GEOGRAPHIC PERSPECTIVES ON ETHNIC LABOR MARKET SEGMENTATION IN THE UNITED STATES

by

QINGFANG WANG

(Under the Direction of KAVITA PANDIT)

ABSTRACT

With the continuing influx of a large number of immigrants in the United States, the urban labor market segmentation along the lines of race/ethnicity, class, and gender has been drawing considerable attention in recent years. This dissertation focused on the phenomenon of "ethnic niches," i.e., industries and occupations dominated by a particular race/ethnic group. Using data from 5% Public Used Microdata Samples and a confidential dataset extracted from the Decennial Long Form Data 2000, this study suggests that living arrangements increase the chances of niche employment for most racial/ethnic groups, even after controlling human capital and some local context factors. However, there is a "substitution" effect between personal socioeconomic status and location factors. Further, a case study of Chinese male and female immigrants in the San Francisco metropolitan area indicates that living in Chinese residential concentrations and working in a Chinese dominated workplace are strongly related to the probability of niche employment. The results suggest that abundant ethnic resources in ethnic neighborhood and enclaves can provide certain types of labor market opportunities; however, it also indicates the limitation of these resources in helping ethnic minority or immigrant workers, especially women, move upward in the labor market hierarchy. This study also deploys a multilevel research

approach to compare job earnings of white, black, Hispanic and Asian workers in their respective niche and non-niche sectors. The results show that working in different ethnic niches is the main source of earning inequalities among different racial and ethnic groups. Both native whites and blacks, especially black niche workers, benefit greatly from the increase of ethnic minorities and immigrants in the metropolitan area. However, both Asian and Hispanic immigrant niche workers suffer from the increase of their coethnic population. Overall, the study argues that whether it is the location of worker residences and workplace or the specific characteristics of the metropolitan location, space provides the "container" in which various causal factors interact with each other, and is a catalyst that can accelerate or inhibit the segmentation process.

INDEX WORDS: Labor Market, Ethnic Niches, Inequality, Residence, Workplace, Race/Ethnicity

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A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2005

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August 2005

Dedicated to BeiBei and Xindong

ACKNOWLEDGEMENTS

This work would not have been possible without the support of many great people. First of all, I would like to express my sincere gratitude to my mentor and advisor, Kavita Pandit. There is no way to enumerate the ways that she has assisted and supported me. To me, she is a role model - she is consistently two notches above excellent, both in her devotion to work and the enthusiasm with which she approaches daily life. It has been a great joy and to have her in my life. I feel very lucky that Kavita has shared with me the most successful moment in my intellectual life and the most painful time in my personal life during past five years, and granted me love, patience, trust, and freedom. Without her, I would have been lost in sorrow and darkness, and would be impossible to finish this dissertation.

I thank Steve Holloway for our wonderful conversations, including both statistics and life stories. Without his introduction to the special confidential dataset and his enduring encouragement, I would not be able to have such a dissertation project at all. He is always willing to answer questions, and remains a strong source of guidance for my research: Steve has been an inspiration to me. Dr. Lo has been a source of much good advice since the first day I came to the United States. His comments, whether regarding my research, my career plan, or other matters, were always insightful. And I would like to thank both he and his wife, Christina, for their support of my pursuit of a doctoral degree in the Geography Department. I also would like to thank Deborah Martin for giving me unwavering support, and the process of writing this dissertation in Durham was made less lonely by our chats through emails. As the “outside” member of committee, Stephanie Bohon brought a much-needed perspective to my research. I

am grateful that she was so willing to give help – I benefited much from the discussion in her "New Urbanism" class and the visits to her office, even without appointments.

It has been a great privilege to spend several years in the Department of Geography, and its members will always remain dear to me. I would like to thank all the people in the Geography Department who supported me spiritually and financially during my most difficult time. Although we had only a passing acquaintance before, Margaret Madden encouraged me and helped me to get through those difficult days, and I know she is always there when I need her help. My life at UGA was much richer by knowing Dr. Pannell, Dr. Wheeler, Dr. Brook, and Dr. Usery. Jodie, Audrey, and Donna have been patiently dealing with a number of documents and paperwork related to my grant accounts, which just made my work much simpler! The sweet hugs from Emily and Loretta always made me miss Athens when I moved to Durham in the last year. All the help from Kate was just indispensable for my research during the past five years! I am also indebted to my fellow students in the Geography Department. Margaret's tireless and patient encouragement gave me much guidance and joy, and has been particularly helpful in starting my new career. Thanks also go to George, Ginger, Ron, Rob, Josh, Catherine, Chris, Dave, Bei, Yanfen, Bo, Yanbing, and Zhiyong for our time and conversations together.

I would like to thank the Geography Department, the Graduate School of the University of Georgia, the National Science Foundation (NSF) Dissertation Improvement Grant, the Department of Housing and Urban Development (HUD) Dissertation Research Grant, and the Triangle Research Center at the Duke University for the financial support of my dissertation research. I would also like to thank Ginny Lyman and Melissa Motley, who have patiently dealt with the administrative work related to all my grants. Special thanks go to Susan Chen and Kirk White at the Triangle Research Center, the Duke University. They have been greatly considerate,

patient, encouraging, and supportive during my dissertation work at Duke University, which guaranteed that my transition and life in the last year was easier, happier, and successful. I also want to thank Janet Maceda for her timely, patient, and good work on editing all the dissertation chapters; I really enjoyed our conversations.

I have been very blessed in my life in my friendships. In all of the ups and downs that came my way during the last five years, I had the support of friends at UGA: Lin, Min, Xiaozhen, and all my dear "family Housing Cliques" who had given so much joy and care to my daughter and my family. Many thanks also go to the Chinese community and other friends whom I never even met but who gave much support to my family at our most difficult time. Thanks are also due to these wonderful couples in Athens: George and Janet, J.P. and Debbie, Ron and Mitchell, Dorothy and Michael, Linda and Phil. All of these wonderful people make Athens a very special place in my life.

This dissertation is dedicated to my family. I would like to thank my parents and sisters for the faith, freedom, and skills they have granted me to be successful in life. Particular thanks go to my parents-in-laws who had been helping us at our difficult time in the United States, without whom I would not have been able to embark on my dissertation work. I would like to express my deepest thanks to my husband, Xindong, who gave me the strength to finish this work when I thought I was never going to. He has believed in me and supported me in every way humanly possible. I thank him for his love.

My beginning interests in immigration and labor market study were conceived at the same time as my dear daughter, Beibei, and the growth of the knowledge in my research field actually grew with her. I am indebted to her for allowing my "routine" absence from her daily life due to my schoolwork. She was so happy every time she came to Mom's office and played

around in the basement lounge. I knew she would love it if Mom could always stay with her, which I could not always do and will be a regret that I will live with my whole life. She was such a great source of joy, and the meaning of life to me! She will never be able to read this dissertation with me; however, there is no way for me to finish this dissertation without remembering the SHORT but happiest two years and a half of my life, without having her in my precious dreams that are the only places we can meet, and without believing that she is watching over me wherever I go.

TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS v

LIST OF TABLES xii

LIST OF FIGURES xiii

CHAPTER

1 INTRODUCTION AND LITERATURE REVIEW 1

Understanding Ethnic Labor Market Concentration 3

Data 9

References 10

2 LINKING HOME TO WORK: ETHNIC LABOR MARKET SEGMENTATION IN THE SAN FRANCISCO CMSA 14

Abstract 15

Introduction 16

Perspectives on Ethnic Labor Market Segmentation 17

Study Area: San Francisco CMSA 21

Data and Methodology 23

Findings and Discussion 29

Conclusions 38

References 40

Appendices 44

3 HOW DOES GEOGRAPHY MATTER IN ETHNIC LABOR MARKET SEGMENTATION PROCESS? A CASE STUDY OF CHINESE IMMIGRANTS IN THE SAN FRANCISCO CMSA 47
Abstract 48
Introduction 49
Geography and Ethnic Labor Market Concentration 51
Case Study: Chinese in the San Francisco CMSA 58
Data and Methodology 61
Findings and Discussion....68
Conclusions 79
References 81
Appendices 86
4 WHO PAYS THE PENALTIES? EARNINGS EFFECTS OF ETHNIC LABOR MARKET CONCENTRATION IN MULTI-RACIAL METROPOLITAN CONTEXTS 87
Abstract 88
Introduction 90
The Effects of Metropolitan Context on Ethnic Niche Earnings 92
Data and Methodology 99
Findings and Discussion....105
Conclusions 124
References 128
Appendices 133

5 CONCLUSIONS.....134

LIST OF TABLES

Page

Table 2.1: Independent Variables for Predicting Nniche Employment 28

Table 2.2: Top Five Ethnic Niches for Each Group 30

Table 2.3: Coefficients of Logistic Regression Models to Predict Probability of Working in Ethnic Niches 32

Table 3.1: Coding Strategy of Variables in Multilevel Linear Modeling 66

Table 3.2: Top Twenty Chinese Ethnic Niches (based on no. of workers employed) by Sex 69

Table 3.3: Average Socioeconomic Characteristics of Residents in Census Tracts in San Francisco CMSA by Chinese Spatial Concentration Type 72

Table 3.4: Average Socioeconomic Characteristics of Workers in Census Tracts in San Francisco CMSA, by Chinese Spatial Concentration Type 73

Table 3.5: Results of Multilevel Regression: Effects of Characteristics at Census Tracts Level by Where Respondent Lives 74

Table 3.6: Results of Multilevel Regression: Effects of Characteristics at Conesus Tracts Level by Where Respondent Works 77

Table 4.1: Coding Strategy of Variables in MLM Models 103

Table 4.2: National Top Five Ethnic Niches by Group 106

Table 4.3: Top Five Ethnic Niches in Selected Metropolitan Areas 107

Table 4.4: Multilevel Linear Regression for Annual Job Earnings (ln) on Metropolitan Area Characteristics 114

LIST OF FIGURES

Page

Figure 2.1: Boundary map of San Francisco CMSA, Cities, PUMAs, and Counties.....26

Figure 2.2: Discrete Effects of Living in Coethnic-Concentrated PUMAs on Probability of Working in Ethnic Niches 34

Figure 2.3: Effects of Ethnic Diversity and Central City Residency on Probability of Working in Ethnic Niches 36

Figure 2.4: Predicted Probability for an Ideal Type of Worker.....37

Figure 3.1: Study Area: San Francisco Consolidated Statistical Metropolitan Area.....59

Figure 3.2: Geography of Chinese Immigrants in the San Francisco CMSA, by Type of Concentration Pattern 70

Figure 3.3: Effects of Four Types of Census Tracts on Niche Employment by Residence 75

Figure 4.1: Average Earnings Gap between Niche workers and Non-Niche workers 110

Figure 4.2: Earning Difference between Niche and Non-Niche Workers before and after controlling Personal Characteristics.....111

Figure 4.3: Distribution of Niche Workers by Earning Quartile 111

Figure 4.4: Regression of Weighted-Mean Group Earnings Differences on Weighted-Mean Niche Workers' Earnings Differences across All Metropolitan Areas (in $1,000) 112

Figure 4.5: Predicted Annual Earnings for niche and non-niche Workers with Change in Black Percentage at MA-level, by Race/Ethnicity 116

Figure 4.6: Predicted Annual Earnings of Niche and Non-Niche Workers with Change in Proportion of Foreign-Born Hispanics at MA level 117

Figure 4.7: Predicted Annual Earnings of Asians and Hispanics for niche and no-niche workers with Change in Proportion of Asians and Hispanics at MA level 119

Figure 4.8: Predicted Annual Earnings of for niche and no-niche workers with Change in Proportion of High Status Industries at MA level 121

Figure 4.9: Predicted Annual Earnings for Black and Hispanic niche and no-niche workers with Change in Proportion of Service Industries at MA level 122

CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

The number of immigrants entering the United States by the end of twentieth century was at record levels. In the year 2000, there were 31 million foreign-born people in the United States, 11.1 percent of the total population. As a consequence of the U.S. immigration policy shift since 1965 and of major changes in economic and political conditions in the source countries, there was a substantial change in the national origin mix of the immigrant flow. Over two-thirds of the legal immigrants admitted during the1950s originated in Europe or Canada, one-quarter in Latin America, and only 6 percent in Asia. By the year 2000, only 17 percent of the immigrants originated in Europe and Canada, more than half in Latin America, and 26 percent in Asia. (Census Bureau, 2000). As a result the United States is being transformed from a largely biracial society consisting of a sizable white majority and a small black minority into a multiracial, multi-ethnic society consisting of several racial and ethnic groups (Bean and Stevens, 2003).

The past two decades have witnessed both the rebirth of the debate over immigration policy in the United States as well as a resurgence of academic interest in studying the economic impact of immigration. Scholars have been particularly interested in the effects of immigration on the labor market. These include questions such as: How does immigration change the skill composition of the work force? What is the impact of immigration on the earnings and employment opportunities of native-born workers? Do immigrants displace the native-born from certain occupations? A large and rapidly growing number of studies have investigated each of

these questions (Hamermesh and Bean, 1998; Bean and Steven, 2003), sometimes with conflicting conclusions. For example, Borjas (1999) argues that immigrants have completely displaced natives in selected occupations and have negative impacts on the low-skilled native minority workers. However, others argue that the domestic labor market is sufficiently segmented that native workers are insulated from the direct employment effects of the immigrants; moreover, immigrants, by taking the low-skill jobs formerly held by natives, may actually push native-born workers upward in the occupational stratification system (Frisbie and Neidert, 1977; Reimers, 1998; Rosenfeld and Tienda, 1999; Tienda and Lii,1987).

Many of the debates and concerns related to the labor market impacts of immigration have been sparked by the emergence of ethnic "niches," i.e., industries and occupations that are dominated by a particular ethnic group (Ettlinger and Kwon, 1994; Hudson, 2003; Logan et al., 1994; Waldinger and Der-Martirosian, 2001; Wilson, 2003). Social scientists, especially sociologists and economists, have provided valuable insights into the formation and persistence of ethnic niche employment and its socioeconomic consequences. These studies have cited personal characteristics, human capital resources, discrimination, ethnic networking, and structural factors have been found responsible for ethnic labor market segmentation and concentration (Hudson, 2003; Waldinger and Der-Martirosian, 2001; Wang, 2004; Wilson, 2003).

One area of relative neglect in our understanding of ethnic niche formation, however, is the effect of space, either manifest as the location of immigrant homes and places of work or the specifics of the urban context. The three manuscripts that make up this dissertation focus on how geography and space crucially affects the formation of ethnic niches and influences the economic impact of niche employment. The first two manuscripts (Chapter 2 and Chapter 3)

speak to how the geography of residence and workplace influences labor market concentration patterns for ethnic minorities and immigrants. The third manuscript (Chapter 4) addresses how the labor market context influences job earnings between niche and non-niche sectors and between different ethnic groups. The following discussion provides a brief review of previous literature on the dynamics of niche employment and its economic consequences, and, in particular, why a geographical perspective is profound and necessary.

UNDERSTANDING ETHNIC LABOR MARKET CONCENTRATION

Factors Associated with Ethnic Niche Employment

Numerous explanations have been offered for why ethnic niches develop and persist. According to the neoclassical perspective, ethnic employment niches are the natural outcomes of market forces (Wood, 1982). Given that every job requires a certain combination of skills (education, work experience, language fluency, etc.), if a certain sector becomes dominated by an ethnic group, this suggests that the ethnic group possesses a comparative advantage in terms of skills in satisfying the demands of the jobs in that sector, or the ethnic group simply lacks the skills to meet requirements in other sectors.

The segmentation perspective argues that rather than a single labor market, we have multiple markets as a result of social structures and institutional mediation. The simplest case is a dual labor market bifurcated into primary and secondary sectors. Primary industries are those with greater power to amass surplus and thus greater leeway in providing returns to labor, while the secondary sector features blocked mobility and a limited range of income-generating activities (Averitt, 1968; Doeringer and Piore, 1971). Due to discrimination, institutional regulation and other structural factors, minorities and new immigrants tend to be over-represented in the secondary labor market (Hudson, 2003).

Other explanations are couched in a social capital approach (Loury, 1977). Social capital refers to the networks based on neighborhood, race, nativity, and gender which individuals can exploit to improve their socioeconomic status. According to this perspective, many ethnic minorities workers get into niche sectors through ethnic networking (Waldinger and Der-Martirosian, 2001; Ellis and Wright, 1999). Some employers also actively use ethnic networks to reduce the risks associated with hiring and training, which also moves certain sectors into ethnic niches (Newman, 1999).

Taken together, these studies suggest that the ethnic "niching" of the labor market is a complex outcome of personal characteristics (e.g., age, education, language fluency), job characteristics (e.g., skill levels, earnings), and social network characteristics (e.g. kinship, friendship). Yet, these explanations do not take into account the important consideration of location, both of the residence and the workplace, although there are compelling reasons to believe that geography plays important roles in the labor market process.

One example of the effect of residential location on labor market outcomes is provided by the spatial mismatch hypothesis. It suggests that minorities' residential limitation and concentration in inner cities along with their limited transportation choices inhibit their access to suburban jobs that are dispersed from those concentrations (Kain, 1968, 1992). Another example is provided by the "spatial entrapment" hypothesis which argues that women workers face spatial restrictions in their employment opportunities. Here it is argued that domestic responsibilities on women restrict their ability and willingness to search far afield for employment, thus contributing to occupational sex segregation, low wages, and lack of opportunities for advancement (England, 1993; Hanson and Pratt, 1992, 1995; Carlson, 1997; Wyly, 1999).

The impact of residential location is not only limited to commuting distance to work. It also provides an important spatial context in which information on job openings is exchanged among coethnics. On the one hand, spatial proximity with coethnics could facilitate the opportunities of working in particular labor market sectors (Bayer et al., 2004; Park, 2004). For example, many studies have shown that ethnic enclaves or neighborhoods are rich in ethnic resources leading to labor market opportunities (Wilson and Portes, 1980; Zhou, 1992). On the other hand, spatial isolation of a neighborhood may prevent social interaction with people in the open labor market and the inflow of information on employment (Wilson, 1987). As recent economic studies have shown, there is a correlation between unemployment and the socioeconomic characteristics of a particular ethnic neighborhood (Ioannides and Loury, 2004).

With the increasing literature on neighborhood effects on labor market outcomes, studies suggest that the geography of jobs also influences labor market concentration and segmentation patterns. Massey (1984) and others (Scott, 1988; Peck, 1996) argue that because the availability and characteristics of workers are not homogenous across space, different kinds of industries locate in different places depending on their labor needs. Hanson and Pratt (1995) have observed that some employers are deliberately located in certain neighborhoods to attract a certain type of labor force, which results in occupational concentration in the local labor market. Taken together, these studies suggest that the geography of residence and workplace is crucial to our understanding of ethnic labor market concentration and segmentation.

The exact nature of the influence of geography of residence and workplace on ethnic niche employment is taken up by Chapters 2 and 3. Chapter 2 links residential location to the ethnic labor market segmentation process. Chapter 3 then incorporates both geography of residence and geography of workplace into the study; in particular, it examines the role of

different spatial concentration patterns of residence and workplace in the labor market segmentation process.

Both chapters use the San Francisco Consolidated Metropolitan Statistical Area (CMSA) as a case study. In the1980s, this area was the only place in the United States where blacks, Hispanics and Asians were proportionally equal. With the continuing influx of the foreign born, Hispanics and Asians have experienced much higher growth than blacks and whites. Until 2000, whites occupied 50.6 percent, while Hispanics and Asians comprised 40.1 percent of the total population (Census Bureau, 2000). Global competition and significant technological development, particularly the "new economy" and the increasing demand for fast, global, networked activity, have transformed the San Francisco metropolitan area into a white-collar center of finance, administration, tourism, and "knowledge industries" (Javis, 2001). Therefore, the size and diversity of both population and labor market can provide an excellent case study of ethnic labor markets and the influence of geography.

Economic Consequences of Niche Employment

Regarding the socioeconomic consequences of ethnic labor market concentration, the empirical evidence remains mixed. Some researchers argue that ethnic niche workers can attain higher returns on their human capital resources and enjoy better opportunities for promotion than non-niche sector workers (Jibou, 1988; Pfeffer, 1981). Other studies suggest that low status, low wages, unstable jobs, and deplorable working conditions are associated with ethnic employment niches (Bonacich and Appelbaum, 2000; Sander and Nee, 1987; Wilson, 2003). Several recent studies further demonstrate that the concentration of minority workers in a labor market depresses earnings of all workers, net of factors such as individual characteristics and the skill

requirements of the job. This observation is typically interpreted as a "pay penalty" (Catanzarite, 2003; Catanzarite and Aguilera, 2002; Grodsky and Pager, 2001; Tam, 1997).

A number of dynamics can influence job earnings in ethnic niches, such as education level and skills possessed by workers, conditions at job-site or occupational level, discrimination, and minority workers' less political power and bargaining effectiveness (Catanzarite, 2003; Catanzarite and Aguilera, 2002). Whereas most explanations are on the individual or occupational level, one factor that is curiously missing from consideration is the nature of the metropolitan labor market.

Empirical studies have provided evidence that socioeconomic disparities between majority and minority incomes widen as the proportion of minorities in a labor market increases, and that whites usually benefit at the expense of minorities perceived as nonwhite (Cohen, 2001; Tienda and Lii, 1987; Burr et al., 1991). For example, the classic visibility-discrimination hypothesis argues that increases in minority groups will heighten the perceived economic and political threat posed to the majority, and provoke discrimination from the majority, leading to a greater gap between them (Beggs et al., 1997; Cohen, 2001; Huffman and Cohen, 2004).

Large scale immigration is changing the racial composition and demographic conditions in metropolitan areas, which is hypothesized as a major source of earning inequalities between whites and blacks. For example, Hamermesh and Bean (1998) contend that immigration has had a modest but clearly identifiable negative effect on less-skilled African-American workers' earnings. Borjas (1999) also argues that the influx of low-skilled immigrants can have negative effects on native ethnic minorities. The widely held assumption is that immigrants tend to accept lower wages, and thus displace native minorities from certain labor market sectors, lowering the wages in those sectors.

In contrast, some studies argue that the domestic labor market is sufficiently segmented so that native workers are insulated from the direct employment effects of the immigrants; further, immigrants, by taking the low-skill jobs formerly held by natives, may actually push native-born workers upward in the labor market hierarchy (Frisbie and Neidert, 1977; Reimers, 1998; Rosenfeld and Tienda, 1999; Tienda and Lii, 1987). This argument is supported by the unique mechanism through which ethnic concentrations form and persist.

At the individual and occupation level, it is a common practice in ethnic niche sectors that employers recruit new workers through the networks of current employees, or that job seekers get into ethnic niches through job referrals from their coethnic population (Park, 2004; Waldinger, 2001). At the macroeconomic level, researchers argue for an automatic process of "ethnic succession" in the job market; that is, the exit of native whites from certain employment sectors creates a sequence of job vacancies that growing populations of native non-whites and immigrants can fill (Waldinger, 1996; Wright and Ellis, 1996). Both suggest that although immigration is changing the racial composition and demographic characteristics of local labor markets, the impacts of local contexts can be different for workers in niches and non-niches, and for immigrants and natives.

Chapter 4 thus examines how the metropolitan urban labor market contexts, net of other factors, influence job earnings. Specifically, by comparing job earnings of white, black, Hispanic and Asian workers in their respective niche and non-niche sectors, it addresses two main questions: 1) How do workers in ethnic niches fare with regard to earnings when compared to those in non-niche sectors? and 2) How does the urban labor market context, especially racial composition and economic structure, influence the earnings differences between ethnic niches and non-niches, and between different racial/ethnic groups?

DATA

The research reported in this dissertation is based on statistical analysis – logistic and multilevel regression modeling -- using secondary data from the 2000 U.S. Census. Chapters 2 and 4 use the Public Use Micro Samples (PUMS). This dataset is rich in socioeconomic characteristics about individuals, such as place of birth, ethnicity, occupation, and income. The data are reported at the scale of the Public Use Microdata Area (PUMA), an area with a minimum population of 100,000. This is suitable for analyses of the questions posed in these chapters.

The geographic scale of the PUMA, however, is too coarse for examining the micro-geography of residence and work for individual workers in Chapter 3. For this chapter, therefore, I use the confidential data extracted from the 2000 Census Long Form Data for the San Francisco CMSA. Governed by strict confidentiality and disclosure rules, this data provides individual information on employment, residence, and workplace. But unlike PUMS, these data are reported at the level of the census tract which normally includes 4,000 residents. Thus, this dataset allows the simultaneous consideration of an individual's residence and workplace at the sufficiently fine scale to analyze their effects on labor market segmentation.

Overall then, this dissertation examines the role of geography in the labor market concentration and segmentation processes that lead to the formation of ethnic niches. I hypothesize that the causal factors in the ethnic segmentation of urban labor markets – personal characteristics, social capital, and structural factors – are embedded in a spatial context centered on the geography of home and work. Our understanding of the causes and consequences of labor market concentration remains incomplete so long as we do not investigate the influence of this spatial context.

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CHAPTER 2

LINKING HOME TO WORK:

ETHNIC LABOR MARKET SEGMENTATION IN THE SAN FRANCISCO CMSA[1]

[1] Q. Wang. Submitted to *Urban Geography*, 02/27/05.

ABSTRACT

Different perspectives have been offered to explain ethnic labor market concentrations. In most studies, however, residential places are seldom included in the framework of study. Using data from 5% Public Used Microdata Samples in 2000, this case study of the San Francisco Bay Area reveals that the robust growth of the new economy is dramatically segmenting the geography of jobs and thus the spatial division of labor in each ethnic group. Living arrangements, such as central-city residence and living in coethnic-concentrated-PUMAs, increase the chances of niche employment for most racial/ethnic groups, even after controlling human capital and some local context factors. However, there is a "substitution" effect between personal socioeconomic status and location factors. I argue that living arrangements can provide a mechanism through which personal characteristics, social networking, and ethnic recourses interact with macroeconomic trend, and, thus, carve out local labor market experiences across the urban space. Linking home to the framework of labor market study can greatly improve our understanding of ethnic labor market concentrations.

Key Words: labor market, ethnic niche, inequality, geography, San Francisco

INTRODUCTION

Ethnic labor market specialization or concentration into employment niches[2] has been drawing increasing attention in recent years with the huge influx of immigrant populations into the United States. Considerable efforts have been devoted to describing the extent and variation of niche employment across ethnic groups within or between regions (Ettlinger and Kwon, 1994; Logan et al, 1994, 2000, 2003; Wilson, 2003; Wright and Ellis, 2000a). At the same time, analyses of niche employment have offered different perspectives regarding the mechanisms behind labor market segmentation or concentration, such as inequality in worker human capital, social networking, employers' discriminative practices, or state regulations (Doeringer and Piore, 1971; Ellis and Wright, 1999; Hudson, 2003; Peck, 1996; Portes and Sensenbrenner, 1993; Waldinger, 1994, 1996).

Despite the accumulation of such literature, most studies examine niche formation as a result of personal socioeconomic characteristics within the constraints of metropolitan macroeconomic conditions. We still know very little about if and how the geography of residence matters in ethnic labor market concentration, although in many empirical residential segregation studies occupational attainment is examined as an important element promoting upward mobility in the housing market (Alba and Logan, 1993; Fang and Brown, 1999; Massey and Fong, 1990; Zhou and Logan, 1991a, 1991b).

The body of literature on "spatial mismatch" has suggested that living in the central city and the lack of transportation from home to work might prevent ethnic minorities, African Americans in particular, from taking jobs in certain places (Kain, 1968, 1992). Similarly, some

[2] Empirical research on ethnic labor market concentration generally deals with two types of niches: One is the ethnic minority-owned business, regarded as entrepreneurial niches or enclave economy (Razin and Light, 1998; Logan, Alba and Stults, 2003); the other is worker-dominated niches, that is, occupational or industrial sectors dominated by

researchers argue that women's spatial mobility is restricted by their family responsibilities and limited spatial mobility can influence their labor market opportunities, thus impacting niching into women-concentrated employment sectors (England, 1993; Hanson and Pratt, 1988, 1992, 1995). Further, other studies have demonstrated that the residential neighborhood can influence ethnic minorities, especially youth labor market opportunities and socioeconomic well-being (Holloway, 1996; Raphael, 1998; Wilson, 1987). More recently, studies on ethnic economies have indicated that the concentration of a coethnic population in a space can promote labor market opportunities since the spatial clustering will provide both a labor pool and a market for ethnic goods (Kaplan, 1998; Portes and Bach, 1985; Sanders and Nee, 1987; Zhou, 1992). Altogether, these studies argue for an explicit inclusion of residential locations into the study framework of ethnic labor market concentration.

Through a case study of a multi-ethnic urban labor market in the San Francisco Consolidated Metropolitan Area (CMSA), this paper seeks to examine whether residential locations matter in ethnic niche formation by tracing the linkage between home location and labor market concentration from previous studies, describing the extent and variation of niche employment across ethnic groups in the San Francisco metropolitan areas, and examining factors associated with ethnic niche employment. The final section explores the extent to which residential locations influence the labor market concentration of ethnic workers.

PERSPECTIVES ON ETHNIC LABOR MARKET SEGMENTATION

Ethnic concentration in the urban labor market has been well observed in immigrant "gateway" cities, such as Los Angeles, New York, San Francisco, and Miami (Hudson, 2003; Logan et al, 1994; Wilson, 2003). For example, Wilson and Portes (1980) note that Cuban firms

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a particular ethnic group, regardless of ownership (Ellis and Wright, 1999; Hudson, 2003; Wilson, 2003). This paper deals with the second type. See Hudson (2003) for more discussion.

in Miami are concentrated in only four or five manufacturing sectors, construction and finance, and several consumer services. In Los Angeles, Ellis and Wright (1999) found black employment niches in social services industries, health, transportation, and communication, and Mexican niches in agriculture, manufacturing, and personal services industries.

According to the neoclassical economic perspective, ethnic employment niches are natural outcomes of market forces (Wood, 1982). On the labor market demand side, employers hire workers solely on the basis of skills that they believe would maximize production and profits, regardless of race, sex, or national origin. Accordingly, ethnic concentration in certain job sectors suggests that an ethnic group possesses a comparative advantage in terms of skills or knowledge in satisfying the demands of jobs in that sector. On the supply side, given that every job requires a certain combination of skills (education, work experience, language fluency, etc.), people will choose to work in occupations that provide the highest returns, generally measured in monetary terms (Becker, 1975).

In opposition to neoclassical theorists, segmentation theorists argue that rather than a single labor market, we have multiple markets as a result of social structures and institutional mediation (Peck, 1996). The simplest case is a dual market in which the labor market is bifurcated into primary and secondary sectors. Primary industries are those with the greater power to amass surplus and thus greater leeway in providing returns to labor, while the secondary sector is comprised of low-wage, unstable jobs with limited mobility (Averitt, 1968; Doeringer and Piore, 1971). Lacking the same opportunities for stable career employment as white men, ethnic minorities, women, and new immigrants tend to emerge as the replacement group and are overrepresented in the secondary labor market. As expected by this perspective, ethnic minorities and immigrants are more disadvantaged in the open labor market competition

regardless of their education and skill levels; therefore, they have a greater tendency to concentrate at lower levels of job markets.

Perspectives that emphasize the effect of ethnic social capital argue that information about business opportunities and employment in certain sectors may be disseminated by workers in that sector to coethnic job-seekers, causing a particular occupation to become an ethnic niche. Some employers may actively use ethnic networks to reduce risks associated with hiring and training which helps to form ethnic concentration in certain job sectors (Newman, 1999; Tilly and Tilly, 1998; Waldinger, 1996). For example, Waldinger (1996) suggests that labor market niching enables ethnic minorities to compensate for background deficits and discrimination through the exploitation of the social capital embedded in their community to promote further employment.

Taken together, these studies suggest that ethnic "niching" of the labor market is a complex outcome of personal characteristics (e.g., education and language fluency), job characteristics (e.g., high earnings), and social network characteristics. However, in empirical analyses these explanations fail to consider how a worker's residential location interacts with social networks to affect niche formation.

The spatial mismatch hypothesis explicitly argues for an interrelationship between residential location and labor market outcomes. It suggests that minorities' residential limitations and concentrations inhibit their access to jobs that are dispersed from those concentrations (Kain, 1968, 1992). Similar spatial restrictions on labor market opportunities are observed for women workers. Scholars argue that the bulk of domestic responsibilities on women restrict their ability and willingness to search far afield for employment, thus contributing to occupational sex

segregation, low wages, and lack of opportunities for advancement (England, 1993; Hanson and Pratt, 1992, 1995; Wyly, 1999).

Further, some studies argue that residential locations not only determine the distance from home to work but also provide important spatial contexts upon which social networking is contingent. For example, Hanson and Pratt (1992, 1995) demonstrated that many women made use of personal contacts within neighborhoods to niche into certain job sectors in the local labor market. At the same time, employers chose to locate in certain areas to cater to the specific type of women workers. However, for those who live in ethnic minority concentrated areas, spatial isolation may prevent the inflow of information on job openings to the neighborhood; and job seekers from known ethnic residential concentrations occasionally even incur employers' discrimination (Holloway, 1996; Rapheal, 1998; Wilson, 1987).

There has been vigorous debate about the importance of enclaves for immigrant economic advancement (Wilson and Portes, 1980; Sanders and Nee, 1987). While these studies have suggested that spatial concentration is a key factor in generating employment opportunities, very few studies explicitly examine how spatial clustering of coethnic populations influences the formation of ethnic niches, particularly as these relate to individual labor market opportunities of workers.

At present, scattering characterizes the residential patterns of many contemporary immigrant/ethnic groups in the United States. For example, in not following the former migrant generations, newcomers quickly adopt a dispersed pattern of residential location due to high technology, changes in housing market conditions and globalization (Zelinsky and Lee, 1998). Another part of the story, however, is that a thriving ethnic community is not entirely divorced from specific sites. A large proportion of immigrants are still actually living in ethnic

concentrated metropolitan areas (Wright and Ellis, 2000b). Ethnic churches, business associations, culture centers, festivals, and other institutions exist as the glue holding these ethnic communities together. To a certain extent, spatial concentration of an ethnic economy is still likely encouraged by the typically segregated residential pattern of ethnic communities, which provide both a labor pool and a market for ethnic goods (Kaplan, 1998; Li, 1998; Zhou, 1998).

Therefore, I argue that where ethnic workers live is important for their opportunities of niche employment. An understanding of the influence of living arrangements on ethnic niches, however, must consider different types of ethnic concentration patterns which may go beyond small neighborhoods and spread across different spatial scales. At the same time, globalization and economic decentralization are weaving the geography of home and the geography of jobs together. In this sense, where ethnic workers live is far more than simply a point, but a space with socioeconomic characteristics under which social relations, class, gender and personal characteristics are played out.

STUDY AREA: SAN FRANCISCO CMSA

The San Francisco Consolidated Metropolitan Statistical Area (CMSA) were chosen as a case study to illustrate the effects of residential place on labor market outcome (Figure 2.1). The San Francisco Bay area shares many common features with most other immigrant "gateway" cities such as New York, Los Angeles, and Miami, but it also has very unique local contexts. San Francisco has for most of its 150-year existence been both a "refuge" and an "anomaly" (Solnit and Schwartzenberg, 2000). In the 1980s, the Bay area was the only metropolitan area where blacks, Hispanics and Asians had the same population proportion (Laguerre, 2000; Massey and Fong, 1990). With the continued influx of the foreign-born, however, Hispanics and Asians have increased their portions of the metropolitan population. By 2000, whites were 50.6% of the total

metropolitan population, while blacks, Hispanics and Asians were, respectively, 7.8%, 19.7%, and 20.4% of the total population (Census Bureau, 2000). This unusual degree of ethnic diversity and the tradition of tolerance may mitigate discrimination and prejudice against ethnic minorities, affording them greater freedom in occupation and location choice.

Global competition and significant technological development, particularly the "new economy" centered in Silicon Valley and the increasing demand for fast, global, networked activity, have had a profound impact on the San Francisco Bay area in recent years in terms of the number, distribution, and quality of job opportunities (Javis, 2001). The Bay area has experienced one of the fastest rates of suburban employment growth in the country during the 1980s, mainly in the form of sub-centering and highlighted by the emergence of major suburban employment agglomerations in Silicon Valley, Pleasanton, San Ramon and the San Francisco International Airport area. This has produced a highly segmented housing market along the hierarchy of different employment centers where people work (Cervero and Wu, 1998).

Due to the urban structure and transportation system in the Bay area, the higher priced housing tends to deter workers of all occupational classes from taking up residence near those old, slow-growth employment centers in highly urbanized areas. Long commutes from home to work across an arbitrary statistical boundary are very common. Selecting any one of the Primary Metropolitan Statistical Areas (PMSA) that comprise the region also means losing significant information. Therefore, the geographical unit of Consolidated Metropolitan Statistical Area (CMSA) was chosen for this study.

Most studies have been done on the labor market segmentation or residential segregation in places like New York and Los Angeles. The common features of the San Francisco Bay area shared by other "gateway" areas as a global mega city being transformed by socioeconomic

diversities can add much insight on our understanding of ethnic labor market concentration and segmentation. At the same time, the unique culture, history, and urban structure have made San Francisco Bay area a telling and multifaceted laboratory where we can understand the logic of how different ethnic groups manage between housing market and labor market, between ethnic distinctiveness and the vast and expanding network of the globalizing world.

DATA AND METHODOLOGY

The data for this study is extracted from 5% Integrated Public Used Microdata Samples (Ruggles et al, 2004) for the San Francisco CMSA. I restrict the sample to the labor force employed in the civilian employment sectors, not in school, and aged between 16 and 64. I disaggregated the dataset into non-Hispanic whites, non-Hispanic blacks, Hispanics, and non-Hispanic Asians[3].

Identifying Employment Ethnic Niches

To identify ethnic niches I first define the employment sector, the basic unit of observation for analyzing ethnic niche employment in this analysis. Most researchers categorize employment sector by industry or occupation alone (Ellis and Wright, 1999; Logan and Alba, 1999; Logan et al, 1994, 2003; Waldinger, 1996; Wright and Ellis, 2000a), but labor market specialization can vary both by occupation within industries and by industry within occupations. In most recent studies, for example, Hudson (2003) and Wilson (2003) used a cross-combination of industry and occupation, but with different numbers of breakdowns. The number of breakdowns is arbitrary, however, mainly depending on the size of the regional labor market and working populations. Too broad a classification will eliminate information and too narrow a classification

[3] Due to the complexity and ambiguous categorical usage of race and ethnicity (for detailed discussion, see Hamilton and Form, 2003; Wilson, 2003), I understand that there is significant variation within each racial and ethnic group in terms of distinctiveness in religion, culture, ancestry origin and physical appearance. Additionally, mixed-race individuals are making such categorization more problematic and complicated. Nevertheless, these racial and ethnic categories are still significant in understanding niche employment, as shown in many previous studies (Hudson, 2003; Logan et al, 2003; Wilson, 2003; Wright and Ellis, 2000a).

will create many sectors with zero employment: for example, the occupations of healthcare, education, art and entertainment within the industry of farming, forestry, and fishing.

In this analysis I use a combination of industrial and occupational sectors. A 19-category breakdown of industrial sectors and 24-category breakdown of occupations produce a total of 456 crossed-classification sectors. There are 416 sectors remaining in the analysis after eliminating 40 sectors with zero employment. It is worth noting that separate models using industrial and occupational categories alone were run and a large difference in predicting models was not found. Among the three usages of "employment sector", the cross-combination method is the most robust, except Model 2 for Asians. Significant differences will be discussed further on, as necessary.

I defined an ethnic niche using a typical odds ratio[4] which is given by:

$$\text{Odds Ratio} = (Ei / Et\text{-}i) / (Oi / Ot\text{-}i) \qquad (1)$$

The numerator represents the odds of a worker belonging to ethnic group *E* being engaged in sector *i*, and the denominator represents the odds of a person from any other ethnic group (*O*) working in the same sector *i*. For example, if *Ei* is the number of Chinese in the food service, *Et-i* represents Chinese workers in all other occupations, *Oi* is the number of non-Chinese workers in food service sector, and *Ot-i* represents the non-Chinese workers employed in non-food service sectors.

Consistent with previous studies, an ethnic niche is defined as one in which the odds ratio is 1.5 or greater. Additionally, in order to prevent a bias resulting from very small numbers, I stipulate that an ethnic niche has to be at least 50% of the average size of all employment

[4] The measurement of odds ratio was used in previous studies (Logan et al., 1994, 2003; Wilson, 2003), but representation index and location quotient have also been used (Ellis and Wright 1999; Hudson, 2003; Rosenfeld and Tienda, 1999; Logan et al., 2000). Compared to the representation index and location quotient, the odds ratio is

sectors[5]. For example, in our case the average size of an Asian employment sector is 1337 workers (a total 556097 Asian workers divided by 416 sectors). An Asian niche must then have at least 668 (50% of 1337) Asian workers and an odds ratio equal to or greater than 1.5[6]. Ethnic niches are also identified for whites. Here the term of "white niches" simply refers to the labor market where white workers are highly concentrated for comparison with other ethnic groups. However, it should be noted that the process whereby white population concentrates in a sector is very different from that for ethnic minorities.

Identifying Ethnic-Concentrated PUMAs

Designed by the Census Bureau to protect the confidentiality of long-form respondents, Public Used Microdata Areas (PUMA) include at least 100,000 residents. Figure 2.1 gives the boundary map of cities, PUMAs, and counties in the San Francisco CMSA. Compared with the census tract, a much smaller geographical unit with normally 4,000 residents and commonly used for residential segregation studies, PUMAs are too large to be regarded as "neighborhoods". Although fine scale data is desirable for investigating different spatial forms of ethnic concentration patterns, PUMAs are the smallest geographical unit from publicly available datasets which provide both personal socioeconomic and employment information and the geography of residential locations.

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more sensitive to the change of employment distribution, although the implication of the odds ratio is similar. Please refer to Rosenfeld and Tienda (1999, appendix) for more discussion.

[5] Both the threshold value of 1.5 and the minimum restriction (50% of the average size) are arbitrary. In previous studies the threshold for defining an ethnic niche was between 1.2 and 2.0 (e.g., Ettlinger and Kwon, 1994; Hudson, 2003; Wright and Ellis, 2000a), but they are all arbitrary in nature. We should be aware that choosing a threshold level *a priori* is risky because the range of values depends on the number of sectors, groups, and the size of the sample. For the restriction on minimum number of workers, some studies use absolute number: for example, at least 300 or 500 workers in niche sector (Wilson, 1999, 2003). However, I believe that a percentage measure is more preferable than an absolute value to reflect the nature of ethnic labor markets, since the size of the labor force and their share of each sectors vary greatly across ethnic groups. There are more detailed discussions elsewhere on different usages of employment sector, threshold of odds ratio, and the minimum worker restrictions. Interested readers can contact the author for more details.

[6] The threshold value of the minimum workers for whites is 2063, for blacks is 215, and for Hispanics is 581.

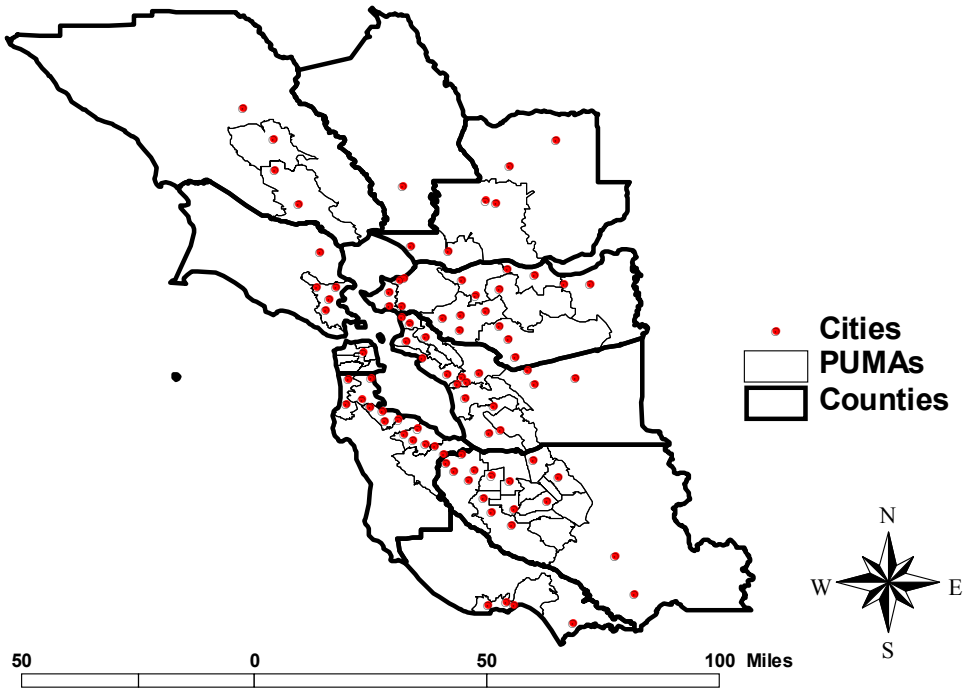


Figure 2.1. Boundary Map of San Francisco CMSA: Cities, PUMAs, and Counties

Although the large geographical scale makes this analysis experimental in nature, it does not necessarily preclude the utilization of PUMA. As discussed above, due to increased personal mobility and diversity of communication, the existence and maintenance of ethnic communities can spread across different scales of residential area, such as blocks, tracts, counties, city-regions, and even nationwide (Zelinsky and Lee, 1998; Wright and Ellis, 2000b). Notably, even the boundaries of blocks, tracts, counties, or cities can be arbitrary for the meaning of "neighborhood" (e.g., Guest and Lee, 1984). Therefore, spatial clustering at the PUMA level can represent ethnic communities to some extent. Indeed, spatial concentration at the PUMA level can reveal the main ethnically concentrated areas at the census tract level (See Appendix. The concentration pattern at the census tract level is calculated in the same way as that at the PUMA

level). Results from this analysis also support the conclusion that, even at the PUMA level, living in coethnically concentrated areas can have a profound influence on working in ethnic niches.

The coethnic-concentrated PUMAs are identified in the same manner as employment ethnic niches. In identifying ethnic employment niches, observations are restricted to employed workers only. Because a neighborhood or community exists quite beyond the employed workers, however, to identify ethnic concentrated PUMAs I extend respondents to the entire ethnic population, including both workers and family members. Again, an odds ratio (Formula 1) is used for measurement. If the ratio between the odds of people in ethnic group *E* living in PUMA *i* and the odds of other ethnic groups living in the same PUMA is not less than 1.5, PUMA *i* meets the first criteria. Secondly, the percentage of coethnic population in this PUMA must be above the average percentage in the whole metropolitan area. For example, if the percentage of whites in the entire study area is 53%, a white-concentrated PUMA must have a proportion of whites greater than 53% (In fact, the average percentage of the coethnic population in identified ethnically concentrated PUMAs in this study is much higher than the total average).

Logistic Regression Modeling

Logistic regression models were employed for each group to examine socioeconomic factors associated with the probability of working in niche sectors. The logistic regression model is defined by

$$\text{Ln}\,[(P=1)/(1-P=1)] = \alpha + \beta X$$

where the left side is the natural logarithmic form of the probability of working in ethnic niches versus non-niches, X is the matrix of independent variables predicting the probability of niche employment (Table 2.1 gives the main variables and coding strategy), and β is the set of parameters.

In step one, the choice model examines how personal socioeconomic characteristics influence the chances of working in ethnic niches. Age, gender, marital status, language ability, and the level of education are common measurements in labor market competition. At the same time, as previous studies have suggested, foreign-born status and length of stay in host society for immigrants can have particular effects on the chances of working in ethnic niches (Ellis and Wright, 1999; Hudson, 2003; Porte and Jensen, 1989; Wang, 2004). Other factors such as high earnings and self-employment are also expected to relate to niche employment (Razin and Light, 1998).

Table 2.1 Independent Variables for Predicting Niche Employment

Independent Variables	**Coding**
Personal Characteristics	
Age	Continuous; in 10 years
Female	Dummy; female = 1
Married	Dummy; being married = 1
Degree	Dummy; bachelor's degree = 1
English	Dummy; poor English = 1
Foreign Born	Dummy; foreign born = 1
Recent immigration	Dummy; immigrate after 1995 = 1
Earning	Continuous; in thousand
Self-employed	Dummy; self-employed = 1
Location Factors	
Travel Time	Continuous; travel time to work, in 30 minutes;
Diversity	Continuous; measure by the value of Entropy Index (note 6)
Central	Dummy; living in central city = 1
San Francisco	Dummy; living in the PUMA which houses the city of San Francisco =1
Oakland	Dummy; living in the PUMA which houses the city of Oakland =1
San Jose	Dummy; living in the PUMA which houses the city of San Jose =1
Concentrate	Dummy; living in a coethnically concentrated PUMA = 1

Residential location factors are introduced in step two of the analysis. The effects of residential concentration at the PUMA level on niche employment are of particular interest. Ethnic social network perspectives suggest the hypothesis that living in a coethnically concentrated area can provide more availability of working in ethnic niches, especially for those who may not be able to compete in the open labor market, such as the newly immigrated. At the same time, other characteristics at each PUMA, viz., travel time from home to work, ethnic diversity[7] at PUMA level, and central city residency are controlled. Since the data does not allow for differentiating in which central city the respondent is living, PUMAs that contain the major cities of San Francisco, Oakland, and San Jose are used as the proximate variables to examine the influence of mega cities in the San Francisco Bay Area (see Table 1 for the coding strategy).

FINDINGS AND DISCUSSION

Patterns of Ethnic Concentration in the San Francisco CMSA Labor Market

Consistent with the diversity of socioeconomic status, each ethnic group has demonstrated very different concentration patterns in the labor market (See Table 2.2. The full table of odds ratios is available from the author on request). The white majority is concentrated in education, management, office and administrative support, and legal occupations in education, professional and scientific industries. Although more than 3% of the white labor force is in the manufacturing industry, they are in management occupations. These sectors generally require higher formal education, high English proficiency and tense competition in the open labor market. By contrast, Hispanics are more concentrated in the industries of construction, manufacturing, accommodation and food services, and agriculture, which generally contain labor-intensive

[7] Ethnic diversity is measured by the entropy index, which is defined as: $G=[-\sum_i P_i \ln(P_i)]/\ln(k)$ where P_i is the proportion of ethnic group i in each PUMA and k is the number of groups analyzed. G ranges from 0 to 1. A tract with a 0 value indicates that everyone living in that tract is of the same racial/ethnic group. Tract diversity values closer to 1 are more racially diverse than tracts with values closer to 0 (Ellis and Wright, 1999).

occupations, such as construction, production, personal service and farming. Although they have high percentages in the management industries, their occupations are at the lowest-skilled levels, such as building, moving, protective services and ground cleaning. This pattern justifies the cross-classification of industrial sectors and occupations to identify different types of ethnic niches within the same industries.

Table 2.2. Top Five Ethnic Niches for Each Group

Groups	Ethnic Niches		%[1]	Odds Ratio
	Industry	**Occupation**		
White	Education	Education, Training, and Library	5.20	2.6
	Manufacturing	Management occupation	3.35	2.0
	Profession, Scientific	Management occupation	2.41	2.4
	Profession, Scientific	Office and Administrative Support	1.74	1.5
	Profession, Scientific	Legal Occupation	1.62	3.3
Black	Transportation/Warehouse	Transportation and Material Moving	4.83	3.4
	Transportation/Warehouse	Office and Administrative Support	3.21	2.5
	Healthcare, Social Service	Healthcare Support	2.71	2.6
	Finance, Insurance	Office and Administrative Support	2.70	1.9
	Public Administration	Office and Administrative Support	2.43	3.3
Hispanic	Construction	Construction Trade	9.31	3.0
	Manufacturing	Production	7.68	2.1
	Accommodations & Food Services	Food Preparation/Serving	7.27	3.6
	Management	Building, Grounds Cleaning, Maintenance	5.56	9.1
	Agriculture, Forestry, Fishing and Hunting	Farming, Fishing, & Forestry Occupations	2.50	33.5
Asian	Manufacturing	Production	8.72	2.7
	Manufacturing	Architecture and Engineering	4.75	3.4
	Healthcare, Social Service	Healthcare Practitioners and Technical	4.52	1.5
		Computer and Mathematical		
	Profession, Scientific,	Computer and Mathematical	4.44	2.8
	Manufacturing		3.00	3.1

[1]Percentage of total workers of each ethnic group.

Apart from 5% of workers in transportation and material moving occupations in the transportation and warehouse industries, the majority of the black labor force is concentrated in

office and administrative support, healthcare support occupations in the industries of healthcare, social service, finance and insurance, and public administration industries. The office support sectors generally require certain levels of education and English proficiency, but not necessarily a college degree and high-tech skills. In this regard, Asians demonstrate a "higher" profile: besides production, they are concentrated in occupations such as architecture and engineering, healthcare practitioners and technicians, and computer and mathematical specialists. However, Asians are still engaged in the manufacturing industries, unlike whites who concentrate in similar occupations but more in professional, management and administrative industries.

Overall, there is an obvious hierarchy in the labor market divided by race and ethnicity. White niches and Hispanic niches occupy the high and low ends of the labor market in terms of skill levels and socioeconomic status. Asian and black niches are more diverse and occur in both higher and lower skill sectors. Asians, however, have a much higher status than blacks who have an employment profile more similar to Hispanics.

Understanding Ethnic Niche Employment

Table 2.3 indicates the parameter estimates of logistic regression models (segmented by the four ethnic groups) in which the probability of working in ethnic niches is predicted as a function of personal socioeconomic characteristics (Model 1) and residential location status (Model 2). The test indicates the improvement of goodness-of-fit for model 2 for all cases. This indicates that residential locations are important for predicting the probability of working in ethnic niches, although the effects vary across groups.

Human capital plays an important role in labor market niche employment. For example, consistent with the concentration hierarchy of each group, having a college degree helps whites and Asians niche into job sectors with "high" status, and could help blacks and Hispanics move

Table 2.3 Coefficients of Logistic Regression Models to Predict Probability of Working in Ethnic Niches

Variable	White		Black		Hispanic		Asian	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age	0.040***	0.048***	0.121***	0.114***	-0.016	-0.014	-0.134***	-0.125***
		(1.05)		(1.12)				(0.88)
Female	0.470***	0.471***	0.384***	0.358***	-1.243***	-1.246***	-0.183***	-0.170***
		(1.60)		(1.43)		(0.29)		(0.84)
Married	0.121***	0.157***	-0.033	-0.017	0.079*	0.067*	0.181***	0.137***
		(1.17)				(1.07)		(1.15)
Degree	1.139***	1.102***	-0.619***	-0.579***	-1.791***	-1.766***	0.584***	0.567***
		(3.01)		(0.56)		(0.17)		(1.76)
English	-0.477***	-0.483***	-0.249	-0.167	1.138***	1.119***	0.172***	0.258***
		(0.62)				(3.06)		(1.29)
Foreign	-0.206***	-0.211***	-0.290**	-0.229*	0.972***	0.975***	0.619***	0.549***
Born		(0.81)		(0.80)		(2.65)		(1.73)
Recent	-0.105	-0.106	0.17	0.207	0.270***	0.269***	0.332***	0.287***
						(1.31)		(1.33)
Earning	0.005***	0.005***	-0.005***	-0.004***	-0.020***	-0.019***	0.003***	0.002***
		(1.01)		(1.00)		(0.98)		(1.00)
Self-Employed	0.244***	0.227***	-0.935***	-0.937***	0.537***	0.536***	-1.068***	-1.051***
		(1.25)		(0.39)		(1.71)		(0.35)
Travel		0.001		0.021		-0.022		-0.032
Diversity		-0.550***		0.712**		-0.505***		-0.273*
		(0.58)		(2.04)		(0.60)		(0.76)
Central		0.317***		0.166**		-0.153**		-0.651***
		(1.37)		(1.18)		(0.86)		(0.52)
San Francisco		0.062		0.058		-0.073		0.320*
								(1.38)
Oakland		0.376***		-0.123		0.128		-0.01
		(1.46)						
San Jose		0.284***		0.096		0.035		0.659***
		(1.33)						(1.93)
Concentrate		-0.064*		0.264***		0.172***		0.369***
		(0.94)		(1.30)		(1.19)		(1.45)
Constant	-1.759***	-1.421***	-0.611***	-1.396***	0.364***	0.706***	-0.842***	-0.650***
-2Log	-51566.5	-51450.3	-5341.1	-5308.0	-11869.8	-11847.1	-17132.8	-16927.9
chi2	10554.28	10787.1	419.325	485.533	8357.661	8402.995	1879.528	2289.394
r2_p	0.093	0.095	0.038	0.044	0.26	0.262	0.052	0.063
N	84152	84152	8157	8157	23158	23158	26823	26823

[1]Significance levels: * p<0.05; ** p<0.01; *** p<0.001
[2]Numbers in parentheses for model 2 are odds ratios (= *exp*(*β*)) of significant predictors.

out of semi- or unskilled, labor-intensive niche sectors. Having a bachelor's degree, for example, can decreases the odds of working in ethnic niches for Hispanic workers by nearly 85% [1- exp(-1.766)].

Positive coefficients for poor English speaking ability, foreign-born status, and recent immigration reemphasize that disadvantaged workers tend to be more concentrated with coethnic workers in the labor market. For example, poor English speaking Hispanics are 3.1 times more likely to work in ethnic niches than fluent English speakers when other conditions are equal. Additionally, foreign-born Asian workers are 1.6 times more likely to working in ethnic niches than the native born Asian workers. These results are consistent with findings from other cities (Hudson, 2003; Wang, 2004).

To a large extent, human capital and personal socioeconomic status determines what type of job a worker can take. However, location factors are still robust predictors of niche employment after controlling human capital factors. Living in coethnic concentrated PUMAs increases the likelihood of working in ethnic niches by a factor of .369 for Asians, .264 for blacks, and .172 for Hispanics, when all other variables are kept constant. However, living in white-concentrated PUMAs has a negative effect on whites when they choose to work in white niches, although the effect is pretty slight[8]. Figure 2.2 shows the discrete effects of living in coethnic concentrated PUMAs on the probability of labor market ethnic niches for each group, separately for men and women.

[8] When the Industrial sector is used as "employment sector" to identify ethnic niches and perform logistic regression, the coefficient of living in ethnic PUMAs is -.127 for whites, .245 for blacks, .151 for Hispanics, and .593 for Asians.

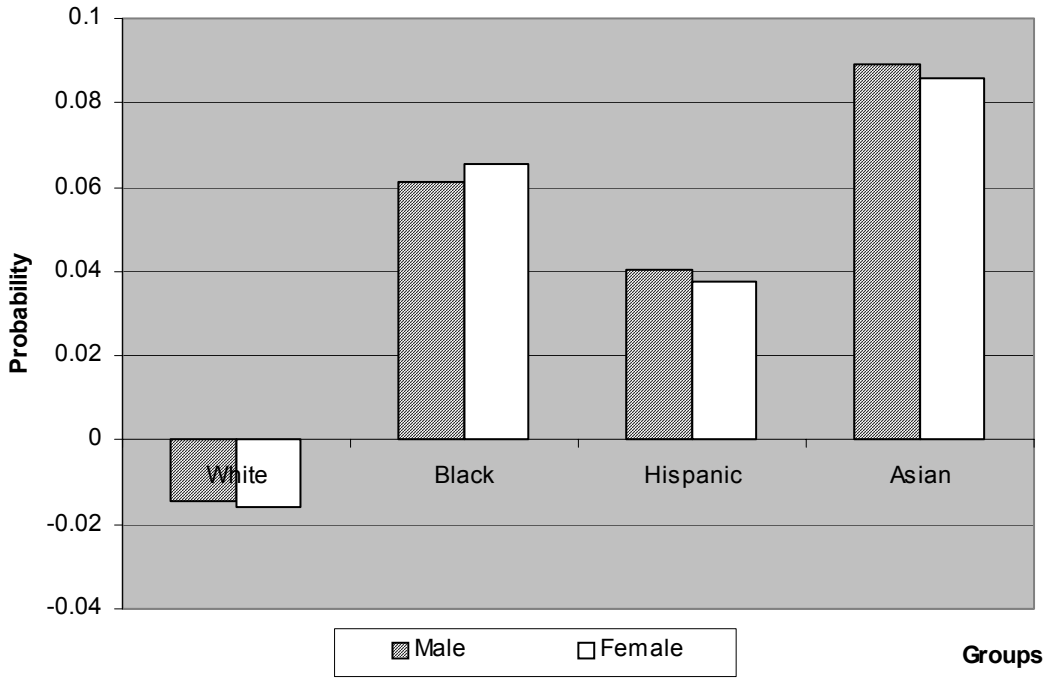


Figure 2.2. Discrete Effects of Living in Coethnic-Concentrated PUMAs on Probability of Working in Ethnic Niches

Paralleling the effects of foreign-born status, length of stay in the U.S., and English ability on niche employment, coethnic concentrated PUMA areas are more associated with ethnic minorities who are young, single, and have with less human capital and lower job earnings for black and Hispanic workers. Asian workers living in coethnically concentrated PUMAs did not show disadvantages in educational attainment and job earnings; however, similar to Hispanics, Asian-concentrated PUMAs house more workers who are foreign-born, new immigrants, and central city residents. The linkage between disadvantages and residential ethnic concentration is consistent with the hypothesis that living with a coethnic population could help ethnic minorities, especially immigrants, niche into certain labor market sectors.

Other location factors have also shown a significant influence on labor market niche employment. Higher ethnic diversity in a residential area decreases the possibility of working in ethnic niches for white, Hispanic and Asian workers, which suggests that living with a population from different ethnic groups can provide more job opportunities which are not necessarily ethnic niches. For blacks, however, living within ethnically diversified PUMAs increases the likelihood of working in black job niches[9].

The effects of central-city-residency show a distinct industrial division of labor between native works and immigrants. Living in the central city decreases the probability of working in ethnic niches for Hispanic and Asian workers, but increases the probability for whites and blacks. For example, living in central cities decrease the odds of working in ethnic niches for Asian by nearly 50% [1- exp(-0.651)], but increases the probability for whites by almost 40%. Recalling the labor market concentration patterns discussed above, we can easily understand the effects of geography of jobs. Asian workers in manufacturing industries are 45% of all ethnic niche workers; Hispanic workers in the industries of farming, mining, construction, manufacturing, and personal services such as food and accommodation are 71% of all niche workers. Whites and blacks, however, are more concentrated in industries such as professional, education, healthcare and social services, although the skill levels of occupations for these two racial/ethnic groups are very different. Figure 2.3 gives the combination effects of ethnic diversity and central-city-residency on niche employment.

Living in proximity to large cities also has an obvious influence on white and Asian workers. For example, white workers who are living near to the city of Oakland are more likely to work in white niches by a factor of .376 when holding other conditions consistent. Asians

[9] When occupation is used as job sector to identify ethnic niches, the coefficient of ethnic diversity for blacks is as high as 1.141.

living near San Jose have almost twice the likelihood of working in Asian niches than those living further away. This finding is consistent with the large proportion of Asian and white labor force concentrating in the job sectors of the "new economy" that are centered on Silicon Valley or decentralized into suburban areas around the bay.

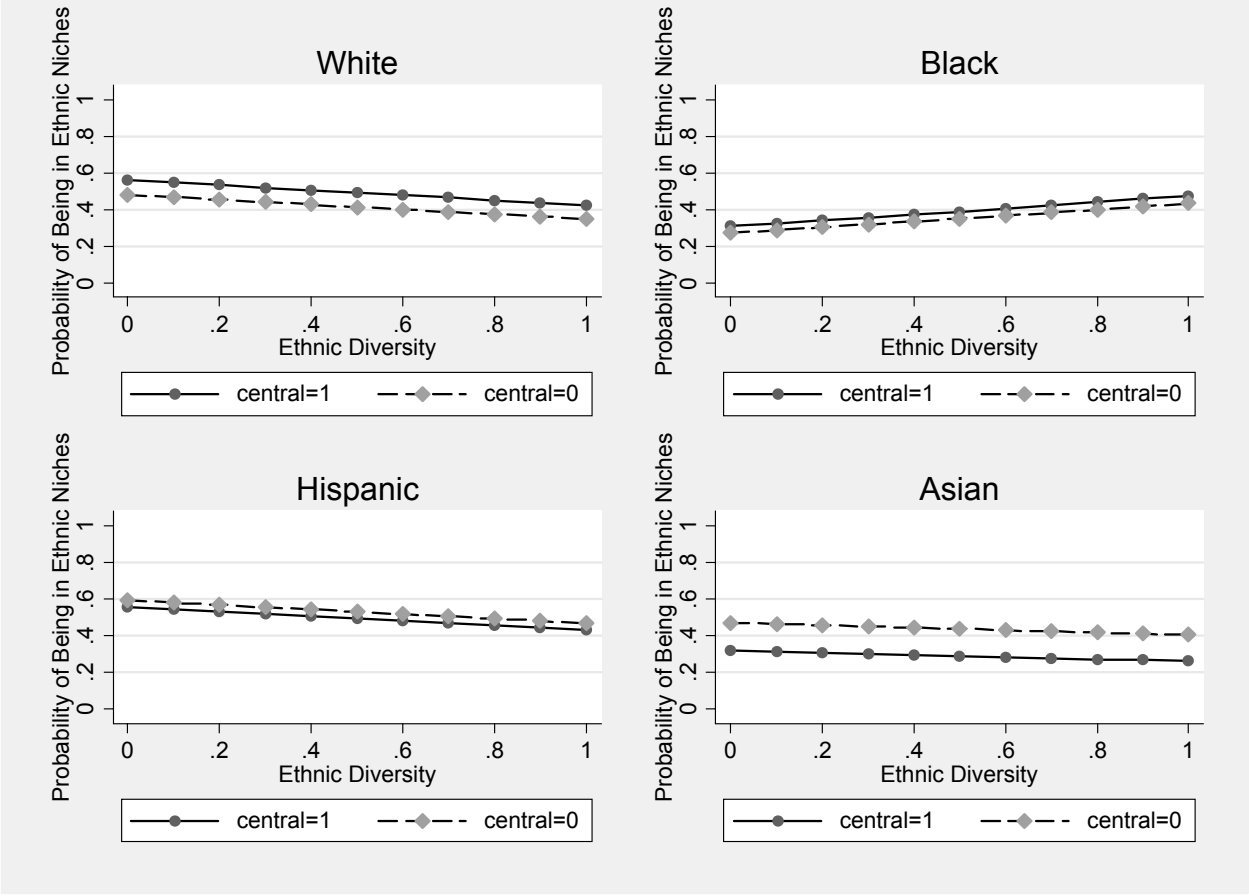
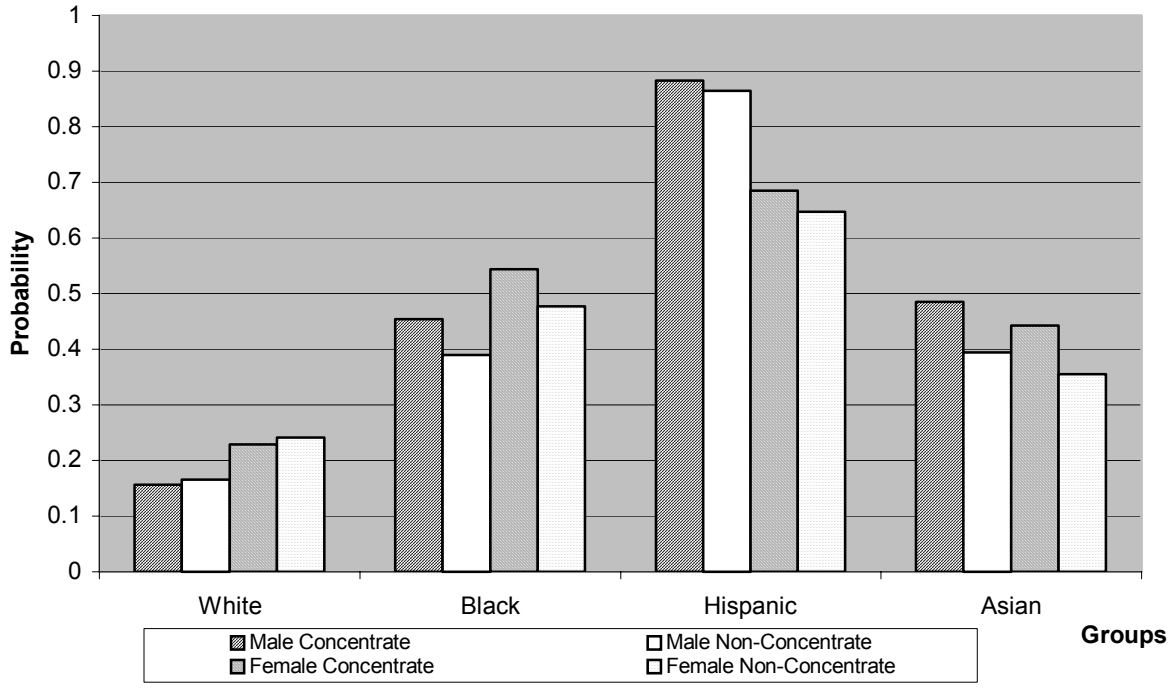


Figure 2.3. Effects of Ethnic Diversity and Central City Residency on Probability of Working in Ethnic Niches

Overall, living in coethnically concentrated areas can provide a medium through which ethnic workers concentrate into certain labor market sectors, especially for those who are disadvantaged in the open labor market. This suggests the possibility of ethnic resources in

ethnically concentrated areas which help labor market niche formation. However, the effects of location factors are contingent. For groups with high or extremely low human capital, such as whites and Hispanics, the effects of residential concentration are negligible on their niche employment. At the same time, other socioeconomic aspects of the local contexts, such as racial/ethnic components of local labor market, and the changing geography of jobs under macroeconomic restructuring, have also been transforming the ethnic labor market concentration patterns. Figure 2.4 compares the predicted probability of working in ethnic niches between those who live in coethnically concentrated PUMAs and those who do not, for a hypothetical worker without a college degree, who cannot speak English well, is foreign-born and newly immigrated, not self-employed, and living in the central city of San Francisco, separately for men and women.



Finger 2.4. Predicted Probability for an Ideal Type of Worker

CONCLUSIONS

As observed in many other metropolitan areas (Hudson, 2003; Logan et al, 2000; Wang, 2004; Wilson, 2003), inequality and segmentation along ethnic divisions clearly exist in the San Francisco CMSA labor market in terms of skill levels, job earnings, stability and working conditions. Whites are generally concentrated in capital-intensive and knowledge-intensive core sectors; blacks and Hispanics concentrate at the bottom of ladders made up of semi- or low-skilled and labor-intensive jobs; and Asians see both high and low circuits of labor market concentrations.

Like other global cities, the growth of a new economy in the San Francisco Bay area, that demands laborers at both the high (such as high education and high technology) and low (such as personal services) ends, is dramatically segmenting the geography of jobs and thus the spatial division of labor in each ethnic group (Massey, 1984; Parrenas, 2001; Scott, 1988).

Living in coethnically concentrated PUMAs increases the possibility of niche employment for most racial/ethnic groups, even after controlling human capital and some local context factors. This may be interpreted as the effect of ethnic resources existing among ethnic communities. In line with the classic argument that people will migrate following jobs (Alonso, 1964; Sunquist, 1975), occupational attainment is treated as a causal factor of residential mobility in many studies (Alba and Logan, 1993; Fang and Brown, 1999; Massey and Fong, 1990; Zhou and Logan, 1991a). Findings from the present study indicate that another rationale can exist as well: spatial proximity with coethnics may provide a mechanism through which personal characteristics, social networking, and ethnic resources interact within a local context and carve out local labor market outcomes.

In San Francisco's urban context, however, human capital still provides strong parameters in predicting niche employment, although effects differ among groups. There are "substitution" effects within a labor market between personal socioeconomic status and location factors. Although social contacts through living arrangements can provide more work opportunities in certain job sectors, the types of jobs a social network can reach are largely determined by the skill level requirements of local labor markets. Whether ethnic niche employment is "good" or "bad" (in terms of job pay, working conditions, and upward mobility) for any particular worker is contingent upon how ethnic workers use their personal socioeconomic resources and coethnic social capital to leverage job opportunities within the confines of local labor market contexts.

This study may contribute to our understanding of ethnic labor market concentration and segmentation. Although previous studies have paid attention to the influence of distance from home to work on labor market outcomes, little work has empirically examined the effect of geography of residence on ethnic labor market concentration, particularly in the multi-ethnic/racial urban space. This study confirms that residential locations do influence the chances for niche employment. At the same time, it raises more questions. What specifically are the mechanisms of residential locations in shaping labor market concentration and segmentation for each group? How does the geography of home shape the geography of work, or they are shaped by each other? Answering these questions with better data at smaller scales will benefit both theoretical understanding about niche employment and urban policies geared to achieve labor market equity among multiple ethnic/racial groups.

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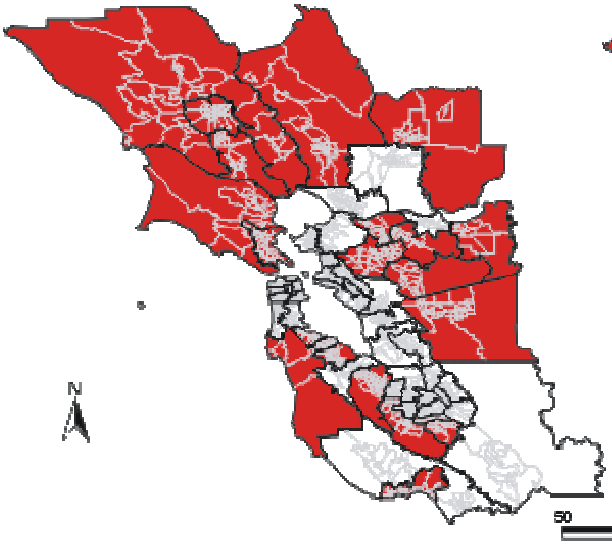
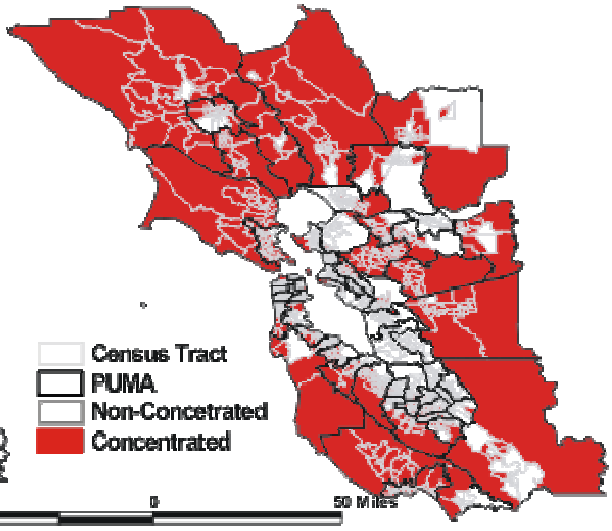
APENDICES

Appendix 2.1. Classification of Employment Sectors: 19 Industrial Sectors and 24 Occupations

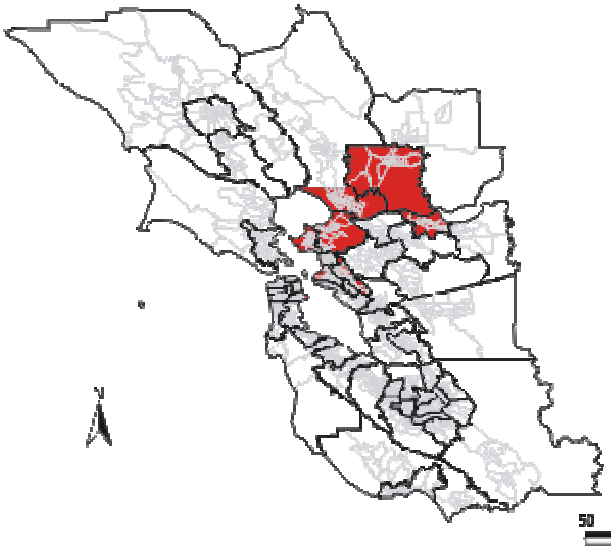
Industrial Sector	Occupation
Agriculture, Forestry, Fishing & Hunting	Management Occupation
Mining	Business Operations Specialists
Utilities	Financial Specialist
Construction	Computer & Mathematical Occupations
Manufacturing	Architecture & Engineering Occupations
Wholesale Trade	Life, Physical, & Social Science Occupations
Retail Trade	Community & Social Services Occupations
Transportation & Warehouse	Legal Occupation
Information & Communication	Education, Training, & Library Occupations
Finance & Insurance	Arts, Design, Entertainment, Sports, & Media Occupations
Real Estate, Rental & Leasing	Healthcare Practitioners & Technical Occupations
Profession & Scientific	healthcare Support
Management	Protective Service
Education	Food Preparation & Serving
Healthcare& Social Service	Building & Grounds Cleaning & Maintenance
Arts, Entertainment & Recreation	Personal Care & Service Occupations
Accommodations & Food Services	Sales Occupation
Other Services	Office & Administrative Support Occupations
Public Administration	Farming, Fishing, & Forestry Occupations
	Construction Trade
	Extraction Workers
	Installation, Maintenance, & Repair Workers
	Production
	Transportation & Material Moving Occupations

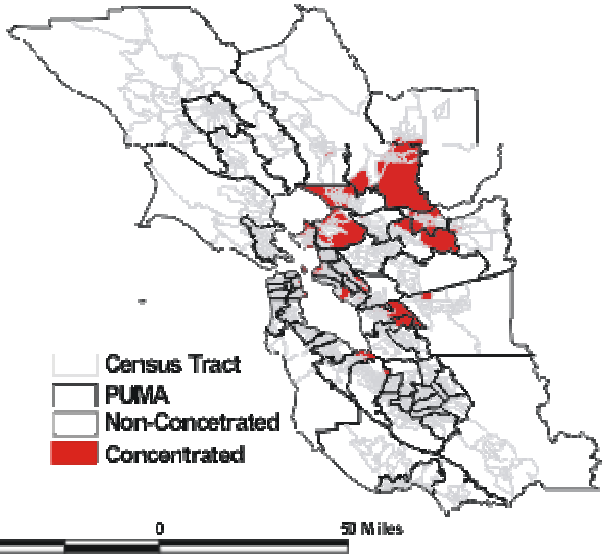
Appendix 2.2. Map of Concentration at Level of PUMA and Census Tract for Each Group



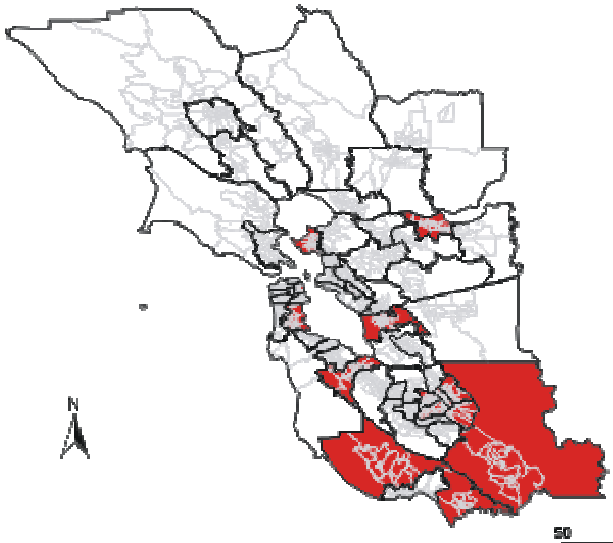


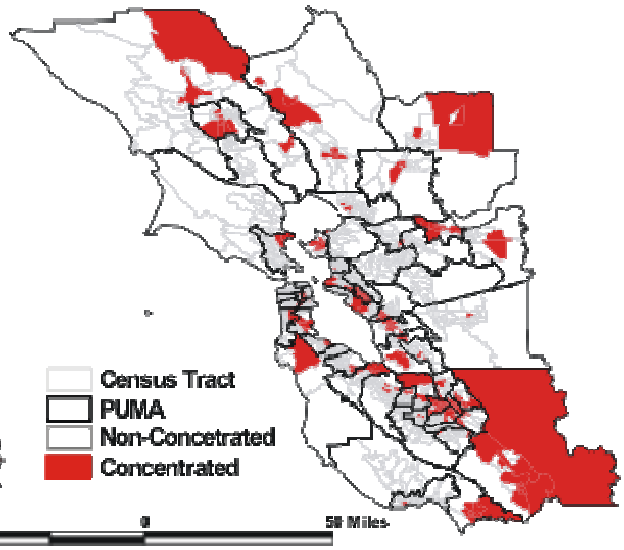
A1. White PUMA **A2. White Census Tract**



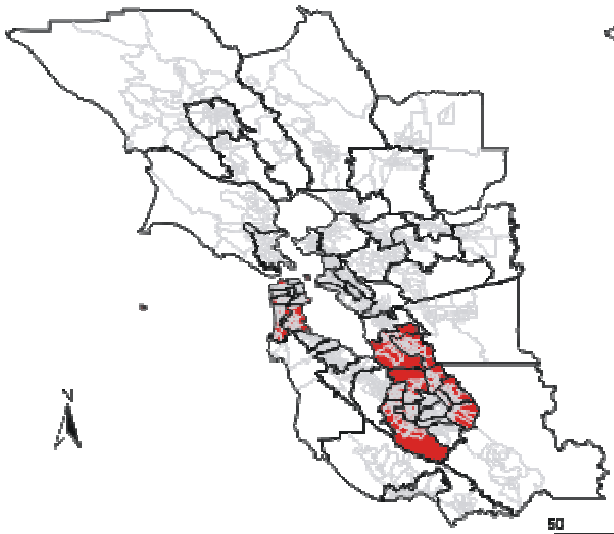


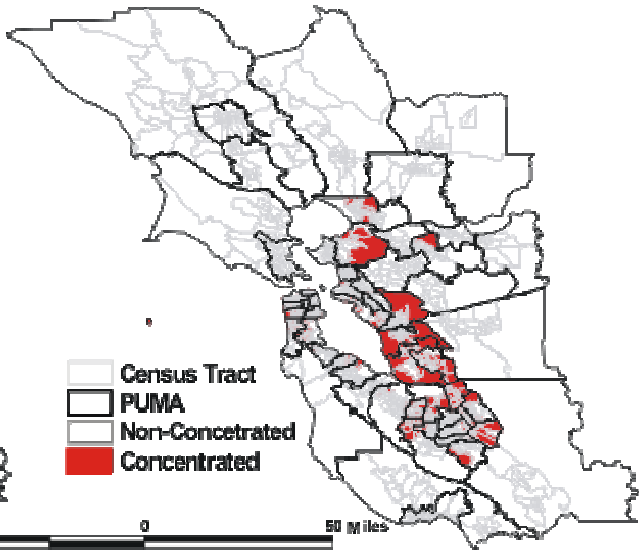
B1: Black PUMA **B2: Black Census Tract**





C1: Hispanic PUMA **C2: Hispanic Census Tract**





D1: Asian PUMA **D2: Asian Census Tract**

CHAPTER 3

HOW DOES GEOGRAPHY MATTER IN ETHNIC LABOR MARKET SEGMENTATION PROCESS? A CASE STUDY OF CHINESE IMMIGRANTS IN THE SAN FRANCISCO CMSA[10]

[10] Wang, Q. To be submitted to *Economic Geography*.

ABSTRACT

With the continuing influx of a large number of immigrants to the United States, the urban labor market segmentation along the lines of race/ethnicity, class, and gender has been drawing considerable attention in recent years. The prevailing literature suggests that personal characteristics, human capital, discrimination, ethnic networking, and institutional regulation are all associated with the creation of ethnic niches – occupations and industries dominated by a particular ethnic/racial group. However, very few studies have analyzed how geography influences this process. This study presents a case study of Chinese male and female immigrants in the San Francisco metropolitan area and examines how the geography of Chinese residences and workplaces influence their decision to work in ethnic niches. The study uses a confidential dataset extracted from the Decennial Long Form Data 2000 and a multilevel regression modeling strategy. The results show that in the San Francisco Bay area, living in Chinese residential concentrations and working in Chinese dominated work sites are strongly related to the probability of niche employment. The residential concentration effect is a greater predictor for women while the workplace concentration is an important predictor for men. The results suggest that abundant ethnic resources in ethnic neighborhood and enclaves can provide certain types of labor market opportunities; however, it also indicates the limitation of these resources in helping ethnic minority or immigrant workers, especially women, to move upward in the labor market hierarchy.

Key Words: labor market segmentation, ethnic niches, residence, workplace, San Francisco

INTRODUCTION

The continuing influx of a large number of immigrants to the United States has been associated with a particular labor market phenomenon whereby an occupation or an industrial sector becomes dominated by a particular ethnic group, such as Mexicans in construction, Filipinos in domestic work, and Asian Indians in computer programming (Ettlinger and Kwon, 1994; Hudson, 2003; Logan et al, 1994; Wang, 2004; Wilson, 2003; Wright and Ellis, 2000). These ethnically concentrated job sectors are commonly termed "ethnic niches". With the emergence of more and more ethnic employment niches, urban labor markets are becoming highly segmented along the lines of race, ethnicity, and nativity.

The emergence and persistence of ethnic niches has spawned numerous questions. Why do ethnic minorities or immigrants concentrate in certain sectors? Do those working in ethnic niches do so because of lucrative returns or is it because they simply cannot compete in the open economy? Studies examining these questions have revealed that personal characteristics, human capital, discrimination, ethnic networking, and institutional regulation are all associated with ethnic labor market concentration. For example, neoclassical perspectives regard ethnic niches as natural outcomes of market forces (Becker, 1975; Wood, 1982) and segmentation theorists believe ethnic concentration is the result of discrimination or structural factors in the labor market (Hudson, 2003; Peck, 1996). Other studies suggest that ethnic networking is the fundamental mechanism through which ethnic niches form and persist (Portes and Sensenbrenner, 1993; Waldinger, 1994; Waldinger and Der-Martirosian, 2001).

The studies also suggest that there are significant gender differences in the nature and extent of labor market concentration (Carlson, 1997; England, 1993; Reskin, 1993; Wyly, 1999). In particular, immigrant women are believed to experience greater hardships than both majority

group women and immigrant men, over-represented at the bottom ladders of the already low labor hierarchy (Geschwender, 1992; Green, 1996; Raijman and Semyonov, 1997),

One area of neglect, however, has been the explicit consideration of how spatial arrangements of workers, specifically where they live and where they work, influences their tendency to work in ethnic niches. There are compelling reasons to believe that geography of residence and workplace have impacts on labor market outcomes.

As very good examples, recent studies suggest that living in an ethnic neighborhood, on the one hand, can facilitate the flow of information on job-openings in certain areas and provide more employment opportunities (Ioannides and Loury, 2004). On the other hand, spatial isolation of some ethnic neighborhoods may exacerbate the lack of opportunities in social and economic life (Holloway, 1996; Wilson, 1987). Researchers demonstrate that personal networks through workplace and neighborhoods are important components of women's survival strategies (Fernandez-Kelly, 1995; Gilbert, 1998; Hanson and Pratt, 1992, 1995). For example, Park (2004) finds that residence in an ethnic enclave might provide more employment opportunities for both native-born black and foreign-born Mexican and Vietnam women in Los Angeles.

Not only residential place, but also the geography of workplace, is related to the division of labor in different sectors. To meet their labor needs, some employers deliberately locate their companies in specific places to attract people from certain neighborhoods, which results in occupational segregation in the local labor market (Scott, 1988; Handson and Pratt, 1995). It is also a common practice of employers to recruit new workers through networking of current employees, which helps to homogenize the racial or ethnic diversity in the workplace (Rosenfeld and Tienda, 1999; Waldigner, and Der-Martirosian, 2001; Wright and Ellis, 2004). Therefore,

the labor market outcomes are correlated with both the geography of residence and the geography of workplace.

The preceding literature suggests that geography impacts labor market outcomes differently for men and women. However, we still need to know more about the mechanisms through which geography works. Using a confidential dataset with individual information on employment, place of residence, and place of work at the census tract level, this study attempts to explore how geography influences the ethnic labor market concentration and segmentation process, through a case study of Chinese immigrants in the San Francisco Consolidated Metropolitan Statistical Area (CMSA). The specific questions I address in this study include: What are the impacts of geography of residence and workplace on ethnic labor market segmentation? Does living or working in ethnically concentrated areas increase the probability of working in ethnic niches? Do men and women have different experiences in this process?

The next section reviews previous theories and empirical studies on the role of geography in labor market outcomes to develop my own study framework. Next, the background on the study area, data, and methodology are provided. Finally, the role of geography in ethnic labor market concentration is examined through multilevel logistic regression modeling and the findings are discussed.

GEOGRAPHY AND ETHNIC LABOR MARKET CONCENTRATION

Ethnic Niche Employment

There is now considerable evidence of ethnic segmentation/niching of the U.S. labor market. For example, Wilson and Portes (1980) note that Cuban firms in Miami are concentrated in only four or five manufacturing sectors, construction and finance, and several consumer services such as restaurants, supermarkets, health clinics, and law firms. Ettlinger and Kwon (1994), in their

study of New York and Los Angeles labor markets, find that Japanese immigrants are noticeably concentrated in high-skilled, white-collar occupations, Filipinos in health-related, female-dominated professional occupations, and Koreans in sales, personal services and retail. In Los Angeles, Ellis and Wright (1999) find black employment niches in social services industries, health, transportation, and communication, and Mexican niches in agriculture, manufacturing, and personal services industries. The phenomenon of ethnic concentration in a set of occupations or industries has been found to persist over time and spatial context (Waldinger and Der-Martirosian, 2001).

Why does ethnic niching occur? Previous studies suggest that personal characteristics related to job skills, such as education, work experience, and language fluency, are closely related to labor market opportunities. Ethnic concentration in certain job sectors suggests that ethnic group possesses a comparative advantage in terms of skills or knowledge in satisfying the demands of jobs in that sector. Or, niching occurs simply because the ethnic workers do not have other choices due to the lack of human capital (Becker, 1975; Wilson, 2003; Wood, 1982). Recent studies also find that foreign born status and short length of stay in the host society increases the chance of working in ethnic niches (Wang, 2004). In addition to personal characteristics, some researchers argue that ethnic affiliation and networking among coethnics are important mechanisms leading to labor market concentration of particular ethnic groups. This sort of networking allows foreign-born workers to avoid discrimination in the open labor market and provides them with more labor market opportunities (Averitt, 1968; Doeringer and Piore, 1971; Waldinger, 1996; Waldinger and Der-Martirosian, 2001).

A considerable literature addresses gender divisions of labor, informing us of the patterns of, and the reasons behind, why women and men frequently work in different jobs (Carlson,

1997; England, 1993; Reskin, 1993). Constrained by traditional family roles and responsibilities, women are concentrated in a small number of occupations – mostly semiprofessional, clerical, and service-related jobs (Reskin, 1993; Reskin and Cassirer, 1996). More recent studies show that immigrant women have different labor market experiences from both native-born women and immigrant men. For example, Green (1996) studied the immigrant women in garment industry sweatshops and demonstrated that the participation of women and men in the garment workforce has varied over time by craft, specialty, geographic area, and nationality.

The "double disadvantages" theory argues that immigrant women experience greater hardships than both majority group women and immigrant men, being over-represented in the poorly paid service industries or those labor-intensive manufacturing industries (Foschi et al., 1994; Geschwender, 1992; Pedraza, 1991; Green, 1996). Moreover, Rajiman and Semyonov (1997) argue that recent immigrant women from the less developed countries of Asian or Africa have experienced greater loss than women from Europe and the Americans in rejoining the labor force and in translating their occupational resources to "adequate" jobs. They describe this group of women as being at "triple disadvantages".

Explanations for occupational sex segregation range widely and include gender discrimination, employers' preferences, institutional factors that limit women's access to information about job openings and promotions, and sex-typing of occupations through socialization practices at home, school, and through the media (see Reskin, 1993 for a review).

Geography and Labor Market Outcomes

The relationship between residential location and labor market outcomes is explicitly examined in the literature on "spatial mismatch". According to the spatial mismatch hypothesis, racial barriers in housing and the lack of an efficient mass transit system for delivering workers from

their central city residential locations to work sites in the suburbs, effectively deny inner-city-residents -- mainly African American -- the opportunity to work in the booming satellite cities (Kain 1968, 1992; for comprehensive reviews, see Holzer 1991 and Ihlanfeldt, 1995).

Further, many studies suggest that it is not only the distance from home to work, but also the neighborhood that has a profound influence on personal labor market opportunities. It is common in the labor market that workers gain inside information about jobs and referrals, and employers recruit new workers through the networks of current employees (Mouw, 2003; Waldinger, 1996; Waldigner and Der-Martirosian, 2001). Thus the job seekers having spatial proximity to people who have job information will have more opportunities to access those jobs. Bayer and his colleagues (2004) find that people who live close to each other (defined as living in the same census block) tend to work together (defined as working in the same census block). Immigrant enclaves also provide typical examples where suitable housing and more job opportunities are provided, especially for new immigrants and those who are disadvantaged in the open labor market (Park, 2004; Portes and Bach, 1985; Zhou, 1992). These examples indicate that ethnic resources, affinity, and cultural distinctiveness, which are highly dependent on geographically clustered ethnic residences and businesses, have formed the basis of labor recruitment for ethnic members and allow them privileged access to the ethnic market. This finding strongly supports the notion that the residential context exerts an influence on labor market outcomes.

On the other hand, spatial isolation can result in social isolation and impede the inflow of information on job openings to certain neighborhoods. A plethora of studies have established the negative effects of "impoverished ghettos" on individual socioeconomic status. These include delinquency, youth pregnancy, and unemployment (Fernandez-Kelly, 1995; Massey and Denton

1993; Wilson, 1987). As evidence, several recent economic studies found the correlation between unemployment and socioeconomic characteristics of particular ethnic neighborhoods (Conley and Topa, 2002; Ioannides and Loury, 2004; Topa, 2001). Wright and Ellis (2004) find that racial segregating at residential place (census tract level) can increase the racial segregation at workplace (census tract level). Johnson and his colleagues (1999) also demonstrate that black and Hispanic women whose social networks contain at least one person who resides outside their neighborhood are more likely to be working than those without such resources.

In addition to residential geography there is also evidence that the geography of jobs influences the labor market process. Massey (1984) and others (Scott, 1988; Peck, 1996) argue that because the availability and characteristics of workers are not homogenous across space, different industries locate in different places depending on their labor needs. Hanson and Pratt (1995) observe that some employers are located near certain neighborhoods to attract a particular type of labor force to meet their labor needs, resulting in occupational concentration in the local labor market. Similarly, some ethnic businesses locate close to ethnic residential neighborhoods to take advantage of the ethnic market and labor pool (Kaplan, 1998; Lee, 1995; Li, 1998). These examples suggest that industrial structure and socioeconomic characteristics in the workplace can also have influence on labor market outcomes.

For occupational sex segregation, numerous studies have shown that women's limited access to transportation, greater domestic responsibilities, and tendency to make employment decisions from a fixed residential location and to value job attributes like closeness to childcare, along with the geography of employment opportunities, limit their access to jobs. As a result, many women take lower paying, dead-end jobs because of the flexibility and convenience

afforded by female-dominated jobs located closer to home (England, 1993; Hanson and Pratt, 1992, 1995; Carlson, 1997; Wyly, 1999).

Whereas the literature suggests that the intertwined nature of women's housing, childcare, and employment desiccation sets spatial limits on their labor market experiences, Gilbert's (1998) case study demonstrates that personal networks through workplace and neighborhood are an important component of women's survival strategies. Her study is consistent with Hanson and Pratt's (1995) observations that many women made use of personal contacts within neighborhoods to niche into certain job sectors in the local labor market. Fernandez-Kelly (1995) also argue that the neighborhood plays an important role in shaping the social networks of low-income residents, especially women's. Park's (2004) study also yields empirical support for the advantage that residence in an ethnic enclave might provide more employment opportunities for both native-born black and foreign-born Mexican and Vietnamese women in Los Angeles. These examples suggest that women are more likely to use the personal contacts through daily lives due to their special roles in the family.

In summary, then, any consideration of geographic influences on labor market segmentation needs to explicitly consider both the residential location and workplace location of workers and the extent to which these are situated in ethnic clusters. Given this, I define four types of ethnic concentration areas within the city as follows.

First is *ethnic residential concentration* which is defined as an ethnically concentrated residential area at the census tract level, without a clustering of coethnic businesses. Numerous studies suggest that immigrants tend initially to live close to other coethnics when they come to the United States. As they acquire higher educational and economic status and exhibit some degree of cultural assimilation, they will move outward through social and physical space into

predominantly white neighborhoods (Alba and Logan, 1993; Allen and Turner, 1997; Gordon, 1964). Here the ethnic residential neighborhoods are postulated to offer ethnic resources for the new immigrants that help them to settle into the host society. I hypothesize that the close-knit and geographically compact ethnic neighborhoods can provide a social web through which members of the same ethnic group, especially women and new immigrants, interact closely and frequently, influencing one another's behavior, and transmitting valuable information about economic opportunities (Borjas, 1999; Ioannides and Loury, 2004; Manski, 2000; Krauth, 2003).

The second type of area is the *ethnic workplace concentration*. Most studies do not differentiate between residential and workplace concentrations. One reason for this could be the unavailability of data on workplace geography at a sufficiently localized scale. This is a problem that the present study is able to circumvent using the confidential Census data. In this study ethnic workplace concentration is defined as a cluster of census tracts with high concentration of ethnic minority workers but without a significant ethnic residential concentration. I hypothesize that, as compared to women, men are more like to interact with other people through workplace than residential areas, and therefore working in such a concentration is likely to be associated with a higher propensity for niche employment for men rather than women.

The third type of concentration is the *ethnic enclave* which is defined as a cluster of census tracts with a high concentration of both ethnic minority residents and ethnic minority workers. However, ethnic enclave in this study is different from that in the "ethnic enclave debates" previously discussed in that it does not specifically refer to impoverished ghettos or affluent ethnic communities. It simply represents the areas that are characterized by both residential and workplace concentrations of ethnic workers. Traditional Chinatown is a typical example of such a spatial form. Although, the extreme case of working and living in the same

site are rare today, some new forms of ethnic enclaves still exist. For example, Li (1998) describes a new form of suburban ethnic communities in Los Angeles that are characterized by both residential concentration and ethnic economic activities. Likewise, Kaplan (1998) demonstrates that the clustering of ethnic businesses is often correlated with ethnic residential patterns. Ethnic enclaves are distinct from ethnic residential concentration and workplace concentration in that it is expected to offer both abundant resources in ethnic neighborhoods (such as cultural familiarity and housing), and economic opportunities (such as a familiar work environments and lower requirements for English proficiency). Therefore, an ethnic enclave is expected to provide more opportunities than non-ethnically concentrated areas and the other two types of concentrations in providing niche employment opportunities.

The fourth and final spatial form is the *non-concentration area* that refers to the set of census tracts without any form of ethnic concentration, either residential or workplace. People living or working in the dispersed area are least likely to depend on ethnic contacts to find a job, but are more likely to turn to formal sources of information such as state and private employment agencies, newspaper advertisements, or school and college placement services. Although they may even get into the job market through social networking, the networks are not necessarily contingent on residence and workplace. I thus hypothesize that people working or living in non-ethnically concentrated areas are least likely to work in ethnic niches.

CASE STUDY: CHINESE IN THE SAN FRANCISCO CMSA

I use the San Francisco Consolidated Metropolitan Statistical Area (CMSA) as a case study (Figure 3.1). The San Francisco Bay Area shares many common features with most other immigrant gateway cities such as New York, Los Angeles, and Miami, but it also has very unique local contexts. In the 1980s, the Bay Area was the only metropolitan area where blacks,

Hispanics and Asians had the same population proportion. With the continued influx of the foreign-born, however, Hispanics and Asians have increased their portions of the metropolitan population. By 2000, whites were 50.6% of the total metropolitan population, while blacks, Hispanics and Asians were, respectively, 7.8%, 19.7%, and 20.4% of the total population. This unusual degree of ethnic diversity and the tradition of tolerance may mitigate discrimination and prejudice against ethnic minorities, affording them greater freedom in occupation and location choice.

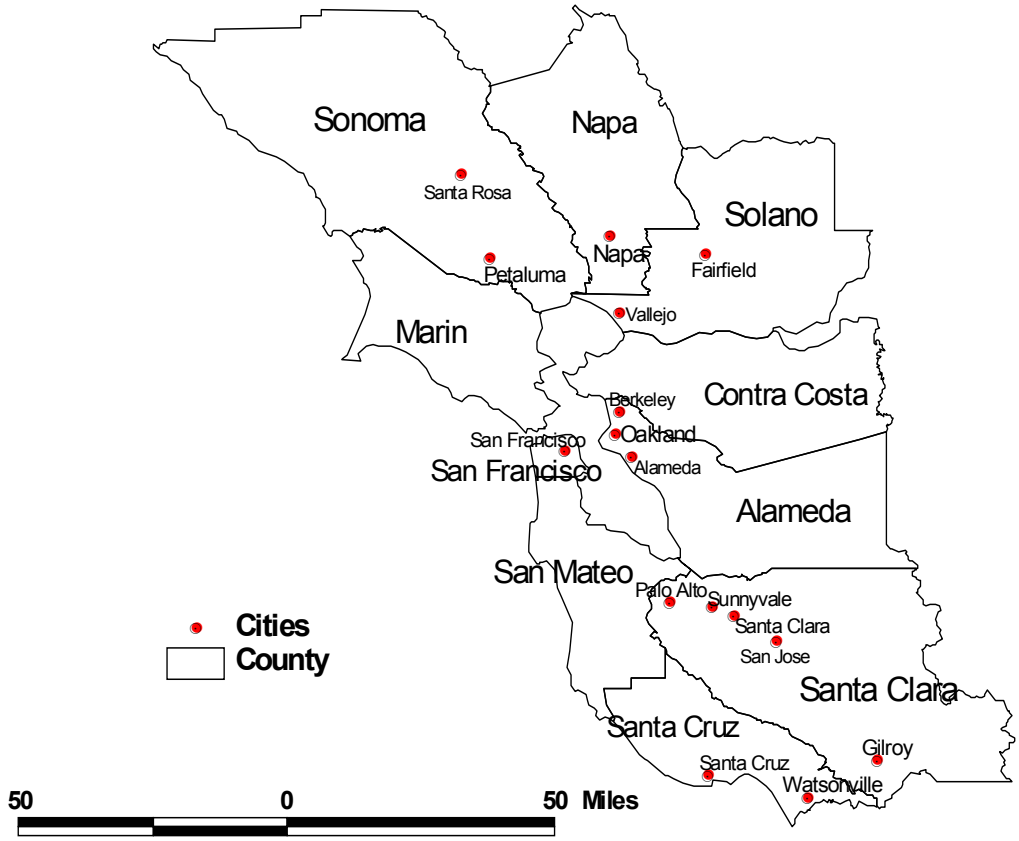


Figure 3.1. Study Area: San Francisco Consolidated Statistical Metropolitan Area

The San Francisco Bay Area has been home for Chinese immigrants for more than one hundred and forty years. The earliest significant proportion of immigrants was Chinese who

served as an important source of cheap labor in railroad construction, manufacturing, mining, and agriculture. But the flow was put to an end by native hostility that turned to violence during the 1870s and eventually resulted in the passage of the Chinese Exclusion Act of 1882, the anti-Chinese Scott Act of 1888, and the Geary Act of 1892 (Waldigner and Der-Martirosian, 2001; Wong, 1998). After the reform of U.S. immigration policy in1965, immigrants from China (mainland, Hong Kong and Taiwan) have constituted one of the largest groups of newcomers to the Bay Area. The San Francisco CMSA had the highest growth rate of the Chinese population between 1990 and 2000 of all U.S. metropolitan areas, and is now the place with the highest proportion of Chinese (Census Bureau, 2000).

The Chinese ethnic communities and neighborhoods have a long history, and have hosted several successive generations with distributions in all occupational hierarchies and socioeconomic strata. Traditionally, the Chinese in San Francisco concentrated in what is one of the oldest and biggest Chinatowns in the United States. Over time, the traditional Chinatown has experienced profound socioeconomic and cultural change (Wong, 1998).

Since the 1950s San Francisco has been evolving from a blue-collar port city of manual labor and material goods to a white-collar center of finance, administration, tourism and, now, the *knowledge industries* increasingly dependent on its service sectors, particularly business services and high-technology manufacturing in computers, electronics, instruments, and defense. The traditional Chinese ethnic niches are sectors with employment in restaurants, laundries, garment factories, gift shops and jewelry stores (Wong, 1998). Now, however, Chinese engineers and computer scientists are playing an important role in the dramatic growth of high-tech industries (Wu, 1997). Overall, the size and diversity of San Francisco's Chinese

population provides an excellent case study of ethnic labor market concentration and the influence of geography.

DATA AND METHODOLOGY

The data used in this study comes from the 2000 Decennial Long Form Census data for the San Francisco CMSA. Like the Public Use Microdata Samples (PUMS), this confidential dataset is rich in socioeconomic characteristics about individuals such as their place of birth, ethnicity, occupation, and income. However, PUMS data is poor in geographic detail. The smallest spatial unit in the PUMS, the Public Use Microdata Area (PUMA), has a minimum population of 100,000 which is too large for the purposes of exposing the micro-geography of residence and work for individual workers.

The Decennial Long Form data used in this study allow simultaneous consideration of an individual's place of work and place of residence at the Census tract level, which normally includes 4,000 residents. These data are governed by strict confidentiality and disclosure rules that, to some extent, restrict the range of analyses that can be conducted. For example, disclosure rules make it very difficult to extensively map ethnic concentrations at this scale. However, these restrictions are more than compensated by the useful insights that the data are in a position to provide. As noted earlier, I focus this study on Chinese immigrants from Mainland China, Hong Kong, and Taiwan that are between the ages of 16 and 64 and both live and work in the civilian labor force in the San Francisco CMSA. The analysis is conducted in three steps.

Identifying Chinese Ethnic Niches

It is easy to understand the relation between workplace and industrial concentration: people working in the same job-site tend to work in the same industry. However, people in the same workplace may be doing very different jobs, e.g., managers vs. janitors in the same factory. In

many studies, occupations are fundamental and a relevant description of workers' characteristics in terms of work type and skill levels at the individual level (e.g., Rosenfeld and Tienda, 1999; Waldinger, 1994; Wright and Ellis, 2000). Therefore, this study uses occupational category to identify labor market concentration patterns (when necessary I refer to the industrial niches for comparison). There are a total of 501 detailed occupations using the three-digit-codes provided by the Census.

The occupations that are dominated by a particular ethnic group, i.e., ethnic niches, are identified by odds ratio[11], given by:

$$\text{Odds Ratio} = (Ei / Et\text{-}i) / (Oi / Ot\text{-}i) \qquad (1)$$

The numerator represents the odds of a worker belonging to ethnic group E being engaged in sector i, and the denominator represents the odds of a person from any other ethnic group (O) working in the same sector i. For example, if Ei is the number of Chinese in food service, Et-i represents Chinese workers in all other occupations, Oi is the number of non-Chinese workers in the food service sector, and Ot-i represents the non-Chinese workers employed in non-food service sectors.

Consistent with previous studies, an ethnic niche is defined as one in which the odds ratio is 1.5 or greater. Additionally, in order to prevent a bias resulting from very small numbers, I stipulate that an ethnic niche has to be at least 50% of the average size of all employment sectors. For example, if there are 501,000 Chinese workers in the study area, the average size for Chinese should be 1000 (a total 501,000 workers divided by 501 sectors). A Chinese niche must then

[11] The measurement of odds ratio was used in previous studies (Logan et al., 1994; Wilson, 2003), but a representation index or location quotient has also been used (Ellis and Wright, 1999; Hudson, 2003; Rosenfeld and Tienda, 1999). Compared to the representation index and location quotient, the odds ratio is more sensitive to the change of employment distribution, although the implication of the odds ratio is similar. Please refer to Rosenfeld and Tienda (1999, appendix) for more discussion.

have at least 500 (50% of 1000) Chinese workers and an odds ratio equal to or greater than 1.5[12]. After identifying Chinese ethnic niches, the respondent will be coded 1 if s/he works in an ethnic niche; otherwise, 0.

Identifying Chinese Spatial Concentration Patterns

Mapping the percentage of ethnic minorities in a geographic unit (such as a census tract) is a common practice in geography. Recent practices include mapping local entropy indices, location quotients (Park, 2004; Wong, 2004), and odds ratios (Allen and Tuner, 1997, Logan and Zhang, 2004). For the same reason as using odds ratio for labor market niches, and also to be consistent with the measurement of labor market concentration, this study uses odds ratio as an index for measuring spatial concentration.

Two odds ratios are used to identify, respectively, Chinese residential and workplace concentrations.

$$ROi = (Ri/Rt\text{-}i) / (ORi/ORt\text{-}i) \quad (2)$$

$$WOi = (Wi/Wt\text{-}i) / (OWi/OWt\text{-}i) \quad (3)$$

where ROi and WOi represent the odds ratios of a Chinese worker residing(RO) and working(WO), respectively, in census tract i: Ri and Wi are the number of Chinese residing or working respectively in census tract i, Rt-i and Wt-i are the number of Chinese residing in or working respectively in census tracts other than i, ORi and OWi are the numbers of non-Chinese

[12] Both the threshold value of 1.5 and the minimum restriction (50% of the average size) are arbitrary. In previous studies the threshold for defining an ethnic niche was between 1.2 and 2.0 (e.g., Ettlinger and Kwon, 1994; Hudson, 2003; Wright and Ellis, 2000), but they are all arbitrary in nature. We should be aware that choosing a threshold level a priori is risky because the range of values depends on the number of sectors, groups, and the size of the sample. For the restriction on minimum number of workers, some studies use absolute number: for example, at least 300 or 500 workers in niche sector (Wilson, 2003). However, I believe that a percentage measure is more preferable than an absolute value to reflect the nature of ethnic labor markets, since the size of the labor force and their share of each sector vary greatly across ethnic groups. We have a more detailed discussion elsewhere on different usages of employment sector, threshold of odds ratio, and the minimum worker restriction. Interested readers can contact the author for more detail.

respectively residing or working in census tract i, and ORt-i and OWt-i are the numbers of non-Chinese living and working respectively in census tracts other than i.

Consistent with previous studies on Los Angeles (Allen and Tuner, 1997, Logan and Zhang, 2004), this study uses a threshold value of 5.0 to designate a Chinese residential concentration. Thus, all census tracts with odds ratios of 5.0 or greater are considered to be Chinese residentially concentrated census tracts.

Previous literature suggests that the ethnic geography of work tends to be much less segregated than residential geography due to the nature of recruitment and networking, and the interaction of different types of jobs in the same job-site (Ellis et al., 2004). Consequently it is appropriate to have a lower odds ratio for designating a workplace concentration. In this study any census tract with WOi larger than 2.0 is defined as a Chinese concentrated workplace. (Appendix 1 shows that ROi = 5.0 and WOi = 2.0 values result in a similar percentage of Chinese in the residence- or workplace-concentrated census tracts.)

Using this strategy, the census tracts in the San Francisco CMSA can be classified into four categories as follows:

(1) ROi>=5 & WOi<2: Chinese Residential Concentration

(2) ROi<5 & WOi>=2: Chinese Workplace Concentration

(3) ROi>=5 & WOi>=2: Chinese Ethnic Enclaves

(4) ROi<5 & WOi<2: Non Chinese Concentrated area

Relating Labor Market Concentration to the Geography of Residence and Workplace

In conventional studies, labor market variables are merged with individual-level variables to assess the effects of local conditions on individual outcomes. This is not appropriate for the measurement of the labor market effect, as its significance can be overestimated due to

correlation error within labor markets (for detailed discussion, see Raudenbush and Bryk, 2002). To correct for this and other problems, this study uses a multilevel linear regression model with detailed data on both individuals and census tracts. This two-level approach includes random errors that control for correlation error among individuals in the same census tract; therefore, it allows for simultaneous estimation of a full macro-level model with controlled personal-level variables to predict the chance of niche employment.

Level 1 Model: Effects of individual characteristics

At level 1, the odds (in log form) of working in an ethnic niche versus a non-niche sector are estimated using individual-level data for each census tract. The full multilevel model is:

$$Yij = \beta 0j + \beta 1j\ (Female)ij\ +\ C\ ij\rho + eij \qquad (4)$$

where Yij is the dependent variable which is the odds (in log form) of an individual i working in an ethnic niche job located in census tract j. Femaleij is the binary variable representing the gender of the individual (female = 1). I include a standard vector of Cij individual level variables with their associated coefficients ρ. These variables include age, marital status, level of education, entrepreneurship, and the length of stay in the United States (see Table 3.1 for the description and coding strategy of the variables).

Level 2 Model: Effects of Residence and Workplace

At level 2, variation in the probability of niche employment across census tracts is modeled as a function of the socioeconomic characteristics at the residential area or workplace. To control personal differences, the individual level variables (except gender) are assumed to be fixed across the

Table 3.1. Coding Strategy of Variables in Multilevel Linear Modeling

Variable	Coding Strategy
	Individual-level Variables
Female	Binary; Being female=1
Age	Continuous;
Travel time	Continuous; travel time from home to work
Married	Binary; being married = 1
Degree	Binary; having college degree =1
Self-employed	Binary; being self-employed = 1
Immi9520	Multinomial; Immigrated between 1995-2000
Immi9094	Multinomial; Immigrated between 1990-1994
Immi8589	Multinomial; Immigrated between 1985-1989
Immi8084	Multinomial; Immigrated between 1980-1984
English	Binary; Fluent English-speaking = 1
	Census Tract-Level Variables
(1) Census tracts where s/he lives	
BlackH	Percentage of blacks of total population
HispanH	Percentage of Hispanics of total population
AsianH	Percentage of Asian of total population
Property	Average value of property in the census tract
Rent	Percentage of gross rent as household income
Education	Percentage of people with Bachelor's degree
Ownership	Percentage of households owning a home
Femalehead	Percentage of female-headed households
Im92H	Percentage of immigrants coming to US 1990-2000
Im75H	Percentage of immigrants coming to US in and before 1975
HomeCon	Where s/he lives is Chinese-residential-concentrated tract
WorkCon	Where s/he lives is Chinese-workplace-concentrated tract
HWCon	Where s/he lives is both home and workplace concentrated tract
NonCon	The census tract where s/he lives is not Chinese-concentrated tract
(2) Census tracts where s/he works	
BlackW	Percentage of blacks of total population
HispanW	Percentage of Hispnics of total population
AsianW	Percentage of Asian of total population
Manufacture	Percentage of labor force in manufacturing industries
Information	Percentage of labor force in information industries
Highstatus	Percentage of labor force in FIRE, professional, and scientific industries
Service	Percentage of labor force in services industries
Im92W	Percentage of immigrants coming to US 1990-2000
Im75W	Percentage of immigrants coming to US in and before 1975
HomeCon	Where s/he works is Chinese-residential-concentrated tract
WorkCon	Where s/he works is Chinese-workplace-concentrated tract
HWCon	Where s/he works is both home and workplace concentrated tract
NonCon	The census tract where s/he works is not Chinese-concentrated

labor market and are centered around their grand means. That is, the probability of niche employment is estimated net of differences across census tract in the distribution of the observed individual-level variables (for example, education). Then, variations in gender in working in ethnic niches across the census tract that are estimated by equation 5 and 6:

$$\beta\ 0j = \gamma 00 + Wj\ \gamma 0 + \mu 0j \qquad (5)$$

$$\beta\ 1j = \gamma 10 + Wj\ \gamma 1 + \mu 1j \qquad (6)$$

The adjusted average probabilities of niche employment for men and women are represented by β0j and β1j in Equations 5 and 6. The level-2 error terms (μ0j and μ1j) indicate that a separate variance component is estimated for men and women. This random spatial variation in probability of niche employment is partially explained by vector Wj which represents two sets of census tract level characteristics. γ0 and γ1give the coefficients of census tract level variables for men and women.

First, I run a multilevel model by where the respondent *lives* to evaluate the effects of the geography of residence. I mainly examine whether or not residential location (i.e., living in one of four different types of concentrated census tracts) has a different influence on niche employment; at the same time, I control other demographic and economic conditions in the census tracts. These control variables are calculated by the population *living* in the census tracts, such as the racial composition of the residents, the proportion of new immigrants, property values, and other socioeconomic characteristics measured by percentages. Wj represents four concentration types and all the control variables at the census tract level (see Table 3.1 for census tract level variables of the census tract where s/he lives).

I run another set of multilevel models by where the respondent *works* to evaluate the effects of the geography of workplace. Here, Wj represents the four types of census tracts and

other control variables at census tract level. These control variables are calculated by the population *working* in the census tracts, such as the racial composition of workers employed in the census tract, the proportion of new immigrants among the workers, and the economic structure of the labor force in the workplace (see Table 3.1 for the full list of variables).

FINDINGS AND DISCUSSION

General Patterns of Chinese Ethnic Niches

Half of the Chinese immigrants work in Chinese ethnic niches. Table 3.2 lists the twenty largest niche sectors for men and women. The main niche occupations for males are in food service (cooks, chefs, food service managers), postal service, and line supervisors or managers, and computer, electronics or engineering related occupations. Chinese immigrant women niche workers are concentrated in semi- or low-skilled, labor intensive occupations, working as clerks, cashiers, waitresses, and food preparation workers. The odds ratio for immigrant Chinese women working as sewing machine operators is as high as 53, which indicates their absolute concentration in this occupation.

Overall, Chinese immigrants concentrate at both high and low levels of the labor market hierarchy, but men have obvious advantages in terms of skill level. In the capital and knowledge based new economy in the San Francisco metropolitan area, the labor force is typically bifurcated: on one hand, the highly trained Chinese immigrant engineers (mainly men) are dominating the occupational niche for global programming in the region; on the other hand, a large number of immigrants, especially women, are performing assembly-line work in the factories and services in restaurants and hotels. This pattern is consistent with that observed by Wu (1997) and Waldinger and Der-Martirosian (2001).

Table 3.2. Top Twenty Chinese Ethnic Niches (based on no. of workers employed) by Sex

Male		Female	
Occupation	**%[1]**	**Occupation**	**%[2]**
Computer Software Engineers	17.8	Accountants and Auditors	13.8
Electrical & Electronics Engineers	9.0	Computer Software Engineers	9.7
Miscellaneous Engineers	7.0	Sewing Machine Operators	8.6
Cooks	6.1	Cashiers	5.3
Chief Executive	4.1	Bookkeeping, Accounting, & Auditing Clerks	5.2
Computer Programmers	3.6	Waitress	4.2
Computer Hardware Engineers	3.1	Office Clerks, general	3.9
First-Line Supervisors/managers of Non-Retail Sales Workers	2.8	Electrical, Electronics, & Electromechanical Assemblers	3.4
Chef and Head Cooks	2.8	Financial Managers	3.2
Computer Scientists & System Analysts	2.7	Maids and Housekeeping Cleaners	2.9
Engineering Manager	2.4	Inspectors, Testers, Sorters, Samplers, & Weightier	2.7
Physical Scientists	2.2	Computer Programmers	2.6
Food Service Managers	2.2	Miscellaneous Assemblers & Fabricators	2.5
Civil Engineers	2.1	Production Workers including Semiconductor Processor & Cooling & Freezing Equipment Operators	2.0
Automotive Service Technicians & Mechanics	2.0	Physical Scientists	1.7
Network Systems & Data Communication Analysts	2.0	Data Entry Keyers	1.7
Engineering Technicians	1.8	Food Service managers	1.5
Computer Support Specialists	1.6	Food Preparation Workers	1.4
Mechanical Engineers	1.6	Hairdressers, Hairstylists, & Cosmetologists	1.4
Postal Service Carriers	1.4	Clinical Laboratory Technologists & Technicians	1.3

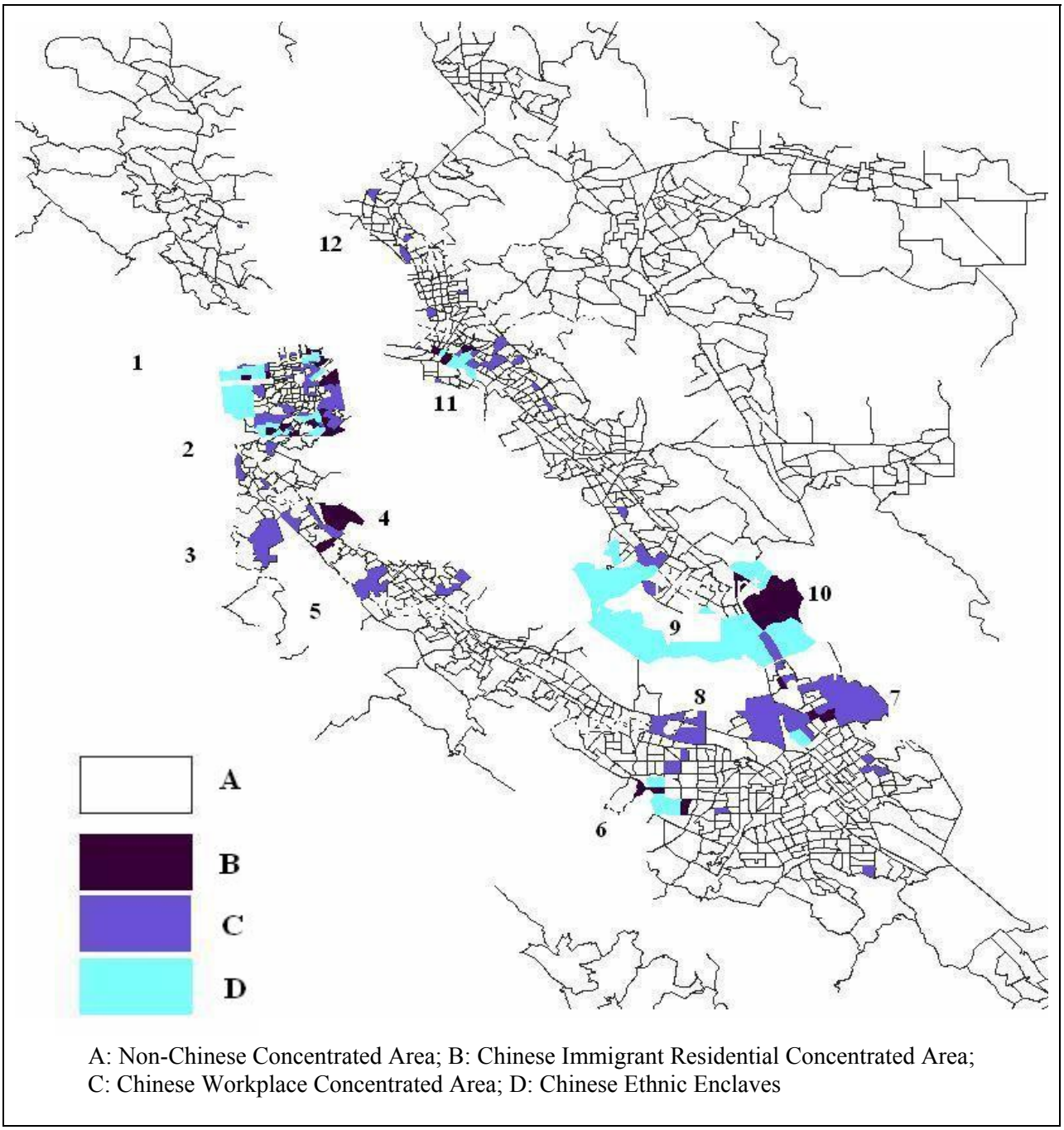
[1]It is the percentage of the total male niche workers.
[2]It is the percentage of the total female niche workers.

Chinese Spatial Concentration of Residence and Workplace

Map 3 displays Chinese spatial concentration patterns by the four-part typology discussed above.

The Chinese concentrated areas are mainly in three regions: San Francisco county, the Silicon

Valley region, and the Oakland area. The city of San Francisco (Number 1 and 2 in the map) has the oldest Chinatown in the United States. This area is, not surprisingly, classified as a spatial enclave. Going further to the south, there are highly concentrated workplaces near the city of



A: Non-Chinese Concentrated Area; B: Chinese Immigrant Residential Concentrated Area;
C: Chinese Workplace Concentrated Area; D: Chinese Ethnic Enclaves

Figure 3.2. Geography of Chinese Immigrants in the San Francisco CMSA, by Type of Concentration Pattern

Pacifica (No. 3) and Hillsborough (No. 5). The inner bay area near the city of San Bruno and Millbrae (No. 4, which is the census tract 6043) is a residential concentration. Compared with the western Bay Area, the eastern area surrounding Oakland represents another important area where Chinese have both residential and workplace concentrations, albeit of a smaller size.

The Silicon Valley area is characterized by both workplace concentrations and enclaves. These are located near the cities of Saratoga, Cupertino (No. 6), East Foothills (No.7), and Sunnyvale (No. 8), and the southern inner bay area (No. 9, which is the partial census tract 4415.03). This distribution reflects the fact that a large proportion of Chinese immigrants are working in the computer or electronics related sectors which are highly concentrated in the Silicon Valley area.

The socioeconomic characteristics of the residents and workers in the four types of areas are tabulated, respectively, in Tables 3.3 and 3.4. Looking first at the characteristics by place of residence (Table 3.3), the Chinese living in non-concentrated tracts have the highest personal income, household income, monthly rent, homeownership, and the lowest proportion of households having sub-families and living in crowded conditions. Residents of Chinese enclaves have the lowest average personal and household incomes, monthly rents, levels of homeownership, and the highest proportion of households with sub-families and living in crowded conditions. At the same time, enclaves have the highest proportion of residents with a bachelor's degree and fluent English-speaking ability, and that are naturalized citizens. This suggests that while enclave areas are able to attract new immigrants by low rent, work opportunities, and a familiar cultural environment, they also house many established residents. This is supported by the data showing that enclave tracts have the highest proportion of both new and old Chinese immigrants. Like the enclaves, Chinese residentially concentrated areas also

have a high proportion of residents who are new immigrants. Thus the general profile of Chinese neighborhoods and enclaves supports the hypothesis that these areas are rich in ethnic resources attracting both new immigrants and those who may be disadvantaged in the open labor market.

Table 3.3. Average Socioeconomic Characteristics of Residents in Census Tracts in San Francisco CMSA by Chinese Spatial Concentration Type

Characteristics of persons Living in the Census Tract	Type of Chinese Spatial Concentration in Census Tract			
	Residential Concentration	Workplace Concentration	Chinese Enclave	Non Concentrated Area
Personal Income ($)	34990	37075	33349	39866
Household Income ($)	89748	91367	86254	93919
Monthly Gross Rent ($)	1113	1199	1098	1201
Homeownership (%)	54.06	51.73	50.20	59.31
Having Sub-Families (%)	9.96	9.56	11.54	7.06
Living Crowded (%)	24.45	26.42	29.31	18.92
Black (%)	7.12	10.18	3.71	7.31
Hispanic (%)	7.52	18.68	7.93	19.26
Asian (%)	49.36	29.34	55.00	14.90
Foreign-Born (%)	45.98	36.67	52.14	25.40
Immigrate 1995-2000 (%)	18.25	14.97	19.98	10.37
Immigrate before 1975 (%)	8.78	7.48	11.37	5.87
Citizen (%)	26.08	17.31	30.60	10.58
Fluent English (%)	38.38	35.13	41.45	25.21
Bachelor's Degree (%)	42.22	43.24	46.53	40.67

The characteristics of the working population in the four types of census tract concentrations (Table 3.4) suggest a similar profile. Compared with other types, Chinese workers in concentrated workplaces and enclaves have lower personal income, are made up of more new immigrants and fewer workers with a bachelor's degree. However, these areas also have a higher proportion of workers who are old immigrants, naturalized citizens, and fluent-English speakers. This pattern indicates that Chinese concentrated workplaces or enclaves may have traditional ethnic niches or ethnic businesses that could both attract new immigrants and hold many old immigrants.

Table 3.4. Average Socioeconomic Characteristics of Workers in Census Tracts in San Francisco CMSA, by Chinese Spatial Concentration Type

Characteristics of persons Working in the Census Tract	Type of Chinese Spatial Concentration in Census Tract			
	Residential Concentration	Workplace Concentration	Chinese Enclave	Non Concentrated Area
Personal Income ($)	50970	43763	44529	44848
Black (%)	8.31	7.27	6.26	6.01
Hispanic (%)	13.00	14.15	12.00	16.60
Asian (%)	21.33	31.10	36.88	13.14
Foreign-Born (%)	30.05	41.02	45.66	25.79
Immigrate 1995-2000 (%)	9.25	14.05	13.73	8.49
Immigrate before 1975 (%)	6.77	8.71	9.30	6.37
Citizen (%)	15.17	22.85	27.33	11.73
Fluent English (%)	25.71	33.66	35.82	23.41
Bachelor's Degree (%)	46.60	42.35	43.97	39.88
Manufacturing (%)	6.22	10.57	6.13	7.67
Information	3.94	2.84	3.61	3.09
High-Status (%)	22.04	19.57	21.81	18.96
Service (%)	10.90	17.14	20.33	14.71

Geography of Residence and Niche Employment

Results of the first multilevel regression, i.e. measuring the impact of residential location on niche employment are given in Table 5. Models 1, 2, and 3 give the coefficients of Level 2 variables after controlling personal characteristics at Level 1. Model 1 includes only the spatial variables (i.e. the four types of concentrations), Model 2 includes the socioeconomic characteristics at census tract level, and Model 3 includes both. The reduction of the variance component indicates the improvement of model fitness from Model 1 to Model 3.

The results for Chinese males show that after controlling the personal and socioeconomic conditions at residential census tracts, living in a Chinese residentially concentrated area is the only significant predictor related to the niche employment. The sign is negative indicating that living in Chinese residential concentrations lowers the propensity of men to work in niche sectors. This seemingly counterintuitive finding is discussed further on. For Chinese women,

living in a Chinese workplace area is not significant; however living in a Chinese residential concentration or enclave significantly increases the chance of working in a niche job. This also indicates that living in Chinese concentrated area has a greater effect for women, which is consistent with the hypothesis that women tend to be more likely to use personal contacts or social networking within neighborhoods to obtain employment opportunities.

Table 3.5. Results of Multilevel Regression: Effects of Characteristics at Census Tracts Level by Where Respondent Lives

	Male			**Female**		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	0.059	-0.626	-0.606	-0.143	0.910	0.818
HomeCon	-0.242*		-0.239***	0.532**		0.460***
WorkCon	-0.191*		-0.045	0.382**		0.187
HWCon	-0.221**		-0.096	0.571***		0.344**
BlackH		-0.018***	-0.017		0.015**	0.014**
HispanH		-0.003	-0.007		0.004	0.006
AsianH		0.003			0.004	
Property		0.038**	0.036**		-0.039*	-0.037
Rent		-0.008	-0.009**		0.008	0.011
Education		0.002	0.001		-0.009**	-0.009***
Ownership		0.008***	0.009***		-0.010***	-0.010***
Femalehead		-0.003	-0.003		0.011	0.008
Im92H		0.019**	0.027***		-0.021**	-0.020***
Im75H		-0.077***	-0.065***		0.075***	0.068***
Variance Component						
	0.222	0.085	0.085	0.583	0.112	0.099

Significance levels: * P < 0.05 level, ** P <0.01, *** P < 0.001

Figure 3.3 captures the residential location effect graphically. It shows that, net of controls for personal characteristics and other conditions in the census tract of residence, immigrant men and women living in Chinese non-concentrated areas have similar chances of

working in ethnic niches. However, living in a coethnically concentrated census tract, especially Chinese neighborhoods and enclaves, greatly increases the probability of working in ethnic niches for women; by contracts, it decreases the probability of niche employment for men.

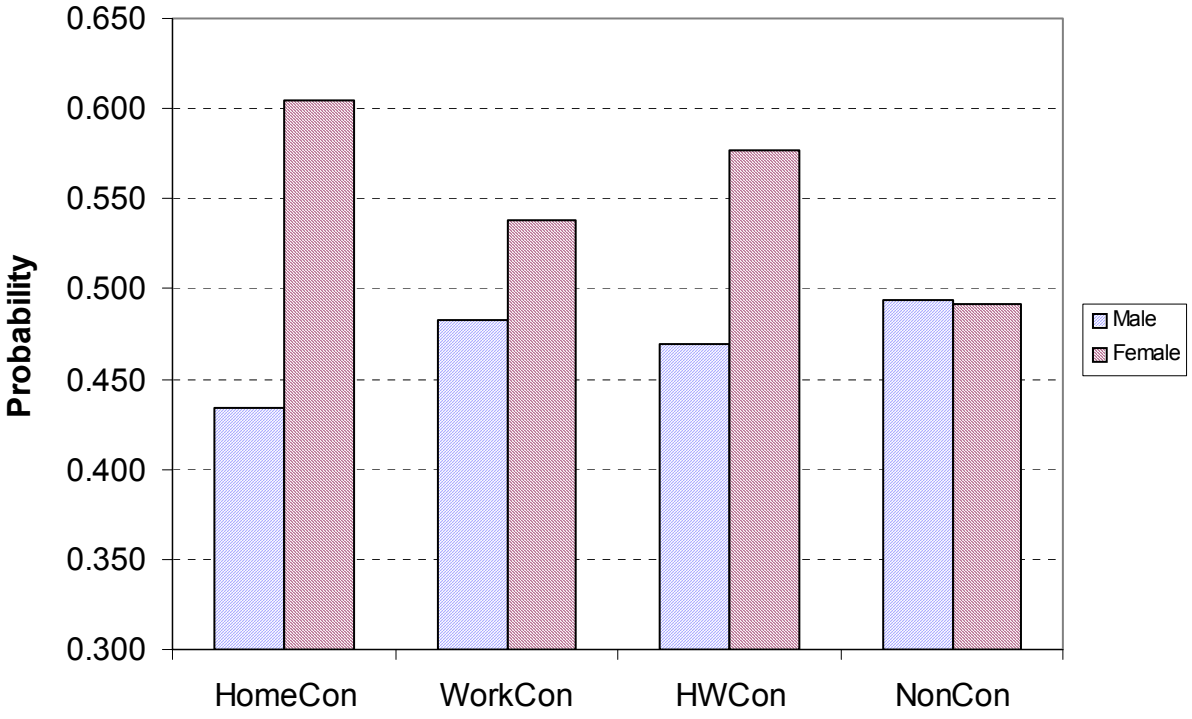


Figure 3.3. Effects of Four Types of Census Tracts on Niche Employment by Residence

As the labor market concentration patterns have shown, Chinese women workers' niches are more associated with those without bachelor's degrees, lower incomes, and a higher percentage of production and personal services. Although living in a coethnically concentrated area can provide more job opportunities, the opportunities are limited. The available job information in ethnic neighborhoods or enclaves is more associated with those traditional ethnic niches that normally do not require high technology or English proficiency, are easy to access, and are more suitable for women who assume more family responsibilities. For many immigrant

Chinese women, employment in a niche job does not necessarily offer advantages with respect to the decreased risk of being jobless and access to high-status jobs that pay wages above what one would expect in the general local labor market. The same data show that the average earnings for women niche workers are lower than non-niche workers. The attraction of ethnic niches for women is the availability of the jobs themselves, not comparisons of the wages of those jobs with wages paid in other jobs (Bean and Stevens, 2003; Rosenfeld and Tienda, 1999).

Ethnic neighborhoods or enclaves could also provide similar job opportunities for Chinese immigrant men. However, these ethnic niches are mainly in computer, mathematical, and engineering jobs, which require high technology and intensive competition in the open labor market. Recruitment in these sectors is more likely to occur through formal channels such as employment agencies, union hiring halls, and school replacement services (Ioannides and Loury, 2004). Although ethnic job referrals can occur, the spatial and social contacts of the employees in these sectors quite probably go far beyond ethnic neighborhoods or ethnic enclaves. For most immigrants living in ethnic neighborhoods or enclaves, the spatial boundary of these ethnic enclaves also coincides with the span of their social networking and ethnic resources, making it hard to interact with most niche workers at the high level of labor market hierarchy. This is why living in Chinese neighborhoods or enclaves is negatively related to niche employment for Chinese men, after controlling personal characteristics and other neighborhood variables.

The neighborhood effects on niche employment are limited to occupational niches only. When looking at industrial niches (i.e., industrial sectors dominated by Chinese men and women workers which show industrial concentration), ethnic residential concentrated areas or enclaves are no longer significant predictors for either men or women after controlling personal characteristics and other conditions at census tract level (regression results on industrial niches

are available from the author upon request). This reemphasizes that neighborhood effects on labor market concentration are confined within certain levels of job-skills.

Geography of Workplace and Niche Employment

Results of the second regression, viz. the effect of workplace geography on niche employment, are shown in Table 3.6. After controlling personal and other characteristics, working in Chinese residential concentrations and enclaves still significantly decreases Chinese male workers' chances of working in their niches. For example, net of other controls, working in a Chinese neighborhood decreases the probability of working in Chinese male niche sectors by a factor of .66; working in a Chinese enclave decreases the probability of working in male workers' niches by a factor of .45 (Model 3 in Table 3.6).

Table 3.6. Results of Multilevel Regression: Effects of Characteristics at Conesus Tracts Level by Where Respondent Works

	Male			Female		
	Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Intercept	-0.091*	-0.241	-0.386	0.046	-0.702**	-0.630**
HomeCon	-0.756***		-0.660**	0.597*		0.444
WorkCon	-0.164		-0.236**	0.183		0.173
HWCon	-0.503***		-0.452***	0.378*		0.305
BlackW		-0.023**	-0.018**		0.047***	0.044***
HispanW		-0.014*	-0.013**		0.027**	0.028***
AsianW		-0.013*			0.006	
Manufacture		0.028***	0.027***		-0.015***	-0.014***
Information		0.017*	0.016**		-0.002	-0.002
HighStatus		0.010***	0.012***		0.000	-0.001
Service		0.013**	0.013***		0.005	0.005
Im92W		0.005	-0.001		0.000	0.000
Im75W		-0.027*	-0.032**		0.025	0.023
Variance Component						
Intercept	0.416	0.210	0.179	0.510	0.357	0.349

Significance levels: * P < 0.05 level, ** P <0.01, *** P < 0.001

For Chinese males, once again, working in an ethnic residential concentration or an enclave is negatively associated with working in an ethnic niche. This highlights the negative effects of working in ethnic enclaves or ethnic concentrated areas on upward mobility in the labor market. Putting this finding into context, previous studies suggest that ethnic economic activities are spatially close to ethnic neighborhoods for both market and labor needs (Kaplan, 1998; Lee, 1995; Li, 1998). Sociologists have also shown that many African-American professionals or those at the high level of labor market hierarchy must depend on networking among their coethnic population (Grodsky and Pager, 2001; Mouv, 2003). However, Zhou's (1998) study on Los Angeles suggests that many Chinese service firms (such as banks and computer firms) do not necessarily locate within Chinese enclaves. In this study, the effects of workplace suggest that Chinese male niche workers most likely work outside of ethnic enclaves and with fewer ethnic minorities (including Asians). As shown by the results of Model 2 (Table 3.6), Chinese men working in the census tract with a high proportion of blacks, Hispanics, and Asians are less likely to work in ethnic niches.

For Chinese immigrant women, after controlling personal characteristics and the proportion of blacks, Hispanics, and economic structure at the census tract, type of workplace concentration is no longer significant in predicting niche employment (Model 3 in Table 3.6). The results reemphasize that the place of residence is more significant for women workers than their place of work. They also underscore the low status of occupational concentration of Chinese immigrant women. For most of them, once they find a job, whether or not they work in an ethnic niche does not matter. This is reemphasizes the importance of residential neighborhoods for women workers in their labor market experiences.

Overall, the difference in neighborhood effects on ethnic niche employment for Chinese immigrant men and women polarizes the labor market segmentation into niche and non-niche occupations between different skills of occupations and between different classes. The ethnic resources within ethnic neighborhoods and enclaves could provide job opportunities; however, ultimately, they have a limit in how far they can assist the immigrant's upward mobility in the labor market (Granovetter, 1985; Waldinger, 1995).

CONCLUSIONS

The findings of this study show that Chinese immigrants in the San Francisco Bay area are clearly segmented by job skill and class and this segmentation is strongly gendered. Chinese males are more concentrated in knowledge- and capital-intensive occupations with higher pay, more upward mobility, and better working conditions while women workers are most concentrated in semi-professional, clerical, production, and service-related jobs. The experience of Chinese immigrant women is consistent with that suggested by the theory of "double disadvantage" of immigrant women.

Residential place and workplace are polarizing the segmented labor market between men and women and between different-skilled jobs. Previous work on Los Angeles shows that residential concentration does not necessarily provide advantages in accessing job opportunities for Chinese immigrant women (Park, 2004). However, this study suggests that, for Chinese immigrant women, living in ethnic neighborhoods and enclaves does increase the opportunities of accessing their coethnically female-concentrated job sectors through personal contacts and social networking. Although these niches are attracting many disadvantaged women workers, they do not offer advantages in earnings or upward mobility. In fact, for most living in ethnic neighborhoods and enclaves, engagement in niche sectors might lead to occupational immobility.

The attractiveness of ethnic niches for most immigrant Chinese women is likely to be the high accessibility of their jobs. Once they get a job, where they work spatially does not matter for their niche employment.

Chinese immigrant men's experience reemphasizes the limitation of ethnic resources within ethnic neighborhoods and ethnic enclaves. Male workers living in coethnically concentrated areas are less likely to access Chinese male-concentrated job sectors with high-tech and knowledge intensive sectors in the "new economies" in the San Francisco Bay area. Likewise, working in ethnic neighborhoods or enclaves, or even working in the census tracts with high percentage of ethnic minorities (including Asians), will decrease Chinese immigrant men's probability of working in these high-profiled niche sectors.

These results suggest that abundant ethnic resources in ethnic neighborhood and enclaves can provide certain types of labor market opportunities. This also indicates the limitation of these resources in helping ethnic minority or immigrant workers, especially women, to move upward along the skill lines of the labor market hierarchy. In a multiracial globalized economy like that of the San Francisco metropolitan area, ethnic neighborhoods and enclaves are actually intensifying the bifurcation of the local labor market and the nature of the labor market could play an important role in earnings inequalities by race and ethnicity. To achieve equity in the labor market, equity in accessing education and training opportunities for ethnic minorities and women are necessary. Therefore, policies targeted at the geography of both home and work to achieve more freedom in the housing market and more chances to access different channels of labor market information are fundamental.

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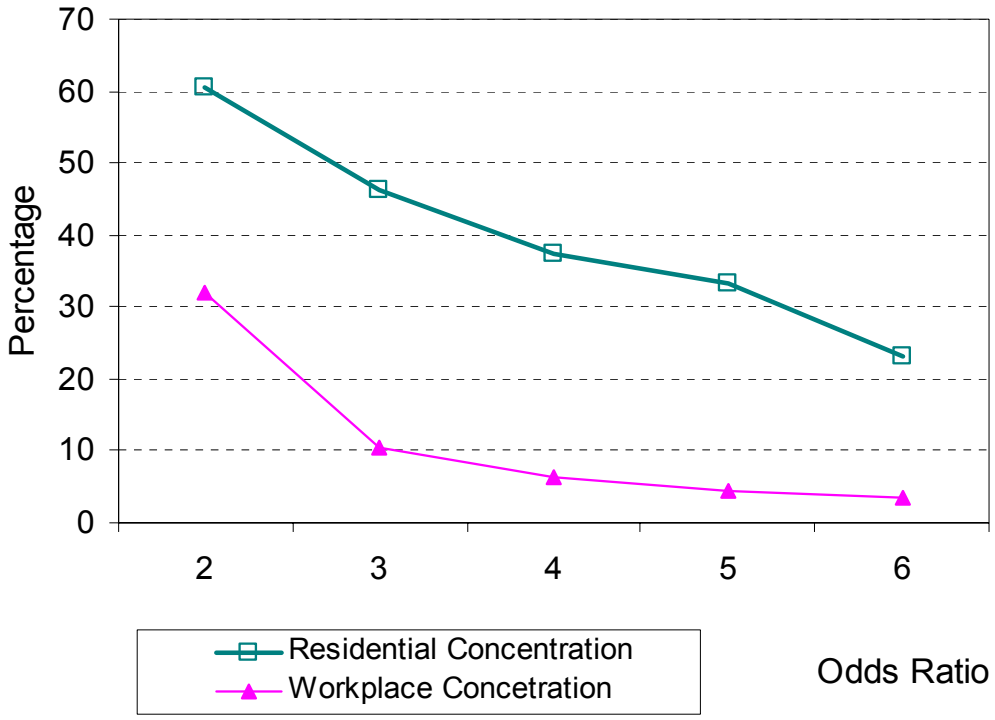
APPENDICES

Appendix 3.1. Concentration Degree of Residence and Workplace



CHAPTER 4

WHO PAYS THE PENALTIES?
EARNINGS EFFECT OF ETHNIC LABOR MARKET CONCENTRATION
IN MULTI-RACIAL METROPOLITAN CONTEXTS[13]

[13] Wang, Q. To be submitted to *Demography*.

ABSTRACT

With the huge influx of immigrants to the United States in recent years, it is a well-observed phenomenon that a large number of ethnic minorities or immigrants disproportionately concentrate in a particular set of labor market sectors, i.e., ethnic niches. There is yet no consensus on whether ethnic minorities are hurt or helped by the concentration with regard to job earnings. In the literature, most factors associated with the earnings effect of ethnic niche employment are at the individual or jobsite and occupational level. Although there is considerable literature suggesting that metropolitan contexts have significant effect on the job earnings of different racial and ethnic groups, there is a missing link between the metropolitan context and the earnings effect of ethnic niche employment. Using data from the 2000 Integrated 5% PUMS and Census 2000 Summary File 3, this study deploys a multilevel research approach to compare job earnings of white, black, Hispanic and Asian workers in their respective niche and non-niche sectors, and to examine how the metropolitan urban labor market contexts, net of other factors, influences these earnings. The findings from this study show that engaging in different ethnic niches is the main source of earning inequalities among different racial and ethnic groups. The highly privileged native white niche-workers profit greatly from the increase of ethnic minorities and immigrants in the metropolitan area. Different from competition or "visibility-discrimination" hypothesis, native black do not suffer from the increase of coethnic or other ethnic minorities in the local area; instead, they benefit largely from the increase of immigrant ethnic minorities net of controlling personal and other labor market characteristics. However, both Asian and Hispanic immigrant niche workers suffer from the increase of their coethnic population. As shown in this study, linking labor market contextual conditions to ethnic

labor market concentration can greatly improve our understanding of the mechanism and socioeconomic consequences of labor market segmentation in the future.

Key Words: Context, ethnic labor market, concentration, earnings inequality, immigrants

INTRODUCTION

With the huge influx of immigrants to the United States in recent years, we have seen the development of an ethnic/racial stratification of the labor market. Considerable effort has been devoted to describing the patterns of ethic clustering in certain jobs and labor market sectors commonly referred to as "ethnic niches." A well-observed phenomenon is that a large number of ethnic minorities or immigrants are concentrated in job sectors with low status and low pay. For example, analyses for Los Angeles show that recent-immigrant Latinos make up a vastly disproportionate share in a particular set of low-skill service, operator, laborer, and agricultural brown-collar occupations. In contrast, native-born white Americans tend to be concentrated in capital-intensive and lucrative jobs in white collar and managerial occupations (Catanzarite and Aguilera, 2002; Ettlinger and Kwon, 1994; Hudson, 2003; Logan et al., 1994, 2000, 2003; Wang, 2004; Wilson, 2003; Wright and Ellis, 1996, 1997, 2000).

A pressing question when discussing the ethnic segmentation of the labor force is this: Does working in an ethnic niche carry an earnings advantage or do ethnic niches provide "last resort" jobs for ethnic minorities who do not have other choices in the open economy? The empirical evidence regarding the economic benefits of niche employment remains mixed. Some researchers argue that ethnic niches workers can attain higher returns on their human capital resources and enjoy better opportunities for promotion than non-niche sector workers (Aldrich et al., 1985; Jibou, 1988; Pfeffer, 1981). The argument is that engagement in ethnically concentrated job sectors can provide more opportunities for access to the familiar work environment, greater on-the-job training, more access to capital/credit, and information on employment and housing than other jobs (Waldinger and Der-Martironsian, 2001; Wilson and Portes, 1980; Zhou, 1992).

Other studies argue that ethnic employment ethnic niches are associated with low status, low wages, unstable jobs, and deplorable working conditions (Bonacich and Appelbaum, 2000; Sander and Nee, 1987; Wilson, 2003). They suggest that co-ethnic employers are often in a position to exploit new immigrants who may have a limited understanding of their legal rights. These and other studies demonstrate that the concentration of minority workers in certain occupations depresses earnings of all workers in that occupation (Catanzarite, 2003; Kmec, 2003). This observation is typically interpreted as a *pay penalty* of working in an ethnic niche.

A number of dynamics can influence the job earnings of ethnic niches. Neoclassical economic models believe that human capital, viz. the education level and skills possessed by workers, is the key determinant of job pay in certain sectors (Becker, 1975; Wood, 1982). However, the clustering of ethnic workers into a particular sector can exert an additional influence on earnings. On the one hand, ethnic concentration in a workplace can increase negotiating power for ethnic minorities and thus help increase earnings. On the other hand it can create intra-occupational wage competition whereby certain groups of workers who are retained at low wages can drive down earnings for all workers. Other factors, such as discrimination, minority workers' lower bargaining power, and occupational downgrading are all believed to increase the vulnerability of ethnic workers, and thus produce a detrimental earnings effect in ethnic niches (Catanzarite, 2003; Catanzarite and Aguilera, 2002; Grodsky and Pager, 2001; Cohen and Huffman, 2003, Kmec, 2003; Tam, 1997).

Regardless of their conclusion about the advantages/disadvantage of niche employment, previous studies tend to consider the effects of only two sets of factors: individual characteristics and characteristics of the employment sector. A third factor that is curiously missing from consideration is the nature of the metropolitan labor market. There are, however, compelling

reasons to hypothesize that the local labor market context has an effect on the earnings in ethnic niches. Studies since the1970s have found that the increase of the relative size of blacks in a local area will increase the earnings gap between whites and blacks (Beggs et al., 1997; Cohen, 2001). White-black wage gaps are also influenced by the macroeconomic restructuring in a local economy (McCall, 2001). In recent years the demographic changes caused by immigration also have impacts on earnings differences between whites and blacks, and between natives and immigrants (Lim, 2001; Rosenfeld and Tienda, 1999; Tomaskovic-Devey and Skaggs, 2002). While these studies offer valuable insights on how the ethnic structure of the metropolitan area affects earnings overall, few studies have explored how it affects the earnings in ethnic niche occupations.

This study examines how local labor market characteristics, particularly ethnic labor compositions and economic structure, influence the earnings of workers in ethnic niche and non-niche jobs and between different ethnic groups. The following section discusses the literature on the earnings effects of labor market segmentation and concentration, and details how the urban context influences this. I then elaborate on the data and methodology used in this study. After that, this paper discusses the earning difference between niche and non-niche sectors for each group and between different racial/ethnic groups. I particular focus on the extent to which labor market contexts influence earning patterns.

THE EFFECT OF METROPOLITAN CONTEXT ON ETHNIC NICHE EARNINGS

In this section I first present different theoretical perspectives for understanding the earning results of working in ethnic niches and associated factors. I then address how metropolitan contexts influence earnings differentials between different racial and ethnic groups.

Finally, I discuss why metropolitan contexts can impact earnings of niche and non-niche jobs and those of different ethnic groups.

Economic Returns to Ethnic Niche Employment

The question of how ethnic niche earnings are set can be addressed in a number of ways. According to *neoclassical economics*, people choose to work in the sectors providing the highest returns based on certain combinations of skills (Becker, 1975). If a particular sector becomes dominated by an ethnic group, this suggests that the ethnic group possesses a comparative advantage in terms of skills or knowledge in satisfying the demands of the jobs in that sector. Working in ethnic niches can thus bring higher returns for the worker than working in non-niche jobs assuming that the latter option is available. In reality ethnic minorities often do not possess the skills or education for most jobs in the open economy and therefore end up "niching" in job sectors associated with low skills requirement and manual work. According to this perspective, although ethnic minority workers may end up concentrating in a low wage sector, job earnings are not directly influenced by race or ethnicity.

Another perspective is built on the notion of *ethnic hegemony* (Jibou, 1988). According to this approach, ethnic niche workers can attain higher returns on their human capital resources and enjoy better opportunities for promotion and rewards than those available for them in the larger economy (Portes and Bach, 1985; Zhou, 1992). This is because the increase in the relative size of the minority population in a workplace is likely to enhance minority workers' negotiating power, and thus, put them in a better position to capture lucrative and prestigious jobs (Aldrich et al., 1985; Pfeffer, 1981).

Rejecting the lucrative nature of ethnic niches, the *competition hypothesis* argues that in order to get employment opportunities, minority workers willingly supply their labor at a lower

cost because their low status does not give them much negotiation power. This, in turn, triggers a competitive process that results in depressed wages and worsened working conditions for all other workers employed in the same employment sector (Hodge and Hodge, 1965). The lower status of minority workers in the labor market may be caused by lack of access to higher human capital resources, discriminatory practices of employers, downgrading of the ethnic niche sectors, and institutional regulations (Averitt, 1968; Lieberson, 1980). Recent studies on the relationship between racial composition of the workplace and earnings have supported the thesis that heavy concentration in particular job sectors suppresses the wages or earnings in those sectors, and workers in those jobs suffer substantial wage penalties (e.g., Kmec, 2003; Catanzarite, 2003; Catanzarite and Aguilera, 2002).

Regardless of their differences, a common thread in the preceding studies is that the level of job earnings of ethnic workers are attributed to either personal socioeconomic characteristics or employment conditions. They tend to neglect the potentially profound impact of the labor market (read metropolitan) context on the earnings effect.

Metropolitan Context Effects on Earnings of Racial/Ethnic Groups

There are a number of ways in which the relative size of ethnic minorities in the metropolitan labor market can affect their earnings. The classic *visibility-discrimination hypothesis* argues that increases in minority groups will heighten the perceived economic and political threat posed to the majority, and provoke discrimination from the majority, leading to a greater earnings gap between them (Beggs et al., 1997; Cohen, 1998; Huffman and Cohen, 2004). The *white gains* perspective posits that whites directly profit from discrimination against blacks; therefore, the intensity of race-based discrimination will be strongest where black concentration is high (Glenn, 1963; McCreary et al., 1989). Empirical studies have provided

evidence that socioeconomic disparities between majority and minority incomes widen as the proportion of minorities in a labor market increases, and that whites usually benefit at the expense of minorities perceived as nonwhite (Cohen, 2001; Tienda and Lii, 1987; Burr et al., 1991). Collectively, these studies suggest that minority workers will suffer a pay penalty as their numbers grow.

Large scale immigration is changing the racial composition and demographic conditions in metropolitan areas, which is hypothesized as a major source of earnings inequalities between whites and blacks. For example, Hamermesh and Bean (1998) contend that immigration has had a modest but clearly identifiable negative effect on less-skilled African-American workers' earnings. Borjas (1999) also argues that the influx of low-skilled immigrants can have negative effects on native ethnic minorities. The widely held assumption is that immigrants tend to accept lower wages, and thus displace native minorities from certain labor market sectors and lower the wages in those sectors. This is to a large extent consistent with the *competition hypothesis* referred to in the previous section.

In addition to racial composition and demographic changes caused by immigration, macroeconomic structuring and growth of a new economy in a local metropolitan area also influence job earnings. According to the *restructuring hypothesis*, the emergence of a knowledge-based service economy has polarized the labor market in American cities. At one end is an accelerated demand for jobs requiring high levels of skill and formal education. At the other, there is a need for workers in low-wage industries such as domestic and personal services, retailing, and downgraded manufacturing (Sassen, 1988). Ethnic minorities who formerly concentrated in manufacturing industries suffer the most due to lack of job-skills and opportunities in the rising sectors of the new economy.

At the same time, due to economic decentralization and suburbanization, formerly available jobs have moved to suburban areas. Racial barriers in housing and the lack of an efficient mass transit system for delivering workers from their central city residential locations to work sites in the suburbs effectively deny inner-city-residents, mainly African Americans, the opportunity to work and live in the booming satellite cities (Kain 1968, 1992). The resulting skill and spatial mismatch significantly influences the earnings difference between blacks and whites. For instance, the exodus of manufacturing plants and union jobs from urban areas resulted in a significant increase in black/white wage differentials during the 1970s and 1980s (McCall, 2001).

Linking the Earnings of Niche Employment to the Metropolitan Context

Whereas the literature provides valuable insights for understanding the earning effects of a metropolitan context, it does not explicitly explain earnings of ethnic niche and non-niche sectors. The unique mechanism through which job niches form and persist suggests that the impacts of labor market context can be very different between niche and non-niche workers, different racial/ethnic groups, and natives and immigrants.

In contrast to the perspective that an increase of immigrants in a local labor market will compete with native minorities and lower wages, some studies argue that the domestic labor market is sufficiently segmented so that native workers are insulated from the direct employment effects of the immigrants; further, immigrants, by taking the low-skiledl jobs formerly held by natives, may actually push native-born workers upward in the occupational stratification system (Frisbie and Neidert, 1977; Reimers, 1998; Rosenfeld and Tienda, 1999; Tienda and Lii, 1987). It is a common practice in ethnic niche sectors that employers recruit new workers through the networks of current employees, or that job seekers enter ethnic niches through job referrals by

the coethnic population (Park, 2004; Waldinger and Der-Martirosian, 2001; Mouw, 2003). Both situations could lead to different concentration patterns of immigrant minorities from native minorities. This suggests that although immigration is changing the racial composition of a local labor market, the impacts of local contexts can be different for niche and non-niche workers, and for immigrants and natives.

Closely related to the restructuring hypothesis is the argument that there is an automatic process of "ethnic succession" in the job market as white workers move out of certain employment sectors. Waldinger's (1996) analysis of the New York labor market found that the exit of native whites from the work force created a sequence of job vacancies that growing populations of native non-whites and immigrants could fill. Wright and Ellis (1996) similarly concluded that the exit of whites from certain sectors of New York's labor force in the 1970s gave immigrants entry into the city's labor market. Since the niche formation is intertwined in the process of macroeconomic restructuring, decentralization, and globalization, it is necessary to link the earning effects of labor market concentration with macroeconomic structures in the metropolitan areas.

The final consideration is the racial and ethnic diversity of a current metropolitan context. Since most immigrants today are racial minorities, continuing immigration is transforming the United States from a largely biracial society consisting of a sizable white majority and a small black minority (together with a very small Native American Indian minority of less than 1 percent) into a multiracial, multi-ethnic society (Bean and Stevens, 2003). It is becoming increasingly important to address issues of socioeconomic inequalities with consideration of different racial and ethnic groups. The *visibility-discrimination hypothesis*, *white gains* perspectives, and *restructuring impacts* mainly investigate the earnings difference between

whites and blacks. Recent studies have also looked at the competition between natives and immigrants focusing particularly on Hispanic workers (especially Mexicans) and native-born blacks (Borja, 1999; Hamermesh and Bean, 1998). However, we still know very little about whether the depression earnings effect of black workers still happens in multi-racial/ethnic contexts and whether similar effects are experienced by immigrant minorities.

Given this, the present study compares job earnings of white, black, Hispanic and Asian workers in their respective niche and non-niche sectors and examines how the metropolitan labor market context, net of other factors, influences these earnings. Specifically, I address the following two sets of questions:

- How do workers in ethnic niches fare with regards to earnings when compared to those in non-niche sectors? How does this influence the earning inequalities among racial/ethnic groups?
- How does the urban labor market context, especially racial composition and economic structure, influence the earnings differences of ethnic niche and non-niche workers, and between different racial/ethnic groups? In particular, how is each ethnic group helped or hurt by the increasing presence of other minority groups?

These questions are explored using hierarchical linear modeling of data on whites, blacks, immigrant Hispanics and immigrant Asians from the 2000 Public Use Microdata Samples (PUMS) for all 241metropolitan areas in the United States. Based on the preceding discussion, I hypothesize that the earnings differences between niche and non-niche sectors and between different groups are significantly influenced by the urban labor market conditions.

DATA AND METHODOLOGY

This study is based on a multilevel research approach using data at the individual and metropolitan area levels. Data for individual workers come from the 2000 Integrated 5% PUMS (Ruggles et al., 2004). I compare earnings for four main racial/ethnic groups: native-born non-Hispanic whites, native-born non-Hispanic blacks, foreign-born Hispanics, and foreign-born Asians[14]. Due to the consideration that job earnings are likely to be influenced by retirement, military, school-related, and part-time status, I restrict the sample to those of age 25-54, not in school, and employed in civilian occupational sectors in 2000 who typically worked 35 hours or more per week in 1999 with positive job earnings (Cohen, 2001). Data for the metropolitan areas, that is, Consolidated Metropolitan Statistics Area (CMSA) or Metropolitan Statistical Areas (MSA), come from Census 2000 Summary File 3 (Census Bureau, 2000).

Identifying Employment Ethnic Niches

In describing labor market concentration patterns, most researchers categorize employment sector by industry or occupation alone (Ellis and Wright, 1999; Logan and Alba, 1999; Logan et al., 1994, 2000, 2003; Waldinger, 1996; Wright and Ellis, 2000), but labor market specialization can vary both by occupation within industries and by industry within occupations. To capture both features in industrial sectors and occupations, a cross-combination of industry and occupation is employed in most recent studies, with different numbers of breakdowns (e.g. Hudson, 2003; Huffman, 2004; Tomaskovic-Devey and Skaggs, 2002; Wilson, 2003).

[14] Due to the complex and ambiguous categorical usage of race and ethnicity (for detailed discussion, see Hamilton and Form, 2003, Wilson, 2003), there can be a significant variation within each racial and ethnic group in terms of distinctiveness in religion, culture, ancestry origin and physical appearance. Additionally, mixed-race individuals are making such categorization more problematic and complicated. Nevertheless, these racial and ethnic categories are still significant in understanding niche employment, as shown in many previous studies (Hudson, 2003; Wilson, 2003; Wright and Ellis, 2000).

The number of industry-occupational categories used, although ultimately arbitrary, is generally based on the size of the regional labor market and working population. In this analysis I use a 14-category breakdown of industrial sectors and a 23-category breakdown of occupations producing a total of 322 crossed-classified sectors (see Appendix 4.1 for the list of sectors). Each respondent in the dataset is embedded into an industry-occupation-metropolitan area cell. Since both the number and distribution of employment/workers are different among racial/ethnic groups across metropolitan areas, this industry-occupation-metropolitan area design allows the examination of (i) variations in jobs and earnings among different ethnic groups within a single metropolitan area, and (ii) variations in jobs and earnings in a single ethnic group across metropolitan areas.

The employment sectors that are dominated by a particular ethnic group, i.e., ethnic niches, are identified by odds ratio[15], given by:

$$\text{Odds Ratio} = (Ei / Et\text{-}i) / (Oi / Ot\text{-}i) \qquad (1)$$

The numerator represents the odds of a worker belonging to ethnic group E being engaged in sector i, and the denominator represents the odds of a person from any other ethnic group (O) working in the same sector i. For example, if Ei is the number of Chinese in food service, Et-i represents Chinese workers in all other occupations, Oi is the number of non-Chinese workers in the food service sector, and Ot-i represents the non-Chinese workers employed in non-food service sectors.

Consistent with previous studies, an ethnic niche is defined as one in which the odds ratio is 1.5 or greater. Additionally, in order to prevent a bias resulting from very small numbers, I

[15] The measurement of odds ratio was used in previous studies (Logan et al., 1994, 2003; Wilson, 2003), but a representation index or location quotient has also been used (Ellis and Wright 1999; Hudson, 2003; Rosenfeld and Tienda, 1999). Compared to the representation index and location quotient, the odds ratio is more sensitive to the

stipulate that an ethnic niche has to be at least 50% of the average size of ethnic group members across all employment sectors. For example, if there are 322,000 foreign-born Asian workers in metropolitan area A, the average size of each employment sector for foreign-born Asian workers will be 1000 (=322,000 workers/322 sectors). An Asian niche must then have at least 500 (50% of 1000) Asian workers and an odds ratio equal to or greater than 1.5[16]. Since the number of workers for each group is different across metropolitan areas, the minimum restriction for each group is also different across metropolitan areas.

After identifying the ethnic niches, all the workers are recoded into a binary "niche" variable which takes on the value of 1 if the worker is employed in an ethnic niche and 0 otherwise. Thus, all the respondents in the dataset are coded as either niche or non-niche workers.

Multilevel Linear Regression Modeling

To examine the factors associated with job earnings, especially the contextual effects, a multilevel linear regression modeling strategy is employed. In conventional studies labor market variables are merged with individual-level variables to assess the effect of local conditions on individual outcomes (e.g., Tienda and Lii, 1987). This is not appropriate for the measurement of labor market effects, the significance of which is overestimated due to correlation error within labor markets (for discussion in detail, see Raudenbush and Bryk, 2002). To correct for these and

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change of employment distribution, although the implication of the odds ratio is similar. Please refer to Rosenfeld and Tienda (1999, appendix) for more discussion.

[16] Both the threshold value of 1.5 and the minimum restriction (50% of the average size) are arbitrary. In previous studies the threshold for defining an ethnic niche was between 1.2 and 2.0 (e.g., Ettlinger and Kwon, 1994; Hudson, 2003; Logan et al, 2000; Wright and Ellis, 2000), but they are all arbitrary in nature. We should be aware that choosing a threshold level a priori is risky because the range of values depends on the number of sectors, groups, and the size of the sample. For the restriction on minimum number of workers, some studies use absolute number: for example, at least 300 or 500 workers in niche sector (Wilson, 2003). However, I believe that a percentage measure is more preferable than an absolute value to reflect the nature of ethnic labor markets, since the size of the labor force and their share of each sector vary greatly across ethnic groups and across metropolitan areas. We have

other problems, this study uses a two-level hierarchical linear model with detailed data on both individuals and labor markets at the metropolitan area level. This two-level approach includes random errors that control for correlation error among individuals in the same labor market; therefore, it allows for simultaneous estimation of a full metropolitan-area-level model with controlled personal-level variables to predict personal job earnings.

Level 1 Model: Effects of individual characteristics

At level 1, job earnings for each racial/ethnic and gender group are estimated using individual-level data for each labor market. The full multilevel model for analyzing job earnings (i.e., the no-intercept model) is:

$$Yij = \beta 1j(\text{White Niche})ij + \beta 2j(\text{White NonNiche})ij + \beta 3j(\text{Black Niche})ij + \beta 4j(\text{Black NonNiche})ij + \beta 5j(\text{Hispanic Niche})ij + \beta 6j(\text{Hispanic NonNiche})ij + \beta 7j(\text{Asian Niche})ij + \beta 8j(\text{Asian NonNiche})ij + C\ ijr + eij \quad (2)$$

where Yij, the dependent variable, is the natural log form of total personal earned income for person i at metropolitan area j. (White Niche)ij, (White NonNiche)ij, (Black Niche)ij, (Black NonNiche)ij, (Hispanic Niche)ij, (Hispanic NonNiche)ij, (Asian Niche)ij, and (Asian NonNiche)ij represent the binary variable for individual i in labor market j. The coefficients, β1j, β2j, β3j, β4j, β5j, β6j, β7j, and β8j represent adjusted average job earnings for each racial/ethnic and gender group, calculated as a natural log form.

I also include a standard vector of C ij individual level variables with their associated coefficients r. These variables include age, marital status, level of education, number of own family members in the household, hours worked weekly, travel time from home to work, and

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more detailed discussion elsewhere on different usages of employment sector, threshold of odds ratio, and the minimum worker restriction. Interested readers can contact the author for more detail.

Table 4.1. Coding Strategy of Variables in MLM Models

Variable	Coding Strategy
Individual-level Variables	
Age	Continuous; in natural log form
Female	Binary; Being female=1
Married	Binary; being married = 1
Family	Continuous; family size in natural log form
Degree	Binary; having college degree =1
Hour	Continuous; hours worked per week in natural log form
Self-employed	Binary; being self-employed = 1
Travel Time	Continuous; travel time from home to work measured in 30 minutes
White Niche	Binary; native whites in white employment niches
White NonNiche	Binary; native whites in white employment non-niches
Black Niche	Binary; native blacks in black employment niches
Black NonNiche	Binary; native blacks in black employment non-niches
Hispan Niche	Binary; foreign-born Hispanics in Hispanic employment niches
Hispan NonNiche	Binary; foreign-born Hispanics in Hispanic employment non-niches
Asian Niche	Binary; foreign-born Asian in Asian employment niches
Asian NonNiche	Binary; foreign-born Asian in Asian employment non-niches
MA-Level Variables	
Northeast	Dummy; region of Northeast =1 (reference category)
South	Dummy; region of South =1
West	Dummy; region of West =1
Midwest	Dummy; region of Midwest =1
Size	Continuous; size of labor force at MA-level in natural log form
Unemployment	Continuous; unemployment rate at MA-level
Manufacturing	Continuous; percentage of labor force in manufacturing industries
High Status	Continuous; percentage of labor force in information, FIRE, professional and scientific industries
Service	Continuous; percentage of labor force in services industries
Black	Continuous; percentage of blacks in total population
Hispanic	Continuous; percentage of foreign-born Hispanics in total population
Asian	Continuous; percentage of foreign-born Asians in total population

entrepreneurship, which are found to be responsible for job earning effects in most previous studies (e.g., Cohen, 1998, 2001; Shumway and Cooke, 1998; Tienda and Lii, 1987. See table 4.1 for the description and coding strategy of variables).

Level 2 Model: Effects of the Metropolitan context

At level 2, variation in job earnings across labor market is modeled as a function of local labor market conditions, such as the racial composition and macroeconomic structure.
To control personal differences in their socioeconomic characteristics, the individual level control variables (Cij) are assumed to be fixed across the labor market and are centered around their grand means. That is, the job earnings are estimated net of individual-level differences across labor markets (such as age and education).

Variation in job earnings for each ethnic group between niche and non-niche across the labor market is estimated at labor-market level by equations 2 through 9:

$$\beta\ 1j = \gamma 10 + Wj\ \gamma 1 + \mu 1j \qquad (3)$$

$$\beta\ 2j = \gamma 20 + Wj\ \gamma 2 + \mu 2j \qquad (4)$$

$$\beta\ 3j = \gamma 30 + Wj\ \gamma 3 + \mu 3j \qquad (5)$$

$$\beta\ 4j = \gamma 40 + Wj\ \gamma 4 + \mu 4j \qquad (6)$$

$$\beta\ 5j = \gamma 50 + Wj\ \gamma 5 + \mu 5j \qquad (7)$$

$$\beta\ 6j = \gamma 60 + Wj\ \gamma 6 + \mu 6j \qquad (8)$$

$$\beta\ 7j = \gamma 70 + Wj\ \gamma 7 + \mu 7j \qquad (9)$$

$$\beta\ 8j = \gamma 80 + Wj\ \gamma 8 + \mu 8j \qquad (10)$$

The adjusted average job earnings for each group are once again represented by β1j through β8j in equations 3 through 10. The level-2 error terms (μ1j through μ6j) indicate that a separate variance component is estimated for each group's earnings. This random spatial variation in earnings is partially explained by vector Wj variables describing the demographic and economic conditions of each labor market j. To examine how the earning differences between niche workers and non-niche workers, ethnic groups, and natives and immigrants are

influenced by local racial composition, I mainly look at the effects of black, foreign-born Hispanic, and foreign-born Asian proportions of the population at the metropolitan labor market level. At the same time, the effects of economic structure, measured by the percentages of the labor force in manufacturing industries, service, and "high-status" industries (which refers to information, finance, insurance, real estate, professional, and scientific), are examined as well.

Due to possible influence by other contextual effects suggested by previous studies (e.g., MacCall, 2001), I control the region where the metropolitan area belongs (Northeast, South, Midwest, and West), the size of the civilian labor force (in natural log form) in each metropolitan area, and unemployment rate at metropolitan area level. The associated vector, $\gamma 10$ through $\gamma 80$ represent the effects of labor market characteristics on the average job earnings for each racial/ethnic and niche group, and, therefore, should be understood as interaction effects of race/niche and local context, as is clear when equations 3 through 10 are substituted into Equation 2 to form the full mixed model.

FINDINGS AND DISCUSSION

General Pattern of Ethnic Niches

The national pattern found in this study is similar to studies elsewhere (Hudson, 2003; Logan et al., 2000; Wang, 2004; Waldigner, 2001; Wilson, 2003). As shown in Table 4.2, native whites are more likely concentrate in sectors with relatively higher status such as management occupations and sales in FIRE industries. Native born blacks are more concentrated in healthcare support, production, and office and administrative support occupations. Immigrants have very heavy concentration in production jobs. Hispanic immigrants concentrate in the low level of the labor market hierarchy, such as building and grounds cleaning and maintenance. In contrast, Asian immigrants have a high concentration in sectors such as healthcare practitioners,

technicians, and computer and mathematical specialists, which generally require a high technology and education level. However even they exhibit high concentrations in low-skilled and labor intensive jobs such as food preparation and serving.

Table 4.2. National Top Five Ethnic Niches by Group

Group	Industrial Sector	Occupation	% [1]
White	Education, Health & Social Service	Education, Training, & Library	6.23
	Manufacturing	Management	5.90
	FIRE	Sale Occupation	5.63
	Wholesale Trade	Sale Occupation	4.71
	Construction	Construction trade	4.15
Black	Education, Health & Social Service	Healthcare support	7.69
	Manufacturing	Production	7.42
	Transportation & Warehousing	Transportation & material moving	6.33
	Public Administration	Office & Administrative support	5.37
	Transportation & Warehousing	Office & Administrative support	5.15
Hispanic	Manufacturing	Production	20.88
	Wholesale Trade	Sale occupation	17.32
	Arts, Recreation, Accommodation & Food	Food Preparation and Serving	11.68
	Professional, Scientific, Management	Building & Grounds Cleaning, maintenance	7.57
	Agriculture, Forestry, Fishing & Hunt	Building & Grounds Cleaning, maintenance	4.29
Asian	Education, Health & Social Service	Healthcare practitioners & Technical	13.68
	Manufacturing	Production	13.19
	Professional, Scientific, Management	Computer and Mathematical	8.34
	Arts, Recreation Accommodation & Food	Food Preparation and Serving	6.18
	Retail Trade	Sales Occupation	3.70

[1]It is the percentage of total ethnic group members in the sample.

The labor market hierarchy along the lines of race and ethnicity is more distinct if we look at the individual metropolitan areas. Table 4.3 gives the first five largest ethnic niches for four groups in the largest national metropolitan areas: New York, Los Angeles, and Chicago. Although specific ethnic niches are not the same under different local conditions in each metropolitan area, the general pattern is similar. Whites concentrate in knowledge- and capital-intensive core sectors, such as management and legal occupation. Blacks and Hispanics concentrate in semi- or low-skilled job sectors. However, blacks have higher status with

Table 4.3. Top Five Ethnic Niches in Selected Metropolitan Areas

		Industrial Sector	Occupation	Worker
NY	**White**	Public Administration	Legal Occupation	358283
		Education, Health & Social Services	Healthcare Practitioner &Technical	175704
		FIRE	Sales Occupation	67843
		Professional, Scientific, Management	Management	53731
		Professional, Scientific, Management	Legal Occupation	52868
	Black	Transportation and Warehousing	Transportation & Material Moving	19773
		Educational Health & Social Services	Healthcare Support Occupations	19626
		Educational Health & Social Services	Education, Training & Library	19391
		Educational Health & Social services	Office & Administrative Support	19104
		FIRE	Office & Administrative Support	18737
	Hispanic	Manufacturing	Production	56875
		Arts, Entertain. Recreation, Accommodation & Food Service	Food Preparation & Serving	35139
		Construction	Construction trades	30227
		Professional, Scientific, Management	Building & Grounds Cleaning, Maintenance	20847
		Retail Trade	Sales occupation	20122
	Asian	Educational Health & Social Services	Healthcare Practitioner & Technical	38062
		Manufacturing	Production	28172
		Retail trade	Sales Occupation	21849
		Arts, Entertain. Recreation, Accommodation & Food Service	Food Preparation & Serving	17017
		Professional, Scientific, Management	Computer & Mathematical	15239
LA	**White**	Public Administration	Legal Occupation	278643
		Retail trade	Sales Occupation	70923
		Educational Health & Social Services	Management	40991
		FIRE	Management	35114
		Professional, Scientific, Management	Management	26552
	Black	Educational Health & Social Services	Healthcare Practitioner & Technical	9977
		Transportation & Warehousing	Transportation & Material Moving	9724
		Retail Trade	Sales Occupation	9706
		Educational Health & Social Services	Office & Administrative Support	9223
		Transportation and warehousing	Office & Administrative Support	8922
	Hispanic	Manufacturing	Production	160706
		Construction	Construction trades	65814
		Arts, Entertain. Recreation, Accommodation & Food Service	Food Preparation & Serving	48563
		Professional, Scientific, Management	Building & Grounds Cleaning, Maintenance	39431
		Retail Trade	Sales Occupation	29118

Table 4.3. Top Five Largest Ethnic Niches in Selected Metropolitan Areas - Continued

		Industrial Sectors	Occupations	Worker
LA	**Asian**	Educational Health & Social services	Healthcare Practitioner & Technical	
		Manufacturing	Production	31454
		Retail Trade	Sales Occupation	21601
		Arts, Entertain. Recreation, Accommodation & Food Service	Food Preparation & Serving	10986
		Manufacturing	Architecture & Engineering	10268
CH	**White**	Public Administration	Legal Occupation	267354
		Educational Health & Social Services	Education, Training & library	123614
		FIRE	Management	31627
		FIRE	Sales Occupation	31330
		Professional, Scientific, Management	Management	29815
	Black	Manufacturing	Production	19486
		Transportation & Warehousing	Transportation & Material Moving	16334
		FIRE	Office & Administrative Support	13174
		Transportation & Warehousing	Office & Administrative Support	12930
		Retail Trade	Sales Occupation	12261
	Hispanic	Manufacturing	Production	52963
		Arts, Entertain. Recreation, Accommodation & Food Service	Food Preparation & Serving	20793
		Construction	Construction trades	15761
		Manufacturing	Transportation & Material Moving	10236
		Professional, Scientific, Management	Building & grounds cleaning, maintenance	9786
	Asian	Educational Health & Social Services	Healthcare Practitioner & Technical	15125
		Manufacturing	Production	9138
		Professional, Scientific, Management	Computer & Mathematical	5359
		Retail trade	Sales Occupation	4200
		Arts, Entertain. Recreation, Accommodation & Food Service	Food Preparation & Serving	3863

Note: NY represents New York metropolitan area, LA represents Los Angeles metropolitan area, and CH represents Chicago metropolitan area.

concentration in jobs such as office and administrative support; compared to blacks, immigrant Hispanics are more concentrated in the labor-intensive jobs with low-status, such as construction, food preparation and service, and building and grounds cleaning and maintenance. Asian immigrants see both low and high level of concentration in the labor market hierarchy.

The overall pattern indicates a similarity of ethnic niches across different metropolitan contexts, consistent with previous studies. Through analysis of the five immigration gateway cities, New York, Los Angeles, Chicago, San Francisco, and Miami in 1990, Waldinger and Der-Marirosian (2001) argue that immigrants of any one group secured niches of much the same type, regardless of place. Since the economics of different urban regions offer striking contrasts, the persistence of ethnic niches over time and space is expected to have distinct earnings effects under different labor market conditions.

Earning of Ethnic Niche and Non-Niche Workers

Native blacks and immigrant Hispanics have lower average job earnings than native whites and immigrant Asians. Consistent with labor market concentration patterns, while white niche workers enjoy much higher earnings advantages, both Hispanic and black workers fare worse when working in their ethnic niches. Asian immigrant workers see slightly higher job earnings when working in Asian niches (Figure 4.1).

Figure 4.2 shows the earning difference between niche and non-niche sectors. The average refers to the difference of average job earnings between niche and non-niche sectors for each group across all metropolitan without controlling any variables. The controlled difference refers to the difference after controlling personal socioeconomic characteristics described in Table 4.1 (individual-level). The job earnings are significantly different between niche and non-niche workers and between each ethnic group. Although the niche and non-niche difference

becomes smaller after controlling personal characteristics, the basic patterns among groups do not change.

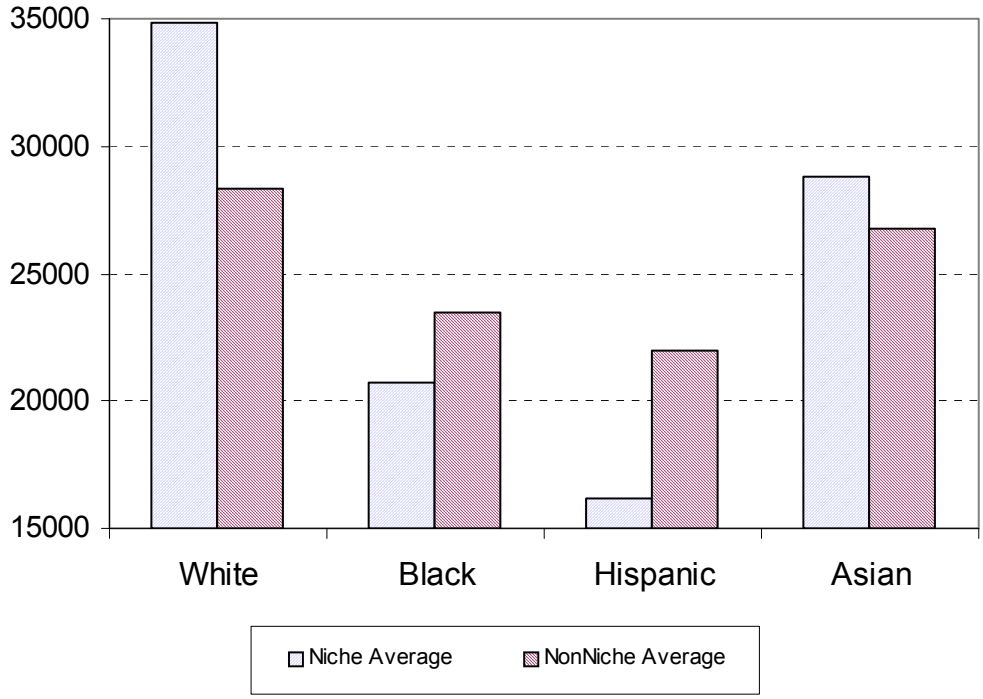

Figure 4.1. Average Earnings Gap between Niche workers and Non-Niche workers

The earning disadvantages of native blacks and immigrant Hispanics are more pronounced when we look at Figure 4.3. Among white niche workers, 15 percent earn below the first national earnings quartile and 36 percent fall into the fourth quartile. By contrast, 68 percent of foreign-born Hispanic workers earn below the first quartile and only 3 percent fall into the fourth quartile. For native black niche workers, 39 percent earn below the first quartile level and 8 percent earn below the fourth quartile level. Asian niche workers are more equally distributed among all quartiles, with obviously higher earnings than Hispanics and blacks.

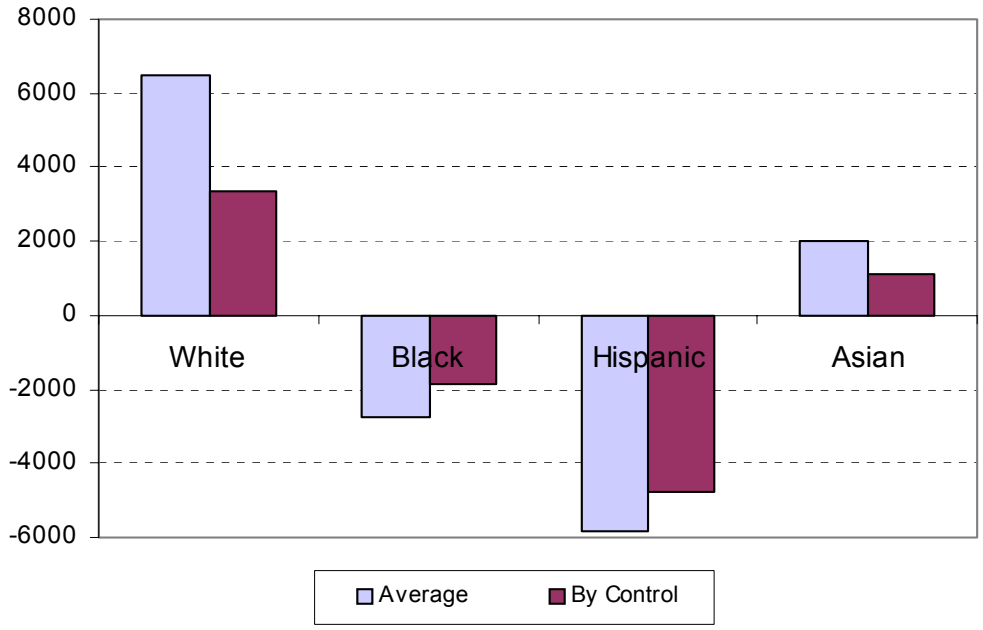

Figure 4.2. Earning Difference between Niche and Non-Niche Workers before and after controlling Personal Characteristics

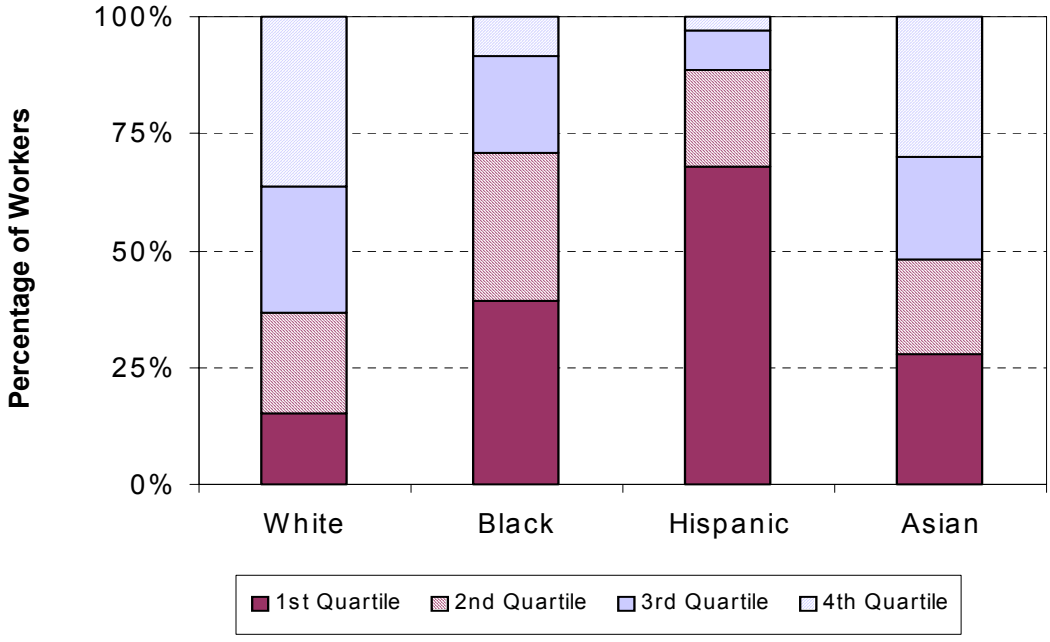

Figure 4.3. Distribution of Niche Workers by Earning Quartile

How does labor market concentration influence the earning difference between racial/ethnic groups? Figure 4.4 shows that, although the percentage of those working in ethnic niches for each group is not dominantly large[17], the earning differences among ethnic niche workers are highly correlated with the earning differences among ethnic groups across all metropolitan areas. This indicates that labor market concentration is the main source of earning inequalities among racial/ethnic groups. Therefore, human capital, discrimination, foreign-born status, and other structural factors suggested by studies on labor market segmentation and concentration can all contribute to earning inequalities among racial and ethnic groups (Hudson,

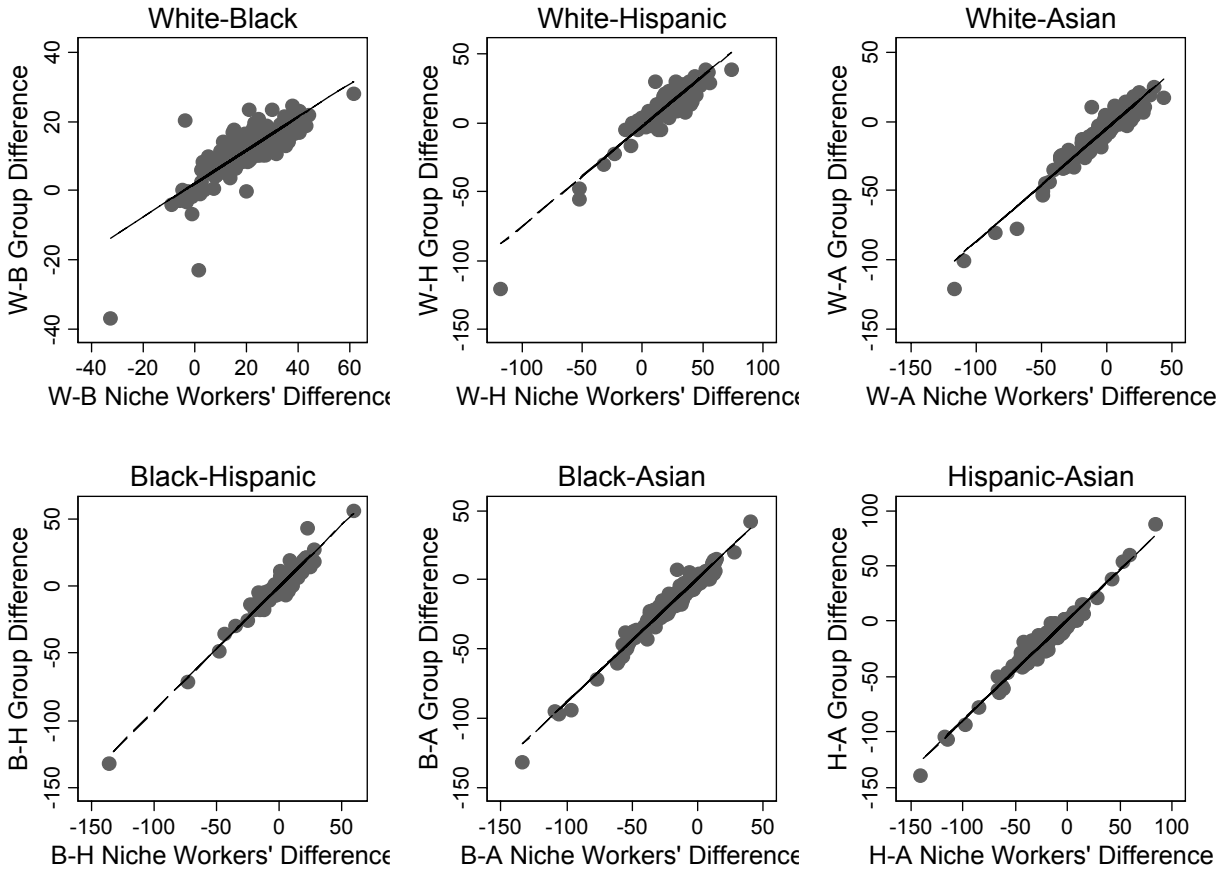

Figure 4.4. Regression of Weighted-Mean Group Earnings Differences on Weighted-Mean Niche Workers' Earnings Differences across All Metropolitan Areas (in $1,000)

[17] Of all workers across all metropolitan areas percentage defined by this study for native whites, native blacks, Foreign-born Hispanics, and Foreign-born Asian respectively are 29.6, 41.9, 65.7, and 51.1.

Earning Effects of Metropolitan Labor Market Conditions

The regression results for job earnings at the individual level suggest that human capital to a large extent determines the job skills levels that a person will take. For example, being female and having larger families are associated with lower job earnings; while those workers who are older, married, working long hours, and have bachelor's degrees tend to earn much more than those who do not have these characteristics (the results are not shown here but available from the author by request).

Table 4.4 gives the coefficients of metropolitan-area-level characteristics on job earnings for each ethnic group, and between niche and non-niches sectors. Model 1 is the result without controlling any individual or MA level variables. Model 2 is the coefficients for metropolitan-area-level without controlling personal characteristics; Model 3 is the coefficients for metropolitan-area-variables after controlling personal characteristics. Variance components are listed at the bottom of Table 2, which suggest that substantial variation in job earnings exists across labor markets. The variance statistics also indicate a greater degree of spatial variation for niche workers than for non-niche workers (except foreign-born Hispanics), and greater for white and Asian niche workers than for Hispanic and black niche workers. The reduction of variance components from Model 1 to Model 3 reveals that the metropolitan-area-level variables in Model 3 surely have significant interacted earning effects with labor market segmentation.

Effects of the increasing presence of black population

The visibility discrimination and competition hypotheses suggest that ethnic minorities, especially blacks, may suffer from the increasing presence of their coethnics (Beggs et al., 1997; Cohen, 2001; Huffman and Cohen, 2004). According to Model 3 (Table 4.4), controlling for personal characteristics, region, economic structure, unemployment rate, and size of labor force,

Table 4.4. Multilevel Linear Regression for Annual Job Earnings (*ln*) on Metropolitan Area Characteristics

	Niche			NonNiche		
	Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
White						
Intercept	10.458***	10.454***	10.404***	10.251***	10.289***	10.313***
South		-0.014	-0.038*		-0.083***	-0.071***
West		0.031	0.008		-0.036*	-0.016
Midwest		0.015	0.013		0.017	0.016
Size		0.082***	0.052***		0.028***	0.026***
Unemployment		-0.006	-0.003		-0.010**	-0.008**
Manufacture		-0.003*	-0.001		0.001	0.002**
High status		0.009**	0.008***		0.007**	0.006**
Service		-0.006	-0.005		-0.006	-0.005
Black		0.005***	0.004***		0.003***	0.002***
Asian		0.007	0.008**		0.026***	0.018***
Hispanic		0.009***	0.005***		0.004**	0.003**
Black						
Intercept	9.940***	10.008***	10.202***	10.064***	10.099***	10.246***
South		-0.112***	-0.105***		-0.075**	-0.074***
West		0.020	-0.029		0.045	0.004
Midwest		-0.031	-0.019		0.014	0.009
Size		0.004	0.013		0.029**	0.023**
Unemployment		-0.020**	-0.014**		-0.011	-0.007
Manufacture		0.005**	0.005**		0.000	0.002
High status		0.009**	0.007**		0.002	0.004
Service		0.001	-0.002		-0.017**	-0.010**
Black		0.000	0.001		0.000	0.000
Asian		0.018***	0.017***		0.017***	0.013***
Hispanic		0.009***	0.006***		0.001	0.001
Hispanic						
Intercept	9.690***	9.854***	9.972***	9.998***	10.104***	10.142***
South		-0.213***	-0.141***		-0.178**	-0.109**
West		-0.232***	-0.125***		-0.187**	-0.067
Midwest		-0.076	-0.039		0.049	0.055
Size		0.007	0.000		0.048**	0.030**
Unemployment		0.000	-0.020**		0.003	-0.008
Manufacture		-0.001	0.003		-0.008*	-0.003
High status		0.001	0.004		0.004	0.006
Service		0.017*	0.016**		-0.001	-0.001
Black		0.003	0.004**		-0.001	0.000
Asian		0.012	0.011**		0.011*	0.010**

Hispanic		-0.008**	-0.004*		-0.008**	-0.002
Asian						
Intercept	10.268***	10.365***	10.224***	10.196***	10.227***	10.146***
South		-0.144**	-0.056		-0.055	-0.002
West		-0.190**	-0.055		-0.031	0.013
Midwest		-0.002	0.003		0.007	0.037
Size		0.051**	0.035**		0.019	0.003
Unemployment		0.008	0.003		-0.034**	-0.029**
Manufacture		0.001	0.005*		0.006	0.007*
High status		0.010	0.011**		0.004	0.005
Service		-0.003	0.002		-0.005	-0.004
Black		0.002	-0.001		0.001	-0.002
Asian		-0.021**	-0.013**		0.017***	0.018***
Hispanic		0.008	0.006		-0.001	-0.003
Variance of Components of Coefficients						
Intercept						
White	0.03728	0.01275	0.00560	0.01626	0.00521	0.00296
Black	0.01939	0.00826	0.00499	0.01511	0.00619	0.00360
Hispanic	0.03079	0.01928	0.00634	0.03618	0.02215	0.00855
Asian	0.05241	0.04189	0.01750	0.01594	0.00487	0.00432

Note: Significance Levels: * P < 0 .1, ** P < 0.05, *** P < 0.001

native blacks, whether in ethnic niches or not, do not fare worse when their coethnic populations increase in a metropolitan area. Also, the percentage of blacks has no significant effects on Asian workers' annual earnings, but has strong positive earning effects on whites and Hispanics. These results are illustrated in Figure 4.5.

Interestingly, Hispanic niche workers benefit significantly from the increasing presence of black population. The earning differences between Hispanic niche workers and all other groups decrease dramatically when blacks share more in a metropolitan area. Net of individual and metropolitan area controls, Hispanic niche workers are predicted to earn 81 percent of Hispanic non-niche workers' earnings and 74 percent of Asian niche workers' earnings at the level of no blacks in a local labor market. When the black proportion increases to 60 percent of the total population, Hispanic niche worker's earnings are predicted to almost equal job earnings

for Hispanic non-niche workers and Asian niche workers (effects of black population are negative for Asian workers although the effects are not statistically significant).

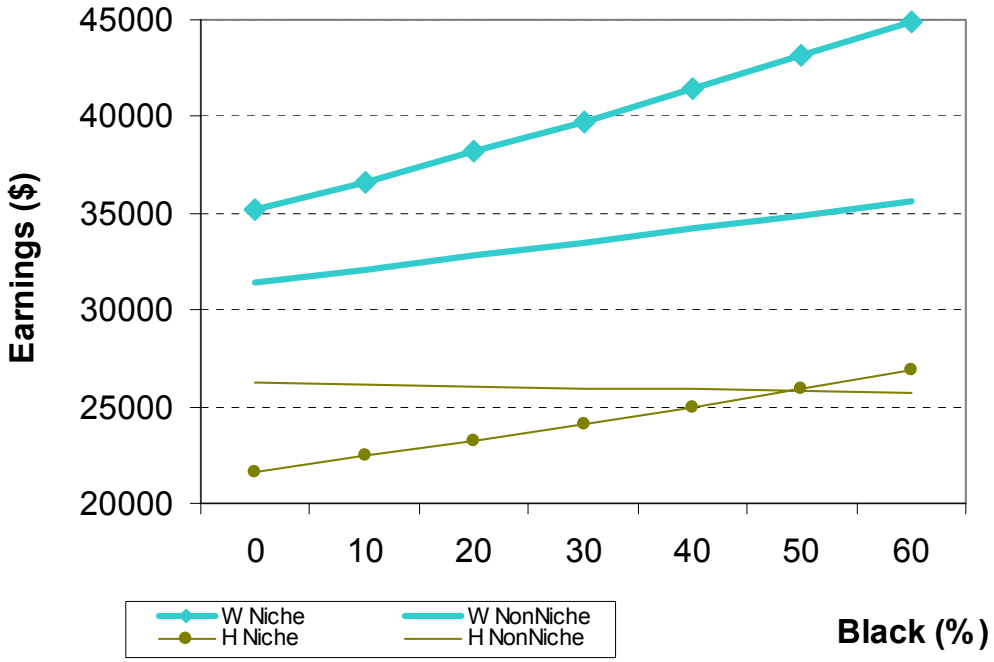

Figure 4.5. Predicted Annual Earnings for niche and non-niche Workers with Change in Black Percentage at MA-level, by Race/Ethnicity

Obviously, native white workers, especially white niche workers, gain the most from the presence of black workers in metropolitan areas. When other conditions are controlled, with the increase of the black population the annual earning difference between native white niche workers and all other groups grows quickly. Therefore, native whites benefit greatly from labor market concentration; in particular, the concentrated labor force is better off from the increase of blacks who are not able to compete effectively with them in the open labor market.

Earning effects of the increasing presence of foreign-born Hispanics

Net of individual and metropolitan area controls, native whites and blacks, especially the native ethnic niche workers, are predicted to earn more when the proportion of Hispanics increases in the metropolitan labor market. As shown in Figure 4.6, native white niche workers benefit greatly from the increase of Hispanic immigrants in a metropolitan area, which is very similar to the effects provided by the increase of blacks.

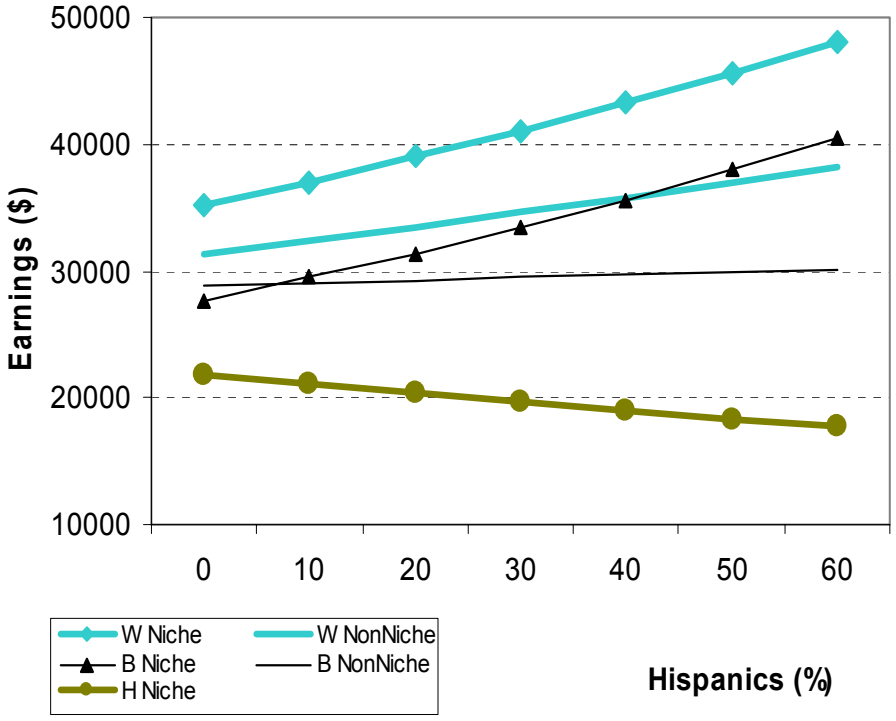

Figure 4.6. Predicted Annual Earnings of Niche and Non-Niche Workers with Change in Proportion of Foreign-Born Hispanics at MA level

Since Hispanic workers are more concentrated in the semi- or unskilled and labor-intensive job sectors, that competition hypothesis suggests that an influx of immigrants may hurt native minority workers who have similar labor market concentration patterns (Borjas, 1999; Hamermesh and Bean, 1998). In opposition to the competition perspective, results from this

study show that native black niche workers greatly benefit from the increase of the foreign-born Hispanic population in the local labor market. For example, native black niche workers are predicted to earn 89 percent of native white non-niche workers' earnings when a metropolitan area has no foreign-born Hispanics. When the proportion of the Hispanic population increases to 60 percent, black niche workers are predicted to earn 106 percent of white non-niche workers' earnings. This suggests that although native black niche workers do not enjoy earning advantages compared with non-niche workers, they can benefit from the increase of immigrant Hispanics.

The Hispanic proportion has no significant earning effects on foreign-born Asian workers when other conditions are controlled. However, Hispanic niche workers suffer from the increase of their coethnic population in a metropolitan area. As Figure 4.6 shows, the predicted earnings for Hispanic niche workers decreases 15 percent when the Hispanic proportion increases from 0 to 60 percent in a local labor market. The earning pattern tells us that Hispanic immigrant niche workers have much lower earnings than non-niches; nonetheless, the concentrated job sectors are vulnerable from the increase of their coethnic population. Data from this study does not allow examining the mechanism of earning devaluation, but the result is consistent with previous studies on pay penalties – which could come from discrimination due to ethnic/racial visibility or labor market competition among coethnic labor force (Catanzarite, 2003).

Effects of the Increasing Presence of foreign-born Asians

With other variables controlled, predicted earnings for both native whites and blacks increase dramatically with the increasing proportion of Asians in the local population (Figure 4.7, left). In particular, native black niche workers benefit more than coethnic non-niche workers from the increase of the Asian population. For example, the earning difference between black niche workers and non-niche workers changes from negative $1,342 at no Asian population to

positive $10,684 when the Asian population shares 60 percent of the total. The gain effects for native blacks from Asian immigrants are larger than that from Hispanics.

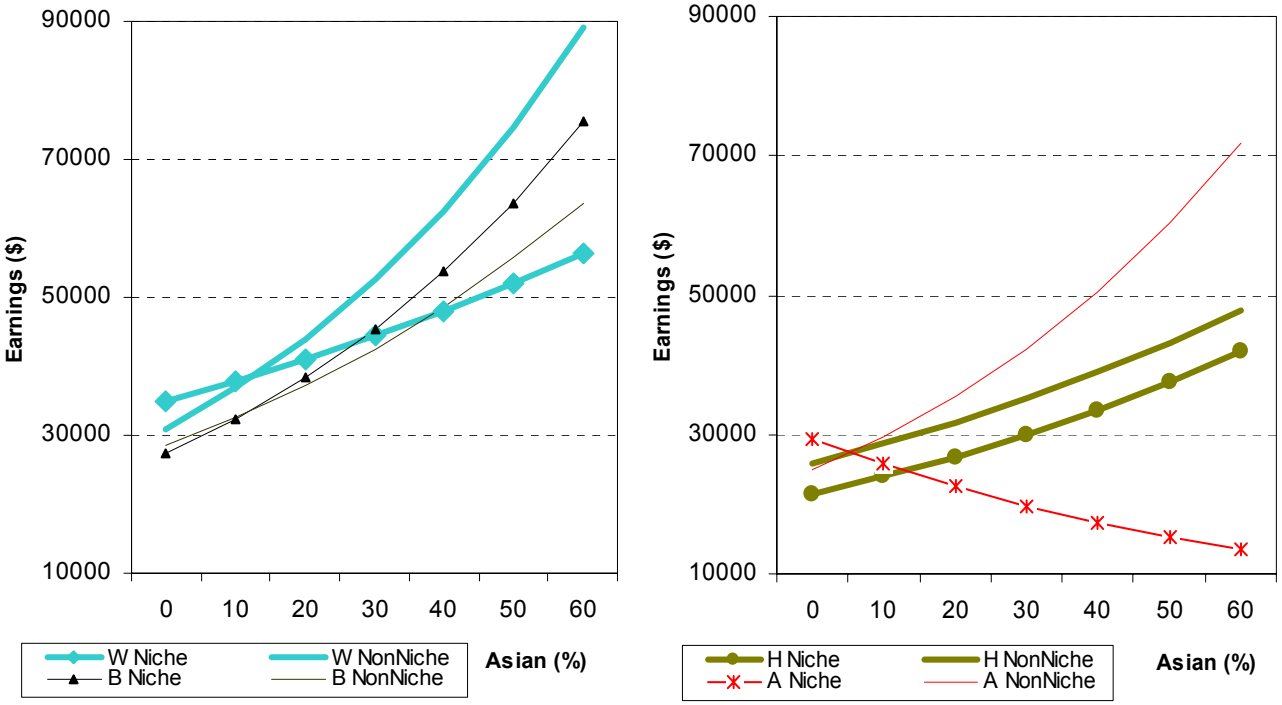

Figure 4.7. Predicted Annual Earnings of Asians and Hispanics for niche and no-niche workers with Change in Proportion of Asians and Hispanics at MA level

By contrast, although native white workers still profit greatly from the increase of Asian immigrants, native white niche workers gain less than their coethnic non-niche workers. For example, the predicted annual earning advantage of white niche workers to non-niche workers changes from $3,311 to negative $31,756 when the Asian proportion increases from 0 to 60 percent of total population after controlling other personal and metropolitan-area-level characteristics. The earning advantages of white niche workers to black niche workers, therefore, are predicted to decline quickly when Asians share more in the local labor market. For example, black niche workers are predicted to earn 80 percent of white niche workers' earnings at the level

of 0 percent of the Asian population, but the percentage increases to 138 when the proportion of Asians grows to 60 percent.

Hispanic workers, both in niches and non-niches, benefit from the increase of the Asian population in a metropolitan area, which decreases the earnings difference of Hispanic-white niche workers and Hispanic-Asian niche workers. As shown in Figure 4.7 (right), net of control of personal characteristics and other labor market variables, Hispanic niche workers are predicted to earn 75 percent of Asian niche workers' earnings when the metropolitan area has no Asian population; when the Asian proportion increases to 60 percent, Hispanic niche workers earn 3.18 of Asian niche workers' earnings.

Compared with Hispanic niche workers, the earnings advantages of Asian niche workers disappear because of the negative earning effects associated with the increase of Asian population in a metropolitan area. As Figure 4.7 (right) shows, foreign-born Asian niche workers earn 1.14 times that of non-niche workers' earnings when there are no Asian immigrants in a metropolitan area. Net of control of other variables, when Asian immigrants share 60 percent of the total population, Asian niche workers are predicted to earn only 18 percent of non-niche workers' earnings. Current national average job earnings for foreign-born Asian niche workers are slightly higher than non-niche workers (refer to Figures 1 and 2); but, like Hispanic immigrant niche workers, Asian immigrant niche workers are quite vulnerable from the increase of their coethnic populations.

Effects of the Metropolitan economic structure

The percentage of manufacturing industries has no significant earning effects on white niche workers and all foreign-born Hispanic workers. However, native black niche workers benefit greatly from a high proportion of manufacturing industry in a local labor market. This is

consistent with previous studies which suggest that economic inequalities between whites and blacks widened during the economic restructuring from a manufacturing to a service economy (McCall, 2001).

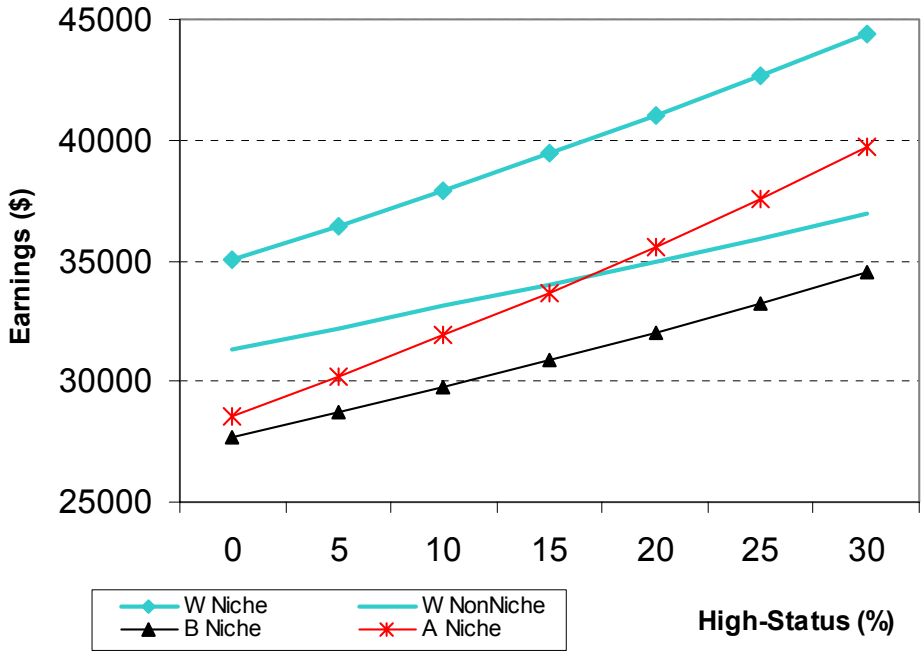

Figure 4.8. Predicted Annual Earnings of for niche and non-niche workers with Change in Proportion of High Status Industries at MA level

Asian immigrants, whether niche or non-niche workers, also benefit from the high proportion of manufacturing industries. Labor market concentration patterns show that the Asian population has very high concentration in manufacturing industries, even in the areas with a significant proportion of "new economy" such as the San Francisco Bay Area. Besides production and a certain number of services, Asian workers are highly concentrated in high-tech or professional occupations in manufacturing industries. Consistent with this, significant technological development and the "new economy" greatly increase the job earnings for Asian and white niche workers (Figure 4.8). Among these, Asian immigrant niche sectors gain the most

from the industries with high status, which include information, FIRE (finance, insurance, real estate), professional, and scientific industries. Native black niche workers also benefit from high-status- industries, but Hispanic immigrants are excluded from these particular sectors.

In contrast, Hispanic immigrant niche workers profit dramatically when the proportion of service industries increases in a local economy at metropolitan area level. As shown in Figure 4.9, Hispanic niche workers are predicted to earn 69 percent of non-niche workers at the metropolitan areas with no service industries, but they earn 1.2 times of non-niche workers' earnings when service industries share 30 percent of the total local economy. In contrast, native blacks, especially non-niche workers, suffer considerably from the increase of service industries. Therefore, the Hispanic immigrant niche workers are surely better off from the transformation of a local economy from manufacturing to services, when other conditions are controlled.

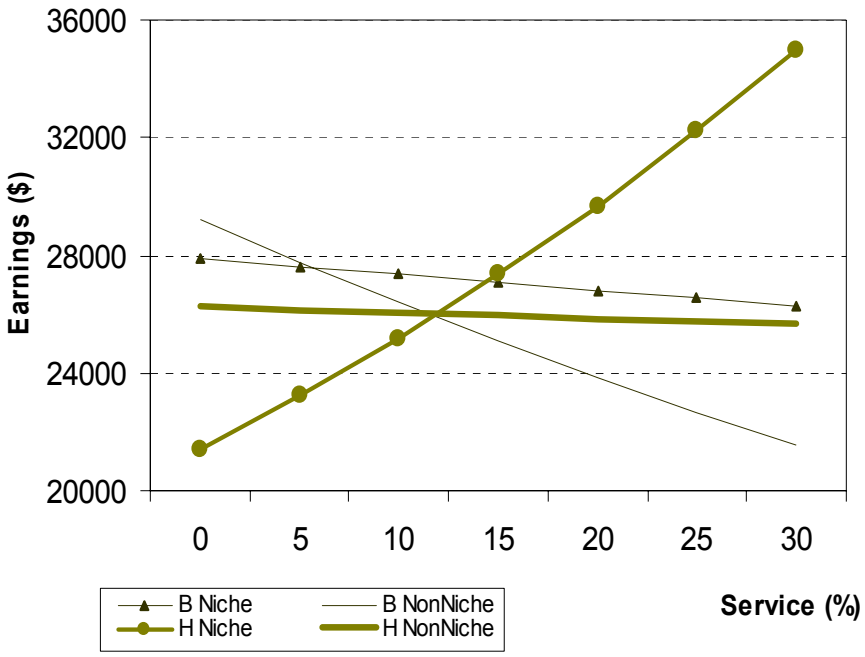

Figure 4.9. Predicted Annual Earnings for Black and Hispanic niche and no-niche workers with Change in Proportion of Service Industries at MA level

Among the contextual control variables, the size of the civilian labor force in the metropolitan area has significant positive earning effects on all native whites, black non-niche workers, Hispanic non-niche workers, and Asian niche workers. The unemployment rate has negative effects on white and Asian non-niche workers, and black and Hispanic niche workers. This suggests that when the macroeconomic situation worsens, those segments of the labor force concentrated in the lower hierarchy of urban labor markets suffer more than those concentrating at a higher level. Region variables have significant earning effects for all racial/ethnic groups except for Asian immigrants. Being in the South has more negative effects on those who concentrate at the bottom level of the labor market: specifically, more detrimental earning effects for black and Hispanic niche workers than non-niche workers.

In sum, local labor market conditions have different earning effects on ethnic niche and non-niche workers. In contrast to the competition hypothesis, the increase of immigrant minorities does not show detrimental effects on earnings of native workers. Both the native majority and minority, especially those who are working in their coethnic niches, benefit greatly from the increase of immigrants. Previous studies have suggested that an influx of immigrants might help native ethnic minorities to move upward in the urban labor market (Lim, 2001; Rosenfeld and Tienda, 1999; Tienda and Lii, 1987). This study does not provide evidence on such phenomenon; however, it shows that both native blacks and immigrant Hispanics benefit from each other's increase of share in a local area. Both minority groups also benefit from the increase of the Asian population. This suggests that an increase in racial and ethnic diversity seems to be having positive effects on job earnings for ethnic minorities. It is possible that an increase in overall ethnic diversity may mitigate prejudice or discrimination against a single

ethnic group, which could promote economic advantages for ethnic minorities. Clearly, more research is needed in this area.

Competition effects do happen to individual ethnic groups. Both Asian and Hispanic workers suffer from the increase of their coethnic population. I interpret this as competition effects. Ethnic niche workers are the members most likely to be exposed to the competition from coethnics; therefore, they suffer more than non-niche workers. Although Asian workers have distinct concentration patterns, they can still avoid such negative influences from the coethnic population. There seems to be an invisible line between natives and immigrants. Although there is a plethora of studies suggesting that native blacks may suffer from an influx of immigrants, this study shows that native niche workers actually benefit from the increase of immigrant minorities. Native whites and immigrant Asians have very similar concentration patterns that may incur competition between them. However, as they enjoy the earnings increase from any other ethnic minorities or immigrants, native whites still benefit from the increase of Asians. In contrast, immigrant minorities, whether they concentrate in job sectors with low or high status, unavoidably suffer from the increase of their coethnic population in a local area. This suggests that the mechanisms for the formation of ethnic niches and the mechanism for job earnings can be different for natives and immigrants, regardless of human capital and personal characteristics.

CONCLUSIONS

Ethnic concentration in certain job sectors has become a common component in the urban labor markets in an era of growing immigration. This study began by posing two research questions: Do ethnic niche workers earn more from working in niches, and how does the metropolitan context influence the earnings between niche and niche sectors, and thus earning differences among racial and ethnic groups?

This study found that there is a general concentration pattern in urban labor markets: native white and immigrant Asian workers concentrate in the job sectors that feature more upward mobility, good working conditions, and high pay. While enjoying the earning advantages of ethnic niches, most minority workers, especially native blacks and Hispanic immigrants, concentrate at the lowest level of the labor market hierarchy. For niche workers concentrating at this level, the attraction of ethnic niches is the availability of the jobs themselves, not necessarily the earning advantages of those jobs when compared with non-niche sectors. Engaging in ethnic niches is the main source of earning inequalities between disadvantaged minorities and whites.

Far beyond the conditions at the individual and job-site level, the earning effects of concentration are significantly influenced by the multi-racial urban contexts. The highly privileged native white niche-workers profit greatly from the increase of ethnic minorities and immigrants in the local economy, which increases the earning inequality between native whites and all other racial/ethnic groups. Due to possible competition from Asian immigrants who have similar concentration patterns, native white niche workers benefit less than non-niche workers; however, native white concentrated sectors still gain from the increase of Asian immigrants when other conditions are controlled.

My study finds that, contrary to the expectation from the visibility discrimination thesis, native black workers do not fare worse with a rise in their coethnic population share at the metropolitan level. This result is also different from the competition perspective that maintains that Hispanic immigrants will compete with native blacks and depress their job earnings. Instead, native black niche workers benefit greatly from the increase of immigrant ethnic minorities. This study does not investigate the mechanism through which blacks benefit from the increase of immigrants. I postulate that the increase of immigrants may help them to move upward in the

urban labor market; at the same time, a high degree of racial/ethnic diversity may mitigate discrimination or prejudice against blacks that tends to increase more economic opportunities and job earnings.

Similar to the pay degradation phenomenon observed at the occupational or job-site level, this study shows that the increase of coethnic population in a metropolitan area can decrease the pay for immigrant Hispanics and Asians. Although these two immigrant groups have distinct concentration patterns, in both the niche workers suffer more from the increase of their coethnic population than coethnic non-niche workers. Thus, the devaluation effects of contexts are more about the contrast between niche and non-niche workers, and between natives and immigrants, than racial/ethnic divisions. This could be because there is a different mechanism in the labor market concentration process between natives and immigrants. Why do immigrant niche workers, whether Hispanics or Asians, experience earnings devaluation when their coethnics increase in a local area? Because this study does not explain this pay depression, the question of whether the increase of the relative size of immigrants will incur discrimination from native workers, or simply come from labor market competition from coethnics, still needs further research.

Location and context matter in racial/ethnic experiences in the labor market concentration process (Hanson and Pratt, 1988; McCall, 2001; Shumway and Cooke, 1998). Through a multilevel linear modeling design, this study extends the traditional studies whose emphasis has been on the human capital and individual-level determinants of wage inequality, to include macroeconomic structural effects and local context effects. I also extend the current research in this area from the single focus between whites and blacks or between natives and immigrants to a multiracial urban labor market context, which is increasingly necessary with growing racial and

ethnic diversity and widespread economic changes. In particular, linking labor market conditions to ethnic labor market concentration in this study can greatly improve our understanding of socioeconomic consequences of labor market segmentation.

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APPENDICES

Appendix 4.1. Classification of Employment Sectors: 14 Industrial Sectors and 23 Occupations

Industrial Sector	Occupation
Agriculture, Forestry, Fishing, Hunting, & Mining	Management Occupations
Utilities	Business Operations Specialists
Construction	Financial Specialists
Manufacturing	Computer & Mathematical Occupations
Wholesale Trade	Architecture & Engineering Occupations
Retail Trade	Life, Physical, & Social Science Occupations
Transportation and Warehousing	Community & Social Services Occupations
Information and Communications	Legal Occupations
Finance, Insurance, Real Estate, and Rental & Leasing (FIRE)	Education, Training, & Library Occupations
Professional, Scientific, Management, Administrative, & Waste Management Services	Arts, Design, Entertainment, Sports, & Media
Educational, Health & Social Services	Healthcare Practitioners & Technical Occupations
Arts, Entertainment, Recreation, Accommodations, & Food Services	Healthcare Support Occupations
Other Services (Except Public Administration)	Protective Service Occupations
Public Administration	Food Preparation & Serving Occupations
	Building & Grounds Cleaning & Maintenance
	Personal Care and Service Occupations
	Sales Occupations
	Office and Administrative Support Occupations
	Farming, Fishing, & Forestry, Extraction Workers
	Construction Trades
	Installation, Maintenance, & Repair Workers
	Production Occupations Transportation & Material Moving

CHAPTER 5

CONCLUSIONS

Over the past few decades, U.S. urban labor markets have become highly segmented along the lines of race, ethnicity, class, gender, and nativity. Understanding the dynamics of the segmentation process and its socioeconomic consequences is crucial to understanding the nature of inequalities and social relations among racial groups. This dissertation focuses on the phenomenon of ethnic niches, i.e., industries and occupations that have become dominated by a particular racial/ethnic group. It is based on the premise that in addition to factors such as personal characteristics, human capital attributes, ethnic resources, and structural factors, the formation and persistence of ethnic niches are profoundly affected by the spatial context. Whether it is the location of worker residences and job sites or the specific characteristics of the metropolitan location, space provides the "container" in which various causal factors interact with each other and is a catalyst that can accelerate or inhibit the segmentation process.

Results from Chapter 2 reveal that the robust growth of the new economy in the San Francisco Bay Area is dramatically segmenting the geography of jobs and thus the spatial division of labor amongst non-Hispanic whites, non-Hispanic blacks, Hispanics, and non-Hispanic Asians. Living arrangements such as central-city residence and living in coethnically concentrated-PUMAs, were found to increase the chances of niche employment for most racial/ethnic groups, even after controlling human capital and some local context factors. The results suggest that residential places do provide a mechanism through which personal characteristics, social networking, and ethnic resources interact with macroeconomic conditions to carve out local labor market experiences.

Chapter 3 examines how the geography of residence and workplace, that is, where immigrant workers live and work, influences labor market niche employment using the case study of Chinese immigrants in the San Francisco metropolitan area. Results reveal that residential and workplace locations have a strong effect on the decision of Chinese workers to work (or to not work) in Chinese immigrant niche occupations. Interestingly, these effects are different for Chinese men and women. The results suggest that the close-knit and geographically compact ethnic neighborhoods and ethnic enclaves can provide a social web through which members of the same ethnic group, especially women and new immigrants, interact closely and frequently, transmitting valuable information about economic opportunities that lead to the ethnic concentration in particular occupations. However, for Chinese immigrant male workers, living in coethnically concentrated areas provides fewer chances to access Chinese male-concentrated job sectors with high-tech and knowledge intensive sectors in the "new economies" in the San Francisco Bay area. Likewise, working in ethnic neighborhoods or enclaves, or even working in the census tracts with high percentage of ethnic minorities (including Asians), will decrease Chinese immigrant men's probability of working in these high-profiled niche sectors.

Taken together, Chapters 2 and 3 show that abundant ethnic resources in ethnic neighborhood and enclaves can provide certain labor market opportunities. To a large extent, this can explain the persistence and attractiveness of traditional ethnically concentrated areas, such as Chinatowns in the United States. This also pertains to the realities that a large proportion of immigrants are highly concentrated in their ethnic niches that persist over time and space. However, the case study of whites and Mexicans in the San Francisco CMSA in Chapter 2 suggests a "substitution" effect between personal socioeconomic status and location factors. Although social contacts through living arrangements can provide more work opportunities in

certain job sectors, the types of jobs a social network can reach are largely determined by the skill requirements of local labor markets. Whether ethnic niche employment is "good" or "bad" (in terms of earnings, work conditions, and upward mobility) for any particular worker is contingent upon how ethnic workers use their personal socioeconomic resources and coethnic social capital to leverage job opportunities within the confines of local labor market contexts. The case of Chinese immigrants in the San Francisco metropolitan area in Chapter 3 reiterates the limitation of these resources in helping ethnic minority or immigrant workers to move upward along the skill lines of the labor market hierarchy. For Chinese immigrant women, living in ethnic neighborhoods or enclaves actually exacerbates their concentration in the low status job sectors that do not necessarily offer advantages with respect to the decreased risk of being jobless and access to high-status jobs that pay wages above what one would expect in the general local labor market. Likewise, Chinese immigrant men living or working in coethnically concentrated areas are less likely to access Chinese male- concentrated job sectors with high-tech and knowledge intensive sectors in the "new economies" in the San Francisco Bay area.

In terms of policy implications, to achieve equity in the labor market, more opportunities in the housing market and more chances to access different channels of labor market information will have significantly positive effects on employment outcomes for ethnic minorities, especially women. More importantly, equity in accessing education and training opportunities for disadvantaged racial groups and women are crucial.

As Chapters 2 and 3 offer a geographical perspective on the factors of ethnic niche employment, Chapter 4 addresses the influence of metropolitan urban contexts on the socioeconomic consequences of ethnic labor market concentration and segmentation. Shifting from the personal, neighborhood and workplace scale to regional labor markets at the

metropolitan area level, Chapter 4 shows that the highly privileged native white niche-workers profit greatly from the increase of ethnic minorities and immigrants in the metropolitan area. Different from competition or the visibility-discrimination hypothesis, native blacks do not suffer from an increase in coethnics or other ethnic minorities in the local area; instead, they benefit largely from the increase of immigrant ethnic minorities net of controlling personal and other labor market characteristics. Especially the job earnings of native black niche workers increase significantly from the increase of both immigrant Hispanic and Asian population. Therefore, the findings do not support the policy implications that emphasize the competition effects of immigrants, at least regarding job earnings. The findings also indicate that both Asian and Hispanic immigrant niche workers suffer from the increase in their coethnic population. This suggests competition effects of immigrants within the same ethnic group.

This study also suggests some interesting topics for future research. First of all, this study identifies different spatial concentration patterns based on residence and workplace. For each type of area, what is the mechanism through which geography influences labor market outcomes? Particularly, many contemporary immigrant/ethnic groups in the United States do not follow the former migrant generations but adopt a dispersed pattern of residential location due to high technology, changes in housing market conditions and globalization. In this case, how the social networking and ethnic resources shift among different geographical scales and produce different socioeconomic outcomes including employment?

A second question is related to the different natures of niche occupations. In this study all the ethnic niches are examined together. However, there is a hierarchy within ethnic niche labor market which is highly interacted with gender. Disaggregating ethnic niches by skill levels, age cohorts, gender, and etc. are expected to provide more important information. Another question

is about the generalization of the case study. Part of this project already suggested the differences among racial or ethnic groups in labor market process. To what extent the experiences of Chinese immigrants in the San Francisco metropolitan areas can apply to other racial or ethnic groups and other urban contexts still need more studies. Nevertheless, this study argues that the geographical perspectives are necessary and fundamental in understanding the labor market experiences of both men and women in different racial and ethnic groups. The frameworks provided here can be employed in the future research.

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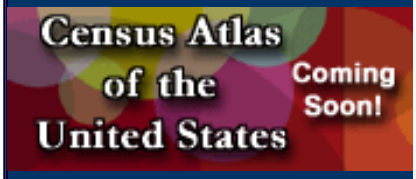

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