Preliminary Draft

Ethnic Enclave Residence and Employment Accessibility of Latino Workers in Chicago, Los Angeles and Washington, D.C.

Cathy Yang Liu[1]

School of Policy, Planning and Development
University of Southern California
Los Angeles, CA 90089
liuyang@usc.edu

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ABSTRACT

This paper examines the impact of living in ethnic enclaves in different parts of the metropolitan area on low-skilled Latino immigrants' employment accessibility. It does so by comparing the employment status and commuting times of Latinos living in and out of ethnic neighborhoods in central city, inner-ring suburbs and outer-ring suburbs in Chicago, Los Angeles and Washington, D.C. Using 2000 Public Use Microdata Sample (PUMS), this paper finds that enclave effect is much muted and spatial mismatch effect evident in the central cities. But in the suburban areas, while as likely to work as non-enclave counterparts, enclave residents tend to commute longer to jobs, suggesting the importance of ethnic networks in enclave neighborhoods. These disparities in commuting duration are not fully compensated for by their wage earnings or neighborhood-level housing costs. Further distinguishing Latino immigrants by gender shows that women are more enclave-disadvantaged than men.

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1. INTRODUCTION

The effect of residential segregation on minorities' economic well-being has been a subject of much academic and policy attention. Difficulty in accessing suburbanized job opportunities, especially low-skilled jobs, has constantly been found to be a major obstacle for inner city minorities which results in their high unemployment rate, long commutes and low wages ("Spatial Mismatch Hypothesis", Kain 1968, see Houston 2005 for review) and the concentration of poverty in the ghettos (Wilson 1987). In the last decade, immigrants continue to settle in large U.S. metropolitan areas and are participating in the urban labor force on a large scale (Frey 2002). Given their high level of residential segregation in ethnic neighborhoods (Cutler, Glaeser and Vigdor 2005) and the continued trend of economic restructuring and employment decentralization (Glaeser, Kahn and Chu 2001), it is imperative to understand their employment accessibility, and how it is shaped by the spatial structure and social environments of the cities and communities they live in.

Comparisons between Latino workers and black workers in segregated neighborhoods have found that immigrant barrios do not resemble the social pathologies of traditional ghettos for their rich social and ethnic capital and vibrant informal economies (Clark 2001) and immigrant workers are more likely than blacks to use neighborhood contacts and networks to locate jobs (Elliott and Sims 2001). Termed as "Ethnic Enclave Hypothesis", it is argued that ethnic enclaves provide immigrants with alternative paths to economic stability (Wilson and Portes 1980). While it is widely agreed that ethnic neighborhood context plays a large role on immigrants' job acquisition and economic achievement, the direction and magnitude of these effects remains largely

unclear in the empirical literature. Existing studies show that residence in ethnic enclave neighborhoods has no significant effect or negative effect on the employment status of certain immigrant women groups (Parks 2004a), or even hampers immigrants' economic assimilation as measured by wage growth (Borjas 2000).[2]

In light of these ethnic enclave effects, a key question is does spatial proximity still matter for immigrants or social networks can overcome their geographic barriers to employment. Recent application of the spatial mismatch hypothesis to immigrants in Los Angeles suggests that they are not as spatially constrained in their employment probabilities as traditional minorities (Pastor and Marcelli 2000, Painter, Liu and Zhuang 2007). While these two lines of literature focus on ethnic concentration and spatial mismatch respectively on immigrants' employment outcomes, no study has explicitly taken into account the interaction between the two and their different implications for immigrants. The two distinctive concepts of inner city neighborhood and ethnically concentrated neighborhood are even sometimes mixed together. As a matter of fact, ethnic concentration is no longer a central city phenomenon. While traditional spatial assimilative theories suggest that dispersion is the end result of immigrants' locational attainment (Massey 1985), recent studies have shown that immigrants do not necessarily move to white suburban neighborhoods as they live in the country for a longer period of time (Alba et al. 1999). On the contrary, ethnic clustering can endure even with their accumulated wealth and elevated socioeconomic status, and is evident in suburban areas as well as inner cities (Logan, Alba and Zhang 2002[3]). At the same time, the suburb is no longer a uniform concept, as the country's first, older suburbs differ considerably from

[2] These studies measure ethnic enclave on different scales, ranging from census tracts (Parks 2004) to metropolitan area (Borjas 2000).
[3] They distinguish these two types of neighborhoods by "ethnic communities" and "immigrant enclaves".

both the inner city and newer suburbs and has distinctive implications for its residents (Puentes and Warren 2006).

This paper captures these spatial contexts by partitioning metropolises into three areas: central cities, inner ring suburbs and outer ring suburbs. Within each area, ethnic enclaves with high concentration of Latino immigrants are identified. It contributes to the literature by examining the interactive effects of ethnic enclave residence with structural spatial location and testing the ethnic enclave hypothesis and spatial mismatch hypothesis simultaneously. It compares employment accessibility of low-skilled immigrant and native-born Latinos in and out of ethnic enclaves in central city, inner ring suburbs and outer ring suburbs in order to illustrate the distinctive impacts of different residential choices on residents' likelihood of obtaining a job and the travel burden if working. Unlike other studies that look at only one indicator, this paper examines employment status and commuting duration together as these are the two interlinked aspects of employment accessibility. Should inner city and enclave residents experience longer commutes, this paper further explores whether these spatial disparities persist after possible compensations in neighborhood housing prices and workers' wage earnings are accounted for. Lastly, it highlights the interaction between space and gender by analyzing Latino immigrant men and women separately.

This paper focuses on the three metropolitan areas of Chicago, Los Angeles and Washington, D.C. Among the top five largest metropolitan areas in the U.S. in 2000, each of them boasts relatively large immigrant populations and rich economic geography. At the same time, they occupy distinctive niches in the nation's immigration map, representing "continuous gateway", "post-WWII gateway" and "emerging gateway"

respectively (Singer 2004). These comparative analyses thus reveal both common patterns and distinctive urban dynamics pertinent to certain metropolitan areas and immigrant gateway types.

2. PRIOR RESEARCH AND URBAN CONTEXTS

2.1 Review of Literature

Examination of the spatial separation between residence and job growth and how it translates into labor market performances of minority workers has gathered much research attention. The decentralization and segmentation of job opportunities increases the job search and commuting costs of inner city minority workers, who suffer from relatively restricted residential mobility in the urban housing market (Kasada 1988). At the same time, the inaccessibility of suburban job sites by public transportation (Sanchez 1999) and the limited car ownership of low-skill workers (Taylor and Ong 1995, Raphael and Rice 2002) further constrain their employment possibilities and diminish their quality of employment.

One empirical strategy to test the spatial mismatch hypothesis is comparing the labor market outcomes of central city and suburban residents (Ihlanfeldt and Sjoquist 1998). A number of studies has examined intra-metropolitan and inter-group employment outcome differentials (e.g. Raphael 1998, Stoll 1999) and has generally found significant effect of residence in central cities, where job growth is weak or negative, on the unfavorable employment status of blacks as compared to whites. In the transformed urban geography, the suburbs is no longer a uniform concept, rather there are vast variations among suburban communities. Such urban problems as were traditionally

associated with central cities – deteriorated infrastructure and old housing stock, high crime rates, low-quality public schools, and concentration of poverty – are quickly spreading to inner ring suburbs as well (Downs 1997). A recent study by Puentes and Warren (2006) selected 20 American's first, older suburbs based on their age, location and demographic trends from 1950 to 2000. According to them, these inner ring suburbs differ from both the central cities and the newer, fast-growing places and are the "policy blindspots" that deserve much attention. This paper thus goes beyond the central city-suburban dichonomy that is prevalent in spatial mismatch literature and adopts a three-area geographic partition of central city, inner ring suburbs and outer ring suburbs.

Once travel mode is controlled for, commuting duration provides a direct indicator of the geographic mismatch between home and work for low-skilled workers and their mobility difficulties in a spatially segmented labor market (Taylor and Ong 1995, Gotllieb and Lentnek 2001). Longer commutes may not only increase travel burden and job cost for workers, but may also lower their actual wage rate and increase their unemployment probabilities (Ong and Blumenberg 1998). Studies that compare commuting patterns of workers by location and racial/ethnic identity have found that blacks living in the central cities commute longer to work than their white counterparts in the 1980s (Taylor and Ong 1995[4]). Gottlieb and Lentnek (2001) and Shen (2001) went beyond the structural location of the central city and further established that blacks living in low-income minority neighborhoods suffer from longer commutes.[5]

[4] They attribute blacks' long commutes to their reliance on slower public transit and contends that there is more an "auto mismatch" than spatial mismatch.
[5] Gottlieb and Lentnek (2001) also argued that spatial mismatch is not only a central city problem. Blacks living in minority neighborhood in the suburbs are also faced with spatial barriers to work.

Very few studies address the effect of residential segregation on immigrants' employment accessibility and there is little consensus in the literature. Aponte (1996) began the inquiry for immigrants and found that Mexican workers are an "exception" to the spatial mismatch hypothesis as they consistently depict relatively high employment rate as compared to native-born minority workers, which might be attributable to their strong social networks in job search and employers' hiring strategy. Pastor and Marcelli (2000) found that individual skills matter more than "pure" spatial mismatch in Los Angeles, especially for recent Latino immigrants. Also for Los Angeles, Painter, Liu and Zhuang (2007) underscored the importance of space on Latino and second-generation immigrant youth's employment probabilities, but not for first-generation immigrants. In regards to commuting, Preston, McLafferty and Liu (1998)'s results indicate the persistence of spatial barriers faced by immigrant workers as evidenced by their overall longer commutes than their America-born counterparts in central New York CMSA. Parks (2004b) found that living in ethnic enclaves shorten commute times to different extent for six immigrant groups in Los Angeles area and claimed that "space still matters". Controversies arise from partial conceptualizations of residential segregation and employment accessibility, and from focusing on a single urban area. This paper approaches this question with a more comprehensive view of residential location which consists of both spatial proximity to jobs and social accessibility to ethnic networks in locating jobs. It also considers the two interlinked accessibility indicators of employment status and commuting duration together, as well as comparing three different immigrant metros to explore any common patterns

Urban economic theories suggest that housing prices and wage rates compensate workers for their commuting costs. That is, a worker might choose to live farther from employment locations for cheaper housing and more favorable neighborhood amenities. Also, in a competitive market, workers should be compensated by higher wage earnings for their longer commutes (Mills 1972). Gabriel and Rosenthal (1996) and Petitte and Ross (1999) have shown that these compensation differentials lessen the disparities in commuting duration. Also, it is acknowledged in the literature that men and women face different spatial and social barriers to employment given their distinctive roles within the households and in the labor market (e.g., Hanson and Pratt 1995). This paper takes these important issues into consideration.

2.2 The Urban Contexts

Chicago, Los Angeles and Washington D.C. are representative of America's metropolitan areas in many ways. Among the top five largest metropolitan areas in the U.S. in 2000, these three metropolises all have large populations and employment bases. They differ however, in their spatial structure, industrial composition, and size of immigrant populations. In a job sprawl classification system, Chicago and Washington, D.C. PMSAs are both defined as decentralized metros and Los Angeles PMSA is classified as extremely decentralized metro by judging metro employment within certain distances of CBD (Glaeser, Kahn, and Chu 2001). With regard to immigrant populations, despite the fact that they were all among the six "immigrant magnet metros" in the late 1990s (Frey 2003), Chicago, Los Angeles and Washington, D.C. are viewed as "continuous gateway", "post-WWII gateway" and "emerging gateway" respectively, recognizing their different roles as immigrant destinations in the nation (Singer 2004).

[Table 1 about here]

In this paper, these three metropolitan areas refer to Chicago-Gary-Kenosha, IL-IN-WI CMSA, Los Angeles-Riverside-Orange County, CA CMSA, and Washington, DC-MD-VA-WV PMSA. [6] After an examination of the geographic location, population and employment density and growth pattern of these constitutive counties, the City of Chicago, City of Los Angeles and District of Columbia are coded central cities, their surrounding counties – Cook County, IL and Lake County IN, Los Angeles County, CA, and Montgomery County, Prince George County, MD, Arlington County, Alexandria City, VA are coded inner ring suburbs respectively, and the rest outer ring suburbs. Table 1 presents an overview of the total population, immigrant population and employment among central city, inner-ring suburbs and outer-ring suburbs in the three metropolitan areas in 1990 and 2000. In all metros, central cities decrease in their proportion of metropolitan total population, immigrant population and employment while outer ring suburbs increase their shares uniformly between 1990 and 2000. The shares of inner ring suburbs stay somewhat constant. In 2000, immigrants are distributed relatively evenly in Los Angeles, concentrated in the central city in Chicago (43%) and the inner-ring suburbs in D.C. (53%).

Detailed statistics in Appendix A show that outer ring suburbs outpace inner ring suburbs and central cities in gaining total and immigrant population. In outer ring Washington, D.C. and Chicago, an immigrant upsurge of around and above 100% is

[6] While largely following the county composition of these metropolitan areas in 2000, I have excluded certain counties that are either geographically remote or cannot be separated on the Public Use Microdata Area (PUMA) level, which is the geographic unit of analysis in my regression models. To be more specific, Kankakee, IL PMSA and Kenosha, WI PMSA are excluded from Chicago-Gary-Kenosha, IL-IN-WI CMSA and Berkeley County and Jefferson County, WV excluded from Washington, DC-MD-VA-WV PMSA. For resulting counties and detailed statistics for each metropolitan area, please see Appendix A.1, A.2 and A.3.

observed. In terms of employment, total employment either decreased (Los Angeles and Washington, D.C.) or increased very slightly (1.1% for Chicago) for the central cities. The growth in inner ring suburbs is either negative (-2.1% for Los Angeles) or small (10.1% for Chicago and 9.1 for Washington D.C.) compared to the outer ring suburbs (23.7%, 37.7% and 39.7% respectively). Broken down by industry, except for one case (Washington, D.C.), manufacturing jobs shrink in all central cities and inner ring suburbs. Job losses in other industries are found in these areas too. Outer ring suburbs add considerable number of jobs, especially in the service sector, followed by the wholesale and retail trade sector. Overall, there is substantive discrepancy in job opportunities across spatial subdivisions in these three metropolitan areas, in all industries of employment. These variations will necessarily be reflected in the employment accessibility of residents in different locations.

3. DATA AND METHODOLOGY

3.1 Data and Sample

The primary datasets for this study is the 2000 Census Public Use Microdata Sample (PUMS). These data files feature a very detailed list of demographic, socioeconomic and commuting variables for households and individuals that are crucial for the research questions. The smallest geographic identifier given in PUMS is Public Use Microdata Area (PUMA). PUMA is the analytical unit of community in this study, on which neighborhood characteristics are calculated. As three-area delineation is

conducted on the county basis, it requires the matching of PUMA boundaries to county boundaries in order to group individuals by their place of residence.[7]

The sample of this research is low-skilled immigrant and native-born Latinos between the ages of 16 and 65 in these three metropolitan areas who are in the labor force.[8] Those people who live in group quarters or are non-relatives of the household head are also excluded from the sample. In estimating models of commuting time, the samples are further restricted to Latino workers who worked outside the home last week and have a positive commute time. Here, low-skilled refers to those with less than a high school degree. Low-skilled Latino workers, especially immigrants have constrained residential and economic mobility and are a vulnerable group in urban labor market. They are more subject to spatial barriers than highly-educated and high-skilled workers, who are compensated for their longer commutes by high-paying jobs.

Immigrant enclave dummies are constructed on the PUMA level, indicating those PUMAs that have twice or higher concentration of Latino immigrant population than the metro as a whole based on calculations of residential concentration quotient (RCQ) as expressed by

$$\text{RCQ}=\frac{P_{ij}}{P_j}\Big/\frac{P_{im}}{P_m}, \qquad (1)$$

where j= (1,….n) and refers to the PUMA. P_{ij} is the number of Latino immigrants in a PUMA and P_j is the total population in that PUMA. P_{im} is the number of Latino immigrants in a metro and P_m is the total population for that metro. A RCQ of 1 means that Latino immigrant concentration in a certain PUMA is on par with that of the metro

[7] The Integrated Public Use Microdata Series (www.ipums.org) has these correspondence tables under "Geographic Tools".
[8] Those not in the labor force include housework, unable to work, school and other.

whereas a RCQ of greater than 1 stands for a greater level of Latino immigrant concentration. This paper uses the threshold of RCQ>2 for Latino immigrant enclaves.[9] By this definition, 10 out of 61 PUMAs in Chicago, 17 out of 110 PUMAS in Los Angeles and 6 out of 32 PUMAS in Washington, D.C. are considered Latino immigrant enclaves in 2000.

3.2 Model Specifications

This study compares the likelihood for employment of immigrant and native-born Latinos living in central cities, inner ring suburbs and outer ring suburbs and those living in ethnic enclaves versus in mixed neighborhoods. If employed, their commuting times are examined across these locations. Should there exist differentials in economic outcomes among groups living in various rings after other human capital and household attributes are controlled for, it is an indication that spatial accessibility and proximity to jobs remains an issue for inner city residents. Otherwise if such employment disparities only exist between enclave and non-enclave residents in the same ring, then it is more a matter of social accessibility and social networks.

Following the empirical strategy of Painter, Liu and Zhuang (2007), which compares the employment and schooling status of minority and immigrant youth living in different parts of Los Angeles metropolitan area, employment status is estimated on locational effects, individual and household characteristics using probit model. Commuting times are estimated in a two-stage least squares (2SLS) framework by

[9] The identification of an ethnic enclave lacks definite quantifiable criterion in the literature. For example, Parks (2004b) used the cut-off RCQ of 5 for Salvadoran, Guatemalan, Chinese, Korean and Vietnamese enclaves and RCQ of 3 for Mexicans in Los Angeles. While she based her analysis on a finer geographic scale – census tract, relative concentration on the PUMA level is much smaller. Therefore, a cutoff RCQ of 2 is used here.

treating wage earnings as endogenous, as explained earlier.[10] In order to bypass this simultaneity, instrument variables are needed to identify the predicted wage variable in the commuting model. It is suggested in the literature that household wealth, i.e. other income besides the worker's labor earnings and the sources of non-labor income will affect a worker's earning but will not directly influence the commuting duration (Gabriel and Rosenthal 1996, Petitte and Ross 1999). Independent variables used in the employment model will also be entered in commuting time model, as well as variables that indicate a worker's travel mode and industry of employment, and PUMA-level housing prices. The resulting models are expressed as:

$$\text{Prob (Employment}_{ij}\text{=1)} = f\ (L_{ij}, X_{ij}, \text{Wealth Composition}_{ij}), \qquad (2)$$

$$\text{Log (Commute Time}_{ij}\text{)} = f\ (L_{ij}, X_{ij}, M_{ij}, I_{ij}, H_j, \text{Wage}_{ij}),$$

$$\text{Log (Wage}_{ij}\text{)} = g\ (L_{ij}, X_{ij}, M_{ij}, I_{ij}, H_j, \text{Wealth Composition}_{ij}), \qquad (3)$$

where *i* indexes individuals and *j* indexes PUMAs, Employment_{ij} is binary employment status (employed or not), Commute Time_{ij} is the usual travel time to work in minutes, and Wage_{ij} is a worker's pre-tax wage and salary income in 1999, both expressed in log linear format. L_{ij} includes the area dummy variables of living in central city, inner ring suburban or outer ring suburban locations interacted with ethnic residence status to explicitly illustrate each neighborhood type's effect on low-skilled Latino workers' employment accessibility. X_{ij} is composed of workers' sociodemographic characteristics including immigrant status, and for immigrants, their membership in different arrival cohorts to the United States, gender, marital status, presence of children under 5 in the

[10] While this paper estimates employment status and commuting time in two separate models, some studies choose to estimate these two outcomes simultaneously in a sample selection framework: commuting time model that controls for employment status. However, Gabriel and Rosenthal (1996) suggests that the selection effects are slight and insignificant.

household and labor market experiences. M_{ij} is commuting mode to work by public transportation or other modes with automobile-riders being the reference, as travel speed necessarily affects the length of commuting. I_{ij} indicates a worker's industry of employment that corresponds to the industrial groupings presented earlier for each metropolitan area. In a restructured and suburbanized urban economy, the geographic distribution and turnover rate of jobs in different industries vary substantively, providing different levels of proximity and accessibility for low-skilled workers.[11] H_j represents PUMA-level median housing prices and median monthly rents (both in loglinear forms) to capture possible neighborhood cost-of-living variations across different types of residential locations. Lastly, Wealth Composition$_{ij}$ is a vector of the amount and composition of household non-labor income, including dummy variables indicating whether the household received investment income, business income, Social Security income and welfare income in 1999. These household wealth conditions help determine a member's decision to enter the labor market and the optimal amount of labor he or she is willing to supply for wage earnings, but they do not directly affect the travel time to work. Therefore, they enter the employment models and serve as instrument variables for wages in 2SLS models on commuting times. Each model is estimated for the total sample, and is stratified by immigrant status to highlight how these factors impact native-born and immigrant workers differently. Distinctions are further made between male and female Latino immigrants in separate models to explore the interaction between space and gender.

3.3 Descriptive Statistics

[11] For example, Preston, McLafferty and Liu (1998) found that employment in manufacturing and producer services jobs increase central city New York women's commutes.

[Table 2 about here]

Descriptions of independent variables and their sample mean statistics for the three cities are presented in Table 2. These statistics reveal both common patterns and also important variations of the chosen metropolitan areas. A majority of low-skilled Latino workers in Chicago reside in the central city, while D.C. inner ring suburbs are home to over half of its low-skilled Latino population. Ethnic enclave residence is evident in all areas for the three cities, with highest proportions found in Chicago's central city, Los Angeles' inner ring suburbs and D.C.'s inner ring suburbs (37%, 14% and 30% respectively). Over three quarters of low-skilled Latino workers are immigrants in all cities, however, their migration cohort compositions are not the same. D.C. area has the highest share of new comers (45% of 1990s arrival and 36% of 1980s arrivals) whereas both Chicago and Los Angeles have more established immigrants, pointing to their distinctive positions as immigrant destinations. Other sociodemographic characteristics show striking similarities, in terms of percentage female workers, percentage with children less than 5 years old in the household, percentage married, and years of working experience.

D.C. workers rank first in other household income, followed by L.A. and Chicago workers. Around or less than 10% of workers in all areas receive any kind of non-labor income. In terms of commuting mode, a vast majority of workers (around or above three quarters) in the sample use private automobiles, with Washington, D.C., a metro with relatively extensive public transportation system, having the lowest share. There exist certain differences in the industrial composition of workers, with less proportion of D.C.

workers in manufacturing and trade jobs, and more in services and public administration jobs, compared to Chicago and Los Angeles.

[Table 3 about here]

An initial view of the employment rate, commuting time and wages of Latino workers, stratified by their residential location and immigrant status is provided in Table 3. For each sample, it is almost always the case that central city residents have the lowest employment rate and longest commutes while outer ring suburban residents have the highest employment rate and shortest commutes, with few exceptions. While differences in employment rate seem to be small between enclave and non-enclave residents, enclave workers tend to commute longer to work than comparable non-enclave workers in all but two instances (native-born Latino workers in the outer ring suburbs of Los Angeles and Washington, D.C.). Overall, wages exhibit a less clear pattern. Comparisons between native-born and immigrant workers demonstrate that immigrants have higher employment rate than native-born workers in all locations, but their journey to work are generally longer in a majority of cases. These patterns suggest that both spatial proximity and enclave effects are at work in determining Latino workers' employment accessibility, and these effects apply differently to native-born and immigrant workers.

4. EMPIRICAL RESULTS

Table 4 presents results for probit models of employment status and Table 5 displays 2SLS model estimates of commuting times, the first stage regression results on wages can be found in Appendix B. The F-statistics for the test of the collective significance of wealth composition variables as instruments on wages are all quite large

and significant at 0.1% level.[12] For each table, statistics are shown for the three cities and within each city, for the total sample and stratified samples of foreign-born and native-born workers. Lastly, Table 6 presents the locational variable estimates for male and female Latino immigrants separately from both the employment status models and commute time models.

4.1 Employment Status Models

[Tables 4 about here]

Three residential location areas (central city, inner ring suburbs and outer ring suburbs) and ethnic enclave status are interacted to create six types of diverse neighborhoods. Using outer ring suburbs in general as the omitted reference group, statistics reveal the relative effects of living in other five types of neighborhoods on Latino workers' employment status and commutes. Results in Table 4 show that only in a very few instances does space matter in Latinos' employment probability. Latino immigrants in central city enclave and inner ring suburban Chicago are less likely to be employed than outer ring suburban residents, all else equal. In Los Angeles, central city immigrants and central city enclave native-born residents have significantly lower employment rates than their outer ring suburban counterparts. This is in line with central city's continuous loss of jobs to suburban areas as examined earlier. Worth noting is the fact that in Los Angeles' outer ring suburbs, being in enclave actually increases Latino immigrants' employment probabilities. It seems that social networks and social connections are effective where jobs abound, i.e., in the outer ring suburbs, and either no enclave advantage or enclave disadvantage in job accessibility is found for other areas. In

[12] The only exception is F-statistics for native-born Latino workers in Washington, D.C., which is not significant. This might be due to the small sample size of this group.

Washington D.C. area, no significant spatial effect is observed. These evidences indicate that spatial effects on employment status are sparse and are confined to certain metropolitan areas for Latino workers. Enclave effects show different signs: negative in central city Chicago and positive in outer ring suburban Los Angeles, suggesting that for Latino immigrants in the labor force, enclave residence is reinforcing the spatial disadvantage/advantage of the structural location that they belong to. These interactions are important and one misses these crucial inter-linkages by just talking about spatial mismatch effect or ethnic enclave effect without relating to the other.

With respect to other variables in the model, being an immigrant is more likely to be employed than native-born workers in Chicago and Los Angeles. An important reference in time that is not shared by native-born workers is immigrants' duration in the United States. Assimilation theories suggest that immigrants register socioeconomic progress and cultural familiarity in the host society as their residential tenure endure (Gordon 1964), though the mode and pace of incorporation can be uneven (Alba and Nee 1997). For low-skilled Latino immigrants however, cohort effects are either not significant (Chicago and D.C.) or negative for earlier arrivals as compared to the newest cohort (L.A.). This suggests the high employment rate of Latino immigrants upon their first arrival. Females are generally less likely to be employed. Latino immigrants with children are less likely to work only in Chicago. In L.A. and D.C. they are not adjusting their labor supply to accommodate childcare needs at home. Experience exhibits a uniformly significant effect on employment probability for all cities and groups, with each additional year having diminishing gains in employment rate. Of all the wealth composition variables in the model, having social security income and having welfare

income in the household consistently lowers the likelihood a Latino will work. Interestingly, in Los Angles, higher household non-labor income leads to higher employment probability for immigrants, so does having investment income and business income for both immigrant and native-born Latinos. It looks like these Latino households view investment and business income as complementing, rather than substituting labor earnings and the more prosperous households benefit from multiple sources of income.

4.2 Commuting Models

[Table 5 about here]

Turning to commuting time models, the interactions of spatial mismatch effect and ethnic enclave effect demonstrate striking similarities across the three cities. Central city residents uniformly suffer from significantly longer commutes than outer ring suburban residents. Living in ethnic enclave does not make a difference in this area. Inner ring suburban residents in Chicago and Los Angeles also tend to commute longer, but the effects are smaller in magnitude. One important finding is that strong enclave effects are detected for both inner ring suburbs and outer ring suburbs, but not for central cities. Both immigrant and native-born workers in the inner ring suburb enclaves tend to commute longer than their non-enclave counterparts, with the exception of D.C. native-borns. Immigrants in the outer ring suburb enclaves also experience significantly longer journey to work than non-enclave residents in the same ring, but the effects are not significant for native-borns.

In light of these results, and referring back to results from the employment status models, it is clear that ethnic enclaves in different rings have varied implications for their residents. Central cities prove to be a disadvantageous location as its residents experience

both dampened employment rate and lengthy commutes. Enclave effect is much muted in this area and spatial mismatch effect is prevalent. While as likely to be employed as their non-enclave counterparts (and in some cases more likely to work), immigrant workers residing in ethnic enclaves in both suburban rings tend to find jobs farther away from home as evidenced by their significantly longer commutes. Again, enclave effects on employment accessibility emerge where spatial mismatch is less an issue. It might be the case that the strong ethnic networks in these enclaves connect immigrants to jobs without regard to spatial proximity, and given these ethnic resources, immigrants do not tend to conduct job search in local labor markets.

Los Angeles immigrants tend to incur longer commutes than native-born workers, resonating Preston, McLafferty and Liu (1998)'s results from New York City, but this effect is not significant for Chicago or Washington, D.C. 1980s arrivals in Chicago and L.A. travel longer to work than new arrivals, implying that immigrants are not adjusting their residential location towards employment over time. Other factors, such as housing, school quality and local amenities, might determine their residential location. Female workers' journey to work is shorter than their male counterparts, confirming the "Spatial Entrapment Hypothesis", which states that women's household responsibilities restrain their commuting and job search efforts, and thus limit their radius of job opportunities (see Hanson and Pratt 1995). Being married and having children does not have significant effects on commuting duration. More working experience is associated with longer commutes, especially for native-borns. This is because more experience expands one's employment opportunities and leads to higher-paying jobs that compensates for longer commutes. Commuters relying on public transit spend more time in their journey to work

than auto users while those bicycling or walking to work have shorter commutes. Employment in industries other than Agriculture, Mining and Constructing reduces immigrant and native-born workers' commuting time to various degrees for the three cities. For immigrant workers, largest reductions are detected for Services in Chicago, Wholesale and Retail Trade in Los Angeles, and Finance, Insurance and Real Estate in Washington, D.C. For native-born workers these industries are Wholesale and Retail Trade in Chicago, Services in Los Angeles, and Services in Washington, D.C. These speak to the abundance and ubiquity of Service and Trade jobs and their fast growth in these areas, as seen from the employment tables in the Appendix.

To further explore how spatial disparities on commuting time is compensated for by neighborhood-level housing price differentials and earnings, PUMA-level median housing price and median rent, as well as wage earnings (all in log-linear format and wage earnings as endogenous variable[13]) are entered into commuting time models. Their presence in the models does not significantly change model estimates, including estimates on locational variables, signaling that any compensating effect is slight. Living in a neighborhood with lower median housing price incurs longer commuting, in accordance to urban economic theories. However, contrary to expectation, high rental cost is associated with longer commutes for certain groups. Also, Latino workers' longer commutes are not compensated for by higher wages. In Washington, D.C., immigrant workers even commute longer for lower pay. This group's "double suffering" might be due to their limited choices in the urban housing and labor market. Or, as some argued,

[13] First-stage regression results are shown in Appendix B. Spatial effects on wage earnings are only observed for Los Angeles, where native-born workers living in central city, inner ring suburbs and outer ring suburb enclaves have higher wages. Immigrants in outer ring enclaves, while having higher employment rate (from Table 4), earn lower wages than their non-enclave residents in the same area.

the value of "culture" might compensates for lower earnings and higher rents in ethnic enclaves (Gonzalez 1998).

4.3 The Issue of Gender

[Table 6 about here]

Table 6 presents comparable results for male and female immigrants separately from both the employment and commute time models. Only estimated coefficients on locational variables are reported. Large variations exist between spatial effects on men and women. With the exception of central city Los Angeles, residential location poses no spatial barriers to Latino immigrant men's likelihood for employment, confirming Aponte (1996) and Pastor and Marcelli (2000)'s findings. Enclave residence has no significant effect or even positive effect on their likelihood for employment. However, living in ethnic enclaves in Chicago's central city and outer ring suburbs actually decrease Latino women's employment probability and Latino men's advantage of living in Los Angles' outer ring suburb enclave is not shared by their female counterparts. These results are similar to Parks' (2004a) findings for certain immigrant women groups in Los Angeles: being in enclaves actually has significantly detrimental effect on their employment status. At the same time, enclave effects on commuting time, where significant, are larger for immigrant women than they are for immigrant men in all but one case (Los Angeles' inner ring suburbs). Overall, ethnic enclave residence lowers Latino women's employment probability and results in their larger disparity in commuting time in comparison to non-enclave workers than men. While it seems clear that women are more enclave-disadvantaged than men, the underlying mechanisms are less apparent and deserve further study. It might be the case that in intra-household

dynamics, men make the residential location choices for the whole family based primarily on his own job location or residential preference. Labor market segmentation and occupational clustering by gender might also play a role here (Wyly 1999). Ethnic networks in the enclaves might work differently for immigrant men and women, directing them to distinctive spatial labor submarkets and resulting in their different job accessibility disparities as compared to non-enclave counterparts.

5. CONCLUSION

Synthesizing empirical results of this research underscores the diversity of effects ethnic enclave residence in different urban spatial locations on Latino immigrants' employment accessibility. Unlike prior research, this analysis explicitly and simultaneously tests the ethnic enclave hypothesis and the spatial mismatch hypothesis and established the importance of their interactions on Latino immigrants' employment status and commuting duration. While results somewhat vary for Chicago, Los Angeles and Washington, D.C., there exist certain common patterns. Central cities prove to be a disadvantageous location as its residents experience both dampened employment rate and lengthy commutes. While spatial mismatch effect is prevalent in this area, enclave effect is either muted or reinforcing the existing spatial constraints. Inner ring suburb has no effect on Latino's likelihood for employment, but does lengthen their journey-to-work in some instances. Enclave effects emerge in both suburban areas where job growth is relatively strong and spatial mismatch is less an issue. In these areas, despite the fact that enclave residents are as likely to be employed as their non-enclave counterparts (and in some cases more likely to work), they tend to find jobs farther away from home as

evidenced by their significantly longer commutes. They might be directed to spatially more distant jobs through ethnic contacts and thus do not conduct job search in local labor markets. The working process of such ethnic networks in channeling immigrants to jobs, however, remains a question for further exploration. Overall, it is evident that ethnic network effect and spatial proximity effect are interdependent and their interactions are so crucial that any discussion of only one aspect on immigrants' economic well-being misses these important connections.

Low-skilled Latino immigrants are in general more likely to be employed than native-borns but they tend to incur longer commutes as well. Contrary to assimilation theories, earlier immigrant cohorts do not portray higher employment probability or shorter commutes to work as compared to new arrivals. It indicates the alternative paths of economic assimilation and spatial assimilation of this group. Having automobile and employment in the fast-growing sectors of trade and services significantly shorten immigrants' commutes. Further distinguishing immigrant men and women reveals that women in ethnic enclaves face greater spatial barriers to employment than men. This suggests that there might be gender biases in the operation of these ethnic neighborhoods. It would be interesting to observe how these findings, drawn from three representative metropolitan areas, apply to the rest of urban America. Policy makers need to be mindful of these spatial, temporal and gender variations of Latinos' employment accessibility in order to make effective efforts aiming at improving their economic well-being.

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Table 1. Population, Immigrants, and Employment Distribution, 1990 and 2000

		Chicago			Los Angeles			Washington, D.C.		
		Population	Immigrants	Employment	Population	Immigrants	Employment	Population	Immigrants	Employment
1990	Central City	2,783,660	469,187	1,207,108	3,820,693	1,336,665	2,274,350	606,900	58,887	788,475
		35%	52%	26%	26%	34%	32%	15%	12%	27%
	Inner Ring	2,797,986	267,591	2,158,391	5,042,479	1,558,401	2,341,274	1,768,414	265,489	1,198,788
		35%	29%	46%	35%	40%	33%	44%	55%	41%
	Outer Ring	2,434,277	170,728	1,322,277	5,668,361	1,049,762	2,402,778	1,670,074	157,149	968,419
		30%	19%	28%	39%	27%	34%	41%	33%	33%
2000	Central City	2,896,016	628,903	1,220,040	4,057,398	1,512,720	2,160,033	572,059	73,561	756,979
		33%	43%	23%	25%	30%	29%	12%	9%	22%
	Inner Ring	2,965,289	461,648	2,376,859	5,522,700	1,936,724	2,293,085	1,992,592	428,770	1,307,757
		33%	32%	44%	34%	38%	31%	42%	53%	38%
	Outer Ring	3,042,825	365,634	1820840	6,903,206	1,618,171	2,972,918	2,143,828	312,890	1,352,559
		34%	25%	34%	42%	32%	40%	46%	38%	40%

Source: Calculations of 1990 and 2000 Census County and City Data Book

Table 2.
Model Independent Variable Descriptions and Sample Means for Three Cities

		Chicago	L.A.	D.C.
Location Variables				
Central City	Residence in Central City	0.48	0.30	0.11
Central City Enclave	Residence in Central City Enclave	0.37	0.14	0.06
Inner Ring Suburb	Residence in Inner Ring Suburb	0.26	0.36	0.52
Inner Ring Suburb Enclave	Residence in Inner Ring Suburb Enclave	0.07	0.14	0.30
Outer Ring Suburb (omitted)	Residence in Outer Ring Suburb	0.27	0.34	0.37
Outer Ring Suburb Enclave	Residence in Outer Ring Suburb Enclave	0.13	0.05	0.10
Sociodemographic Variables				
Immigrant	If foreign-born (1=yes)	0.76	0.79	0.91
Migration Cohort 1 (omitted)	Arrived in the U.S. 1990-2000	0.32	0.23	0.45
Migration Cohort 2	Arrived in the U.S. 1980-1989	0.21	0.30	0.36
Migration Cohort 3	Arrived in the U.S. 1970-1979	0.17	0.20	0.07
Migration Cohort 4	Arrived in the U.S. before 1970	0.06	0.06	0.04
Female	If female (1=yes)	0.36	0.39	0.38
With Child	Presence of child(ren) under 5 in household	0.22	0.22	0.21
Married	If married	0.61	0.59	0.56
Experience[a]	Working Experience in years	18.16	18.90	17.03
Experience2	Working Experience Squared in years	496.03	509.31	428.55
Wealth Composition Variables				
Other Household Income[b]	besides wage earnings in 1999 in dollars	7297	16801	22781
Investment Income	if received interest income in 1999	0.06	0.05	0.08
Business Income	if received business income in 1999	0.03	0.09	0.11
Social Security Income	if received social security income in 1999	0.04	0.05	0.02
Welfare Income	if received welfare income in 1999	0.03	0.08	0.02
Commuting Mode Variables[c]				
Auto (omitted)	if commute by automobile	0.82	0.81	0.75
Transit	if commute on public transportation	0.11	0.12	0.18
Other Mode	if commute by other means	0.08	0.07	0.07
Industry of Employment Variables[c]				
AMC (omitted)	Employed in Agriculture, Mining or Construction	0.09	0.12	0.29
Manufacturing	Employed in Manufacturing Industry	0.36	0.28	0.03
Trade	Employed in Wholesale and Retail Trade	0.15	0.16	0.10
FIRE	Employed in Finance, Insurance & Real Estate	0.03	0.03	0.04
Services	Employed in Services	0.26	0.27	0.37
Public	Employed in Public Administration, Transport or Ut	0.12	0.14	0.18
Neighborhood Variables				
Median House Value[b]	Median House Value in PUMA of Residence			
Median Rent[b]	Median Monthly Contract Rent in PUMA of Residence			
N		4038	41280	2626

a. Obtained by (age - education(years) - 6) and adjusted by year last worked.
b. Natural Log is taken in model estimation.
c. Conditional on being employed.

Table 3.
Means Employment Rate, Commute Time and Annual Wages of Latinos by Neighborhood Type and Nativity

		Chicago			Los Angeles			Washington, D.C.		
		All	Foreigr Born	Native-Born	All	Foreigr Born	Native-Born	All	Foreigr Born	Native-Born
Central City	**Non-Enclave**									
	Employed	0.87	0.92	0.78	0.86	0.87	0.80	0.91	0.93	0.77
	Commute[a]	33.82	34.44	32.33	29.89	30.49	26.46	31.95	31.31	38.30
	Wages[b]	17630	18882	14577	15417	15516	14849	20869	20532	24240
	N	437	294	143	6635	5587	1048	122	109	13
	Enclave									
	Employed	0.86	0.88	0.81	0.86	0.88	0.74	0.92	0.93	0.75
	Commute[a]	34.84	35.08	34.09	31.91	32.31	28.47	36.07	35.29	55.50
	Wages[b]	17863	18232	16674	13758	13916	12392	17174	16692	29233
	N	1483	1116	367	5737	5051	686	175	167	8
Inner Ring Suburb	**Non-Enclave**									
	Employed	0.90	0.90	0.87	0.86	0.89	0.80	0.91	0.92	0.88
	Commute[a]	23.90	24.46	22.24	26.75	27.26	25.21	31.85	32.80	23.08
	Wages[b]	19735	21159	15534	17531	18072	15901	16824	17504	10576
	N	756	560	196	8845	6470	2375	582	523	59
	Enclave									
	Employed	0.87	0.88	0.84	0.87	0.88	0.78	0.92	0.93	0.86
	Commute[a]	33.33	32.91	34.84	28.40	28.72	26.72	35.71	36.04	30.38
	Wages[b]	18906	20127	14532	16046	16506	13634	17466	17565	15828
	N	280	218	62	5959	4904	1055	778	729	49
Outer Ring Suburb	**Non-Enclave**									
	Employed	0.91	0.94	0.83	0.87	0.89	0.82	0.93	0.93	0.87
	Commute[a]	21.72	21.63	22.10	25.99	26.50	24.52	28.03	28.42	25.71
	Wages[b]	19735	20537	16349	16672	17001	15714	17955	19023	13180
	N	561	441	120	11902	8651	3251	707	598	109
	Enclave									
	Employed	0.90	0.92	0.77	0.90	0.91	0.81	0.95	0.96	0.80
	Commute[a]	25.47	26.38	18.78	27.66	28.05	23.99	32.02	32.38	21.25
	Wages[b]	18968	18918	19332	15440	15579	14150	16705	17034	9267
	N	521	444	77	2202	1958	244	262	252	10

a. Commuting time in minutes. Figures are conditional on being employed.
b. Annual wages in dollars. Figures are conditional on being employed.

Table 4.
Probit Regression Estimates of Latino Employment Status by Nativity for Three Cities

	Chicago			Los Angeles			Washington, D.C.		
	ALL	Foreign-born	Native-born	ALL	Foreign-born	Native-born	ALL	Foreign-born	Native-born
Intercept	0.995 ***	1.442 ***	0.610 ***	0.708 ***	0.921 ***	0.492 ***	1.190 ***	1.245 ***	1.311 ***
Location Variables									
Central City	-0.210	-0.145	-0.274	-0.08 **	-0.098 ***	0.017	-0.090	-0.054	-0.058
Central City Enclave	-0.119	-0.243 *	0.051	-0.000	0.036	-0.163 *	0.048	0.065	-0.333
Inner Ring Suburb	-0.130	-0.251 *	0.162	-0.04	-0.040	-0.046	-0.107	-0.139	0.131
Inner Ring Suburb Enclave	-0.139	-0.109	-0.191	-0.005	0.003	-0.039	0.037	0.055	0.056
Outer Ring Suburb Enclave	-0.136	-0.093	-0.364	0.111 **	0.142 **	-0.023	0.142	0.185	-0.297
Sociodemographic Variables									
Immigrant	0.213 **			0.111 ***			0.143		
Migration Cohort 2	0.028	0.076		-0.07 **	-0.032		-0.034	-0.047	
Migration Cohort 3	-0.125	-0.028		-0.09 **	-0.038		-0.053	-0.064	
Migration Cohort 4	-0.279 *	-0.195		-0.15 ***	-0.115 **		-0.129	-0.089	
Female	-0.221 ***	-0.352 ***	0.096	-0.33 ***	-0.441 ***	-0.008	-0.438 ***	-0.487 ***	-0.252
With Child	-0.157 *	-0.239 **	0.147	0.032	0.026	-0.009	-0.007	-0.031	0.521
Married	-0.034	-0.048	-0.053	0.072 ***	0.019	0.272 ***	-0.030	-0.026	-0.065
Experience	0.050 ***	0.043 ***	0.050 ***	0.050 ***	0.043 ***	0.059 ***	0.050 ***	0.058 ***	-0.005
Experience2	-0.001 ***	-0.001 ***	-0.001	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 **	-0.001 **	0.001
Wealth Composition Variables									
Log (Other Household Income)	0.000	-0.008	0.016	0.002	0.005 *	-0.003	-0.010	-0.003	-0.046
Investment Income	0.038	-0.031	0.382	0.163 ***	0.116 **	0.312 ***	0.055	0.154	-0.191
Business Income	-0.032	-0.046	0.039	0.198 ***	0.180 ***	0.275 ***	0.213	0.214	0.313
Social Security Income	-0.048	-0.088	-0.120	-0.09 *	-0.188 ***	0.136	-0.443	-0.713 **	4.316
Welfare Income	-0.404 *	-0.310	-0.748 **	-0.47 ***	-0.497 ***	-0.471 ***	-0.676 ***	-0.550 *	-1.368 **
Log Likelihood	-1394.6	-951.4	-420.5	-15008.7	-10954.8	-3942.9	-656.9	-555.1	-89.5
N	4038	3073	965	41280	32621	8659	2626	2378	248

**p<0.05, **p<0.01, ***p<0.001.*

Table 5.
Regression Estimates of Latino Workers' Commute Times by Nativity for Three Cities

	Chicago			Los Angeles			Washington, D.C.		
	ALL	Foreign-born	Native-born	ALL	Foreign-born	Native-born	ALL	Foreign-born	Native-born
Intercept	2.529 ***	2.206 ***	3.472 **	4.031 ***	4.256 ***	3.734 ***	4.983 ***	4.837 ***	4.254
Location Variables									
Central City	0.392 ***	0.413 ***	0.318 **	0.147 ***	0.137 ***	0.174 ***	0.214 *	0.244 *	0.426
Central City Enclave	0.023	0.012	0.046	-0.012	-0.011	-0.009	0.018	0.031	-0.409
Inner Ring Suburb	0.084 *	0.087	0.060	0.058 ***	0.047 ***	0.090 ***	0.066	0.082	-0.092
Inner Ring Suburb Enclave	0.339 ***	0.311 ***	0.417 ***	0.064 ***	0.062 ***	0.093 **	0.174 ***	0.170 ***	0.303
Outer Ring Suburb Enclave	0.185 ***	0.225 ***	-0.080	0.084 ***	0.086 ***	0.056	0.140 **	0.165 **	-0.275
Sociodemographic Variables									
Immigrant	0.013			0.047 ***			0.000		
Migration Cohort 2	0.082 *	0.110 **		0.012	0.030 **		0.025	0.031	
Migration Cohort 3	-0.001	0.033		-0.017	0.007		0.062	0.056	
Migration Cohort 4	0.043	0.048		-0.028	-0.017		0.120	0.100	
Female	-0.059 *	-0.052	-0.081	-0.092 ***	-0.084 ***	-0.113 ***	-0.083 *	-0.095 **	0.006
With Child	0.010	0.001	0.023	0.012	0.003	0.049	-0.010	-0.018	0.119 *
Married	-0.005	-0.005	0.024	-0.001	-0.004	0.016	0.035	0.033	0.007 *
Experience	0.007 *	-0.003	0.024 **	0.010 ***	0.004 *	0.021 ***	0.008	0.003	0.040 **
Experience2	0.000	0.000	-0.001 **	0.000 ***	0.000	0.000 ***	0.000	0.000	-0.001
Commuting Mode Variables									
Transit	0.406 ***	0.337 ***	0.581 ***	0.628 ***	0.611 ***	0.719 ***	0.431 ***	0.415 ***	0.532
Other Mode	-0.527 ***	-0.510 ***	-0.553 ***	-0.422 ***	-0.421 ***	-0.420 ***	0.000	0.000	0.000
Industry of Employment Variables									
Manufacturing	-0.154 ***	-0.156 **	-0.160	-0.255 ***	-0.257 ***	-0.222 ***	-0.309 ***	-0.315 ***	-0.387
Trade	-0.298 ***	-0.262 ***	-0.362 **	-0.308 ***	-0.305 ***	-0.313 ***	-0.303 ***	-0.325 ***	-0.275
FIRE	-0.264 **	-0.304 **	-0.236	-0.241 ***	-0.221 ***	-0.284 ***	-0.504 ***	-0.527 ***	-0.446
Services	-0.312 ***	-0.314 ***	-0.306 *	-0.305 ***	-0.288 ***	-0.350 ***	-0.450 ***	-0.436 ***	-0.562
Public	-0.153 **	-0.167 **	-0.145	-0.187 ***	-0.186 ***	-0.195 ***	-0.241 ***	-0.232 ***	-0.324
Neighborhood Variables									
Log (Median House Value)	0.092	0.091	0.137	-0.132 ***	-0.125 ***	-0.168 **	-0.345 ***	-0.391 ***	-0.142
Log (Median Rent)	-0.092	-0.037	-0.308	0.101 **	0.072	0.190 *	0.412 *	0.521 **	0.145
Instrument Variable									
Log (Wage Earnings)[a]	-0.007	0.002	-0.028	-0.003	-0.005	0.007	-0.039 **	-0.038 **	-0.041
Adj. R^2	0.172	0.150	0.242	0.140	0.136	0.135	0.147	0.142	0.126
N	3408	2649	759	34012	27420	6592	2335	2131	204
F-statistic[b]	61.38 ***	62.33 ***	6.81 ***	1712.75 ***	1709.19 ***	145.13 ***	62.15 ***	66.77 ***	1

**p<0.05, **p<0.01, ***p<0.001.*

a. Treated as endogenous as described in the text, with wealth composition variables serving as instrument variables.

b. F-statistics are from tests of collective significance of the five wealth composition variables in the first-stage regressions.

Table 6.
Employment and Commute Time Model Estimates on Locational Variables of Latino Immigrants by Gender for Three Cities

	Chicago		Los Angeles		Washington, D.C.	
	Male	Female	Male	Female	Male	Female
			Employment			
Central City	0.026	-0.462	-0.114 **	-0.085 *	-0.096	0.026
Central City Enclave	-0.159	-0.386 *	0.033	0.039	-0.064	0.226
Inner Ring Suburb	-0.083	-0.592 **	-0.044	-0.039	-0.089	-0.172
Inner Ring Suburb Enclave	-0.158	-0.062	-0.015	0.024	-0.038	0.143
Outer Ring Suburb Enclave	0.217	-0.533 *	0.221 ***	0.072	0.550	0.033
Log Likelihood	-536.8	-398.2	-5610.0	-5274.1	-261.9	-284.0
N	2029	1044	20402	12219	1482	896
			Commute Time			
Central City	0.313 ***	0.622 ***	0.146 ***	0.110 ***	0.349 *	0.374
Central City Enclave	0.040	-0.056	-0.013	0.004	-0.086	-0.022
Inner Ring Suburb	0.044	0.173 *	0.055 ***	0.031	0.110 *	0.018
Inner Ring Suburb Enclave	0.253 ***	0.450 ***	0.071 ***	0.043	0.169 **	0.218 **
Outer Ring Suburb Enclave	0.201 **	0.264 **	0.059 *	0.141 ***	0.168 *	0.175 *
Adj. R^2	0.121	0.203	0.106	0.196	0.133	0.186
N	1806	843	18031	9389	1375	756

**p<0.05, **p<0.01, ***p<0.001.*

Appendix A.1.
Total and Foreign Born Population and Employment (by Sector) in Chicago Area, 1990-2000

	1990 Level		2000 Level		Level Change	% Change
			Central City			
Total Population	2,783,660	100.0%	2,896,016	100.0%	112,356	4.0%
Total Foreign Born	469,187	16.9%	628,903	21.7%	159,716	34.0%
Total Employment	1,207,108	100.0%	1,220,040	100.0%	12,932	1.1%
Agriculture, Mining and Construction	51,488	4.3%	54,539	4.5%	3,051	5.9%
Manufacturing	225,307	18.7%	159,554	13.1%	-65,753	-29.2%
Wholesale and Retail Trade	235,515	19.5%	146,460	12.0%	-89,055	-37.8%
Services	413,693	34.3%	565,238	46.3%	151,545	36.6%
Finance, Insurance and Real Estate	110,841	9.2%	111,130	9.1%	289	0.3%
Public*	170,264	14.1%	183,119	15.0%	12,855	7.6%
			Inner-Ring Suburbs			
Total Population	2,797,986	100.0%	2,965,289	100.0%	167,303	6.0%
Total Foreign Born	267,591	9.6%	461,648	15.6%	194,057	72.5%
Total Employment	2,158,391	100.0%	2,376,859	100.0%	218,468	10.1%
Agriculture, Mining and Construction	108,321	5.0%	119,403	5.0%	11,082	10.2%
Manufacturing	297,901	13.8%	277,211	11.7%	-20,690	-6.9%
Wholesale and Retail Trade	498,798	23.1%	545,103	22.9%	46,305	9.3%
Services	587,512	27.2%	728,141	30.6%	140,629	23.9%
Finance, Insurance and Real Estate	242,570	11.2%	262,792	11.1%	20,222	8.3%
Public*	423,289	19.6%	444,209	18.7%	20,920	4.9%
			Outer-Ring Suburbs			
Total Population	2,434,277	100.0%	3,042,825	100.0%	608,548	25.0%
Total Foreign Born	170,728	7.0%	365,634	12.0%	194,906	114.2%
Total Employment	1322277	100.0%	1,820,840	100.0%	498,563	37.7%
Agriculture, Mining and Construction	113,302	8.6%	150,204	8.2%	36,902	32.6%
Manufacturing	215,408	16.3%	252,876	13.9%	37,468	17.4%
Wholesale and Retail Trade	306,494	23.2%	418,827	23.0%	112,333	36.7%
Services	361,997	27.4%	564,358	31.0%	202,361	55.9%
Finance, Insurance and Real Estate	101,017	7.6%	152,709	8.4%	51,692	51.2%
Public*	224,059	16.9%	281,866	15.5%	57,807	25.8%

* Public category includes transportation, communications, other public utilities and public administration.

Central City: City of Chicago
Inner Ring Suburbs: Cook County (excluding Chicago City), IL; Lake County, IN
Outer Ring Suburbs: DeKalb County, DuPage County, Grundy County, Kane County, Kendall County, Lake County, McHenry County, Will County, IL; Porter County, IN.

Source: Calculation of 1990 and 2000 Census County and City Data Book

Appendix A.2.
Total and Foreign Born Population and Employment (by Sector) in Los Angeles Area, 1990-2000

	1990 Level		2000 Level		Level Change	% Change
			Central City			
Total Population	3,820,693	100.0%	4,057,398	100.0%	236,705	6.2%
Total Foreign-Born	1,336,665	35.0%	1,512,720	37.3%	176,055	13.2%
Total Employment	2,274,350	100.0%	2,160,033	100.0%	-114,317	-5.0%
Agriculture, Mining and Construction	83,332	3.7%	67,961	3.1%	-15,371	-18.4%
Manufacturing	366,086	16.1%	259,672	12.0%	-106,414	-29.1%
Wholesale and Retail Trade	259,496	11.4%	261,325	12.1%	1,829	0.7%
Services	917,674	40.3%	933,780	43.2%	16,106	1.8%
Finance, Insurance and Real Estate	187,047	8.2%	139,774	6.5%	-47,273	-25.3%
Public*	460,715	20.3%	497,521	23.0%	36,806	8.0%
			Inner-Ring Suburbs			
Total Population	5,042,479	100.0%	5,522,700	100.0%	480,221	9.5%
Total Foreign-Born	1,558,401	30.9%	1,936,724	35.1%	378,323	24.3%
Total Employment	2,341,274	100.0%	2,293,085	100.0%	-48,189	-2.1%
Agriculture, Mining and Construction	122,745	5.2%	110,927	4.8%	-11,818	-9.6%
Manufacturing	523,589	22.4%	396,717	17.3%	-126,872	-24.2%
Wholesale and Retail Trade	294,437	12.6%	314,817	13.7%	20,380	6.9%
Services	739,535	31.6%	784,685	34.2%	45,150	6.1%
Finance, Insurance and Real Estate	134,025	5.7%	126,450	5.5%	-7,575	-5.7%
Public*	526,943	22.5%	559,489	24.4%	32,546	6.2%
			Outer-Ring Suburbs			
Total Population	5,668,361	100.0%	6,903,206	100.0%	1,234,845	21.8%
Total Foreign-Born	1,049,762	18.5%	1,618,171	23.4%	568,409	54.1%
Total Employment	2,402,778	100.0%	2,972,918	100.0%	570,140	23.7%
Agriculture, Mining and Construction	212,241	8.8%	284,732	9.6%	72,491	34.2%
Manufacturing	368,916	15.4%	410,522	13.8%	41,606	11.3%
Wholesale and Retail Trade	229,769	9.6%	306,553	10.3%	76,784	33.4%
Services	840,974	35.0%	1,010,892	34.0%	169,918	20.2%
Finance, Insurance and Real Estate	157,611	6.6%	173,631	5.8%	16,020	10.2%
Public*	593,267	24.7%	786,588	26.5%	193,321	32.6%

* Public category includes transportation, communications, other public utilities and public administration.

Central City: City of Los Angeles
Inner Ring Suburbs: Los Angeles County (excluding Los Angeles City), CA
Outer Ring Suburbs: Orange County, Riverside County, San Bernadino County, Ventura County, CA.

Source: Calculation of Southern California Association of Governments Employment Data

Appendix A.3.
Total and Foreign Born Population and Employment (by Sector) In Washington, D.C. Area, 1990-2000

	1990 Level		2000 Level		Level Change	% Change
			Central City			
Total Population	606,900	100.0%	572,059	100.0%	-34841	-5.7%
Total Foreign Born	58,887	9.7%	73,561	12.9%	14,674	24.9%
Total Employment	788,475	100.0%	756,979	100.0%	-31496	-4.0%
Agriculture, Mining and Construction	23,924	3.0%	23,892	3.2%	-32	-0.1%
Manufacturing	16,510	2.1%	12,783	1.7%	-3,727	-22.6%
Wholesale and Retail Trade	40,434	5.1%	57,030	7.5%	16,596	41.0%
Services	307,701	39.0%	357,082	47.2%	49,381	16.0%
Finance, Insurance and Real Estate	47,505	6.0%	43,383	5.7%	-4,122	-8.7%
Public*	326,171	41.4%	262,809	34.7%	-63,362	-19.4%
			Inner-Ring Suburbs			
Total Population	1,768,414	100.0%	1,992,592	100.0%	224,178	12.7%
Total Foreign Born	265,489	15.0%	428,770	21.5%	163,281	61.5%
Total Employment	1,198,788	100.0%	1,307,757	100.0%	108,969	9.1%
Agriculture, Mining and Construction	88,934	7.4%	90,720	6.9%	1,786	2.0%
Manufacturing	38,898	3.2%	39,393	3.0%	495	1.3%
Wholesale and Retail Trade	235,442	19.6%	230,982	17.7%	-4,460	-1.9%
Services	412,406	34.4%	529,641	40.5%	117,235	28.4%
Finance, Insurance and Real Estate	101,653	8.5%	102,495	7.8%	842	0.8%
Public*	321,455	26.8%	314,526	24.1%	-6,929	-2.2%
			Outer-Ring Suburbs			
Total Population	1,670,074	100.0%	2,143,828	100.0%	473,754	28.4%
Total Foreign Born	157,149	9.4%	312,890	14.6%	155,741	99.1%
Total Employment	968,419	100.0%	1,352,559	100.0%	384,140	39.7%
Agriculture, Mining and Construction	110,290	11.4%	131,052	9.7%	20,762	18.8%
Manufacturing	48,379	5.0%	51,201	3.8%	2,822	5.8%
Wholesale and Retail Trade	205,695	21.2%	270,649	20.0%	64,954	31.6%
Services	308,443	31.9%	529,324	39.1%	220,881	71.6%
Finance, Insurance and Real Estate	85,065	8.8%	107,301	7.9%	22,236	26.1%
Public*	210,547	21.7%	263,032	19.4%	52,485	24.9%

* Public category includes transportation, communications, other public utilities and public administration

Central City: District of Columbia
Inner Ring Suburbs: Montgomery County, Prince George County, MD; Arlington County, VA, Alexandria City, VA;
Outer Ring Suburbs: Calvert County, Charles County, Frederick County, MD; Clarke County, Culpeper County, Fairfax County, Fauquier County, King George County, Loudoun County, Prince William County, Spotsylvania County, Stafford County, Warren County, Fairfax City, Falls Church City, Fredericksburg City, Manassas City, Manassas Park City, VA.

Source: Calculation of 1990 and 2000 Census County and City Data Book

Appendix B.
First Stage Results from Regressions of Log (Wage Earnings) on Instrument Variables and Other Variables

	Chicago			Los Angeles			Washington, D.C.		
	All	Foreign-born	Native-born	All	Foreign-born	Native-born	All	Foreign-born	Native-born
Intercept	-1.039	-0.254	-4.018	4.638 ***	4.847 ***	4.904 **	4.237	0.574	2.385
Wealth Composition Variables									
Log (Other Household Income)	-0.023 *	-0.014	-0.060 *	-0.023 ***	-0.023 ***	-0.028 **	-0.015	-0.021	-0.015
Investment Income	0.548 **	0.484 *	0.874	0.412 ***	0.339 ***	0.727 ***	0.258	0.229	0.181
Business Income	-4.753 ***	-5.019 ***	-3.450 ***	-4.650 ***	-4.833 ***	-3.663 ***	-3.220 ***	-3.267 ***	-3.267 ***
Social Security Income	-0.031	0.280	-0.429	0.027	-0.055	0.337	0.052	-0.001	-0.223
Welfare Income	-0.325	-0.332	-0.458	-0.479 ***	-0.414 ***	-0.726 ***	-0.595	-0.474	-0.588
Location Variables									
Central City	-0.022	-0.017	0.170	0.130 *	0.069	0.356 *	0.112	0.254	0.300
Central City Enclave	0.132	0.201	-0.206	-0.126 *	-0.092	-0.237	0.088	0.117	0.150
Inner Ring Suburb	0.050	0.000	0.301	0.115 *	0.080	0.238 *	0.053	-0.005	-0.126
Inner Ring Suburb Enclave	0.394	0.390	0.393	0.044	-0.015	0.306 *	-0.009	0.070	0.192
Outer Ring Suburb Enclave	-0.130	-0.250	0.562	-0.070	-0.177 *	0.523 *	0.161	0.153	0.079
Sociodemographic Variables									
Immigrant	-0.112			0.007			0.240		
Migration Cohort 2	0.054	0.115		-0.136 **	-0.045		-0.049	-0.031	
Migration Cohort 3	0.133	0.223		-0.190 ***	-0.078		-0.579 *	-0.570 *	
Migration Cohort 4	-0.819 ***	-0.783 ***		-0.639 ***	-0.591 ***		-3.470 ***	-3.498 ***	
Female	-0.774 ***	-0.786 ***	-0.727 **	-0.675 ***	-0.765 ***	-0.305 ***	-0.979 ***	-1.097 ***	-1.106 ***
With Child	0.275 *	0.299 *	0.092	0.188 ***	0.124 **	0.393 ***	0.110	0.056	0.140
Married	0.003	0.014	0.107	0.143 ***	0.082 *	0.408 ***	0.171	0.193	0.215
Experience	0.186 ***	0.167 ***	0.218 ***	0.178 ***	0.151 ***	0.225 ***	0.162 ***	0.158 ***	0.191 ***
Experience2	-0.003 ***	-0.003 ***	-0.004 ***	-0.003 ***	-0.003 ***	-0.004 ***	-0.003 ***	-0.003 ***	-0.004 ***
Commuting Mode Variables									
Transit	-0.559 ***	-0.707 ***	-0.164	-0.504 ***	-0.502 ***	-0.516 ***	-0.079	-0.019	-0.013
Other Mode	-0.755 ***	-0.546 **	-1.365 ***	-0.530 ***	-0.524 ***	-0.525 ***	0.000 *	0.000 *	0.000 *
Industry of Employment Variables									
Manufacturing	-0.114	-0.154	0.066	0.554 ***	0.596 ***	0.460 **	-0.372	0.059	-0.067
Trade	-0.340	-0.271	-0.338	0.295 ***	0.322 ***	0.274	0.224	0.454	0.543 *
FIRE	0.189	-0.153	0.738	0.673 ***	0.725 ***	0.506 *	0.139	-0.214	-0.109
Services	-0.476 *	-0.533 **	-0.230	-0.113 *	-0.029	-0.267	-0.381 *	-0.349 *	-0.340 *
Public	-0.562 **	-0.531 *	-0.661	-0.191 **	-0.186 **	-0.111	-0.304	-0.192	-0.247
Neighborhood Variables									
Log (Median House Value)	0.083	-0.082	0.575	-0.019	-0.096	0.278	0.638	0.731 *	0.495
Log (Median Rent)	1.209 **	1.400 **	0.706	0.423 **	0.585 ***	-0.276	-0.640	-0.212	-0.111
Adj. R^2	0.217	0.211	0.211	0.281	0.296	0.240	0.249	0.261	0.220
N	3408	2649	759	34012	27420	6592	2335	2131	204
F-statistics[a]	61.38 ***	62.33 ***	6.81 ***	1712.75 ***	1709.19 ***	145.13 ***	62.15 ***	66.77 ***	1

**p<0.05, **p<0.01, ***p<0.001.*

a. F-statistics are from tests of collective significance of the five wealth composition variables.