-cultural theory and theories of racial/ethnic stratification appeals to the fundamental nature of structural change to reproduce existing hierarchies and advantages within the labor market. Incumbent market actors apply their logics of operation to shape the transition to the new economy (Fligstein 1996, 2001). These modes of action are embedded within structures of racial/ethnic stratification (Bonilla-Silva 1997; Feagin 2006; Lipsitz 2006). Following these perspectives, the transition to the new economy will reproduce whites' advantages within the labor market through whites' closed social relations, and shared modes of evaluation (i.e., bias and discrimination).

Overall, this chapter examines the extent to which labor market structural change associated with the new economy has stratified impacts on workers of different racial/ethnic groups. Specifically, I test competing expectations that the growth of high-skill and knowledge-based industries, and increases in insecure employment relations, ameliorate or reproduce minority-white wage gaps. Though these economic shifts are not explicitly racialized, prominent theories of racial stratification argue that they may have racially stratified effects.

2.3 Data and Methods

This study uses the 5% micro-data samples from the 1980 through 2000 decennial Censuses, and the 2010 ACS, all accessed through the Integrated Public Use Micro-Data Series at the University of Minnesota (Ruggles et al. 2010). These data present several clear advantages for testing the hypotheses above. First, their large, representative samples make the results characteristic of the U.S. urban population. Second, the large samples and harmonization over time can measure trends for whites, blacks, Latinos, and Asians for the entire period. Third, the data also allow for aggregation to the metropolitan level, facilitating the estimation of relevant characteristics for the local metropolitan statistical area (MSA).[7] This process results in a multilevel data structure, with individual workers cross-classified within metropolitan areas and years.

Following previous studies of this type, the analytic sample for this chapter uses white, black, Latino, and Asian workers of prime working ages (25 to 65) who were employed at least part time in the previous year as primary units of analysis (McCall 2001b).[8] The variable *Black* is equal to one for individuals that identify non-Latino black as their sole racial category, and *Asian* equals one for identifying non-Latino Asian as one's sole racial category. The variable *Latino* is equal to one for individuals who report being of "Hispanic origin" of any race. All three variables are relative to those who identify as non-Latino white for their sole racial/ethnic category.

[7] For confidentiality purposes, the public-use Census data may only identify metropolitan areas of residence that have a population over 50,000. There are some complications due to shifting MSA boundaries over time. Several metropolitan areas in the 1990 Census and onward (including the ACS) are only partially identified, resulting in portions of their populations being omitted as residents. The correlation between the geographic distribution of racial, ethnic, and socioeconomic characteristics and the Census boundaries may introduce some systematic bias into the estimation of MSA characteristics for these areas. However, it is unclear in what direction the bias might be.

[8] Replication of the analyses using only full-time workers yields substantively comparable results. I include part-time workers because selection into full-time employment is one form of racial stratification in the labor market that contributes to earnings inequalities.

The sample includes 4,720,767 respondents living in a balanced panel of 219 MSAs that are identifiable in all four years.[9] This sample definition yields 2,238,782 white, 1,086,076 black, 986,152 Latino, and 410,035 Asian workers nested within 876 MSA-years.[10]

2.3.1 Wages

The dependent variable is logged hourly wages, *ln(Wages)*, converted to 2009 dollars using the Consumer Price Index. Average hourly wages are calculated by dividing self-reported annual earnings income from the previous year by the product of the reported number of weeks worked, and the usual hours worked per week in that year. I use the standard practice of taking the natural log of wages to account for the skewed distribution of earnings.

Despite potential overall convergence in wages among workers of different racial/ethnic groups, trends in minority-white wage gaps in urban labor markets exhibit distinctly different trajectories. Figure 2.1 depicts the trends in minority-white differences in hourly wages between 1980 and 2010. The difference in average hourly wages for Asian workers relative to whites reverses from a $1.61/hour disadvantage in 1980, to a $0.48/hour advantage in 2010. In contrast, the white-black hourly wage gap increases steadily by 60%, from $4.60 in 1980 to $7.36/hour in 2010. The white-Latino wage gap increases by 77% over the same period, from $5.37 to $9.52/hour.[11]

[9] All results are substantively similar when using an unbalanced panel of 303 MSAs. I analyze a balanced panel because comparisons between years are somewhat problematic when the population of MSAs varies over time. The main results are also similar when analyzing a balanced sample of 159 MSAs that have at least 10 respondents in each racial/ethnic group. However, this restriction also limits the analysis to larger, multi-ethnic cities, and excludes meaningful information from less diverse local labor markets.

[10] This analytic sample uses a 25% random subsample of white workers from the 1980, 1990, and 2000 Census samples. Without this restriction, the total analytic sample contains 9,247,021 cases. The resulting data set is too large to estimate the regression models described below. The survey sample weights are adjusted to accommodate the random subsampling.

[11] Measured with the ratio of white-to-minority workers' wages, rather than the absolute difference, the white-black wage gap increased 11% from 1980 to 2010, and the white-Latino gap increased by

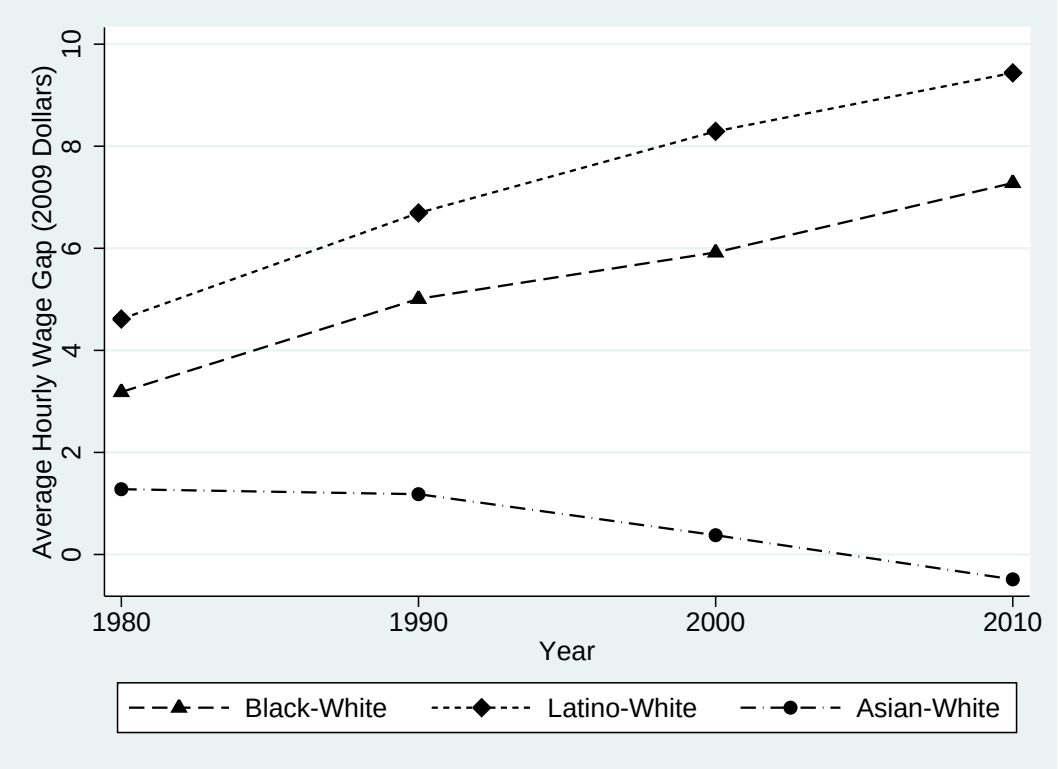

FIGURE 2.1: Racial/Ethnic Gaps in Average Hourly Wages, in 2009 Dollars.

The divergence of average wages by race and ethnicity in urban labor markets is visible also in Figure 2.2. The patterns in racial/ethnic wage gaps from Figure 2.1 are the result of rising average wages for white and Asian workers, and relatively stagnant or declining wages for black and Latino workers. White and Asian workers' wages increase by 13% and 23%, respectively, from 1980 to 2010. Most of this increase occurred in the 1990s for both groups. Despite an 8% increase from 1990 to 2000, the decline of black workers' wages in the 2000s leads to almost no net change over the thirty year period. Finally, average wages for Latino workers declined in the 1980s and 2000s. The net change in Latinos' average wages is more than a 12% decrease from 1980 to 2010.

Trends in average wages among the entire sample obscure relevant variation be-

20%. The white-Asian wage ratio reversed from a 7% advantage for whites to a 2% advantage for Asians.

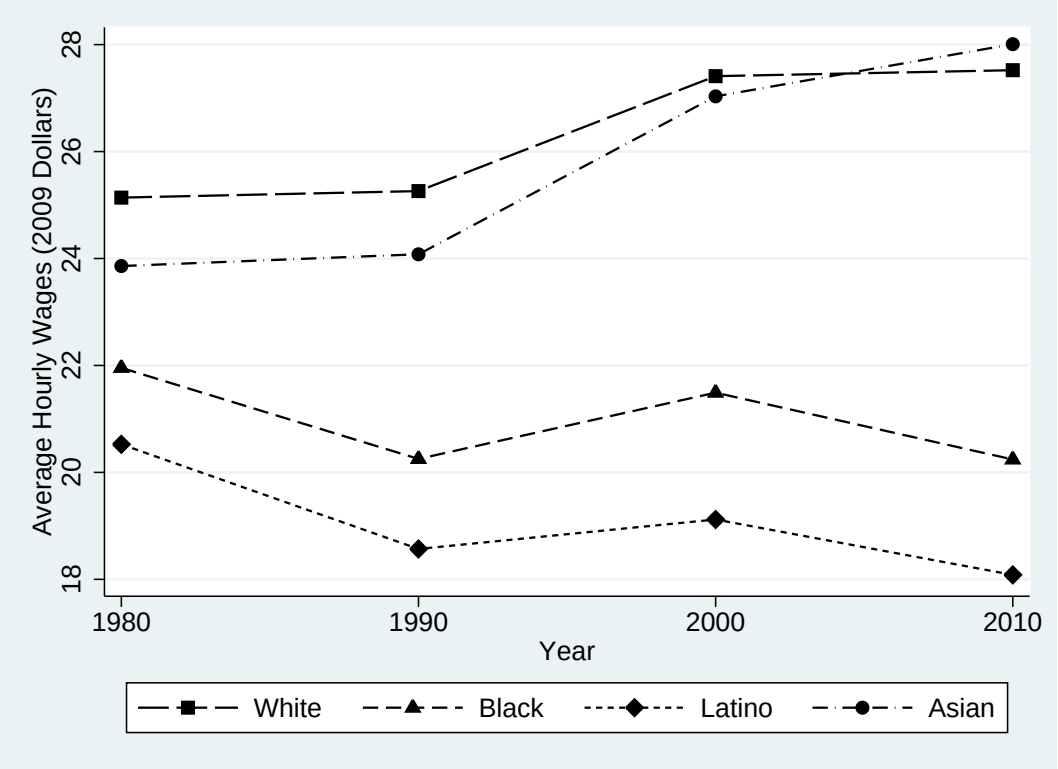

FIGURE 2.2: Trends in Average Hourly Wages, in 2009 Dollars.

tween local labor markets, however. The white-Asian gap decreases overall, but increases at least slightly in nearly half of the MSAs. Despite an increase in the average black-white wage gap, 30 of the 219 metropolitan areas exhibit a slight decline in the disparity between 1980 and 2010. Trends in the Latino-white gap display the greatest variation. The gap declines in 20 MSAs, but more than doubles in over half of the MSAs. The metropolitan-level distributions of racial/ethnic wage gaps and average hourly wages for each group are summarized in Table A.1 in Appendix A.

2.3.2 New Economy Variables

The labor market variables are estimated using individual-level information aggregated to the metropolitan level. I apply sample weights provided by the Census Bureau to ensure the estimates are appropriately adjusted for the sampling design. Six metropolitan-level variables measure the transition to the new economy. The first

three variables measure various facets of the growth of high-skill and knowledge-based industries.

The local college/non-college wage ratio, *Coll./Non-Coll. Ratio*, measures the local premium for high-skilled workers and indicates the extent of STBC. The variable is calculated as the average hourly wage of workers with at least a bachelor's degree in an MSA, divided by the average hourly wage of workers with a high school diploma or less in that MSA. The degree and impact of SBTC has been evaluated using a variety of measures (DiPrete 2005), and resulting evidence for its effects is mixed (Handel 2003). However, the wage premium experienced by college-educated workers relative to non-college educated workers is a robust indicator of the increasing labor market returns for higher education and skill (Hout 2012), and has been used as a proxy for class inequality (McCall 2000a, 2001a; Morris and Western 1999).

Financialization is measured with the proportion of earnings income by workers in the finance, real estate, and technology industries (based on harmonized 1990 Census three-digit industry codes), relative to the total earnings income of all workers in the metropolitan area. I use the natural log of the variable, *ln(% FIRE Earnings)*, to account for its skewed distribution.[12]

I measure the growing prevalence and relevance of high-skill and knowledge-based occupations in local labor markets using an adaptation of Florida's (2002) creative class. The *Creative Class* measures the percentage of workers in a metropolitan area employed in creative-class occupations, based on harmonized 1990 Census Bureau occupation codes.The measure of the creative class used by Florida (2002) and col-

[12] An alternative measure for financialization is the local proportion of the labor force employed in the FIRE industry. The share of FIRE earnings and FIRE employment are highly correlated, and the results presented here are comparable for both variables. However, the share of earnings concentrated in the FIRE industry likely captures the impact of financialization more accurately. The FIRE industry is less labor intensive than many other service-oriented industries, making its influence on the economy disproportionate to its share of the labor force (Assa 2012). Additionally, financialization refers to increasing economic reliance on liquid capital (Palley 2007), better proxied by its share of earnings than the share of workers.

leagues classifies occupations using the Standard Occupational Classification (SOC) system. Unfortunately, a harmonized version of the SOC system is not available through the IPUMS in all years. Using the 1990 Census Bureau occupational codes, I construct the *Creative Class* using the same occupational categories as those in the SOC.[13]

The next three variables measure work insecurity. Casualized employment, *Casualization*, measures the proportion of workers reporting part-time employment, working for a temporary employment agency (based on harmonized three-digit Census occupation codes), or self-employment with a non-incorporated business (McCall 2000a, 2001b).[14] Immigration is measured as the percent of the local population that is foreign born, *% Foreign Born*.

The final new economy variable, the decline of unionization, is another salient element of increasing work insecurity. Unfortunately, information on union membership at the metropolitan level is not available for 1980. I omit the variable from the primary analyses. However, the relevance of unionization rates at the metropolitan level, *Union Rate*, is examined in separate analyses for 1990 to 2010. I use estimates of metropolitan-level unionization calculated by Hirsch and Macpherson (2003) using the merged Outgoing Rotation Groups of the CPS. The subsample for which union data is available includes 3,713,647 workers, nested within a balanced panel of 159 MSAs spanning 1990, 2000, and 2010.

In addition to the new economy variables, the analyses also include controls for the local unemployment rate, *Unemployment*, calculated as the fraction of working-aged adults reporting they are unemployed out of the total number in the labor force in

[13] These occupations include: management; business and financial operations; architecture and engineering; life, physical, and social science; legal; education, training, and library; arts, design, entertainment, sports, and media; and sales occupations.

[14] Following previous research, I code part-time employees as those working fewer than 35 hours per week, or fewer than 30 weeks per year (Kalleberg 2008; McCall 2001b).

the Census year. A variable measuring public employment, *% Public*, controls for the fraction of the local labor force employed by the local, state, or federal government. The local population of the metropolitan area is estimated using sampling weights provided by the Census Bureau. The analyses use the logged value, *ln(Population)*, to adjust for its skewed distribution. Finally, the analyses control for the local racial/ethnic demographic composition of the population with *% Black*, *% Latino*, and *% Asian*.[15]

Trends in the new economy variables for the average metropolitan worker are visible in Figure 2.3, which displays the percent change in each of the new economy variables relative to its level in 1980 (except the *Union Rate*, which is relative to its 1990 level). The local level of the three high-skill/knowledge-based industry variables increase for the average worker over time. The *Coll./Non-Coll. Ratio* increases by 16% from 1980 to 2010. The *% FIRE Earnings* increases by 35% during this period, with the majority of the growth in the 1980s. The local share of the *Creative Class* for the average worker increases by 22% between 1980 and 2010. Like the increase in *% FIRE Earnings*, most of this growth occurs in the 1980s.

Much like trends in racial/ethnic wage gaps, labor market structural changes associated with the transition to the new economy also exhibit wide spatial variation. For example, the average increase in the *Coll./Non-Coll. Ratio* obscures the relative stagnation or decline of college/non-college wage ratio in nearly one-quarter of the MSAs. At the other end of the spectrum, the ratio increases by more than 25% in one-tenth of the the MSAs. The *% FIRE Earnings* increased between 1980 and 2010 in the majority of metropolitan areas. However, the average increase is influenced by large changes over 100% and even 200% in a handful of outlier areas like Stamford and Bridgeport, CT, and Hagerstown, MD. The *Creative Class* increases in all but

[15] The variables *% Latino* and *%Asian* measure the percent of the local population that is native-born Latino or Asian to avoid collinearity with *% Foreign Born*.

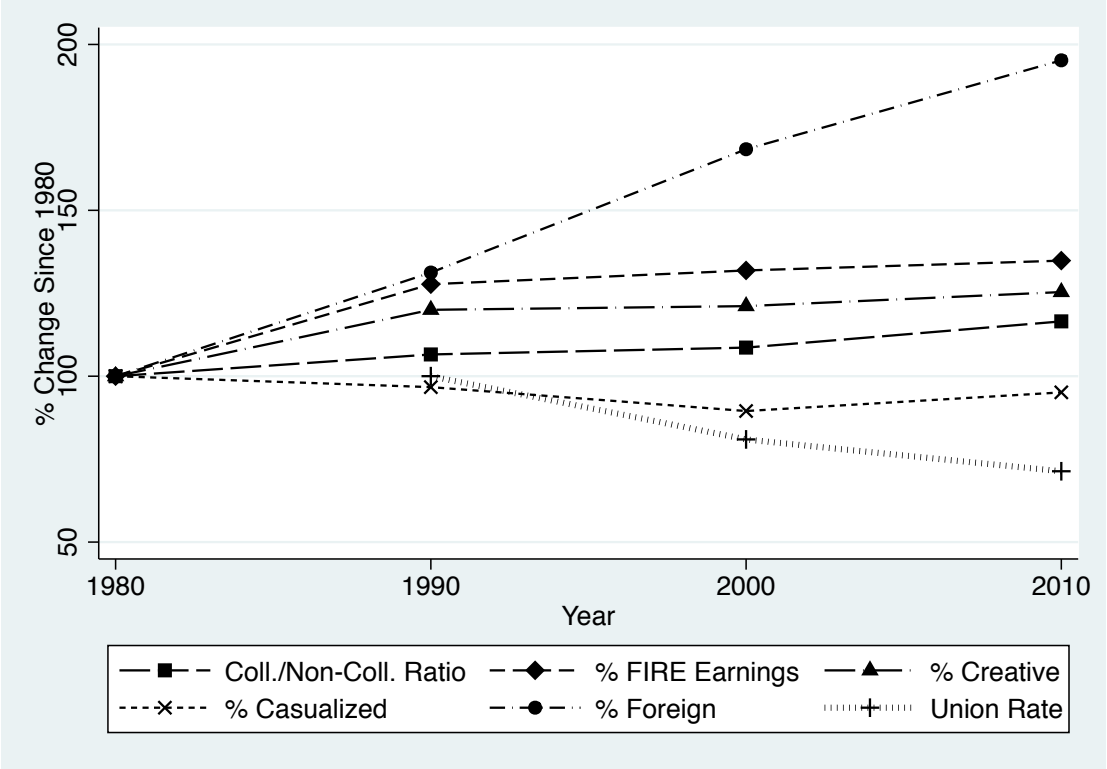

FIGURE 2.3: Trends in Charactersitics of the New Economy.

seven metropolitan areas from 1980 to 2010, but the growth exceedes 30% of the 1980 level in more than a quarter of the MSAs.

Perhaps the most visible increase of all the new economy variables in Figure 2.3 is the large and steady increase in the local *% Foreign Born* for the average worker. The average *%Foreign Born* nearly doubles from 1980 to 2010. The largest absolute increases in immigration are in traditional Latino immigrant destinations in Florida and the South West. However, large relative increases occur in a few outlier areas such as Greensboro/Winston-Salem, NC, Roanoke, VA, and Nashville, TN.

Casualization is the most prevalent of the new economy variables, with nearly 30% of the average worker's local labor force experiencing this form of employment insecurity. However, there is almost no net change in the average level of *Casualization* over time. *Casualization* declines by more than 10% from 1980 to 2010 in over

one quarter of the 219 metropolitan areas, which is somewhat surprising given the size of the literature on the polarization of job quality (Kalleberg 2000). However, the level of *Casualization* also increases more than 10% in 22 MSAs.

Finally, deunionization is clearly evident from 1990 to 2010. The *Union Rate* for the average worker's labor market declines by 28%, relative to its 1990 level. The decline of unionization is uneven, and does not occur in over one-third of the metropolitan areas. However, unionization experiences large declines (over 30%) or near total disappearance in one-third of the metropolitan areas. Table A.2 in Appendix A summarizes the new economy variables at the metropolitan level over time.

2.3.3 Individual-Level Controls

The analyses account for demographic and human capital characteristics previously found to be relevant to earnings (Hollister 2004; Huffman 2004; Leicht 2008; McCall 2001b). Demographic controls include age in years and its square, *Age* and Age^2. A binary variable, *Female*, measures sex. Marital status is measured with four binary indicators, *Never Married*, *Separated*, *Divorced*, and *Widowed*, relative to being currently married. I include the number of children and adults in the respondents' household, *Children HH* and *Adults HH*, as well as a binary indicator for the presence of children under 5, *Children Under 5*. The final demographic factor is immigrant status, indicated with a series of dummy variables for time since immigrating to the US, *Imm<5 Yrs*, *Imm 5–10 Yrs*, *Imm 10–15 Yrs*, *Imm 15–20 Yrs*, and *Imm 20+ Yrs*, all relative to being native born.

Human capital characteristics include education, occupation, and full/part-time work status. Education is coded with three binary variables for *Less than HS*, *HS/GED*, and *Some College*, which includes technical and associates' degrees, as the respondents' highest educational attainment. A bachelors' degree or higher is

the reference category.[16] The dummy variable for *Part-Time* work applies to those who worked less than full-time. Full-time work includes those who worked at least 35 hours-per-week on average, for at least 30 weeks in the previous year. Controls for occupation include categories for *Manager*, *Professional*, *Technical*, *Sales*, *Administrative*, and *Manufacturing* occupations based on the Census' one-digit occupation codes. Service occupations are the omitted category.[17]

2.3.4 Analytic Strategy

Two sets of regression models estimate the relationships between labor market structural characteristics and racial/ethnic wage gaps. The first set of models examines the cross-sectional pattern for each Census year. Inferences drawn from these models rely on variation between metropolitan areas at a point in time, and their interpretation is similar to those from previous studies (e.g., Huffman and Cohen 2004; McCall 2000a, 2001b). Cross-sectional models describe the relationships between the spatial distributions of racial/ethnic wage gaps and characteristics of the new economy between local labor markets, conditional on all control variables. I estimate these models for each decade to assess how these spatial patterns in the structural covariates of wage inequality may vary over time (McCall et al. 2011). The regression models apply sampling weights to account for the complex sampling design, and the standard error estimates are adjusted for the clustering of individuals within metropolitan areas using the Huber-White correction.

I use OLS regression to predict logged hourly wages for person i in MSA j within

[16] Ideally, measures of post-graduate education would better capture the value of high skill in the new economy. Unfortunately, only relatively recent waves of the Census and ACS collect such detailed information on higher educational attainment.

[17] Additional analyses discussed later in the chapter include alternative occupation and industry controls at the individual level.

each year,

$$\begin{aligned} ln(Wage_{ij}) = \beta_{White} &+ \beta_{Race} Race_{ij} \\ &+ \beta_{Econ,White} Econ_j \\ &+ \beta_{Econ,Race} Econ_j \times Race_{ij} \\ &+ \beta_X X_{ij} + \beta_W W_j + e_{ij}, \end{aligned} \tag{2.1}$$

where $Race_{ij}$ is the vector of racial/ethnic indicators, and $Econ_j$ is the vector of new economy variables. The vectors X_{ij} and W_j represent the household- and metropolitan-level control variables, respectively. The intercept term is represented by β_{White}, which is the conditional mean hourly wage for white workers when all other variables equal zero. The coefficients β_{Race} represent the conditional mean difference in logged wages for each minority group relative to whites. The coefficients for the MSA-level variables, $\beta_{Econ,White}$, represent the conditional difference in logged wages for white workers given a one-unit difference in the metropolitan-level variables between areas. Multiplied by 100, the coefficients can be interpreted as the percent difference in hourly wages for a one unit difference in the new economy variables.

The coefficients for the interaction terms, $\beta_{Econ,Race}$, represent the difference in logged wages given a unit difference in the new economy variables for minority workers relative to whites. Positive coefficients indicate minority workers' wages are higher relative to white workers at greater values of the new economy variables. The interpretation of the coefficients for racial/ethnic wage gaps is somewhat counter-intuitive, as *positive* coefficients indicate *smaller* wage gaps. Similarly, negative coefficients indicate minority workers' wages are lower relative to whites at greater values of the new economy variables. Then, *negative* coefficients for the interaction terms indicate *larger* racial/ethnic wage gaps.[18]

Analyses using a single time point have important limitations, however. First and

[18] As an important point of theoretical distinction, the dichotomous racial/ethnic indicator variables do not represent the "effects" of race inherent to any group. Rather, they proxy for the effects

most obviously, they cannot account for temporal variation in either dependent or independent variables. Another important limitation is their relatively high vulnerability to endogeneity. Levels of the new economy variables and racial/ethnic wage gaps may both be influenced by some omitted factor. As a result, the estimated coefficients may reflect spurious relationsips due to unobserved characteristics unique to individual metropolitan areas. The next analyses yield results that are more robust to these threats.

The second set of regression models estimate the effects of 10-year changes in labor market variables on wage inequalities by accounting for metropolitan and year fixed effects. Fixed-effects models are advantageous compared to cross-sectional models because they control for unobserved, stable characteristics of metropolitan areas that have stable effects over time (e.g., geography, climate, laws). Similarly, the inclusion of year fixed effects control for unobserved period characteristics common to all areas. These models draw inferences from variation within metropolitan areas over time, contrary to the preceding analyses. The results describe how racial/ethnic wage gaps within local labor markets change along with structural characteristics. I estimate the fixed-effects model first for the entire period. Next I estimate the model separately for the years 1980–1990, 1990–2000, and 2000–2010, to examine variation in the strength of the relationships over time.

of racial/ethnic stratification, and represent the mean differences between each minority group and whites (Zuberi 2001). Similarly, the interactions between the metropolitan-level variables and the racial/ethnic indicators measure the differential relationship of structural characteristics for members of different racial/ethnic groups. These variables represent stratification in structural dynamics and individual outcomes (James 2008).

The fixed-effects model is represented by the equation,

$$\begin{aligned} ln(Wage_{ijt}) = \beta_{White} &+ \beta_{Race} Race_{ijt} \\ &+ \beta_{Econ,White} Econ_{jt} \\ &+ \beta_{Econ,Race} Econ_{jt} \times Race_{ijt} \\ &+ \beta_X X_{ijt} + \beta_W W_{jt} \\ &+ MSA_j + Year_t + e_{ijt}. \end{aligned} \tag{2.2}$$

The set of metropolitan fixed effects is represented by MSA_j, and the set of year fixed effects by $Year_t$. In contrast to the cross-sectional regression models, the coefficients $\beta_{Econ,White}$ and $\beta_{Econ,Race}$ represent the *change* in average logged wages for a unit *increase* in the new economy variables within the metropolitan area over time. As with the cross-sectional models, the regression models use the Huber-White standard error correction for the nesting of individuals within metropolitan areas and years, and apply appropriate sampling weights.

Again, the interpretation of the interaction terms between the race/ethnicity indicators and the new economy variables is somewhat counter intuitive for wage gaps. Positive coefficients indicate minority workers' wages are higher relative to whites with increases in the new economy variables between decades. As a result, *positive* coefficients for the interaction terms imply that racial/ethnic wage gaps are *smaller* with increases in the new economy variables. Conversely, *negative* coefficients imply the gaps are *larger* as the new economy variables increase.

Finally, all regression models adjust for potential bias resulting from selection into employment. Within each year, a probit model estimates the conditional probability of employment based on individuals' age, sex, race/ethnicity, marital status, household composition, immigrant status, and metropolitan area of residence. The resulting estimates yield the inverse Mills ratio, or 'selection hazard', which is then included as an individual-level control variable in the final models predicting logged

wages (Heckman 1979).

2.4 Results

2.4.1 Cross-Sectional Regression Results

As stated, the first set of regression analyses rely on variation between metropolitan areas to examine trends in the structural covariates of wages for workers of each racial/ethnic group over time. The coefficients for the interaction terms of the new economy variables and race/ethnicity indicators estimate the relationships for minority workers relative to whites. Positive coefficients indicate a stronger relationship between higher levels of the new economy and higher wages for minorities compared to whites. Stronger positive relationships then imply that areas with higher levels of the new economy variables have smaller racial/ethnic wage gaps. The main effects of the new economy variables represent the conditional relationships between levels of the variables and mean wages for white workers.

The regression models include, but do not show, all individual- and metropolitan-level controls. The individual-level coefficient estimates are consistent with previous findings, and are presented in Table A.3 in Appendix A. Hourly wages are significantly higher for full-time workers, males, older workers, the married, native born, and those with children. Workers with higher educational attainment have significantly higher wages, and those in service occupations have lower wages relative to all other occupational categories. At the metropolitan level, wages are significantly higher in areas with greater unemployment in all years, and in areas with higher public employment in 2010. More populous cities also have significantly higher wages in all years. The percent black is significantly negatively associated with wages in 2010, and the percent Latino is negatively associated in 2000 and 2010. The percent Asian is unrelated to average wages. The coefficient estimates for the metropolitan control variables are presented in the top panel of Table A.4 in Appendix A.

The coefficients for the new economy variables and the race/ethnicity interaction terms, as well as the main effects for white workers, are presented in Table 2.1. The first coefficient indicates that average wages for black workers are 2.1% lower relative to the difference for whites in metropolitan areas with a standard deviation higher *Coll./Non-Coll. Ratio* relative to areas at the mean in 1980 ($-2.1 = 100 \times \beta \times S.D._X = 100 \times -0.174 \times 0.12$).[19] Then, the conditional black-white wage gap is larger in areas with a higher *Coll./Non-Coll. Ratio* in 1980. The *Coll./Non-Coll. Ratio* is also significantly related to higher black-white gaps in 1990, but not 2000 or 2010.

The local share of earnings in the FIRE industry is significantly related to larger black-white wage gaps in 1980. Average wages for black workers are lower by 2.6% relative to the difference for whites in areas with a standard deviation higher *ln(% FIRE Earnings)* relative to the mean ($-2.6 = 100 \times -0.076 \times 0.34$). However, the relationship is not significant in any subsequent year. The only other new economy variable significantly related to the spatial distribution of black-white wage gaps is the *% Foreign Born* in 2000 and 2010. Average wages for black workers are lower by approximately 2.3% relative to whites in metropolitan areas with a standard deviation larger share of foreign born residents in those years.[20] Levels of *Casualization* and the *Creative Class* are not significantly related to black-white wage gaps in any year. These results suggest black-white gaps are larger in areas with a greater high-skill premium in the earlier two decades, then larger in areas with more immigration

[19] The total statistical effect of the *Coll./Non-Coll. Ratio* on black workers' wages is calculated with the sum of the interaction term and the main effect for whites. Average wages for white workers are lower by 1.8% in MSAs with a standard deviation higher *Coll./Non-Coll. Ratio* relative to the mean in 1980 ($-1.8 = 100 \times -0.148 \times 0.12$). The average wages for black workers are lower by 3.9% in areas with a standard deviation higher *Coll./Non-Coll. Ratio* ($-3.9 = 100 \times (\beta_{white} + \beta_{white-black}) \times S.D._X = 100 \times (-0.148 + -0.174) \times 0.12$). The percentage point difference in the relationship between white and black workers is then 2.1%, as calculated in the text above.

[20] However, the total relationship between black workers' average wages and the percent foreign born is positive in these years. Black workers' wages are higher by 2.3% and 3.2% in areas with a standard deviation higher *% Foreign Born* in 2000 and 2010, respectively. However, the positive relationship is twice as strong for white workers' average wages.

Table 2.1: Cross-Sectional Regression Results for Logged Hourly Wages on the New Economy Variables.

	1980	1990	2000	2010
Black-White				
Coll./Non-Coll. Ratio	-0.174**	-0.301***	-0.066	0.002
	(-3.196)	(-4.321)	(-1.012)	(0.032)
ln(% FIRE Earnings)	-0.076*	-0.042	0.021	0.003
	(-2.418)	(-1.230)	(0.818)	(0.151)
Creative Class	0.002	0.005	0.003	0.003
	(0.643)	(1.589)	(1.181)	(0.824)
Casualization	0.003	0.003	0.004	0.003
	(1.205)	(1.560)	(1.418)	(1.040)
% Foreign Born	0.001	-0.001	-0.003*	-0.003***
	(0.644)	(-1.078)	(-2.275)	(-3.336)
Latino-White				
Coll./Non-Coll. Ratio	-0.207**	-0.240***	-0.207**	-0.071
	(-2.798)	(-3.508)	(-2.989)	(-1.376)
ln(% FIRE Earnings)	-0.132***	-0.109***	-0.077***	-0.034
	(-5.561)	(-4.749)	(-3.450)	(-1.891)
Creative Class	0.010*	0.015***	0.007*	0.003
	(2.548)	(4.258)	(2.302)	(1.541)
Casualization	0.004	0.014***	0.008**	0.008**
	(1.600)	(4.571)	(2.642)	(3.040)
% Foreign Born	-0.006***	-0.006***	-0.006***	-0.006***
	(-7.289)	(-7.175)	(-6.730)	(-6.294)

Continued on next page.

in the later two decades.

The *Coll./Non-Coll. Ratio* and *ln(% FIRE Earnings)* are both significantly negatively related to Latino workers' wages relative to whites from 1980 to 2000. Areas with a larger high-skill premium and greater financialization also have higher white-Latino wage gaps in those decades. However, Latino workers' wages are higher relative to whites in areas with a larger share of the *Creative Class* in 1980 through 2000, and with more *Casualization* in 1990 through 2010. Latino-white wage gaps are significantly smaller in metropolitan areas with higher levels of these two elements of the new economy. Finally, Latino-white gaps are significantly higher in MSAs

Table 2.1 continued.

	1980	1990	2000	2010
Asian-White				
Coll./Non-Coll. Ratio	-0.062	-0.051	0.118	0.103
	(-0.918)	(-0.572)	(1.164)	(1.518)
ln(% FIRE Earnings)	-0.108***	-0.162***	-0.089***	-0.016
	(-3.508)	(-5.110)	(-3.775)	(-0.725)
Creative Class	-0.005	0.008	0.012**	0.011***
	(-0.773)	(1.389)	(2.758)	(3.765)
Casualization	-0.005	0.005	0.003	0.011***
	(-0.979)	(1.172)	(0.693)	(3.774)
% Foreign Born	-0.002	-0.003**	-0.007***	-0.008***
	(-1.255)	(-3.084)	(-5.630)	(-6.736)
White				
Coll./Non-Coll. Ratio	-0.148**	-0.265***	-0.008	0.169***
	(-3.219)	(-4.903)	(-0.142)	(4.213)
ln(% FIRE Earnings)	-0.074***	-0.015	0.016	0.032
	(-3.739)	(-0.579)	(0.772)	(1.966)
Creative Class	0.013***	0.002	0.010***	0.001
	(6.001)	(0.727)	(4.496)	(0.673)
Casualization	-0.007**	-0.002	0.002	-0.005
	(-2.754)	(-0.541)	(0.839)	(-1.499)
% Foreign Born	0.004***	0.008***	0.006***	0.007***
	(3.969)	(4.403)	(3.954)	(5.501)
MSAs	219	219	219	219
N	991,759	1,263,504	1,682,018	783,486
R^2	0.284	0.296	0.270	0.321

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

with greater *% Foreign Born*.[21] Altogether, the spatial patterns of Latino-white wage gaps and levels of the new economy variables are mixed. High skill premiums, financialization, and immigration are associated with larger gaps, particularly in the first three decades. However, concentration in creative occupations and employment insecurity are associated with smaller gaps.

[21] The total relationship between *% Foreign Born* and Latinos' wages is close to zero in all decades, however. The significant relationship to Latino-white wage gaps is due to a significant positive relationship between immigrant populations and higher wages for whites, while immigration and wages for Latino workers are unrelated.

The relationship between the *Coll./Non-Coll. Ratio* and Asian workers' wages is not significantly different from the relationship for white workers in any decade, making the ration unrelated to Asian-white wage gaps. White-Asian gaps are significantly higher in areas with greater financialization from 1980 to 2000, however. In MSAs with a standard deviation higher level of *ln(% FIRE Earnings)*, average wages for Asian workers are lower by 3.4% to 5.8% relative to the difference for white workers in these decades. The *% Foreign Born* is also negatively related to Asian workers' wages relative to whites in 1990 to 2010, making Asian-white wage gaps larger in metropolitan areas with large immigrant populations.[22] White-Asian wage gaps are smaller in areas with larger shares of the *Creative Class* in 2000 and 2010, however. The gaps are also smaller in areas with more *Casualization* in 2010.

The main effects of the new economy variables for white workers' average wages are mixed. Average wages are significantly lower in areas with a higher *Coll./Non-Coll. Ratio* in 1980 and 1990. However, there is no relationship in 2000 and a reversal by 2010. Average wages for white workers are 1.8% lower in metropolitan areas with a *Coll./Non-Coll. Ratio* one standard deviation above the mean in 1980. The average wages are 3.2% higher for a standard deviation difference in 2010. Higher levels of financialization and casualization are associated with lower wages for whites in 1980, but there is no relationship in any subsequent decade. The *Creative Class* is inconsistently related to wages, with higher wages in areas with more concentration in creative occupations only in 1980 and 2000. Finally, white workers have significantly higher wages in areas with larger *% Foreign Born* in all decades. Altogether, the pattern of results for whites suggest the new economy has mixed relationships with wages in the earlier two decades, but a relatively positive relationship in the later two.

[22] The net relationship between immigration and average wages is close to zero in 2000 and 2010. The relationship is positive in 1990, but smaller than for whites. The relationship is also positive in 1980, and not significantly different from whites.

Table 2.2: Regression Results for Logged Hourly Wages on Union Rates.

Cross-Sectional	1990	2000	2010
Black-White	0.004***	0.003***	0.004***
	(5.813)	(5.102)	(3.803)
Latino-White	0.002	0.001	0.002
	(1.927)	(1.469)	(1.934)
Asian-White	-0.002	-0.001	-0.001
	(-1.915)	(-0.578)	(-0.591)
White	0.006***	0.007***	0.007***
	(6.140)	(11.217)	(7.666)
MSAs	159	159	159
N	1,247,450	1,702,167	764,030
R^2	0.290	0.274	0.315
Fixed-Effects	1980–2010	1990–2000	2000–2010
Black-White	0.002***	0.002***	0.002***
	(6.841)	(6.447)	(4.849)
Latino-White	-0.001*	-0.002**	-0.001*
	(-2.405)	(-3.122)	(-2.036)
Asian-White	-0.002*	-0.002*	-0.002
	(-2.026)	(-2.042)	(-1.701)
White	0.003***	0.001	0.003***
	(4.717)	(1.601)	(5.483)
MSA-Years	477	318	318
N	3,713,647	2,949,617	2,466,197
R^2	0.295	0.283	0.298

Note: Robust t-statistics in parentheses. Models include but do not display all individual- and metro-level variables.
*** p<0.001, ** p<0.01, * p<0.05

The results from separate cross-sectional analyses estimating the relationship between unionization and wages are presented in the top panel of Table 2.2. The pattern of results for the other new economy variables is consistent with the results in Table 2.1 when the models are estimated without the *Union Rate* on these smaller samples of MSAs. There are some differences with the *Union Rate* included, which I note below.

Average wages for all workers are significantly greater in areas with a higher *Union Rate* in all years. However, only black-white wage gaps are significantly smaller wight higher unionization. The relationship between unionization and wages is equivalent for white, Latino, and Asian workers.

Some of the coefficients for the other new economy variables are also slightly different with unionization in the models. The *Coll./Non-Coll. Ratio* is not statistically significant for black-white or Latino-white wage differences in 1990. In contrast, the *ln(% FIRE Earnings)*, *Creative Class*, and *Casualization* are significant for black-white wage differences in 1990. The magnitudes of the coefficient estimates are similar to those in Table 2.1 however. The main effect of *Creative Class* is also significant for whites in all years.

Overall, the spatial patterns of minority-white wage gaps and different aspects of the new economy vary between groups and over time. Black-white wage gaps are larger in areas with a higher *Coll./Non-Coll. Ratio* in the earlier two decades, and higher in areas with a greater *% Foreign Born* in the later two. Latino-white gaps tend to be larger in MSAs with a higher *Coll./Non-Coll. Ratio*, *ln(% FIRE Earnings)*, and *% Foreign Born*. However, these gaps are lower where there is a larger share of the *Creative Class* and more *Casualization*. Asian-white gaps are also significantly larger in places with greater financialization and immigration, but smaller in areas with a larger *Creative Class* and more *Casualization* in the recent decades.

2.4.2 Fixed-Effects Regression Results

The second set of regression analyses examine variation within local labor markets to estimate the relationships between ten-year changes in the new economy variables and wages. Again, all individual- and metropolitan-level controls are included but not shown. Individual-level coefficient estimates are all similar to those from the

cross-sectional regression models. However, the coefficients for the metropolitan-level control variables differ with the inclusion of fixed effects, and are presented in the bottom panel of Table A.4 in Appendix A.

Increases in unemployment are significantly related to higher wages, except for between 2000 and 2010. This relationship is likely due to selection of low-wage workers out of the labor market. Average wages decrease with growth in public employment from 1990 to 2000, but in no other decade. The decrease may reflect relatively larger wage gains among privately employed workers in the 1990s. Population growth is associated with higher wages, except for the 1980s. Changes in the proportion of the local black population is unrelated to changes in average wages. Increases in the local Latino population is positively related to wages in the 1980s and 2000s, and increases in the local Asian population are positively related in the 2000s.

Table 2.3 displays the coefficient estimates of the new economy variables. Evident in the pooled model, black workers' average wages significantly decline relative to whites in areas with increases in the *Coll./Non-Coll. Ratio*, resulting in larger black-white wage gaps in these places. Wages for black workers decrease by 3% relative to whites in metropolitan areas experiencing the average increase in the *Coll./Non-Coll. Ratio* from 1980 to 2010s. The relationship is also robustly significant in all decades. The only other new economy variable significantly related to black-white wage differences is the *ln(% FIRE Earnings)*, and this association is concentrated in the 1980 to 1990 decade. Average wages for black workers decline by 5.3% in labor markets experiencing the mean increase in the local share of FIRE earnings in the 1980s. These results suggest that most elements of the transition to the new economy have equivalent impacts on wages for white and black workers. However, black-white wage gaps significantly increase with the high-skill premium, providing support for the stratification hypothesis.

Similar to the cross-sectional results, increases in the *Coll./Non-Coll Ratio* and

Table 2.3: Fixed-Effects Regression Results for Logged Hourly Wages on Changes in New Economy Variables.

	1980–2010	1980–1990	1990–2000	2000–2010
Black-White				
Coll./Non-Coll. Ratio	-0.160***	-0.127***	-0.166***	-0.155***
	(-5.683)	(-4.172)	(-4.672)	(-3.740)
ln(% FIRE Earnings)	-0.021*	-0.046*	-0.023	-0.012
	(-1.984)	(-2.453)	(-1.701)	(-0.970)
Creative Class	-0.000	0.002	-0.001	-0.000
	(-0.216)	(1.397)	(-0.529)	(-0.251)
Casualization	-0.001	0.000	-0.000	-0.001
	(-0.887)	(0.326)	(-0.119)	(-0.689)
% Foreign Born	-0.000	0.000	0.000	-0.000
	(-0.032)	(0.681)	(0.017)	(-0.025)
Latino-White				
Coll./Non-Coll. Ratio	-0.189***	-0.140***	-0.195***	-0.228***
	(-8.732)	(-3.683)	(-6.539)	(-9.632)
ln(% FIRE Earnings)	-0.083***	-0.125***	-0.110***	-0.076***
	(-7.959)	(-7.441)	(-9.377)	(-6.353)
Creative Class	0.000	0.007***	0.001	-0.001
	(0.394)	(3.619)	(0.765)	(-0.605)
Casualization	0.001	0.005**	0.001	0.000
	(0.835)	(3.047)	(0.866)	(0.418)
% Foreign Born	-0.003***	-0.004***	-0.003***	-0.002***
	(-7.665)	(-5.730)	(-6.017)	(-5.621)

Continued on next page.

the *% Foreign Born* have stratified relationships for Latino workers' wages relative to whites.[23] Growth in *ln(% FIRE Earnings)* is also more negatively related to wages for Latinos than whites, and is much more robustly significant than in the cross-sectional analyses. The remaining two new economy variables are more positively related to Latino workers' wages than to whites. However, changes in the *Creative Class* and *Casualization* are only significant in the 1980s. The negative coefficients imply that Latino-white wage gaps are significantly larger with increases in the high-skill premium, financialization, and immigration. These results are highly consistent

[23] Similar to the results of the cross-sectional analyses, the total relationship between the *% Foreign Born* and Latinos' wages is positive. Latino-white wage gaps increase with immigration because the positive relationship between the *% Foreign Born* and wages is stronger for white workers.

Table 2.3 continued.

	1980–2010	1980–1990	1990–2000	2000–2010
Asian-White				
Coll./Non-Coll. Ratio	0.059	-0.023	0.002	-0.022
	(1.526)	(-0.617)	(0.035)	(-0.502)
ln(% FIRE Earnings)	-0.078***	-0.127***	-0.123***	-0.076***
	(-5.136)	(-3.371)	(-6.304)	(-5.119)
Creative Class	0.003*	-0.003	-0.000	0.003*
	(2.232)	(-1.168)	(-0.200)	(2.018)
Casualization	0.002	-0.003	-0.002	0.003
	(0.826)	(-1.132)	(-1.186)	(1.364)
% Foreign Born	-0.005***	-0.002**	-0.003***	-0.005***
	(-8.152)	(-3.260)	(-4.889)	(-6.728)
White				
Coll./Non-Coll. Ratio	-0.066**	-0.164***	-0.042*	0.028
	(-2.786)	(-4.136)	(-1.979)	(1.316)
ln(% FIRE Earnings)	-0.006	0.030	0.002	-0.024*
	(-0.476)	(1.460)	(0.149)	(-2.046)
Creative Class	0.012***	0.006	0.009***	0.009***
	(6.687)	(1.822)	(5.371)	(6.362)
Casualization	-0.013***	-0.025***	-0.017***	-0.008***
	(-7.277)	(-8.100)	(-8.910)	(-5.165)
% Foreign Born	0.010***	0.010***	0.009***	0.005***
	(7.971)	(5.202)	(7.664)	(3.813)
MSA-Years	876	438	438	438
N	4,720,767	2,255,263	2,945,522	2,465,504
R^2	0.294	0.294	0.286	0.301

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

with the stratification hypothesis. The positive effects of the *Creative Class* and *Casualization* in the 1980s provide only limited support for the equality hypothesis.

The two most salient new economy variables for Asian-white wage gaps are *ln(% FIRE Earnings)* and the *% Foreign Born*. Averages wages for Asian workers decrease by 1.8% relative to whites in metropolitan areas experiencing the mean increase in *ln(% FIRE Earnings)* from 1980 to 2010, though the relationship is stronger in the earlier two decades than in the 2000s. Asians' wages decrease by 2.6% relative to whites for the mean increase in the *% Foreign Born*. The only other significant effect

is a positive relationship for growth in the *Creative Class*, which is concentrated in the 2000s. The magnitude of the relationship is relatively weak, with average wages for Asian workers increasing only 0.3% relative to whites for the observed mean increase in the *Creative Class* in the 2000s. Again, the pattern of results for the new economy variables and Asian-white wage gaps strongly support the stratification hypothesis, and provide minimal evidence to support the equality hypothesis.

Finally, the main effects of the new economy variables for white workers' average wages are mixed. Wages significantly decrease with growth in the *Coll./Non-Coll. Ratio* and *Casualization*, though the *Coll./Non-Coll. Ratio* is not significant between 2000 and 2010. Meanwhile, increases in the *Creative Class* and *% Foreign Born* are positively related to wages. The *Creative Class* is not significant in the 1980s, however. Finally, *ln(% FIRE Earnings)* is not significant in the pooled model, and has only a small negative effect between 2000 and 2010.

The results from separate fixed-effects regression models for unionization are presented in the bottom panel of Table 2.2. Consistent with the cross-sectional results, increases in the local *Union Rate* are significantly related to higher wages for black workers relative to whites. Thus, higher unionization decreases white-black wage gaps. In contrast, changes in the *Union Rate* are associated with increases in Latino-white and Asian-white wage gaps. However, the new economy is characterized by *declines* in unionization. Deunionization then has a disproportionately negative impact on the wages of black workers relative to whites, while deunionization seems to have a weaker effect on Latino and Asian workers compared to whites.

2.4.3 Counterfactual Trends

The preceding regression results indicate that different dimensions of the transition to the new economy have racially-stratified relationships to wages. The models also provide evidence that the strength of some of these relationships varies between

decades. However, assessment of the overall relationship between the transition to the new economy and trends in racial/ethnic wage gaps is less straight-forward. Different elements of the new economy have different effects for different groups. Workers of each racial and ethnic group are also unevenly distributed between metropolitan areas, which leads to differences in their exposure to changes in structural characteristics. The following counterfactual estimates of trends in racial/ethnic wage gaps illustrates the joint impact of the new economy variables.

Figure 2.4 displays two estimated trends in black-white, Latino-white, and Asian-white wage gaps. The solid lines are the predicted minority-white differences in average hourly wages using the coefficients from the pooled fixed effects model for 1980–2010, presented in the first column of Table 2.3, and observed values for all independent variables. These estimates correspond to the directly observed wage gaps, presented in Figure 2.1, and show trends in racial/ethnic wage gaps *in the presence of the transition to the new economy.*[24] The dashed lines show similar estimates of racial/ethnic wage gaps, but with all new economy variables held constant at the values observed in 1980. These counterfactual trends statistically eliminate both the differential effects of changes in the new economy variables, and changes in each racial/ethnic group's exposure to them. The dashed lines then represented estimated trends in racial/ethnic wage gaps *in the absence of the transition to the new economy.* The difference between these lines yields an estimate of the total impact of the new economy as a whole on wage gaps over time.

Perhaps the most notable feature of Figure 2.4 is the substantially lower estimates of black-white and Latino-white wage gaps with the new economy variables held constant at their 1980 values. The predicted black-white wage gap increases by 25%,

[24] Predicted values from the regression model underestimate average wages for each group, but more for Asians and whites than blacks and Latinos. As a result, the black-white and Latino-white wage gaps are slightly underestimated, and the Asian-white gap is slightly overestimated. However, the time trends and relative sizes of the gap estimates are relatively consistent.

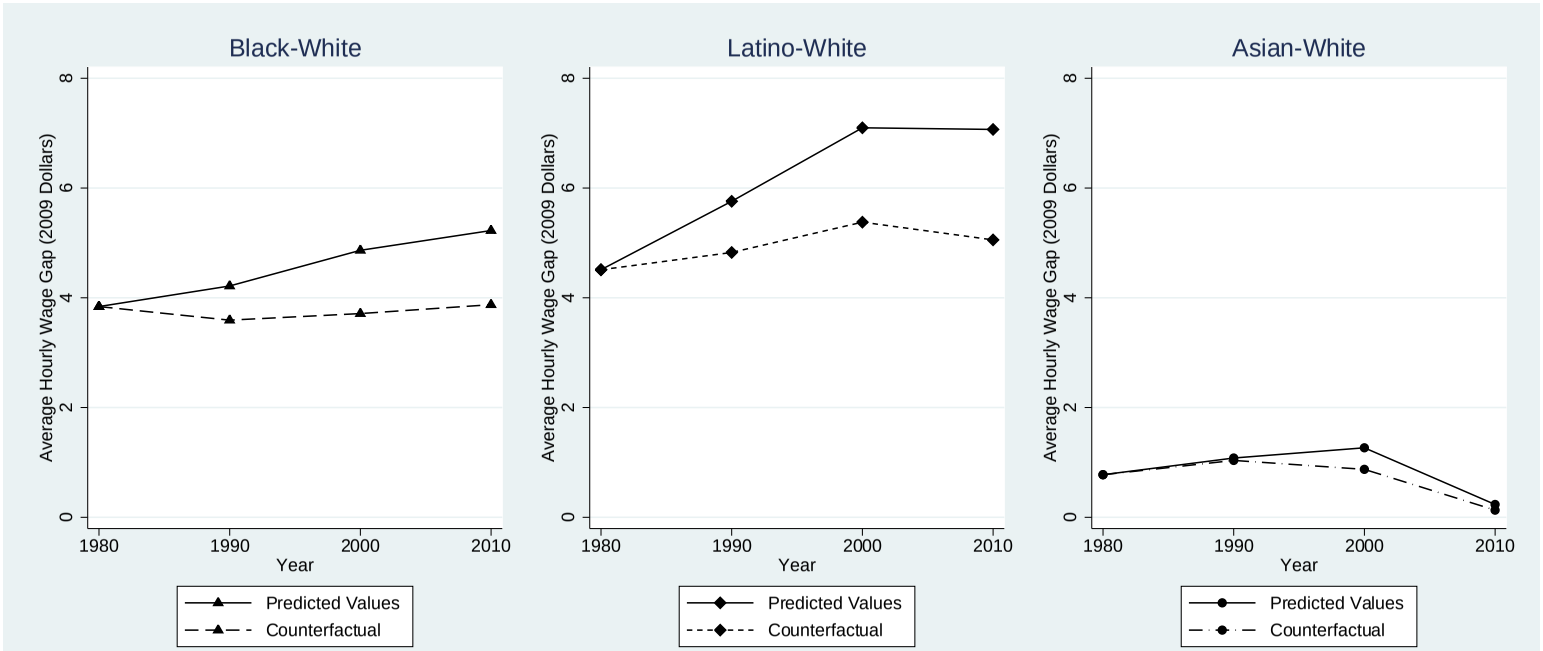

FIGURE 2.4: Predicted and Counterfactual Racial/Ethnic Gaps in Average Hourly Wages, in 2009 Dollars.

$4.19/hour in 1980 to $5.22/hour in 2010, using observed values. Holding the new economy variables constant at 1980 levels, the predicted black-white gap declines from $4.19/hour to $3.85/hour in 1990. The gap remains fairly constant in the following two decades at just under $4/hour. The difference between the predicted values using observed conditions and the counterfactual estimates suggests the black-white hourly wage gap in 2010 is 31% ($0.31 = \frac{\$5.22-\$3.98}{\$3.98}$) higher due to the transition to the new economy.

The predicted Latino-white wage gap increases by 50% from 1980 to 2000, from approximately $4.72 to $7.10/hour, then remains fairly constant between 2000 and 2010. Holding the new economy variables constant, the corresponding increase in the predicted wage gap is only 11% between 1980 and 2000. The counterfactual gap declines slightly from 2000 to 2010, from $5.23 to $5.11/hour. Overall, the estimated white-Latino wage gap in the new economy is 40% ($0.40 = \frac{\$7.16-\$5.11}{\$5.11}$) larger than the counterfactual gap for 2010.

Despite the differential impacts of financialization and immigration for Asian workers' wages relative to whites, the new economy as a whole appears to have virtually no impact on the average Asian-white wage gap.[25] The estimated Asian-white hourly wage gap increases from $0.89 in 1980 to $1.25/hour in 2010, then rapidly declines to $0.33/hour. In slight contrast, the counterfactual wage gap declines monotonically to $0.25/hour in 2010. The largest difference between the estimated and counterfactual Asian-white gaps is in the year 2000. The estimated gap is 60% larger than the counterfactual, but the difference is less than $0.48/hour.

Though the transition to the new economy contributes to larger black-white and Latino-white wage gaps, it also raises average wages for workers of all racial and

[25] This apparent discrepancy is partly due to differential exposure to these elements of the new economy between white and Asian workers. For example, the share of earnings in the FIRE sector in the average white worker's local labor increases steadily from 1980 to 2010. However, the share of FIRE earnings in the labor market of the average Asian worker peaks in 1990, and declines in the subsequent two decades.

ethnic groups between 1980 and 2010. Predicted trends in average wages using both observed values for the new economy variables, and counterfactual estimates using constant values from 1980, are presented in Figure A.1 in Appendix A. The counterfactual average wages for all groups decrease in the 1980s, then remain relatively stagnant afterwards with the exception of Asian workers. However, the presence of the new economy prevents or at least attenuates the wage declines in the 1980s. The transition to the new economy turns the stagnation of white workers' wages into growth in the 2000s, and increases the growth rate of Asian workers' wages. In 2010, average wages for workers of these two groups are approximately 14% larger in the transition to the new economy relative to its theoretical absence.

Though still beneficial, the difference between the presence and absence of the new economy for black and Latino workers is less pronounced. Average wages for black workers experience little net change between 1990 and 2010 in either case. Latino workers' average wages remain stagnant from 1990 to 2000 with or without the new economy. Latinos' wages decline in the presence of the new economy in the 2000s however, while they remain constant for that decade in its absence. The new economy is associated with approximately 10% higher wages for black workers in 2010, and 5% higher wages for Latinos in that year.

The counterfactual trends suggest two main conclusions. First, average wages for workers of all racial and ethnic groups are higher in the transition to the new economy than in its theoretical absence. Second, the relative increase in wages in the new economy is much larger for whites and Asians than for Latinos. The result is significantly larger black-white and Latino-white wage gaps due to the transition to the new economy, which is consistent with the theoretical arguments motivating the stratifying hypothesis.

These counterfactual comparisons are not without some potential problems. The underlying regression model used to generate them controls for as many observable

and unobservable theoretically relevant factors as possible. Still, the model specification assumes there are no other interactive effects between the new economy variables and individual characteristics beyond race/ethnicity, which may introduce some bias into the estimates. There are a number of reasonable arguments for the inclusion of more cross-level interactions. For example, the effect of individual workers' nativity status may vary with the size of the local immigrant population. Any interactive effects would likely have to be strong and/or numerous to completely cancel the main effects of the new economy variables, given the size and robustness of the coefficients. Nevertheless, the counterfactual differences in average wages presented here may represent upper bound estimates. Thus, Figure 2.4 provides a reasonable illustration of the salient and substantial relationship between the transition to the new economy and trends in racial/ethnic wage gaps.

2.4.4 Potential Mechanisms

Racial and ethnic wage inequality increases considerably in the transition to the new economy, but it is also important to understand the processes through which these structural changes are associated with individuals' disparate outcomes. A spectrum of theoretical traditions attributes these differences to explicitly racialized and non-racialized factors. The underlying mechanisms for black-white and Latino-white wage disparities are difficult to identify empirically. However, a variety of sensitivity analyses may illuminate which of the existing explanations for racial/ethnic wage gaps are most promising in the context of the new economy.

Traditional economic explanations attribute the majority of these gaps to differences in human capital, and are at the race-neutral end of the spectrum of potential mechanisms. These theories argue that unexplained differences in earnings after adjusting for standard worker characteristics likely result from fine-grained, unmeasured forms of human capital. Studies that measure frequently unobserved worker

characteristics like occupational certification and specialized training are able explain significantly greater variation in earnings between groups (Tam 1997; Weeden 2002). Other forms of unobserved human capital may be unevenly distributed by race/ethnicity, and correlated with labor market characteristics in a way that produces observed wage gaps. Under such assumptions, unobserved forms of human capital may have large importance for wages in the new economy. A differential distribution of unobserved human capital by race/ethnicity would then have large effects on wage gaps between local labor markets, and over time.

Controlling for fine-grained measures of observed human capital, presumably highly correlated with unobserved capital, does little to affect the results presented here. These models include single year of education and industry-by-occupation dummy variables.[26] Additionally, one would expect much less heterogeneity in unobserved capital among those with low observed human capital. A replication of the main analyses among workers with a high school education or less yields comparable results, further discouraging the unobserved human capital explanation. These results are presented in Table A.5 of Appendix A.

An array of alternative theories emphasize the role of structural factors in the production of racial and ethnic inequalities, which extend beyond the level of individual characteristics and interactions. Examples of structural perspectives include studies of the emergent effects of occupational segregation, devaluation, and labor market segmentation on the production of racial and ethnic earnings inequalities (Huffman and Cohen 2004; Leicht 2008). The transition to the new economy may be associated with larger racial/ethnic wage gaps because the growth of high-skill and knowledge-based industries may increase occupational segregation. Rudimentary measures of occupational segregation do not explain the main pattern of results,

[26] Industry-by-occupation dummies are coded as combinations of two-digit industry and two-digit occupation categories using the 1990 Census coding scheme, harmonized over time.

however. Models controlling for the percent of non-white workers in local jobs find a significant negative relationship between minority concentration and wages, but little or no difference in the coefficients for the new economy variables.[27]

Similarly, spatial mismatches between employment opportunities and racially segregated neighborhoods in local labor markets may represent a structural barrier to competitive participation in the new economy by minority workers (Kain 1992; Kasarda 1995). The primary industries of the new economy may be geographically located within metropolitan areas away from residentially segregated minority populations, reducing any direct or spillover effect on minority workers' wages. However, there is no systematic pattern of significant relationships between measures of racial residential segregation, racial differences in commute times, and wages.[28] Coefficients for the new economy variables in these analyses are also very similar to those presented here.

The systematic devaluation of minority workers may account for much of the observed earnings inequalities. Devaluation is often studied at the occupational level, and as a function of the predominance of women or racial/ethnic minorities within the occupation. Numerous studies find a significant negative relationship between the proportion of black or Latino workers in jobs and the jobs' average wages (Huffman 2004; Huffman and Cohen 2004; Kmec 2003; Semyonov and Herring 2007; Tomaskovic-Devey 1993). As stated, controlling for the proportion of non-whites within workers' local jobs had no impact on the main results for the new economy variables. However, it is not difficult to imagine devaluation operating beyond the occupational level. Stemming from theories explaining gender inequality in earnings,

[27] Local jobs are coded as ond-digit industry-by-occupation cells within each MSA-year.

[28] Racial residential segregation is measured using the indices of dissimilarity between whites and blacks, whites and Latinos, and whites and Asians. These metropolitan-level variables are calculated by the Census Bureau (2000) using complete-count information for 1980–2000, and by William Frey (2011) for 2010 using data from the 2008-2010 waves of the ACS.

the "crowding out" hypothesis proposes a market-based explanation for devaluation (Cohn 2000; Stevenson 1984). Rather than wage inequality being the result of direct discrimination across the board, some degree of racial/ethnic discrimination reduces the number of jobs available for minority workers. Wages offered to minority workers are lower as a result of relatively greater supply to demand, compared with whites.

The argument that residual earnings differences between racial and ethnic groups, after conditioning on human capital, represent the pure effects of racial discrimination by employers is at the race-driven end of the spectrum of potential mechanisms. In support of this perspective, the persistence and importance of racial discrimination in employment is firmly established (Pager and Shepherd 2008). As such, many sociologists interpret wage differences between racial/ethnic groups, net of relevant worker and labor market characteristics, as largely or entirely the result of discrimination (Leicht 2008). The residual earnings differences may even represent lower bounds for the impact of discrimination, as the introduction of socioeconomic control variables diminishes researchers' abilities to examine discrimination preceding them (McCall 2001b). Reskin (2012) expands this line of theorization, highlighting the interconnected effects of discrimination between different social and economic outcomes. Reskin also argues for discrimination as the default explanation for residual differences between blacks and whites in quantitative analyses.

Unfortunately, traditional observational survey and Census data have severely limited abilities to detect direct discrimination. This study is no exception. Even still, the lack of compelling alternative explanations suggests some combination of devaluation and discrimination may account for much of the racially-stratified relationship between the new economy and wages.

Perhaps the most suitable explanation is then a combination of discrimination and generalized devaluation of black and Latino workers, as articulated by the "overcrowding" hypothesis.

2.5 Discussion

This chapter of the dissertation documents a racially stratified relationship between the transition to the new economy and wage trends in urban labor markets. Taken as a whole, the average Latino-white wage gap is approximately 40% larger in 2010 than it would be in the theoretical absence of the new economy. Analogously, the average black-white wage gap is 31% larger in 2010. In contrast, the trend in the Asian-white wage gap is largely unrelated to the transition to the new economy.

Despite the strong relationship overall, the mixture of specific results highlights the complexity of the transition to the new economy, and the multi-group racial/ethnic stratification system in America. Results from the cross-sectional regression models indicate that black-white wage gaps are most spatially correlated with large high-skill wage premiums, and are smaller in areas with high unionization. Latino-white wage gaps are larger in areas with large skill premiums, high financialization, and large immigrant populations. Asian-white gaps are similarly larger in areas with high financialization and immigration. However, there is some indication that Latino-white gaps and Asian-white gaps are smaller in areas with larger proportions of workers in the creative class and higher casualized employment.

Results from the fixed-effects regression analyses indicate similar patterns of relationships, but many of the effects are more robust over time. The fixed-effects regression results rely solely on variation within local labor markets over time, rather than comparing levels of each factor between labor markets in a single year. Changes in wage gaps, rather than levels, appear to be more strongly related to particular elements of the new economy. Black-white wage gaps significantly increase with growth in the high-skill wage premium in all three decades (see Table 2.3), whereas the spatial correlation disappears after 1990 (see Table 2.1). Declines in unionization are similarly related to increases in the black-white wage gap in all years (see Table 2.2).

Latino-white gaps grow with increases in the skill premium and financialization in all decades, though the spatial correlations are weak and statistically insignificant in 2010. Similarly, Asian-white gaps increase with financialization and immigration in all decades, but the spatial correlations are weak and insignificant in 2010 and 1980, respectively.

The fixed-effects models also test the relationships between wage gaps and the new economy more stringently than the analogous cross-sectional models because they are less susceptible to omitted variable bias. Stable and unobserved characteristics of metropolitan areas, like geography or history, may induce spurious relationships in cross-sectional regressions, but such factors are differenced out with fixed effects. Comparison of the results from the two types of models indicates that some factors of the new economy have significant relationships to levels of racial/ethnic wage gaps, but little relationship to their trends. For example, Latino-white wage gaps are significantly smaller in labor markets with higher levels of employment casualization from 1980 to 2000. However, increases in casualization are significantly related to declines in Latino-white gaps between 1980 and 1990. Similarly, Latino-white wage gaps are significantly smaller in metropolitan areas with higher unionization in 2000 and 2010, but ten-year changes in unionization are unrelated to changes in Latino-white gaps.

At first glance, there appears to be some support for the equalizing hypothesis. Most notably, Figure A.1 in Appendix A shows that average wages for workers of all racial/ethnic groups are higher in the transition to the new economy versus the trends in its theoretical absence. In the new economy, white and Asian workers' wages increase over time (except for the slight decline of whites' wages between 2000 and 2010). The counterfactual trend is a large decline in average wages for both groups, followed by relative stagnation for white workers and growth for Asians. Black workers' average wages remain fairly stagnant over time compared to whites

and Asians, but would decline sharply in the 1980s in the absence of the new economy. Similarly, the decline of Latino workers' wages is larger in the counterfactual trend than observed. There is also some evidence in the cross-sectional regression analyses that Asian-white and Latino-white wage gaps are smaller in labor markets with a larger creative class and more casualized employment.

However, the chapter's main results are far more consistent with the stratifying hypothesis. White and Asian workers wages increase substantially in the new economy. In contrast, the transition to the new economy only seems to prevent wage declines for black workers, and attenuate declines for Latino workers. The magnitudes of the differences between observed and counterfactual average wages are also much larger for whites and Asians than for black and Latino workers. Moreover, none of the new economy variables robustly decrease minority-white wage gaps in the fixed-effects models. Evaluation of the results overall strongly favors the stratifying hypothesis; the average wages of white and particularly Asian workers increase significantly in the transition to the new economy, while wages for black and Latino workers exhibit much less benefit.

This chapter contributes to the sociological understanding of structural sources of racial/ethnic inequality. In this case, the transition to the new economy represents a seemingly non-racialized set of economic structural changes that have stratified effects for workers of different racial/ethnic groups. Beyond finding racially stratified relationships, this chapter also demonstrates the impact of the new economy on black-white and Latino-white wage gaps is widespread and profound. The vast majority of workers in urban labor markets are exposed to the structural changes discussed above, and the associated growth in wage gaps is considerable.

I argue the new economy increases racial/ethnic stratification by drawing on the political-cultural theory of markets (Fligstein 1996, 2001) and structural theories of racial stratification (Bonilla-Silva 1997; Feagin 2006; Lipsitz 2006). However, the

empirical findings above are consistent with other theories of racial stratification as well. For example, one could interpret the two fundamental elements of the new economy, the transition to knowledge-based industries and insecure employment relations, as the primary and secondary labor markets in traditional conceptions of dual economies (Doeringer and Piore 1971; Piore 1970). The disproportionate growth in wages for white and Asian workers relative to black and Latino workers then illustrates increasing rigidity in the racialized dual labor market (Hodson and Kaufman 1982; Piore 1970). Regardless of the specific theoretical underpinning, the chapter empirically demonstrates the transition to the new economy is a racialized structural process.

This study makes several other substantive and methodological contributions to the existing literature. First, I examine the relationships between six distinct facets of the new economy and racial/ethnic wage gaps. Many studies examine labor market characteristics like skill-biased technological change (Card and DiNardo 2002; Handel 2003), financialization (Palley 2007; Tomaskovic-Devey and Lin 2011), and immigration (Bean et al. 2001). However, this chapter analyzes the joint effects of three measures of the growth of high-skill and knowledge-based industries (the college wage premium, financialization, and the creative class), and three measures of rising employment insecurity (casualization, immigration, deunionization). Each of these measures represents defining features of the new economy. However, examination of their joint relationships to wages reveals that the college wage premium, financialization, deunionization, and immigration are most relevant for racial/ethnic earnings inequalities. The rise of the creative class and employment casualization have little robust relationship to these inequalities.

Second, the empirical analyses presented here update the literature in light of recent economic changes. The financial crisis of the late 2000s alters urban housing and labor markets across the United States, with heterogeneous impacts in different

areas (Rugh and Massey 2010; Tomaskovic-Devey and Lin 2011). Average wages for white, black, and Latino workers decline from 2000 to 2010 (see Figure 2.2). Regression results also indicate some differences in the relationships between the new economy variables and wages for 2010 compared with earlier decades. For example, the college wage ratio has a significant negative main effect on white workers' wages in 1980 and 1990 cross-sectional models, no relationship in 2000, and a significant positive relationship in 2010. Also, Latino-white and Asian-white wage gaps are significantly higher in areas with greater financialization in all cross-sectional models except 2010. Meanwhile, increases in financialization are associated with declines in whites' average wages only between 2000 and 2010. Conversely, growth in the creative class is associated with decreases in Asian-white wage gaps only in the last decade. These apparent discrepancies primarily occur among the measures for high-skill and knowledge-based industries, suggesting the crisis altered the wage effects of these elements of the new economy much more than the impact of employment insecurity. Employment insecurity undoubtedly increased in the crisis, as reflected by more than doubled unemployment rates between 2000 and 2010 (see Table A.2). However, the relationship between employment insecurity and wages appears unchanged.

It has been more than ten years since the last and perhaps only other relatively comprehensive examination of the new economy (McCall 2001a). Moreover, McCall's studies examine data from the 1990 Census, among other sources. Aside from the crisis, there are still two decades of change in average wages and labor market structural factors following this work. This study finds that immigration continues to significantly increase Latino-white and Asian-white wage gaps. Whereas McCall (2001b) finds significant effects of deindustrialization and minor effects of high-skill employment, the results above show that financialization and the college wage premium are primary drivers of inequality in recent decades.

A third contribution of this study is the observation of trends within local labor

markets over time. The three-decade span of the data analyses captures much of the transition into the new economy, as well as the corresponding trends in racial/ethnic wage gaps. Previous cross-sectional studies compare levels of each factor at a single point in time. The inferences from this approach generally imply that all areas are on similar trajectories, and that the level of each factor represents areas' progression along these trajectories. However, the analyses shown above explicitly measure and compare the changes between decades within each local labor market. As previously discussed, the inclusion of metropolitan fixed effects removes variation between local areas. These analyses rely completely on variation within local markets over time, and provide a more rigorous examination of wage inequality and the new economy than previous studies.

The findings presented here also establish a basis for future improvements and research directions. Repeated cross-sectional data only provide a single observation for each individual worker. Though repeated observations for workers over time would enable the study to draw more detailed inferences about the connection between macro- and micro-level processes generating wage inequalities, the outcome of interest is the population-level distribution of average racial/ethnic wage gaps. Even still, detailed analyses of individuals' responses to structural change could illuminate other relevant factors in the labor market stratification process.

The findings of this study may be reinforced by examinations of racial stratification in other parts of the employment process. Hiring and occupational mobility in particular are likely highly relevant process for the production of the wage inequalities documented here. Discrimination is powerful and pervasive for the maintenance of racial inequality (Pager and Shepherd 2008), but the new economy may also channel otherwise-comparable workers in racially distinct patterns that devalues minority workers (Huffman and Cohen 2004). This study controls for a variety of individual worker characteristics, but equally detailed information on firms, rather than indus-

trial composition, in local labor markets may illuminate many of these processes. The matching of employer and worker data provides much greater empirical leverage for adjudicating between hypothesized micro-level mechanisms (O'Connor et al. 2001), and would be particularly useful for unpacking the structural effects of the new economy found here.

Studies of the new economy also must analyze variation between native-born and immigrant workers more diligently. Though the analyses control for nativity and significant variation in the number of years since immigration, the structural factors likely affect immigrants and the native born in markedly different ways. This distinction may be particularly salient for Latino and Asian workers. Latino immigrants face unique labor market barriers (Bean et al. 2001; Ottaviano and Peri 2008; Waters and Eschbach 1995), and immigrant labor market competition may be much greater between immigrant groups than with the native born (Catanzarite 2002).

Overall, the chapter provides a strong foundation for further research. The empirical results presented here are useful for the evaluation and modification of structural theories of inequality. Meanwhile, the data and analytic strategy can easily be modified to examine structural inequalities by sex/gender, nativity, and other salient socially-defined groups within the labor market. Additional structural factors associated with the new economy can also be examined with the approach used here. Globalization represents a prominent set of economic changes, both domestically and cross-nationally, that may be subsumed in the new economy (Brady et al. 2007). Indeed, globalization has been explicitly linked to higher earnings inequality (Brady 2009a). Similarly, this analytic approach could examine the effects of managerial intensity and the share-holder value model, which are frequently debated processes within economic sociology (Fligstein 2001; Goldstein 2012; Leicht and Brady 2011). Finally, the empirical conclusions of the study starkly illustrate the salience of seemingly race-neutral structural changes for the extent and severity of racial/ethnic

inequalities.

3

Racial and Ethnic Stratification in Homeownership and Housing Market Dynamics

Recent discussions of housing market inequality often focus on the crash of the housing bubble in the late 2000s, and the ensuing wave of foreclosures. The consequences of this dramatic market event are widespread, significantly altering the national and global economies. However, the housing crash also has tremendous consequences for individuals, many of which are stratified by race and ethnicity. Many attribute the roots of the bubble to predatory lending practices (Bond and Williams 2007; Shiller 2008; Williams et al. 2005), which disproportionately target low-income and predominantly minority neighborhoods (Immergluck 2009b). These same groups also disproportionately suffer home foreclosures in the wake of the crash (Rugh and Massey 2010).

Despite the apparent suddenness of this dramatic event, the housing crisis is the result of long-term trends in housing market inequality. Over the past several decades, growing income inequality, housing supply regulation, and the increasingly speculative nature of the housing market have contributed to dramatic increases in

mean and median house prices, and in the spread of house prices (Glaeser et al. 2005; Himmelberg et al. 2005; Shiller 2005, 2007). However the implications of the decades-long rising trend in house price inequality for racial/ethnic stratification in homeownership remains unclear.

The durability of racial/ethnic homeownership gaps, despite sustained institutional efforts to reduce them, is a troubling and tangible manifestation of racial and ethnic stratification in America (Masnick 2004). Homeownership is a cornerstone of most households' wealth accumulation (Keister 2000; Oliver and Shapiro 1995), and is a central part of the discourse of the 'American Dream' (Shlay 2006). Past research documents large and stable racial/ethnic gaps, despite rising average socioeconomic status for minority households (Haurin et al. 2007; Gabriel and Rosenthal 2005). Studies identify segregation, demographic composition, and various housing market conditions as structural characteristics related to homeownership inequalities (Flippen 2001, 2010; Lee and Myers 2003; Massey and Denton 1993).

Some structural factors may differentially affect minority-white homeownership gaps rather than minority homeownership rates themselves. This distinction echoes broader debates about changes in racial/ethnic inequalities resulting from minority gains versus white losses (Leicht 2008). The level of access to social and economic resources may be more influential for minorities' well-being than inequalities in access relative to whites. An examination of the relationship between housing market trends and both homeownership gaps and levels can better illuminate the structural processes at work.

This chapter analyzes trends in house price inequality and racial/ethnic stratification in homeownership with data from the 5% micro-data samples of the 1980, 1990, and 2000 decennial Censuses, and the 2010 ACS. The focus and research design of this study make several contributions to existing literature. First, I examine differences between local housing markets' trends over time, and over a much longer period of

observation than previous studies. Second, the empirical analyses account for stable differences between local areas over time, which may confound the results of traditional cross-sectional studies. Third, I distinguish between effects on minority-white homeownership gaps, and race/ethnicity-specific effects on levels of homeownership. Fourth, the analyses measure both the levels and dispersions of house prices within local markets simultaneously. Finally, this chapter analyzes potential stratification for white, black, Latino, and Asian households, while most existing research focuses only on white-black and sometimes white-Latino differences.

The chapter's empirical results indicate that increases in house price inequality over time are associated with smaller black-white and Latino-white homeownership gaps, and slightly larger Asian-white gaps. However, this compression of homeownership gaps results from relatively large declines in the level of homeownership for Asian and white households, and smaller declines for black and Latino households. The distinction between the relationships for gaps and levels highlights the somewhat counterintuitive result that declining inequality does not necessarily imply improved well-being for racial/ethnic minorities. Ultimately, increasing house price inequality represents a structural barrier to homeownership, with a leveling effect on black-white and Latino-white gaps.

3.1 Racial and Ethnic Inequality in Homeownership

Homeownership attainment and inequalities result from complex processes. Aside from the obvious relevance of households' life cycle factors and economic resources (Gyourko and Linneman 1996; Haurin et al. 2007), literature on racial/ethnic stratification in homeownership demonstrates the salience of many structural factors. In particular, numerous studies focus on the importance of racial/ethnic discrimination, residential segregation, and local demographic contexts.

Discrimination may occur at multiple points in the home seeking process. Minor-

ity mortgage applicants are disproportionately rejected relative to otherwise comparable white applicants (Ross and Yinger 2001; Yinger 1995). Even when approved for mortgages, minority homeowners often receive higher and variable interest rates, making homeownership more financially burdensome and tenuous (Boehm and Schlottmann 2004; Flippen 2004; Krivo and Kaufman 2004). This differential access to credit for home loans is epitomized by the subprime crisis of the 2000s (Immergluck 2009b; Rugh and Massey 2010; Williams et al. 2005). Many prospective minority home seekers are also disproportionately steered toward predominantly minority neighborhoods by realtors. These neighborhoods are deemed 'higher risk' areas by home loan companies, thereby reducing the likelihood of loan approval or increasing the costs of approved loans (Massey and Denton 1993; Yinger 1995). Finally, as many as one-fifth to one-quarter of minority home seekers receive fewer opportunities to view homes, less information to make informed decisions, and less assistance with the loan application process (Pager and Shepherd 2008; Turner et al. 2002).

There is little doubt that racial and ethnic residential segregation is a salient factor affecting minority homeownership, and represents a structural manifestation of racial discrimination. Historically, segregation has been a mechanism for spatially concentrating disadvantage in multiple forms, including poverty, crime, unemployment, low educational opportunities, and public resource access (Charles 2003; Massey and Denton 1993). Many of the institutional factors undermining minority homeownership are also closely linked to segregation. Racial steering directs minority home buyers to a limited housing supply in predominantly non-white neighborhoods, while redlining and discriminatory mortgage terms reduce their buying power (Massey and Denton 1993; Yinger 1995). Homes in segregated neighborhoods also have lower values and accumulate less equity, if any, than homes in predominantly white neighborhoods (Flippen 2004; Krivo and Kaufman 2004). Indeed, a variety

of past studies finds that black households have significantly lower probabilities of homeownership in areas with higher segregation (Dawkins 2005; Flippen 2001; Freeman 2005). There is less evidence on the relationship between Latino segregation and homeownership. Krivo (1995) finds no relationship in 1980, but Flippen (2001; 2010) finds a negative association in 1990 and 2000.

Though black-white segregation is persistently high for nearly all major metropolitan areas, it has been steadily declining in many since 1970 (Charles 2003; Cutler et al. 1999). Levels of Latino-white segregation are substantially lower than black-white segregation. The trends in segregation for the two groups are quite divergent, however. Alongside decreasing black-white segregation, Latino-white segregation increased during recent decades (Charles 2003). The growth in Latino segregation is largely related to the size of Latino immigration. Increases in the fraction of the Latino population, and declines in Latino households' incomes relative to whites are both positively related to local levels of segregation (Logan et al. 2004). However, the implications of rapid growth in Latino-white segregation for homeownership are not yet established in the literature.

Local demographic contexts also exert significant influence on homeownership. The results differ over time and for different ethnic groups, but there is evidence that households' probabilities of homeownership are positively related to the size and growth rate of the co-ethnic population (Alba and Logan 1992; Flippen 2010; Myers et al. 2005). Population size is another frequently included demographic contextual variable for studying variation in homeownership rates. Populous metropolitan areas tend to have high population densities and costs of living. Combined with limited housing availability, these areas have prohibitively high housing prices for many households. Alba and Logan (1992) find a negative relationship between population size and the probability of homeownership for households of almost all racial and ethnic groups in 1980. However, Flippen (2001) found little evidence for

a relationship between population size and homeownership in 1990, net of household and housing market characteristics, and some evidence for a positive relationship for white households in 2000 (Flippen 2010).

Similarly, the stock of available housing is mechanically related to local levels of homeownership (Flippen 2010; Myers et al. 2005; Lee and Myers 2003). Housing stock generally refers to the availability of homes for purchase, often measured by the fraction of single-family detached homes within a local housing market. As a proximate factor affecting homeownership, higher availability of single-family houses has a fairly consistent positive effect when comparing metropolitan homeownership rates (Dawkins 2005; Lee and Myers 2003). The stock of newly built housing may also boost homeownership rates (Flippen 2010), but the relationship is not as robust (Myers et al. 2005).

All together, existing research documents a complex array of household and contextual characteristics that enable or constrain homeownership for different racial and ethnic groups. Perhaps most fundamentally, life cycle factors, education, income and wealth, and nativity explain significant portions of observed patterns in homeownership (Gabriel and Rosenthal 2005; Gyourko and Linneman 1996; Oliver and Shapiro 1995; Painter et al. 2001; Trevelyan et al. 2013). Many relatively recent studies also establish the importance of discrimination, segregation, and demographic contexts as structural factors contributing to homeownership gaps (Alba and Logan 1992; Flippen 2001, 2010; Krivo 1995; Lee and Myers 2003; Myers et al. 2005). However, conceptual and empirical limitations preclude thorough examination of structural factors and processes generating long-term trends in homeownership gaps and levels. First, the distinction between racial/ethnic homeownership gaps and levels is insufficiently interrogated by many studies. Second, reliance on single or perhaps two time points of data for most studies of contextual effects reifies a static perspective on homeownership stratification.

Despite the valuable knowledge provided by past studies, one limitation of much existing literature is an implicit assumption that minority-white homeownership gaps and levels of minority homeownership result from similar structural processes. Leicht (2008) problematizes a similar assumption for racial stratification in earnings. Normative arguments for the importance of relative deprivation between groups often underpin the emphasis on gaps research. However, the absolute level of disadvantaged groups' access to resources, like homeownership, may be equally or more relevant to these groups' well-being. Various processes can differentially impact racial/ethnic gaps and levels of homeownership, and examining the implications for both can yield a more complete understanding of minority groups' disadvantage and deprivation.

The distinction between gaps and levels can create alternative interpretations of homeownership trends in recent decades. After decades of decline, minority-white homeownership gaps increase from 1980 into the 2000s (Haurin et al. 2007; Herbert et al. 2005). The black-white gap increases from approximately 23 percentage points in 1980 to 29 points in 2010. The Latino-white gap increases from approximately 25 points to 27. The Asian-white gap increases from approximately 16 percentage points in 1980 to 18 in 2000, then declines back to 16 by 2010 (U.S. Census Bureau 2013; Herbert et al. 2005). The widening black-white homeownership gap in the late 2000s, in particular, is implicated in the dramatic increase in the black-white wealth disparity during this time (Kochhar et al. 2011). One could easily interpret these trends as an indication of deteriorating economic well-being for many minority households over time.

These increases in racial/ethnic gaps seem counter-intuitive in light of concurrent trends suggesting greater equality over time, however. Both the Clinton and Bush administrations explicitly focus on boosting homeownership among minority and low-income households throughout the 1990s and 2000s, largely through tax incentives and reducing barriers to credit access (Gabriel and Rosenthal 2005; Retsinas

and Belsky 2002; Shlay 2006). Minority households also become increasingly suburbanized, and experience increases in household formation and economic resources that contribute to higher demand for homeownership (Cortes et al. 2007; Gabriel and Rosenthal 2005). Despite stagnation in the 1980s, both Asian and Latino homeownership rates do in fact increase between 1990 and 2010. The black homeownership rate also increases during the 1990s, but decreases by 2010 following the housing crisis (U.S. Census Bureau 2013; Herbert et al. 2005).

The increase in the minority-white homeownership gaps between 1980 and 2010 results primarily from trends in the homeownership rate for white households. Growth in white homeownership rates outpaced minority increases in every decade, particularly at the lower end of the economic distribution (Carrillo and Yezer 2009). The observed increases in homeownership gaps should then be interpreted as differential gains for white households more so than losses for minority households. The negative implications of growing homeownership gaps are less straight-forward in light of increasing access to homeownership for minority households.

Another theoretical and empirical limitation of most existing literature is its static examination of racial/ethnic homeownership inequalities. Local housing market characteristics undoubtedly shape households' opportunities for homeownership. However, trends in levels of homeownership over time also contribute to the structure of the local market (Myers et al. 2005). The combined relationship between homeownership and structural contexts is thus reciprocal, and requires explicit examination of dynamics between the two over time to achieve a more complete understanding of the processes at work.

For example, levels of black homeownership tend to be lower in areas with higher black-white segregation (Flippen 2001). Segregation limits the availability of homes for purchase by minority home buyers, and may indicate the unobserved severity of discrimination in the local market (Massey and Denton 1993; Yinger 1995). Contrary

to theories of spatial assimilation however, black homeowners experience higher levels of residential segregation from whites than renters (Friedman et al. Forthcoming.). Then a potential outcome of increases in black homeownership is a rise, or slower decline, of black-white segregation.

The dynamic nature of homeownership and housing markets is perhaps most evident in the relationship between home buying and housing prices. Naturally, the actual process of home buying is an economic transaction. Home buying is then largely enabled or constrained by prevailing market conditions. More expensive homes are more difficult to afford, meaning higher average home values in a local market may depress homeownership, creating a negative relationship (Lee and Myers 2003). Conversely, higher rates of home buying may indicate increasing demand, leading to higher local local house prices and a positive relationship (Myers et al. 2005).

The notable housing crisis of the late 2000s is the product of long-term trends in housing market inequality (Glaeser et al. 2005; Himmelberg et al. 2005; Shiller 2005, 2007). Many other structural changes in local housing markets over the last few decades also complicate this dynamic relationship, and the limitations of the current literature's general approach to racial/ethnic stratification impede rigorous evaluation of the potential ramifications. This chapter attempts to remedy these limitations to address two research questions. Does inequality in housing prices have distinct relationships for homeownership gaps and levels? How are long-term trends in housing prices and homeownership inequalities related over time?

3.2 The Changing American Housing Market

The past three decades witness large increases in the level and inequality of home prices (Glaeser et al. 2005). This trend is largely a product of changes in the lending environment for homeownership and the motivations of home buyers themselves

(Glaeser et al. 2005; Shiller 2005, 2007). Though rising homeownership and increasing house prices are economically related, the implications for both racial/ethnic gaps and levels of minority homeownership remain unclear.

The trend toward higher home prices extends back several decades, but is particularly pronounced in recent years. Real house prices increase ten percent between 1975 and 1995, but increase nearly 40 percent in the subsequent decade up to the height of the housing bubble (Himmelberg et al. 2005). Increases in the level of home values are widespread across local housing markets (Clark and Coggin 2009). However, the magnitude of such dramatic growth is highly uneven. For example, cities like San Francisco and Boston experience nearly double the average rate of increase (Himmelberg et al. 2005). Clearly, the rapid and substantial increase of home values in the late 2000s partially reflect systematic over-valuations of homes at the height of a market bubble (Immergluck 2009b; Shiller 2005, 2007). However, there are some indications that home values are not disproportionate to households' annual costs of ownership in many large, high-appreciation markets like New York, Boston, and San Francisco (Himmelberg et al. 2005).

A related but less frequently discussed trend is the considerable increase of inequality in home prices both between and within local markets over the last three decades. The standard deviation of average house prices among metropolitan areas increases by almost a factor of 3.5 between the mid-1970s and mid-2000s (Glaeser et al. 2005). Inequality of housing values within local housing markets may be far more relevant for individual households however, as their range of home buying options is generally restricted to those in their local geographic area. House price inequality within 219 local housing markets grows by 28% on average from 1980 to 2010, measured with the Gini coefficient for home values (author's calculations, see description of data and measures below.) These trends are partly due to a proportional increase in the value of homes across the distribution. However, increases in

house price inequality are particularly pronounced in markets with a growing share of homes in the upper tail of the price distribution (Glaeser et al. 2005).

The growth of the level and inequality in housing prices reflects changes in some fundamental aspects of home buying and homeownership. As highlighted by the housing bubble of the late 2000s, the lending environment for homeownership is increasingly bifurcated over time (Fishbein and Bunce 2001). Poor mortgage market regulation and excessive new housing construction in many suburban areas creates opportunities for subprime lending, easily approved mortgages with small or no down payments, and high and variable interest rates (Immergluck 2009a). Homeownership rates increase with greater credit access, and minority homeownership rates in particular increase substantially in the 1990s (Bond and Williams 2007; Williams et al. 2005). Though the financial conditions for homeownership are often insecure (Bunce et al. 2001; Immergluck 2001), increases in the demand for homeownership also increase the level and dispersion of house prices (Glaeser 2011).

These changes in the lending environment coincide with shifts in home buying motivation and behavior. Homeownership is a unique asset as it is both an investment and consumption good (Keister 2000). However, the rapid increase of home values in recent decades both reflects and motivates increased housing market speculation. More commonly than ever before, households purchase homes for the explicit purpose of making a profit after reselling in a short period of time (Shiller 2005). Regardless of the actual rate of increase in average home prices, homebuyers in Los Angeles as far back as 1988 optimistically estimate a 15 to 20 percent increase in their homes' values in the next year (Shiller 2007). Primarily investment-oriented motivation for home buying contrasts with traditional notions of homeownership as a long-term and secure residence, a symbol of socioeconomic success, and source of community attachment (McCabe 2013; Shlay 2006). Though such speculative home buying behavior is motivated by rising home values, it also accelerates the growth of housing

market inequality.

The implications of predatory lending and home foreclosures in the last decade for racial/ethnic stratification in homeownership are relatively clear (Immergluck 2001, 2009b; Rugh and Massey 2010). However, the more basic relationship between housing market inequality and long-term trends in homeownership rates and gaps are less well established. The limitation of past research is significant, given the increase in homeownership gaps despite trends in household characteristics that predict otherwise.

Home buying and the distribution of house prices are dynamically and mechanically related. The implications of such complex relationships for racial/ethnic inequality are less clear, however. Changes in the distribution of house prices will affect racial/ethnic homeownership gaps to the extent that they have racially stratified effects on homeownership levels. However, the direction of the relationships for gaps and levels may not be in the same direction. Moreover, increases in the level of house prices in local housing markets may have different effects on homeownership than increases in house price inequality. I formulate four testable hypotheses to clearly distinguish the influence of 1) the level of and 2) inequality in home prices on a) minority-white gaps and b) minority levels of homeownership.

Past literature gives strong reason to suspect that racial/ethnic homeownership gaps increase with higher home values. Minority households' have much lower access to wealth for down payments than whites (Oliver and Shapiro 1995), and experience highly stratified credit access (Yinger 1995). As a result, minority homeownership rates are likely more sensitive to changes in the general level of affordability in the housing market compared to white households.

Price and Gaps Hypothesis: Racial/ethnic homeownership gaps are larger with higher levels of home values.

Some previous studies also provide empirical support for this argument. Cross-

sectionally in 1990 and 2000, black-white and Latino-white homeownership gaps are significantly larger in metropolitan areas with higher median home values (Flippen 2001, 2010). Similarly, Myers, et al. (2005) find black-white and Latino white gaps increase within metropolitan areas with growth in local average house prices between 1990 and 2000. However, Myers, et al. (2005) do not find strong results for Asian-white homeownership differences.

On average, larger racial/ethnic homeownership gaps over time result from differential growth of levels of white homeownership. However, the positive relationship between higher house prices and larger racial/ethnic homeownership gaps can also indicate a significant negative relationship for levels of minority homeownership. Growth in the total level of homeownership may be positively related to house prices because it reflects growing demand for home buying (Glaeser et al. 2005; Lee and Myers 2003). However, minority households may be disproportionately priced out of the housing market as homeownership becomes more expensive to attain.

Price and Levels Hypothesis: Homeownership levels for racial/ethnic minorities are lower with higher levels of home values.

Past empirical studies also provide evidence that increases in homeownership gaps are partly the result of declines in levels of black and Latino homeownership. Metropolitan areas with higher home values have lower levels of homeownership cross-sectionally (Krivo 1995; Lee and Myers 2003), and the negative relationship has been found to be stronger for black and Latino households than whites (Flippen 2001, 2010). In slight contrast, Myers, et al. (2005) find positive relationships between rising average home values and increases in homeownership rates for whites and Asians between 1990 and 2000, likely reflecting the impact of increased demand. However, Myers, et al. find no significant relationship between changes in average house prices and homeownership for black households, and a negative relationship for Latinos. The empirical results of both the cross-sectional and over-time studies

suggest the dynamic relationship between home values and homeownership may apply primarily to white households, and perhaps Asians. However, black and Latino households are more likely to be priced out of the housing market by rising prices.

Aside from the rising level, the widening distribution of home values within local markets may also be differentially related to homeownership by race/ethnicity. The relationship between the two is dynamic, much like with the level of house prices. High rates of home buying reflect high demand for homeownership, which widens the distribution of prices (Glaeser et al. 2005). At the same time, a wider distribution of prices implies there are fewer homes within any given households' range of affordability (Haurin et al. 2007), thereby reducing homeownership.

Racial/ethnic homeownership gaps may increase if white home buying is more positively related to within-market inequality more than minority home buying, similar to the dynamics observed for average home values (Myers et al. 2005). Minority homeowners tend to have less valuable homes than whites (Flippen 2004; Krivo and Kaufman 2004), so increases in minority home buying may induce less of an increase in the price distribution.

Inequality and Gaps Hypothesis: Racial/ethnic homeownership gaps are larger with greater home value inequality.

Conversely, increases in home value inequality may increase homeownership gaps by differentially suppressing minority homeownership rates. Minority home buyers have greater constraints on homeownership, potentially leading to narrower ranges of feasible home prices than comparable white home buyers (Yinger 1995). As a result, minority homeownership may be more sensitive to increases in the spread of home values than white homeownership. In either case, widening distributions of home values within local housing markets imply larger racial/ethnic gaps in homeownership. This second argument also implies the fourth hypothesis.

Inequality and Levels Hypothesis: Homeownership levels for racial/ethnic minorities

are lower with greater home value inequality.

In summary, the level home values increases substantially over time, and their distribution becomes more unequal both within and between local housing markets. However, the implicit assumptions and analytic approaches of most studies in existing literature impede sufficiently rigorous examinations of the potentially dynamic relationship between house price inequality and racial/ethnic stratification in homeownership. The next section of this chapter describes the data and analytic strategy used to test the hypotheses articulated above.

3.3 Data and Methods

As with the previous chapter, the empirical analyses use data from the 5% microdata samples of the 1980 through 2000 decennial Censuses, and the 2010 ACS (Ruggles et al. 2010). Following previous studies of this type, white, black, Latino, and Asian households with heads of prime home-buying ages (25 to 40) in identifiable metropolitan areas are the primary units of analysis in this study (Flippen 2010).[1] The dichotomous indicators for race/ethnicity are defined as in the previous chapter, using the race/ethnicity of the household head. Presumably, the household head is largely responsible for pursuing and maintaining homeownership, and is most subject to racial/ethnic stratification in the home-buying process.

The analyses account for the households' heterogeneous timing of housing transitions by restricting the analytic sample to households that have moved into their residences in the past five years, whom I refer to as recent movers.[2] This restriction identifies the impact of contextual factors more precisely than among the total sample. Households in the analyses presented here experience their most recent housing

[1] Results are substantively similar for analyses including household heads of all ages.

[2] Among urban households with 25 to 40 year-old heads, 75% to 77% moved in the last five years between 1980 and 2000. In 2010, 90% of such households are recent movers.

transition in market conditions relatively close to those observed in the sample year, while analyses among non-recent movers would predict their homeownership status with changes in structural conditions that occur long after their last housing transition.[3] I also restrict the sample to households residing in the same balanced panel of MSAs as in the previous chapter.[4] The resulting analytic sample contains 2,452,822 households in a balanced panel of 219 MSAs. This includes 1,743,604 white, 308,592 black, 297,805 Latino, and 102,850 Asian households nested within 876 MSA-years.

3.3.1 Homeownership

The dependent variable is homeownership status, *Own*, which is equal to one for households that report owning their primary residence. This includes households with and without mortgages. Minority-white homeownership gaps refer the difference between the percentage of white households that own their homes, and the percentage of minority households.

Trends in black-white, Latino-white, and Asian-white homeownership gaps among the analytic sample are displayed in Figure 3.1. The magnitudes of the black-white and Latino-white homeownership gaps among the relatively young, urban, recent movers are fairly comparable to the national average. In all years, the largest minority-white homeownership gap is between black and white households. The Latino-white homeownership gap is approximately five to eight percentage points lower. The Asian-white gap is the smallest of the three.

Contrary to national trends, the average black-white and Latino-white homeownership gaps among the analytic sample decline by two to three percentage points between 1980 and 2000, then increase between 2000 and 2010. The average Asian-

[3] The results shown here are comparable to those among the total sample, but the results are biased toward null findings. Even still, the weaker results are in the same general direction.

[4] Results are substantively consistent when analyzing an unbalanced panel as well, but are less appropriate for comparisons between years.

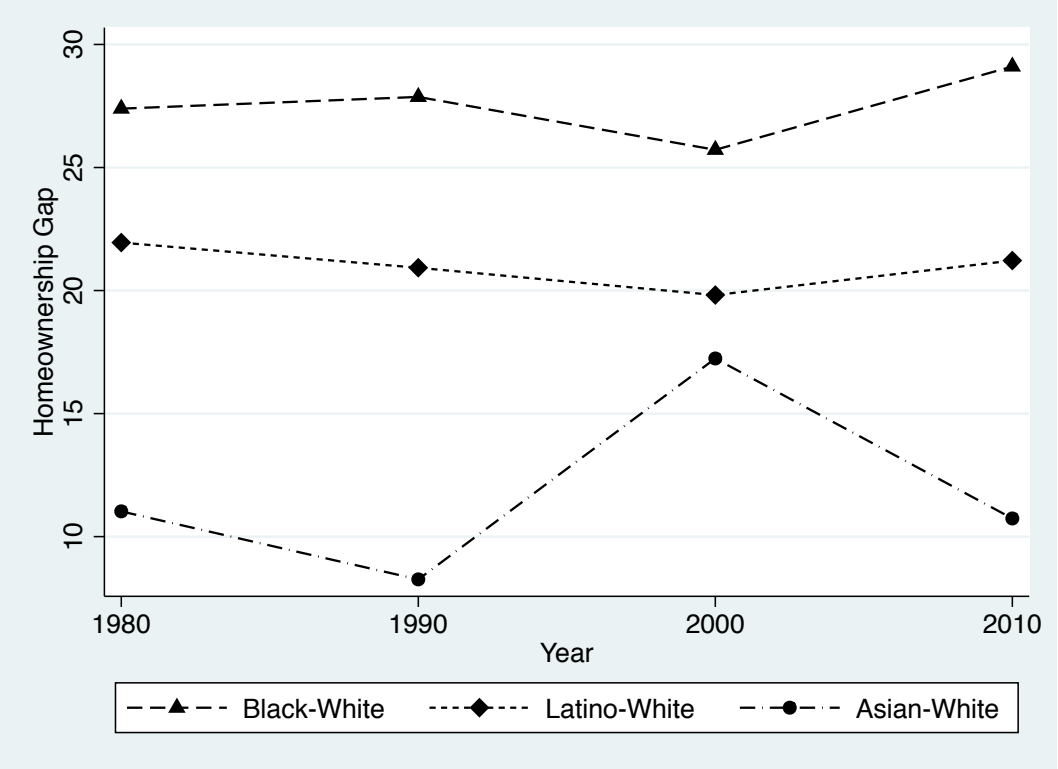

FIGURE 3.1: Trends in Racial/Ethnic Gaps in Homeownership, Presented as the Percentage-Point Difference in Homeownership Rates.

white gap varies more considerably over time. The Asian-white difference declines between 1980 and 1990, then increases by more than nine percentage points by 2000. The gap declines again from 2000 to 2010 by almost 7.5 percentage points. This relatively large fluctuation in the Asian-white gap may be exaggerated by smaller sample sizes for Asian households. From 1980 to 2010 overall, the average black-white homeownership gap increases by over two percentage points, while the Latino-white and Asian-white gaps exhibit almost no net change.

Trends in white, black, Latino, and Asian homeownership levels among the analytic sample are presented in Figure 3.2. The homeownership levels among the sample are lower than the national averages because homeownership is less common among younger, urban households. Even still, distinct trends in homeownership over time are visible among this group of urban recent movers.

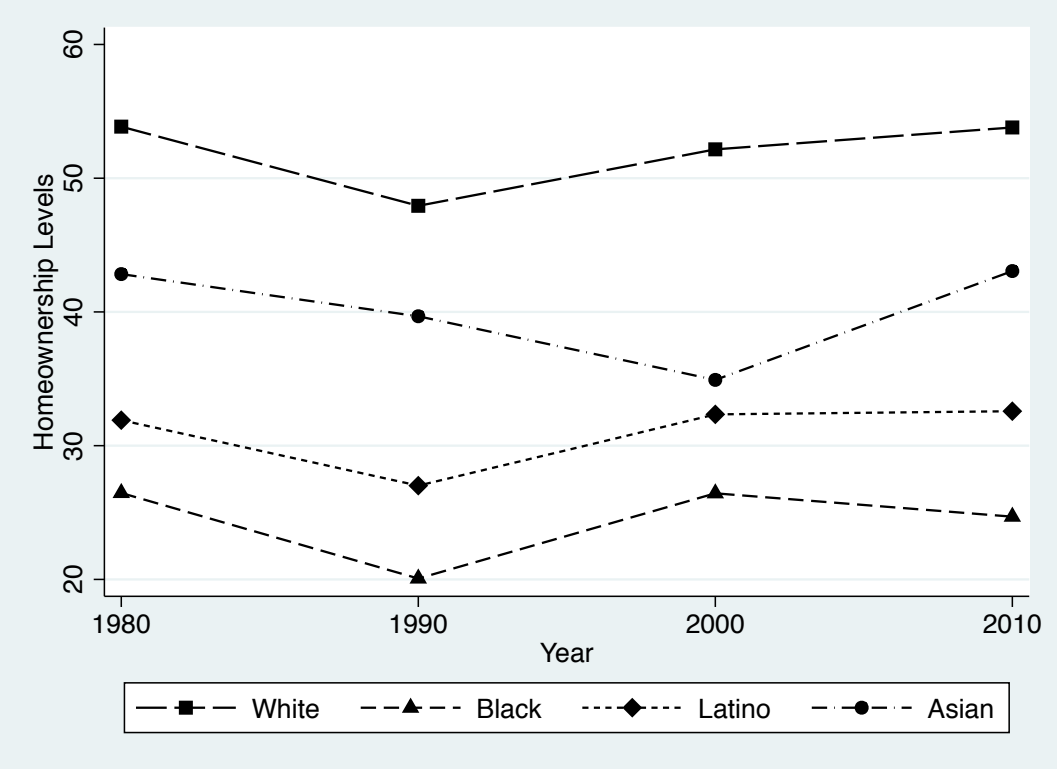

FIGURE 3.2: Trends in Homeownership by Race/Ethnicity, Presented as Percent Homeowner.

The trends in white, black, and Latino homeownership levels are similar over time. Homeownership declines in the 1980s for all three groups, then increases in the 1990s. The ownership levels for black and Latino households increase more than for whites in the 90s, making the estimated ownership gaps smallest in 2000. The larger gaps in 2010 result from continued increase in homeownership for white households between 2000 and 2010, combined with relative stability in the black homeownership level and decline in the Latino level.

The seemingly atypically high Asian-white homeownership gap in 2000 results from contrasting trends in the white and Asian homeownership levels in the 1990s. White homeownership decreases in the 1980s then increases in the 1990s. Meanwhile, Asian homeownership continues to decline in both decades, falling by more than four percentage points from 1980 to 2000. The subsequent decline in the Asian-white gap

reflects a much larger increase in homeownership for Asians than whites in the 2000s. The Asian homeownership level increases by more than 10 percentage points in this decade, compared to a four point increase among whites.

The size and trends of the homeownership gaps vary considerably between metropolitan areas. The average black-white homeownership gap declines in the 1990s, but actually increases in over half of the 219 metropolitan areas in the sample during that decade. The average gap increases in the 2000s, but still decreases in almost one-third of the MSAs. Overall, the black-white homeownership gap increases in almost four-fifths of the metropolitan areas between 1980 and 2010.

Trends in the Latino-white homeownership gap are approximately evenly split between increases and decreases for the sample of MSAs in each decade. Despite almost no net change in the average Latino-white gap from 1980 to 2010, almost two-thirds of the 219 metropolitan areas experience a net increase in the gap. Trends in Asian-white homeownership gaps are even more variable between decades. The average Asian-white gap also exhibits almost no net change from 1980 to 2010, but increases in 46% of the metropolitan areas. The means and standard deviations of homeownership gaps and levels at the metropolitan-level are presented in Table B.1 in Appendix B.

3.3.2 Housing Market Variables

The metropolitan-level variables come from aggregating household-level information from the 5% samples as in the previous chapter. Note that the metropolitan-level variables are estimated using the full samples of individuals and households, without the age or recent-mover restrictions. The key independent variables are estimated using owner-occupied households' self-reported house values.[5] The first is the median

[5] Though some may be concerned about the validity and reliability of self-reported house values, past empirical work has demonstrated that the distribution of self-reported house values is highly correlated with National Association of Realtors sales price data and several hedonic price indices

house value in the metropolitan area, *Log Median Value*, which is logged to account for the right-skewed distribution. I use the Consumer Price Index to convert house values to 2009 dollars. The *Log Median Value* measures the level of home values within an MSA in a given year.

The second variable is the Gini coefficient of home values within the metropolitan area, *Gini*, which measures the within-metro-area dispersion of house prices. I choose the Gini index to measure within-metropolitan area inequality because it is a well-established measure of inequality, and is scale-invariant (Allison 1978). In analyses not shown, I measure within-metropolitan inequality in home values with the coefficient of variation (the ratio of the standard deviation to the mean), the ratio of the 90th to the 10th percentile of home values, the 90th/50th percentile ratio, and the 50th/10th percentile ratio. These measures all correlate well with *Gini*, approximately 0.90 for the coefficient of variation, and between 0.65 and 0.80 for the percentile ratios. The results of these analyses are substantively similar to those presented here.

Figure 3.3 displays the median home value and Gini index of home values for the average household in the analytic sample over time, relative to their values in 1980. The *Log Median Value* increases 11% between 1980 and 1990, and 21% between 2000 and 2010. There is virtually no change between 1990 and 2000. However, this stability in the average is driven by increasing skew across housing markets. The trend in logged median values shows a steady increase from 1980 through 2010. The average median home value is dramatically higher in 2010 than in 2000, even after the crash of the housing bubble of the late 2000s.

Increases in the local median home value are increasingly widespread with each

(Malpezzi 1996). As an additional sensitivity analysis, I calculated the median house prices within each metro area and year using only owner-occupied households who moved into their homes in the past five years. Presumably, these households report more accurate house values because they purchased their homes more recently. The median house prices calculated under this restriction correlate very highly with those calculated with the total sample (r>0.98).

FIGURE 3.3: Trends in Median Home Value and Gini for the Average Household, Presented as Percent of 1990 Levels.

subsequent decade, as well. The median increases in fewer than one-quarter of MSAs between 1980 and 1990, in three-quarters between 1990 and 2000, and in 88% between 2000 and 2010. Between 1980 and 2000, more than three-quarters of the metropolitan areas experience a net increase in the local median home value.

The nearly linear increase in the local *Gini* for the average household is also notable in Figure 3.3. The average Gini increased by nearly 34% percent from its 1980 level to 2010, and a net increase occurs in all but three metropolitan areas: Brownsville-San Benito, TX; Manchester, NH; and Omaha, NE.

3.3.3 Control Variables

The analyses account for relevant housing market characteristics that may be jointly correlated with homeownership and home values, following previous studies

(Flippen 2010; Lee and Myers 2003; Myers et al. 2005). The percent of occupied homes in the metropolitan area that is single-family detached housing, *% House*, serves as a proxy for the availability of housing for purchase. I roughly account for new housing construction with *% New Housing*, a measure of the percentage of households whose residences were built within the last ten years.

The analyses control for the size of the MSA using the logged population value, *ln(Population)*. The racial/ethnic composition of the MSA is measured with the *% Black*, *% Latino*, and *% Asian* of the local population.

Racial and ethnic residential segregation within MSAs is measured using the black-white, Latino-white, and Asian-white indices of dissimilarity, *Black Segregation*, *Latino Segregation*, and *Asian Segregation*.[6] These data come directly from the Census Bureau's calculations using complete Census counts for 1980 to 2000. The dissimilarity indices for 2010 come from William Frey's (2011) calculations using tract-level data from the 2010 decennial Census. Unfortunately, the 2010 segregation data are available only for the largest 100 MSAs. Rather than sacrifice more than half of the metropolitan areas in the sample to maintain a balanced panel, the main results presented here omit the measures of residential segregation. However, I present separate analyses for segregation among a balanced panel of 98 MSAs in Appendix B. Descriptive statistics for all metropolitan-level variables are presented in Table B.2 in Appendix B.

All analyses also control for a variety of household demographic and socioeconomic characteristics shown to influence the demand for homeownership, and ability to attain it (Flippen 2010; Gyourko and Linneman 1996; Haurin et al. 2007; Lee and Myers 2003). The age of the household head is included in years, *Age*, and centered

[6] The index of dissimilarity approximates the number of racial/ethnic minority households that would need to move out of predominantly minority Census tracts and into predominantly white tracts for each racial/ethnic group to be evenly dispersed across the metropolitan area. The index of dissimilarity is the most common measure of racial/ethnic residential segregation, and is correlated with other segregation measures (i.e., concentration, isolation) (Massey and Denton 1993).

by subtracting the mean age of all heads in the sample. The squared value, Age^2, is included to allow for the non-linear relationship with homeownership. The analyses code household composition through a series of variables. *Single Male* and *Single Female* are dummy variables representing the headship of the household, relative to married-couple-headed households. The analyses include the size, *HH Size*, and number of children in the respondents' household, *Children HH*, as well as a binary indicator for the presence of children under 5, *Children Under 5*. Finally, a series of binary variables measure immigrant status of the household head, *Imm<5 Yrs*, *Imm 5–10 Yrs*, *Imm 10–15 Yrs*, *Imm 15–20 Yrs*, and *Imm 20+ Yrs*, all relative to being native born.

Household income is sum of all household members' income from all sources in the previous year, converted to 2009 dollars using the CPI. The analyses use the logged value, *ln(HH Income)*, to adjust for the right-skewed distribution. The education of the household head is indicated with three dichotomous variables for less than a high school diploma/G.E.D., *Less HS*, some post-secondary education including technical/associate's degrees, *Some College*, and a bachelor's degree or higher, *Bachelor's+*. A high school diploma/G.E.D. is the reference category. Employment status is measured with count variables for the number of persons in the household that are currently employed full- or part-time, *Number Full-Time* and *Number Part-Time*. Finally, I control for the presence of veterans in the household, *Veteran* equal to one, because veterans receive home loan assistance from the federal government.

3.3.4 Analytic Strategy

As in the previous chapter, two sets of regression models estimate the relationships between the distributions of home values and homeownership. I use logistic regression for the chapter's analyses, due to the binary dependent variable, *Own*. The first set of models examines the cross-sectional pattern for each Census year.

Inferences drawn from these models rely on variation between metropolitan areas at a point in time, and their interpretation is similar to those from previous studies (e.g., Flippen 2001, 2010; Lee and Myers 2003; Myers et al. 2005). Cross-sectional models describe the relationships between the spatial distributions of the log-odds of homeownership by race/ethnicity and the distributions of home values between local housing markets, conditional on all control variables. I estimate these models for each decade to assess how these spatial patterns may change over time. The regression models apply sampling weights to account for the complex sampling design, and the standard error estimates are adjusted for the clustering of individuals within metropolitan areas using the Huber-White correction.

Each regression model is estimated with two specifications. First, I estimate the relationship between the housing market variables and racial/ethnic homeownership gaps with the model,

$$\begin{aligned} ln\left(\frac{Pr(Own_{ij})}{1-Pr(Own_{ij})}\right) = \beta_{White} + \beta_{Race}Race_{ij} \\ + \beta_{HomeVal,White}HomeVal_j \\ + \beta_{HomeVal,Race}HomeVal_j \times Race_{ij} \\ + \beta_X X_{ij} + \beta_W W_j, \end{aligned} \tag{3.1}$$

for person i in MSA j. $Race_{ij}$ is the vector of racial/ethnic indicators, and $HomeVal_j$ is the vector of home value variables. The vectors X_{ij} and W_j represent the household- and metropolitan-level control variables, respectively. The intercept term is represented by β_{White}, which is the conditional mean log-odds of homeownership for white households when all other variables equal zero. The coefficients β_{Race} represent the conditional mean difference in the log-odds of homeownership for each minority group relative to whites. The coefficients for the MSA-level variables, $\beta_{HomeVal,White}$, repre-

sent the conditional difference in the log-odds of homeownership for white households given a one-unit difference in the metropolitan-level variables between areas. When exponentiated, these coefficients represent the factor change in the odds of homeownership, $Odds = \frac{Pr(Own)}{1-Pr(Own)}$, for a one-unit difference in the metropolitan variables.

The coefficients for the interaction terms, $\beta_{HomeVal,Race}$, represent the difference in the log-odds of homeownership relative to whites given a unit difference in the home value variables for minority households. Presented as odds ratios, odds ratios greater than one indicate minority households' odds of homeownership are higher relative to white households at greater values of the housing market variables. The interpretation of the odds ratios for racial/ethnic homeownership gaps is similar the that of the interaction terms from the previous chapter, and is again somewhat counter-intuitive. Odds ratios *greater* than one indicate *smaller* homeownership gaps. Similarly, odds ratios smaller than one indicate minority households' odds of homeownership are lower relative to whites at greater levels of the home value variables. Thus, odds ratios *smaller* than one for the interaction terms indicate *larger* racial/ethnic homeownership gaps.

Second, I estimate the relationship between the housing market variables and the levels of homeownership by race/ethnicity with the model,

$$\begin{aligned} ln\left(\frac{Pr(Own_{ij})}{1-Pr(Own_{ij})}\right) &= \beta_{White} + \beta_{Race}Race_{ij} \\ &+ \beta_{HomeVal,White}HomeVal_j \times White_{ij} \\ &+ \beta_{HomeVal,Race}HomeVal_j \times Race_{ij} \\ &+ \beta_X X_{ij} + \beta_W W_j, \end{aligned} \tag{3.2}$$

which adds an interaction between the housing market variables and an indicator for white households. All coefficients are interpreted as with the previous model

specification, except for the interaction terms, $\beta_{HomeVal,Race}$. These coefficients now represent the conditional association between the housing market variables and the log-odds of homeownership for black, Latino, and Asian households separately, rather than relative to the coefficients for whites. The p-values for these coefficients indicate the statistical significance of an effect other than zero, rather than the significance of an effect different from that for whites.

As a methodological note, there is some concern over the inclusion of interaction terms in logistic regression models. Some methodologists caution that traditional estimates of the magnitude and statistical significance of interaction terms in non-linear models may substantively differ from the marginal effect (Ai and Norton 2003; Allison 1999). There are several alternative forms of estimation for the size and significance of interactive effects in non-linear models (Ai and Norton 2003; Williams 2009; Xu and Long 2005), some of which are too computationally intensive to practically apply given the sample size.[7] However, estimates from linear probability models (i.e., OLS regression with adjustments for heteroskedastic errors) are quite close to the marginal effects estimated by logit and probit models (Angrist and Pischke 2008), without problematic estimation of interaction effects. As a robustness check, I replicate the analyses presented here using linear probability models, and find substantively comparable results.

A second set of regression models more rigorously estimates the effects of changes in the home value variables on homeownership inequalities by accounting for metropolitan and year fixed effects. The results describe how racial/ethnic homeownership gaps and levels within local housing markets change along with structural characteristics. I estimate the fixed-effects model first for the entire period. Next I estimate the model separately for the years 1980–1990, 1990–2000, and 2000–2010, to examine

[7] One potential strategy is to use more complex models with appropriate adjustments for the interaction terms on random subsamples of the data. However, the resulting reduction in sample size would also lead to less stable estimates for contextual variables.

variation in the strength of the relationships over time. Each model is first estimated with the "main effects" of the housing market variables and interactions with the *Black*, *Latino*, and *Asian* variables to estimate the relationship to racial/ethnic gaps. Each model is then estimated with separate effects of housing market variables for each racial/ethnic group to estimate the relationship to levels.

Again, the interpretation of the interaction terms between the race/ethnicity indicators and the housing market variables is somewhat counter intuitive for homeownership gaps. Odds ratios greater than one indicate minority households' odds of homeownership are higher relative to whites with increases in the housing market variables between decades. As a result, odds ratios *larger* than one for the interaction terms imply that racial/ethnic homeownership gaps are *smaller* with increases in the housing market variables. Conversely, odds ratios *less* than one imply the gaps are *larger* as the home value variables increase.

All regression models adjust for potential bias resulting from selection for inclusion into the analytic sample (i.e., changing residence within the last five years) using the same technique as in the previous chapter. Within each year, a probit model estimates the conditional probability of recently moving based on the household heads' age, marital status, race/ethnicity, immigrant status, education, and veteran status. The selection model also includes households' composition, number of full- and part-time workers, total income from the previous year, and metropolitan area of residence. The resulting estimates yield the inverse Mills ratio, or 'selection hazard', which is then included as an individual-level control variable in the final models predicting the log-odds of homeownership (Heckman 1979).

3.4 Results

3.4.1 Cross-Sectional Regression Results

The odds ratios for the individual controls are consistent with previous literature. The odds ratio estimates are presented in Table B.3 in Appendix B. Age is non-linearly related to the odds of homeownership. Married-couple-headed households have higher odds of homeownership than either single-male or single-female-headed households. Larger households and those with children also have significantly higher odds. Households with native-born heads have significantly higher odds of homeownership than those who immigrated within the last 10 years, but lower odds than those who immigrated more than 10 years ago. Homeownership is also positively related to higher education, income, and the number of full-time employed workers in the household. Households with veterans have significantly lower odds of homeownership in 1980, higher odds in 1990 and 2000, and no difference in 2010.

The odds ratio estimates of the metropolitan-level controls in the cross-sectional models are presented in the upper panel of Table B.4 in Appendix B. The odds of homeownership for the average household, net of household controls, are higher in metropolitan areas with larger shares of single-family, detached houses. The odds are higher in areas with more new construction in 1980 and 2000, and unrelated in 1990. The odds of homeownership are significantly lower in MSAs with more new construction in 2010, which likely reflects the severity of the housing market crash in such areas in the late 2000s.

The odds of homeownership are significantly higher in more populous metropolitan areas in 1980 and 2000. Homeownership is unrelated to the local share of the black population. However, homeownership is lower in areas with larger Latino populations in 1990 and 2010, and lower in areas with larger Asian populations in all decades.

The odds ratios from the analyses of homeownership and racial/ethnic segregation are presented in Table B.5 in Appendix B. Contrary to some expectations, there is limited evidence that black-white homeownership gaps are significantly larger in more segregated metropolitan areas. Latino-white homeownership gaps are significantly larger in areas with higher segregation between whites and all minority groups in the earlier decades, but are unrelated to segregation in 2010. Finally, Asian-white homeownership gaps are significantly larger in MSAs with higher black-white segregation in all years, but are unrelated to Asian-white or Latino-white segregation. However, the results for the segregation variables should be interpreted cautiously when considering the limited number of MSAs and relatively large number of level-2 covariates. The statistical significance of some odds ratios for the housing market variables differs with residential segregation included in the models, but the results are substantively comparable to the main results.

The odds ratios for the relationships between homeownership gaps and *Log Median Value* and *Gini* are presented in Table 3.1. For the black-white, Latino-white, and Asian-white homeownership gaps, odds ratios greater than one indicate larger values of the housing market variables are associated with smaller minority-white gaps. Overall, the results for black-white and Asian-white gaps are contradict *Price and Gaps Hypothesis*, that higher median home values are instead associated with smaller homeownership gaps. Similarly, the black-white gaps are significantly smaller in areas with greater home value inequality, contrary to the *Inequality and Gaps Hypothesis*.

Metropolitan areas with a standard deviation larger *Log Median Value* have black-white homeownership gaps that are smaller by factors of 1.08 ($1.08 = {OR_x}^{SD_x} = 1.31^{0.28}$) in 1980 to 1.24 ($1.24 = 1.71^{0.4}$) in 2012. The relationship is statistically significant in all decades except 1990. Black-white homeownership gaps are also significantly smaller in areas with a larger *Gini* in all decades by factors of 1.18 in

Table 3.1: Cross-Sectional Regression Results for Homeownership Gaps on Housing Market Variables, Presented as Odds Ratios.

	1980	1990	2000	2010
Black-White				
Log Median Value	1.310*	1.130	1.453***	1.710***
	(2.057)	(1.147)	(6.807)	(5.985)
Gini	1.039***	1.034*	1.036***	1.045***
	(3.443)	(2.546)	(5.246)	(4.682)
Latino-White				
Log Median Value	1.054	0.914	0.820	0.899
	(0.269)	(-0.396)	(-1.627)	(-1.230)
Gini	1.020	1.031	1.021	1.055***
	(1.400)	(1.153)	(1.777)	(6.177)
Asian-White				
Log Median Value	2.538***	2.411***	2.078***	1.704***
	(5.360)	(7.209)	(6.819)	(7.831)
Gini	0.993	1.018	1.014	1.032*
	(-0.332)	(0.815)	(0.831)	(2.406)
White				
Log Median Value	0.638***	0.861	0.887	0.565***
	(-4.072)	(-1.290)	(-1.072)	(-6.739)
Gini	0.970**	0.998	0.996	0.975***
	(-3.271)	(-0.169)	(-0.504)	(-4.591)
MSAs	219	219	219	219
N	725,626	760,405	792,011	174,780

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables. Minority-white odds ratios represent the effects of the housing market variables for minority households relative to whites.
*** p<0.001, ** p<0.01, * p<0.05

1980 to 1.24 in 2010 for a standard deviation higher *Gini*.

The Latino-white homeownership gap has no statistically significant relationship to the *Log Median Value*, and is significantly smaller in areas with a larger *Gini* in 2010. For a standard deviation higher *Log Median Value*, the Asian-white gap in the odds of homeownership is smaller by factors of 1.30 in 1980 to 1.24 in 2010. The Asian-white gap is also significantly smaller in areas with a larger *Gini*, but only in 2010.

Table 3.2: Cross-Sectional Regression Results for Homeownership Levels on Housing Market Variables, Presented as Odds Ratios.

	1980	1990	2000	2010
Black				
Log Median Value	0.836	0.973	1.289*	0.967
	(-1.158)	(-0.212)	(2.258)	(-0.284)
Gini	1.008	1.032**	1.032***	1.019*
	(0.519)	(2.943)	(4.666)	(1.990)
Latino				
Log Median Value	0.672*	0.787	0.727*	0.508***
	(-2.019)	(-1.097)	(-2.413)	(-8.994)
Gini	0.990	1.029	1.017	1.029***
	(-0.640)	(1.084)	(1.435)	(4.321)
Asian				
Log Median Value	1.620*	2.077***	1.842***	0.963
	(2.408)	(5.024)	(5.207)	(-0.434)
Gini	0.964	1.016	1.010	1.006
	(-1.950)	(0.821)	(0.609)	(0.518)
White				
Log Median Value	0.638***	0.861	0.887	0.565***
	(-4.072)	(-1.290)	(-1.072)	(-6.739)
Gini	0.970**	0.998	0.996	0.975***
	(-3.271)	(-0.169)	(-0.504)	(-4.591)
MSAs	219	219	219	219
N	725,626	760,405	792,011	174,780

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
All odds ratios represent the effects of the housing market variables variables relative to no effect.
*** p<0.001, ** p<0.01, * p<0.05

The odds ratios for the relationships between the housing market variables and the levels of homeownership for each racial/ethnic group are presented in Table 3.2. These results are from the same regression models as in Table 3.1, but the odds ratios for each minority group are no longer relative to the relationships for whites. The interpretation is then more straight-forward. Odds ratios greater than one indicate higher odds of homeownership in metropolitan areas with higher levels of the housing market variables.

The odds of homeownership for black households are significantly higher by a factor of 1.10 in metropolitan areas with a standard deviation higher *Log Median Value* in 2000. However, the relationship is insignificantly negative in all other years, which fails to support the significant negative relationship predicted by the *Price and Levels Hypothesis*. Black households' odds of homeownership are significantly higher in areas with a larger *Gini* in all decades after 1980. Again, these findings oppose the predicted negative relationship of the *Inequality and Levels Hypothesis*.

Supporting the *Price and Levels Hypothesis*, the odds of homeownership for Latino households are significantly lower with larger *Log Median Value* in all years but 1990, which still has an estimated odds ratio less than one. Latino households' odds of homeownership are lower by factors of 1.12 in 1980 to 1.31 ($1.31 = 1/0.51^{0.40}$) in areas with a standard deviation larger *Log Median Value*. Latino homeownership is significantly positively associated with the *Gini* in 2010, with odds higher by a factor of 1.16 in areas with a standard deviation greater *Gini*. However, the relationship is not significant in any prior decade, ultimately providing no support for the *Inequality and Levels Hypothesis*.

Homeownership for Asian households is positively associated with the *Log Median Value* in 1980, 1990, and 2000, again contradicting the predicted negative relationship of the *Price and Levels Hypothesis*. The relationship is also relatively strong, with higher odds of homeownership by factors of 1.14 to 1.35 for a standard deviation greater *Log Median Value*. In contrast, Asian homeownership appears to be completely unrelated to levels of the *Gini*, lending little support to the *Inequality and Levels Hypothesis*.

Finally, both the *Log Median Value* and the *Gini* are significantly negatively related to the odds of homeownership for white households in 1980 and 2010. The odds of homeownership for whites are lower by factors of 1.14 in 1980 to 1.25 in 2010 in metropolitan areas with a standard deviation larger *Log Median Value*. Meanwhile,

the odds of homeownership are lower by a factor of approximately 1.15 in MSAs with a standard deviation greater *Gini*. The odds ratio estimates for the housing market variables in 1990 and 2000 also indicate negative relationships to white homeownership, but the magnitudes are weaker and not statistically significant.

3.4.2 Fixed-Effects Regression Results

The results for the individual-level controls are very consistent with those from the cross-sectional models. The interpretation of the odds ratios for the metropolitan-level variables now indicate the factor change in the odds of homeownership for a unit increase in the independent variable. These odds ratio estimates are presented in the lower panel of Table B.4 in Appendix B.

The odds of homeownership significantly increase with growth in the local share of single-family, detached housing, and new housing in the pooled model, between 1980 and 1990, and between 2000 and 2010. Population growth is significantly related to higher odds of homeownership in the 1990s and 2000s, but lower odds in the 1980s. Growth in the local share of the black population is associated with lower odds of homeownership in the 1980s, and higher odds in the 1990s. Growth in the local share of the Latino population is associated with lower odds of homeownership in the 1980s, but in no other decade. Increases in the local Asian population are significantly related to higher odds of homeownership in all decades.

The odds ratios for the effects of changes in the *Log Median Value* and *Gini* on changes in homeownership gaps are presented in Table 3.3. Again, odds ratios above one indicate a more positive relationship for minority households than whites, and smaller gaps. Increases in the median home value and Gini are significantly associated with declining black-white homeownership gaps in the pooled model, contrary to both the *Price and Gaps Hypothesis* and *Inequality and Gaps Hypothesis*. For the average increase in the *Log Median Value* (0.16) and *Gini* (8.24) from 1980 to 2010

Table 3.3: Fixed-Effects Regression Results for Homeownership Gaps on Changes in Housing Market Variables, Presented as Odds Ratios.

	1980–2010	1980–1990	1990–2000	2000–2010
Black-White				
Log Median Value	1.144*	0.880	1.302***	1.341***
	(2.353)	(-1.679)	(3.477)	(4.467)
Gini	1.014***	1.006	1.042***	1.014*
	(3.761)	(0.799)	(6.586)	(2.222)
Latino-White				
Log Median Value	0.842*	0.927	0.878	0.885
	(-2.456)	(-0.499)	(-1.190)	(-1.407)
Gini	1.017**	1.019	1.025*	1.030***
	(3.097)	(1.628)	(2.189)	(4.744)
Asian-White				
Log Median Value	1.581***	2.040***	1.665***	1.796***
	(6.899)	(5.901)	(4.177)	(10.452)
Gini	0.974***	0.997	0.970*	1.026**
	(-4.279)	(-0.209)	(-2.195)	(3.030)
White				
Log Median Value	0.979	1.326***	1.414***	0.733**
	(-0.338)	(4.160)	(5.270)	(-2.597)
Gini	0.969***	1.011*	0.992	0.956***
	(-6.633)	(2.284)	(-1.647)	(-6.135)
MSA-Years	876	438	438	438
N	2,452,822	1,486,031	1,552,416	966,791

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables. Minority-white odds ratios represent the effects of the housing market variables for minority households relative to whites.
*** p<0.001, ** p<0.01, * p<0.05

across MSAs, the predicted black-white gap increases by factors of 1.02 and 1.12 respectively. The relationships are not significant for the 1980s, but both variables are significantly positive in the 1990s and 2000s.

The relationships between the housing market variables and Latino-white homeownership gaps are less straight-foward. Consistent with the *Price and Gaps Hypothesis*, Latino-white gaps are significantly larger over time with increases in the *Log Median Value*. The odds ratio for the *Log Median Value* is only statistically

significant in the pooled model, but the estimates are still less than one for all three decades. In the pooled model, the average increase in the *Log Median Value* is associated with a factor increase of 1.04 in the Latino-white homeownership gap.

The results for the *Gini* contradict the expectations of the *Inequality and Gaps Hypothesis*, much like the results for black-white gaps. Latino-white gaps become significantly smaller with increases in the *Gini* between 1990 and 2000, and between 2000 and 2010. The average increase in the *Gini* between 1980 and 2010 is associated with a factor decrease of 1.15 in the Latino-white gap, and the magnitude of this relationship is much larger than for the *Log Median Value*.

Smaller Asian-white homeownership gaps are robustly related to increases in the *Log Median Value*, both in the pooled model and all three decades separately. These results strongly contradict the *Price and Gaps Hypothesis*. For the average increase in the *Log Median Value* from 1980 to 2010, the pooled model predicts a factor decrease of 1.08 in the Asian-white homeownership gap.

Unlike the relationships for black-white and Latino-white homeownership gaps, increases in the *Gini* are significantly associated with larger Asian-white homeownership gaps in the 1990s and pooled models. The Asian-white gap increases by a factor of 1.20 for the average increase in the *Gini* between 1990 and 2000. However, the Asian-white gap decreases by a factor of 1.08 for the average increase in the *Gini* between 2000 and 2010. This pattern of results provides some support for the *Inequality and Gaps Hypothesis* for Asian-white homeownership gaps, but only prior to the year 2000.

Overall, the magnitude of the relationship between homeownership gaps and the average increase in the *Gini* is larger than for the *Log Median Value*. This pattern of results suggests the distribution of home values within local housing markets are more salient for racial/ethnic homeownership gaps than increases in the median. Moreover, the odds ratios for the two factors are in opposite directions for Latino-white and

Asian-white homeownership gaps. All else being equal, increases in the median and inequality in home values is related to diminishing black-white and Latino-white homeownership gaps, and increasing Asian-white gaps.

The relationships between the housing market variables and levels in homeownership by race/ethnicity are quite different. The results of the re-estimation of the regression models from Table 3.3 predicting the levels of homeownership for each race/ethnicity are presented in Table 3.4. As with Table 3.2, the odds ratios are traditionally interpreted. Odds ratios greater than one indicated the variable is positively associated with homeownership, and less than one indicates a negative relationship.

Changes in the *Log Median Value* are significantly related to black homeownership only between 1990 to 2000. The odds of homeownership for black households increase by a factor of 1.07 for the observed average increase in logged home values in that decade. The odds ratios for *Log Median Value* for levels of homeownership for black households provide no evidence supporting the predicted negative relationship of the *Price and Levels Hypothesis*.

The relationship between black homeownership and the *Gini* is significant in all four models, but reverses from positive in the 1980s and 1990s to negative in the 2000s. The models predict an increase in the odds homeownership for black households by a factor of 1.08 for the average observed increase in the Gini between 1980 and 1990. However, the odds decline by a factor of 1.09 for the observed average increase between 2000 and 2010. The odds ratio for the *Gini* in the pooled model is also less than one, and predicts a decline in the odds of black homeownership by a factor of 1.16 for the average increase in the Gini from 1980 to 2010. Ultimately, the results of the pooled model suggest the *Inequality and Levels Hypothesis* holds over recent decades.

The odds ratios for both the *Log Median Value* and *Gini* exhibit a similar reversal

Table 3.4: Fixed-Effects Regression Results for Homeownership Levels on Changes in Housing Market Variables, Presented as Odds Ratios.

	1980–2010	1980–1990	1990–2000	2000–2010
Black				
Log Median Value	1.120	1.167	1.840***	0.983
	(1.432)	(1.757)	(5.873)	(-0.132)
Gini	0.983**	1.018*	1.034***	0.969***
	(-3.027)	(1.990)	(4.744)	(-3.394)
Latino				
Log Median Value	0.825*	1.229	1.241*	0.649***
	(-2.566)	(1.367)	(2.156)	(-3.992)
Gini	0.986**	1.031*	1.016	0.985*
	(-2.901)	(2.570)	(1.674)	(-2.131)
Asian				
Log Median Value	1.547***	2.705***	2.354***	1.316*
	(5.295)	(8.015)	(7.068)	(2.163)
Gini	0.944***	1.009	0.961**	0.981*
	(-10.440)	(0.641)	(-3.178)	(-2.026)
White				
Log Median Value	0.979	1.326***	1.414***	0.733**
	(-0.338)	(4.160)	(5.270)	(-2.597)
Gini	0.969***	1.011*	0.992	0.956***
	(-6.633)	(2.284)	(-1.647)	(-6.135)
MSA-Years	876	438	438	438
N	2,452,822	1,486,031	1,552,416	966,791

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
All odds ratios represent the effects of the housing market variables variables relative to no effect.
*** p<0.001, ** p<0.01, * p<0.05

over time when predicting Latino homeownership. Increases in the *Log Median Value* are significantly related to higher odds of homeownership for Latino households between 1990 and 2000, but lower odds between 2000 and 2010. Increases in the *Gini* are significantly related to higher odds of homeownership in the 1980s, are unrelated in the 1990s, and are significantly related to lower odds in the 2000s. In the pooled model, the observed average increase in the *Log Median Value* is associated with a decline in the odds of homeownership for Latino households by a factor of 1.03,

supporting the *Price and Levels Hypothesis*. Similarly, the average increase in the *Gini* is associated with a factor decline of 1.12, consistent with the *Inequality and Levels Hypothesis*.

Increases in the *Log Median Value* have a robust positive relationship with Asian homeownership, starkly contradicting the *Price and Levels Hypothesis*. However the relationship is weaker over time, from an odds ratio of 2.71 in the 1980s to 1.32 in the 2000s. Growth in the *Gini* is unrelated to homeownership for Asian households between 1980 and 1990, but is significantly negatively related in the 1990s and 2000s. The statistically significant odds ratio less than one in the pooled model provides evidence for the *Inequality and Levels Hypothesis*. The observed average increase in logged home values is associated with a 1.07 factor increase in the odds of Asian homeownership, but the average growth in the Gini is associated with a 1.61 factor decrease.

Finally, both housing market variables reverse from significant positive relationships with white homeownership to significant negative relationships over time. The odds ratio for changes in the *Log Median Value* is significantly positive in the 1980s and 1990s, and significantly negative in the 2000s. This reversal is obscured in the pooled model, which yields an insignificant odds ratio. The odds ratio for changes in the *Gini* are significantly positive in the 1980s, insignificantly negative in the 1990s, and significantly negative in the 2000s. In the pooled model, the observed average increase in the Gini is associated with a 1.3 factor decline in the odds of homeownership for white households.

3.4.3 Counterfactual Trends

Similar to the previous chapter, I estimate the total relationship between homeownership and observed housing market structural changes with counterfactual simulations. The predicted and counterfactual trends in racial/ethnic homeownership

gaps are displayed in Figure 3.4. The solid lines in Figure 3.4 represented the differences in the predicted probabilities of homeownership between white and minority households, calculated using the observed values for all variables. The dashed lines in Figure 3.4 represent the racial/ethnic differences in the predicted probabilities of homeownership with the housing market variables held constant at their 1980 values.

The predicted black-white homeownership gap is smaller in all years under observed housing market conditions, relative to the *Log Median Value* and *Gini* remaining constant at 1980 levels. The predicted black-white gap is smaller than the counterfactual estimate by 3.37 percentage points in 2010, a difference of 10.9% of the counterfactual value.

Similarly, the Latino-white gap in the predicted probability is 1.92 percentage points smaller in 2010 when calculated with observed trends in the home value variables, compared to the 1980 levels. This predicted disparity is 8.7% smaller than the corresponding counterfactual. In contrast, the Asian-white homeownership gap is 2.48 percentage points larger in 2010 compared to the counterfactual estimate.

The predicted and counterfactual trends in homeownership rates by race/ethnicity are displayed in Figure 3.5. The predicted trends in the probability of homeownership for all groups are lower under the observed changes in the distribution of home values compared to the 1980 levels. However, the differences between the predicted and counter factual trends are largest for Asian households. The differences for black and Latino households is smaller than the corresponding difference for white households. As a result, the observed growth in home value inequality within and between local housing markets is significantly related to smaller black-white and Latino-white homeownership differences, but larger Asian-white differences.

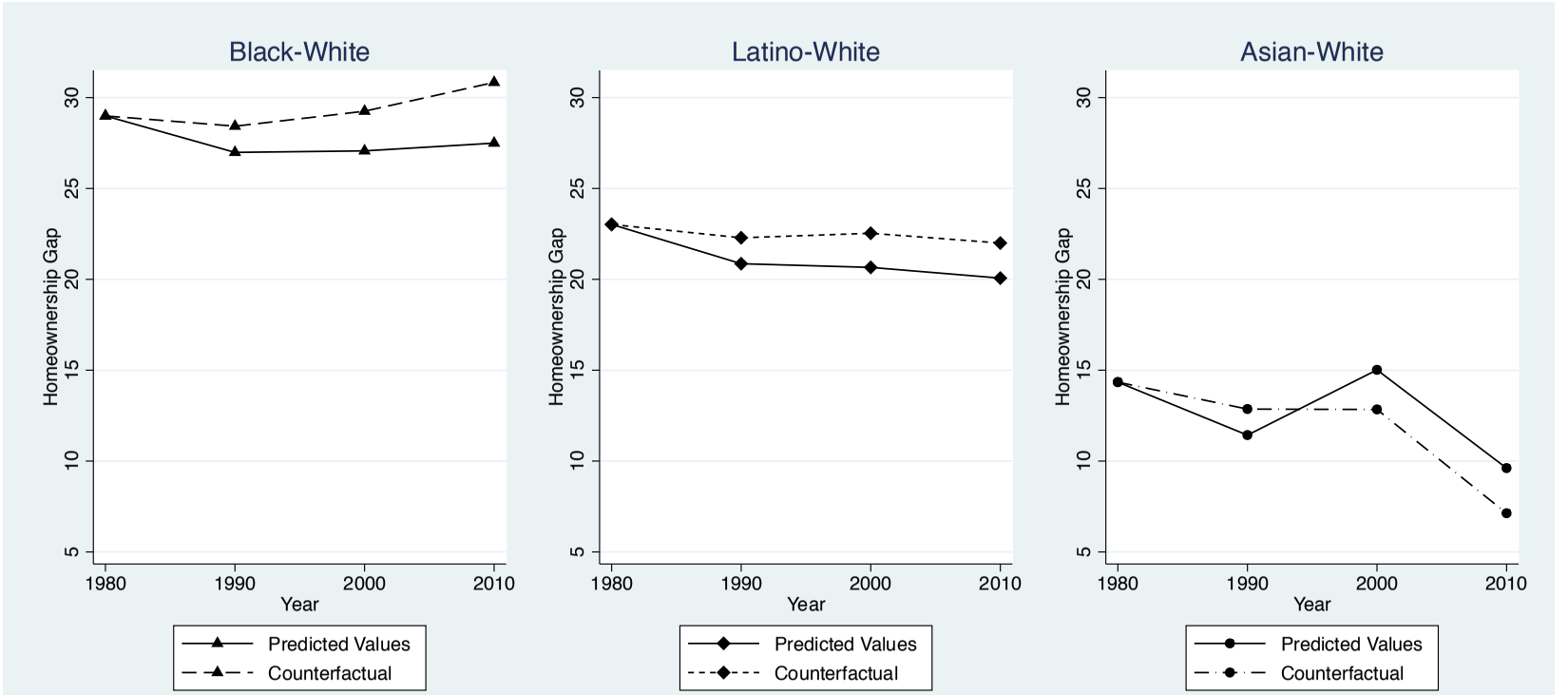

FIGURE 3.4: Predicted Racial/Ethnic Gaps in Homeownership, Presented as Percentage-Point Differences in Predicted Probabilities Using Observed Values and 1980 Values for Housing Market Variables.

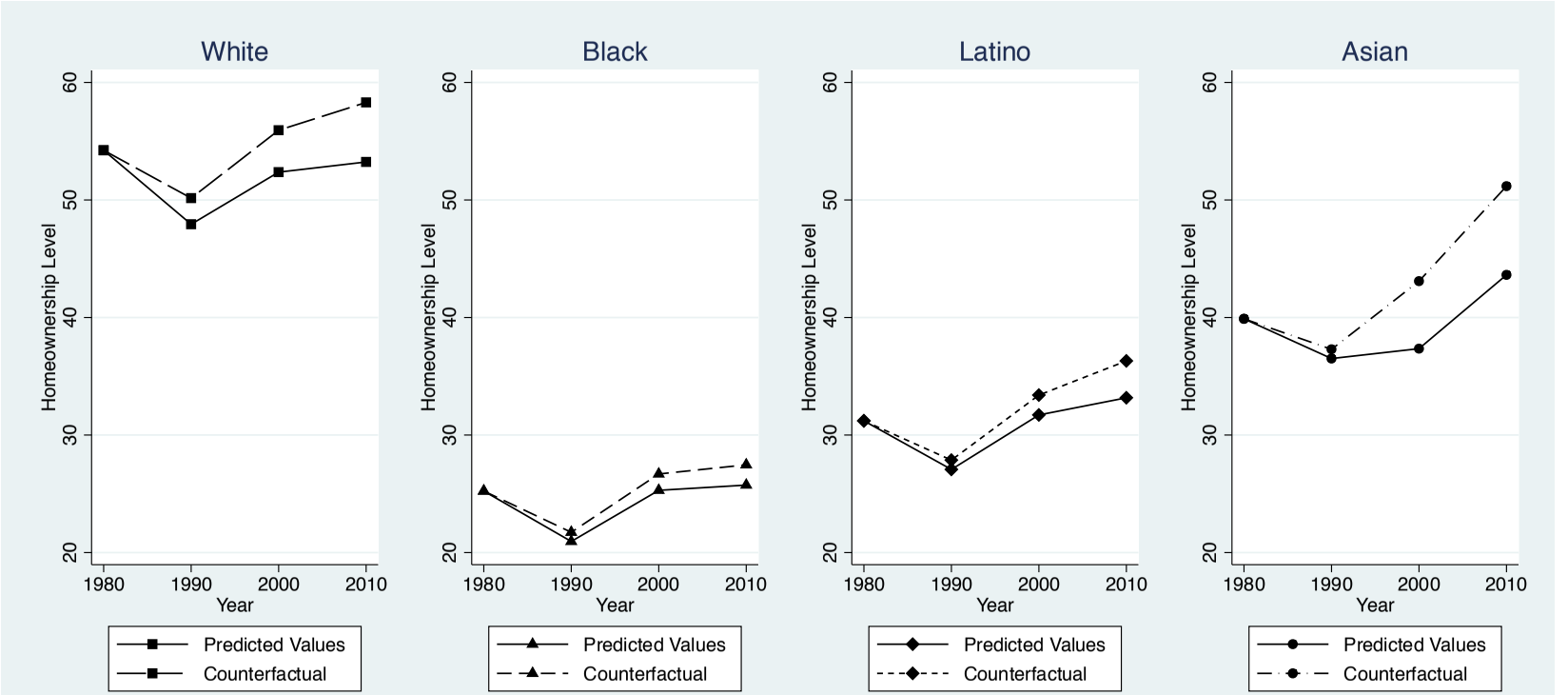

FIGURE 3.5: Predicted Trends in Homeownership Levels, Presented as Predicted Probabilities Using Observed Values and 1980 Values for Housing Market Variables.

3.5 Discussion

For decades before the housing crisis of the late 2000s, housing market inequality increases substantially (Glaeser et al. 2005; Immergluck 2009b; Shiller 2005). The implications of these changes for long-term trends in racial/ethnic stratification in homeownership are unclear in existing literature. This dissertation chapter addresses this topic using three decades of data for over two hundred local housing markets. The empirical analyses measure both the level and dispersion of home values within local markets, and examine differences both between and within areas over time. The results of this chapter demonstrate a complex pattern of relationships between growing levels and inequality in home values, and homeownership for different racial/ethnic groups. Empirical support for the chapter's hypotheses is mixed, and frequently specific to different racial/ethnic groups.

Overall, the spatial patterns of home values and the odds of home ownership provide no support for either the *Price and Gaps Hypothesis* or *Inequality and Gaps Hypothesis*, contrary to some previous research (Flippen 2001). Black-white and Asian-white homeownership gaps are actually smaller in areas with higher median home values. Black-white gaps are significantly smaller in areas with larger Gini indexes in all decades, and all homeownership gaps are smaller with higher Gini indexes in 2010.

There is some indication that the *Price and Levels Hypothesis* holds for Latino households in the cross-sectional results. The odds of Latino homeownership are lower in metropolitan areas with a higher *Log Median Value*. However, the *Log Median Value* is largely unrelated to the odds of black homeownership, and positively related to Asian homeownership. There is also no support for the *Inequality and Levels Hypothesis*, and the odds of black homeownership are significantly higher in areas with a greater *Gini*.

The fixed-effects analyses more rigorously evaluate the chapter's hypotheses by examining changes in the key variables over time, net of unobserved stable characteristics. These results provide some evidence supporting the *Price and Gaps Hypothesis*, as Latino-white homeownership gaps significantly increase with rising median values. However, the opposite of the hypothesis is true for black-white and Asian-white gaps, which significantly decrease with growth in the local *Log Median Value*.

There is also evidence that the *Inequality and Gaps Hypothesis* holds for Asian-white homeownership gaps. The Asian-white gap significantly increases with growth in the local *Gini*. However, black-white and Latino-white gaps significantly decrease with the *Gini*, directly contradicting the *Inequality and Gaps Hypothesis*.

The fixed-effects results support the *Price and Levels Hypothesis* for Latino households, whose odds of homeownership decline with increases in the *Log Median Value*. However, the odds of homeownership for Asian households are robustly positively related to increases in the *Log Median Value*, suggesting that Asian home buying may have a relatively large positive effect on house prices.

The fixed-effects results much more definitively support the *Inequality and Levels Hypothesis*. The pooled model demonstrates the odds of homeownership for all groups significantly decline with increases in the local *Gini*. This last finding is particularly notable, as the standardized effects of the *Gini* on homeownership gaps and levels have larger magnitudes than the effects of the *Log Median Value*. This finding suggests inequality in home values within local labor markets is more salient to both levels and gaps in homeownership than simply the midpoint of the distribution. As previously discussed, the *Gini* may reflect a shift in the distribution of home values to either the top or bottom of the distribution, or both. The implication of the results presented here is that any polarization of home values will not be beneficial for improving the homeownership rate overall, or for minority households.

The counterfactual trends illustrate the combined influence of these relationships on homeownership stratification. In 2010, the black-white homeownership gap is 10.9% smaller than if home value inequality remained at 1980 levels, and the Latino-white gap is 8.9% smaller (see Figure 3.4). However, the Asian-white gap is slightly larger in 2010 relative to its counterfactual estimate. These simulated comparisons suggest neither the *Price and Gaps Hypothesis* nor the *Inequality and Gaps Hypotheses* carry any weight relative to other factors. In fact, the reverse appears to be true; racial/ethnic homeownership gaps decline with increases in the level and inequality of home prices.

The conclusions for levels of homeownership have a quite different interpretation. The combined increases in the level and inequality of home prices are associated with lower levels of homeownership for households of all racial/ethnic groups. The reduction in black-white and Latino-white gaps results from differential impact of trends in housing prices on white and Asian homeownership. Despite a somewhat equalizing influence for gaps, increasing house price inequality still represents a barrier to minority homeownership.

Finally, there is little evidence for effects of changes in segregation on homeownership gaps. This is surprising, given the robust relationship between segregation and minority homeownership from cross-sectional studies (Flippen 2001). The lack of any significant relationship may partly be due to the limited within-metropolitan-area variation in levels of segregation. Black-white segregation has declined steadily for many decades, but the pace and magnitude of the declines have been mild to moderate (Cutler et al. 1999). Latino-white segregation has increased over time (Logan et al. 2004), but there appears to be no significant influence on Latino-white gaps or Latino homeownership rates. Again, the rate of the change may be too small to detect any significant relationship to homeownership over time.

To date, few studies examine structural factors influencing trends in racial/ethnic

homeownership gaps, rather than levels at a point in time. Moreover, the long-term trend in rising housing market inequality has been relatively neglected. Housing market inequality has been measured as the variation of median or average home values between local markets. However, this chapter demonstrates that trends in within-market home value inequality are more relevant to homeownership rates and gaps. This study's use of multiple waves of data across a three decades, measures of both the level and inequality of home values, and examination of changes between and within local housing markets provide a particularly comprehensive test of the relationships in question relative to past literature.

The chapter's results ultimately undermine the hypotheses predicting larger homeownership gaps resulting from higher and more unequal house prices. Only the *Inequality and Levels Hypothesis*, that growth in inequality of housing prices within local markets reduces levels of minority homeownership, is robustly supported. The goal of many housing policies, and implicit belief of many past research studies, is that minority households benefit from reduced inequality with whites. However, the results of this study present a counter-intuitive situation, in which gaps are reduced with little apparent benefit for minority households. This finding relates to long-standing tensions in other areas of sociological research on racial stratification, which debate the relative importance of minority-white inequalities in resources or opportunities, versus the level of minority access to resources and opportunities. From the perspective of minority households, increased disparities relative to whites may be less salient than increased access to homeownership.

4

Income Inequality, Population Aging, and Racial/Ethnic Health Disparities

The relationship between income inequality and negative outcomes for individuals is a prominent topic within social science, and increasingly in the public discourse (Wilkinson and Pickett 2009a,b). The potential impact of income inequality on health, the Income Inequality Hypothesis, is perhaps the most frequently studied and debated aspect of the broader topic (Kawachi and Kennedy 1999, 2002; Lynch et al. 2004; Subramanian and Kawachi 2004; Wilkinson and Pickett 2006). The Income Inequality Hypothesis posits that income inequality undermines health for all individuals in a society, regardless one's position within it. As a result, even the most socioeconomically advantaged in a highly unequal society will have worse health than comparable members of a more equal society.

This hypothesis is particularly salient in light of recent surges in income inequality, particularly within the U.S. Income for the top percentiles of the distribution rapidly increases while wages and income for the bottom of the distribution stagnate (Piketty and Saez 2006; Volscho and Kelly 2012). Despite recent attention to the

disproportionate income of the top one percent, there is a decades-long trend toward inequality for the the entire income distribution of individuals and families in the U.S. (McCall and Percheski 2010; Morris and Western 1999). Trends in wealth inequality are even more dramatic (Keister 2000; Keister and Moller 2000). The growth in inequality motivates renewed examination of its potential impact on health. However, recent changes also highlight the importance of analyzing trends in income inequality and health over time, rather than simply levels at a single point. If the Income Inequality Hypothesis holds for trends within the U.S., recent increases in inequality may lead to deteriorating population health for Americans in subsequent decades (Zheng 2012; Zheng and George 2012).

Aside from growth in inequality, the age distribution of the population rapidly grows older (Frey and DeVol 2000), with serious consequences for both population health (Martin and Preston 1994) and inequality (Pampel 1994). Negative health outcomes are concentrated among older adults. Increasing the size of the at-risk population for poor health outcomes may increase vulnerability to any negative impact of simultaneously increasing income inequality. However, the potential moderating impact of structural factors like population aging are left unexamined by current research on inequality and health.

Perhaps most notably, the implications of the Income Inequality Hypothesis for racial/ethnic health disparities also remain unclear. Health disparities, particularly between racial/ethnic groups, reflect the impact of stratification on individuals' and groups' physical and psychological well-being (Williams and Collins 1995). The magnitude and durability of health disparities make them especially relevant for evaluations of the Income Inequality Hypothesis within the U.S. context. Moreover, aging and health across the life course follow distinct patterns for different racial/ethnic groups (Martin and Soldo 1997). Then there is strong potential for stratified impacts of income inequality, and differential moderating effects of population aging.

This chapter of the dissertation empirically investigates the relationships among income inequality, population aging, and racial/ethnic health disparities. The chapter analyzes data from the 5% micro-data samples of the 1990 and 2000 decennial Census, the 2010 ACS, and the 1999–2001 and 2009–2011 March CPS. I rigorously test the Income Inequality Hypothesis with multiple measures of inequality at the metropolitan level, and its potential impact on disability and self-rated health at the individual level. I also test for an interactive effect of local levels of population aging with income inequality.

Though basic aggregate patterns are consistent with the Income Inequality Hypothesis, results from detailed descriptive patterns and regression results provide no evidence for the hypothesis. There is also no empirical support for a significant moderating effect of population aging. Results from fixed-effects regression models suggest average health outcomes and some racial/ethnic disparities may actually improve as income inequality increases within metropolitan areas over time. Ultimately, the chapter's findings suggest the Income Inequality Hypothesis does not hold at the metropolitan level, but this analytic approach may be fruitfully applied to other structural determinants of health.

4.1 Theoretical Background

Hundreds of studies have empirically tested the Income Inequality Hypothesis (Lynch et al. 2004; Subramanian and Kawachi 2004; Wilkinson and Pickett 2006). Theoretical debates center around what aggregate income inequality truly measures, and the potential mechanisms leading to worse health (Eberstadt and Satel 2004; Kawachi and Kennedy 1997, 1999). Reflecting the heterogeneity of potential mechanisms linking inequality to health, the geographic scale of comparison has a large influence on the proportion of studies supporting the hypothesis (Subramanian and Kawachi 2004; Wilkinson and Pickett 2006). Despite numerous debates surrounding

the theoretical and empirical underpinnings of the Income Inequality Hypothesis, its potential extension to racial/ethnic health disparities is notably absent. The methodology of past studies also faces serious critique (Beckfield 2004; Mellor and Milyo 2002). Finally, the potential for moderating structural processes like substantial increases in population aging warrant further modification and scrutiny of the classical formulation of the Income Inequality Hypothesis.

Along with considerable contributions by Ichiro Kawachi and Bruce Kennedy (Kawachi and Kennedy 1997, 1999, 2002), Richard Wilkinson (Wilkinson 1996, 2005; Wilkinson and Pickett 2006, 2009b) is perhaps the most vocal proponent of the Income Inequality Hypothesis. Wilkinson's articulation of the hypothesis argues that income inequality reflects a society's level of class stratification, and lack of social cohesion. Indeed, Wilkinson (2006) frames the Income Inequality Hypothesis as a re-interpretation of classic and well established literature on the social gradient in health.

Income inequality is most frequently measured with the Gini index, and compared between developed countries (Subramanian and Kawachi 2004; Wilkinson and Pickett 2006). However, recent growth in income inequality within the U.S. (McCall and Percheski 2010; Piketty and Saez 2006; Volscho and Kelly 2012) may have serious consequences for population health if the hypothesis holds. Then, the Income Inequality Hypothesis is the first and primary hypothesis of this dissertation chapter: *Hypothesis 1 (Income Inequality Hypothesis): Individuals in metropolitan areas with greater income inequality have worse average health.*

An array of studies documents a significant positive relationship between the Gini index of income inequality and several negative health outcomes: higher mortality, lower life expectancy, more disability and chronic conditions, higher mental distress and disorder, and worse self-rated health (Subramanian and Kawachi 2004; Wilkinson and Pickett 2006). In what may be the most popularized articulation of the Income

Inequality Hypothesis, Wilkinson and Pickett's *The Spirit Level* (2009b) emphasizes the similarity of this relationship between countries and between states within the U.S. Additionally, this literature highlights that negative health outcomes are *not* significantly related the overall level of income at the state or country level.

In their comprehensive review, Subramanian and Kawachi (2004) highlight three specific theoretical mechanisms or pathways for an emergent effect of income inequality on individual health. First, income inequality may have a causal effect on residential segregation, and the concentration of poverty and deprivation subsequently has deleterious effects on residents' health (Entwisle 2007; Kawachi and Berkman 2003; Macintyre and Ellaway 2003). Second, income inequality may hinder social cohesion and aggregate social capital, depriving individuals of health-promoting support networks (Browning and Cagney 2002; Sampson 2003). Finally, income inequality may undermine progressive social policies, and the provision of public goods such as welfare, child care, disability assistance, and unemployment insurance (Kawachi and Kennedy 1999; Subramanian and Kawachi 2004). Lack of adequate public provision increases deprivation among the disadvantaged, ultimately causing negative health outcomes.

The geographic scale of the studies has important implications for the strength of the estimated relationship between inequality and health. Income inequality is most strongly related to health when comparing societies at the country level, and the strength of the relationship is weaker the smaller the region (Subramanian and Kawachi 2004). Some studies find significant relationships between metropolitan-level income inequality and mortality (Lynch et al. 1998; Shi and Starfield 2001; Wilkinson and Pickett 2006), but many find no support for the Income Inequality Hypothesis at the metropolitan-level (Deaton and Lubotsky 2003; Mellor and Milyo 2002; Sturm and Gresenz 2002). However, the theoretical pathways for the hypothesis may be particularly relevant within metropolitan areas. The spatial division of

poverty and affluence largely occurs within metropolitan areas (Massey 1996; Massey and Fischer 2000), and the instrumental value of individuals' social capital and social networks for health is primarily contained within neighborhoods or cities (Kawachi and Berkman 2003; Sampson 2003). The mixture of empirical results despite these theoretical arguments motivate further scrutiny.

Inequality in the urban context also raises the question of racial/ethnic stratification. The spatial segregation of poverty and disadvantage is inextricable from racial/ethnic segregation (Massey and Denton 1993; Massey and Fischer 2000). Deaton and Lubotsky (2003), among others, criticize research on the Income Inequality Hypothesis for confounding overall income inequality and health outcomes with racial stratification. Their study finds no effect of income inequality when controlling for the proportion of the local black population in the metropolitan area. Another of the few studies to explicitly examine racial stratification in the Income Inequality Hypothesis is Shi and Starfield's (2001) analysis of metropolitan-level income inequality and mortality. The study's results find a stronger positive relationship between the Gini coefficient in income inequality and the black mortality rate than the white mortality rate in 1990. However, the study lacks individual-level data, includes a limited number of control variables, and examines mortality as the only measure of health. A rigorous examination of the Income Inequality Hypothesis and racial/ethnic health disparities remains notably absent in the literature, motivating this chapter's second hypothesis:

Hypothesis 2: Greater metropolitan-level income inequality is significantly associated with larger racial/ethnic health disparities.

Aside from evaluating the potential for racial and ethnic stratification, this chapter addresses two additional extensions of past research. First, the methodology of many studies on the Income Inequality Hypothesis is subject to critique (Beckfield 2004; Eberstadt and Satel 2004; Gravelle et al. 2002; Judge et al. 1998; Mellor and

Milyo 2002). Perhaps the most significant empirical limitation is reliance on single cross sections of data. The literature tends to support the hypothesis that societies with high levels of income inequality tend to have lower levels of health. However, the relationship between changes or trends in income inequality and health over time is less well established. Beckfield (2004) finds no significant effect of income inequality on health cross-nationally when controlling for fixed characteristics of countries. Similarly, Mellor and Milyo (2002) find no significant effect at the state or metropolitan level when controlling for fixed effects of these regions. This chapter incorporates this critique in its evaluation of the Income Inequality Hypothesis, and examines the roles of temporal variation and unobserved factors in the relationships at hand.

The chapter's second extension of past research considers potentially moderating contextual effect of population aging. The rate of population aging within the U.S. has accelerated in recent decades (Martin and Preston 1994). The youngest members of the Baby Boomer generation turned 40 years old in the mid 2000s, and the proportion of the population over this age reached the highest point in U.S. history (Suzman 2010). Morbidity and disability are concentrated among middle-aged and older adults, implying that the at-risk population for such conditions is growing alongside increasing economic inequality. When considering that public goods and service provision is one of the potential pathways for inequality's negative effect on population health (Kawachi and Kennedy 1999), the increasing demand for health services among an aging population suggests that economic inequality may be even more salient for population health than before (Pampel 1994). Rates of population aging are also unevenly distributed between metropolitan areas. For example, the rate of growth for the over-65 population in cities like Las Vegas, NV, and Anchorage, AK were more than double the rates in Austin, TX, and Flagstaff, AZ in the 1990s (Frey and DeVol 2000). The geographic variation in rates of population aging make the metropolitan level particularly interesting to test its relationship to income

inequality and health.

Hypothesis 3: The relationship between metropolitan-level income inequality and negative health outcomes is stronger in areas with greater population aging.

Finally, any interactive effect of income inequality and population aging on health may also be stratified by race/ethnicity. If population aging increases competition for health resources, then racial/ethnic minorities likely face greater exclusion than whites due to persistent discrimination in health care services (Williams et al. 2003). Increases in income inequality in areas with greater population aging may also have racially stratified effects to the extent that minorities face reduced resource availability combined with greater competition. Racial/ethnic minorities are differentially affected by the accumulation of stress (George and Lynch 2003), and increased scarcity of health services relative to demand may only reinforce minorities' traditionally lower rates of service utilization (Swartz et al. 1998).

Hypothesis 4: The interactive relationship between income inequality and population aging is associated with larger racial/ethnic health disparities.

4.2 Data and Methods

This chapter analyzes data from two sources. The 5% micro-data samples from the 1990 and 2000 decennial Censuses, and the 2010 American Community Survey (ACS) are used to estimate metropolitan-level characteristics, and analyze disability among individuals. The 1990 decennial Census is the first year to collect disability information. The March CPS first includes self-rated health in 1996, so the chapter also uses data from the 1999–2001 and 2009–2011 waves to examine self-rated health among individuals.[1]

[1] The three waves around each Census year are pooled to yield larger sample sizes within MSAs for estimating self-rated health in 2000 and 2010. However, the CPS uses a rotating panel design with eight rotation groups. In each year, the first four rotation groups of each month are re-interviewed in the same month of the following year, but panel identifiers for individuals are not available.

The analytic samples include adults over 45 years-old. The sample is restricted to those over 45 years old because there is less meaningful heterogeneity in health among younger adults. Health may also be a more relevant outcome for older adults, as health is the strongest single predictor of quality of life at older ages (George 2006)[2] The sample drawn from the decennial Census and ACS includes 3,150,422 respondents living in a balanced panel of 238 MSAs.[3] The sample from the CPS contains 116,052 respondents in a balanced two-wave panel of 197 MSAs.

4.2.1 Disability and Poor Health

The first dependent variable is a dichotomous indicator for currently being *Disabled*. The variable is coded as one if the individual reports having difficulty with any activities of daily living (ADLs), which include self-care activities such as "bathing, dressing, or getting around inside the home." The Census and ACS also ask about difficulty with any instrumental activities of daily living (IADLs), which include basic activities like "going outside the home alone, for example, to a shop or visit a doctor's office." However, there is some discrepancy in the reporting of IADL disability between the decennial Census and the ACS.[4] I restrict the primary analyses to ADL disability, but additional analyses of ADL and IADL disability separately and together all yield similar substantive conclusions. The 2000 decennial Census and the ACS also collect data on functional limitations, which include difficulty "walking,

This chapter examines only the fourth through eighth rotation groups of consecutive years to avoid unobserved repeated observations at the individual level.

[2] Alternative analyses among adults over 65 years-old yield comparable substantive findings.

[3] Similar to Chapter 2, the analyses use a 25% random subsample of whites from the 1990 and 2000 waves of decennial Census data to facilitate model estimation. The survey sample weights are adjusted accordingly.

[4] After 2002, the ACS changed the wording of its disability questions The estimate of IADL disability among adults over 16 years-old declined by 30% with the new version of the question. Comparisons between mail-in survey responses and computer-assisted interviews suggest misreporting in previous waves of the ACS and decennial Census overestimate IADL disability (Stern and Brault 2005).

climbing stairs, reaching, lifting, or carrying." Supplemental analyses on the 2000 Census and 2010 ACS examine functional limitations as the dependent variable, and disability defined as the presence of any functional limitations, or difficulties with ADLs or IADLs. Again, all substantive conclusions are comparable to those presented here.

The left-hand panel of Figure 4.1 presents trends in minority-white percentage-point differences in the proportion *Disabled* in the analytic sample. The differences between whites and all groups decline substantially between 1990 and 2000. The black-white difference in disability continues to decline from 2000 to 2010, but less rapidly. The Latino-white and Asian-white differences remain fairly constant in the last decade. The black-white difference in disability is the largest in each decade, exceeding seven percentage points in 1990, and declining to two percentage points in 2010. The Latino-white disparity declines to approximately one percentage point by 2000, and the Asian-white difference is a one percentage-point advantage for Asians by 2010. The right-hand panel of Figure 4.1 depicts the trends in the percent *Disabled* for each racial/ethnic group. Disability declines for all groups over time, with the largest decreases between 1990 and 2000. However, the decreases in the percent *Disabled* are more pronounced for minorities than whites, reflected by the shrinking disparities. The particularly large decrease in disability among Asians is the primary cause of the reversal of the Asian-white disparity by 2000.

Overall decline in ADL disability is also widespread, occurring in all but 11 of the 238 metropolitan areas between 1990 and 2010. The proportion of adults over 45 who are *Disabled* declines by at least 35% of the 1990 level in more than half of the MSAs. Decreases in racial/ethnic disparities in disability are similarly widespread. The minority-white percentage-point differences in the proportion of disabled adults shrink in 84% to 90% of metropolitan areas between 2010 and 1990. The metropolitan-level distributions of racial/ethnic differences in the percent *Dis-*

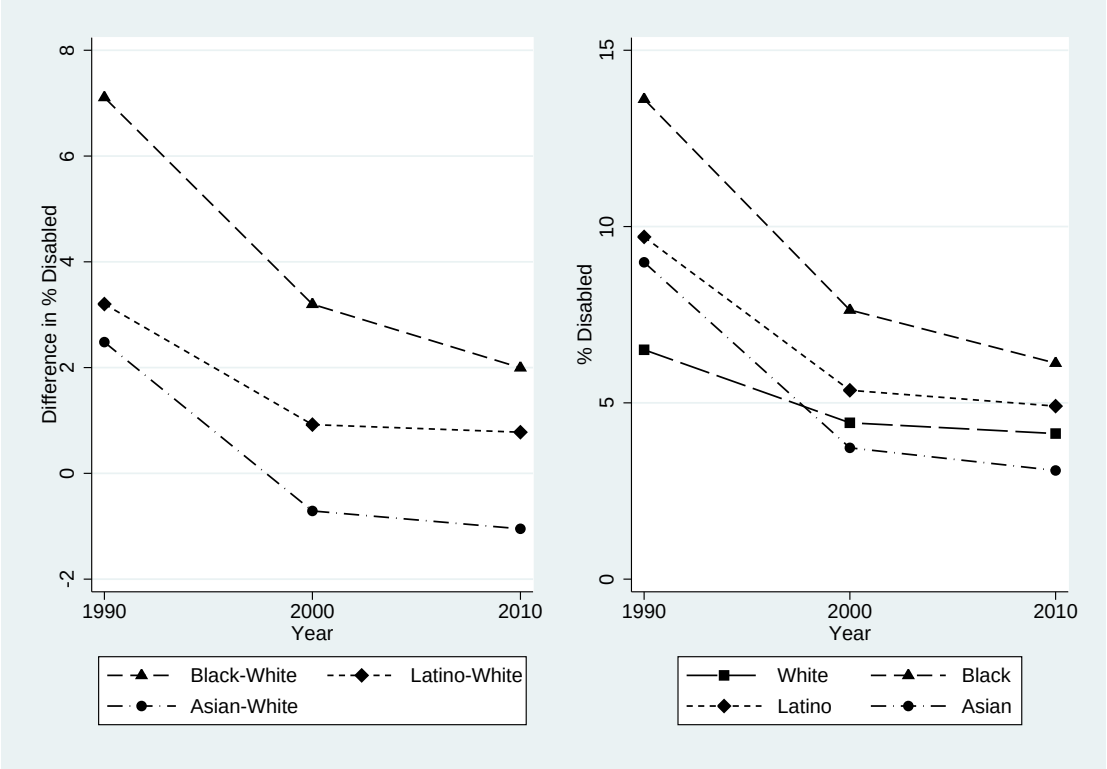

FIGURE 4.1: Trends in Differences and Levels of Percent Disabled.

abled are described in Table C.1 in Appendix C.

The second dependent variable is a binary variable for *Poor Health*, and is a collapsed version of the standard five-point measure of self-rated health. *Poor Health* equals one for individuals reporting poor or fair health, and zero for individuals reporting good, very good, or excellent health. This operationalization of self-rated health has precedent in studies of the Income Inequality Hypothesis (Mellor and Milyo 2001, 2002).[5] Self-rated health is often best analyzed in dichotomous form because it frequently fails the proportional odds assumption behind ordered logistic regression models, and dichotomization generally loses relatively little information (Manor et al. 2000). Regardless, analyses of the five-point form of self-rated health

[5] Mellor and Milyo (2001; 2002) dichotomize self-rated health with poor/fair health equal to one, also using the CPS.

yield similar results as those presented below.[6]

The prevalences of *Poor Health* among the analytic sample by race/ethnicity are presented in Figure 4.2. Similar to the trends in the percent *Disabled*, there is a slight decline in racial/ethnic disparities in the percent reporting *Poor Health* over time. The black-white disparity exhibits the largest change, decreasing by almost four percentage points between 2000 and 2010. The proportion of each group in poor health also declines over time, and reductions in racial/ethnic disparities result from the larger declines for minorities relative to whites. The metropolitan-level distributions of racial/ethnic differences in the percent in *Poor Health* are described in Table C.1 in Appendix C.

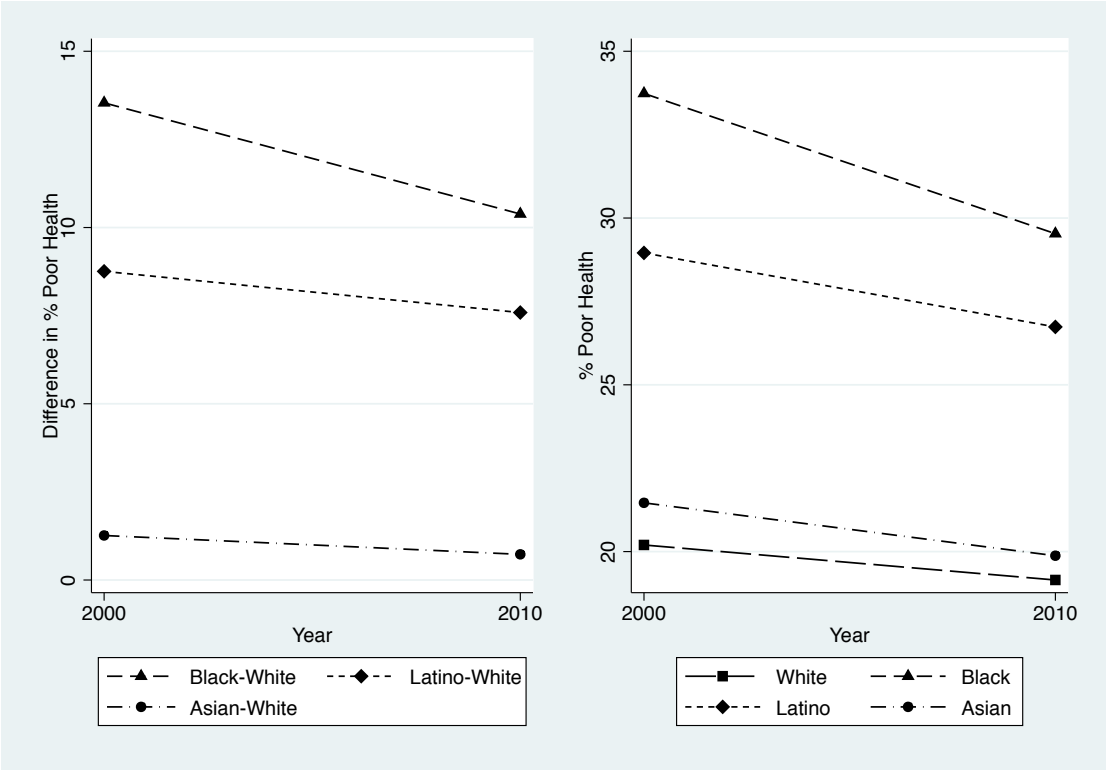

FIGURE 4.2: Trends in Differences and Levels of Percent in Poor Health.

[6] Analyses of the five-point variable using ordered logistic regression and OLS regression yield substantively comparable results.

4.2.2 Metropolitan-Level Variables

The analyses measure income inequality with the Gini index for household income within each MSA-year, *Gini*, which is the standard measure for testing the Income Inequality Hypothesis (Eberstadt and Satel 2004; Subramanian and Kawachi 2004; Wilkinson and Pickett 2006). Household income is the sum of all current household members' total income from the previous calendar year. As a result, the measure of the Gini is lagged one year prior to the health measure. In addition to the *Gini*, I replicate all analyses with alternative measures of inequality at the metropolitan level: the coefficient of variation in household income, the ratio of the 90th to the 10th percentiles of household income, and the Gini coefficient for inequality in home values as a proxy for wealth inequality. The coefficient of variation and 90/10 ratio correlate approximately 0.86 and 0.78 with the *Gini* respectively, and the Gini coefficient for home values correlates 0.52. There is some variation in the size and statistical significance of the odds ratios for the different inequality measures in comparable models, but the overall patterns of results have the same substantive implications for the chapter's hypotheses.

Population aging is measured with the percent of the local population above age 65, *%Over 65*. Growth in the *Gini* and *% Over 65* for the average member of the analytic sample in the Census and ACS data, relative to the level in 1990, is presented in Figure 4.3. Income inequality increases rapidly between 1990 and 2000, rising by 7.5%. Inequality continues to increase in the subsequent decade, but much less rapidly. The *Gini* for the average sample member in 2010 is approximately 9% higher than the average in 1990. Of course, the 2000-2010 trend in income inequality is likely affected by the recession of the late 2000s, possibly obscuring a rise and subsequent decline of inequality within that decade.

Population aging exhibits the reverse pattern between decades. The share of the

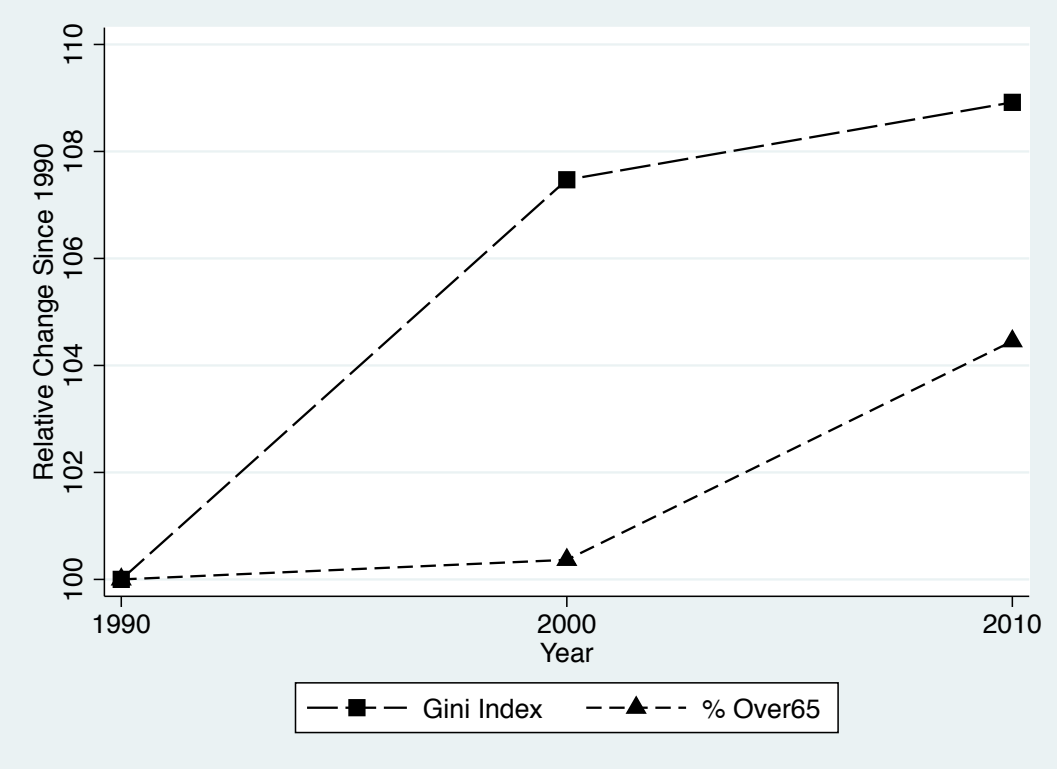

FIGURE 4.3: Average Growth in Income Inequality and Population Aging, Relative to 1990.

local population over 65 for the average sample member changes very little between 1990 and 2000, increasing by approximately a third of one percent. The increase between 2000 and 2010 is far more notable, rising over 4.5% of the 1990 level. The average *% Over 65* will increase more rapidly in the coming years, as only the first Baby Boomer cohorts reach 65 years-old by 2010.

Naturally, there is substantial geographic variation in these two trends. Only 15 of the 238 metropolitan areas experience a decrease in the *Gini* between 1990 and 2010, and the *Gini* decreases by more than two percent only in Macon, GA, and St. Cloud, MN. Meanwhile, income inequality increases by more than 10% relative to its 1990 level in over one-third of metropolitan areas.

Trends in population aging are even more heterogeneous. The *% Over 65* increases by more than 10% between 1990 and 2010 in almost half, 117, of the MSAs.

However, the *% Over 65* decreases in 43 MSAs. Interestingly, many of the metropolitan areas with the highest proportions of older adults exhibit the largest declines, including Fort Lauderdale, Sarasota, Tampa-St. Petersburg, and West Palm Beach-Boca Raton, FL. Descriptive statistics for the *Gini* and *% Over 65* at the metropolitan level are presented in Table C.2 in Appendix C.

4.2.3 Controls

Metropolitan-level control variables include the local demographic and economic contexts, following past studies (Eberstadt and Satel 2004; Subramanian and Kawachi 2004). The size of the total population is logged to account for the skewed distribution, *ln(Population)*. The racial/ethnic composition of the MSA is measured with the *% Black*, *% Latino*, and *% Asian* of the local population.[7] Local levels of immigration are measured with the *% Foreign Born*. Economic conditions are roughly measured with the percent of working-aged adults that are currently employed, *Employment Rate*. Descriptive statistics for the metropolitan-level controls are presented in Table C.2 in Appendix C.

The usual set of individual-level socioeconomic and demographic predictors of disability and poor health are included as controls. There is some debate over potential confounding and mediating effects of individual-level variables for income inequality (Subramanian and Kawachi 2004; Wilkinson and Pickett 2006), so the results of analyses with varied sets of control variables are discussed in the chapter's conclusion. The binary race/ethnicity indicators are defined as in the previous chapters. The variable *Female* is a dummy variable equal to one for women. The analyses include age in years and its square, *Age* and Age^2. Marital status is measured with binary indicators, *Never Married*, *Separated*, *Divorced*, and *Widowed* relative

[7] The variables *% Latino* and *% Asian* measure the percent of the local population that is native-born Latino or Asian to avoid collinearity with *% Foreign Born*.

to being currently married. I include the number of children and adults in the respondents' household, *Children HH* and *Adults HH*. The final demographic factor is time since immigration, measured with the binary variables *Imm<5 Yrs*, *Imm 5–10 Yrs*, *Imm 10–15 Yrs*, *Imm 15–20 Yrs*, and *Imm 20+ Yrs*, all relative to being native born. Education is coded with three binary variables for *Less than HS*, *Some College*, which includes technical and associates' degrees, and *Bachelors +*, as the respondents' highest educational attainment. High school completion or a G.E.D. is the reference category. I control for the logged value of respondents' total household income in the previous year, *ln(HH Income)*, to ensure that the effect of local economic inequality is purely contextual, not compositional. Finally, the models also control for homeownership, with *Own* equal to one for homeowners, as a proxy for household wealth.

4.2.4 Analytic Strategy

The analyses estimate the relationships between among inequality, population aging, and health with a series of logistic regression models. For each dependent variable, I test all hypotheses using cross-sectional regression models with data from 2010. These models examine the spatial patterns of the dependent and key independent variables. I also test the hypotheses using variation within MSAs over time with regression models including metropolitan and year fixed effects for all available time points. Both models adjust the standard errors of the coefficients for the nesting of individuals within MSAs or MSA-years.

The first set of models estimates the conditional relationship between income inequality and health to test Hypothesis 1, the Income Inequality Hypothesis. These models regress the dependent variables on the *Gini*, and all metropolitan- and individual-level controls.

I test the second hypothesis, income inequality increases racial/ethnic health

disparities, with interaction terms between the *Gini* and race/ethnicity indicator variables added to the model for the first hypothesis. Unlike the previous chapters, the interpretation of the interaction effects is relatively traditional. Significant odds ratios greater than one for the interaction terms indicate the odds of disability or poor health increase more for minorities than whites with higher levels of the *Gini*. Then, odds ratios greater than one indicate larger gaps and odds ratios smaller than one indicate smaller gaps. The 'main effect' for whites is traditionally interpreted, with values above one indicating higher odds of the dependent variable with higher levels of the *Gini*.

I also test the third hypothesis, income inequality is more strongly linked to disability and poor health in areas with greater population aging, with interaction terms. These regression models include all the terms from those evaluating the first hypothesis, and add *% Over 65* and the interaction, $Gini \times \%Over65$. Significant odds ratios greater than one for the interaction term indicate higher levels of the *Gini* are more strongly associated with greater odds disability or poor health in areas with greater *% Over 65*.

The test of the final hypothesis requires a complex set of interaction terms. Hypothesis 4 predicts that higher levels of the *Gini* are associated with larger racial/ethnic health disparities in areas with greater population aging. I test the hypothesis with interaction terms between the race/ethnicity indicators and: *Gini*,

% Over 65, and $Gini \times \%Over65$. The regression models can be expressed as,

$$
\begin{aligned}
ln\left(\frac{Pr(Y_{ij})}{1-Pr(Y_{ij})}\right) = \beta_{White} + \beta_{Race}Race_{ij} \\
&\begin{cases} +\beta_{Gini,White}Gini_j \\ +\beta_{Over65,White}\%Over65_j \\ +\beta_{Interact,White}Gini_j \times \%Over65_j \end{cases} \\
&\begin{cases} +\beta_{Gini,Race}Race_{ij} \times Gini_j \\ +\beta_{Over65,Race}Race_{ij} \times \%Over65_j \\ +\beta_{Interact,Race}Race_{ij} \times Gini_j \times \%Over65_j \end{cases} \\
&+ \beta_X X_{ij} + \beta_W W_j,
\end{aligned}
\tag{4.1}
$$

where Y_{ij} is either disability or poor health health status, and X_{ij} represents the vector of individual-level control variables for person i in MSA j. The set of metropolitan-level controls are represented by W_j. The first set of bracketed terms are the variables described to test Hypothesis 3, and represent the 'main effects' of these variables for whites. The second set of bracketed terms represent the effects of the key independent variables for minorities relative to whites. Ultimately, significant odds ratios greater than one for the three-way interaction terms, $Race \times Gini \times \%Over65$, indicate the *Gini* is more strongly related to disability or poor health for minorities than whites in areas with higher levels of *% Over 65*, and larger racial/ethnic health disparities.

As discussed in the previous chapter, there is some concern about the direction and statistical significance of interaction terms in standard logistic regression (Ai and Norton 2003; Allison 1999). However, all results presented here are similar to those for linear probability models, which approximate the marginal effects of the independent variables without the same concerns for interaction terms (Angrist and Pischke 2008).

4.3 Results

Descriptively, the bivariate patterns between income inequality, and disability and poor health at the metropolitan level resemble those found by Wilkinson and Pickett (2006) for U.S. states. In the left panel of Figure 4.4, there is a strong positive relationship between levels of disability and income inequality in 1990. The relationship is weaker, but still positive in 2000 and 2010. The right panel of Figure 4.4 shows a similar positive relationship between higher levels of income inequality and levels of *Poor Health*.

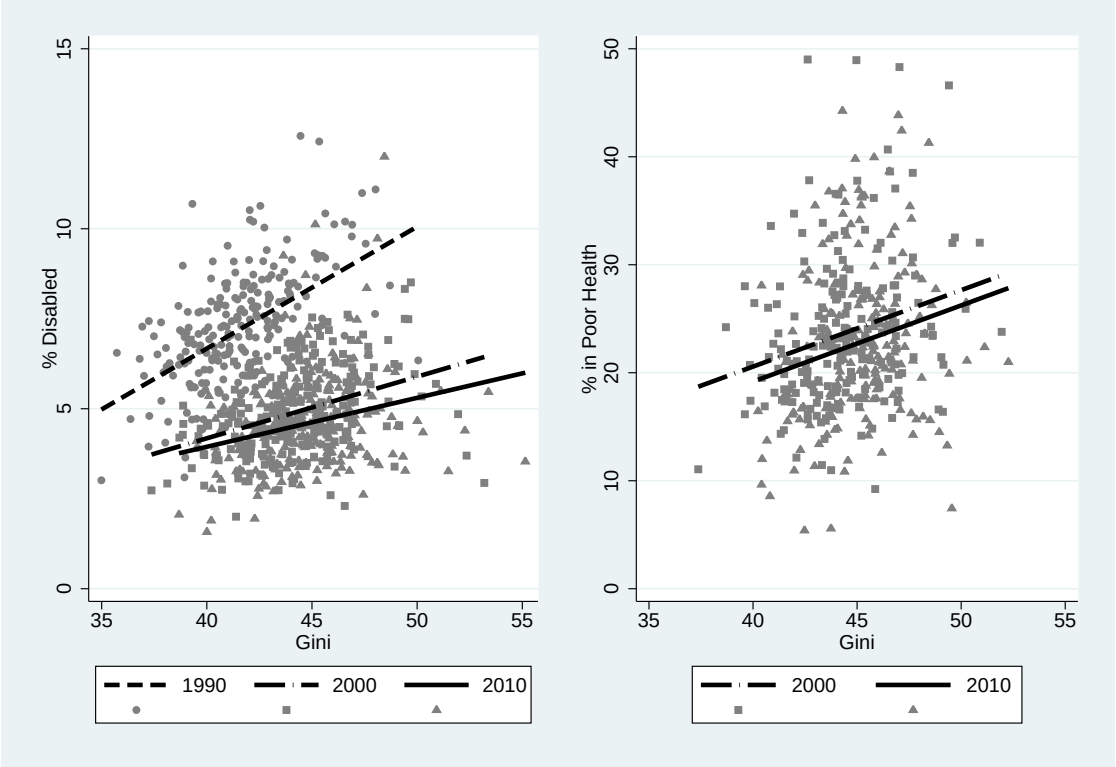

FIGURE 4.4: Bivariate Relationships between Metropolitan-Level Income Inequality, % Disabled, and % Poor Health, by Decade.

This basic comparison is consistent with the *Income Inequality Hypothesis*. However, plots of the ten-year changes in disability or poor health against the ten-year change in income inequality within metropolitan areas show no clear bivariate rela-

tionship. The absence of support for the *Income Inequality Hypothesis* with basic within-MSA differencing suggests the bivariate relationship between income inequality and health may be confounded by other metropolitan characteristics.

Regression results testing the chapter's first three hypotheses yield no significant support, so are presented in tables in Appendix C. The most direct test of the *Income Inequality Hypothesis* is presented in Table C.3 in Appendix C. The cross-sectional regression models find slightly positive but statistically insignificant relationships between the *Gini* and the odds of being *Disabled* or in *Poor Health*. The results of the fixed-effects models are even less consistent with the hypothesis. The odds of being *Disabled* or in *Poor Health* are significantly *lower* with increases in the *Gini* within metropolitan areas over time. The odds of disability decline by a factor of 1.10 in areas experiencing the average increase in the *Gini* between 1990 and 2010, and the odds of poor health decline by a factor of 1.04 for the observed average increase in the *Gini* between 2000 and 2010. Combined, the results in Table C.3 favor rejection of the *Income Inequality Hypothesis*.

There is also little evidence supporting Hypothesis 2, that income inequality is significantly related to larger racial/ethnic health disparities. The odds ratios for the *Gini* and race/ethnicity interactions are presented in Table C.4 in Appendix C. In 2010, whites have significantly higher odds of being *Disabled* in metropolitan areas with greater income inequality. However, the relationship is significantly weaker for blacks than whites, indicating smaller disparities in areas with higher income inequality. The *Gini* also has smaller odds ratios for Latinos and Asians than whites, but the differences are not significant.

Similar to the results in Table C.3, the main effects of increases in the *Gini* for whites are lower odds of being *Disabled* or in *Poor Health*, but the odds ratio for *Disabled* is only significant for $p < 0.10$. However, all three race/ethnicity interaction terms indicate a more negative relationship between increases in the *Gini* and *Dis-*

abled for minorities than whites. The odds of disability decline more for minorities than whites as income inequality increases, reducing racial/ethnic disparities and contradicting Hypothesis 2.

The results for regression analyses testing Hypothesis 3, the interactive effect of income inequality and population aging, are presented in Table C.5. The main effects of the *Gini* are comparable to those from the first set of regression analyses in Table C.3, but the odds ratio in the fixed-effects model for *Disabled* is only statistically significant at $p < 0.10$. The main effects of *% Over 65* are not statistically significant in any model. The magnitudes of the odds ratios also vary considerably. The relationship between *% Over 65* and *Disabled* is negative in the cross-sectional model and positive in the fixed-effects model. The pattern is reversed for *Poor Health*. The *% Over 65* is positive in the cross-sectional model, but large and negative in the fixed-effects model. Finally, there is no support for Hypothesis 3 in Table C.5. The odds ratios for the interaction terms are all statistically insignificant and close to one.

Results for regression analyses testing Hypothesis 4, the interactive effect of income inequality and population aging on health disparities, are presented in Table 4.1. The main effects of these models also provide tests of the first three hypotheses. First, the odds ratios for the *Gini* for whites test the Income Inequality Hypothesis. The only statistically significant effect is *lower* odds of *Poor Health* with increases in income inequality in the fixed-effects model in the final column. Again, these results do not support, and even contradict, the Income Inequality Hypothesis.

The direction and significance of the odds ratios for the *Gini* for black-white, Latino-white, and Asian-white differences test Hypothesis 2, that income inequality worsen racial/ethnic health disparities. Only two of the *Gini* × *Race* interactions are significant. The odds of *Poor Health* for Asians relative to whites increase with greater inequality in the fixed-effects model. However, The odds of being *Disabled*

Table 4.1: Regression Results for Disability and Poor Health on Income Inequality and Population Aging, by Race/Ethnicity.

	Disabled		*Poor Health*	
	2010	1990-2010	2010	2000-2010
Black-White				
Gini	1.085	1.000	1.016	1.142
	(1.300)	(0.000)	(0.155)	(1.371)
% Over 65	1.668*	1.215*	1.138	1.892
	(2.187)	(2.164)	(0.333)	(1.671)
$Gini \times \%Over65$	0.989*	0.996*	0.997	0.986
	(-2.182)	(-2.126)	(-0.329)	(-1.696)
Latino-White				
Gini	0.950	0.929*	0.926	1.052
	(-0.432)	(-2.017)	(-0.981)	(0.799)
% Over 65	0.831	0.901	0.770	1.313
	(-0.442)	(-0.833)	(-0.884)	(1.101)
$Gini \times \%Over65$	1.004	1.003	1.006	0.995
	(0.442)	(1.016)	(1.004)	(-0.950)
Asian-White				
Gini	0.810	0.887*	1.115	1.360*
	(-1.332)	(-2.314)	(0.718)	(2.067)
% Over 65	0.476	0.865	1.837	3.966*
	(-1.170)	(-0.711)	(0.946)	(2.169)
$Gini \times \%Over65$	1.017	1.003	0.986	0.970*
	(1.219)	(0.716)	(-1.035)	(-2.208)
White				
Gini	1.021	0.993	1.086	0.846**
	(0.723)	(-0.520)	(1.541)	(-2.644)
% Over 65	0.954	1.047	1.219	0.576*
	(-0.424)	(1.227)	(0.944)	(-2.227)
$Gini \times \%Over65$	1.000	0.999	0.995	1.011
	(0.189)	(-1.014)	(-1.045)	(1.887)
Fixed Effects	No	Yes	No	Yes
MSAs	238	238	197	197
MSA-Years	238	714	197	394
N	881,921	3,150,546	72,274	121,621

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

decline for Latinos relative to whites with greater inequality in the fixed-effects model. Overall, there is no robust support for Hypothesis 2.

The 'main' interaction $Gini \times \%Over65$ for whites tests Hypothesis 3, that income inequality has a stronger effect on health with greater population aging. The interaction terms are statistically insignificant and relatively close to one in all four models. These results provide no support for the hypothesis.

Finally, there is no evidence to support Hypothesis 4, that any positive effect of income inequality on the size of racial/ethnic disparities is larger in areas with greater population aging. Only three of the 12 three-way interaction terms are statistically significant, and all three significant odds ratios are in the opposite direction of the hypothesis. The regression results suggest the *% Over 65* increases the black-white disparity in disability, but this relationship is weaker in areas with higher income inequality. The *Gini* has no 'main effect' on the odds of disability for blacks relative to whites. The significant odds ratios above one for Asians predict larger Asian-white gaps in *Poor Health* with increases in income inequality and population aging. However, the interaction between the *Gini* and *% Over 65* is significantly negative for Asians, indicating the Asian-white gaps grow less in areas with *both* increases in income inequality *and* population aging.

It is important to note that the magnitudes and statistical significance levels for these interaction effects are not robust for different measures of income inequality. For example, both main effects and the interaction of the coefficient of variation in income with *% Over 65* are statistically significant for black-white differences in self-rated health, but none are significant for whites or Latino-white or Asian-white differences. Ultimately, the inconsistency of the results for different health and income inequality measures, as well as the negative interactive effects between inequality and aging, favor rejection of Hypothesis 4.

The odds ratios for the metropolitan-level controls corresponding to the models in

Table 4.1 are presented in Table C.6 in Appendix C. The odds of disability are lower in larger metropolitan areas, but local population size or growth is not significant in the other models. Growth in the *% Black* is significantly related to higher odds of disability, and lower odds of poor health in the fixed-effects models. The *% Latino* is significantly related to higher odds of disability and poor health in the cross-sectional models, but is only significant and positive for disability in the fixed-effects models. Finally, the odds of disability and poor health are negatively related to the *% Foreign Born* and *Employment Rate* in all models.

The odds ratios for the metropolitan-level controls corresponding to the models in Table 4.1 are presented in Table C.7 in Appendix C. Consistent with previous findings, the odds of being *Disabled* or in *Poor Health* are higher for older adults, the unmarried, those without children in the household, the native born, those with less education and income, and renters relative to homeowners. The odds of disability are also higher for women, and those with more adults in the households.

4.4 Conclusion

This chapter provides an empirical test of the Income Inequality Hypothesis, and three extensions, using data from U.S. metropolitan areas over two decades. Ultimately, the results provide no evidence to support the hypothesis beyond the most basic bivariate pattern between MSAs. To the contrary, results from the fixed-effects regression models indicate individuals' odds of disability and poor self-rated health decrease with increasing income inequality at the metropolitan level. There is also no evidence that population aging exacerbates any effect of income inequality (Hypothesis 3), or that either income inequality or population aging significantly worsen racial/ethnic disparities in disability or poor health (Hypotheses 2 and 4).

Despite contradicting many published studies evaluating the Income Inequality Hypothesis, the null findings are consistent with studies using similar analytic ap-

proaches (Beckfield 2004; Mellor and Milyo 2002). Metropolitan-area fixed effects account for stable, unobserved MSA characteristics that may induce a spurious correlation between inequality and health. As a result, this test of the Income Inequality Hypothesis accounts for one of the more prominent criticisms of most cross-sectional studies in this literature (Eberstadt and Satel 2004).

Aside from the potential for unobserved confounding factors, past studies suggest other concerns for the validity of the Income Inequality Hypothesis. The most common critique is that absolute income levels, rather than inequality, influence population health because they reflect material deprivation (Wilkinson and Pickett 2006, 2009b). Replications of all analyses presented here replace the Gini index with the metropolitan median income to test the 'absolute income hypothesis.' However, the results reveal no robust relationship between absolute income levels and disability or self-rated health. Similarly, replacing the Gini index with the local poverty rate yields no meaningful pattern of results.[8]

In their review, Judge and colleagues (1998) propose that a nonlinear relationship between income and health may induce a significant effect for income inequality, despite controlling for income inequality linearly at the individual level. Conversely, Wilkinson and Pickett (2006) argue theoretically that individual income is partly determined by the class stratification system, and societal stratification is better measured by income inequality at the macro-level. As a result, they claim the inclusion of individual-level income is a misspecification of the of the regression model. I test this version of the hypothesis by replicating all analyses without controlling for household income, and find no robust pattern of significant positive effects of income inequality on disability or poor self-rated health. Some argue that other measures of

[8] I define the local poverty rate as the proportion of households with equivalized household income below half of the national median income in that year. Equivalized income is the household's total annual income from all sources, adjusted for size by dividing by the square root of the number of household members (Brady 2003).

socioeconomic status, like education, may also confound the income inequality relationship (Subramanian and Kawachi 2004). Again, I replicate all analyses without controls for education, income, or homeownership at the individual level, and find no support for the Income Inequality Hypothesis or the chapter's other hypotheses. Analyses omitting all metropolitan-level controls also do not provide any significant support for the hypotheses.

This chapter's analyses use a wide variety of measures and model specifications to test the robustness of each of the four hypotheses, and find no support. It is still possible, however unlikely, that some underlying relationship between income inequality and health remains undetected. Many of the past studies supporting the Income Inequality Hypothesis at the metropolitan level use mortality as the outcome measure (Lynch et al. 1998; Shi and Starfield 2001). If the relationship to mortality is sufficiently robust, selective mortality of those with disability or poor health in unequal metropolitan areas could bias the results toward null findings. This selection effect may be particularly problematic for the evaluation of health disparities, given large racial/ethnic differences in mortality rates (Martin and Soldo 1997; Menchik 1993; Wing et al. 1985).

Future research may expand on the approach used here, and adjust the health outcomes for potential mortality selection. With access to metropolitan-level age- and race-specific mortality rates, one may apply life table methods to the individual-level data to estimate active and healthy life expectancy (Land et al. 2005). Total, active, and healthy life expectancy by race/ethnicity would then be the dependent variables in an MSA-year level analysis. The analytic approach can also be expanded to examine geographic variation in the age, period, and cohort inequalities in health (Yang et al. 2008; Zheng et al. 2011). Cohort differences in black-white health disparities may be particularly different in the South versus the rest of the U.S.

More theoretically, this chapter's analytic approach can be fruitfully applied to

evaluating other structural factors influencing health disparities. Income inequality at the metropolitan level may have no direct effect on health, but it may have interactive effects with other individual characteristics that alter the social gradient in health (Zheng and George 2012). Similarly, the trend in population aging will only accelerate with time. Continued study of its potential impact on health, or moderating effect on other structural factors, should remain a priority.

5

Conclusion

Throughout decades of sociological research and countless empirical studies, the primary setting of racial and ethnic stratification remains the metropolis. Structural characteristics of metropolitan areas profoundly shape the well-being of their residents, and do so unequally for different racial/ethnic groups. Traditionally, this literature focuses on the reproduction and consequences of concentrated black poverty in inner cities (Jargowsky 1997; Kain 1992; Kasarda 1995; Massey and Denton 1993; O'Connor 2001a; Small and Newman 2001; Wilson 1987, 1996, 2009). However, research in recent decades highlights the diversity of structural characteristics across different metropolitan areas, and their implications for inequalities in an array of salient outcomes (Flippen 2010; Logan 2012; McCall 2001a; O'Connor et al. 2001). Similarly, examinations of racial and ethnic stratification increasingly expand the traditionally dichotomous comparisons to understand the unique inequalities faced by Latinos and Asians (Bonilla-Silva 2004; Coulson 1999; Frank et al. 2010; Morales and Bonilla 1993; Perez and Hirschman 2009; Sakamoto et al. 2009; Wu 2002).

The dissertation builds on this foundational literature with three research questions on urban structural changes in recent decades:

1. How do labor market changes associated with the 'new economy' contribute to racial/ethnic wage inequality?

2. How does growth in the level and dispersion of local house prices affect racial and ethnic gaps in homeownership?

3. What are the implications of increasing income inequality for racial and ethnic health disparities? How might any relationship vary among aging populations?

This chapter summarizes the empirical results, which document a complex pattern of inequality and well-being for white, black, Latino, and Asian individuals and households. The transition to the new economy is associated with larger black-white and Latino-white earnings gaps, but higher average wages for all groups. Conversely, increased house price inequality is related to smaller black-white and Latino-white homeownership gaps, but lower levels of homeownership for all groups. Though there is little indication that income inequality or population aging significantly influence health disparities, factors like local levels of immigration do. Ultimately, studies presented here illustrate the important and complicated role of metropolitan structural forces in the reproduction of inequality over time.

These findings reflect at least four recurring themes. First, the empirical chapters focus on relatively recent structural changes, but observe them for relatively long periods to assess their impact on inequality. Second, structural change and inequality are dynamically related. Third, structural factors are related to inequality in complex ways for each racial or ethnic group. Fourth, the empirical studies distinguish between racial/ethnic gaps and levels in resources and well-being.

This chapter also discusses some empirical challenges to addressing the dissertation's research questions, and potential future directions. The data and analyses applied to the research questions at hand improve upon the standard approaches in the literature. The dissertation's research design explicitly examines temporal variation in structural factors related to inequality, and better identifies the impact

of structural change. Additionally, the empirical approach is suitable for a broad range of substantive topics, and can be adapted to rigorously scrutinize a number of open research questions in future research. For example, immigration and population aging will only become more relevant in the near future. Substantively and theoretically, this dissertation also provides a foundation for examining the importance of the metropolitan area for inequality amongst both individuals and larger states, regions, or countries.

5.1 The Relevance of New Urban Structural Changes

This dissertation project builds on foundational literature on urban and racial inequalities, which largely focuses on the impacts of deindustrialization (Bluestone and Harrison 1982; Wilson 1987, 1996) and residential segregation (Charles 2003; Freeman 2005; Logan et al. 2004; Massey and Denton 1993). The combination of these two structural factors have profound social and economic implications for racial inequalities in urban America (Kain 1992; Kasarda 1995; Katz 2001; Massey and Fischer 2000). The disappearance of relatively high-wage manufacturing jobs and viable inner-city employment opportunities for minority workers concentrated and intensified racial inequalities in employment, income, poverty, education, homeownership, and a host of other dimensions of well-being (O'Connor et al. 2001). The decades-long effects of deindustrialization and segregation persist into the present day. However, the emergence of new structural changes calls for comparable scrutiny in the reproduction of racial and ethnic stratification.

The transition to the new economy is one of the most prominent structural changes in recent decades (Hutton 2009; McCall 2001a), with particularly profound ramifications for American cities (Florida 2002; Glaeser and Marè 2001; Glaeser and Resseger 2010). Conceptualized as the rise of high-skill and knowledge-based industries and polarization of job quality, Chapter 2 examines racial/ethnic inequalities in

hourly wages over time as local labor markets shift toward the new economy. Chapter 2 measures six elements of the new economy: skill-biased technological change, financialization, the creative class, employment casualization, immigration, and deunionization.

I draw on past literature to formulate two alternative hypotheses for racial/ethnic wage inequalities in the new economy. The *Equalizing Hypothesis* predicts racial and ethnic wage gaps decrease in the transition to the new economy. High average education among high-skill and knowledge-based industries, along with an institutional emphasis on diversity, may decrease discrimination and create new opportunities for minority workers (Florida 2002; Rivera 2012a; Schuman et al. 1997). However, I draw on Fligstein's (1996; 2001) political-cultural theory of markets and structural theories of racial stratification (Bonilla-Silva 1997; Lipsitz 2006; Feagin 2006) to argue for the *Stratifying Hypothesis*, that racial and ethnic wage inequalities increase in the new economy. Dominant labor market actors influence the transition to the new economy to maintain their advantages. These market relations are also partly structured by the hierarchical arrangement of racial and ethnic groups, thus perpetuating the advantage of white workers within the labor market.

The empirical results of Chapter 2 support the *Stratifying Hypothesis* for black-white and Latino-white inequalities. All together, the measures of the new economy are associated with Latino-white wage gaps up to 40% larger in the new economy relative to its hypothetical absence in 2010, and 31% larger black-white wage gaps. There is relatively little difference in the Asian-white wage difference. The influence of the new economy is more complex than simply increases in wage gaps, however. Average earnings are higher for all groups in the new economy, but whites and Asians experience disproportionate earnings increases relative to black and Latino workers. Additionally, each of the six new economy measures relates differently to wages for workers of different racial/ethnic groups. The results presented in Chapter 2

document a complex pattern of multiethnic inequality, but illustrate that seemingly non-racialized structural changes can have racially stratified effects.

Chapter 3 similarly examines homeownership among white, black, Latino, and Asian households in the context of rising and increasingly unequal house prices. Substantial gaps in homeownership are one of the most enduring racial/ethnic inequalities in America (Boehm and Schlottmann 2004; Cortes et al. 2007; Haurin et al. 2007), and are largely maintained by structural forces (Flippen 2001, 2010; Massey and Denton 1993; Yinger 1995). House prices have steadily become higher and more unevenly distributed for decades (Glaeser et al. 2005; Shiller 2005, 2008). Though studies document the impact of the resulting housing crisis of the late 2000s for racial/ethnic inequality (Immergluck 2009b; Rugh and Massey 2010), the implications of the long-term trend in house prices are less clear.

I estimate the distinct effects of increases in the level of home values, measured with the local median home value, and rising inequality, measured with the Gini. I also formulate four hypotheses to test the effects of each measure on both racial/ethnic gaps in homeownership, and levels of minority homeownership. The *Price and Gaps Hypothesis* predicts larger homeownership gaps with higher median home values, and the *Price and Levels Hypothesis* predicts lower levels of minority homeownership with higher values. Similarly, the *Inequality and Gaps Hypothesis* predicts larger homeownership gaps with greater home value inequality, and the *Inequality and Levels Hypothesis* predicts lower levels of minority homeownership with greater home value inequality. The underlying argument for the hypotheses is that minority homebuyers experience significant discrimination and greater structural constraints than comparable white homebuyers, and so are more likely to be priced out of the housing market (Haurin et al. 2007; Lee and Myers 2003; Myers et al. 2005).

The chapter's results give some indication that the rising level of local housing

prices increases minority-white homeownership gaps, supporting the *Price and Gaps Hypothesis*. However, inequality in the distribution of local housing prices has a larger and stronger relationship to decreases in homeownership gaps, contrary to the *Inequality and Gaps Hypothesis*. Compared to the 1980 distribution of house prices, the observed growth in housing prices and inequality are associated with 11% smaller black-white homeownership gaps in 2010, 9% smaller Latino-white gaps, and slightly larger Asian-white gaps. This compression of black-white and Latino-white gaps appears counter-intuitive in light of previous research. However, further examination of the relationships reveals that levels of homeownership for all groups decline with increases in house price inequality, consistent with the *Price and Levels Hypothesis* and *Inequality and Levels Hypothesis*. The reduction of black-white and Latino-white gaps results from disproportionate declines in the levels of Asian and white homeownership. The findings in Chapter 3 echo debates surrounding the relative importance of minority-white gaps in socioeconomic resources versus levels of minorities' resources (Leicht 2008). Trends in the distributions of home values across local housing markets attenuate some gaps, but still represent a structural barrier to minority homeownership.

The final empirical chapter evaluates the Income Inequality Hypothesis, which posits that greater income inequality undermines population health (Kawachi and Kennedy 2002; Wilkinson 1996; Wilkinson and Pickett 2006, 2009b). The Income Inequality Hypothesis is particularly relevant in recent decades, given the rapid increase in income inequality across the U.S. (McCall and Percheski 2010; Moller et al. 2009; Piketty and Saez 2006; Volscho and Kelly 2012; Western et al. 2008). Despite hundreds of studies on this relationship, the implications of the Income Inequality Hypothesis for racial and ethnic health disparities in the U.S. remain somewhat unclear. This omission is notable as health disparities are a readily salient and tangible reflection of racial and ethnic stratification (Orsi et al. 2010; Shuey and Willson

2008; Williams and Collins 1995). Chapter 4 empirically tests the Income Inequality Hypothesis, *Hypothesis 1*, and its extension to larger racial/ethnic health disparities, *Hypothesis2*, with the Gini coefficient for income inequality at the metropolitan level and disability and poor self-rated health at the individual level.

Population aging represents another societal trend that may have emergent effects on health (Frey and DeVol 2000; Martin and Preston 1994; Schoeni and Ofstedal 2010). Increasing the size of the at-risk population for poor health outcomes may increase vulnerability to any negative impact of simultaneously increasing income inequality. However, the potential moderating impact of structural factors like population aging are left unexamined by current research on inequality and health. Chapter 4 tests for a positive interactive effect of income inequality and population aging, measured with the share of the local population of adults over 65, on disability and poor health, *Hypothesis 3*. Moreover, aging and health across the life course follow distinct patterns for different racial/ethnic groups (Martin and Soldo 1997). Chapter 4 also tests for a positive interactive effect of income inequality and population aging on larger health disparities, *Hypothesis 4*.

Despite many compelling arguments for the Income Inequality Hypothesis, the empirical tests in Chapter 4 find no significant relationship between increases in metropolitan-level income inequality and disparities in disability or poor self-rated health. Additionally, the results do provide any evidence for a significant impact of population aging, or an interactive effect with income inequality. The results of Chapter 4 do not support any of the four hypothesis. In fact, disparities in disability and poor self-rated health decrease overall between 1990 and 2010. There is also some indication the decreases are significantly larger in areas with greater increases in inequality.

Returning to the dissertation's three research questions, the overall influence of recent urban structural changes on racial/ethnic stratification is not straight-forward.

Black-white and Latino-white wage gaps increase in the transition to the new economy. However, black and Latino workers' wages are higher over time than if the labor market had remained stable since 1980. Increasing home values and home value inequality is associated with smaller homeownership gaps, but lower levels of minority homeownership. Finally, increases in income inequality and population aging appear to have little or no impact on health disparities. Racial/ethnic differences in disability and poor health decline over time despite these trends. However, the most common substantive outcome of the three empirical chapters is that none of the structural changes both decreases black-white and Latino-white inequality *and* increases black and Latino well-being.

5.2 Key Themes

The patterns of results in each of the empirical chapters are varied, but at least four themes emerge throughout the dissertation. The analyses examine both spatial patterns of structural relationships, and trends in patterns over relatively long periods of time. In the examination of long-term trends, I recognize the dynamic relationships between structural factors and inequality. The chapters distinguish between minority-white gaps and minority levels of the outcomes. Lastly, this distinction reflects the complexity of contemporary multi-ethnic stratification.

This dissertation's long-term examination of several urban structural changes is one of its primary contributions to the literature. For example, past research using cross-sectional data has found greater racial/ethnic wage inequality in labor markets with characteristics of the new economy (McCall 2001a,b). Such work implicitly assumes that different areas represent points the same trajectory of change. However, Chapter 2 directly measures changes within and between local labor markets over time. I find that wage inequalities are not only higher in areas with characteristics of the new economy, but the transition to the new economy over time substantially

contributes to the observed growth in black-white and Latino-white wage gaps.

The use of multiple time points also allows for more rigorous estimation of structural effects than reliance on single cross sections of data. Fixed-effects regression models are one of the empirical chapters' primary analytic techniques. These models estimate the regression coefficients using only variation within metropolitan areas over time. The inclusion of metropolitan fixed effects controls for any unobserved and stable characteristics of MSAs which might bias the metropolitan-level regression coefficients, or induce spurious relationships.

More substantively, analyzing changes within metropolitan areas over time recognizes the dynamic nature of the relationships at hand. For example, growth in house price inequality is associated with lower odds of homeownership. This relationship likely represents the effect of reduced affordable housing for the average homebuyer. However, the positive relationship between increases in the median home value and the odds of homeownership likely represents the influence of higher demand (Lee and Myers 2003). These factors can be reciprocally related, which cross-sectional analyses are often unable to detect.

Another compelling emphasis in the dissertation is the distinction between minority-white gaps in resources, and levels of resources for each group. Though the transition to the new economy is associated with larger black-white and Latino-white wage gaps, hourly wages are still higher for all groups. Thus, the impact of the new economy on the well-being of black and Latino workers themselves is somewhat debatable. Are higher actual wages better than higher inequalities? The results of Chapter 3 present the reverse scenario. Increases in house price inequality are associated with smaller black-white and Latino-white homeownership gaps over time, but lower levels of homeownership for all groups. Again, the relevant question for minority households' well-being asks, are lower levels of homeownership better than smaller homeownership gaps?

Finally, the variety of empirical results presented in this dissertation emphasize the complexity of urban inequality. The nuance of multiethnic inequality is often oversimplified in existing literature. The patterns of inequality documented here are distinct for whites, blacks, Latinos, and Asians. The overall impact of structural changes on earnings and homeownership is similar for whites and Asians, but some significant differences between these two groups remain. This pattern is consistent with some scholars' arguments that Asians and Asian Americans experience relative socioeconomic parity with whites compared to other minority groups (Sakamoto et al. 2009), but only marginal inclusion with whites in the U.S. racial hierarchy more generally (Bonilla-Silva 2004; Saito 2009; Wu 2002). Meanwhile, each metropolitan-level factor affects black-white and Latino-white inequalities differently. However, the combined effects result in similar trends in inequalities. These results are consistent with many theories of racial stratification. Race is a fundamental dimension of social and economic structures in the U.S. (Bonilla-Silva 1997, 2001; Feagin 2006; Lipsitz 2006). Thus, structural change in general is likely to reproduce racial/ethnic stratification, regardless of the specific changes and relationships themselves.

5.3 Empirical Challenges and Future Research

Despite the dissertation's improvements in the measurements and examinations of structural factors, the use of cross-sectional data at the individual level unavoidably comes with some limitations. Most obviously, unobserved characteristics of individuals are difficult to account for with only one observation. Each chapter has attempted to adjust for selection into the analytic sample with a two-step regression approach (Heckman 1979). However, the potential for race-specific selection into metropolitan areas with certain characteristics may introduce some degree of bias into the dissertation's results. Unobserved factors that are jointly correlated with the metropolitan-level structural factors of interest, individuals' values for the dependent

variables, and race/ethnicity may bias the estimates of the metropolitan-level regression coefficients. The magnitude of such a bias is likely small, as only a relatively small percentage of households move outside of their county in the last five years (Ihrke and Faber 2012). Even still, selective migration by race/ethnicity is a substantively meaningful phenomenon, as illustrated by the return "Great Migration" of blacks to the South in recent decades (Flippen Forthcoming; Tolnay 2003).

Perhaps the more salient limitation of cross-sectional individual-level data is its inability to examine individual change over time. Repeated cross-sectional data are ideal for the examination of social and structural change (Firebaugh 2008), making it very well suited for this dissertation's research questions. However, repeated observations would observe individuals' trajectories of outcomes as they experience structural change. This dissertation shows that new urban structural changes significantly influence the distribution of inequality, but individuals' trajectories would also reveal how structural change may influence the experience of inequality throughout the life course (George 2009). This empirical extension of the dissertation's approach would facilitate studies of structural factors shaping key outcomes for sociology, such as occupational mobility (Fuller 2008; Hollister 2012), income volatility (Western et al. 2008), the sustainability of homeownership (Boehm and Schlottmann 2004), health trajectories (Elder Jr. et al. 1996; George 2009; Willson et al. 2007), and even the intergenerational transmission of (dis)advantage (Conley 1999; Elman and O'Rand 2004; Oliver and Shapiro 1995).

Future research building on this dissertation can also focus more explicitly on the consequences of increased immigration for a variety of outcomes. Results from Chapter 2 find that wages significantly increase in areas with larger increases in the percent foreign born. However, the wage increases are larger for white and black workers than Asians and Latinos. Though Chapter 3 does not measure immigration specifically, it finds the odds of homeownership decrease with growth in the local

Latino and Asian populations, which are largely immigrants.

Perhaps most interestingly, immigration is the only structural factor in Chapter 4 robustly associated with health aside from the employment rate.[1] All regression models in Chapter 4 find the odds of disability and poor health are significantly lower in metropolitan areas with greater increases in the foreign-born population. This relationship does not solely reflect better health among immigrants themselves, as nativity is accounted for at the individual level. Possibly, the influx of relatively healthy immigrants has some form of spill-over effect on factors influencing the health of others around them. Some explanations for the better health of Latinos compared to whites, despite lower average socioeconomic status, focus on the potential impact of health behaviors and healthy diets promoted within Latino ethnic enclaves (Franzini et al. 2001).

Another structural factor deserving more rigorous examination is population aging. Though the results in Chapter 4 do not provide any evidence that population aging has an emergent effect on individuals' odds of disability or poor self-rated health, only the first Baby Boomer cohorts are older than 65 in the year 2010. The proportion of older adults in the population will rapidly increase in coming decades, and there may be some form of threshold above which the size of the older population becomes relevant for individual health. The distribution of racial/ethnic health disparities will also change due to significant differences in health and disability by race toward the end of the life course (Kelley-Moore and Ferraro 2004; Martin and Soldo 1997; Shuey and Willson 2008). Beyond The Income Inequality Hypothesis, population aging will likely have significant ramifications for several social and economic outcomes in the near future (Martin and Preston 1994; Schoeni and Ofstedal 2010;

[1] The significant relationship between health and the employment rate likely represents a compositional relationship. Higher levels of disability and poor health indicate the presence of more adults physically unable to work in the local labor market, thus reducing the employment rate. Thus, immigration may be the only structural factor with a robust emergent effect on health.

Suzman 2010). The provision of public goods and services by the state, particularly Social Security, must adjust to the growing constituency (Hamil-Luker 2001; Pampel 1994; Preston 1984). Population aging can also have significant effects on inequality by changing both the distribution of income and intergenerational transfers (Lee 1997; Mason et al. 2006).

Most generally, the research presented in this dissertation provides a foundation for more comprehensive examinations of how urban areas structure resources and opportunities. The metropolis has been the primary context of interest for research on racial and ethnic inequalities for many decades (Short 1971; Massey and Denton 1993; Wilson 1987, 2009). Many scholars expand this focus by examining fine-grained contexts like the neighborhood (Kawachi and Berkman 2003; Pattillo 1999; Sampson et al. 2002; Sampson 2009). A more novel approach might expand the scale of the context instead, as metropolitan areas are also embedded within larger economic and political contexts.

Within the U.S., states often represent the relevant legal and political context for inequality (Cancian and Danziger 2009; Jenkins et al. 2006; Moller 2008). States as political contexts and even actors influence the distribution of structural factors across metropolitan areas, which then influence individual outcomes. Similar to comparative cross-national literature, states are often the relevant setting for the mobilization of power resources and class struggles (Brady 2009b; Wilkinson and Pickett 2009b). Such conflicts and negotiations subsequently influence policy outcomes and inequality (Moller 2008; Moller et al. 2009; Tope and Jacobs 2009), and may moderate the impact of other economic and social structural changes.

Another promising avenue for expansion of this dissertation's research is to examine urban inequalities in global cities across the world (Alderson et al. 2010; Sassen 1990, 1991). An active literature on regional development examines cities as foci of economic activity and growth (Glaeser 2000, 2011; Florida et al. 2008). Even more

broadly, scholars examine the role of urbanization for economic development and globalization in countries across the world (Angel 2012; Brady et al. 2007; Sassen 1990; The World Bank 2009). Metropolitan areas structure outcomes for individuals, and more comprehensive examination of their embeddedness within states and region will enable greater conceptualization of metropolitan areas' potential for agency as well.

5.4 Conclusion

This dissertation extends sociology's long tradition of examining how urban structural changes shape racial and ethnic stratification in America. I update this literature by evaluating the impacts of the transition to the new economy, increasing housing market inequality, and the combination of income inequality and population aging. These three sets of changes in metropolitan factors have varied effects on outcomes for whites, blacks, Latinos, and Asians. The empirical results ultimately indicate that recent and seemingly race-neutral urban structural changes largely reproduce the long existing racial and ethnic hierarchy in multiple measures of well-being.

Appendix A

Additional Tables and Figures for Chapter 2

Table A.1: Summary of Metropolitan-Level Racial/Ethnic Wage Gaps and Average Hourly Wages.

	1980	1990	2000	2010
Wage Gaps				
White-Black	1.91	3.42	4.12	5.25
	(2.54)	(2.75)	(2.98)	(4.03)
White-Latino	2.04	4.08	5.55	7.05
	(3.35)	(2.95)	(3.52)	(4.34)
White-Asian	-0.48	-0.12	-0.89	-1.63
	(5.89)	(5.66)	(4.49)	(8.82)
Average Hourly Wages				
White	20.90	20.45	22.40	22.52
	(2.10)	(2.78)	(3.71)	(4.07)
Black	18.98	17.03	18.28	17.29
	(3.03)	(2.81)	(2.69)	(3.85)
Latino	18.85	16.37	16.85	15.47
	(3.51)	(2.72)	(2.23)	(3.04)
Asian	21.38	20.57	23.29	24.22
Asian	(6.13)	(5.81)	(4.69)	(8.72)

Note: The metropolitan areas are not weighted by population. Standard deviations in parentheses.

Table A.2: Summary of Metropolitan-Level New Economy and Control Variables.

	1980	1990	2000	2010
New Economy Variables				
Coll./Non-Coll. Ratio	1.61	1.75	1.73	1.80
	(0.12)	(0.14)	(0.14)	(0.18)
% FIRE Earnings	5.94	7.10	7.40	7.67
	(2.23)	2.86	3.52	(3.94)
Creative Class	22.13	26.05	26.15	26.97
	(3.33)	(3.82)	(4.13)	(4.25)
Casualization	31.72	31.36	28.80	30.73
	(3.91)	(3.89)	(3.65)	(4.26)
% Foreign Born	5.25	6.35	8.57	10.39
	(4.75)	(6.33)	(7.56)	(7.92)
Union Rate		15.39	12.90	11.77
		(7.87)	(7.26)	(6.97)
Metropolitan-Level Controls				
Unemployment	6.21	5.88	4.89	10.31
	(2.18)	(1.78)	(1.70)	(2.80)
% Public	19.22	17.09	16.11	16.58
	(7.19)	(6.73)	(5.74)	(5.53)
Pop. (1,000s)	668.28	749.62	902.42	1,003.17
	(1,382.88)	(1,519.56)	(1,715.45)	(1,829.53)
ln(Population)	12.74	12.83	13.03	13.13
	(1.00)	1.03	1.04	(1.06)
% Black	10.22	10.68	10.76	11.43
	(9.72)	(10.05)	(10.09)	(10.34)
% Latino	4.70	5.44	6.87	9.41
	(8.85)	(9.24)	(9.82)	(11.05)
% Asian	0.55	0.75	0.88	1.21
	(3.15)	(3.22)	(2.60)	(2.62)

Note: The metropolitan areas are not weighted by population.
Standard deviations in parentheses.

Table A.3: Cross-Sectional Regression Results for Logged Hourly Wages on Individual-Level Control Variables.

	1980	1990	2000	2010
Black	0.105	0.215	-0.290	-0.337
	(0.518)	(1.055)	(-1.212)	(-1.546)
Latino	0.095	-0.654*	-0.136	-0.373
	(0.540)	(-2.433)	(-0.537)	(-1.498)
Asian	0.746	-0.092	-0.470	-1.089***
	(1.517)	(-0.165)	(-1.231)	(-3.914)
Age	0.042***	0.045***	0.041***	0.048***
	(64.294)	(43.244)	(57.129)	(58.163)
Age^2	-0.000***	-0.000***	-0.000***	-0.000***
	(-56.252)	(-42.549)	(-49.389)	(-49.966)
Female	-0.398***	-0.301***	-0.251***	-0.216***
	(-54.941)	(-56.199)	(-51.776)	(-49.464)
Single	-0.110***	-0.122***	-0.122***	-0.129***
	(-25.285)	(-35.657)	(-34.986)	(-40.464)
Separated	-0.095***	-0.112***	-0.119***	-0.132***
	(-21.122)	(-20.211)	(-28.066)	(-23.206)
Divorced	-0.056***	-0.074***	-0.078***	-0.086***
	(-23.608)	(-30.962)	(-23.450)	(-26.298)
Widowed	-0.095***	-0.099***	-0.091***	-0.104***
	(-20.757)	(-23.553)	(-18.195)	(-15.204)
Children HH	0.003**	-0.006***	0.002*	0.008***
	(3.297)	(-6.407)	(2.156)	(5.044)
Adults HH	-0.031***	-0.034***	-0.034***	-0.039***
	(-28.861)	(-39.194)	(-46.933)	(-32.884)
Children under 5	0.016***	0.037***	0.038***	0.036***
	(5.565)	(16.924)	(12.635)	(9.622)
Imm<5 Yrs	-0.225***	-0.250***	-0.199***	-0.211***
	(-14.856)	(-11.113)	(-14.538)	(-19.858)
Imm 5–10 Yrs	-0.112***	-0.180***	-0.157***	-0.169***
	(-9.617)	(-11.612)	(-9.464)	(-14.376)
Imm 10–15 Yrs	-0.053***	-0.105***	-0.120***	-0.128***
	(-7.939)	(-8.250)	(-7.863)	(-8.822)
Imm 15–20 Yrs	-0.013	-0.046***	-0.083***	-0.112***
	(-1.514)	(-3.744)	(-8.272)	(-9.945)
Imm>20 Yrs	-0.010**	0.002	-0.010	-0.038***
	(-2.610)	(0.528)	(-1.419)	(-6.085)

Continued on next page.

Table A.3 continued.

Less than HS	-0.361***	-0.429***	-0.474***	-0.507***
	(-48.108)	(-61.851)	(-65.783)	(-58.992)
HS/GED	-0.227***	-0.300***	-0.349***	-0.371***
	(-34.678)	(-65.637)	(-87.512)	(-69.839)
Some College	-0.154***	-0.204***	-0.240***	-0.260***
	(-35.963)	(-56.715)	(-82.176)	(-62.336)
Part-Time	-0.095***	-0.140***	-0.084***	-0.187***
	(-20.693)	(-26.331)	(-14.342)	(-39.257)
Manager	0.381***	0.380***	0.414***	0.473***
	(97.842)	(78.528)	(88.619)	(92.827)
Professional	0.376***	0.374***	0.321***	0.376***
	(57.669)	(41.018)	(72.776)	(71.397)
Technical	0.325***	0.323***	0.390***	0.461***
	(37.676)	(37.223)	(66.528)	(64.717)
Sales	0.164***	0.173***	0.166***	0.160***
	(21.975)	(25.384)	(27.988)	(28.106)
Administrative	0.211***	0.176***	0.151***	0.158***
	(31.263)	(22.271)	(32.822)	(35.297)
Manufacturing	0.253***	0.198***	0.155***	0.152***
	(18.482)	(16.966)	(19.817)	(25.533)
Inv. Mills Ratio	-0.481*	-0.701*	-0.887***	-0.264
	(-2.486)	(-2.017)	(-3.832)	(-0.993)
Constant	2.260***	2.196***	1.545***	1.578***
	(13.172)	(10.808)	(7.650)	(6.847)
MSAs	219	219	219	219
N	991,759	1,263,504	1,682,018	783,486
R^2	0.284	0.296	0.270	0.321

Note: Robust t-statistics in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

Table A.4: Regression Results for Logged Hourly Wages on Metropolitan-Level Control Variables.

Cross-Sectional	1980	1990	2000	2010
Unemployment	0.025***	0.018**	0.018**	0.009*
	(8.582)	(2.916)	(2.765)	(2.320)
% Public	-0.002	0.000	-0.002	0.008***
	(-1.189)	(0.154)	(-0.934)	(3.543)
ln(Population)	0.032***	0.036***	0.025**	0.020*
	(6.328)	(3.648)	(2.838)	(2.595)
% Black	-0.000	-0.000	-0.000	-0.003***
	(-0.330)	(-0.055)	(-0.699)	(-3.424)
% Latino	0.000	-0.001	-0.003***	-0.003***
	(0.453)	(-1.455)	(-3.339)	(-4.529)
% Asian	0.001	0.001	0.005	0.005
	(1.437)	(0.707)	(1.250)	(1.321)
MSAs	219	219	219	219
N	991,759	1,263,504	1,682,018	783,486
R^2	0.284	0.296	0.270	0.321
Fixed-Effects	1980–2010	1980–1990	1990–2000	2000–2010
Unemployment	0.006***	0.008***	0.009***	-0.001
	(3.786)	(3.645)	(5.457)	(-0.366)
% Public	-0.003	0.009	-0.010***	0.003
	(-1.384)	(1.521)	(-6.978)	(0.978)
ln(Population)	0.041**	-0.012	0.052***	0.053*
	(3.205)	(-0.465)	(4.762)	(2.014)
% Black	-0.002	0.002	-0.000	-0.001
	(-1.617)	(0.851)	(-0.177)	(-0.657)
% Latino	0.002*	0.012**	0.000	0.003*
	(2.034)	(2.833)	(0.253)	(2.329)
% Asian	0.005	0.007	0.001	0.011*
	(1.651)	(0.516)	(0.430)	(2.344)
MSA-Years	876	438	438	438
N	4,720,767	2,255,263	2,945,522	2,465,504
R^2	0.294	0.294	0.286	0.301

Note: Robust t-statistics in parentheses. Models include, but do not display, all new economy and individual-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

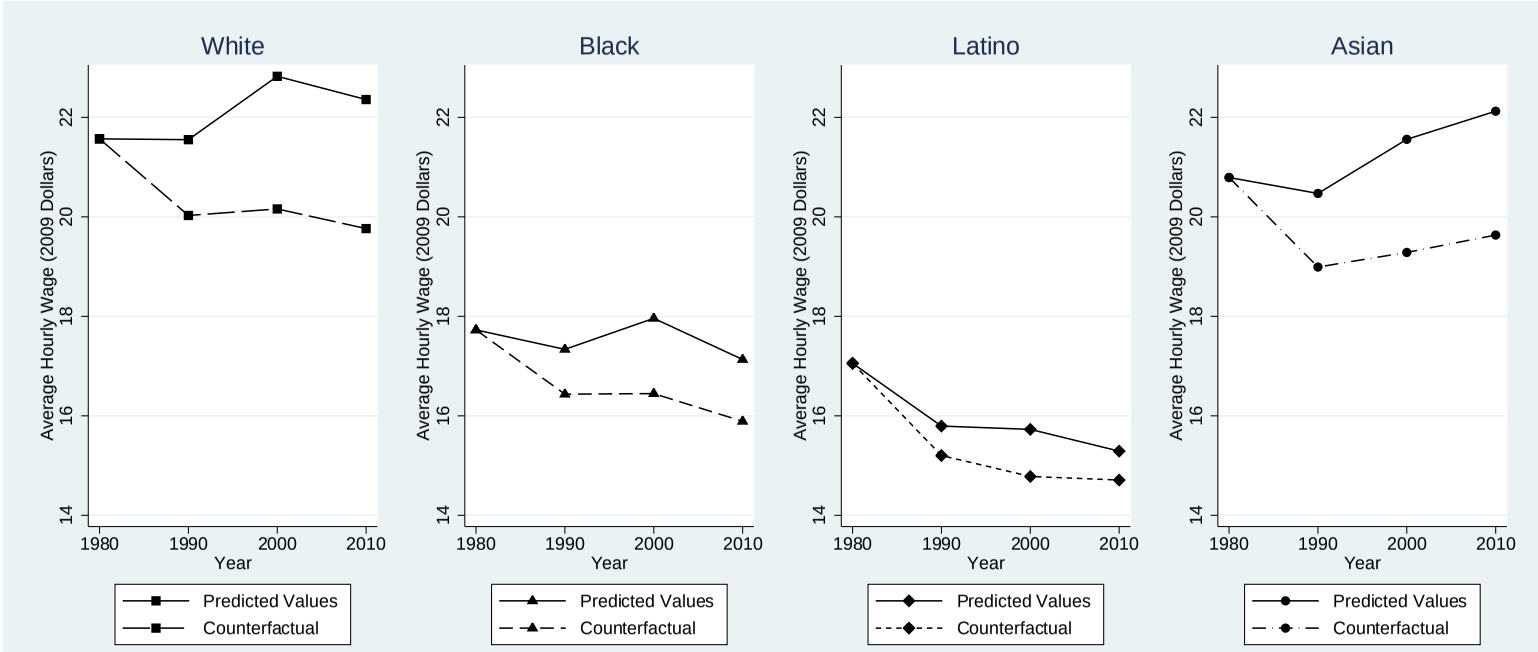

FIGURE A.1: Predicted Trends in Average Hourly Wages, in 2009 Dollars.

Table A.5: Fixed-Effects Regression Results for Logged Hourly Wages on Changes in New Economy Variables, for High School Education or Less.

	1980–2010	1980–1990	1990–2000	2000–2010
Black-White				
Coll./Non-Coll. Ratio	-0.074*	-0.127***	-0.142**	-0.078
	(-2.355)	(-3.342)	(-2.975)	(-1.604)
ln(% FIRE Earnings)	0.003	-0.015	-0.018	0.011
	(0.191)	(-0.650)	(-0.837)	(0.591)
Creative Class	0.001	0.000	-0.001	0.002
	(0.533)	(0.106)	(-0.288)	(0.877)
% Casualized	0.004***	0.008***	0.002	0.003
	(3.445)	(4.413)	(1.161)	(1.898)
% Foreign Born	-0.001	0.000	-0.000	-0.001*
	(-1.314)	(0.060)	(-0.773)	(-1.988)
Latino-White				
Coll./Non-Coll. Ratio	-0.076**	-0.112**	-0.100*	-0.140***
	(-2.981)	(-2.757)	(-2.531)	(-4.380)
ln(% FIRE Earnings)	-0.067***	-0.092***	-0.113***	-0.075***
	(-4.878)	(-5.157)	(-6.730)	(-5.292)
Creative Class	0.002	0.004*	0.002	0.001
	(1.425)	(2.377)	(1.353)	(0.517)
% Casualized	0.002	0.009***	-0.002	-0.002
	(1.351)	(5.470)	(-1.409)	(-1.231)
% Foreign Born	-0.004***	-0.004***	-0.004***	-0.003***
	(-6.601)	(-4.912)	(-4.877)	(-5.394)

Continued on next page.

Table A.5 continued.

	1980–2010	1980–1990	1990–2000	2000–2010
Asian-White				
Coll./Non-Coll. Ratio	-0.047	-0.011	-0.098	-0.118*
	(-0.945)	(-0.154)	(-1.254)	(-2.023)
ln(% FIRE Earnings)	-0.165***	-0.234**	-0.251***	-0.159***
	(-5.237)	(-2.619)	(-4.998)	(-5.660)
Creative Class	-0.000	-0.000	-0.001	-0.001
	(-0.262)	(-0.015)	(-0.464)	(-0.490)
% Casualized	-0.001	-0.002	-0.006*	-0.001
	(-0.284)	(-0.526)	(-2.047)	(-0.518)
% Foreign Born	-0.005***	-0.003*	-0.004***	-0.005***
	(-5.088)	(-2.460)	(-4.394)	(-3.877)
White				
Coll./Non-Coll. Ratio	-0.237***	-0.453***	-0.208***	-0.113***
	(-8.101)	(-7.349)	(-7.591)	(-4.588)
ln(% FIRE Earnings)	0.007	0.023	0.022	-0.018
	(0.541)	(0.873)	(1.254)	(-1.412)
Creative Class	0.010***	0.009*	0.008***	0.008***
	(5.258)	(2.571)	(4.081)	(4.711)
Casualization	-0.013***	-0.012***	-0.007***	-0.005**
	(-7.809)	(-5.018)	(-3.387)	(-3.286)
% Foreign Born	0.007***	0.013***	0.006***	0.007***
	(5.848)	(5.714)	(4.454)	(3.898)
MSA-Years	876	438	438	438
N	2,121,495	1,176,208	1,300,051	945,287
R^2	0.204	0.223	0.196	0.181

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

Appendix B

Additional Tables for Chapter 3

Table B.1: Summary of Metropolitan-Level Racial/Ethnic Homeownership Gaps and Levels.

	1980	1990	2000	2010
Homeownership Gaps				
Black-White	28.23	27.56	28.51	30.55
	(10.42)	(13.08)	(10.85)	(20.84)
Latino-White	16.73	16.09	20.52	18.38
	(17.63)	(16.92)	(14.19)	(21.01)
Asian-White	12.91	13.35	19.70	11.66
	(21.50)	(21.26)	(19.28)	(27.04)
Homeownership Levels				
White	56.85	48.11	52.65	54.07
	(6.92)	(7.33)	(7.94)	(9.79)
Black	28.52	20.54	24.20	23.90
	(10.52)	(12.62)	(11.43)	(20.27)
Latino	39.99	32.00	32.13	35.62
	(18.92)	(16.82)	(12.65)	(19.55)
Asian	43.69	34.66	32.88	42.28
	(21.47)	(21.44)	(18.49)	(26.06)

Note: The metropolitan areas are not weighted by population. Standard deviations in parentheses.

Table B.2: Summary of Metropolitan-Level Home Value Variables and Controls.

	1980	1990	2000	2010
Home Values				
Median Value ($1,000s)	144.85	137.35	150.07	177.97
	(46.59)	(76.72)	(73.68)	(89.66)
Gini	29.19	33.49	34.79	37.43
	(4.31)	(4.64)	(4.36)	(4.89)
Metropolitan Controls				
% House	68.68	67.04	69.19	71.46
	(8.63)	(7.97)	(6.75)	(6.80)
% New Housing	28.54	20.45	17.42	29.08
	(9.91)	(8.76)	(7.00)	(14.20)
Population (1,000s)	668.28	749.62	902.42	1,003.17
	(1,382.88)	(1,519.56)	(1,715.45)	(1,829.53)
% Black	10.22	10.68	10.76	11.43
	(9.72)	(10.05)	(10.09)	(10.34)
% Latino	6.08	7.61	10.53	14.13
	(11.43)	(12.87)	(14.37)	(15.81)
% Asian	1.30	2.09	2.66	3.52
	(4.14)	(4.61)	(4.50)	(4.85)
Residential Segregation				
Black Segregation	62.39	57.47	53.41	55.43
	(13.28)	(13.20)	(13.24)	(11.58)
Latino Segregation	35.17	35.49	39.15	43.87
	(12.94)	(12.81)	(12.13)	(9.29)
Asian Segregation	34.92	37.47	35.77	39.92
	(7.18)	(8.74)	(8.05)	(7.48)

Note: The metropolitan areas are not weighted by population.
Standard deviations in parentheses.

Table B.3: Cross-Sectional Regression Results for Homeownership on Individual-Level Control Variables, Presented as Odds Ratios.

	1980	1990	2000	2010
Black	0.006**	0.034*	0.001***	0.000***
	(-2.842)	(-2.042)	(-8.910)	(-7.139)
Latino	0.178	0.789	3.597	0.364
	(-0.643)	(-0.068)	(0.772)	(-0.873)
Asian	0.000***	0.000***	0.000***	0.000***
	(-4.465)	(-5.460)	(-6.426)	(-8.041)
Age	0.892***	0.893***	0.867***	0.897***
	(-11.060)	(-7.720)	(-12.050)	(-6.505)
Age^2	0.994***	0.994***	0.994***	0.996***
	(-28.619)	(-24.501)	(-28.525)	(-11.512)
Male Head	0.281***	0.357***	0.390***	0.445***
	(-55.040)	(-27.714)	(-29.150)	(-25.512)
Female Head	0.254***	0.305***	0.366***	0.393***
	(-57.795)	(-40.421)	(-34.054)	(-30.795)
Household Size	1.063*	1.101***	1.086***	0.999
	(2.539)	(3.922)	(5.787)	(-0.029)
Children in HH	1.146***	1.054**	1.013	1.092***
	(6.778)	(2.733)	(0.988)	(3.695)
Children under 5	1.372***	1.409***	1.524***	1.512***
	(10.969)	(10.049)	(17.034)	(12.634)
Imm<5 Yrs	0.336***	0.299***	0.340***	0.213***
	(-14.005)	(-8.894)	(-11.000)	(-20.182)
Imm 5–10 Yrs	0.834**	0.729***	0.798***	0.671***
	(-2.747)	(-3.645)	(-3.321)	(-5.715)
Imm 10–15 Yrs	1.282***	1.142*	1.055	1.219***
	(5.256)	(2.229)	(1.042)	(3.332)
Imm 15–20 Yrs	1.409***	1.431***	1.260***	1.342***
	(6.950)	(9.073)	(7.180)	(5.686)
Imm>20 Yrs	1.085**	1.203***	1.243***	1.253***
	(3.284)	(4.173)	(9.050)	(7.199)

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Table B.3 continued.

Less than HS/GED	0.572***	0.729***	0.752***	0.771***
	(-27.887)	(-12.773)	(-10.950)	(-6.304)
Some College	1.253***	1.180***	1.261***	1.344***
	(12.251)	(10.829)	(17.647)	(13.160)
Bachelor's+	1.583***	1.332***	1.578***	2.238***
	(13.219)	(7.835)	(21.820)	(21.968)
Number Full-Time	1.061***	0.949*	1.051***	1.151***
	(3.903)	(-2.403)	(3.366)	(5.136)
Number Part-Time	0.864***	0.862***	0.875***	0.935***
	(-12.425)	(-11.259)	(-12.161)	(-3.898)
Number Unemp	0.726***	0.732***	0.757***	0.839***
	(-14.705)	(-20.203)	(-18.300)	(-7.163)
ln(HH Income)	1.680***	2.197***	1.577***	1.606***
	(20.339)	(24.006)	(18.968)	(15.108)
Veteran	0.956**	1.297***	1.190***	1.076
	(-2.981)	(17.615)	(12.009)	(1.867)
Inv. Mills Ratio	1.814**	1.754	3.820***	4.211***
	(3.094)	(1.889)	(5.463)	(5.513)
N	725,626	760,405	792,011	174,780
BIC	1.530e+07	1.830e+07	1.930e+07	2.150e+07

Note: Robust t-statistics in parentheses. Models include, but do not display, all metropolitan-level variables.
*** p<0.001, ** p<0.01, * p<0.05

Table B.4: Regression Results for Homeownership on Metropolitan-Level Control Variables, Presented as Odds Ratios.

Cross Section	1980	1990	2000	2010
% House	1.026***	1.017***	1.018***	1.017***
	(7.350)	(5.702)	(5.216)	(7.207)
% New Housing	1.009***	0.999	1.016***	0.996**
	(3.738)	(-0.184)	(6.269)	(-2.741)
ln(Population)	1.075**	1.019	1.028	1.049*
	(2.786)	(0.649)	(0.977)	(2.175)
% Black	0.997	1.000	1.002	1.003
	(-1.153)	(0.073)	(0.828)	(1.946)
% Latino	0.996	0.994*	0.997	0.993***
	(-1.406)	(-2.562)	(-1.635)	(-4.951)
% Asian	0.982***	0.977***	0.966***	0.976***
	(-6.190)	(-3.880)	(-4.160)	(-4.794)
MSAs	219	219	219	219
N	725,626	760,405	792,011	174,780
BIC	1.530e+07	1.830e+07	1.930e+07	2.150e+07

Fixed Effects	1980–2010	1980–1990	1990–2000	2000–2010
% House	1.025***	1.028***	1.004	1.020**
	(7.851)	(9.328)	(0.860)	(2.744)
% New Housing	1.002**	1.017***	0.999	1.005***
	(2.929)	(7.631)	(-0.318)	(6.171)
ln(Population)	1.226***	0.794***	1.524***	2.402***
	(3.972)	(-4.100)	(7.757)	(4.164)
% Black	1.006	0.984**	1.012*	1.016
	(1.162)	(-2.724)	(2.196)	(1.905)
% Latino	0.993*	0.991*	1.003	0.990
	(-2.557)	(-2.391)	(0.741)	(-1.520)
% Asian	0.963***	0.956***	0.951***	0.939***
	(-8.197)	(-5.457)	(-5.342)	(-5.330)
MSA-Years	876	438	438	438
Ns	2,452,822	1,486,031	1,552,416	966,791
BIC	7.450e+07	3.360e+07	3.750e+07	4.070e+07

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level variables.
*** p<0.001, ** p<0.01, * p<0.05

Table B.5: Cross-Sectional Regression Results for Homeownership Gaps on Segregation, Presented as Odds Ratios.

	1980	1990	2000	2010
Black-White				
Black Segregation	0.995	0.991**	0.997	0.993
	(-1.285)	(-2.996)	(-0.792)	(-1.302)
Latino Segregation	1.001	1.005	0.999	1.005
	(0.368)	(1.636)	(-0.232)	(1.084)
Asian Segregation	0.994	0.988	0.994	1.006
	(-1.177)	(-1.759)	(-1.119)	(0.787)
Latino-White				
Black Segregation	0.988**	0.982***	0.994	0.995
	(-2.808)	(-5.105)	(-1.458)	(-1.109)
Latino Segregation	0.991*	1.006	0.994	1.002
	(-2.321)	(1.581)	(-1.224)	(0.299)
Asian Segregation	0.982***	0.978***	0.982*	0.996
	(-3.533)	(-3.842)	(-2.392)	(-0.631)
Asian-White				
Black Segregation	0.983***	0.984**	0.978***	0.990*
	(-3.430)	(-2.711)	(-4.463)	(-2.045)
Latino Segregation	0.996	0.998	1.001	1.000
	(-0.793)	(-0.419)	(0.296)	(-0.014)
Asian Segregation	0.998	0.992	1.003	0.989
	(-0.310)	(-0.982)	(0.381)	(-1.300)
White				
Black Segregation	1.012***	1.004	1.014***	1.005
	(3.566)	(1.436)	(4.143)	(1.300)
Latino Segregation	1.000	0.999	0.999	1.003
	(0.039)	(-0.286)	(-0.384)	(1.019)
Asian Segregation	0.991**	0.989**	0.988**	0.995
	(-2.646)	(-3.103)	(-2.730)	(-1.147)
MSAs	98	98	98	98
N	609,619	642,067	666,736	147,343
BIC	1.270e+07	1.540e+07	1.620e+07	1.800e+07

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

Table B.6: Fixed-Effects Regression Results for Homeownership Gaps on Changes in Segregation, Presented as Odds Ratios.

	1980–2010	1980–1990	1990–2000	2000–2010
Black-White				
Black Segregation	0.998	0.996	0.993**	0.996
	(-0.979)	(-1.541)	(-2.883)	(-1.174)
Latino Segregation	1.002	1.002	1.004	1.005
	(0.997)	(0.896)	(1.666)	(1.637)
Asian Segregation	0.995	0.993	0.994	0.996
	(-1.258)	(-1.614)	(-1.311)	(-0.804)
Latino-White				
Black Segregation	0.994*	0.989***	0.988***	0.992*
	(-2.540)	(-3.350)	(-4.461)	(-2.516)
Latino Segregation	1.001	0.997	1.001	1.007
	(0.245)	(-0.944)	(0.411)	(1.958)
Asian Segregation	0.992*	0.989**	0.991	0.989*
	(-2.156)	(-2.738)	(-1.910)	(-2.392)
Asian-White				
Black Segregation	0.991**	0.988**	0.988*	0.983***
	(-2.786)	(-3.008)	(-2.562)	(-4.684)
Latino Segregation	0.999	0.996	0.995	1.007
	(-0.262)	(-1.348)	(-1.182)	(1.758)
Asian Segregation	1.000	0.999	1.007	0.994
	(-0.064)	(-0.225)	(0.936)	(-0.886)
White				
Black Segregation	1.007*	1.015***	1.009*	1.010**
	(2.232)	(3.947)	(2.477)	(2.692)
Latino Segregation	1.000	0.998	0.998	0.994*
	(0.292)	(-0.563)	(-1.477)	(-2.094)
Asian Segregation	1.000	1.003	1.005	0.993
	(0.154)	(1.273)	(1.220)	(-1.720)
MSA-Years	392	196	196	196
N	2,065,765	1,251,686	1,308,803	814,079
BIC	6.260e+07	2.810e+07	3.160e+07	3.420e+07

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

Appendix C

Additional Tables for Chapter 4

Table C.1: Summary of Metropolitan-Level Distribution of Disability and Poor Health Prevalences and Disparities.

	1990	2000	2010	2000	2010
Difference	*% Disabled*			*% Poor Health*	
Black-White	5.98	2.77	2.15	13.44	11.56
	(6.62)	(3.46)	(5.43)	(24.70)	(23.77)
Latino-White	2.06	0.12	-0.21	5.54	2.91
	(8.43)	(3.64)	(4.42)	(26.27)	(22.57)
Asian-White	0.82	-1.49	-2.09	0.42	-0.44
	(6.73)	(3.59)	(3.81)	(31.37)	(28.68)
Percentage	*% Disabled*			*% Poor Health*	
Total	7.21	4.91	4.61	23.67	22.81
	(1.60)	(1.20)	(1.35)	(6.91)	(7.39)
White	6.48	4.60	4.36	21.69	20.63
	(1.41)	(1.12)	(1.27)	(7.37)	(7.41)
Black	12.47	7.38	6.53	35.34	32.41
	(6.71)	(3.51)	(5.36)	(23.89)	(22.93)
Latino	8.54	4.71	4.17	27.26	23.54
	(8.35)	(3.49)	(4.21)	(25.97)	(21.31)
Asian	7.30	3.11	2.26	21.59	19.42
	(6.65)	(3.40)	(3.64)	(31.40)	(27.37)
MSAs	238	238	238	197	197

Note: The metropolitan areas are not weighted by population. Standard deviations in parentheses.

Table C.2: Summary of Metropolitan-Level Inequality, Population Aging, and Controls.

	1990	2000	2010
Gini	41.59	44.26	44.91
	(2.45)	(2.64)	(2.47)
% Over 65	11.12	11.45	12.12
	(3.12)	(2.99)	(2.83)
Population (1,000s)	703.82	847.25	942.17
	(1,466.67)	(1,657.07)	(1,768.15)
% Black	10.34	10.40	11.06
	(9.82)	(9.88)	(10.14)
% Latino	5.70	7.15	9.71
	(9.62)	(10.21)	(11.43)
% Asian	0.75	0.87	1.19
	(3.10)	(2.50)	(2.53)
% Foreign Born	6.51	8.73	10.53
	(6.33)	(7.55)	(7.90)
Employment Rate	73.21	73.05	69.58
	(4.70)	(4.84)	(4.75)
MSAs	238	238	238

Note: The metropolitan areas are not weighted by population. Standard deviations in parentheses.

Table C.3: Regression Results for Disability and Poor Health on Income Inequality.

	Disabled		*Poor Health*	
	2010	1990-2010	2010	2000-2010
Gini	1.009	0.971***	1.015	0.942**
	(1.277)	(-4.022)	(1.321)	(-2.937)
Fixed Effects	No	Yes	No	Yes
MSAs	238	238	197	197
MSA-Years	238	714	197	394
N	881,921	3,150,546	72,274	121,621

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

Table C.4: Regression Results for Disability and Poor Health on Income Inequality, by Race/Ethnicity.

	Disabled		*Poor Health*	
	2010	1990-2010	2010	2000-2010
Black-White				
Gini	0.957*	0.955***	0.987	0.975
	(-2.134)	(-7.192)	(-0.702)	(-1.943)
Latino-White				
Gini	0.996	0.963**	1.005	1.002
	(-0.212)	(-3.273)	(0.381)	(0.132)
Asian-White				
Gini	0.982	0.918***	0.946	0.973
	(-0.890)	(-8.488)	(-1.750)	(-0.923)
White				
Gini	1.017**	0.982	1.019	0.946**
	(2.857)	(-1.935)	(1.578)	(-2.727)
Fixed Effects	No	Yes	No	Yes
MSAs	238	238	197	197
MSA-Years	238	714	197	394
N	881,921	3,150,546	72,274	121,621

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

Table C.5: Regression Results for Disability and Poor Health on Income Inequality and Population Aging.

	Disabled		*Poor Health*	
	2010	1990-2010	2010	2000-2010
Gini	1.012	0.975	1.063	0.871*
	(0.455)	(-1.927)	(1.277)	(-2.298)
% Over 65	0.956	1.025	1.151	0.661
	(-0.450)	(0.681)	(0.731)	(-1.758)
$Gini \times \%Over65$	1.000	1.000	0.997	1.008
	(0.204)	(-0.465)	(-0.827)	(1.434)
Fixed Effects	No	Yes	No	Yes
MSAs	238	238	197	197
MSA-Years	238	714	197	394
N	881,921	3,150,546	72,274	121,621

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

Table C.6: Regression Results for Disability and Poor Health on Metropolitan-Level Controls.

	Disabled		*Poor Health*	
	2010	1990-2010	2010	2000-2010
ln(Population)	0.958***	1.092	0.970	1.593
	(-3.363)	(1.681)	(-1.493)	(1.774)
% Black	1.001	1.010*	0.999	0.967*
	(0.569)	(2.430)	(-0.497)	(-2.110)
% Latino	1.006**	1.006*	1.006*	0.999
	(2.841)	(2.079)	(2.120)	(-0.074)
% Asian	1.004	1.015	1.000	1.000
	(0.504)	(1.625)	(-0.046)	(-0.007)
% Foreign Born	0.994**	0.981***	0.991***	0.956**
	(-2.891)	(-4.338)	(-3.359)	(-3.031)
Employment Rate	0.977***	0.991*	0.979**	0.980**
	(-6.115)	(-2.534)	(-3.118)	(-3.289)
Fixed Effects	No	Yes	No	Yes
MSAs	238	238	197	197
MSA-Years	238	714	197	394
N	881,921	3,150,546	72,274	121,621

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

Table C.7: Regression Results for Disability and Poor Health on Individual-Level Controls.

	Disabled		*Poor Health*	
	2010	1990-2010	2010	2000-2010
Age	0.939***	0.935***	1.063***	1.080***
	(-8.321)	(-16.103)	(4.625)	(7.665)
Age^2	1.001***	1.001***	1.000	1.000***
	(16.716)	(29.913)	(-1.642)	(-3.564)
Female	1.115***	1.069***	0.976	0.972
	(8.280)	(7.559)	(-1.141)	(-1.694)
Single	1.715***	1.609***	1.386***	1.410***
	(17.457)	(22.280)	(8.711)	(11.050)
Separated	1.840***	1.679***	1.444***	1.496***
	(14.413)	(23.126)	(5.836)	(8.055)
Divorced	1.590***	1.494***	1.395***	1.418***
	(19.834)	(25.370)	(8.595)	(10.418)
Widowed	1.521***	1.432***	1.228***	1.165***
	(24.019)	(22.557)	(5.324)	(4.838)
Children HH	0.912***	0.954***	0.926***	0.961**
	(-7.267)	(-6.881)	(-4.860)	(-3.157)
Adults HH	1.261***	1.208***	1.106***	1.096***
	(17.600)	(18.314)	(5.024)	(6.105)
Imm<5 Yrs	0.510***	0.729***	0.549***	0.598***
	(-5.087)	(-5.174)	(-4.000)	(-4.825)
Imm 5–10 Yrs	0.549***	0.893	0.798*	0.932
	(-5.756)	(-1.623)	(-2.012)	(-0.627)
Imm 10–15 Yrs	0.722**	0.908	0.985	0.985
	(-2.761)	(-1.503)	(-0.138)	(-0.161)
Imm 15–20 Yrs	0.984	1.053	1.040	1.004
	(-0.174)	(1.002)	(0.369)	(0.056)
Imm>20 Yrs	0.864**	0.957	0.963	1.016
	(-3.156)	(-1.903)	(-0.727)	(0.400)

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Table C.7 continued.

	Disabled		*Poor Health*	
	2010	1990-2010	2010	2000-2010
Less than HS	1.438***	1.425***	1.699***	1.666***
	(20.377)	(36.040)	(10.824)	(14.947)
Some College	0.902***	0.868***	0.852***	0.818***
	(-5.532)	(-13.289)	(-4.695)	(-7.600)
Bachelor's+	0.619***	0.618***	0.502***	0.513***
	(-19.170)	(-34.187)	(-17.785)	(-23.083)
ln(HH Income)	0.886***	0.899***	0.852***	0.836***
	(-32.655)	(-42.695)	(-12.731)	(-16.792)
Homeowner	0.585***	0.684***	0.621***	0.635***
	(-27.198)	(-23.745)	(-14.973)	(-17.390)
Year 1990		1.458***		
		(10.264)		
Year 2000		1.079***		0.955
		(3.879)		(-0.912)
Fixed Effects	No	Yes	No	Yes
MSAs	238	238	197	197
MSA-Years	238	714	197	394
N	881,921	3,150,546	72,274	121,621

Note: Robust t-statistics in parentheses. Models include, but do not display, all individual- and metropolitan-level control variables.
*** p<0.001, ** p<0.01, * p<0.05

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Biography

Ryan Matthew Finnigan was born in Indianapolis, Indiana, on July 23rd, 1985. He attended Indiana University, and received a B.A. in Sociology, and a B.S. in Mathematics with minors in Physics and Astronomy/Astrophysics in 2007. He received an M.A. in Sociology from Duke University in 2010. This dissertation is in partial fulfillment of a Ph.D. in Sociology from Duke University, in 2013. From 2009 to 2012, he was a pre-doctoral fellow on the National Institute of Aging's Graduate and Post-Doctoral Training Grant through the Duke Population Research Institute (grant number 5T32-AG-000139-22, P.I.: Kenneth Land). He is currently a research fellow in the WZB's (Wissenschaftszentrum Berlin für Sozialforschung) unit on Inequality and Social Policy, under David Brady. Upon completion of the Ph.D., Ryan will continue to work with David Brady at the WZB as a postdoctoral fellow.