The Suburbanization of Ethnic Economies and Its Impact on Income, 1990-2010

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March 11, 2013

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Abstract:

The past quarter century has seen a sharp rise in ethnic groups and migration streams moving away from the American urban core and into the suburbs. It is neither clear if ethnic economies have formed around these ethnic suburbanites nor if the increased wealth of America's suburbs translates into increased income for ethnic economy participants. This paper uses data on 55 U.S. Metropolitan Statistical Areas from 1990 to 2010 to show that ethnic economies have suburbanized at a rapid rate, but incomes are no better than in urban ethnic economies, save for a few exceptional instances that involve particular ethnic groups in particular industries or metro areas. This suggests that suburban ethnic economies and their participants have similar opportunities for economic advancement as their urban counterparts despite working in environments that tend to be wealthier. More importantly, even though the economic vitality of certain suburban ethnic areas has captured the popular imagination, once data are analyzed nationwide, it appears that the same mobility patterns occurring in urban ethnic economies are likely reproducing themselves in suburban ethnic economies.

Introduction

For the first time in recent American history, immigrants are migrating directly into the suburbs (Singer 2008), and ethnic groups who have the means to assimilate into majority areas are choosing instead to live in suburban ethnic communities (Logan et al. 2002, Dawkins 2009). Scholars have studied this phenomenon through the lens of segregation (Logan 2001), political mobilization (Jones-Correa 2006), and crime (Garland 2010). They have even coined a term for enclaves in suburban areas, the "ethnoburb" (Li 1998, 2009). Nevertheless, scholars have not uncovered whether ethnic entrepreneurs have followed their fellow community members into the suburbs to create ethnic economies there, and whether or not suburban ethnic economies provide better remuneration than in cities.

An ethnic economy includes "the ethnic self-employed and employers, their unpaid family workers, and their co-ethnic employees" (Light and Karageorgis 1994:648). Ethnic entrepreneurs can boost local tax revenue and reduce local unemployment (Cormack and Niessen 2002:337); they can also help co-ethnics become socially mobile (Portes and Zhou 1992, Waldinger et al. 1990, cf. Bonacich 1993). Despite the suburbanization of ethnic residence, several sources show how suburban residents still shop and work in urban ethnic economies. One of the most prominent examples comes from the suburban Chinese community of New York City, which continues to shop and sometimes work in the enclave in the heart of Manhattan (Zhou 1992:ch. 8). Other examples include the Cubans of Miami (Portes and Jensen 1992) and the Indians of Chicago (Bubinas 2005:169-170). In contrast to examples such as these, the Chinese outside of Los Angeles have produced what could be the most vibrant, self-contained ethnic community in the suburban United States. In Monterey Park, CA, retail shops sit alongside globalized manufacturing firms, most of which were founded and staffed by local suburban Chinese, separate from businesses run in the heart of Los Angeles. As of 1996, this community alone accounted for over 14,000 businesses (Li 2009:102). The Vietnamese of the Washington D.C. suburbs (Wood 1997) as well as Indians in New Jersey (Chang 2010:ch. 6) have followed a similar model. These

contrasting examples show that markets can either stay in the city or move into suburban ethnic communities. The conditions under which one outcome might occur over the other have yet to be studied using nationally representative data.

Although scholars have documented the many ethnic economies sprouting in the suburbs, it remains unclear if ethnic economy suburbanization yields better, worse, or equivalent incomes for business owners and workers. According to studies of ethnic economies in cities, the ethnic economy provides an opportunity for immigrants whose human capital is not valued by the mainstream labor market to train and become economically and socially mobile (Portes and Bach 1985, Bailey and Waldinger 1991). At the same time, ethnic enterprise has been labeled a mobility trap (Wiley 1967) that can impede the acculturation of immigrants (Bonacich and Modell 1980), and possibly lead to lower incomes than in the mainstream labor market (Borjas 1990, Sanders and Nee 1987).

With regards to suburban ethnic enterprises, there are reasons to argue that they provide both better and worse incomes than urban ethnic enterprises. Suburban ethnics are richer than those in the city and more spatially assimilated (Alba et al. 1999, Massey 1985), so suburban ethnic consumers may have little incentive to patronize ethnic businesses, choosing instead to shop and work at firms in the mainstream economy. Nevertheless, ethnic groups are starting to form suburban ethnic communities even when spatial assimilation is an option (Logan et al. 2002). If these ethnic residents decide to patronize suburban ethnic economy firms, then the returns to suburban ethnic economy workers may be higher than in the city, and suburban ethnic economies may ultimately be more economically robust and provide more secure employment for those who work within them.

This paper uses a data set on 55 American metro areas to address the ambiguities laid out above, turning them into two distinct but related research questions. First, along with the rise of suburban ethnic communities and immigration streams, have ethnic economies moved into the suburbs? The answer is a resounding yes, regardless of the characteristics of the ethnic population.

Second, does the increased wealth of the suburbs translate into a higher income for suburban ethnic economy participants? For the most part, the difference in incomes between suburban and urban ethnic economy participants is not statistically significant across ethnic groups, metro areas, and industries. Notable exceptions that capture the popular imagination exist, such as the Chinese ethnoburbs outside of Los Angeles (Egan 2011, Zarsadiaz 2012) and San Francisco (Marech 2002, Brown 2009). Nevertheless, the evidence points to the likelihood that, despite the turn away from spatial assimilation and the creation of ethnoburbs, once data are analyzed nationwide, the opportunities for economic advancement within the ethnic economy are merely reproducing themselves in the suburbs.

Literature Review and Hypotheses

Ethnic residential suburbanization in American over the past quarter century has followed four different models: spatial assimilation, the ethnic community model, the ethnoburb, and the new immigrant destination model. For most of the 20th Century, social science was rooted in the theory of ethnic neighborhood creation laid out by the Chicago school of social ecology. Labor migrants first come to America and concentrate in transition zones near the central business district of a city, both due to the proximity to available jobs and discrimination from natives, who avoid living near them (Burgess 1925:56). This concentration of immigrants may demand particular goods and services from the home country, which provides an opportunity for ethnic entrepreneurs to create businesses (Waldinger et al. 1990). Using the ethnic neighborhood and nearby available jobs as a means to accrue wealth and knowledge about the host society, individuals in the ethnic group are eventually able to move into the suburbs and integrate with the White majority, or spatially assimilate (Massey 1985, Alba et al. 1999). Although they may spatially, and then fully, assimilate, a nuance was discovered in which ethnics moved into the suburbs but sometimes continued to work and shop in the ethnic economy of the urban core (Zhou 1992, Bubinas 2005:169-170, Portes and Jensen 1992).

By contrast, the ethnic community model takes account of the fact that today's immigration streams include many high- and low-skill workers, and that the automobile and Internet have weakened the connection of residence and workplace but enable ethnic groups to maintain social ties (Logan et al. 2002, Zelinsky and Lee 1998). "As a result, some groups are now able to establish enclaves in desirable locations, often in suburbia, and group members may choose these locations even when spatial assimilation is feasible" (Logan et al. 2002:300). In other words, while yesterday's more privileged immigrants may have chosen to live in the suburbs in order to assimilate into the majority, today's more privileged immigrants can instead choose to live and work in communities of co-ethnics in the suburbs. This does not necessarily mean, however, that ethnic enterprises are forming around these communities or that the privilege translates into better incomes for those who work in these suburban areas. In New York City and Los Angeles, for instance, the most prominent ethnic communities are made up of Filipinos (Logan et al. 2002), a group that historically has low levels of self-employment and very few ethnic economies in the U.S. (Min 1986).

The ethnoburb is an alternative form of ethnic residential suburbanization that explicitly ties suburban place of work with place of residence. Ethnoburbs are

> Characterized by both vibrant ethnic economies, due to the presence of large numbers of ethnic people, and strong ties to the globalizing economy, revealing their role as outposts in the emerging international economic system. Ethnoburbs are also multi-ethnic communities, in which one ethnic minority group has a significant concentration, but does not necessarily comprise a majority (Li 1998:482).

Two central features that enable the growth of ethnoburbs are the existence of place entrepreneurs (Light 2002), who can help buffer the nascent ethnic neighborhood from political and economic resistance from natives, and transnational business ties (Guarnizo 2003, Waldinger and Tseng 1992:102-104), which can provide capital inflows above and beyond what can be generated locally. The existence of place entrepreneurs and transnational sources of capital virtually guarantees higher returns than in ethnic communities that lack them. These features are present only among a few ethnic groups in a few

localities, which explains in part why ethnoburbs are so rare and may continue to be in the future (Li 2009:ch. 8). The ethnoburb model is unlikely to explain more general patterns in ethnic economy suburbanization and the incomes to be made there.

The third model of ethnic residential suburbanization over the past quarter century is the new immigrant destination model. In metro areas in the Midwest and Southeast, immigrants—particularly Hispanics—have moved in droves due to the passage of the Immigration Reform and Control Act of 1986, a tighter labor market in traditional gateways such as California, and stricter border enforcement (Massey and Capoferro 2008). Many immigrants in these new destinations are living in the suburbs rather than the urban core. While new destinations have started to attract immigrants, the lack of pre-existing immigrant communities as well as a dearth of low cost housing in the urban core pushed immigrants to the suburban fringes, especially in the South. A more reasonable option for many immigrants was to live in low-cost apartments being built on the edge of metropolitan areas, close to the service and construction jobs that employed many immigrants (Furuseth and Smith 2006:9). Consequently, Hispanics, the largest group moving to new destinations (Massey and Capoferro 2008), are being segregated in the suburbs rather than spreading among the non-Hispanic Whites of the suburbs (Lichter et al. 2010). This might have ironically produced the same conditions for successful ethnic entrepreneurship emphasized by the Chicago School, but in the suburbs. This form of ethnic residential suburbanization may be unique to Southern new destinations, however. Hispanics and Hispanic-owned businesses have concentrated in central cities in Minneapolis (Hirsi 2011) and Salt Lake City (House 2011), leaving a sparser number of spatially assimilated ethnics to reside in the suburbs there.

Despite the ambiguous relationship between each of these suburbanization models and the growth of ethnic enterprises, they point to the distinct possibility that ethnic economies have grown alongside suburban ethnic residents. Moreover, the discussion above suggests that suburbanization

patterns should not simply follow the general trend toward the suburbanization of work that has affected American metro areas since World War II (Glaeser and Kahn 2001).

> **Hypothesis 1a**: For each ethnic economy in each metropolitan area, as ethnic residents move to the suburbs, the ethnic economy in the suburbs grows. This pattern should be distinct from general trends in the suburbanization of work.

Urban ethnic economies may still be the primary destination of work and consumption for some ethnics, and spatially assimilated ethnics may not bother with ethnic economy establishments in the suburbs at all. The low-skilled immigrants remaining as workers and consumers in the suburbs may have too little capital to create and sustain any ethnic economies. Ethnic economy growth may not have occurred in the suburbs as a result.

> **Hypothesis 1b**: For each ethnic economy in each metropolitan area, as ethnic residents move to the suburbs, the ethnic economy in the suburbs will not grow. Any ethnic economy suburbanization should reflect the suburbanization of mainstream jobs.

Previous research has claimed that ethnic economies have suburbanized, but they suffer from several weaknesses. First, one prominent study used place of residence data on ethnic economy workers, not place of work data (Logan et al. 2002). This approach omits the potential that privileged urban ethnic economy participants live in the suburbs but work in the city (Portes and Jensen 1992). Second, most research on suburban ethnic economies has been limited to individual case studies (e.g. Fong et al. 2007, Li 1998, Oberle 2006). A nationally representative study that highlights information on place of work rather than place of residence is therefore warranted.

Assuming ethnic economies have suburbanized, it is an open question whether or not their participants are compensated better than in the city. Remuneration has long been a contested topic of inquiry in the field, especially in terms of income earned inside versus outside the ethnic economy. Portes and associates were the first to show the possibility of making as much if not more money in the ethnic economy than outside it (Wilson and Portes 1980, Portes and Jensen 1989). Sanders and Nee then challenged those findings, arguing that the distinction between the self-employed and wage

workers shows that wage workers pay a penalty for working in a particular type of ethnic economy, the ethnic enclave economy (1987). Several scholars found fault with this subsequent conclusion. First, Zhou pointed out that many wage workers trade off lower income in the ethnic economy for the ability to work longer hours, evade taxes, and learn from business owners how to start an ethnic enterprise of their own (1992). Second, Maxim used Canadian census data to demonstrate that, in some cases, foreign-born wage workers actually earned more than the foreign-born self-employed. One interpretation he offers is that immigrants may view self-employment as a last resort (1992:193). Third, Light has argued that most ethnic economy firms are operated by the self-employed themselves, hiring no wage workers at all (1994). The consensus is that relative wages in the ethnic economy do not accurately reflect the potential for immigrants' economic advancement compared to the mainstream labor market.

As ethnic economies suburbanize, these dynamics found in urban environments may reproduce themselves. Nevertheless, two of the three residential suburbanization models discussed thus far—ethnic communities and ethnoburbs—emphasize a new aspect in the study of immigrant neighborhoods: the power of choice. Under Chicago School social ecology, immigrants and their businesses were located wherever they were allowed to be by more powerful members of the majority. "The ethnic community," however, "is grounded in motives associated more with taste and preference than with economic necessity, or even with the ambition to create neighborhoods that will symbolize and sustain ethnic identity" (Logan et al. 2002:300). Similarly, ethnoburbs result "from a deliberate effort by the ethnic groups involved to set up their own job and consumer markets…Unlike ghetto residents, who lack economic power, the creators of ethnoburbs are able to choose potential locations because of their economic strength" (Li 2009:46). The emphasis on choice suggests that, unlike in the city, where choices have traditionally been limited for ethnic groups, ethnic suburbanites will create

economic opportunities, at least for high-capital ethnic groups, which may in turn promote higher earnings for those in the ethnic economy.

> **Hypothesis 2a**: Encouraged by the rise of ethnic communities and ethnoburbs, for each ethnic economy in each metropolitan area, as ethnic economy participants shift from work in the city to work in the suburbs, they earn a higher income.

In contrast to the possibility of higher income in the suburbs, this existence of vibrant ethnic economies in the urban core, as well as the new destination model of residential suburbanization, may keep suburban ethnic economy incomes as low as or lower than in the city.

> **Hypothesis 2b**: Discouraged by the existence of ethnic economies in the urban core as well as residential formation following the new destination model, for each ethnic economy in each metropolitan area, as ethnic economy participants shift from work in the city to work in the suburbs, they earn the same or a lower income.

Important to testing Hypotheses 2a and 2b is the distinction between the incorporated self-employed, the unincorporated self-employed, and wage workers, a lynchpin of the debate regarding wages inside and outside the ethnic economy summarized above. "Self-employed workers typically incorporate their businesses in order to receive traditional benefits of the corporate structure, including limited liability, tax considerations, and the enhanced opportunity to raise capital through the sale of stocks and bonds" (Hipple 2010:18). The incorporated self-employed tend to come from high-paying occupations and are more likely to employ workers than the unincorporated self-employed (Aronson 1991:68). The difference between the incorporated and unincorporated self-employed has in fact been treated informally as a distinction between the skilled and unskilled self-employed (Carr 1996:28). Although incorporation has been discussed little in the ethnic economy literature (but see Rangaswamy 2007), most ethnic economy firms tend to be small businesses with no employees (Light et al. 1994), and firms that are incorporated or have employees likely face different opportunities for income. That is why one must test each of these three classes of workers separately.

The remainder of the paper will be broken into three parts: the first addresses ethnic economy suburbanization and the second looks at income in the suburban ethnic economy. The third and final

part will provide a discussion and conclusion explaining how this analysis clarifies our understanding of the place of ethnic groups and immigrants in American suburbs.

Have Ethnic Economies Suburbanized?

The details of ethnic economy suburbanization can be clarified by analyzing trends in Metropolitan Statistical Areas (MSAs) since 1990, around when the suburbanization of ethnic residence began in earnest (Singer 2008). The 2000s were a very different decade for the American economy and American immigration policy than the 1990s, however, so I analyze the 1990s and the 2000s separately. The 1990s found the American economy expanding like almost no other period in history, and undocumented immigrants steadily came to America throughout the decade (Office of Policy and Planning, U.S. Immigration and Naturalization Service 2001). The late 2000s, on the other hand, were recessionary, and immigrants of all types faced a more hostile context of reception (Massey and Capoferro 2008). Municipalities passed ordinances targeting undocumented migrants from 2006 on (O'Neil 2010), and the pool of available visas shrank due to restrictions put in place after the terrorist attacks of September 11, 2001 (Miller 2005).

There are three ways to operationalize the ethnic economy: total receipts, number of firms, and number of workers. The best publically available data on occupations in localities come from the 1990 and 2000 Census Public Use Microdata Five Percent samples and the 2010 American Community Survey Public Use Microdata sample (Ruggles et al. 2010). Using these data, the only way to operationalize the ethnic economy is to use the number of workers in the ethnic economy. I will use exploratory data later in the paper, however, to define the ethnic economy in terms of total receipts and number of firms.

How does one define an ethnic economy using number of workers? To do so, I adapt and expand a measure created by Logan et al. in 1994. The use of Census data to identify ethnic economies

has inspired much work in the field (e.g. Logan et al. 2002, Zhou and Logan 1989, Model 1992), and the approach of Logan et al. (1994) is the most appropriate. An industry is considered part of a group's ethnic economy in a given MSA if the group's representation as both owners and workers in the industry in the metro area is 50 percent higher than in the rest of the metro area's workforce. This is characterized as an odds ratio in Figure 1. An ethnic group is overrepresented if the odds ratio for owners and workers are both at least 1.5. An odds ratio, rather than a raw proportion, is insensitive to group size, which enables the method to translate across a variety of MSAs of different sizes. I also limit industries in the analysis to those that exclude professionals, farmers, miners, the military, and government workers. The latter two groups are by definition not self-employed; farmers and miners are unlikely to be found in the city or suburbs; professionals can rely on class resources over ethnic resources to start and run a business (Light 1984).

[Figure 1]

In addition to the criteria above, I include a requirement such that, in order to be part of the ethnic economy in an MSA, the ethnic self-employed in a particular industry must make up at least one percent of all the self-employed in the industry. This ensures that very small groups are not mistaken to have a notable ethnic economy in an MSA.

The distinction between urban and suburban areas is traditionally made by treating central cities in MSAs as urban. Suburbs are the portion of each MSA that excludes central cities (Logan and Schneider 1984, Massey and Denton 1988, Alba et al. 1999). Three MSAs—Bergen-Passaic, NJ, Middlesex-Somerset-Hunterdon, NY, and Nassau-Suffolk, NY—do not have any central city but contain many daytime commuters to New York City (Alba et al. 1994:ftnote 2), so I treat them as suburbs in the New York-Northeastern NJ MSA.

The smallest geographical unit available from the Census Bureau is the Public Use Microdata Area (PUMA). PUMAs are arbitrarily bounded geographical units defined by the Census Bureau, ranging

from 100,000 to 200,000 residents. The geographical building block of my analysis is the Place of Work PUMA (PWPUMA), not the PUMA. PWPUMAs are frequently equivalent to PUMAs, but the Census Bureau sometimes aggregates PUMAs within PWPUMAs in order to maintain the confidentiality of respondents. PWPUMAs, like PUMAs, occasionally cross the city-suburb divide. Throwing out PWPUMAs sharing urban and suburban territory would result in a steep loss of MSAs available for analysis. Social scientists sometimes relax PUMA boundary conditions such that if a certain portion of a metropolitan PUMA's residents lives in a central city, then the PUMA is considered urban. The inverse yields a suburban PUMA. The population minimum in published research using this approach ranges from 50 percent (Holzer and Stoll 2007:2-3) to 95 percent (Alba et al. 1999:ftnote 3), so I use a rough midpoint of 75 percent. If 75 percent or more of a PWPUMA's residents live in a central city, then the PWPUMA is considered urban. In total, I include 55 MSAs in the analysis because they each cleanly separate their urban and suburban portions.

There are ten ethnoracial groups in the analysis. Following Alba et al. (1999:448), I include both non-Hispanic Whites and national-origin groups that are growing through immigration and had more than 500,000 members in 2000. I use the phrase White ethnic economies as shorthand for occupational trends occurring among majority members in White-dominated industries. Non-Hispanic White ethnic economies do not exist in reality, but I organize the analysis of baseline trends affecting the majority group analogously to the analysis of national-origin groups to make each group directly comparable.

The nine non-White national-origin groups exclude the Japanese and Puerto Ricans. The Japanese immigrated to America in low numbers between 1990 and 2010, and Puerto Ricans are U.S. citizens, enabling them to travel freely between the mainland U.S. and their homeland. The national-origin groups also exclude Cubans, a highly entrepreneurial ethnic group in the United States (Portes and Bach 1985). According to personal correspondence with the Minnesota Population Center, the data on those who worked in the Miami-Hialeah, FL MSA in 2000 and 2010 are missing. Miami is a central

hub of Cuban ethnic economy activity, and any microdata that omit information on the Cubans of Miami will be biased away from trends found in prior research on Cuban ethnic economies (Portes and Bach 1985, Wilson and Portes 1980). I drop Cubans from the analysis as a result.

I ultimately organize the data into a panel data set of ethnic economies and the communities surrounding them between 1990 and 2010 for each particular ethnic economy in each MSA. An ethnic economy must exist across all three time points to be included in the analysis. This requirement may bias the data away from newer ethnic economies but more accurately gets at the question of ethnic economy suburbanization. The model, shown below, uses fixed effects regression to conduct multivariate analyses of ethnic economy suburbanization on ethnic residential suburbanization.

$$S_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 C_{it} + \alpha_i + \varepsilon_{it}$$

S_{it} is the suburban proportion of a given group's ethnic economy i in a given MSA at time t. X_{it} is the proportion of the associated ethnic group's residents who live in the suburbs of a particular MSA surrounding the ethnic economy i. C_{it} is a vector of local community characteristics, including changes in overall educational attainment and nativity of the ethnic group over time. α_i is an ethnic economy fixed effect, which captures MSA-specific factors that could have influenced suburbanization such as racial attitudes and legal requirements to business creation. Note that the use of proportions allows for the possibility that suburban ethnic economies may be integrated with urban ethnic economies. I do this because ethnic economies are increasingly spread across municipal divides, a process called heterolocalism (Zelinsky and Lee 1998). However, because suburbanization may unduly be affected by a shrinking urban ethnic economy, I use as a robustness check the log of the number of suburban ethnic residents as a predictor of the log of suburban ethnic economy workers.

Results

Where Are the Ethnic Economies, and What Industries and Occupations Are Involved?

Table 1 lists the metro areas that had ethnic economies between 1990 and 2000. Of the 55 metro areas in the analysis, 28 had non-White ethnic economies. They were spread across different parts of the country, were of different sizes, and had different immigration histories. Unfortunately, no sprawling metro areas from the Southwestern United States are in the data set. The city-suburb distinction is too muddled in that region. A couple of regional ethnic economy concentrations are discernible using the data set, however. Filipinos and Jamaicans, for instance, only had one ethnic economy each—in the New York City MSA. Dominicans were also clustered in the New York area despite having ethnic economies in three metro areas. The other two MSAs with Dominican ethnic economies were in Jersey City and Newark, New Jersey. At the other extreme, Whites unsurprisingly dominated many industries in all 55 MSAs.

[Table 1]

The industries and occupations in each ethnic group's economies followed extant research. Using data on individuals pooled from 1990, 2000, and 2010, the top industry that Whites dominated was "Construction", which accounted for 18 percent of all White jobs. Nonetheless, the top four occupations were in sales and management, likely because other major industries included "Machinery, Equipment, and Supplies" as well as "Advertising". Surprisingly, the largest concentration of Indian ethnic economy participants—14 percent—were found in "Electrical Machinery, Equipment, and Supplies, not otherwise classified", a similar industry to one dominated by Whites. The remainder of top Indian ethnic economy industries nevertheless diverged from White trends and aligned with prior research. The second and third largest industries were "Taxicab Service" and "Drug Stores" (11 percent each), and over 13 percent of Indians in ethnic economies claimed as their job, "Supervisors and Proprietors of Sales Jobs".

A whopping 63 percent of Chinese worked in "Eating and Drinking Places". 21 percent also worked in "Apparel and Accessories, Except Knit". Although the apparel industry is typically associated with the Chinese of New York and Los Angeles (Zhou 1992, Bonacich and Appelbaum 2000), Chinese members of this industry were spread across many metro areas. Filipinos were similarly concentrated, with over 42 percent of ethnic economy workers being "Housekeepers" or "Child Care Workers". Although this may not at first appear to be a line of work that supports ethnic economies, these occupations cut across all three classes of workers, meaning Filipinos likely maintained connections at different levels of the economic hierarchy, at least in New York.

23 percent of Koreans were in "Grocery Stores", and 18 percent were in "Eating and Drinking Places", both typical industries for Korean ethnic economies (Light and Bonacich 1988, Yoon 1997). "Cosmetologists" made up 9 percent of Korean ethnic economy occupations, but they comprised over half of all Vietnamese ethnic economy workers. The Vietnamese are thus the only ethnic group whose ethnic economies were at gender parity. The next largest industry in Vietnamese ethnic economies was "Eating and Drinking Places".

Jamaicans, like Dominicans, were concentrated in New York. The industries of the former group supported transportation services, including "Auto Repair", "Bus Service", and "Taxicab Service". When making inferences from these concentrations, however, one should take into account that the Jamaican ethnic economy is very small, a fact also noted by Kasinitz and Vickerman (2001). Dominicans are known to have a large but impoverished ethnic economy in New York City (Gilbertson and Gurak 1993, Gilbertson 1995), and more than 3 in 5 Dominican ethnic economy participants were in a combination of "Grocery Stores" and "Taxicab Services". "Apparel and Accessory Stores, except Shoe" also employed a notable portion of Dominicans.

Mexicans, like Salvadorans, gravitated toward fields that involve landscaping, construction, "Private Households", and "Services to Dwellings and Other Buildings". These are typical of the jobs

taken by these groups even outside ethnic economies (Rosenfeld and Tienda 1999). Almost 18 percent of Mexican ethnic economy workers, however, were in "Eating and Drinking Places", and the Mexican ethnic economy of San Antonio had a healthy spread of manufacturing, retail, personal services, and construction.

In virtually every ethnic group, the industries and occupations in which urban ethnic economy workers concentrated were the same as in the suburbs. The consistency largely persisted into the suburbs despite the range of metro areas and classes of workers found in each case. Any notable differences were only for Chinese apparel workers and Indian taxicab drivers, both of whom are almost exclusively drawn from the city.

Suburbanization Summary Statistics

According to Table 2, which provides means and standard deviations of ethnic economy variables across time as well as population totals inside and outside of the ethnic economy, ethnic economies likely suburbanized between 1990 and 2010, maybe even at the same pace as White-dominated industries. The column headed "Non-Hispanic White" shows suburbanization trends in industries dominated by the majority group. The average proportion of Whites who worked in the suburban portion of the ethnic economy moved from 48 to 57 percent, and the same proportion went from 47 to 57 percent for non-White groups combined. Similarly, the average proportion of Whites who lived in the suburbs grew from 63 to 72 percent, and for non-Whites was 52 to 62 percent. On its face, this suggests that ethnic economy suburbanization was just a proxy for larger workforce and residential suburbanization. Combining non-Whites masks important variations underneath, however. Vietnamese and Mexicans still had ethnic economies that were primarily urban in nature, and Indian and Chinese ethnic economies were more suburban than those of the majority even in 1990. The numbers for Salvadorans were driven by the Washington D.C. and New York City Salvadoran communities, which

have always been suburban in nature (Verdaguer 2009:56, Mahler 1995). San Francisco's Salvadoran ethnic economy stayed majority urban even through 2010.

[Table 2]

Unlike the proportion of ethnic economy workers in the suburbs, the total number of ethnic economy workers in the suburbs showed a distinct split between Whites and non-Whites. At the median number of workers, suburban Whites gained about 1,000 workers in industries they dominated, while they lost roughly 30 percent of their workers in urban areas, clearly pointing to a general suburbanization of work. Non-Whites, on the other hand, gained workers in both the suburbs and the city, demonstrating that any change in the proportion of ethnic economy workers in the suburbs was not due to a shrinking urban labor force. The median number of suburban non-White ethnic economy workers more than tripled from 257 to 988, as it also did in cities, where the median jumped from 288 to 905. Disaggregating the data, one finds that the Jamaican ethnic economy of New York shrank to a mere 643 ethnic economy workers across the metropolitan area, while Mexicans ballooned to 104,032, driven by the fact that the Mexican labor force was 1.8 million people in 2010, at least in the MSAs in the data set that had Mexican ethnic economies. The final noteworthy story about specific national origin groups is how definitively the Korean ethnic economy suburbanized, not only through suburban labor growth but through urban labor decay, a potential sign that the diminishing Korean migration stream to America and the shrinking Korean population going into common middleman pursuits such as grocery stores is truly moving ethnic economies to where the Korean suburban ethnic communities are (Dolnick 2011, Min 2008).

There were significant jumps in the number of ethnic economy participants overall between 2000 and 2010 for many groups excluding Whites, which may lead one to assume that the unemployment caused by the Great Recession forced workers into the ethnic economy. After all, ethnic economy work, which generally provides lower wages than outside the ethnic economy (Sanders and

Nee 1987, Light et al. 1994), is a better alternative to unemployment. Nonetheless, aside from Jamaicans, each non-White national-origin group saw huge increases both in ethnic economy and overall employment, as seen in the rows of Table 2 titled, "Total Number of Workers in All Ethnic Economies" and "Total Number of Workers in All MSAs." This dispels the possibility that workers were rushing to work in the ethnic economy due to a lack of alternatives. For the most part, the story about ethnic economy suburbanization is a growth story, not a story about a shrinking ethnic labor pool.

Multivariate Analysis

Table 3 shows the results of fixed effect regressions of ethnic economy suburbanization on ethnic residential suburbanization between 1990 and 2000 for non-Hispanic Whites and non-White ethnoracial groups combined. Models 1, 3, and 5 use as their dependent variables the change in the proportion of ethnic economy workers in the suburbs versus the city. They use as their independent variables the change in the proportion of ethnic residents in the suburbs versus the city. As a robustness check, models 2, 4, and 6 use as their dependent variables the percent change of ethnic economy workers in the suburbs. They use as their independent variables the percent change in ethnic residents in the suburbs. Models 2, 4, and 6 help ensure that associations found in Models 1, 3, and 5 are not due to a shrinking urban ethnic economy instead of a growing suburban ethnic economy. Control variables include measures of educational attainment, nativity, the index of net difference in city and suburban incomes (Lieberson 1976), and industrial composition of the ethnic economy. Regression coefficients on a White population that is almost all fluent in English and native born are nonsensical, so controls in the White models exclude nativity measures. Models 5 and 6 use Hausman-Taylor fixed-effect estimation (Hausman and Taylor 1981) because the industrial composition variables are time invariant binaries. Models 5 and 6 are not calculated for Whites because every White ethnic economy contains portions that are in construction, manufacturing, and retail, yielding no variation on those particular estimates.

[Table 3]

For both Whites and non-Whites combined, residential suburbanization was strongly, positively associated with ethnic economy suburbanization between 1990 and 2000. The association was in fact stronger for non-Whites groups than for Whites. Including all controls, a one unit increase in the proportion of non-White ethnic residents who lived in the suburbs increased the proportion of workers in the suburban part of the ethnic economy by 0.95 over the 1990s. Using a log specification, a one percent increase in the number of non-White ethnic residents who lived in the suburbs increased the number of workers in the suburban part of the ethnic economy by an average of 1.82 percent. The association was also statistically significant for Whites, but less so. Many of the top occupations found to be part of the White-dominated industries were in the sales of machinery equipment and in advertising, two industries in which it is not to crucial to chase a consumer base into the suburbs. This is very different than the scenario for Chinese ethnic economies, for instance, in which 63 percent of workers were in "Eating and Drinking Places".

Despite the clustering of certain ethnic groups in particular industries, the finding holds that non-White residential suburbanization and ethnic economy suburbanization were associated more strongly than for Whites even after controlling for industry type. The only control variable of note is the inconsistent statistical significance found among educational attainment variables in Models 3 and 6 for non-Whites. In Model 6, a test of the hypothesis that the change in the percentage of the ethnic group that was college educated and the change in the percentage that was high school educated was jointly significant fails at standard levels of significance ($p = 0.08$).

No fixed effect intercepts for ethnic economies deviated significantly from the overall intercept, at least according to t-tests on the fixed effects intercepts in Models 3 and 4. This indicates that no outliers existed among non-White ethnoracial groups, and that for the most part, all ethnic economies conformed to the same pattern of association in the fitted model. The residuals, which measure

deviations of the fitted model from observed values, were largest, however, for Mexican ethnic economies, likely due to the much larger number of Mexican individuals living and working in the suburbs. Changes in Mexican population and worker shares in the suburbs were of a larger magnitude than among other ethnoracial groups. Moreover, the least fitting Mexican ethnic economy, that of the Chicago-Gary-Lake, IL MSA, is known to be an exceptionally large Mexican community with an exceptionally small ethnic economy (Raijman and Tienda 2003). The positive, statistically significant association between ethnic residential and ethnic economy suburbanization remains even if Mexicans are dropped from the analysis.

Table 4, shown below, provides the same analysis as in Table 3, except for the 2000s instead of the 1990s. Again, there was a positive, significant association between ethnic residential and ethnic economy suburbanization in which the magnitude of association was stronger for non-White ethnic economies than for White ones. Interestingly, the association was no longer statistically significant for Whites. White populations in some prominent suburbs contracted rapidly between 2000 and 2010, including in the suburbs of New York, San Francisco, New Orleans, and Detroit (Frey 2012). The attraction of the city for young Whites and the contraction of the outer suburbs due to the foreclosure crisis (Frey 2012:1) are two reasons why this may have occurred. This residential contraction occurred in spite of the fact that employment continued to suburbanize in these metro areas, save for New Orleans, whose White-dominated industries grew in employment by only 0.01 percent in the 2000s.

[Table 4]

For non-Whites, it is important to note that, according to Models 4 and 6, an increase over time of one in the percent of the ethnic group that is high school educated strongly decreased the suburbanization of the ethnic economy. This result was slightly different than in the previous decade, but its more consistent nature when number of workers is logged might indicate that the push toward the creation of ethnic economy firms in the 2000s may have been due to the highest and lowest prestige

ethnics in the suburbs. In order to clarify the relation between residential and ethnic economy suburbanization, the next section will conduct further analysis by operationalizing the ethnic economy in terms of firms and receipts.

Is Suburbanization Happening in terms of Firms and Receipts in Addition to Workers?

Ethnic economy suburbanization operationalized as number of workers can only tell part of the story. A large labor force may lead to insignificant total receipts, or workers may be concentrated in so few firms that the phenomenon is trivial. This section uses exploratory data on the firms and receipts of various ethnic economies to show that the suburbanization of ethnic residence and the suburbanization of ethnic economies were related in terms of firms and receipts, as well.

The 2007 Survey of Business Owners was the only wave of the Economic Census conducted between 1990 and 2010 in which the Census Bureau released information on firms and receipts in cities and their surrounding metro areas by industry and national origin of business owner. Data on certain national origin groups that have fewer business owners nationwide were not published, leading to a loss of data on certain groups including Jamaicans, Dominicans, and Salvadorans. This does not lead to a huge loss of data nationwide: As stated earlier, Jamaican and Dominican ethnic businesses largely concentrate in the New York-Northeastern NJ metro area (Kasinitz and Vickerman 2001, Gilbertson and Gurak 1993), while Salvadoran business activity occurs mostly in Los Angeles and Washington D.C. (Shyong 2012, Verdaguer 2009). This leaves in the analysis groups that had more ethnic economies in the 1990s and 2000s—Indians, Chinese, Koreans, Vietnamese, and Mexicans—as well as Filipinos.

In addition to the loss of certain ethnic groups, the Census Bureau masks data on firms in particular places to ensure the confidentiality of business owners. Nonetheless, when data were available, I subtracted the number of firms and total receipts of urban economic places from the overall metro area to get the number of firms and total receipts in the suburbs, a strategy used for Asian and

Hispanic firms by Liu and Abdullahi (2012). I made sure to include firms from the particular industries that showed up in the ethnic economy, although this involved a translation of industry codes. The Minnesota Population Center, in charge of administering historical Census microdata, uses more specific industry codes than does the Survey of Business Owners, which is organized by the North American Industry Classification System (NAICS). I therefore needed to aggregate IPUMS industries into the industries represented by 2007 NAICS codes.

Despite being the most accurate approach available to getting approximate information on suburban and urban ethnic economy firms, this approach introduces two sources of potential bias. First, the approach assumes that any firm owned by a member of a national origin group and existing in an industry that overlaps with the ethnic economy is an ethnic economy firm. The firm may be owned by a member of the ethnic group but use sources of capital and labor outside of it. Second, translating the Census industry into its NAICS code may overcount ethnic economy firms. For instance, if Koreans are found to have an ethnic economy with firms in the industry, "Grocery Stores," then the Survey of Business Owners labels them as "Retail Trade". This analysis should therefore be seen as an upper bound on the firms and receipts of ethnic economies.

This process yields information on firms in 29 ethnic economies, listed in Table 5.[1] Because the Census Bureau masks data to preserve confidentiality, the 29 ethnic economies are understandably biased toward larger MSAs. Nonetheless, these larger MSAs are where more ethnic economy activity occurs in the first place, so it may be representative of larger trends. In addition, because this sample is too small to presume normal distributed data and conduct regression analysis, I provide exploratory scatterplots relating residential and ethnic economy suburbanization. Cross-sectional Census data from 2000 on the proportion of the ethnic group living in the suburbs is plotted against the proportion of

[1] The Survey of Business Owners uses slightly different MSA definitions than the Census and American Community Survey. The Newark, NJ and Jersey City, NJ MSAs had to be combined with the New-York-Northeastern NJ MSA, and the Gary-Hammond-East Chicago, IN MSA had to be combined with the Chicago-Gary-Lake, IL MSA.

ethnic firms in the suburbs in 2007. The comparison of 2000 and 2007 data is justified by the fact that the period between 2000 and the start of the Great Recession was a period of economic stability, save for a brief, shallow recession in 2001 (Kliesen 2003:23). I also plot 2010 ACS data on residential suburbanization against 2007 firm suburbanization data as a robustness check. This approach has the advantage of discerning if the Great Recession altered the suburbanization relationship in any way.

[Table 5]

Figure 2 provides the full scatterplot of the 29 ethnic economies as well as scatterplots broken down by ethnic group. Filipinos only had one ethnic economy, in the New York-Northeastern NJ MSA, so they are lumped in with Vietnamese in order to save space. The slope of the solid line of best fit for all groups combined is 0.44, meaning that a one unit increase in the proportion of the ethnic group that lived in the suburbs led to a 0.44 increase in the proportion of ethnic firms in the suburbs. This result is significant at a five percent level but should be treated with caution because of the small sample size. When the two outliers with low values—the Chinese ethnic economy of New York and the Mexican ethnic economy of San Antonio—are removed, the slope drops to 0.31 but is still statistical significance at the five percent level. Put another way, across non-White ethnic groups, there was a remarkable consistency between the proportion of the ethnic group that was in the suburbs and the proportion of ethnic owned firms in the suburbs. This is a relationship that also shows up when non-White firm suburbanization is regressed on White suburban residents, shown in Figure 3. A one unit increase in the proportion of Whites living in the suburbs yielded a statistically significant, almost identical increase in the ethnic firm suburbanization rate: 0.45. Once the low outlier—the Mexican ethnic economy of San Antonio—is taken out, however, the slope decreases to 0.31 and the p-value is 0.13. This suggests that, at least when looking at firm suburbanization cross-sectionally, it is the ethnic population that drove ethnic economy suburbanization more than the majority group. Results (not shown) are slightly smaller

in magnitude but still significant using 2010 data, revealing that the Great Recession did not change these relationships all that much. But again, the small sample size leaves these trends inconclusive.

[Figure 2]

[Figure 3]

The number of ethnic firms across all groups in the analysis was unsurprisingly larger in the city than the suburbs. The average urban ethnic economy had 2,348 ethnic-owned firms whereas the average suburban ethnic economy only had 1,172 firms. A Wilcoxon rank sum test, which can compare the location shift between the means of the samples of suburban and urban ethnic economies, shows this difference to be statistically significant ($W = 272$, $p=0.008$). Oppositely, suburban ethnic economy receipts were slightly higher than city receipts, being an average of $778,300 in the suburbs and $755,300 in the city. A Wilcoxon rank sum test was again significant at the 5 percent level, and the reasoning can be seen more clearly using medians: $45,100 in the city and $191,500 in the suburbs ($W=296$, $p=0.022$). Despite a clear advantage in median receipts in the suburbs, the maximum total receipts earned in the city were much higher than in the suburbs. The most lucrative urban ethnic economy—the Chinese ethnic economy of New York—earned $8,557,000, while the most lucrative suburban ethnic economy—the Indian ethnic economy outside New York (which includes the Indian ethnoburb of Edison, New Jersey—raked in $7,049,000 total. There are two lessons here. First, the suburbs can earn more despite having fewer firms, suggesting the possibility that the suburbs really are making ethnic economy participants richer. Second, the potential for receipts are much greater in the exceptionally large urban ethnic economies, likely due to the greater concentrations of ethnic residents as well as the benefits to agglomeration more generally (Fujita and Thisse 2002, Waldinger et al. 1990:113-115).

Although this sample is small, it confirms the prior analysis that ethnic economies suburbanized, and this was due to the suburbanization of ethnic residence. In addition, firm data show that receipts

on average could be higher in the suburbs, but that urban environments still provided the potential for higher revenue. What might this say about the incomes of those who participated in the suburban portion of the ethnic economy? This remains unclear. The existence of more firms in cities means that any higher earning potential was distributed across many more firms, which may have offset any income benefit. On the other hand, the larger receipts in the suburbs may have just flowed to larger ethnic firms in the suburbs. In at least one study, which analyzed Chinese firms in the suburbs surrounding Toronto, firms with employees were more strongly associated with firm creation in the suburbs than firms with no employees (Fong et al. 2007:130). If this were the case in many suburbs, then the receipts may go to larger firms, and smaller firms would be left with lower profits and incomes.

Does Participation in the Suburban Portion of the Ethnic Economy Result in Higher Income?

Data and Methods

The model used to measure the effect of suburban ethnic economy participation on income will use OLS cross-sectional analysis across the samples from 1990, 2000, and 2010. Because incorporated and unincorporated self-employed as well as wage workers face different opportunity structures and potentials to realize income, the analysis will be broken down by each class of worker. The model is

$$\log(Y_i) = \beta_0 + \beta_1 C_i + \beta_2 E_i + \beta_3 (C_i \times E_i) + \beta_4 H_i + \beta_5 F_i + e_i$$

where Y_i is annual income—the sum of annual wage and business incomes—of ethnic economy participant i, inflation-adjusted to 2000 dollars. Portes and Zhou have noted that the use of a logged income specification over a linear one may obscure the extreme success that some workers have in the ethnic economy, but they find a logged specification can be appropriate when income gains are compared across time (1996:220). C_i is a binary variable indicating whether worker i is in the suburbs or the city [1/0]. E_i is a binary variable for each of the ethnic groups discussed in the paper. The reference group is non-Hispanic Whites in industries that exclude professional, agricultural, mining, military, and

government workers. C_i x E_i is an interaction between suburban-city worker status and ethnic group and is the primary independent variable of interest. It will be of little surprise that β_2 is negative almost all of the time because Whites generally have more access to capital and more familiarity with the legal requirements of starting and running a business. The value of β_3, however, is less clear and bears on the hypotheses being tested. H_i is a vector of standard human capital variables adapted from Chiswick (1978), including work experience [age – years of education + 6], experience^2, gender, college degree [1/0], high school degree but no college degree [1/0], immigrant or native born [1/0], English proficiency ["Speaks fluently" to "Does not speak at all", on a five point scale], and citizenship [1/0]. F_i is a vector of family controls including marital status [1/0] and number of children. The family can be a great source of social capital to ethnic entrepreneurs, providing cheap labor and supplementary sources of financial capital (Sanders and Nee 1996). Because different metro areas allow for different ranges of possible incomes, I use robust standard errors clustered at the level of the MSA.

Summary Statistics

Table 6 presents summary statistics on income across time and by ethnic group and class of worker. The ACS has a much smaller sample size than the Census, so the Ns in the 2010 data are smaller than in 1990 or 2000. The first striking feature of Table 6 is that, regardless of class of worker, Whites made more in the city while non-Whites tended to make more in the suburbs. As mentioned earlier, many White-dominated occupations were in sales, and the most heavily represented industries, such as construction, machinery equipment, and advertising, allow for the possibility that the data are capturing those who work in more successful urban firms.

[Table 6]

The apparent trend toward higher wages in the suburbs for non-White groups was mostly consistent but was violated in two instances: the incorporated self-employed in 2010 and the

unincorporated self-employed in 2000. Indians and Mexicans tipped the scales toward urban workers in the former case, while Mexicans were joined by the Chinese and Vietnamese to tip the scales toward urban workers in the latter case. This inconsistency is noteworthy because it calls into question a story in which ethnic economy suburbanization and increased wealth go hand in hand. Nonetheless, the strict rank ordering of income by class of worker is consistent and unsurprising: Incorporated self-employed workers tend to earn more than the unincorporated (Aronson 1991), and wage workers tend to make the least in the ethnic economy (Light et al. 1994). Another important point is the fact that a large majority of workers, regardless of where they fell on the urban-suburban continuum, were wage workers. Ivan Light et al. have stressed that most ethnic economy firms have no employees (1994), which suggests that these wage workers are concentrated into fewer firms with a larger employee base, while the self-employed are more diffuse across the regional and economic landscape. Finally, the trends did not change all that much by 2010, a year after the Great Recession ended, meaning that income trends were, in part, robust to recessionary factors.

Multivariate Analysis

In Table 7, which shows regression results in 1990, 2000, and 2010 across class of worker, the directions of the regression coefficients largely bear out the trends shown by the summary statistics. Whites tended to make more money in the city; non-Whites tended to make more money in the suburbs. The effect was generally more prominent among unincorporated self-employed workers and wage workers, and magnitudes tended to be largest for the unincorporated self-employed. The statistical significance of coefficients are inconsistent over time, save for a few notable exceptions. Each class of worker will be discussed in turn, after which the results will be summarized overall.

[Table 7]

Generally, for incorporated self-employed workers, no association existed between working in the suburban portion of the ethnic economy and income. For Whites in 2000, however, working in the suburbs led to an 11 percent decrease in pay, which at the median income for White incorporated self-employed workers was $4,455 ($40,500 x 0.11). This is in contrast to Filipinos, for whom suburban work increased pay by a highly significant 200 percent in 2010. Nevertheless, this latter result is only based on a sample of eight, all of whom are in New York. Likewise, there were only two suburban self-employed among Dominicans and three or four among Jamaicans, meaning the 156 and 57 percent boosts in respective urban incomes should be treated with caution as well. More interesting is the 67 percent increase in urban incomes for Indians in 1990. This finding may be due to the fact that Indians were most concentrated in "Electrical Machinery, Equipment, and Supplies, not otherwise classified", similar to a leading White industry, "Machinery, Equipment, and Supplies", and these related industries might have propelled the higher incomes in the city. Nonetheless, the significant finding for Indians did not carry through over time. A lack of significance, in fact, characterized most incorporated self-employed ethnic economy workers over time, including the Chinese, Koreans, Vietnamese, Mexicans, and Salvadorans, groups that cut across many dimensions of the socioeconomic spectrum and regional concentrations.

Unincorporated self-employed workers, which represent the more classic ethnic entrepreneur (Boyd 1990:264), begin to show consistently negative results for Whites but continue to show inconsistent results for non-Whites. Whites clearly made more in the city across time, and the magnitude of that difference was generally larger than for other classes of workers. Among non-White groups, however, only Indians, Koreans, and Dominicans showed any potential differences. Indian unincorporated self-employed workers made more in the suburbs mostly due to the fact that their exploitation of the taxicab niche was almost exclusively urban and low-paying. The suburban portion of Indian ethnic economies cut across many industries and occupations without large concentrations in

taxicabs. Dominicans again were almost all in the New York-Northeastern N.J. MSA, and the Dominican ethnic economy there, which is heavily urban, provides extremely poor wages, often for those who lack better employment options (Gilbertson and Gurak 1993, Gilbertson 1995). Koreans, on the other hand, followed what we might expect using received wisdom. Koreans in America have been very successful as middleman minorities in impoverished urban neighborhoods (Yoon 1997, Min 2008). Consequently, ethnic economy activity in the suburbs is more likely to cater to richer suburbanites rather than poorer, underprivileged minorities. Koreans work in grocery stores and personal services in both the city and the suburbs, but the clientele of these services are likely very different populations, meaning the city and suburbs have different capacities to generate receipts and ultimately incomes for businesses owners and workers. Even in 2000, suburban, Korean unincorporated self-employed workers were paid 52 percent better than their urban counterparts, although this finding was statistically insignificant ($p = 0.16$).

The most significant differences existed between urban and suburban wage workers. Chinese, Mexicans, and Dominican workers showed consistently higher suburban incomes over time, although Dominicans, just like Jamaicans, were again influenced by ethnic concentrations in New York. Although the Chinese were better paid in the suburbs at all three time points, this was due to different reasons in each year. In 1990, the suburbs were the preserve of workers in "Eating and Drinking Places", while the city had Chinese ethnic economies in "Eating and Drinking Places" and "Apparel and Accessories, Except Knit", the latter of which included some of the worst paying jobs. This finding is not simply a New York story: Both Boston and Sacramento had urban Chinese ethnic economy workers in the apparel industry, although it is true that most apparel workers were in the New York-Northeastern NJ MSA, which follows received wisdom (Zhou 1992, Waldinger 1986). Ten years later, in 2000, Chinese workers in "Chemical and Drug Manufacturing", which included occupations such as "Assemblers of Electrical Equipment" and "Chemical Technicians", were inflating suburban wages. If this particular industry is taken out of the

2000 wage worker model, statistical significance is erased. By 2010, the Chinese cut across industry and occupation in both the city and suburbs, suggesting that in this time period the suburbs really did pay better. Nonetheless, even though the mean ($\bar{y}_{suburbs}$ = \$30,440, $\bar{y}_{city}$ = \$28,520) and median ($\tilde{y}_{suburbs}$ = \$22,200, $\tilde{y}_{city}$ = \$19,000) incomes for Chinese ethnic economy wage workers were slightly higher in the suburbs in 2010, , the maximum income made in the city was much larger (\$498,000 in the city to \$165,000 in the suburbs). This mirrors the trends noted among firms above: The maximum earning potential occurs in the city, even though the average earning potential is higher in the suburbs. The benefit of suburban ethnic economy work is neither clear nor obvious.

Korean wage workers were spread across many industries and occupations and were paid better in the suburbs. By 2010, however, urban ethnic economies paid better than suburban ones, possibly because the recession created more middlemanning opportunities among underprivileged minorities in the city who were hit hardest by the foreclosure crisis (Rugh and Massey 2010). Moreover, just as with Chinese wage workers, maximum earning potential tended to be in the city, even though average earnings were generally higher in the suburbs. For instance, among Korean ethnic economy wage workers in 2000, the mean ($\bar{y}_{suburbs}$ = \$39,560, $\bar{y}_{city}$ = \$34,020) and median ($\tilde{y}_{suburbs}$ = \$28,800, $\tilde{y}_{city}$ = \$25,000) incomes were higher in the suburbs, but the maximum income was higher in the city (\$361,000 to \$336,000).

Mexican wage workers are a unique case. They were represented in the same industries in both the city and suburbs—private households, landscaping, and construction, among others. The higher incomes in the suburbs were almost purely a difference in remuneration among those who worked in private households. In this case, the increased wealth of the suburbs clearly paid better. Nonetheless, even though the Mexican self-employed worked in these same industries, the suburbs did not pay them better. Although ethnic economies in this analysis are measured by overrepresentation in industries as owners and workers, there is no way to be sure that co-ethnic wage workers and self-employed workers

were in the same firms. It could be that Mexicans were overrepresented as wage workers in non-Mexican owned companies, while they were overrepresented as the self-employed in small, Mexican-owned companies. Regardless, the fact that the Mexican income advantage in the suburbs only occurred for wage workers calls into question the possibility overall that the suburbs pay better. In addition, the Mexican story is highly industry specific, which challenges the degree to which it violates general trends.

Overall, aside from particular years, industries, occupations, or metro areas, suburban ethnic economies generally did not pay better than in the city. There only appeared to be a true suburban ethnic economy advantage in income in three cases: Chinese and Mexican wage workers and Korean, unincorporated self-employed workers. The latter case was unique because middlemanning was probably suppressing urban compared to suburban wages. The way in which this finding may connect to ethnic communities, ethnoburbs, or the new destination model of ethnic residential suburbanization will be discussed in the conclusion.

Discussion

Although this analysis demonstrates the suburbanization of ethnic economies as well as a lack of difference between most urban and suburban ethnic economy incomes, the analysis suffers from two data limitations, despite which the analysis is still robust. First, to be included in the study, an ethnic economy had to exist in 1990, 2000, and 2010 each. If an ethnic economy existed in 1990 and 2000 but not in 2010, or in 2000 and 2010 but not in 1990, it was omitted from the analysis. A comparison of the local ethnic populations included in the analysis versus those that were excluded in 2000 shows an important difference. The median size of a local non-White ethnic population included in the data set was 7,134 compared to 953 for those excluded in the year 2000. This indicates a bias in the data toward larger, more established local ethnic populations. Smaller local ethnic populations are more vulnerable

to population decline and are less likely to develop sustainable ethnic economies, regardless of any effects of research design. The findings consequently give a reasonable portrayal of conditions affecting ethnic economy suburbanization between 1990 and 2010.

Second, the paper omits the sprawling metro areas of the Southwestern U.S. such as Los Angeles and Phoenix. Yet, individual case studies have shown the trends in this paper to be occurring in sprawling metro areas as well. In Houston, Chinese enterprises have penetrated the suburbs since the 1980s (Lin 1998:322-323). Some of Atlanta's most successful immigrant-owned businesses are in the suburban towns of Chamblee, Doraville, and Norcross (Odem 2008). Mexican businesses are following Latinos into the outskirts of Phoenix as well (Oberle 2006). Nevertheless, regarding income, the only studies to explicitly study ethnic economy income in the suburbs come from the ethnoburb literature on Monterey Park, outside Los Angeles (Li 1998, 2009). Ethnoburbs are nevertheless a rare phenomenon, hardly indicative of income trends affecting the sprawling South and Southwest. More research is needed on metro areas in these regions.

Conclusion

This study demonstrated that ethnic economies moved into suburbs in tandem with ethnic residents between 1990 and 2010. Even though the suburbs tend to be wealthier than cities, this wealth is generally not translating into higher earnings for ethnic economy participants. Neither the growth of ethnic communities, in which high-capital ethnic groups choose to live together rather than assimilate into majority White areas (Logan et al. 2002), nor the creation of ethnoburbs, in which ethnic groups use place entrepreneurship and transnational ties to create enclaves in the suburbs (Li 2009), seem to be altering this trend across America. A third suburban ethnic residential pattern, the new immigrant destination model, in which low-capital ethnic groups concentrate in low-cost housing on the suburban fringe (Furuseth and Smith 2006, Lichter et al. 2010), also does not seem to yield higher

earnings than in the city. The only noteworthy exceptions to the general trend of equal earnings across the city-suburb divide are Chinese and Mexican wage workers and Korean unincorporated self-employed workers. 63 percent of Chinese ethnic economy participants worked in restaurants and other eating and drinking establishments, an industry in which a richer suburban clientele would be able to pay higher prices. Similarly, the industry that drove most of the wage differential among Mexican ethnic economy workers was in private households. Suburban residents are likely more able to pay for services such as gardeners and maids. Korean small business owners, on the other hand, run vibrant middleman minority businesses in numerous American cities (Min 2008, Yoon 1997), and there is no evidence that Korean middlemen exist in the suburbs. It is likely that urban Korean establishments catered to underprivileged minorities, whereas suburban Korean establishments catered to well-off Koreans.

Assuming that suburban ethnic economy workers aspire to become self-employed, the mobility chances of suburban ethnic economy participants are likely no better than in the city. It has long been held that ethnic economy workers whose human capital is not valued in the mainstream economy trade off lower earnings in the ethnic economy for more work hours, the ability to evade taxes, and the opportunity to learn from business owners how to start an ethnic enterprise of their own (Zhou 1992, Portes and Bach 1985). Given the lack of difference in suburban and urban ethnic economy incomes, these dynamics are probably reproducing themselves among suburban ethnic economies in spite of the greater wealth flowing through the suburbs.

At the level of firms, even though on average suburban firms generate slightly more revenue than in the city, the maximum revenue potential in the city is much higher. There are a couple of reasons this could be the case. First, agglomeration effects, including access to nearby suppliers and sources of knowledge, tend to help firms grow (Fujita and Thisse 2002, Waldinger et al. 1990:113-115). Agglomeration effects can help firms realize their maximum revenue potential, even though total receipts may be distributed across a wider spectrum of firms in the city, leading to lower average

receipts. Second, suburban retail enterprises face a unique dilemma: the rise of ethnic supermarkets and restaurant chains (Healy 2011). This can put pressure on small retailers trying to maintain profits and keep costs low, just as in the mainstream economy (Haltiwanger et al. 2010). Inequity in ethnic firm size would obscure how total receipts are distributed across the fewer firms there are in the suburbs. Unfortunately, the Economic Census does not make public any data by ethnicity of owner intersected with industry and firm size, but these data would reveal these processes more conclusively.

Another important conclusion from this analysis is that, despite the considerable discussion of ethnoburbs in the popular press (Egan 2011, Zarsadiaz 2012), ethnoburbs are not prevalent enough to indicate a form of mobility that has altered the larger economic and sociological discourse on immigration. The most optimistic portrait one can safely make about suburban ethnic economies as a whole is that they are encouraging income growth as often as urban ethnic economies do. Nonetheless, more research using panel data on individual mobility patterns is necessary to be sure of this conclusion.

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Figure 1. Calculation of Odds Ratios of Industrial Representation

	Racial/Ethnic Group of Interest	All Other Groups
Industrial sector of interest		
Owners (self-employed)	f_1	f_2
Workers (employees)	f_3	f_4
All other sectors (owners and workers)	f_5	f_6

Odds ratio for owner overrepresentation: $\frac{(f_1 / f_2)}{(f_5 / f_6)}$

Odds ratio for worker overrepresentation: $\frac{(f_3 / f_4)}{(f_5 / f_6)}$

Adapted from Logan et al. 1994:700.

Table 1. Metropolitan Statistical Areas and Their Ethnic Economies

MSA	W	I	C	F	K	V	J	M	D	S	*MSA*	W	I	C	F	K	V	J	M	D	S
Ann Arbor, MI	•										Lowell, MA/NH	•									
Austin, TX	•					•		•			Madison, WI	•									
Bakersfield, CA	•							•			Memphis, TN/AR/MS	•		•					•		
Baltimore, MD	•	•	•		•						Minneapolis-St. Paul, MN	•		•			•		•		
Baton Rouge, LA	•										Modesto, CA	•							•		
Beaumont-Port Arthur-Orange, TX	•										Nashville, TN	•									
Boston, MA	•		•			•					New Haven-Meriden, CT	•									
Bridgeport, CT	•										New Orleans, LA	•					•		•		
Buffalo-Niagara Falls, NY	•										New York-Northeastern NJ	•	•	•	•	•	•	•	•	•	•
Charlotte-Gastonia-Rock Hill, SC	•	•									Newark, NJ	•	•	•						•	
Chattanooga, TN/GA	•										Norfolk-VA Beach-Newport News, VA	•		•			•				
Chicago-Gary-Lake IL	•	•	•		•			•			Oklahoma City, OK	•									
Cincinnati, OH/KY/IN	•		•								Philadelphia, PA/NJ	•		•		•	•				
Cleveland, OH	•		•								Richmond-Petersburg, VA	•									
Des Moines, IA	•										Rochester, NY	•									
Detroit, MI	•		•								Rockford, IL	•									
Fayetteville, NC	•							•			Sacramento, CA	•		•			•		•		
Fort Wayne, IN	•										San Antonio, TX	•							•		
Fresno, CA	•					•		•			San Francisco-Oakland-Vallejo, CA	•		•			•		•		•
Gary-Hammond-East Chicago, IN	•										Seattle-Everett, WA	•		•		•	•		•		
Grand Rapids, MI	•										South Bend-Mishawaka, IN	•									
Greensboro-Winston Salem, NC	•										Spokane, WA	•									
Hartford-Bristol-Middleton, CT	•		•								St. Louis, MO	•		•			•		•		
Indianapolis, IN	•							•			Syracuse, NY	•									
Jersey City, NJ	•	•							•		Toledo, OH/MI	•									
Knoxville, TN	•										Tulsa, OK	•									
Lansing-E. Lansing, MI	•										Washington, DC/MD/VA	•	•	•		•	•				•
											Worcester, MA	•									

A dot indicates that a particular ethnic group had an ethnic economy between 1990 and 2010. W = Non-Hispanic Whites; I = Asian Indian; C = Chinese; F = Filipino; K = Korean; V = Vietnamese; J = Jamaican; M = Mexican; D = Dominican; S = Salvadoran. Although non-Hispanic Whites do not constitute an ethnic group, I use them as shorthand for the dynamics of economic growth affecting the majority group in American suburbs.

Table 2. Summary Statistics on Ethnic Economic and Residential Suburbanization

Variable	Year	Non-Hispanic White	Non-White Ethnic Groups Combined	Asian Indians	Chinese	Filipino	Korean	Vietnamese	Jamaican	Mexican	Dominican	Salvadoran
Mean Proportion (SD) of Ethnic Economy Workers Who Work in the Suburbs	1990	48 (23)	47 (28)	62 (41)	50 (28)	31 (·)	35 (20)	38 (31)	23 (·)	46 (23)	56 (40)	56 (18)
	2000	57 (22)	54 (25)	65 (30)	61 (25)	25 (·)	49 (17)	51 (26)	25 (·)	48 (23)	54 (37)	66 (15)
	2010	57 (22)	57 (28)	73 (40)	60 (25)	36 (·)	57 (19)	50 (34)	27 (·)	49 (24)	68 (43)	73 (6)
Median Number (Range) of Workers in the Suburban Portion of the Ethnic Economy	1990	7,190 (534 - 193,000)	257 (0 - 3,139)	81 (0 - 738)	446 (15 - 3,139)	72 (·)	642 (211 - 2,265)	46 (0 - 862)	523 (·)	212 (0 - 2,511)	390 (125 - 972)	502 (262 - 1,186)
	2000	8,821 (699 - 178,582)	413 (0 - 3,543)	754 (11 - 3,543)	512 (60 - 3,167)	396 (·)	1,025 (270 - 3,427)	172 (0 - 1,142)	577 (·)	481 (21 - 3,108)	418 (382 - 1,683)	1,983 (387 - 2,162)
	2010	8,042 (576 - 143,563)	988 (0 - 14,749)	534 (0 - 4,598)	1,156 (79 - 5,086)	988 (·)	1,662 (417 - 4,713)	453 (0 - 3,015)	175 (·)	1,972 (316 - 14,749)	409 (237 - 5,500)	8,830 (1,924 - 13,701)
Mean Number (SD) of Workers in the Suburban Portion of the Ethnic Economy, Logged	1990	9.0 (1.4)	4.8 (2.6)	3.9 (3.1)	5.8 (1.4)	4.3 (·)	6.5 (0.8)	2.4 (3.3)	6.3 (·)	5.0 (2.3)	5.9 (1.0)	6.3 (0.8)
	2000	9.2 (1.4)	6.0 (1.6)	6.2 (1.9)	6.4 (1.1)	6.0 (·)	7.0 (1.0)	4.7 (2.3)	6.4 (·)	6.0 (1.3)	6.5 (0.8)	7.1 (1.0)
	2010	9.0 (1.4)	6.6 (2.3)	5.5 (3.6)	7.0 (1.1)	6.9 (·)	7.3 (0.9)	4.9 (3.3)	5.2 (·)	7.4 (1.1)	6.7 (1.7)	8.7 (1.0)
Median Number (Range) of Workers in the Urban Portion of the Ethnic Economy	1990	8,919 (1,478 - 182,479)	288 (0 - 17,455)	72 (0 - 1,470)	246 (19 - 17,455)	157 (·)	1,248 (465 - 6,668)	79 (16 - 317)	1,790 (·)	394 (13 - 4,877)	3,446 (13 - 6,692)	435 (353 - 447)
	2000	6,905 (739 - 153,680)	423 (0 - 22,776)	170 (28 - 4,376)	219 (0 - 22,776)	1,168 (·)	800 (556 - 6,971)	114 (21 - 621)	1,763 (·)	617 (18 - 2,326)	8,179 (86 - 12,180)	488 (366 - 1,096)
	2010	5,921 (101 - 206,282)	905 (0 - 23,605)	59 (0 - 8,986)	648 (0 - 23,411)	1,787 (·)	827 (360 - 9,093)	333 (0 - 1,971)	468 (·)	1,702 (1,622 - 14,232)	1,836 (0 - 23,605)	2,351 (905 - 5,148)
Mean Number (SD) of Workers in the Urban Portion of the Ethnic Economy, Logged	1990	9.0 (1.0)	5.2 (2.2)	2.7 (3.7)	5.7 (1.8)	5.1 (·)	7.2 (0.9)	4.3 (1.0)	7.5 (·)	5.4 (1.8)	5.6 (3.1)	6.0 (0.1)
	2000	8.8 (1.1)	5.7 (1.8)	5.5 (1.6)	5.5 (2.6)	7.1 (·)	7.0 (1.0)	4.8 (1.1)	7.5 (·)	6.1 (1.3)	6.3 (2.7)	6.4 (0.6)
	2010	8.6 (1.2)	5.8 (3.4)	1.7 (5.1)	5.8 (3.2)	7.5 (·)	7.0 (1.1)	5.4 (2.5)	6.1 (·)	7.1 (2.7)	4.0 (6.2)	7.7 (0.9)
Total Number of Workers in All Ethnic Economies	1990	1,965,646	100,198	3,473	42,453	229	17,411	2,878	2,313	19,863	8,393	3,185
	2000	2,040,928	143,849	14,638	54,668	1,564	20,426	6,050	2,340	22,753	14,928	6,482
	2010	1,710,299	306,167	19,339	76,461	2,775	24,656	15,585	643	104,032	29,817	32,859
Mean Proportion (SD) of Ethnics Who Live in the Suburbs	1990	63 (20)	52 (24)	63 (31)	54 (28)	39 (·)	68 (23)	45 (21)	23 (·)	48 (21)	46 (29)	55 (9)
	2000	70 (17)	56 (25)	66 (28)	61 (26)	47 (·)	73 (19)	46 (23)	23 (·)	51 (23)	49 (29)	66 (13)
	2010	72 (16)	62 (22)	71 (24)	66 (21)	42 (·)	76 (10)	59 (23)	26 (·)	55 (23)	52 (26)	73 (14)
Median Number (Range) of Ethnics Who Live in the Suburbs	1990	171,979 (38,220 - 2,937,879)	6,862 (117 - 85,638)	6,767 (150 - 29,317)	5,518 (123 - 29,264)	18,871 (·)	10,078 (6,185 - 25,139)	2,046 (117 - 12,720)	28,151 (·)	17,282 (747 - 85,638)	7,977 (2,813 - 30,500)	19,384 (11,226 - 24,222)
	2000	188,283 (52,179 - 2,526,998)	11,796 (204 - 326,004)	16,964 (890 - 92,099)	8,766 (782 - 45,209)	36,819 (·)	18,297 (10,442 - 42,132)	5,481 (204 - 25,808)	42,707 (·)	40,924 (1,988 - 326,004)	13,753 (6,286 - 57,163)	37,882 (9,606 - 51,172)
	2010	194,775 (56,837 - 2,327,477)	20,259 (837 - 530,117)	24,888 (6,405 - 152,068)	15,269 (6,405 - 152,068)	38,707 (·)	24,215 (16,908 - 66,026)	6,424 (837 - 36,893)	49,632 (·)	85,192 (4,911 - 530,117)	21,718 (15,363 - 118,293)	81,251 (15,514 - 153,363)
Mean Number (SD) of Ethnics Who Live in the Suburbs, Logged	1990	12.2 (1.1)	8.6 (1.6)	8.4 (1.8)	8.2 (1.6)	9.8 (·)	9.3 (0.6)	7.3 (1.3)	10.2 (·)	9.4 (1.6)	9.1 (1.2)	9.8 (0.4)
	2000	12.3 (1.0)	9.3 (1.5)	9.6 (1.6)	8.9 (1.2)	10.5 (·)	9.9 (0.6)	8.1 (1.4)	10.7 (·)	10.1 (1.5)	9.7 (1.1)	10.2 (0.9)
	2010	12.5 (1.0)	9.9 (1.3)	10.3 (1.2)	9.5 (1.1)	10.6 (·)	10.3 (0.6)	8.7 (1.1)	10.8 (·)	10.8 (1.3)	10.4 (1.1)	11.0 (1.0)
Total Number of Workers in All MSAs	1990	18,810,006	1,044,486	59,921	202,206	30,772	61,096	25,585	62,908	480,123	82,145	39,730
	2000	18,875,060	1,699,395	163,614	297,506	43,473	94,260	58,729	89,932	773,820	117,298	60,763
	2010	20,015,055	3,545,043	316,576	515,837	60,670	153,692	120,535	119,105	1,769,063	292,913	196,652
Total Number of People in All MSAs	1990	48,207,380	3,860,986	173,870	619,999	69,469	218,574	94,239	175,979	1,969,469	399,166	140,221
	2000	47,344,138	4,626,919	262,864	788,902	64,252	222,891	186,473	222,078	2,242,840	491,309	145,310
	2010	49,788,774	7,361,498	373,569	1,155,312	82,032	285,724	285,880	230,752	3,854,872	726,159	367,198
Total Number of Ethnic Economies		55	68	7	18	1	6	13	1	16	3	3

Source: IPUMS. Data are taken only from MSAs that contain an ethnic economy for each national-origin group. Dots indicate that no standard deviation exists in cases where ethnic groups only have one ethnic economy.

Table 3. Fixed-Effect Regressions of the Proportion of Ethnic Economy Workers in the Suburbs on Independent Variables, 1990-2000

	Non-Hispanic Whites				Non-White Ethnic Groups Combined					
Variable	% EE in Suburbs (1)	ln(# EE in Suburbs) (2)	% EE in Suburbs (3)	ln(# EE in Suburbs) (4)	% EE in Suburbs (1)	ln(# EE in Suburbs) (2)	% EE in Suburbs (3)	ln(# EE in Suburbs) (4)	% EE in Suburbs (5)	ln(# EE in Suburbs) (6)
% EP Living in Suburbs	0.93*** (0.10)		0.89*** (0.00)		1.21*** (0.00)		1.06*** (0.23)		0.95*** (0.25)	
ln(# EP Living in Suburbs)		0.85*** (0.19)		0.72* (0.34)		1.53*** (0.21)		1.55*** (0.29)		1.82*** (0.35)
Control Variables:										
% EP College Educated			0.48 (0.42)	2.62 (2.25)			0.76* (0.37)	-1.66 (3.02)	0.19 (0.49)	-8.75* (3.91)
% EP High School Educated			1.18 (0.79)	1.53 (4.47)			0.27 (0.36)	-1.28 (3.18)	-0.28 (0.55)	-8.97* (4.33)
Index of Net Difference of City and Suburban Incomes[1]			-0.10 (0.34)	-0.17 (1.43)			-0.18 (0.40)	0.45 (3.30)	-0.20 (0.41)	1.30 (3.22)
% EP Recent Immigrants[2]									-0.43 (0.28)	-1.17 (2.42)
% EP Native Born									0.11 (0.34)	3.44 (2.71)
% EP Linguistically Isolated[3]									-0.04 (0.32)	4.30 (2.73)
EE Includes Construction									-0.04 (0.14)	-1.33 (1.86)
EE Includes Manufacturing									-0.03 (0.05)	-1.01 (9.97)
EE Includes Retail									-0.10 (0.09)	1.74 (1.20)
Constant	-0.09*** (0.01)	-1.68** (0.80)	0.53 (1.72)	-0.08 (0.08)	-0.26*** (0.02)	-2.57*** (0.89)	-0.35 (0.18)	0.05 (0.22)	-0.12 (0.07)	-0.12 (0.43)
Ethnic Economy Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
$N_{Ethnic\ Economies}$	55	55	55	55	68	68	68	68	68	68
R^2	0.60	0.27	0.67	0.31	0.32	0.44	0.37	0.44	0.42	0.51

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

'EP' refers to the local ethnic population of the MSA in which the ethnic economy can be found. 'EE' refers to the local ethnic economy and its workers.

1. See Lieberson 1976.
2. Recent immigrants are those who moved to America within the five years prior to when data were collected.
3. Linguistic isolation includes those members of the local ethnic population who speak little to no English.

Table 4. Fixed-Effect Regressions of the Proportion of Ethnic Economy Workers in the Suburbs on Independent Variables, 2000-2010

	Non-Hispanic Whites				Non-White Ethnic Groups Combined					
Variable	% EE in Suburbs (1)	ln(# EE in Suburbs) (2)	% EE in Suburbs (3)	ln(# EE in Suburbs) (4)	% EE in Suburbs (1)	ln(# EE in Suburbs) (2)	% EE in Suburbs (3)	ln(# EE in Suburbs) (4)	% EE in Suburbs (5)	ln(# EE in Suburbs) (6)
% EP Living in Suburbs	0.39 (0.46)		0.15 (0.68)		0.75*** (0.01)		0.75* (0.33)		0.70*** (0.33)	
ln(# EP Living in Suburbs)		0.07* (0.02)		0.21 (0.28)		1.12*** (0.20)		0.64* (0.27)		0.65* (0.32)
Control Variables:										
% EP College Educated			-0.51 (0.74)	-0.00 (0.00)			0.05 (0.38)	-2.42 (2.04)	0.17 (0.41)	-1.57 (2.41)
% EP High School Educated			0.06 (0.15)	-0.93 (0.83)			-0.01 (0.21)	-4.39** (1.48)	0.05 (0.20)	-3.59* (1.67)
Index of Net Difference of City and Suburban Incomes[1]			-0.37 (0.38)	3.29 (2.60)			0.09 (0.73)	-0.26 (3.44)	-0.20 (0.74)	-1.55 (3.49)
% EP Recent Immigrants[2]									-0.24 (0.33)	-1.50 (1.97)
% EP Native Born									0.01 (0.38)	2.09 (1.73)
% EP Linguistically Isolated[3]									0.58 (0.34)	-2.05 (2.25)
EE Includes Construction									-0.02 (0.18)	0.25 (0.96)
EE Includes Manufacturing									0.01 (0.07)	0.51 (0.60)
EE Includes Retail									-0.20 (0.11)	0.47 (0.63)
Constant	0.29 (0.80)	8.27** (4.03)	0.58 (0.38)	6.71 (3.98)	-0.11 (0.12)	-4.38 (4.09)	-0.36 (0.32)	1.46 (2.85)	-0.25 (0.44)	1.28 (3.11)
Ethnic Economy Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
$N_{Ethnic\ Economies}$	55	55	55	55	68	68	68	68	68	68
R^2	0.01	0.06	0.05	0.10	0.11	0.33	0.18	0.44	0.46	0.47

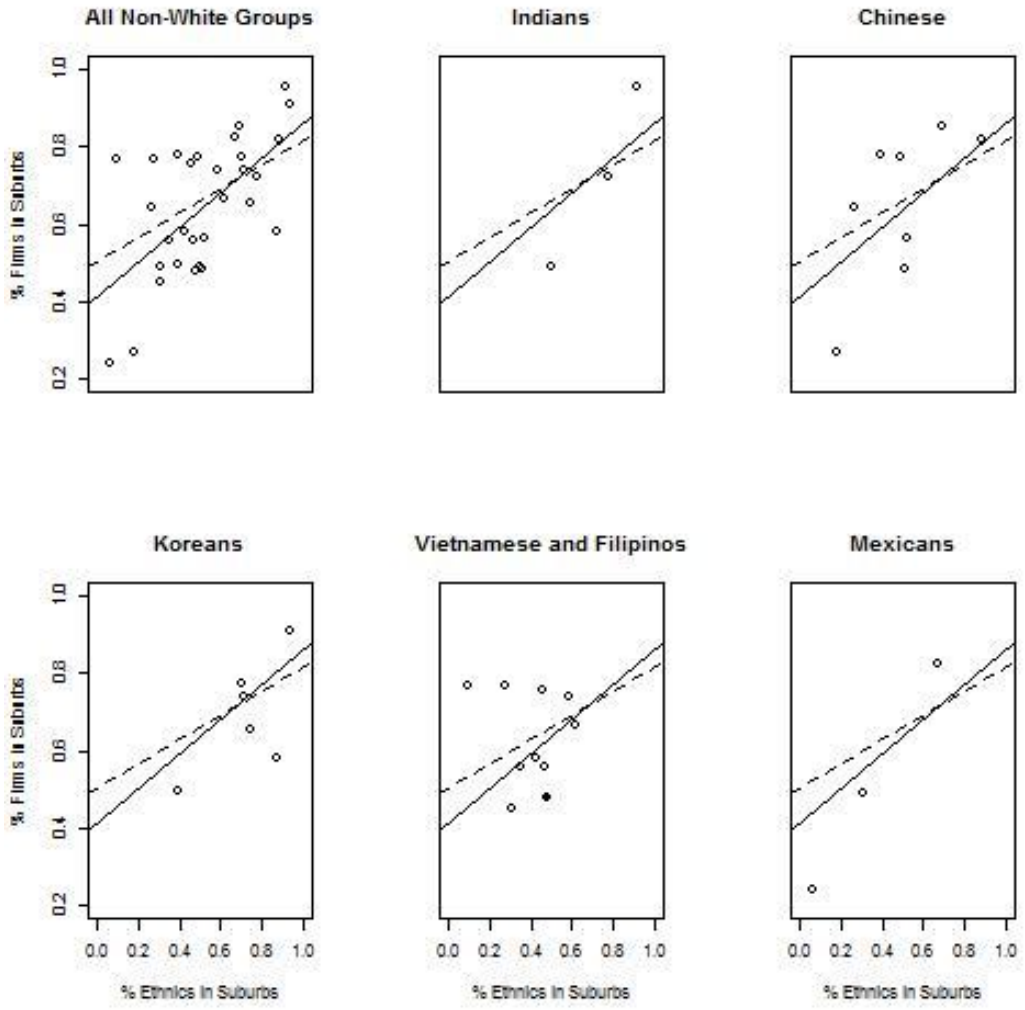
For an explanation of this table, see Table 3.

Table 5. Metropolitan Areas With Ethnic Economies Included in Survey of Business Owners 2007

Ethnic Group	MSA
Asian Indian	Chicago-Gary-Lake, IL
	New York-Northeastern NJ
	Washington, DC/MD/VA
Chinese	Chicago-Gary-Lake, IL
	Minneapolis-St. Paul, MN
	New York-Northeastern NJ
	Philadelphia, PA/NJ
	Sacramento, CA
	San Francisco-Oakland-Vallejo, CA
	Seattle-Everett, WA
	Washington, DC/MD/VA
Filipino	New York-Northeastern NJ
Korean	Baltimore, MD
	Chicago-Gary-Lake IL
	New York-Northeastern NJ
	Philadelphia, PA/NJ
	Seattle-Everett, WA
	Washington, DC/MD/VA
Vietnamese	Austin, TX
	Boston, MA
	New Orleans, LA
	New York-Northeastern NJ
	Norfolk-VA Beach-Newport News, VA
	Philadelphia, PA/NJ
	San Francisco-Oakland-Vallejo, CA
	Seattle-Everett, WA
	St. Louis, MO
Mexican	Austin, TX
	San Antonio, TX
	San Francisco-Oakland-Vallejo, CA

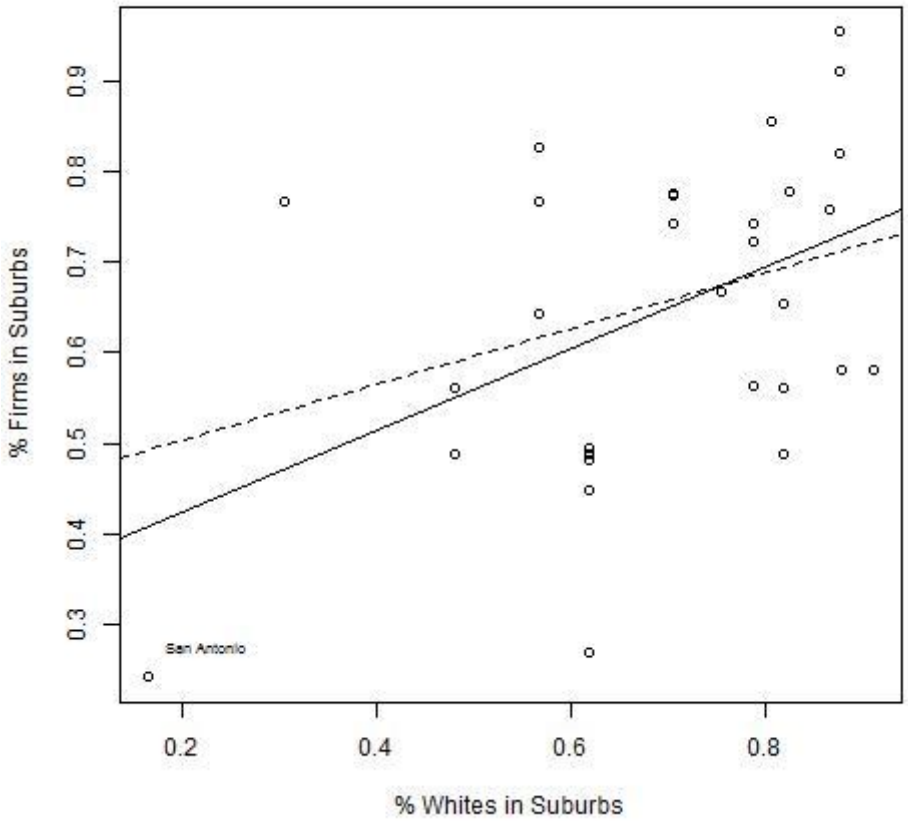
Data on Jamaican, Dominican, and Salvadoran ethnic economies are unavailable from the Survey of Business Owners, so they are dropped from this part of the analysis.

Figure 2. Scatterplots of Non-White Ethnic Firm Suburbanization on Ethnic Residential Suburbanization



Data on percentage of the local ethnic population in the suburbs come from the Census 2000. Data on percentage of firms in the suburbs comes from the Survey of Business Owners 2007. The solid line represents the line of best fit using all 29 ethnic economies. The dotted line represents the line of best fit after taking out the two outliers with very low suburbanization values: the Chinese ethnic economy of the New York-Northeastern NJ MSA and the Mexican ethnic economy of San Antonio, TX. The black dot in the Vietnamese and Filipinos plot represents the Filipino ethnic economy of the New York-Northeastern NJ MSA.

Figure 3. Scatterplot of Ethnic Firm Suburbanization on White Residential Suburbanization



Data on percentage of the local White population in the suburbs come from the Census 2000. Data on percentage of firms in the suburbs comes from the Survey of Business Owners 2007. The solid line represents the line of best fit using all 29 ethnic economies. The dotted line represents the line of best fit after taking out the Mexican ethnic economy of San Antonio, TX, which is labeled in the plot.

Table 6. Summary Statistics for Logged Ethnic Economy Income in the City and Suburbs, 1990-2010

		All						Incorporated Self-Employed					
		1990		2000		2010		1990		2000		2010	
Group		Sub	Urb	Sub	Urb	Sub	Urb	Sub	Urb	Sub	Urb	Sub	Urb
Non-Hispanic Whites	Mean	10.22	10.60	10.52	10.78	10.49	10.82	10.83	10.89	10.85	11.02	10.69	10.74
	(SD)	(1.98)	(1.03)	(1.01)	(0.98)	(1.11)	(1.09)	(1.17)	(1.29)	(0.92)	(0.97)	(0.98)	(1.00)
	N	54,303	37,160	60,261	32,501	10,335	6,160	3,080	1,713	3,882	1,453	818	376
Non-White Groups Combined	Mean	9.79	9.63	9.97	9.77	9.74	9.71	10.35	10.28	10.35	10.25	10.03	10.10
	(SD)	(1.57)	(1.81)	(1.19)	(1.05)	(1.04)	(1.05)	(0.78)	(1.15)	(0.84)	(0.84)	(0.89)	(0.85)
	N	1735	3160	3265	4016	1271	1461	178	272	267	302	120	109
Indian	Mean	10.08	10.19	10.50	10.21	10.30	10.57	10.28	10.83	11.10	10.66	10.24	10.56
	(SD)	(0.85)	(1.58)	(0.94)	(0.79)	(0.97)	(0.85)	(0.89)	(1.15)	(0.80)	(0.81)	(1.26)	(0.81)
	N	80	90	546	290	102	107	9	11	36	43	13	15
Chinese	Mean	9.79	9.53	9.94	9.66	9.79	9.64	10.15	10.08	10.23	10.24	10.07	9.99
	(SD)	(1.09)	(1.63)	(1.37)	(0.94)	(1.06)	(1.00)	(0.78)	(1.50)	(0.77)	(0.94)	(0.80)	(0.73)
	N	632	1,427	878	1,657	264	376	79	95	104	93	30	28
Filipino	Mean	10.21	10.14	9.97	10.26	10.05	10.05	10.84	10.14	9.09	10.62	12.24	10.12
	(SD)	(0.98)	(0.68)	(0.71)	(0.68)	(0.91)	(0.68)	(0.51)	(1.37)	(1.07)	(0.30)	(0.67)	(0.88)
	N	25	42	101	104	25	28	5	3	3	5	2	5
Korean	Mean	9.81	9.58	10.11	9.98	9.96	10.00	10.53	10.54	10.49	10.29	10.20	10.05
	(SD)	(2.21)	(2.72)	(1.50)	(1.6)	(0.8)	(1.43)	(0.81)	(0.67)	(0.81)	(0.71)	(0.86)	(0.70)
	N	275	572	498	536	99	109	51	115	65	85	26	23
Vietnamese	Mean	9.17	9.36	9.68	9.50	9.57	9.55	10.32	9.97	9.95	9.71	9.62	9.46
	(SD)	(3.08)	(2.19)	(1.08)	(1.58)	(0.62)	(0.79)	(0.80)	(0.24)	(0.75)	(0.65)	(0.59)	(0.48)
	N	78	70	209	147	120	83	6	6	24	18	16	7
Jamaican	Mean	10.35	10.50	10.02	10.00	9.67	10.43	10.79	10.83	9.95	10.22	--	--
	(SD)	(0.58)	(0.61)	(1.07)	(1.46)	(---)	(0.79)	(0.77)	(1.69)	(0.30)	(1.09)		
	N	31	35	65	92	1	2	4	3	3	7	--	--
Mexican	Mean	9.74	9.73	9.70	9.70	9.66	9.57	10.44	10.09	10.06	9.93	9.83	10.49
	(SD)	(1.63)	(1.22)	(1.03)	(0.82)	(1.18)	(1.14)	(0.56)	(0.85)	(0.76)	(1.02)	(0.83)	(0.96)
	N	454	580	624	582	464	514	19	21	18	16	23	22
Dominican	Mean	9.96	9.67	9.80	9.73	9.70	9.55	10.82	9.51	9.98	10.02	9.99	9.26
	(SD)	(0.56)	(1.46)	(0.52)	(0.71)	(0.70)	(0.67)	(0.59)	(1.36)	(0.45)	(0.65)	(0.71)	(0.73)
	N	66	261	116	499	45	166	2	16	9	35	2	9
Salvadoran	Mean	9.80	9.87	9.60	9.59	9.66	9.69	10.61	10.72	10.23	--	9.86	--
	(SD)	(0.59)	(0.58)	(0.61)	(0.60)	(0.97)	(0.64)	(0.54)	(1.42)	(0.57)		(0.46)	
	N	94	53	228	109	151	76	3	2	5	--	8	--

Table 6 Continued

		Unincorporated Self-Employed						Wage Workers					
		1990		2000		2010		1990		2000		2010	
Group		Sub	Urb	Sub	Urb	Sub	Urb	Sub	Urb	Sub	Urb	Sub	Urb
Non-Hispanic Whites	Mean	9.36	10.04	9.96	10.25	9.66	9.80	10.24	10.62	10.55	10.80	10.54	10.90
	(SD)	(3.08)	(2.17)	(2.30)	(2.04)	(2.53)	(2.27)	(1.91)	(0.90)	(0.81)	(0.87)	(0.85)	(0.93)
	N	3,201	1,880	4,418	1,647	766	363	48,022	33,567	51,961	29,401	8,751	5,421
Non-White Groups Combined	Mean	9.59	9.58	9.69	9.73	9.36	9.23	9.75	9.58	9.98	9.74	9.80	9.75
	(SD)	(2.27)	(2.37)	(1.88)	(1.50)	(1.87)	(1.99)	(1.48)	(1.76)	(1.05)	(0.97)	(0.72)	(0.78)
	N	243	378	455	519	217	196	1314	2510	2543	3195	934	1156
Indian	Mean	9.81	9.99	10.16	9.95	10.03	10.29	10.11	10.14	10.47	10.17	10.34	10.61
	(SD)	(1.50)	(1.33)	(0.86)	(0.76)	(1.27)	(0.54)	(0.72)	(1.68)	(0.94)	(0.75)	(0.89)	(0.89)
	N	9	14	23	42	9	11	62	65	487	205	80	81
Chinese	Mean	9.82	9.39	9.63	9.95	9.38	9.12	9.72	9.50	9.92	9.61	9.81	9.66
	(SD)	(1.16)	(2.81)	(2.25)	(0.91)	(2.52)	(2.36)	(1.11)	(1.53)	(1.32)	(0.92)	(0.75)	(0.78)
	N	67	81	67	91	25	29	486	1,251	707	1,473	209	319
Filipino	Mean	9.70	9.66	9.65	9.85	9.72	10.02	10.17	10.18	10.11	10.31	9.95	10.04
	(SD)	(1.00)	(0.23)	(0.71)	(0.71)	(0.40)	(0.67)	(1.04)	(0.64)	(0.64)	(0.67)	(0.73)	(0.67)
	N	5	3	23	15	8	4	15	36	75	84	15	19
Korean	Mean	10.26	10.07	9.96	9.74	9.88	9.39	9.35	8.99	10.09	10.00	9.87	10.14
	(SD)	(0.78)	(1.66)	(2.54)	(2.35)	(0.74)	(3.14)	(2.89)	(3.49)	(0.99)	(1.41)	(0.84)	(0.82)
	N	75	150	119	129	16	17	149	307	314	322	57	69
Vietnamese	Mean	8.96	8.97	9.72	9.76	9.50	9.47	9.12	9.38	9.62	9.34	9.58	9.57
	(SD)	(3.27)	(3.82)	(0.92)	(0.90)	(0.78)	(0.69)	(3.19)	(1.87)	(1.18)	(1.91)	(0.55)	(0.87)
	N	14	11	49	41	32	21	58	53	136	88	72	55
Jamaican	Mean	10.50	10.05	8.96	9.01	--	9.87	10.27	10.52	10.16	10.18	9.67	10.99
	(SD)	(1.04)	(1.33)	(2.44)	(3.31)		(---)	(0.52)	(0.45)	(0.72)	(0.62)	(---)	(---)
	N	2	4	7	14	--	1	25	58	55	71	1	1
Mexican	Mean	8.47	8.78	9.43	9.59	9.15	8.89	9.90	9.84	9.74	9.71	9.78	9.64
	(SD)	(3.91)	(3.20)	(1.92)	(0.90)	(2.24)	(2.31)	(0.84)	(0.56)	(0.78)	(0.79)	(0.67)	(0.68)
	N	55	62	92	107	90	76	378	501	514	459	351	416
Dominican	Mean	9.86	9.41	9.98	9.56	9.78	9.37	9.94	9.74	9.73	9.74	9.66	9.61
	(SD)	(0.74)	(1.98)	(0.63)	(1.15)	(0.81)	(0.67)	(0.54)	(1.31)	(0.51)	(0.61)	(0.69)	(0.66)
	N	5	47	13	64	8	24	59	198	94	400	35	133
Salvadoran	Mean	9.57	9.61	9.44	9.79	9.15	9.38	9.80	9.87	9.64	9.56	9.62	9.76
	(SD)	(1.01)	(0.50)	(0.77)	(0.69)	(1.85)	(0.76)	(0.49)	(0.45)	(0.53)	(0.58)	(0.57)	(0.59)
	N	11	6	62	16	29	13	80	45	161	93	114	63

Source: IPUMS. Urb = In Cities, and Sub = In Suburbs. A dash means that no workers of that particular category existed in that year. A dash in parentheses means that only one worker of that particular class worked in that category, and there is consequently no standard deviation to report.

Table 7. OLS Regressions of Logged Income on Suburban-City Worker Status and Ethnic Group, by Class of Worker and Year

	Incorporated Self-Employed			Unincorporated Self-Employed			Wage Workers		
Variable	**1990**	**2000**	**2010**	**1990**	**2000**	**2010**	**1990**	**2000**	**2010**
Works in Suburb/ City (1/0)	0.00 0.08	-0.11* (0.05)	-0.03 (0.06)	-0.19* (0.08)	-0.26** (0.08)	-0.46* (0.21)	-0.26*** (0.07)	-0.15** (0.05)	-0.22** (0.07)
Group Controls									
Indian	-0.67* (0.34)	0.02 (0.13)	-0.63 (0.35)	0.17 (0.43)	0.09 (0.16)	0.94 (0.50)	-0.22*** (0.04)	-0.29*** (0.07)	-0.32* (0.12)
Chinese	-0.35** (0.11)	-0.41*** (0.10)	-0.28 (0.23)	0.32 (0.25)	-0.09 (0.39)	0.45 (0.57)	-0.49*** (0.07)	-0.47*** (0.07)	-0.32*** (0.06)
Filipino	-0.06 (0.32)	-0.89* (0.37)	1.29*** (0.16)	0.15 (0.53)	0.21 (0.14)	0.68*** (0.16)	-0.12 (0.21)	-0.29*** (0.04)	-0.33 (0.23)
Korean	-0.06 (0.21)	-0.18 (0.13)	-0.32* (0.14)	0.85** (0.28)	0.26 (0.33)	1.01*** (0.28)	-0.80*** (0.12)	-0.25*** (0.03)	-0.53*** (0.07)
Vietnamese	-0.37 (0.31)	-0.52*** (0.13)	-0.43* (0.18)	-0.16 (0.79)	0.25 (0.16)	0.61* (0.26)	-1.01* (0.45)	-0.42*** (0.11)	-0.33** (0.11)
Jamaican	-0.06 (0.22)	-0.87*** (0.07)	--	1.07*** (0.23)	-0.61 (0.60)	--	0.11 (0.08)	-0.21** (0.07)	--
Mexican	-0.00 (0.11)	-0.27 (0.18)	-0.50** (0.17)	-1.12* (0.45)	-0.25 (0.28)	0.09 (0.32)	-0.17* (0.08)	-0.17*** (0.05)	-0.15** (0.05)
Dominican	0.58 (0.48)	-0.41* (0.18)	-0.39 (0.32)	0.34 (0.28)	0.36*** (0.09)	0.74*** (0.20)	-0.14** (0.04)	-0.34*** (0.02)	-0.31*** (0.06)
Salvadoran	0.01 (0.22)	--	--	0.41 (0.37)	0.16 (0.09)	0.40 (0.51)	-0.18*** (0.05)	-0.17*** (0.04)	-0.17 (0.06)
Group Interactions									
Indian x Works in Suburb/City (1/0)	-0.67* (0.34)	0.36 (0.18)	-0.41 (0.39)	0.17 (0.53)	0.49** (0.18)	0.37 (0.49)	0.33 (0.24)	0.27** (0.08)	0.06 (0.15)
Chinese x Works in Suburb/City (1/0)	0.08 (0.17)	0.08 (0.14)	0.26 (0.21)	0.51 (0.40)	-0.04 (0.43)	0.67 (0.63)	0.36*** (0.10)	0.17* (0.08)	0.27*** (0.07)
Filipino x Works in Suburb/City (1/0)	0.46 (0.76)	-0.86 (0.53)	1.97*** (0.30)	0.28 (0.50)	0.21 (0.20)	-0.02 (0.46)	0.23 (0.24)	0.10 (0.17)	0.16 (0.22)
Korean x Works in Suburb/City (1/0)	0.12 (0.11)	0.19 (0.18)	0.14 (0.14)	0.42* (0.16)	0.52 (0.37)	1.06* (0.46)	0.66* (0.31)	0.31*** (0.08)	-0.29* (0.11)
Vietnamese x Works in Suburb/City (1/0)	0.04 (0.41)	0.32 (0.30)	0.19 (0.24)	0.59 (1.35)	0.37 (0.22)	0.46 (0.27)	0.02 (0.43)	0.49*** (0.12)	0.18 (0.23)
Jamaican x Works in Suburb/City (1/0)	-0.31 (0.89)	-0.57*** (0.16)	--	0.86 (0.63)	0.67 (0.51)	--	0.19 (0.15)	0.20** (0.07)	0.38** (0.13)
Mexican x Works in Suburb/City (1/0)	0.41 (0.22)	0.36 (0.25)	-0.54 (0.29)	-0.06 (0.49)	-0.01 (0.28)	0.61 (0.42)	0.31** (0.09)	0.24** (0.08)	0.31*** (0.08)
Dominican x Works in Suburb/City (1/0)	-1.56*** (0.40)	0.28 (0.16)	0.80* (0.33)	0.65*** (0.49)	0.87*** (0.08)	0.82** (0.26)	0.51*** (0.05)	0.19*** (0.05)	0.27** (0.10)
Salvadoran x Works in Suburb/City (1/0)	-1.02 (0.67)	--	--	0.06 (0.23)	0.07 (0.20)	0.25 (0.50)	0.12 (0.07)	0.15** (0.05)	0.16 (0.10)
Intercept	8.24*** (0.31)	9.01*** (0.21)	8.11*** (0.48)	8.80*** (0.61)	8.47*** (0.37)	7.21*** (0.95)	7.87*** (0.01)	7.69*** (0.07)	7.02*** (0.10)
R^2	0.14	0.19	0.21	0.14	0.13	0.12	0.27	0.31	0.42
N	5,242	5,903	1,422	5,701	7,038	1,541	85,412	87,099	16,261

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

Regression uses standard errors clustered at the level of MSAs. Control group is non-Hispanic Whites. Control variables include experience, gender, education binaries, nativity, English proficiency, citizenship, marital status, and number of children. See text for more details.