DOES IMMIGRATION HURT AFRICAN-AMERICAN SELF-EMPLOYMENT?

Robert W. Fairlie
Bruce D. Meyer

Working Paper **6265**

NBER WORKING PAPER SERIES

DOES IMMIGRATION HURT AFRICAN-AMERICAN SELF-EMPLOYMENT?

Robert W. Fairlie
Bruce D. Meyer

Working Paper 6265
http://www.nber.org/papers/w6265

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
November 1997

This paper was prepared for the Andrew W. Mellon Foundation Program Conference on the Economic Effects of Immigration on African-Americans, Washington DC, April 4, 1997. We would like to thank David Jaeger and Sarah Turner for sharing their metropolitan area matching program. We would also like to thank Frank Bean, Barry Edmonston, Dan Hamermesh, Ivan Light, Rebecca London, Sam Myers, Gerald Oettinger, conference participants and those at presentations at the Bay Area Labor Economists meetings, George Washington University, the Bureau of Labor Statistics, the University of Maryland, Northwestern University, Stanford University, and the 1997 Annual Meetings of the Population Association of America for comments and suggestions. Dan Rosenbaum provided outstanding research assistance. This paper is part of NBER's research program in Labor Studies. Any opinions expressed are those of the authors and not those of the National Bureau of Economic Research.

Does Immigration Hurt African-American Self-Employment?

Robert W. Fairlie and Bruce D. Meyer

NBER Working Paper No. 6265
November 1997
JEL Nos. F22, J15

ABSTRACT

Previous studies tend to find that immigration has a weak negative effect on the employment and earnings of native-born workers. These studies generally overlook the effect of immigration on an important sector of the labor force, the self-employed. Anecdotal evidence suggests that immigrants, especially those from Asian countries, may displace black-owned business owners. We use Census of Population microdata to examine if black self-employment levels are lower in labor markets which have a higher share of immigrants. We define labor markets as metropolitan areas (MAs) and use the variation across 94 MAs in the U.S. to examine the relationship between black self-employment and immigration in both 1980 and 1990. To control for permanent differences across MAs in other influences, we also estimate the effect of the change in immigration from 1980 to 1990 on the change in black self-employment over this period. We generally find that immigration has no effect or only a small negative but statistically insignificant effect on black male or female self-employment. Our findings are similar if we weight immigration rates by the propensity of immigrant groups to be self-employed, if we limit our sample of immigrants to those from only Asian countries, and if we try other alternative estimation techniques and specifications.

Robert W. Fairlie
Department of Economics
University of California, Santa Cruz
Santa Cruz, CA 95064
rfairlie@cats.ucsc.edu

Bruce D. Meyer
Department of Economics
Northwestern University
Evanston, IL 60208
and NBER
bmeyer@nwu.edu

1. Introduction

A large number of studies examine the impact of immigration on the labor market outcomes of native-born Americans.[1] These studies often focus on the effects of immigration on the wages and employment of African-Americans[2] and other groups with low average earnings. This research, however, has neglected a large and growing segment of the labor force, the self-employed. The self-employed also contain a disproportionate number of immigrants, especially those from Asian countries.[3] We might expect that the propensity for immigrants to choose self-employment makes the displacement of self-employed natives more likely. In this paper, we examine whether immigration has a negative impact on the self-employment prospects of native-born blacks.[4] The potential effect of immigration on black self-employment is especially important given the already low rate of black self-employment in the United States.

Black business ownership in the United States is a topic of much interest. Several

---

[1]See Borjas (1994) and Friedberg and Hunt (1995) for thoughtful reviews of this literature.

[2]For brevity, we use the term "blacks" in the remainder of the paper.

[3]See Borjas (1986) and Yuengert (1995) for evidence of higher rates of self-employment among immigrants than natives, and see Fairlie and Meyer (1996) for evidence of high self-employment rates among some Asian ethnic groups.

[4]The perceived threat of immigration to black business opportunities has been the topic of articles in national newspapers (see "For Immigrants, Tough Customers," New York Times, November 25, 1990) and black magazines (see "The Korean Invasion: A New Threat to Black Business" Metro Atlanta, March 1989).

previous studies document and examine the causes of low rates of black self-employment.[5] The underlying causes of these low rates, however, remain largely undetermined. The low black self-employment rate is particularly troubling because self-employment has historically been a route of economic advancement for disadvantaged groups.[6] For example, the success of Chinese and Japanese immigrants in the United States is in large part due to their ownership of small businesses.[7] Overall, a high self-employment rate for an ethnic or racial group is strongly associated with a high average income for that group.[8] Furthermore, and despite likely underreporting, the self-employed earn more on average than wage and salary workers. The low black self-employment rate is also of immediate public policy interest because self-employment is viewed as a potential route out of poverty. It is currently being promoted by many states and the federal government as a way to leave the welfare and unemployment insurance rolls.[9] The low rate of business ownership among blacks also contributes to racial tensions in urban areas throughout the United States. The recent racial conflicts

---

[5]Earlier studies include Myrdal (1944), Cayton and Drake (1946), Frazier (1957), Kinzer and Sagarin (1950), and Glazer and Moynihan (1970). Recent work includes Bates (1989), Borjas and Bronars (1989), Meyer (1990), and Fairlie (1997).

[6]Glazer and Moynihan (1970, p. 36) argue that "business is in America the most effective form of social mobility for those who meet prejudice."

[7]See Light (1972) for a description of the history of Chinese and Japanese in the U.S. and Loewen (1971) for a description of Chinese in Mississippi.

[8]See Section VI of Fairlie and Meyer (1996).

[9]See Guy et al. (1991) for a description of the program promoting self-employment among AFDC recipients and Benus et al. (1992) for a description of the program promoting self-employment among unemployment insurance recipients.

between Koreans and African-Americans in many large cities are in large part due to the presence of Korean-owned businesses in black communities[10] It has also been argued that political influence comes with small business success.[11]

An examination of the impact of immigration on black self-employment is also of interest for the same reasons we are interested in the impact of immigration on the wages and employment of native-born wage and salary workers. The extent to which immigrants displace native workers from their jobs and bid down their wages determines one of the main costs of immigration and affects political support for U.S. immigration policies.

In this study, we use 1980 and 1990 Census microdata to study the impact of immigration on self-employed blacks. Specifically, we examine the relationship between levels of immigration and black self-employment across 94 of the largest metropolitan areas in the United States. We also examine the relationship between changes in immigration and changes in black self-employment in these metropolitan areas. We generally find that immigration has no effect or only a small negative but statistically insignificant effect on black male or female self-employment. Our findings are similar if we weight immigration rates by the propensity of immigrant groups to be self-employed or if we limit our sample of immigrants to those from only Asian countries. With only a

---

[10]See In-Jin Yoon (1991b) for a description of the causes and character of the racial tensions between Koreans and African-Americans in Chicago and see Min (1996) for a summary of the numerous black boycotts of Korean merchants in New York and Los Angeles in the past two decades.

[11]See Brown, Hamilton and Medoff (1990).

few exceptions, our findings are robust to alternative estimation techniques and specifications.

An important advantage of this study over previous studies of the effect of immigration on the earnings and employment of natives is that our key explanatory variable is more likely to be exogenous to our outcome measure.[12] The likelihood that the black self-employment rate has a direct influence on the location decisions of immigrants who are potential business owners is small. Although the black self-employment rate varies across metropolitan areas, these rates are generally so low that blacks make up only a small share of the potential competitors for immigrants. Another advantage over previous studies which focus on wage/salary workers is that our estimates are less likely to suffer from the potential downward bias caused by native migration in response to immigration. We provide some evidence that self-employed blacks are less mobile than blacks who are wage and salary workers.

In Section 2 we describe past work on the effects of immigration on the self-employment prospects of natives. In Section 3 we describe a model that illustrates how an inflow of immigrants affects self-employment among native blacks. Section 4 describes the Census data used in the analyses and some of our descriptive results. Section 5 describes our regression methods and their results. Section 6 concludes.

---

[12]We should note, however, that some support for this assumption in previous studies is provided by Bartel (1989). She finds that recent immigrants tend to locate in SMSAs which have large numbers of previous immigrants from the same country, and that economic factors have a relatively small effect on location decisions.

2. Previous Research

There exists an extensive economics literature examining the impact of immigration on the labor market outcomes of native-born Americans.[13] Most of these studies examine the relationship between the level or change in immigration and the level or change in labor market outcomes of natives across metropolitan areas.[14] This research generally finds that immigration has a weak negative effect on the employment and earnings of natives.

Although this literature does not examine the relationship between immigration and black self-employment, a few studies from outside economics do. Light and Rosenstein (1995) use aggregate data from 272 metropolitan areas from the 1980 Census to identify the effect of immigration on the self-employment rate and earnings of native-born workers.[15] In their metropolitan area level regressions, they find that the immigrant self-employment rate and the immigrant share of the total self-employed have essentially no effect on the self-employment rates or self-employment earnings of native whites or blacks.[16] They also do not find evidence of a large negative effect of the

---

[13]Besides Borjas (1994) and Friedberg and Hunt (1995), also see Borjas, Freeman and Katz (1996) and Butcher (1996) for discussions of the main approaches taken in this literature.

[14]Recent examples include Altonji and Card (1991), LaLonde and Topel (1991), Butcher and Card (1991), Butcher (1997) and Reimers (1997).

[15]The results from an earlier study by Light and Sanchez (1987) which uses the same data are similar.

[16]These two explanatory variables may be endogenous, however, as it is likely that they are partly determined by the level of native self-employment in the metropolitan area.

Korean self-employment rate or the Korean share of the total self-employed on the self-employment rate or self-employment earnings of native-born blacks. They argue that the interaction between these two groups is the most likely case in which to find a negative effect of immigration on native self-employment.[17]

Boyd (1990) also examines the effect of immigration on black self-employment. Instead of using metropolitan area level data, however, he estimates a regression for the probability of being self-employed among a sample of black workers from the 1980 Census. To test the hypothesis, he includes the percent of the population who are Asian (in logarithms) and the growth rate in the Asian population in the SMSA in his individual-level self-employment regressions. He finds that the coefficients on these explanatory variables are negative, but are very small and insignificant.

In several ways, we contribute to this scant literature on the impact of immigration on native black self-employment. First, we use the most recent Census data from 1990 as well as the 1980 data. The 1990 data follow a period of much higher immigration, and are thus better suited to study the effects of immigration. It is also possible that more recent waves of immigrants have had different effects on blacks than earlier ones. Second, unlike the previous studies which rely on one year of data, we can account for differences across metropolitan areas that are not easily measured (unobserved metropolitan area fixed effects) and that may be correlated with the level of black self-

[17]There exists a large literature in sociology which attempts to identify the factors leading to both the high level of business ownership among Asians (especially among Koreans) and the low rates among blacks. See Aldrich and Waldinger (1990) and Light (1984, 1992) for reviews of this literature.

employment and the measure of immigration or immigrant self-employment. Previous estimates of the effect of immigration on black self-employment may be biased due to the presence of these unobserved fixed effects.[18] Third, we also go one step further by employing an instrumental variables technique to remove metropolitan area transitory effects that are correlated with changes from 1980 to 1990 in black self-employment and immigration. Fourth, we include a measure of immigration that is weighted by the propensity of different immigrant groups to choose self-employment, thus addressing the concern that immigrant groups differ in their impact on black self-employment. Finally, we include an improved set of individual and metropolitan area level controls in our regressions.

3. A Model of the Effect of Immigration

We do not provide the details here, but a formal model is useful to assess the likely impact of immigration flows on the self-employment prospects of natives. In Fairlie and Meyer (1997a) we build upon past work such as Altonji and Card (1991) and Borjas (1994) to specify such a model. Similar to these previous papers, we allow immigration to have an effect on the derived demand for labor (through its effect on product demand) as well as on labor supply.

---

[18]Examples of unobserved metropolitan area fixed effects include the level of consumer discrimination against minority-owned businesses, local government business development policies, consumer demand for the goods and services produced by small businesses, and local economic conditions for small businesses.

In our model, workers choose to supply their labor to one or more sectors (self-employment and wage/salary) based on the wage in the sectors and possibly other characteristics. Immigrants and natives are allowed to differ in these labor supply functions as well as their product demand functions. These differences in supply and demand functions can be due to differences in skill composition or to different preferences for job autonomy or other nonwage characteristics such as hours of work.

An increase in the number of immigrants increases both the supply of self-employment labor and the demand for self-employment output. Holding demand constant, the increase in the supply of labor to the self-employment sector reduces the return to self-employment and consequently reduces the self-employment rate of native blacks. The inflow of immigrants, however, also increases the demand for the goods and services provided by the self-employed, thus increasing the return to self-employment and dampening or reversing any employment effect. We are interested in determining the net impact from these two offsetting effects. When the value of immigrant consumption of self-employment output is less than the value of its self-employment output, then increased immigration drives down the rate of self-employment among natives. The self-employment rate of natives rises in response to increased immigration when immigrant self-employment consumption exceeds its output.

Under some simplifying assumptions we can show that the decline in the number of natives who are self-employed when a self-employed immigrants arrives is less than $(\rho-1)$, where ρ is the ratio of immigrant self-employment output to consumption. If we assume that immigrant and native levels of self-employment consumption are

approximately equal, then a rough estimate of ρ is the immigrant/native self-employment rate ratio.[19] Estimates of these self-employment rates indicate that $(\rho-1) < 0.20$.[20] Thus, less than 0.20 self-employed natives would be displaced by each self-employed immigrant. Therefore, if even most or all of the native self-employment rate losses come from blacks, the effect would be fairly modest. Since it is likely that any losses will be more broadly shared, it would seem that the potential black losses are small. Contrary to some public perceptions, this analysis suggests that, overall, immigrant displacement of black businesses is likely to be limited. Nevertheless, in certain cities, neighborhoods and industries, there may be noticeable displacement if that is where immigrants congregate.

4. The 1980 and 1990 Census Data

The data used in this study are from the Public Use Microdata 5-Percent Samples of the 1980 and 1990 Censuses of Population. These datasets are the only sources of national microdata that are large enough to allow comparisons of black self-employment rates across a large number of metropolitan areas. In addition, they are preferable to published aggregate data because they provide more flexibility in creating sample restrictions and definitions of key variables and because they allow us to directly control for individual-level characteristics in our regressions. Finally, the detailed geographical

---

[19]This assumption is probably conservative given the special demands of many immigrant groups for ethnic products that are often provided by the self-employed.

[20]The 1990 self-employment rate of male immigrants is 12.1 percent, while that of male natives is 10.4 percent. For women, the numbers are 7.2 and 5.6 percent.

information in the Census makes it possible to create consistent metropolitan area definitions across the decade.

Self-employed workers are defined as those individuals who identify themselves as mainly self-employed in their own not incorporated or incorporated business on the class of worker question.[21] In 1990, the relevant choices on the Census questionnaire were 6) "SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm" and 7) "SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm" (U.S. Bureau of the Census, 1993: E-15).[22] We find using a 1/1000 random sample from the 1990 Census that 34.0 percent of all self-employed men and 24.2 percent of all self-employed women report having their own incorporated business.

We also note two additional characteristics of the self-employed. First, the majority of the self-employed do not hire other workers. Characteristics of Business Owners (CBO) data indicate that nearly 70 percent of businesses have no paid employees (U.S. Bureau of the Census, 1992).[23] Second, only a small fraction of the total self-employed are accounted for by professional specialty occupations, which include lawyers, physicians, and dentists. Using the random sample from the 1990 Census, we find that professional occupations represent 16.0 percent of self-employed men and 15.9 percent of self-employed women.

---

[21]Unpaid family workers are not counted as self-employed.

[22]The class of worker question refers to the individual's "chief job activity or business last week." Individuals who hold more than one job are asked to refer to the one at which they worked the most hours. The class of worker question on the 1980 Census is nearly identical.

[23]The Census does not record the existence or number of employees for the self-employed.

In our study, we include only individuals ages 16 to 64 and impose additional sample restrictions depending on the measure of self-employment that we are using. Our first measure, the self-employment rate, is defined as the fraction of workers who are self-employed. We include only individuals who worked at least 20 weeks in the past year and usually worked at least 15 hours per week during that year. As in most previous studies of self-employment, we include only workers in non-agricultural industries. The second measure, the self-employment ratio, is defined as the fraction of the total population who are self-employed. The sample used to calculate this ratio is not restricted to include only workers. Instead, we only exclude individuals who are currently enrolled in school or who are institutionalized. Therefore, agricultural workers, the unemployed, and workers with few total annual hours are included in the sample. We provide estimates using both measures of self-employment in most of the analyses discussed below.

The Industry Distribution of the Self-Employed

We first examine whether self-employed blacks are located in the same industries as self-employed immigrants. The similarity of the industry distributions for these two groups is a potential indicator of the amount of competition between them. We also examine whether industries with large concentrations of self-employed blacks are the industries for which immigrants also comprise a large share of the total self-employed.

In Table 1, we report the industry distribution of the self-employed by immigrant status, race, and gender for the U.S. in 1990. We also report the fraction of the total

self-employed in the industry who are immigrants or Asian immigrants. For all estimates, we use the same weeks, hours and industry restrictions as those used to calculate the self-employment rate. We report separate columns for Asian immigrants because Asian business owners are commonly thought to be in direct competition with many black business owners.

The industry distribution of self-employed native black men is fairly similar to that of self-employed native white men. There appears to be less of a similarity, however, between the distribution of self-employed black men and those of either self-employed immigrants or Asian immigrants. Furthermore, the industries with the largest concentrations of self-employed black men generally do not have large immigrant or Asian immigrant shares of the self-employed. The main exception is Retail Trade which contains a large share of the self-employed black men, immigrants, and Asian immigrants and in which immigrants and Asian immigrants are a large share of all self-employed.

One industry, Professional and Related Services, contains 40.2 percent of all self-employed black women in the United States.[24] This industry has a large concentration of self-employed immigrants and Asian immigrants, but has immigrant and Asian immigrant shares of all self-employed comparable to those for the total. Other industries with large concentrations of black women, such as Personal Services and Retail Trade, however, have large immigrant or Asian immigrant shares of the self-employed.

Overall, the industry distribution of self-employed blacks and immigrants are similar enough that we expect direct competition between the two groups in many cases.

---

[24]These self-employed black women are mainly in health and social services.

Our findings from an analysis of more narrowly defined industries do not cause us to change this conclusion. It is possible that immigrant and black businesses are geographically separated within MAs, but even in this case they may be potential competitors on the margin. On the other hand, these tabulations do indicate that immigrants are only a small share of the self-employed in most industries.

Metropolitan Area Definitions and Descriptive Statistics

In order to assess the effects of immigration on black self-employment we examine differences in immigration and self-employment across geographic areas. These geographic areas should approximate labor markets for the self-employed. We take the standard approach in the literature which uses metropolitan areas (MAs) as the geographic areas. The specific MA definitions we use follow Jaeger (1996) and Bound and Holzer (1996). These definitions combine detailed geographical areas identified in the Censuses to provide consistent or nearly consistent definitions of 132 metropolitan areas in 1980 and 1990.

To create outcome measures for blacks, we use data from only the subset of these MAs that have a sufficient number of native-born black observations. Specifically, we include all individuals who live in MAs which have a total native black sample size (ages 16 to 64) greater than or equal to 600 in both Census years. This creates a sample of individuals who live in 94 MAs which represent 77.3 percent of the U.S. native black

population (ages 16 to 64) in 1980 and 78.2 percent in 1990.[25]

In Table 2, we report descriptive statistics for the MA-level variables used below for the 1980 and 1990 cross-sections and for the change between the two Census years.[26] The self-employment rate and self-employment ratio for native-born blacks are defined as above. The low average black self-employment rates and ratios for black men and women in our sample accord with findings in other datasets. The average black self-employment rates for the 94 MAs are similar to estimates for blacks in the entire United States and are much lower than U.S. total rates for all races.[27] From 1980 to 1990, the mean self-employment rate and ratio increased substantially for black women, but only slightly for black men. The increase for black women agrees with other evidence on increases in female self-employment (see Devine, 1994).

The immigrant, Asian immigrant, and black shares are defined as the fractions of the total population (ages 16-64) represented by each group.[28] Although the mean immigrant share and Asian immigrant share in our sample of MAs are relatively low in

---

[25]These samples represent 60.6 and 61.2 percent of the native white population (ages 16 to 64) and 85.4 and 87.3 percent of the immigrant population (ages 16 to 64) in 1980 and 1990, respectively.

[26]These statistics weight each of the 94 MAs in our sample equally. In our regressions discussed below we use GLS weights. Means and standard deviations calculated using these weights are similar for the self-employment measures, but are considerably larger for the immigration measures.

[27]Fairlie and Meyer (1996) report black self-employment rates of 0.044 for men and 0.020 for women for the entire United States in 1990. The total self-employment rates are 0.108 for men and 0.058 for women.

[28]The immigrant share includes Asian and black immigrants as well as other immigrants, and the black share includes black immigrants as well as other blacks.

both years, the increases in these two measures from 1980 to 1990 are notable. The average increase in the Asian immigrant share is almost as large as the mean value in 1980. The mean black share in our sample is larger than the black share of the U.S. population due to our inclusion of the MAs with the largest black populations. The change in the mean value between 1980 and 1990 is small.

In Table 2, we also report estimates for the weighted immigrant share. This measure addresses the concern that immigrant groups differ in their impact on black self-employment. For example, it is likely that an immigrant from a high self-employment rate group, such as Cubans, Koreans, or Russians, has a larger crowding out effect on self-employed blacks than an immigrant from a low self-employment rate group, such as Cambodians, Filipinos, or Mexicans.[29] This observation suggests that we weight the immigrant share in an MA by the propensity of immigrants in that area to be self-employed.

We define the weighted immigrant share in MA m as:

$$I_m^W = \frac{1}{\alpha N_m^T} \sum_{g=1}^{G} S_{-mg} N_{mg}, \quad (4.1)$$

where g=1,...,G denotes immigrant groups, α is an adjustment factor defined below, S_{-mg} is the self-employment rate (or ratio) for group g using all MAs except MA m, N_{mg} is the number of immigrants of group g in MA m, and N_m^T is the total population in MA m.

[29]Even within the Asian category there exist large differences across groups. See Fairlie and Meyer (1996) for evidence on this point.

Using the self-employment rates (or ratios) as weights allows immigrants from high-self-employment rate groups to count more than immigrants from low self-employment rate groups. There are a few things to note about (4.1). First, we exclude MA m when calculating the self-employment rate (or ratio) for each immigrant group to avoid the possibility that these rates (or ratios) depend on the level of black self-employment in the MA. Second, we classify immigrants into 24 different immigrant groups based on their responses to the place of birth question on the Census. In many cases, we group countries with relatively few immigrants into broader categories based on their geographical proximity and similarity in average propensities for self-employment. Third, the adjustment factor, α, is chosen to equate the total number of "weighted" immigrants and the total number of actual immigrants in the entire sample. Therefore, the weighted immigrant share variable has the same scale as the immigrant share. The weighted immigrant share variables turn out to be very similar to the unweighted share variables. The main exception to this pattern is that MAs with many immigrants from Mexico tend to have lower weighted immigrant shares than unweighted immigrant shares, and MAs with many immigrants from Asian countries tend to have higher weighted immigrant shares.

Before discussing our probit results, it is useful to examine the relationship between the self-employment rate (or change in the self-employment rate) and the immigrant share (or change in the immigrant share) across our sample of MAs. In Figures 1-6, we plot the relationship between these two variables. We use a two-letter code to indicate the data point for each of the 94 MAs. The area of these two-letter

codes is proportional to the inverse of the variance of the corresponding self-employment rate. Appendix Table 1 lists these two-letter codes and their associated metropolitan areas.

We plot the relationship between the black male self-employment rate and the immigrant share for 1980 in Figure 1 and for 1990 in Figure 2. Most of the MAs are concentrated at the intersection of the means of the two variables in both Census years. The MAs with the highest rates of black male self-employment tend to be located in California or Florida, and the MAs with the largest shares of immigrants tend to be large MAs overall and located in California, Florida, and Texas. In both years, there appears to be a slightly positive relationship between the black male self-employment rate and the immigrant share.

In Figure 3, we plot the relationship between the change from 1980 to 1990 in the black male self-employment rate and the change in the immigrant share. Again, most of the MAs in our sample are concentrated around the intersection of the mean values. The metropolitan areas with the largest increases in the immigrant share tend to be the same as those that have the largest immigrant share in 1980 and 1990. There does not appear to a be clear geographic pattern to the MAs that have the largest increases in black self-employment. In this figure, there appears to be a flat or slightly negative relationship between the two variables.

In Figure 4, we plot the analogous relationship between the level of female self-employment and the immigrant share in 1980. In Figure 5, we report the same relationship for 1990, and in Figure 6 we report the relationship between the changes

from 1980 and 1990 in the two variables for women. The plots have many of the same features as those for males, though a notable exception is the increase in the self-employment rate for women that is apparent for most MAs in Figure 6. The 1980 plot appears to show a flat or slightly positive relationship between the level of immigration and the self-employment rate. The 1990 plot shows a slightly more positive relationship. The change between 1980 and 1990 again shows a flat or slightly positive relationship. In all cases, any relationship appears to be weak.

5. Regression Methods and Results

Although the plots are informative, we are interested in obtaining an estimate of the size of the effect of immigration on black self-employment and determining whether this effect is statistically different from zero. We accomplish these goals by estimating equations for the probability of self-employment using our sample of native blacks residing in one of the 94 MAs. In addition, these equations allow us to control for individual-level, as well as MA-level, characteristics which affect the self-employment decision. Formally, we assume that self-employment is determined by an unobserved latent variable,

$$(5.1) \qquad Y_{im}^{*} = X_{im}'\beta + Z_m'\gamma + u_m + \epsilon_{im},$$

for person i, i=1,...,N_m, and MA m, m=1,...,M. We only observe Y_{im} which equals 1 if $Y_{im}^{*} \geq 0$, implying that person i chooses self-employment; Y_{im} equals 0 otherwise. X_{im} is a vector of individual-level characteristics, Z_m is a vector of MA-level characteristics which

includes our measure of immigration, u_m is an MA specific error term, and ϵ_{im} is an individual specific error term. The MA specific error term is included because we suspect that there are unmeasured MA characteristics which affect the self-employment probability of blacks. We allow for the presence of these omitted group level determinants of the self-employment probability in our individual-level equations by using a two-stage estimation method.[30] If we take ϵ_{im} to be normally distributed, the assumptions imply that the data are described by a probit model. Although the normality assumption should only be taken as an approximation, the probit model provides a useful descriptive model for the binary event that a person is self-employed.

In the first stage, we estimate the probit regression:

$$(5.2) \qquad Prob(Y_{im}=1) = \Phi(X_{im}'\beta + \alpha_m),$$

where α_m is an MA fixed effect, and Φ is the cumulative normal distribution function. The second stage consists of a linear regression of the estimates of these fixed effects on the MA-level variables:

$$(5.3) \qquad \hat{\alpha}_m = Z_m'\gamma + w_m.$$

The fixed effects in this equation are transformations of MA self-employment rates after controlling for differences in individual-level characteristics across MAs. Therefore, (4.3) is a regression of the adjusted self-employment tendency in an MA on MA-level variables. The second-stage coefficient estimates from (5.3) are in the same metric as the probit coefficients in (5.2) and their standard errors account for the group-level component in the error term.

---

[30]See Borjas and Sueyoshi (1994) for a complete description of the issues.

As suggested in Borjas and Sueyoshi (1994), we estimate the second-stage regression using generalized least squares (GLS). Specifically, we use the weighting matrix $\Omega = \sigma_u^2 I_M + V_{\alpha\alpha}$, where $V_{\alpha\alpha}$ is the MxM block of the covariance matrix from (5.2) which is associated with the fixed effects.[31] The use of Ω places different weights on each MA which are related to the inverse of the precision of its fixed effect in the first-stage probit regression. We also use OLS to estimate our second-stage regressions as a sensitivity check.

We estimate several equations of the form (5.2) and (5.3). All of these regressions are estimated separately for our samples of native black men and native black women residing in the 94 MAs. We include individual-level controls for age, education level, marital status, number of children, disability status, and veteran status in the first-stage probit regressions.[32] We do not report these results, and instead focus on the results for the second-stage regressions.

In Table 3, we report estimates of the second-stage regressions using GLS. We report separate estimates for our two measures of self-employment, the self-employment rate and the self-employment ratio. Specifications 1 and 4 use the 1980 cross-section, and Specifications 2 and 5 use the 1990 cross-section. Specifications 3 and 6 report estimates from a different estimation technique which we discuss later in this section. All

---

[31]We estimate σ_u^2 following Borjas (1987).

[32]The coefficient estimates on these variables are consistent with previous work. We find that the self-employment probability is higher for those who are older, more educated, married, and non-veterans. These tendencies generally hold for both genders, Census years, and measures of self-employment. The estimates for the number of children and disability status are not easily summarized as they differ more by sample and gender.

second-stage regressions include the reported immigration measure and several additional MA-level controls.[33] We do not discuss the coefficient estimates for these variables here, but a discussion can be found in Fairlie and Meyer (1997b). The inclusion of these variables has little effect on our immigration coefficients. We first present our cross-sectional results for the self-employment rate (Specifications 1 and 2). The samples of native black men and women used in the first stage regressions are limited to the working population (ages 16-64).

The second-stage equation that we report first for native black men includes the immigrant share as our measure of immigration. The coefficient on the immigrant share for both the 1980 and 1990 cross-sections is positive and statistically significant suggesting that immigration increases the probability of self-employment among black men. In the second reported equation, we include the weighted immigrant share. The results for this measure are very similar to the those from the unweighted immigrant share. In the final equation reported for black men, we include the Asian immigrant share. The coefficient on this variable is positive and larger than those on the immigrant share, though it is statistically significant only in 1980. Overall, our finding of a positive relationship between immigration and the probability of self-employment among black men is not sensitive to whether we weight immigration shares by the propensity for self-employment of the immigrant groups or to whether we focus on all immigrants or only Asian

[33]We include the black share of the population, the log average income of natives, a black mayor indicator variable, the native unemployment rate, and the log native population as controls in all specifications and the non-Asian immigrant share as an additional control in the specifications with the Asian immigrant share.

immigrants.

In our second-stage regressions using native black women, we find similar qualitative results for the effects of immigration on self-employment. The coefficients on the immigrant share and the Asian immigrant share are positive in both the 1980 and 1990 cross-sections. An exception to the qualitative similarity between the results for black men and black women is the negative coefficient estimate on the weighted immigrant share in the 1980 cross-section for black women. This coefficient, however, is imprecisely measured and is not statistically different from zero at conventional levels.

Specifications 4 and 5 report estimates from the second-stage regressions for the self-employment ratio. The samples used to estimate the first-stage regressions include the entire non-school, non-institutionalized population (ages 16-64). The self-employment ratio is a much broader measure of self-employment that the self-employment rate as it also includes individuals who, while primarily self-employed, worked few weeks or few hours per week last year. In addition, the use of this measure does not exclude from the sample someone who may have been displaced from self-employment into unemployment.[34] For black men, the use of this alternative sample and definition of self-employment does not change the conclusions substantially. The coefficient estimates on the immigrant share and weighted immigrant share are positive

---

[34]A simple calculation shows that this second difference is probably of less importance. A self-employed worker displaced into unemployment reduces the numerator of both the self-employment rate and ratio by one, and reduces the denominator of the ratio by one, but leaves the denominator of the rate unchanged. However, since the denominator is so much larger than the numerator, the resulting difference between the rate and ratio measures will be small.

and mostly similar in magnitude and significance to those for the self-employment rate. For the Asian immigrant share there are some differences, with the positive coefficient now being insignificant in 1980, but significant in 1990. For black women, the 1980 and 1990 estimates are even more similar to those for the self-employment rate. Apparently, our finding of a positive effect of immigration on black self-employment is not sensitive to our definition of self-employment and the sample restrictions used.

The general finding of a positive coefficient on the immigrant share and Asian immigrant share in our regressions is surprising. Thus far, however, we have not determined if these positive coefficient estimates imply large or small effects of immigration on black self-employment. Recall that our second-stage coefficients are in the same metric as the probit coefficients, making them difficult to interpret. We convert these coefficients into derivatives, which are much easier to interpret. Let γ_I be the coefficient on the immigrant share. Then $\gamma_I \phi(\Phi^{-1}(S_B))$, is the derivative of the probability of self-employment with respect to the immigrant share, where S_B is the black self-employment rate (or ratio) for the relevant gender. An additional adjustment provides an expression (the scaled derivative) that can be interpreted as the change in the number of self-employed blacks in an MA when one more self-employed immigrant arrives. To make this adjustment we multiply the last expression by the number of people associated with a unit change in the black self-employment rate and divide by the number of self-employed people associated with a unit change in the immigrant share.[35] The resulting

[35]This formula relies on the implicit assumption that the number of immigrants who are self-employed in an MA is proportional to the number of immigrants in that MA. While crowding out or enclave effects (which work in different directions) would make this

scaled derivative is $\gamma_I \phi(\Phi^{-1}(S_B))*LF_B/S_I$, where LF_B is the number of blacks in the labor force (or non-school, non-institutionalized population) of the appropriate gender divided by the total population of men and women, and S_I is the number of self-employed immigrants of either gender divided by the total number of immigrants.[36]

We report estimates of these derivatives in Table 3. Standard errors for these derivative estimates are not reported, but are simply equal to the coefficient standard error times the ratio of the derivative estimate to the coefficient estimate.[37] The derivative estimates indicate that the coefficients on the immigrant share imply small effects of immigration on black self-employment using either measure of self-employment. The derivative estimates imply that an additional self-employed immigrant results in an increase of 0.03 to 0.05 self-employed black men and an increase of about 0.01 self-employed black women. The derivative estimates for the weighted immigrant share are very similar for black men in both years and black women in 1990. For black women in 1980 the derivative estimates for the weighted immigrant share are negative, but are very small and are based on coefficient estimates that are not significantly different from zero. The derivative estimates for the Asian immigrant share imply somewhat larger effects, i.e. that an additional self-employed Asian immigrant increases the number of self-employed black men by 0.03 to 0.09 and increases the number of self-employed black women by 0.04 to 0.07. We should emphasize that most of the estimates

---

assumption not strictly correct, it is unlikely to be far from the truth.

[36]We use the appropriate self-employment definition (rate or ratio) to count the number of self-employed immigrants.

[37]We assume that LF_B, S_B and S_I are nonstochastic for this calculation.

for both 1980 and 1990 have the opposite sign from what would be expected if immigrants displace self-employed blacks.

Potential Explanations for the Cross-Sectional Results

We now discuss two potential explanations for the unexpected positive coefficient and scaled derivative estimates presented above. First, the location decisions of immigrants may be directly related to MA levels of black self-employment, implying that the immigrant share is not an exogenous variable in our second-stage regressions. We argue, however, that this is unlikely because the level of black self-employment is generally so low that blacks make up only a small share of the potential competitors for immigrants. Further support of this argument is provided by the finding in Bartel (1989) that recent immigrants tend to locate in SMSAs which have large numbers of previous immigrants from the same country, and that economic factors have a relatively small effect on location decisions.

Another explanation is that the positive estimates are due to unobserved MA characteristics that are correlated with black self-employment and the immigrant share. In particular, our positive coefficient estimates may be due to an omitted MA fixed effect that both increases the level of black self-employment and is positively correlated with immigration. Examples of omitted MA fixed effects affecting black self-employment include the level of consumer discrimination against minority-owned businesses, local government business development policies, consumer demand for the goods and services

produced by small businesses, and local economic conditions for small businesses. It is not unreasonable that immigrants may locate in the MAs with favorable values of these characteristics for self-employed blacks. At best, the MA-level controls currently included in our second-stage regressions serve as crude proxies for some of these factors.

1990-1980 Estimates

We address the issue of a bias in our results from unobservable MA fixed effects by estimating MA-level regressions for the change in self-employment between 1980 and 1990, again using a two-stage procedure. We first estimate a probit regression for the self-employment probability which uses pooled data from the 1980 and 1990 cross-sections. We rewrite (5.2) as:

(5.4) $$Prob(Y_{imt}=1) = \Phi(X_{imt}'\beta + \alpha_m + \delta_m D_{90}),$$

where $t=80,90$, and D_{90} is a dummy variable indicating whether the observation is from 1990. This equation controls for changes over time as well as differences across individuals in the values of characteristics such as education that are included in X_{imt}. In this equation, δ_m represents the change in the metropolitan area level determinants of self-employment for metropolitan area m. The estimates of these first-difference fixed effects become the dependent variable in the second-stage regression:

(5.5) $$\hat{\delta}_m = \tilde{Z}_m'\tilde{\gamma} + \eta_m,$$

where $\tilde{Z}_m = Z_{m90} - Z_{m80}$. This equation is a regression of the first-difference of the adjusted self-employment tendencies on the first-difference of the MA-level variables. Therefore, these estimates remove any unobserved MA characteristics that affect the

self-employment probability and are constant over time.

Specifications 3 and 6 of Table 3 provide estimates of the coefficients in equation (5.5). These regressions include first differences of all of the MA-level controls that we include in equation (5.3) for the 1980 and 1990 MA-level cross-sections. We first discuss the results for the self-employment rate, reported in Specification 3. The coefficients on the immigrant share, weighted immigrant share, and Asian immigrant share are now negative for black men. These coefficient estimates, however, are statistically insignificant and do not imply large effects. The scaled derivative estimates indicate that an additional self-employed immigrant displaces 0.03 self-employed blacks. In other words, it takes over 33 self-employed immigrants to reduce the number of self-employed black men by one. The effect of an additional self-employed Asian immigrant is even smaller. Using our sample of black women, the first-difference coefficient estimates on the immigration variables are essentially equal to zero, implying that there is no effect of immigration on black female self-employment.

The results for the self-employment ratio, reported in Specification 6, differ little from the results for the self-employment rate. For black men, the negative coefficient estimates on the immigrant, weighted, and Asian immigrant shares are smaller in absolute value or become positive. For black women, some of the coefficient estimates change sign, but all of them are still small. None of the coefficient estimates for the self-employment ratio are statistically significant, and each one implies only a very small effect of immigration on black male or female self-employment.

In general, the point estimates of the derivatives from the first-difference

regressions are negative and close to zero for black men and women. The standard errors on these derivative estimates, however, are substantial. We examine whether large negative effects can be ruled out by confidence intervals for these derivatives. Using the scaled derivative estimate on the weighted immigrant share reported in Specification 3 for black men, the symmetric 95 percent confidence interval created by subtracting and adding 1.96 times the standard error is [-0.096, 0.029]. The confidence interval for the weighted immigrant share in Specification 6 using black women is [-0.049, 0.023]. These intervals were calculated using the immigrant or weighted immigrant share derivative estimates for black men and women that have the largest (in absolute value) negative lower limits of their confidence intervals. Using the less precisely measured derivative estimates for the Asian immigrant share, the confidence intervals are [-0.178, 0.166] for black men (Specification 3) and [-0.080, 0.120] for black women (Specification 6). These findings suggest that, although our coefficients are imprecisely measured, we can rule out that each self-employed immigrant displaces more than 0.09 self-employed black men and 0.05 black women. The corresponding numbers for Asian immigrants are about twice as large because of larger standard errors, even though the point estimates are much smaller.

Additional Second-Stage Regressions

We estimate several additional second-stage regressions to check the robustness of the estimates presented above. In Table 4, we report the results from several of these

regressions using our pooled sample.[38] The samples and explanatory variables used are the same as those used in Table 3 unless noted otherwise. We first estimate the second-stage regressions using OLS.[39] These estimates are reported in Specifications 1 and 4. For black men, the coefficients on the immigration measures are more negative than those using GLS, with the exception of the Asian immigrant coefficient in the self-employment rate specification. The negative effects of immigration implied by these OLS coefficients, however, are not large and are far from being statistically significant. The comparison between the OLS and GLS coefficients for black women is similar (i.e. the OLS coefficients are more negative except for Asian immigration), however, none of the coefficients are statistically significant or imply large negative effects. Overall, the findings from our second-stage regressions using OLS do not change our conclusions regarding the effect of immigration on black self-employment.

Our first-difference estimates eliminate the bias due to MA fixed effects that are correlated with black self-employment and the immigrant share. These estimates, however, do not eliminate potential biases due to MA-specific transitory effects that are

---

[38]Although not reported, we also estimate a set of second-stage regressions that include the nonblack self-employment rate as an additional control. The coefficient estimates on the immigrant and weighted immigrant shares are very similar to those reported in Specifications 3 and 6 of Table 3 for black men and women. A few of the coefficient estimates on the Asian immigrant share are larger in absolute value, however, none of these imply large negative effects. In addition, the nonblack self-employment rate is statistically insignificant in all of the regressions.

[39]A potential problem with the GLS estimates occurs if there is an important omitted variable which is specific to one or a few of the MAs with large regression weights. Because OLS places the same weight on each observation, the effect of such an omitted variable on the coefficient estimates is lessened.

correlated with changes in black self-employment and changes in the immigrant share. In particular, immigrants may choose to live in MAs that are experiencing fast local economic growth. The MAs that are experiencing fast local economic growth are also likely to have increasing levels of black self-employment, thus causing a spurious correlation between changes in black self-employment and immigration. To address this problem, we apply the instrumental variables (IV) approach taken in Altonji and Card (1991). In particular, we use the 1980 value of our immigration measure as an instrument for the change in its value from 1980 to 1990.[40]

We report the IV results in Specifications 2 and 5 of Table 4.[41] For black men, the coefficients on the immigrant and weighted immigrant shares are now slightly more negative for the self-employment rate, but are slightly less negative for the self-employment ratio. All of these coefficients imply small negative and statistically insignificant effects of immigration on black male self-employment. For black women, the IV coefficient estimates are generally more negative for the immigrant and weighted immigrant shares, however, they remain small and statistically insignificant.

The IV coefficient estimates on the Asian immigrant share differ from the GLS coefficients. For black men, the coefficient estimate in Specification 2 implies a

---

[40]Given Bartel's (1989) finding that recent immigrants tend to locate in SMSAs that have large numbers of previous immigrants from the same country, the 1980 immigrant share should be strongly correlated with the 1980 to 1990 change in the immigrant share. In fact, the weighted correlation between the two variables is .87.

[41]The formula for the vector of second-stage coefficient estimates is: $(\tilde{Z}'\Omega^{-1}W(W'\Omega^{-1}W)^{-1}W'\Omega^{-1}\tilde{Z})^{-1}\tilde{Z}'\Omega^{-1}W(W'\Omega^{-1}W)^{-1}W'\Omega^{-1}\hat{\delta}$, where $\tilde{Z}$, Ω, $\hat{\delta}$ are as defined above, and W includes the 1980 immigration measure and first differences of the MA-level controls.

substantial negative effect of Asian immigration on black male self-employment. The derivative estimate indicates that an additional self-employed immigrant displaces 0.19 self-employed black men. This result, however, is sensitive to the definition of self-employment as the coefficient on the Asian immigrant share in Specification 5 is now positive (although very small). For black women, the coefficient in Specification 2 remains negative and small, whereas the coefficient in Specification 5 is still positive, but is now larger. In nearly all cases, the IV estimates do not differ substantially from our original estimates, and thus do not provide evidence of a negative effect of immigration on black self-employment. The one possible exception is the finding of a substantial negative, but insignificant coefficient estimate on the Asian immigrant share for black men in the self-employment rate specification.

We next estimate second-stage regressions that include a measure of black residential segregation as an additional control (reported in Specifications 3 and 6). To measure segregation, we use the dissimilarity index which is defined for a given MA as:

$$D = 0.5\sum_{j=1}^{J} \left|\frac{B_j}{B} - \frac{W_j}{W}\right|, \tag{5.6}$$

where j=1,...,J denotes census tracts, B_j and W_j are the black and white populations in census tract j, and B and W are the total black and white populations in the MA.[42] The

[42]Estimates of the dissimilarity index were taken from Harrison and Weinberg (1992). See Zax (1996) for a further discussion of the construction of this variable and other

dissimilarity index provides a measure of the unevenness of the distribution of blacks and whites in an MA and provides an estimate of what percent of blacks would have to be resettled to achieve complete integration (i.e. equal black/white population ratios in all census tracts in the MA). The index ranges from 0 indicating complete residential integration of blacks and whites to 1 indicating complete segregation. Descriptive statistics for this variable are reported in Appendix Table 2. We are limited to including only 91 MAs because the dissimilarity index is not available for a few of our original MAs. The coefficient estimates on the dissimilarity index range from 0.1804 to 0.3373 for black men and from 0.1706 to 0.5663 for black women, however, none of these coefficient estimates are statistically significant. These results provide some evidence that segregation may increase black self-employment by creating a "captive" market of black consumers who presumably do not discriminate against other blacks. Some of the coefficients on the immigrant measures change with the inclusion of the dissimilarity index, however, these changes do not affect our general conclusions regarding the effect of immigration on black self-employment. We do not find substantial negative coefficient estimates on our immigration measures in any of the specifications.

As a final check, we estimate regressions which include interactions between our measures of immigration and the dissimilarity index. It is possible that the effect of immigration on black self-employment in a local labor market depends on the level of residential segregation in that market. To explore this possibility, we first divide our sample of MAs into two groups: those with dissimilarity indices at or below the median in

---

measures of residential segregation.

1980 (low segregation MAs) and those with dissimilarity indices above the median (high segregation MAs). We then allow the effect of immigration on black self-employment to differ between the two groups.

In Table 5, we report the results for regressions that include separate immigrant and Asian immigrant share coefficients for low segregation MAs and high segregation MAs. For black men, the immigrant share coefficients are positive and small for the high segregation MAs and are negative for the low segregation MAs. The Asian immigrant share coefficients show a similar pattern except the positive coefficients for the high segregation MAs are much larger and Asian immigration increases self-employment in low segregation MAs. For each specification, we test whether the immigration coefficients are statistically different for the two groups of MAs. The coefficients are never statistically different even at the α=.10 significance level. Overall, these results do not provide evidence that immigration has a larger negative effect on black self-employment in MAs with lower levels of residential segregation.

The Migration of Self-Employed Blacks

An important issue in our analysis and in previous studies which use variation across MAs to identify the effect of immigration on native outcomes is whether natives move in response to immigration. Borjas (1994) suggests that native migration may be partly responsible for the general finding of a weak negative effect of immigration on the wages and employment of natives.[43] He argues that if native workers respond to the

[43]Also see Borjas, Freeman and Katz (1997). Card (1997) provides an alternative view.

entry of immigrants by moving to metropolitan areas which provide better opportunities, then the correlation between immigration and the outcomes of native workers will naturally be small. He cites evidence by Filer (1992) and Frey (1995) of a negative correlation between immigration and native out-migration across MAs in the United States. This issue, however, is potentially much less of a problem for our study. Because of the difficulties in transporting physical capital and established clientele, we expect the self-employed to be less mobile than wage/salary workers.

We check this hypothesis using a question on the 1990 Census which asks where the respondent lived in 1985. We calculate migration rates for self-employed and wage/salary blacks in each of the 94 MAs identified in our sample. We define the self-employed (wage/salary) migration rate as the percent of self-employed (wage/salary) blacks who lived in a different MA in 1985. Individuals are classified as self-employed or as a wage/salary worker based on their work status in 1990. The average migration rates across our 94 MAs are 0.0903 for self-employed black men and 0.1401 for wage/salary black men.[44] For black women, the average migration rates for the self-employed and wage/salary workers are 0.0783 and 0.1057, respectively. These estimates suggest that there is less geographical mobility among the self-employed. Although this finding is only suggestive, it implies that our estimates are less likely to suffer from the potential bias of

---

[44]The difference in migration rates conditioning on work status in 1985 could be larger or smaller than the difference conditioning on 1990 status. If some migrants who were previously self-employed spend a few years as wage/salary workers before reestablishing their businesses or starting new ones it might lead to a smaller difference conditioning on 1985 status. On the other hand, if the migration rate of those who are going to become self-employed soon exceeds that of those already self-employed (who have MA specific assets), then the reverse could be true.

native migration than previous studies.

5. Summary and Conclusions

We analyze immigration and black self-employment in 94 of the largest U.S. metropolitan areas using 1980 and 1990 Census microdata. We first examine the relationship between immigration and self-employment at a point in time, either 1980 or 1990. In these cross-sectional analyses, we find a statistically significant positive relationship in most cases between immigration and black self-employment. These results contradict the hypothesis that self-employed immigrants crowd out self-employed blacks. We suspect that this counterintuitive result is due to omitted metropolitan area characteristics that we cannot measure well such as the local economic conditions for small business and the extent of consumer discrimination. When we examine changes in immigration and changes in self-employment using fixed-effects estimates, we generally find a weak negative and statistically insignificant relationship. Therefore, our estimates using data on changes between 1980 and 1990 do not provide strong evidence of crowding out of black self-employment by self-employed immigrants. These findings do not change if we if use an immigration measure that weights immigrant groups by their propensity to be self-employed to account for the marked differences in self-employment between groups such as Cubans, Koreans and Mexicans. Our results are also similar if we limit our sample of immigrants to those from only Asian countries.

Our fixed-effects estimates indicates that approximately 0.02 self-employed black men and 0.01 black women are displaced by each self-employed immigrant. Calculating confidence intervals for these estimates, we can rule out the possibility that each self-employed immigrant displaces 0.09 self-employed black men and 0.05 black women. When we limit our sample of immigrants to those from Asian countries, our estimates suggest that immigration leads to increases in black self-employment about as often as decreases. Primarily due to the larger standard errors on these last estimates, we can only rule out reductions in black self-employment greater than 0.18 men and 0.08 women for each self-employed Asian immigrant.

Our results are similar using a number of alternative estimation techniques and specifications. To address the concern that MA differences in local levels of economic growth are causing a spurious correlation between changes in immigration and black self-employment, we estimate instrumental variables regressions. We use the 1980 level of immigration as an instrument for the change in immigration between 1980 and 1990, since later immigrants tend to locate in areas that have a large number of earlier immigrants. We try a number of different methods to insure that our results are not sensitive to particular definitions of self-employment or particular control variables. We try controls for population growth, changes in unemployment and in income, and the election of a black mayor. We should also note that we find that migration is less likely to disguise immigration effects on natives in the case of self-employment because the self-employed have much lower migration rates than wage/salary workers.

The results of our empirical analyses are consistent with the earlier predictions of

our theoretical model that immigration would, at most, have a small negative effect on native black self-employment. An alternative explanation for our finding is that recent immigrants may primarily displace the self-employed among earlier immigrant cohorts or native whites. It may also be the case that self-employed immigrants crowd out self-employed blacks in certain cities, industries or neighborhoods where they congregate, but we find no evidence of a substantial overall effect.

References

Aldrich, Howard E., and Roger Waldinger. 1990. "Ethnicity and Entrepreneurship." Annual Review of Sociology 16(1):111-35.

Altonji, Joseph G. and David Card. 1991. "The Effects of Immigration on the Labor Market Outcomes of Less-Skilled Natives," in Immigration, Trade, and the Labor Market, eds. John M. Abowd and Richard B. Freeman. Chicago: University of Chicago Press.

Bartel, Ann P. 1989. "Where Do the New U.S. Immigrants Live?," Journal of Labor Economics 7(4): 371-91.

Bates, Timothy. 1989. "The Changing Nature of Minority Business: A Comparative Analysis of Asian, Nonminority, and Black-Owned Businesses." The Review of Black Political Economy 18(2):25-42.

Bates, Timothy, and Darrell L. Williams. 1993. "Racial Politics: Does It Pay." Social Science Quarterly 74(3): 507-22.

Benus, Jacob M., Michelle L. Wood, Christopher J. Napierala, and Terry R. Johnson. 1992. "Massachusetts UI Self-Employment Demonstration." In Self-Employment Programs for Unemployed Workers, in Unemployment Insurance Occasional Paper 92-2, U.S. Department of Labor, Employment and Training Administration, Unemployment Insurance Service.

Borjas, George J. 1994. "The Economics of Immigration," Journal of Economic Literature 32(4): 1667-717.

Borjas, George. 1986. "The Self-Employment Experience of Immigrants." Journal of Human Resources 21(4):487-506.

Borjas, George, and Stephen Bronars. 1989. "Consumer Discrimination and Self-Employment." Journal of Political Economy 97(3):581-605.

Borjas, George J., Richard B. Freeman, and Lawrence F. Katz. 1996. "Searching for the Effect of Immigration on the Labor Market," American Economic Review Papers and Proceedings 86(2): 246-51.

Borjas, George J., Richard B. Freeman, and Lawrence F. Katz. 1997. "How Much Do Immigration and Trade Affect Labor Market Outcomes?," Brookings Papers on Economic Activity (1): 1-90.

Borjas, George, and Glen Sueyoshi. 1994. "A Two-Stage Estimator for Probit Models with Structural Group Effects." Journal of Econometrics 64(1-2):165-82.

Bound, John and Harry J. Holzer. 1996. "Demand Shifts, Population Adjustments, and Labor Market Outcomes during the 1980s," National Bureau of Economic Research, Working Paper 5685.

Boyd, Robert L. 1990. "Black and Asian Self-Employment in Large Metropolitan Areas: A Comparative Analysis." Social Problems 37: 258-73.

Brown, Charles, James Hamilton, and James Medoff (1990): Employers Large and Small,Cambridge: Harvard University Press.

Butcher, Kristin F. and David Card. 1991. "Immigration and Wages: Evidence from the 1980s," American Economic Review Papers and Proceedings 81(2): 292-96.

Butcher, Kristin F. 1997. "An Investigation of the Effect of Immigration on the Labor Market Outcomes of African-Americans," Working Paper, Boston College.

Card, David. 1997. "Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration," NBER Working Paper No. 5927.

Cayton, Horace R. and St. Clair Drake. 1946. Black Metropolis. London: Jonathan Cape.

Fairlie, Robert W. 1997. "The Absence of the African-American Owned Business: An Analysis of the Dynamics of Self-Employment." Journal of Labor Economics (forthcoming).

Fairlie, Robert W., and Bruce D. Meyer. 1996. "Ethnic and Racial Self-Employment Differences and Possible Explanations," Journal of Human Resources 31(4): 757-93.

Fairlie, Robert W., and Bruce D. Meyer. 1997a. "The Effect of Immigration on Native Self-Employment." Working Paper, Northwestern University.

Fairlie, Robert W., and Bruce D. Meyer. 1997b. "Does Immigration Hurt African-American Self-Employment?" Institute for Policy Research, Northwestern University, Working Paper WP-97-1 and Department of Economics, University of California, Santa Cruz Working Paper #380.

Fairlie, Robert W., and Bruce D. Meyer. 1997c. "Trends in Self-Employment among Black and White Men: 1910-1990." Working Paper, University of California, Santa Cruz.

Filer, Randall K. 1992. "The Effect of Immigrant Arrivals on Migratory Patterns of Native Workers," in Immigration and the Work Force: Economic Consequences for the United States and Source Areas, eds. George J. Borjas and Richard B. Freeman, 245-69. Chicago: University of Chicago Press.

Frazier, E. Franklin. 1957. The Negro in the United States, 2nd Edition. New York: McMillan.

Frey, William H. 1995. "Immigration and Internal Migration 'Flight' from US Metropolitan Areas: Toward a New Demographic Balkanisation," Urban Studies, 32(4-5): 733-57.

Friedberg, Rachel M. and Jennifer Hunt. 1995. "The Impact of Immigrants on Host Country Wages, Employment and Growth," Journal of Economic Perspectives 9(2): 23-44.

Glazer, Nathan and Daniel P. Moynihan. 1970. Beyond the Melting Pot: the Negroes, Puerto Ricans, Jews, Italians, and Irish of New York City, 2nd Edition. Cambridge: MIT Press.

Guy, Cynthia, Fred Doolittle, and Barbara Fink. 1991. Self-Employment for Welfare Recipients: Implementation of the SEID Program. New York: Manpower Demonstration Research Corporation.

Jaeger, David A. 1996. "Regional and Local Area Impacts of Immigration on Natives' Wages," Bureau of Labor Statistics Working Paper.

Joint Center for Political Studies. 1981. National Roster of Black Elected Officials 1980. Vol. 10, Washington, D.C.: JCPS.

Joint Center for Political Studies. 1991. Black Elected Officials: A National Roster 1990. Washington, D.C.: JCPS and Economic Studies Press.

Kinzer, Robert H., and Edward Sagarin. 1950. The Negro in American Business: the Conflict between Separatism and Integration. New York: Greenberg.

Light, Ivan. 1972. Ethnic Enterprise in America. Berkeley: University of California Press.

Light, Ivan. 1984. "Immigrant and Ethnic Enterprise in North America." Ethic and Racial Studies 7(2):195-216.

Light, Ivan. 1994. "The Ethnic Economy." in Handbook of Economic Sociology, eds. Neil J. Smelser and Richard Swedberg, 647-71. Princeton: Princeton University Press.

Light, Ivan and Carolyn Rosenstein. 1995. Race, Ethnicity, and Entrepreneurship in Urban America. New York: Aldine De Gruyter.

Light, Ivan and Angel A. Sanchez. 1987. "Immigrant Entrepreneurs in 272 SMSAs." Sociological Perspectives 30: 373-99.

Loewen, James W. (1971): The Mississippi Chinese: between Black and White. Cambridge: Harvard University Press.

Meyer, Bruce. 1990. "Why Are There So Few Black Entrepreneurs?" National Bureau of Economic Research, Working Paper No. 3537.

Min, Pyong Gap. 1996. Caught in the Middle: Korean Merchants in America's Multiethnic Cities. Berkeley: University of California Press.

Myrdal, Gunnar. 1944. An American Dilemma: the Negro Problem and Modern Democracy. New York: Harper and Brothers.

Reimers, Cordelia. 1997. "Unskilled Immigration and Changes in the Wage Distributions of Black, Mexican American, and Non-Hispanic While Male Dropouts," Working Paper, Hunter College.

U.S. Bureau of the Census. 1992. Characteristics of Business Owners. Washington: USGPO.

U.S. Bureau of the Census. 1993. Census of Population and Housing, 1990: Public Use Microdata Sample U.S. Technical Documentation. Washington: USGPO.

Yoon, In-Jin. 1991. "Immigrant Entrepreneurship: Korean Business in Chicago." Working Paper, University of Chicago.

Yuengert, Andrew M. 1995. "Testing Hypotheses of Immigrant Self-Employment." Journal of Human Resources 30(1):194-204.

Zax, Jeffrey S. 1996. "Segregation, Immigration and Black Welfare," Working Paper, University of Colorado.

Bruce Meyer
Rob Fairlie

Table 1
1990 Industry Distribution of the Self-Employed
By Immigrant Status, Race, and Gender

	Industry Distribution						Immigrant Share of Self-Employed	
	Native Blacks		Native Whites		Immigrants			
Industry Category	Males	Females	Males	Females	All	Asian	All	Asian
Mining	0.0014	0.0006	0.0058	0.0014	0.0009	0.0003	0.0254	0.0020
Construction	0.2180	0.0182	0.2171	0.0352	0.1107	0.0357	0.0756	0.0066
Manuf. - Nondurables	0.0200	0.0260	0.0251	0.0335	0.0366	0.0413	0.1371	0.0418
Manuf. - Durables	0.0402	0.0126	0.0539	0.0262	0.0418	0.0249	0.1002	0.0161
Trans., Comm., and Utils.	0.1063	0.0180	0.0485	0.0230	0.0490	0.0309	0.1211	0.0206
Wholesale Trade - Durs.	0.0163	0.0040	0.0294	0.0136	0.0189	0.0173	0.0861	0.0213
Wholesale - Nondurs.	0.0129	0.0087	0.0257	0.0161	0.0320	0.0358	0.1463	0.0441
Retail Trade	0.1120	0.1357	0.1509	0.1995	0.2532	0.3694	0.1550	0.0610
Fin., Ins., and Real Estate	0.0573	0.0494	0.0817	0.0862	0.0552	0.0566	0.0747	0.0206
Busn. and Repair Services	0.1545	0.1271	0.1135	0.1073	0.1023	0.0556	0.0967	0.0142
Personal Services	0.0564	0.1822	0.0282	0.1083	0.0718	0.1028	0.1334	0.0516
Enter. and Rec. Services	0.0251	0.0116	0.0188	0.0219	0.0153	0.0118	0.0842	0.0175
Professional Services	0.1173	0.4019	0.1681	0.3166	0.1773	0.1996	0.0901	0.0274
Other	0.0623	0.0041	0.0333	0.0113	0.0351	0.0180	0.1295	0.0179
Total	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.1062	0.0286

Notes: For entire U.S., those 16-64 working at least 15 hours per week and at least 20 weeks last year and who are not in agriculture, weighted by Census sample weights.

Table 2
Descriptive Statistics for Metropolitan Area Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
1980				
Self-Employment Rate, Black Men	0.0367	0.0133	0.0107	0.0747
Self-Employment Rate, Black Women	0.0138	0.0072	0.0035	0.0526
Self-Employment Ratio, Black Men	0.0352	0.0124	0.0058	0.0690
Self-Employment Ratio, Black Women	0.0124	0.0055	0.0033	0.0313
Immigrant Share of Population	0.0529	0.0527	0.0102	0.2781
Weighted Immigrant Share using SE rate	0.0528	0.0440	0.0114	0.2615
Weighted Immigrant Share using SE ratio	0.0526	0.0442	0.0112	0.2699
Asian Immigrant Share	0.0100	0.0164	0.0007	0.1377
Black Share of Population	0.1369	0.0909	0.0184	0.3826
1990				
Self-Employment Rate, Black Men	0.0371	0.0145	0.0066	0.1036
Self-Employment Rate, Black Women	0.0220	0.0091	0.0033	0.0604
Self-Employment Ratio, Black Men	0.0384	0.0128	0.0156	0.0926
Self-Employment Ratio, Black Women	0.0221	0.0073	0.0046	0.0548
Immigrant Share of Population	0.0696	0.0752	0.0117	0.3930
Weighted Immigrant Share using SE rate	0.0706	0.0645	0.0144	0.3677
Weighted Immigrant Share using SE ratio	0.0701	0.0647	0.0144	0.3766
Asian Immigrant Share	0.0180	0.0230	0.0032	0.1678
Black Share of Population	0.1431	0.0937	0.0236	0.3988
1990-1980				
Self-Employment Rate, Black Men	0.0004	0.0157	-0.0527	0.0509
Self-Employment Rate, Black Women	0.0082	0.0098	-0.0249	0.0442
Self-Employment Ratio, Black Men	0.0032	0.0117	-0.0228	0.0470
Self-Employment Ratio, Black Women	0.0097	0.0079	-0.0195	0.0332
Immigrant Share of Population	0.0167	0.0261	-0.0073	0.1244
Weighted Immigrant Share using SE rate	0.0178	0.0238	-0.0078	0.1156
Weighted Immigrant Share using SE ratio	0.0175	0.0237	-0.0079	0.1161
Asian Immigrant Share	0.0080	0.0091	-0.0023	0.0529
Black Share of Population	0.0062	0.0116	-0.0278	0.0432

Notes: From 94 metropolitan area sample of those 16-64. The *self-employment rate* is the fraction of the employed that is self-employed. The *self-employment ratio* is the fraction of the noninstitutional, not in school population that is self-employed. The *immigrant, Asian immigrant, black*, and *weighted immigrant* shares are shares of the population of both genders. Census sample weights are used in 1990.

Table 3

Two-Stage Probit Estimates of Self-Employment Rate and Self-Employment Ratio with Scaled Derivatives, GLS Second Stage

Sample and Immigration Measure	Self-Employment Rate			Self-Employment Ratio		
	1980	1990	1990-1980	1980	1990	1990-1980
	(1)	(2)	(3)	(4)	(5)	(6)
Native Black Men						
I. Immigrant Share	1.0442	0.7865	-0.6809	0.7235	0.9156	-0.2878
	(0.2153)	(0.2127)	(0.6591)	(0.2968)	(0.1159)	(0.4955)
Scaled Derivative	0.0470	0.0345	-0.0301	0.0367	0.0433	-0.0141
II. Weighted Immigrant Share	1.0462	0.8721	-0.7611	0.7401	0.9415	-0.3379
	(0.2358)	(0.2528)	(0.7239)	(0.3337)	(0.1450)	(0.5475)
Scaled Derivative	0.0471	0.0382	-0.0337	0.0376	0.0445	-0.0165
III. Asian Immigrant Share	2.0118	0.9790	-0.1442	0.5872	1.9012	0.1007
	(0.9438)	(0.7230)	(2.1090)	(1.2197)	(0.4563)	(1.6215)
Scaled Derivative	0.0887	0.0392	-0.0060	0.0297	0.0859	0.0048
Native Black Women						
I. Immigrant Share	0.2553	0.5436	-0.0435	0.2217	0.5054	-0.5235
	(0.2028)	(0.1985)	(0.4150)	(0.1615)	(0.1300)	(0.5757)
Scaled Derivative	0.0045	0.0148	-0.0010	0.0051	0.0166	-0.0150
II. Weighted Immigrant Share	-0.1153	0.5729	0.0701	-0.0993	0.4977	-0.4502
	(0.2262)	(0.2345)	(0.4529)	(0.1757)	(0.1473)	(0.6450)
Scaled Derivative	-0.0021	0.0156	0.0016	-0.0023	0.0163	-0.0129
III. Asian Immigrant Share	2.9521	2.3253	-0.1580	1.7495	2.2937	0.7344
	(1.0305)	(0.7280)	(1.4159)	(0.8556)	(0.4583)	(1.8350)
Scaled Derivative	0.0514	0.0578	-0.0034	0.0404	0.0718	0.0204

Notes: From 94 metropolitan area sample of those aged 16-64. *Standard errors* are reported in parentheses. The *scaled derivative* approximates the change in the number of native self-employed blacks when the number of self-employed immigrants (or Asian immigrants) increases by one. The *self-employment rate* is the fraction of the employed that is self-employed. The *self-employment ratio* is the fraction of the noninstitutional, not in school population that is self-employed. The *immigrant*, *weighted immigrant*, and *Asian immigrant shares* are shares of the population of both genders. The *weighted immigrant share* weights immigrant groups by their self-employment rate (or ratio). All specifications include the following control variables: black share of the population, log average income of natives, black mayor, native unemployment rate, and log native population. The Asian immigrant share specifications also include the non-Asian immigrant share as a control variable.

Table 4
Two-Stage Probit Estimates of Self-Employment Rate and Self-Employment Ratio with Scaled Derivatives, Alternative Specifications for 1990-1980

Sample and Immigration Measure	Self-Employment Rate			Self-Employment Ratio		
	OLS	IV	Segregation Included	OLS	IV	Segregation Included
	(1)	(2)	(3)	(4)	(5)	(6)
Native Black Men						
I. Immigrant Share	-1.4465	-0.9538	-0.5303	-0.5414	-0.0865	-0.0294
	(0.8273)	(0.7510)	(0.7173)	(0.6555)	(0.5603)	(0.5005)
Scaled Derivative	-0.0640	-0.0422	-0.0235	-0.0265	-0.0042	-0.0014
II. Weighted Immigrant Share	-1.6953	-1.0889	-0.5944	-0.5748	-0.2102	-0.0649
	(0.9217)	(0.8754)	(0.7826)	(0.7358)	(0.6554)	(0.5455)
Scaled Derivative	-0.0750	-0.0482	-0.0263	-0.0281	-0.0103	-0.0032
III. Asian Immigrant Share	0.9789	-4.6305	0.2332	-0.7670	0.5821	0.6077
	(2.7370)	(2.9009)	(2.1357)	(2.2404)	(2.1465)	(1.5253)
Scaled Derivative	0.0408	-0.1929	0.0097	-0.0365	0.0277	0.0289
Native Black Women						
I. Immigrant Share	-0.7200	-0.0855	0.1483	-1.4537	-0.6471	-0.2902
	(1.1134)	(0.4657)	(0.4531)	(0.8581)	(0.6536)	(0.6385)
Scaled Derivative	-0.0163	-0.0019	0.0034	-0.0416	-0.0185	-0.0083
II. Weighted Immigrant Share	-0.4844	0.0168	0.2935	-1.2352	-0.6122	-0.1805
	(1.1454)	(0.5615)	(0.4860)	(0.9326)	(0.7760)	(0.7038)
Scaled Derivative	-0.0110	0.0004	0.0067	-0.0353	-0.0175	-0.0052
III. Asian Immigrant Share	3.6749	-0.3314	-0.0267	1.4758	1.3280	0.8589
	(3.4483)	(1.6415)	(1.4395)	(2.9426)	(2.3031)	(1.9065)
Scaled Derivative	0.0784	-0.0071	-0.0006	0.0411	0.0370	0.0239

Notes: See Table 3. The *OLS* columns use OLS in the second stage. The *IV* columns use the 1980 immigration variable to instrument for the change between 1980 and 1990. The *segregation included* columns include the dissimilarity index to measure segregation and only include 91 metropolitan areas.

Bruce Meyer
Rob Fairlie

Table 5

Two-Stage Probit Estimates of Self-Employment Rate and Self-Employment Ratio with Scaled Derivatives, 1990-1980 GLS with Segregation Interactions

Sample and Immigration Measure	SE Rate (1)	SE Ratio (2)
Native Black Men		
I. Immigrant Share*High Segregation	0.1433	0.1505
	(0.8220)	(0.5678)
Scaled Derivative	0.0063	0.0074
Immigrant Share*Low Segregation	-1.8771	-0.5552
	(1.0774)	(0.7772)
Scaled Derivative	-0.0831	-0.0271
II. Asian Immigrant Share*High Segregation	3.5461	3.4537
	(3.5486)	(2.4034)
Scaled Derivative	0.1477	0.1644
Asian Immigrant Share*Low Segregation	0.3048	-0.4774
	(2.5437)	(1.8473)
Scaled Derivative	0.0127	-0.0227
Native Black Women		
I. Immigrant Share*High Segregation	0.3640	0.0080
	(0.4828)	(0.7126)
Scaled Derivative	0.0082	0.0002
Immigrant Share*Low Segregation	0.4249	-1.1204
	(0.7976)	(1.0025)
Scaled Derivative	0.0096	-0.0320
II. Asian Immigrant Share*High Segregation	-2.7640	-0.2354
	(2.2280)	(2.9560)
Scaled Derivative	-0.0589	-0.0066
Asian Immigrant Share*Low Segregation	0.4558	2.5819
	(1.8696)	(2.2057)
Scaled Derivative	0.0097	0.0719

Notes: See Table 3. *High segregation* and *low segregation* are indicators for a metropolitan area being above or below median in the dissimilarity index, respectively. The Asian immigrant share specifications also include non-Asian immigrant share interactions with the segregation indicators as additional control variables. Only 91 metropolitan areas are included in these specifications.

Bruce Meyer
Rob Fairlie

Bruce Meyer
Rob Fairlie

Appendix Table 1
Metropolitan Areas with their Two Letter Codes

AL	ALBANY-SCHENECTADY-TROY, NY
AT	ATLANTA, GA
AC	ATLANTIC CITY, NJ
AG	AUGUSTA, GA-SC
AS	AUSTIN, TX
BK	BAKERSFIELD, CA
BL	BALTIMORE, MD
BT	BATON ROUGE, LA
BM	BEAUMONT-PORT ARTHUR, TX
BR	BIRMINGHAM, AL
BS	BOSTON-LAWRNCE-SALM-LWLL-BROCKTN, MA (N)
BF	BUFFALO-NIAGARA FALLS, NY(C)
CN	CANTON, OH
CR	CHARLESTON, SC
CT	CHARLOTTE-GASTONIA-ROCK HILL, NC-SC
CG	CHATTANOOGA, TN-GA
CH	CHICAGO-GARY-LAKE CNTY,IL-IN-WI (C)
CI	CINCINNATI-HAMILTON, OH-KY-IN (C)
CL	CLEVELAND-AKRON-LORAIN, OH (C)
CS	COLORADO SPRINGS, CO
CA	COLUMBIA, SC
CU	COLUMBUS, OH
DL	DALLAS-FORT WORTH, TX (C)
DY	DAYTON-SPRINGFIELD, OH
DB	DAYTONA BEACH, FL
DV	DENVER-BOULDER, CO (C)
DT	DETROIT-ANN ARBOR, MI (C)
EP	EL PASO, TX
FA	FAYETTEVILLE, NC
FL	FLINT, MI
FP	FORT PIERCE, FL
FW	FORT WAYNE, IN
FR	FRESNO, CA
GR	GRAND RAPIDS, MI
GB	GREENSBORO-WINSTON-SALEM-HIGH PT.,NC
GV	GREENVILLE-SPARTANBURG, SC
HB	HARRISBURG-LEBANON-CARLISLE, PA
HF	HARTFRD-NEW BRITN-MDDLETWN-BRSTL, CT (N)
HN	HONOLULU, HI
HO	HOUSTON-GALVESTON-BRAZORIA, TX (C)
IN	INDIANAPOLIS, IN
JS	JACKSON, MS
JV	JACKSONVILLE, FL
KC	KANSAS CITY, MO-KS
KI	KILLEEN-TEMPLE, TX
KN	KNOXVILLE, TN
LL	LAKELAND-WINTER HAVEN, FL
LV	LAS VEGAS, NV
LX	LEXINGTON-FAYETTE, KY
LR	LITTLE ROCK-NORTH LITTLE ROCK, AR
LA	LOS ANGELES-ANAHEIM-RIVERSIDE, CA (C)
LO	LOUISVILLE, KY-IN
MA	MACON-WARNER ROBINS, GA
ML	MELBOURNE-TITUSVILLE-PALM BAY, FL
ME	MEMPHIS, TN-AR-MS
MI	MIAMI-FORT LAUDERDALE, FL (C)
MW	MILWAUKEE-RACINE, WI (C)
MN	MINNEAPOLIS-ST. PAUL, MN-WI
MB	MOBILE, AL
MO	MONTGOMERY, AL
NA	NASHVILLE, TN
NO	NEW ORLEANS, LA
NR	NORFOLK-VA BEACH-NEWPORT NEWS, VA
NY	NY-NORTHERN NJ-LONG ISL, NY-NJ-CT (C)
OK	OKLAHOMA CITY, OK
OM	OMAHA, NE-IA
OR	ORLANDO, FL
PE	PENSACOLA, FL
PH	PHILLY-WILMNGTN-TRENTON,PA-NJ-DE-MD (C)
PX	PHOENIX, AZ
PI	PITTSBURGH-BEAVER VALLEY, PA (C)
PO	PORTLAND-VANCOUVER, OR-WA (C)
PR	PROVIDENCE-PAWTUCKET-WOONSOCKET, RI (N)
RA	RALEIGH-DURHAM, NC
RI	RICHMOND-PETERSBURG, VA
RO	ROCHESTER, NY
SC	SACRAMENTO, CA
SG	SAGINAW-BAY CITY-MIDLAND, MI
SS	SALINAS-SEASIDE-MONTEREY, CA
SA	SAN ANTONIO, TX
SD	SAN DIEGO, CA
SF	SAN FRANCISCO-OAKLAND-SAN JOSE, CA (C)
ST	SEATTLE-TACOMA, WA (C)
SH	SHREVEPORT, LA
SP	SPRINGFIELD, MA
SL	ST. LOUIS, MO-IL
SY	SYRACUSE, NY
TA	TAMPA-ST. PETERSBURG-CLEARWATER, FL
TO	TOLEDO, OH
TU	TULSA, OK
WP	W. PALM BCH-BOCA RATON-DELRAY BCH, FL
DC	WASHINGTON, DC-MD-VA
WI	WICHITA, KS
YO	YOUNGSTOWN-WARREN, OH

Appendix Table 2
Descriptive Statistics for Additional Metropolitan Area Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
1980				
Log Average Income of Natives 16-64	9.8282	0.1125	9.5618	10.1137
Black Mayor	0.0957	0.2958	0.0000	1.0000
Native Unemployment Rate	0.0641	0.0205	0.0300	0.1382
Log Native Population 16-64	13.2215	0.9156	11.6335	16.0749
Dissimilarity Index (N=91)	0.6864	0.1168	0.3270	0.8970
1990				
Log Average Income of Natives 16-64	9.8906	0.1344	9.6088	10.2624
Black Mayor	0.2128	0.4115	0.0000	1.0000
Native Unemployment Rate	0.0616	0.0152	0.0339	0.1057
Log Native Population 16-64	13.3373	0.8866	11.8004	16.0625
Dissimilarity Index (N=91)	0.6358	0.1229	0.2270	0.8760
1990-1980				
Log Average Income of Natives 16-64	0.0623	0.0827	-0.1602	0.2501
Black Mayor	0.1170	0.3549	-1.0000	1.0000
Native Unemployment Rate	-0.0024	0.0173	-0.0417	0.0440
Log Native Population 16-64	0.1159	0.1527	-0.1752	0.7239
Dissimilarity Index (N=91)	-0.0506	0.0388	-0.1560	0.0370

Notes: From 94 metropolitan area sample of those 16-64.

Bruce Meyer
Rob Fairlie

Figure 1
1980 Black Male Self Employment Rate Versus Immigrant Share

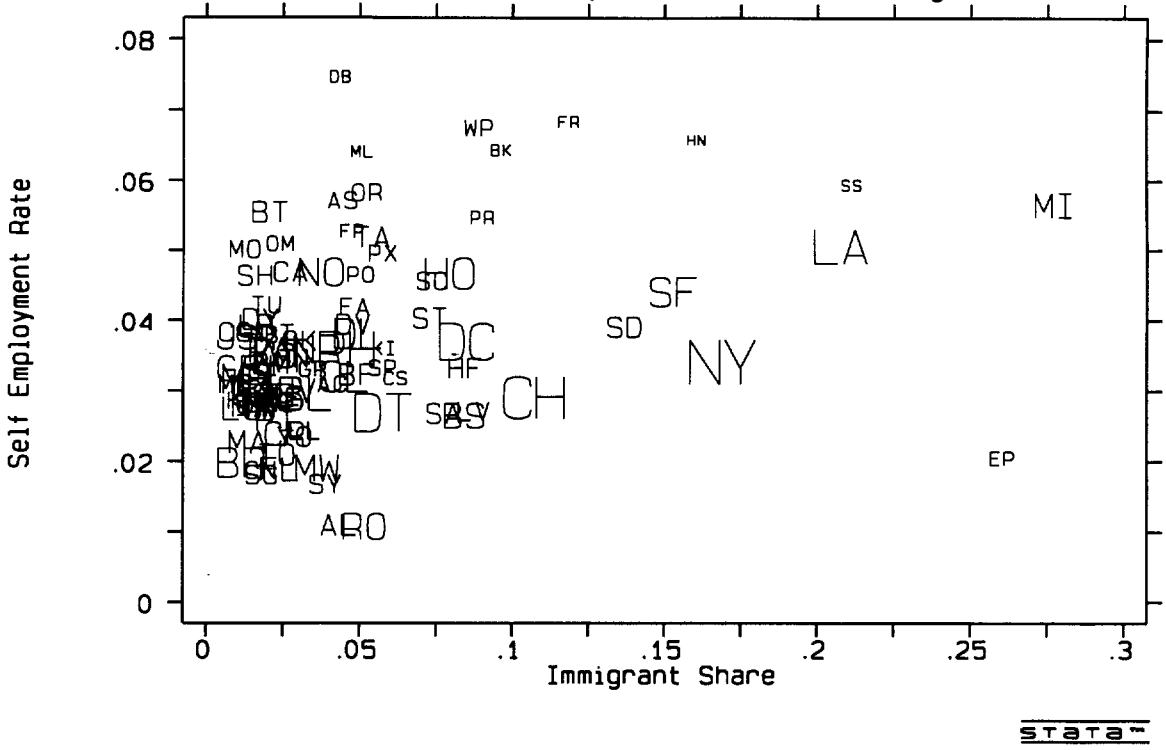

Figure 2
1990 Black Male Self Employment Rate Versus Immigrant Share

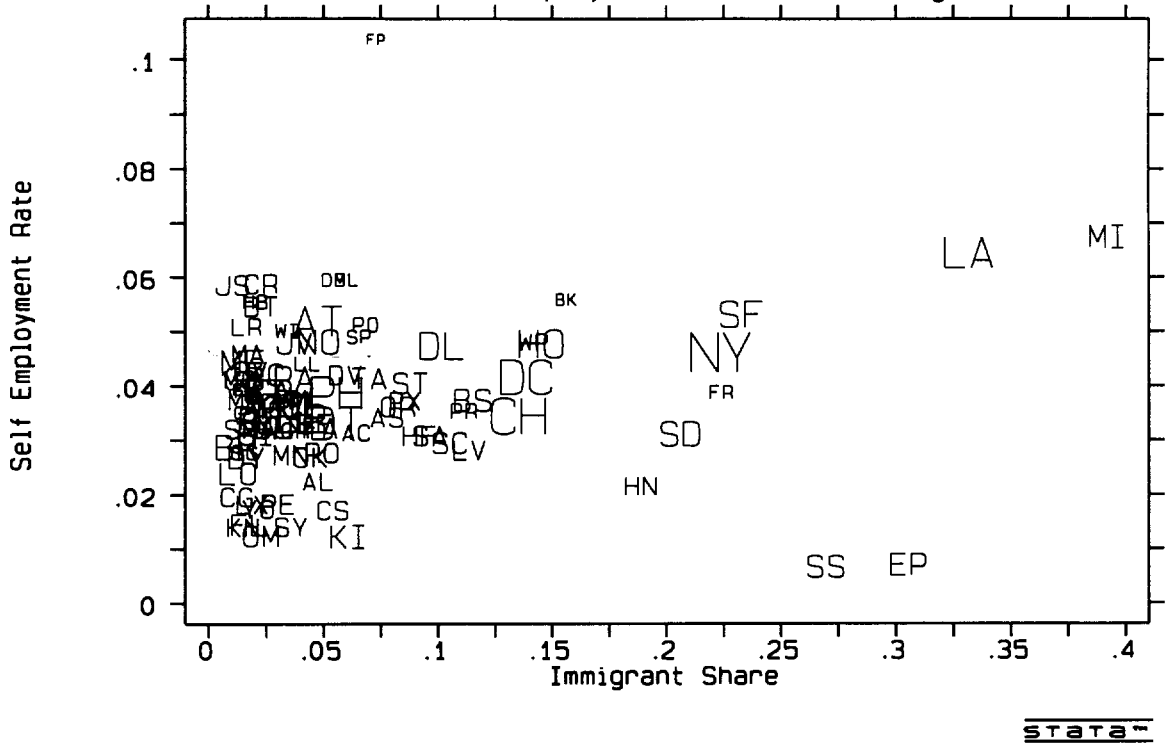

Figure 3
1990-1980 Black Male Self Employment Rate Versus Immigrant Share

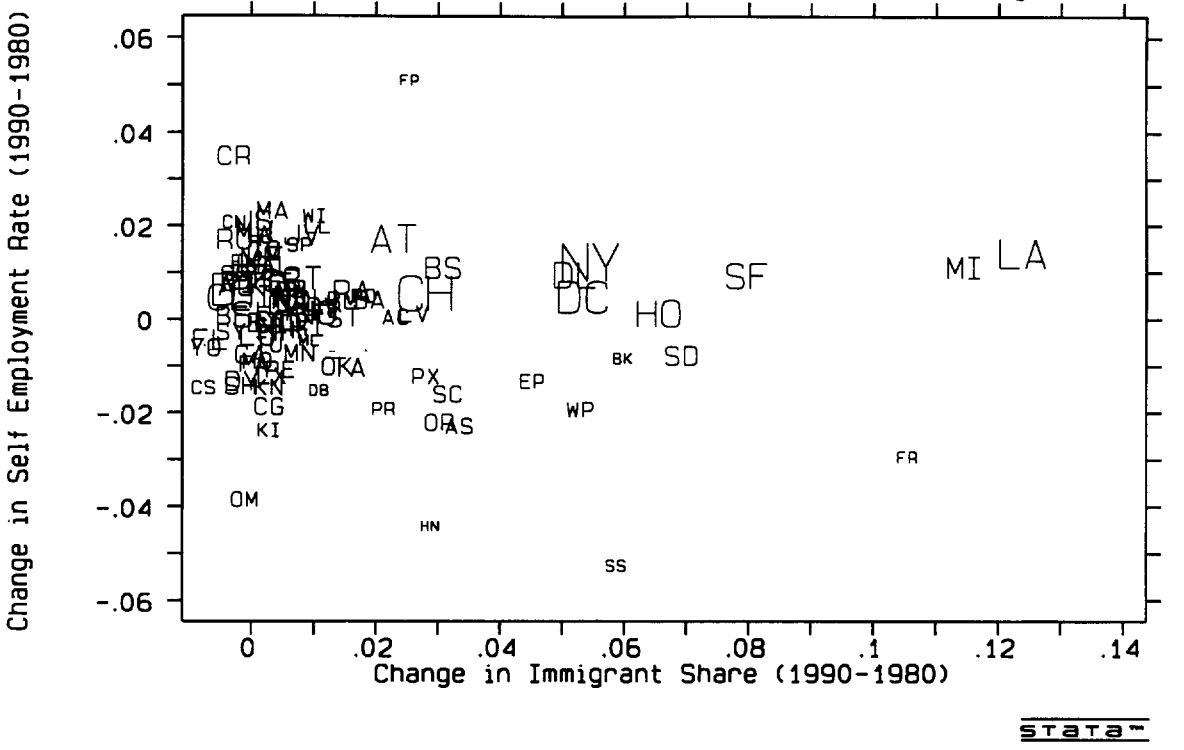

Figure 4
1980 Black Female Self Employment Rate Versus Immigrant Share

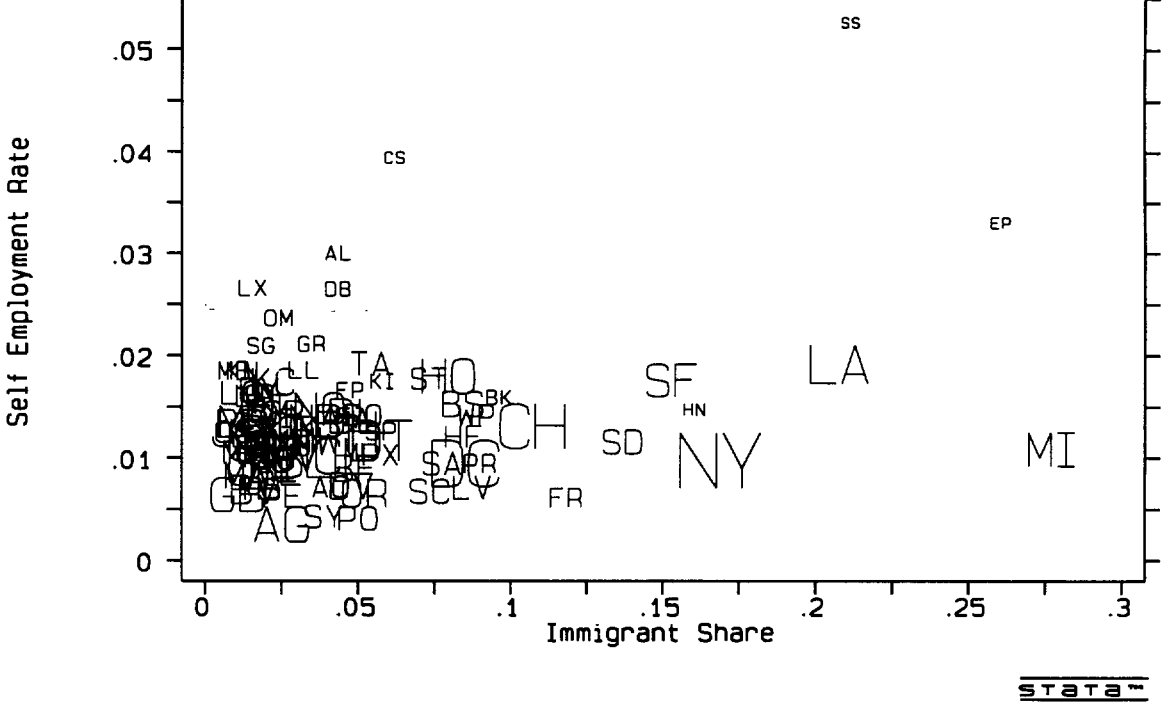

Figure 5
1990 Black Female Self Employment Rate Versus Immigrant Share

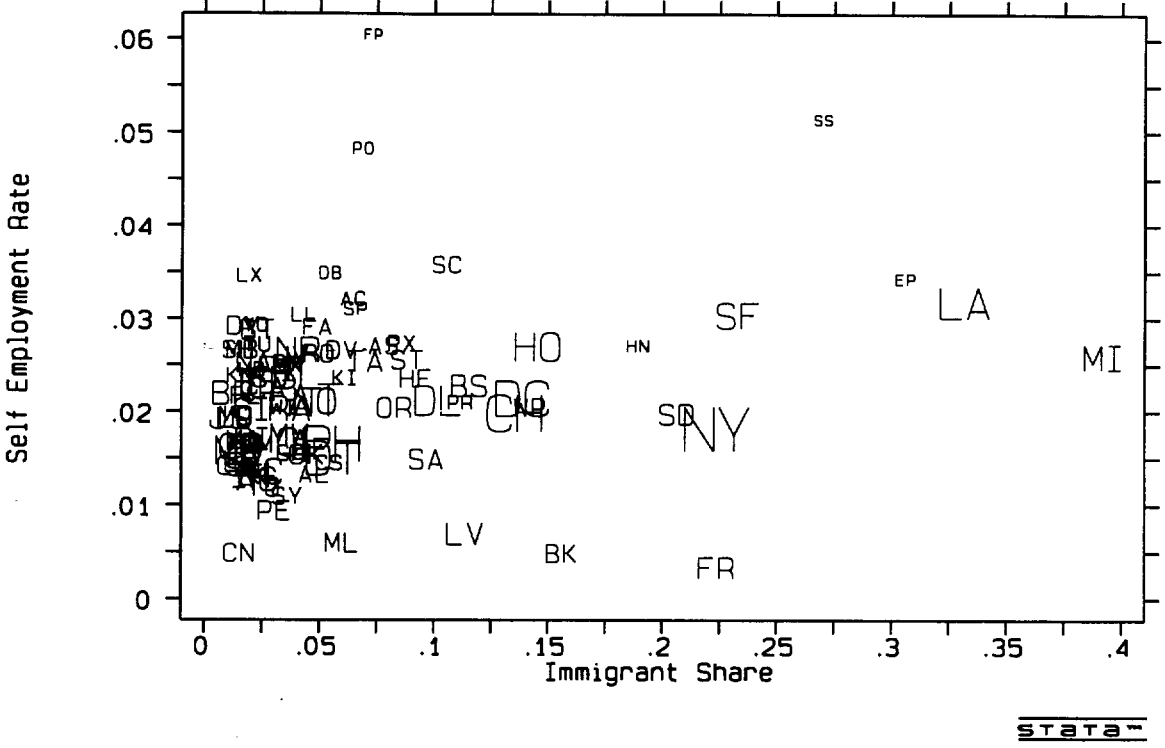

Figure 6
1990-1980 Black Female Self Employment Rate Versus Immigrant Share