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Self-Employment and the Earnings of Male Immigrants in the U.S.

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ABSTRACT

Immigrants enter self-employment more often than native workers; comparisons of immigrant and native earnings must somehow incorporate the self-employed. A two-sector model is used to test several theories of immigrant self-employment; the model provides no evidence of selection into either sector, but rejects the equality of wage and self-employment earnings functions. Incorporating these results, estimates of immigrant earnings growth are calculated. They suggest that self-employed immigrant assimilation rates are higher than wage-employed rates. When an immigrant groups contains lots of self-employed workers, excluding them will bias downwards estimates of immigrant assimilation.

1 Introduction

Research into the earnings of recent immigrants to the United States (Chiswick[1978] and [1986], Borjas[1985] and [1987], and Jasso and Rosenzweig[1986] and [1987]) overlooks an important phenomenon among the immigrant population. Immigrants have higher self-employment rates than the native-born; moreover, immigrant self-employment rates grew more quickly over the decade of the seventies. In order to better understand how immigrants fare in the U.S. market, one must better understand why they choose self-employment more often than the native-born.

The self-employed present a difficult problem for any investigation into wages or earnings. Because of greater underreporting (U.S. Internal Revenue Service[1979]), self-employment earnings are less reliable than reported wage and salary earnings; moreover, one hesitates to assume that the observed average wage in self-employment represents the marginal product of labor in self-employment. Thus, many analyses of immigrant wages exclude self-employed workers. This exclusion may have substantial effects on cross-section, panel, or cohort studies of immigrant earnings.

The goals of this study are twofold. First, it will establish that the self-employment experience of immigrants differs from that of the native-born, and that previous exclusions of the self-employed from studies of immigrant earnings may lead to misleading conclusions about the relative rate of immigrant earnings growth. Second, this study investigates the determinants of self-employment in the framework of a 2-sector switching

regressions model. I will examine the self-employment patterns of six immigrant ethnic groups : Whites (non-Hispanics), Blacks, Asians, Cubans, Mexicans, and other Hispanics.

The chapter is divided as follows : section two examines the self-employment rates for immigrant and native-born workers, and demonstrates the effect of excluding the self-employed in a brief example. Section three discusses several theories of self-employment, and briefly surveys previous studies of self-employment. Section four outlines a switching regressions model of earnings. Section five discusses data and variables. Section six presents and discusses the results of estimation, and section seven incorporates into a measure of immigrant assimilation the results of section six. Section eight concludes the chapter.

2 The Importance of Immigrant Self-employment

2.1 Comparing Self-employment Rates

Table 1 presents estimates of self-employment rates for immigrant and native-born ethnic groups in 1970. Table 2 presents self-employment rates for the same groups in 1980. Each immigrant group is divided into three cohorts, based on year of immigration : 1950-59, 1960-64, and 1965-69. In addition, the sample contains only those who were 18-54 years old in 1970, and 28-64 years old in 1980.[1]

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[1]These results are for all males, regardless of labor force

Several clear patterns emerge from table 1. Notice first the White rates in 1970 : immigrant cohorts that arrived in the U.S. earlier have higher self-employment rates, either because they have been in the country longer (and thus had time to accumulate capital and learn about the U.S. market), or because of some other unobserved trait that varies across cohorts. Native Whites have a higher rate of self-employment than immigrant cohort 1965-69, but only one-half the self-employment rates of the 1960-64 and 1950-59 cohorts. Table 2 shows that, in 1980, self-employment rates are significantly higher than in 1970 for every White cohort. Note, however, that immigrant self-employment rates are at least 7 percentage points higher than the native rate - the rate for cohort 1965-69 quadruples, the rate for cohort 1960-64 doubles, and the rate for cohort 1950-59 grows by 50%. In short, White immigrant self-employment rates are higher than White native rates, and grew faster over the decade of the seventies.[2]

The five other ethnic groups in Tables 1 and 2 differ only slightly from the White pattern. In 1970, self-employment rates for the native-born are smaller than the rates for earlier immigrants, and larger than the rate for immigrants who arrived

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status. They are only slightly different if the sample is restricted to full-time workers.

[2]A breakdown of self-employment rates by age indicates that the growth in self-employment is a result of a surge of self-employment among the younger age groups. Self-employment rates change little for older age groups. This result appears to contradict the finding of Fuchs[1982] that older workers move into self-employment in order to reduce their hours or to continue to work at a lower wage. Fuchs's study observed an older cohort of males from 1969 to 1973, however.

during 1965-69. In 1980, immigrant self-employment rates double or triple, while native-born rates of self-employment grow little or not at all. Later immigrant groups (those who arrived in 1965-69) have the largest rates of growth in self-employment. Mexican and Black immigrants have the lowest rates of self-employment, and self-employment growth : The highest rate of self-employment among these two groups is 8.05%. Neither the native-born of Mexican descent nor native-born Blacks experienced much growth in self-employment from 1970 to 1980, however. Asian, Cuban, and Other Hispanic immigrants have large jumps in self-employment during the seventies, similar to the White pattern.[3]

One must be careful about how much weight to place on a comparison of the 1970 and 1980 self-employment estimates. Recent research suggests that return migration and the increased coverage of illegal aliens in the 1980 Census affect the composition of observed immigrant cohorts over time.[4] These composition changes may partially explain the increases in self-employment. Say, for example, that the self-employed are less likely to remigrate (because of a non-transferable investment in

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[3]One explanation for high immigrant self-employment rates is that immigrants happen to enter industries and occupations that have high self-employment rates. Instead of explaining self-employment rates, according to this argument, one should seek to explain the choice of industry or occupation. A breakdown of immigrant and native workers into broad industry-occupation classifications, however, reveals that 60-90% of the immigrant-native self-employment differential is due to higher immigrant self-employment rates in the same types of jobs.

[4]Jasso and Rosenzweig[1982] estimate emigration rates for several immigrant groups of anywhere between 20 and 50 percent during the 70's. Passel and Woodrow[1984] estimate that 2 million illegal aliens were counted in the 1980 Census.

U.S. capital, perhaps). Cohorts which experience large remigrations will appear to have rising self-employment rates.

2.2 The Impact of the Self-employed on Assimilation Rate Estimates

Tables 1 and 2, subject to the caution suggested by remigration and illegal immigration, suggest that self-employment rates are higher for immigrants than for the native-born, and that this difference in self-employment rates increased over the seventies. These patterns have implications for earnings studies that exclude the self-employed from their samples. If self-employment constitutes an improvement in one's economic condition, the exclusion of the self-employed from a comparison of cohort earnings in 1970 and 1980 will understate immigrant relative earnings growth. Conversely, if immigrants are negatively selected into self-employment, immigrant earnings growth will be understated.

Borjas[1985] excludes the self-employed from his working samples. He runs wage regressions on 1970 and 1980 U.S. Census data, and constructs estimates of immigrant assimilation rates (relative wage growth) by comparing predicted relative wages for the same immigrant cohort in 1970 and 1980, controlling for education, experience, and several other variables. Because he finds weak or insignificant rates of immigrant assimilation, contradicting previous studies, it is fruitful to check the sensitivity of his results to the exclusion of the self-employed.

Table 3 presents two sets of assimilation rate estimates using Borjas's procedure; the first set of estimates excludes the self-employed, the second set includes them.[5] In line with Borjas's methodology, the native control group is the native-born ethnic counterpart for each group except the Cuban (there are few native-born Americans of Cuban descent). Both sets of assimilation rate estimates for the White sample are significantly positive, but they are larger when the self-employed are included. The estimates increase by about 20% for the 1965-69 and 1960-64 cohorts, and by 40% for the 1950-59 cohort. Estimated relative wage growth is 2-3 percentage points higher for white immigrant cohorts when the self-employed are added to the sample. The estimates are more striking for the Asians. Although the estimate for the 1950-59 cohort decreases slightly when the self-employed are added, the other cohort estimates increase by 4-6 percentage points. The 1965-69 and 1960-64 estimates increase by 25%, and the 1960-64 estimate becomes significantly positive.[6]

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[5]There are several differences between Borjas's original procedure and this replication, the most noticeable difference being that, whereas Borjas ran log wage regressions, the replication uses log earnings regressions. The results are not sensitive to this choice of dependent variable. This replication excludes non-full time workers, immigrants who arrived in the U.S. prior to 1950, and workers whose full-time wage was lower than one-half the minimum wage or greater than $100 per hour. (See section five for a fuller discussion of these selection rules.)

[6]Assimilation rate estimates, calculated for four other immigrant groups, (Blacks, Mexicans, Cubans, and Other Hispanics), were only slightly larger or smaller when the self-employed were added to the sample. Since self-employment rates are relatively small for all of these groups (except the Cubans), their effect on the full sample's earnings is limited.

The estimates from Table 3 suggest that the self-employed component of any immigrant cohort cannot be deleted without consequence. How they are to be included in the analysis of earnings is not clear, however. In order to include them in the assimilation rate estimates, one must explore the determinants of sector choice (self- versus wage employment) and the determinants of earnings in the two sectors. For example, if there exists significant selection into either sector, the Ordinary Least Squares coefficient estimates may be biased; In the case of significant selection, the assimilation rate estimates must make use of the selection terms and consistent, selectivity-corrected coefficient estimates. If the earnings functions for wage- and self-employment earnings are significantly different, the coefficient estimates from a single, pooled regression will be inconsistent. If the two types of workers cannot be 'lumped together' as in column two of table 3, the proper estimate of cohort earnings becomes some weighted average of earnings in both sectors. The following four sections attempt to gain some insight into the determinants of sectoral choice and earnings.

3 Previous Studies, and Candidate Theories, of Self-employment

Recent empirical work has explored several aspects of the self-employment decision. Rees and Shah[1986], Blau[1985], and Vijverberg[1985] investigate the effects of human capital and demographic variables; Long[1982] and Blau[1987] point to the effect of the income tax burden; Fuchs[1982] looks at the effect of old age; Borjas[1986] investigates the effect of immigrant

enclaves.

Several hypotheses, formulated in terms of human capital theory, seek to explain the self-employment decision in general, and the immigrant self-employment decision in particular. They are :

1) differential taxation of wage and self-employment earnings,

2) immigrant enclaves,

3) origin country labor market characteristics (affecting pre-immigration labor market experience), and

All three hypotheses are tested in this analysis.[7]

Several researchers have pointed out the effect of the income tax system on the self-employment decision. Long[1982] stresses two of the tax benefits of being self-employed in the U.S. First, the self-employed may easily evade tax reporting by taking payments in cash. This option is unavailable to salaried workers because of federal withholding provisions. The Internal Revenue Service[1979] estimates that, in 1976, the self-employed reported

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[7]A fourth possible explanation for immigrant self-employment is discrimination in the labor market. For whatever reason (employers either have 'tastes' for discrimination or imperfectly interpret immigrant education and experience signals), an immigrant with high ability will not realize his potential earnings in the discriminatory wage sector, and will have to employ himself to realize his full earnings potential. In the presence of labor market discrimination, one expects to find a larger immigrant-to-native earnings ratio in self-employment than in wage-employment. Unfortunately, other types of discrimination, notably in the product market, imply lower immigrant earnings in self-employment. A comparison of immigrant earnings in self-employment and wage-employment cannot distinguish between these two types of discrimination. The switching regressions model employed in this paper is thus ill-suited to answer questions about discrimination against immigrants.

only 60-64% of their earnings, compared to a 97-98% rate for wage and salary workers.[8] In addition to the incentive for tax evasion, the self-employed may take advantage of the generous tax treatment of business expenses. They can more easily claim the costs of travel, housing, entertaining, etc., as business deductions. As a result of tax evasion and business deductions, self-employment income is taxed at a lower effective rate than wage and salary income. Therefore, where income tax rates are high, one will see high self-employment rates, according to this hypothesis. Long estimates a linear probability model of self-employment. He finds a significantly positive coefficient on the total tax liability on potential wage and salary earnings. Blau[1987], using U.S. aggregate time series data, finds a positive coefficient for the marginal tax rate on $17,000, and a negative coefficient for the marginal tax rate on $7,000.

George Borjas[1986] suggests that immigrant self-employment is partly explained by what he terms an enclave effect. He explains the enclave effect as follows :

> The sociological literature ... has presented extensive anecdotal evidence of how immigrants create enclaves by concentrating in specific geographical areas, and of how these enclaves create and spread opportunities for immigrants to become self-employed ... immigrants from a particular national group are assumed to have a comparative advantage in serving the needs of consumers from that national group (p.502).

This comparative advantage is supposedly generated by the better information immigrants have about their own national group's

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[8]The Internal Revenue Service calculates these figures by a residual method. Essentially, they compare income reported on income tax forms with corresponding aggregate income figures.

consumer preferences. It is not clear, however, why this advantage leads to self-employment, instead of to immigrant-managed firms owned by natives. An appeal to comparative informational advantage alone does not explain why it is more profitable for immigrants to take advantage of their private information in self-employment rather than in wage employment. Perhaps immigrant enclaves provide easier access to start-up capital, or immigrants in enclaves have tastes for services provided by immigrant-owned businesses. In a logit model of self-employment, Borjas estimates a significantly positive effect for enclaves, defined as the proportion of the local population belonging to an immigrant's country-of-origin group.

Previous research concentrated on tax and cohort effects; two other possible explanations for self-employment warrant further examination. One hypothesis is that immigrants bring sector-specific capital with them when they immigrate; they have experience in the self-employed sector of their country of origin, and so are better able to prosper in the self-employed sector of the U.S. economy. Immigrants from nations whose self-employment rates are relatively high are more likely to possess managerial and business skills that give them a comparative advantage in self-employment. Conversely, immigrants from nations whose wage and salary sectors are relatively large are more likely to have a comparative advantage in the wage and salary labor market. To my knowledge, this hypothesis has not yet been tested. Data on the size of the non-agricultural self-employment and own-account sectors of a wide range of countries are, however, available.

These three hypotheses of self-employment (taxes, enclaves, country of origin characteristics), can be tested in a switching regression framework. The next section outlines the model.

4 Model Specification

Rees and Shah[1986] and Blau[1985] both estimate wage-versus-self-employment sector switching regression models on British and Malaysian cross-sections, respectively. Vijverberg[1985] expands the endogenous switching specification to account for those who are both wage- and self-employed, estimating an index function equal to the proportion of work devoted to wage employment. Another recent use of switching regression methodology is Van der Gaag and Vijverberg[1988], who estimate a switching regression model of public and private sector earnings in Cote d'Ivoire, using full information maximum likelihood methods.

The model is set up as follows. Individual i's earnings in self- and wage employment are given by equations 1 and 2 :

$$(1)\quad \ln y_1(i) = X(i)\beta_1 + e_1(i)$$

$$(2)\quad \ln y_2(i) = X(i)\beta_2 + e_2(i)\ .$$

y_1 and y_2 are earnings in wage and self-employment, respectively. X is a vector of human capital and demographic variables thought to affect earnings in both sectors.[9] e_1 and e_2 are error terms,

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[9]The X vector in the equation for y_2 should include a capital variable. Unfortunately, I have no capital or assets variable. Following the literature, I proxy for capital with age. β_2 thus includes both the effects of capital and the effect of experience.

possibly correlated, with zero means, variances σ_1 and σ_2 , and covariance σ_{12} . β_1 and β_2 are parameters.

As was discussed in section 3, reported self-employment income is likely to be less than actual self-employment earnings. If the variables in X(i) are correlated with the percentage of self-employment income unreported, the estimates of β_1 will be biased. For example, if workers with greater experience are more adept at hiding their income, then the estimates of the return to experience in self-employment will be biased downwards : those with more experience will have higher incomes, but will hide a greater percentage of it. If increased education similarly leads to increased underreporting, the estimated coefficient on education will be biased downwards.

Previous estimates of self-employment earnings assume that earnings (or wages) in both sectors are distributed lognormally. Following the lead of Heckman and Sedlacek[1985], my model nests the lognormal distribution by using the transformation of Box and Cox[1964].[10] In place of ln y_1 and ln y_2 in equations 1 and 2, substitute the following expressions :

$$Y_1(\lambda_1)=(y_1^{\lambda_1} - 1)/\lambda_1$$

$$Y_2(\lambda_2)=(y_2^{\lambda_2} - 1)/\lambda_2$$

λ_1 and λ_2 are Box-Cox parameters, to be estimated jointly with the other parameters of the model. This framework neatly nests

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[10]For a discussion of the usefulness of the Box-Cox transformation in limited-dependent variable models, see Poirier[1978].

lognormality : when $\lambda_1 = \lambda_2 = 0$, income is distributed lognormally. Conventional test statistics can be used to test the assumption. In addition, when $\lambda_1 = \lambda_2 = 1$, income enters untransformed.

The Box-Cox transformation place certain restrictions on the range of the error terms e_1 and e_2 . To insure that income is positive, the errors must fulfill the following conditions :

$$1 + \lambda_1(X(i)\beta_1 + e_1(i)) > 0$$
$$1 + \lambda_2(X(i)\beta_2 + e_2(i)) > 0.$$

In effect, the imposition of this condition amounts to an assumption that the error terms are random draws from a truncated normal distribution.

In deriving the form of the index function, or self-employment choice equation, it is assumed that individuals maximize utility. Utility V(i) in each sector is modelled as a linear function of a vector of personal and regional characteristics Z(i), transformed income in that sector, and a normal error term u (i subscripts are suppressed) :

$$(3)\ V_1 = Z\gamma_1 + Y_1(\lambda_1)\mu_1 - u_1$$
$$(4)\ V_2 = Z\gamma_2 + Y_2(\lambda_2)\mu_2 - u_2 \quad .$$

Taking the difference of equations 3 and 4, and substituting for Y_1 and Y_2 from equations 1 and 2, yields the reduced form index function

$$(5)\ I_+(i) = V_1(i) - V_2(i) = Z(i)\delta - u(i) \ .$$

$I(i)=1$ if $I^+(i) > 0$

$I(i)=0$ if $I^+(i) < 0$.

Equations 1, 2, 5, and the distributional assumptions on the error terms (Box-Cox for the earnings equations, normal for the index function), constitute the empirical model, to be estimated by full information maximum likelihood. The model is identified by the distributional assumptions. Many researchers, however, are uncomfortable with the reliance upon distributional assumptions for identification; in the next section, several overidentifying exclusion restrictions are suggested which may be more acceptable.

5 Data and Variables

Earnings and personal variables are drawn from the A and B samples of the 1980 Census Public Use Samples. The 1970 and 1980 Censuses are the only U.S. data sources that identify the year of immigration as well as the country of birth. One drawback of this data is that it does not break down hours into hours of self- and wage employment, and it does not adequately distinguish self-employment earnings from wage earnings. For example, 22% of native-born workers in my sample classify themselves as self-employed, but report earnings in both self- and wage employment; often they are employees of their own incorporated firm. A smaller proportion (2%) of the those who classify themselves as wage employed report earnings in both sectors. As a result, it is not clear that reported wage earnings are generated solely by wage employment. I cannot calculate wages for the two activities separately, or identify those who are both wage and self-employed. Therefore, any coding errors in the self-employment variable cannot be adequately checked against reported income in the two

sectors.

The variables drawn from the Census are as follows : SELF equals 1 for persons who work in their own business, profession, or trade; otherwise, SELF equals 0. LEARN equals log earnings from self- and wage employment. Variables for age and age squared, education, and a dummy for southern residence are also included. LANG is a dummy set equal to one of individual either speaks English badly or not at all. FOR is a dummy set equal to 1 for the foreign born. D70-74,D65-69,D60-64,D50-59 are dummies equal to 1 for immigrants who entered the U.S. during years 1970-74, 1965-69, 1960-64, and 1950-59, respectively.

The age and education variables should be included in both the earnings equations and the index function. To the extent that earnings and the probability of entering self-employment are different for immigrants, the dummy variables for year of immigration should appear in both earnings equations and the index function.

Enclave variables are drawn from the 1980 Census State Reports data on immigrant population by country of birth for the 150 largest Standard Metropolitan Statistical Areas (SMSA) :

%COUNTRY percentage of SMSA population from same country of birth. Equals 0 for the native-born.[11]

A variable for country of origin self-employment is calculated from the International Labor Organization Yearbook of

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[11]Variables for the absolute number of people in the SMSA from the same country of birth, and the SMSA total population were also constructed. Both were statistically insignificant in the earnings and index functions.

Labor Statistics, 1950 to 1975. The home country self-employment rate is defined as the percentage of males in the non-agricultural sector who were self-employed or own-account workers for each available year. Each cohort from the same country of origin was assigned the self-employment rate for that country in 1969. When the 1969 self-employment rate is missing, it is interpolated from surrounding years. In order to compare them to the U.S. rate, Each origin-country self-employment rate is divided by the U.S. rate.

HOMESELF country of origin 1969 self-employment rate, relative to the U.S. rate. Equals 1 for the native-born.

Jasso and Rosenzweig[1986] and Borjas[1987] both investigate the relationships between an array of country of origin characteristics and immigrant earnings. In addition to HOMESELF, two variables which they find important are included in this analysis. GNP78 is home country aggregate income per capita in 1978; it reflects the opportunity cost of immigrating to the U.S., and should be positively correlated with immigrant earnings. The other variable, MILES, is the distance from the home country to the nearest U.S. port of entry. MILES also reflects the cost of immigration, and should therefore be positively correlated with immigrant earnings.

Variation in the tax rates individuals face is approximated by federal and state income tax schedules and deductions obtained from the Commerce Clearing House State Tax Guide. I also collected data on the deductibility of federal taxes by state.

With this information, I calculated the total federal and state average tax rate on $25,000.[12]

AVGTAX$25 average federal and state income tax rate on $25,000

Both the earnings equations and the index function may arguably include %COUNTRY, because the size of the immigrant community may affect self-employment through easier access to capital, apart from its affect on earnings. According to the enclave hypothesis, %COUNTRY will have a positive sign in the index function. If the enclave effect works primarily through its effect on earnings in the two sectors, it will have a larger coefficient in the self-employment earings equation than in the wage-employment equation. If the country of origin labor market hypothesis is true, I expect HOMESELF to positively effect self-employment earnings, and to negatively affect wage earnings. Immigrants from countries with large self-employed sectors will have a relative advantage in self-employment.

If the tax rate hypothesis is true, the tax variable will have a positive coefficient in the index function. There are several reasons why it may also appear in the earnings functions. First, income-underreporting may be more prevalent in high-tax states, in which case it will have a negative coefficient in the earnings equations. On the other hand, workers who are mobile across state boundaries may require high earnings in order to work

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[12]Marginal tax rates $25,000 were also calculated, but were statistically insignificant whenever they were tried. Tax variables which incorporate city tax rates were substituted for the above tax variables, and did not affect the results.

in a high-tax state, in which case taxes will be positively correlated with earnings in the two sectors.

Although the parameters of the model are identified by distributional assumptions, several overidentifying restrictions can be tested. According to the self-employment hypotheses, the tax and home country self-employment variables can be excluded from the sector earnings equations. With regard to taxes, this amounts to the assumption that the tax rate affects the choice of self-employment only through the after-tax value of earnings in the two sectors, and does not affect observed before-tax earnings in the two sectors. The exclusion of HOMESELF from the earnings equations amounts to the assumption that the advantage that self-employment experience confers operates only through decreased start-up costs or increased non-pecuniary satisfaction. These overidentifying assumptions will all be tested.

The data consist of males, ages 25-64, from the A and B samples of the 1980 Census Public Use Samples. I divide the data into six ethnic groups : White, Black, Mexican, Asian, Cuban, and Other Hispanic. The native-born comparison group is drawn randomly from all ethnic groups except Black Americans. The immigrants are a 6% sample of the total immigrant population; the native-born are a .20% sample. Table 4 chronicles the reasons for and results of the sample selection rules. Because I will be working with earnings, not wages, I delete all those with zero earnings, all part-time workers (hours<35), and all workers who

worked less than 30 weeks in 1979.[13] Next I deleted those who reside outside the 150 largest SMSA's. Also deleted were those immigrants from countries for which I had no enclave data. In order to concentrate on non-agricultural self-employment rates, the sample is restricted to workers in non-agricultural industries.[14] Enclave data exist for immigrant populations from 53 countries of origin; Of the 53 countries for which I have enclave data, six report no self-employment rates in the ILO yearbooks,[15] and can thus produce no HOMESELF variable. In an effort to exclude outliers from the sample, only workers whose wages are greater than one half the minimum wage in 1979 and less than $100 are included.[16] Finally, computing capacity limits the size of the data set to a subsample. A sub-sample of the data (weighted to leave approximately 1000 of each immigrant group and 4000 natives) leaves 6099 immigrants and 4142 native-born controls.

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[13]Some of those observations deleted for nonpositive earnings report negative earnings; however, they constitute a small fraction (1-2%) of those deleted for this reason.

[14]The determination of self- or wage-employment status is likely to be different in the agricultural sector, where capital requirements are relatively large, and self-employment rates are high for the native-born.

[15]The six countries are the Azores, Latvia, Lithuania, Lebanon, Vietnam, and Barbados.

[16]Mellor[1987] estimates that only .725% of males over 25 years of age who work full time earn less than the minimum wage. Presumably, an even smaller percentage earn less than 1/2 the minimum wage. Thus, one would expect somewhat less than .725% of the sample to be excluded as outliers when they were actually low-wage earners. This rule excludes 2.94% of the immigrants in the sample, and 2.04% of the native-born. Few of these exclusions are likely to be actual low-wage earners.

Table 5 displays descriptive statistics for the samples used in the analysis. Three of the six ethnic groups (White, Asian, Cuban, and Other Hispanic) have significantly higher self-employment rates than the native-born; Black, Mexican, and Other Hispanic rates are lower. While White immigrants have higher earnings than the native-born, the other groups have lower or equal earnings (Mexicans earn on average 31% less, Blacks 25%, and Other Hispanics 19% less than native workers). The Whites and Cubans have less education and more experience than the native sample; the Asians have more education and less experience, and the Blacks, Mexicans, and Other Hispanics are younger and less educated. Only the Cuban sample is more heavily concentrated in the South (61.6%) than native workers; Asians (10.1%) and Whites (13.1%) are least concentrated there. Less than ten percent of White and Black groups have difficulty with English; Almost one-half (47.6%) of Mexican immigrants have difficulty with English;, 33.9% of Cuban immigrants do. Home country self employment rates are on average larger than the native rate for every immigrant group; the mean ratios range from 1.27 for the White sample to 2.42 for the Mexican sample. The other Hispanic sample live in the smallest enclaves (.28%), while the Cubans live in the largest (the average enclave size is 10.8%, reflecting the concentration of Cubans in Miami). Finally, every group except the Cubans faces on average significantly higher rates of average taxation than do natives. High immigrant self-employment rates appear to be associated with less education, high rates of origin-country self employment, and higher average tax rates than the native-born.

6 Switching Regression Estimates

6.1 Preliminaries

Table 6 presents the estimated switching regressions model, estimated on a pooled immigrant and native-born sample, using full information maximum likelihood methods. Several of the variables need explaining.

First, the model allows the intercepts, the age-earnings profiles, and the return to education to vary across the native control group and each of the six ethnic groups. The age-earnings profiles of immigrants may differ from native profiles because the nature of work experience may be different across groups. For example, immigrant work experience in the country of origin may be less valuable than experience in the U.S., yielding less steep age-earnings profiles. The immigrant age-earnings profile may also reflect assimilation into the U.S. labor market - immigrants accumulate U.S. market-specific skills over time which the native-born already possess. The return to education may vary across groups in the sample because of differences across countries of origin in educational quality or relevance to the U.S. market.

Each country has its own intercept term, plus dummy variables for year of immigration 1970-74, 1965-69, 1960-64, and 1950-59. The dummy variable for immigrants who arrived 1975-79 is left out. If the immigrant intercept is equal to the native intercept, and the four cohort dummies are insignificant, then the model explains all the differences between the immigrant ethnic group and native

earnings; if the four dummies are insignificant, then the model explains the differences among the cohorts of a particular immigrant group.[17]

Since the importance and function of enclaves may vary by immigrant group, the enclave variables are entered separately for only three countries of origin : Mexico (16.3% of the immigrant sample), Cuba (17.4% of the immigrant sample), and China (5.95% of the immigrant sample). In addition, a dummy variable for China is entered separately to distinguish country of origin effects from enclave effects (the Mexican and Cuban dummies already enter as intercept terms).

6.2 Human Capital Coefficients and Intercept Terms

Look first at the self-employed earnings equation in table 6. The native human capital coefficients suggest an increasing and concave age-earnings profile[18] and a positive return to education.

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[17]A word of explanation about the statistical testing strategy will be helpful. In each of the three equations of Table 6, it is desirable to test jointly the equality of the coefficients of the various immigrant age, education, and intercept variables with the corresponding native coefficients. In order to make these tests easier to compute, the same model is estimated with slight changes in the way the variables are entered. In the model displayed in table 6, the variables for native constant, age, and education contain zeros for the immigrant observations. In the 'test' model, those variables contain not zeros but the immigrant values for immigrant observations. The coefficients from the 'test' model are interpreted as the difference between the native coefficient and the immigrant coefficient. Equality of native and immigrant coefficients can be tested using t-tests, or, for groups of variables, Wald tests. Wald test statistics are reported for all of these restrictions.

[18]The age variables are jointly insignificant ($\chi^2(2)=4.11$).

Human capital coefficients and intercept terms for the six immigrant groups are displayed below the native coefficients. For each immigrant group, the hypothesis that the return to age and education, and the intercepts, are all equal to the native coefficients was tested. The resulting $\chi^2(8)$ statistics[19] (White, 3.82; Black, 3.88; Asian, 4.58; Cuban, 3.19; Mexico, 4.92; Other Hispanic, 3.34) indicate a failure to reject equality of coefficients. This implies that the age-earnings profiles and returns to education are equal across native and immigrant groups in self-employment. Also, there are no significant earnings differences within immigrant groups by year of immigration, nor are there any differences between immigrant and native self-employment earnings.

Turning to the wage sector earnings equation estimates, one notices significant differences between the immigrant and native coefficients. For three immigrant groups (White, Asian, and Other Hispanic) the age-earnings profile is not significantly different from the native-born profile ($\chi^2(2)$=.49, 3.95, and 4.87, respectively[20]). Mexican immigrants have significantly steeper profiles ($\chi^2(2)$=9.24). Blacks and Cubans have relatively less steep profiles ($\chi^2(2)$=11.77 and 9.66, respectively). In order to understand these differences, we must understand the employment and experience histories of the different ethnic groups. For

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The 5% critical value is 5.99.

[19]The 5% critical value is 15.51.

[20]The critical value for a 5% test is 5.99.

example, if Asian immigrants acquire more general human capital, transferable across jobs, or if they have lower turnover rates, then they lose less human capital over time as they change occupations or industries. Until we know more on this subject, however, we can only speculate.

Each immigrant group except the Asians has a significantly different rate of return to education in the wage sector (t-statistic = 4.30 (White), 4.81 (Black), .81 (Asian), 3.93 (Cuban), 5.63 (Mexican), 3.83 (Other Hispanic)). For every immigrant group except the Asians, the rate of return is lower than the native rate; this may reflect different education quality in the country of origin, or the inadequacy of foreign education as a U.S. job market signal.

For White immigrants, there is no significant difference between the earnings of the different cohorts and the native-born (a Wald test of the equality of the ethnic and native intercepts, and the significance of the four cohort dummies, yields $\chi^2(5)=4.04$, critical value=11.07). The model explains both the differences between the earnings of this group and the native-born, as well as the differences among the cohorts. Both the Black and Asian wage estimates indicate a pattern of earnings across cohorts : cohorts which arrived earlier have up to 30% higher earnings than the 1975-79 cohort. These patterns are similar to the cross-section patterns first documented by Chiswick[1978]. The Cuban wage sector equation estimates imply no differences between the earnings of the different cohorts and native earnings, but significantly higher earnings for all of the

Cubans. The Mexican and Other Hispanic estimates imply the same pattern of rising earnings with time in the U.S. that is evident in the Asian and Black estimates.

The estimates of the human capital coefficients allow us to draw several conclusions about self-employment and wage earnings among immigrants and the native-born. In the self-employment sector, there are few significant differences in the age-earnings profiles, intercepts, or return to education between immigrants and the native-born In the wage sector, controlling for age, education and several other variables (discussed below) leaves the classic pattern of increasing earnings with time in the U.S. unchanged for four of the six immigrant groups. Finally, the return to education for five of six immigrant groups is lower than the native rate, reflecting the lower quality of foreign education or the inadequacy of foreign education as a signal.

Turn now to the human capital coefficients for the index function in column three. As was the case for the self-employed estimates, none of the immigrant groups have age-earnings profiles which are significantly different from the native-born ($\chi^2(2)$=.62, .13, 5.77, 3.27, .99, and .50, respectively). Three of six immigrant groups (Whites, Asians, and Cubans) have significantly lower coefficients on education than the native coefficient[21] This is consistent with the hypothesis, supported by the estimated rates of return to education in the wage sector, that education in

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[21]The t-statistics for the differences are 5.00(White), 1.40(Black), 4.10(Asian), 3.50(Cuban), 1.15(Mexican), and .72(Other Hispanic).

the country of origin is less valuable in the U.S. than U.S. education. Borjas[1986] speculates that education gives an individual a comparative advantage in self-employment, by enabling him to perceive the opportunities, and decrease the uncertainty, in the self-employment sector. It is plausible that foreign education confers fewer of these advantages in the U.S. market than U.S. education.

As was the case in the self-employed earnings equations, the index function explains all of the differences between immigrant and native self-employment propensities. Wald tests for the joint significance of the cohort dummies and the equality of the native and immigrant intercepts fails to reject ($\chi^2(4)$= 1.90 (White), 3.10 (Black), 8.99 (Asian), 4.34 (Cuban), 6.50 (Mexican), and 5.44 (Other Hispanic). Critical value=11.07) Only Mexican cohort 1950-59 has significantly lower self-employment probabilities than native workers.

6.3 Testing Hypotheses of Immigrant Self-employment

Before evaluating the evidence for the various hypotheses of self-employment, the coefficients on the variable for Southern residence and language ability must be examined. The estimated coefficient on the variable SOUTH that is negative in the wage sector is not statistically significant in the self-employed sector.[22] Consistent with SOUTH's effect in the sector earnings

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[22]This result contradicts the compensating differential theory of the Southern differential (that Southern life is pleasanter than life elsewhere, and therefore less well

equations, the probability of self-employment is 2.4% higher in the South.

The estimated coefficients on language proficiency imply that the lack of ability to speak English has a large negative effect on wage sector earnings, but no significant effect on self-employed earnings. Despite this differential effect, lack of English discourages self-employment. Non-English speakers are 2.7% less likely to enter self-employment than English-speakers. Entering self-employment may be more costly without fluent command of English, by making start-up capital less accessible.

The three enclave variables (Mexican, Cuban, and Chinese) together confirm the hypothesis that the gains to self-employment are relatively larger in an enclave. Mexican and Chinese enclaves increase the probability of self-employment (for Mexicans, an increase in the proportion of a city's population that is Mexican by 1% increases the probability of self-employment by .78%; for Chinese, by 4.54%). The Cuban enclave variable is insignificant in the index function, but is significantly negative (t=2.9) in the wage sector equation.

Immigrant enclaves, when they affect earnings, often depress them. The coefficients on the enclave variables in both sectoral earnings equations are all negative, although only the wage coefficients on %Mexico and %Cuba are statistically significant.

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compensated), because there is no similar differential in the self-employed sector. A theory that attributes lower Southern wages to the absence of unions in the South is consistent with these estimates, since the self-employed, many of whom employ relatively few people, should not be greatly affected by unions.

This phenomenon suggests that immigrants in enclaves compete with one another in the labor market or, if they are self-employed, in the product market. They are substitutes in production, and the products they offer as businessmen are substitutes in consumer demand. An increase in their supply leads to a fall in earnings. Presumably, immigrants are willing to tolerate lower earnings because of the benefits of life in the enclave - the presence of family, familiarity with the culture, et cetera.

The home country self-employment hypothesis finds support as well. The variable HOMESELF has a significantly positive coefficient in the index function. Immigrants from a country with twice the self-employment rate of the U.S. will enter self-employment at a 4.4% higher rate than the native-born. This advantage in self-employment is reflected in neither of the sector earnings equations, where HOMESELF is statistically insignificant.

The tax rate hypothesis finds scant support in these estimates. The average tax rate is insignificant in the index function, although it has the expected sign. It is negative but insignificant in both earnings equations.

It should be noted that the HOMESELF may be excluded from the earnings equations to provide an overidentifying assumption for the model. A Likelihood Ratio test reject the exclusion ($\chi^2(2)=.60$, critical value=5.99). Thus, if one is nervous about the reliance upon distributional assumptions to identify the model, the exclusion of HOMESELF from the earnings equations will serve.

Note, however, that the exclusion of HOMESELF from the earnings equations implies a slightly different theory concerning the effect of self-employment human capital on the self-employment decision. Previous experience in self-employment, which HOMESELF attempts to measure, does not affect the self-employment decision through the earnings in either sector; instead, previous self-employment experience either lowers the start-up costs for self-employment, or increases the desirability of self-employment (or decreases the desirability of working for a boss).

The variance and covariance terms are imprecisely estimated; the selection terms (the covariances) in each sector are insignificant. This suggests that the sector earnings equations may be estimated separately, without any selection correction.[23] The Box-Cox terms, reported in the row labelled LAMBDA, indicate that in the self-employed sector the error term is not distributed lognormally. The significantly negative parameter suggests that wage sector earnings are more skewed than the lognormal distribution. The Box-Cox parameter in the wage sector is not significantly different from zero; one cannot reject the assumption of lognormal errors in this sector.

The empirical model assumes that there are two distinct sectors; are the two sectors in fact different? The assumption can be tested by imposing the restrictions $\beta_1 = \beta_2$ and $\delta_1 = \delta_2$ The

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[23]Do the coefficient estimates change significantly when selection is not taken into account? A specification test of the selection model of earnings in both sectors fails to reject joint equality of coefficients across the selectivity corrected and uncorrected models ($\chi^2(63)=.0042$ for the self-employed earnings equation, $\chi^2(63)=.0386$ for the wage sector earnings equation).

difference between the log-likelihoods of the restricted and unrestricted models yields a Likelihood Ratio statistic ($\chi_2(64)=85.34$) exceeding the critical value (83.46). The test marginally rejects the hypothesis that the two sectors are identical.

6.4 Summary of Results

The switching regression estimates from the six ethnic groups have implications for the three hypotheses laid out in section 2. Average tax rates are insignificant predictors of self-employment, providing weak evidence for the tax rate hypothesis, unlike the results of Blau[1987] and Long[1982]. These support the home country self-employment hypothesis; self-employment probabilities and home country self-employment rates are positively correlated. The enclave hypothesis was supported by the Mexican and Chinese estimates; Cuban enclaves, however, have no significant impact on self-employment probabilities.[24] In addition, enclaves depress immigrant earnings in the wage sector.

In general, these estimates suggest that there are no significant differences between the age-earnings profiles of immigrants and the native-born in either sector. The returns to education differed, however, in the wage sector. Immigrant

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[24]Several alternative specifications of the enclave hypothesis are plausible. An interaction with a community wealth variable may capture an enclave's demand for services usually provided by the One might also interact the enclave variables with a dummy variable for ability to speak English, suggesting that the enclaves will be more important for immigrants who do not speak English.

education was associated with lower earnings than native education, reflecting perhaps education quality differences, or the inadequacy of foreign education as a job market signal in the U.S. Also notable are the number of immigrant intercept terms that are insignificantly different from the native intercept, and the number of insignificant cohort dummies. The model explains most of the differences between native and immigrant earnings in both sectors, and self-employment probabilities.

There is no evidence of selection into either sector in these estimates. The differences between the two sectors' earnings equations, however, are significant : they cannot be treated identically. This result helps us to interpret the replication of Borjas's work in section 2. If there is no selection into self or wage employment, Borjas's wage sector earnings equation estimates are not biased by the exclusion of the self-employed from his sample. In order to make some judgement about immigrant assimilation rates, however, one must still examine immigrant performance in the self-employed sector, because the self-employment earnings equation is different from the wage-employed earnings equation. Changes in immigrant relative earnings in self-employment over the decade of the seventies must be combined with changes in wage sector relative earnings to calculate an immigrant assimilation rate. This has been done in section seven.

7 Recalculating Immigrant Assimilation Rates

Recall the replication of Borjas's methodology in section two (table 3). In that section, two sets of assimilation rates were calculated for White and Asian cohorts, using Borjas's methodology. In the first set, the sample contained only wage sector workers. In the second set, self-employed sector workers were added to the sample, and were not distinguished from wage sector workers in the earnings regressions from which assimilation rates were calculated.

The assimilation rate estimates of table 7 take into account the result, from the switching regression estimates of the last section, that earnings equations for the two types of workers are significantly different from one another. Columns one and two contain assimilation rate estimates using the Borjas methodology, calculated for the wage and self-employment sectors separately. The estimates in column one are thus the same as those in column one of table 3 : both calculate assimilation rates for wage sector workers only. The estimates of immigrant self-employment relative earnings growth, in column two, show a higher rate of immigrant assimilation in the self-employed sector than in the wage sector for each cohort except Asian 1950-59. These estimates demonstrate that, by excluding workers in this sector, one ignores an important part of any immigrant cohort, the sector in which immigrants fare best relative to the native-born.

Column three combines the estimates in the first two columns, incorporating the insights from the switching regressions estimates. Predicted earnings for each cohort, in 1970 and 1980,

are calculated as a weighted average of predicted earnings in the two sectors. The weights are the self- and wage-employment rates for the cohort. The growth in this measure of predicted earnings, relative to native earnings, is the assimilation rate of column 3. It should be noted that this measure implicitly assumes that there is no selection into either sector in 1970 as well as in 1980. There is no evidence on this question; consequently, these estimates are only meant to demonstrate an alternative method of calculating immigrant relative earnings growth.

The estimates in column 3, incorporating both sectors into predicted immigrant earnings, yields conclusions similar to those of the Borjas replication of section two. The White assimilation rate estimates are 11-21% higher when the self-employed sector is taken into account. Again, the estimates are more striking for the Asians. Although the estimate for the 1950-59 cohort decreases when the self-employed are accounted for, the other cohort estimates increase substantially. The 1965-69 estimate increases by 39%, and the 1960-64 estimate grows by 36%, becoming statistically significant.

8 Conclusions

The purpose of this paper has been twofold. The first task was to demonstrate that self-employment among recent U.S. immigrants is an important empirical phenomenon. Simple comparisons of native-born and immigrant self-employment rates in 1970 and 1980 establish that immigrants enter into self-employment at a higher rate, and that the difference in self-employment rates

increased over the seventies. In addition, a simple empirical example demonstrated how estimates of immigrant assimilation rates may be sensitive to sample selection rules which exclude the self-employed.

After establishing the importance of the self-employed, the second task was to model self-employment choice, in an attempt to understand why immigrants choose that sector more often than natives. In the context of a switching regressions model of earnings in two sectors, three hypotheses were tested (the tax rate, immigrant enclave, home country, and anonymity hypotheses) on data for six immigrant ethnic groups. There is strong evidence for the home country and enclave hypotheses, and little evidence for the tax rate or anonymity hypotheses.

In addition to confirming and rejecting various hypotheses of self-employment choice, the estimates of the switching regressions model provided evidence that the self-employed earnings equation differs significantly from the wage sector earnings equation. New estimates of assimilation rates were calculated, taking this new information into account. Again, assimilation rates are higher when the experience of immigrants in the self-employed sector is taken into account in assimilation rate estimates.

Previous estimates of immigrant earnings growth ignore self-employed workers and their earnings. Consequently, a large, growing, and particularly successful component of any immigrant group has been ignored. Immigrant economic performance is higher when those immigrants who seek to better their economic condition in the self-employed sector are incorporated into the analysis.

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TABLE 1

1970 Self-employment Rates by Ethnic Groups(standard errors)

	Estimated Self-employment Rates, 1970			
	Immigrants, By Year of Immigration			Native-born, same ethnic group
	1965-69	1960-64	1950-59	
White	4.15 (.23)	9.92 (.41)	12.11 (.28)	5.99 (.07)
Mexican	1.93 (.34)	2.90 (.45)	4.73 (.46)	5.16 (.44)
Asian	3.29 (.41)	6.39 (.89)	12.87 (1.13)	5.47 (.88)
Cuban	4.85 (.59)	9.00 (.71)	11.95 (1.29)	5.99 (.07)
Black	3.00 (.58)	4.10 (1.07)	4.44 (1.14)	2.24 (.13)
Other Hispanic	2.41 (.40)	5.76 (.75)	10.19 (1.19)	4.85 (.61)

source: for immigrants, based on a 3% Census tabulation of the 1970 Census, Native born rates are based on .14% tabulations of the 1970 Census. Sample includes all males ages 18-54 in 1970, regardless of labor force status.

TABLE 2

1980 Self-employment Rates by Ethnic Groups(standard errors)

	Estimated Self-employment Rates, 1980			
	Immigrants, By Year of Immigration			Native-born, same ethnic group
	1965-69	1960-64	1950-59	
White	16.61*	17.68*	17.17*	9.42*
	(.32)	(.34)	(.21)	(.07)
Mexican	5.36*	6.92*	8.05*	5.14
	(.29)	(.37)	(.34)	(.33)
Asian	14.66*	17.24*	16.19*	9.98*
	(.55)	(.88)	(.76)	(.99)
Cuban	14.25*	17.64*	17.93*	9.42*
	(.62)	(.60)	(.95)	(.07)
Black	5.74*	6.94	7.55	2.75*
	(.46)	(.81)	(.86)	(.12)
Other Hispanic	10.23*	12.43*	12.74	5.60
	(.51)	(.67)	(.84)	(.61)

* - difference between 1980 and 1970 rates is statistically significant at a 5% significance level.

source: for immigrants, based on a 7% Census tabulation of the 1980 Census, Native born rates are based on .23% tabulations of the 1980 Census. Sample includes all males ages 28-64 in 1980, regardless of labor force status.

TABLE 3

Estimates of Immigrant Assimilation Rates (Borjas Methodology)

Group and Year of Immigration	Estimates of Earnings Growth, Relative to Native Controls of Same Ethnic Group, 1970-80 (t-statistics)	
	Excluding the Self-employed	Including the Self-employed
White		
1965-69	.1620	.1911
	(12.8)	(15.0)
1960-64	.0751	.0914
	(5.52)	(6.78)
1950-59	.0526	.0735
	(4.46)	(6.30)
Asian		
1965-69	.2371	.2920
	(3.44)	(4.36)
1960-64	.1466	.1852
	(1.90)	(2.50)
1950-59	.0603	.0598
	(.79)	(.80)

TABLE 4

Restrictions on the Data, Immigrant and Native samples

Restriction	# immigrants remaining	# natives remaining
ages 25-64, A and B samples of 1980 census	170,466	176,814
delete earnings <0, hours <35, weeks worked <30	131,675	104,438
resides in 150 largest SMSAs	114,892	64,649
enclave data available for country of origin	102,926	-
delete those in agricultural industries	98,902	63,424
%HOMESELF unavailable	90,830	-
Excluding wage<1.84 or >100	88,365	62,132
working subsample	6099	4142

TABLE 5

Descriptive Statistics, Native and Immigrant Samples

	Native Sample		White Imm. Sample		Black Imm. Sample	
variable	mean	std.dev.	mean	std.dev.	mean	std.dev.
Log Earnings	9.91	.575	10.06 *	.564	9.66 *	.506
Self Emp. Rate	.080	.272	.146*	.354	.049*	.216
Age	41.12	11.25	42.00*	10.24	39.75*	10.00
Education	13.26	2.96	12.46*	4.23	11.83*	3.58
South	.275	.447	.131*	.337	.172*	.378
Language	.004	.064	.095*	.293	.063*	.244
D70-74	-	-	.098	.297	.300	.459
D65-69	-	-	.202	.402	.325	.469
D60-64	-	-	.156	.363	.098	.298
D50-59	-	-	.430	.495	.085	.279
%country	-	-	.565	.579	.576	.412
Home GNP 1978/1000	-	-	5.22	2.87	1.30	1.27
Miles to home/1000	-	-	3.71	1.48	.89	.751
Home self emp.	1	-	1.27*	.695	1.73*	.337
Avg tax $25000	26.28	2.78	27.05*	2.84	27.97*	3.05
N	4142		1011		1119	

* - difference between native and immigrant means are statistically significant at a 5% significance level.

** - difference between native and immigrant means are statistically significant at a 10% significance level.

TABLE 5 (continued)

	Asian Imm Sample		Cuban Imm. Sample		Mex. Imm. Sample	
variable	mean	std.dev.	mean	std.dev.	mean	std.dev.
Log Earnings	9.92	.630	9.83*	.569	9.60*	.505
Self Emp. Rate	.129*	.335	.144*	.351	.044**	.205
Age	39.31*	9.25	45.55*	10.17	36.29*	9.28
Education	14.54*	4.08	11.72*	4.23	7.90*	4.33
South	.101*	.301	.616*	.487	.196*	.397
Language	.163*	.369	.339*	.473	.476*	.500
D70-74	.276	.447	.142	.349	.290	.454
D65-69	.233	.423	.294	.456	.196	.397
D60-64	.091	.288	.388	.487	.153	.361
D50-59	.118	.323	.149	.356	.180	.384
%country	.841	1.07	10.80	9.43	6.42	4.30
Home GNP 1978/1000	1.50	2.21	.810	0.00	1.29	0.00
Miles to home/1000	7.85	1.67	.235	0.00	0.00	0.00
Home self emp.	2.17*	.850	1.88*	.000	2.42*	.000
Avg tax $25000	28.02*	2.68	24.23*	2.96	27.42*	3.08
N	964		1063		997	

* - difference between native and immigrant means are statistically significant at a 5% significance level.

** - difference between native and immigrant means are statistically significant at a 10% significance level.

TABLE 5 (continued)

	Other Hisp Sample	
variable	mean	std.dev.
Log Earnings	9.72*	.573
Self Emp. Rate	.071*	.257
Age	38.61*	9.18
Education	11.79*	3.91
South	.161*	.368
Language	.289*	.453
D70-74	.260	.439
D65-69	.281	.450
D60-64	.179	.383
D50-59	.088	.283
%country	.282	.273
Home self emp.	2.41*	.508
Avg tax $25000	27.76*	2.95
N	945	

* - difference between native and immigrant means are statistically significant at a 5% significance level.

TABLE 6

Maximum Likelihood Estimates for the Pooled Sample

	coefficients (t-stats in parentheses)					
	Self-employed earnings equation		wage-employed earnings equation		index function	
	coef.	tstat	coef.	tstat	coef.	tstat
NATIVE :						
constant	4.669	(5.34)	7.917	(18.8)	-4.901	(8.86)
age	.0621	(1.98)	.0698	(5.90)	.0891	(3.81)
agesq/100	-.0654	(2.00)	-.0708	(5.63)	-.0843	(3.16)
education	.0424	(2.09)	.0690	(6.83)	.0617	(6.32)
WHITE IMM:						
constant	5.632	(5.57)	8.016	(15.5)	-4.149	(4.26)
age	.0298	(1.05)	.0809	(4.23)	.0928	(2.10)
agesq/100	-.0318	(1.04)	-.0832	(3.90)	-.0939	(1.87)
education	.0196	(2.05)	.0402	(5.59)	-.0171	(1.38)
d70-74	.182	(1.37)	-.0001	(.002)	-.0987	(.43)
d65-69	.129	(1.21)	.113	(1.66)	.0462	(.24)
d60-64	.0751	(.70)	.0722	(1.02)	-.0878	(.42)
d50-59	.124	(1.20)	.0575	(.92)	.0564	(.31)
BLACK IMM:						
constant	5.200	(4.06)	8.483	(15.3)	-5.231	(4.19)
age	.0479	(1.01)	.0516	(3.43)	.0945	(1.64)
agesq/100	-.0610	(1.15)	-.0579	(3.31)	-.0935	(1.42)
education	.0250	(1.74)	.0320	(4.98)	.0326	(1.78)
d70-74	.0215	(.16)	.138	(2.76)	.0792	(.38)
d65-69	.267	(1.60)	.256	(4.25)	.0247	(.11)
d60-64	.210	(1.18)	.334	(4.16)	.139	(.52)
d50-59	.223	(1.12)	.299	(3.51)	.408	(1.46)
ASIAN IMM:						
constant	4.883	(3.43)	7.557	(15.7)	-7.857	(6.36)
age	.0667	(1.21)	.0812	(4.12)	.219	(3.84)
agesq/100	-.0740	(1.23)	-.0892	(3.92)	-.223	(3.41)
education	.0219	(2.14)	.0641	(6.27)	-.0073	(.53)
d70-74	.0349	(.39)	.177	(3.32)	.207	(1.32)
d65-69	.176	(1.53)	.216	(3.60)	.289	(1.80)
d60-64	.0350	(.34)	.260	(3.26)	.197	(.95)
d50-59	.226	(1.62)	.315	(4.07)	.0766	(.38)

TABLE 6(continued)

coefficients (t-stats in parentheses)

	Self-employed earnings equation		wage-employed earnings equation		index function	
	coef.	tstat	coef.	tstat	coef.	tstat
CUBAN IMM:						
constant	5.327	(4.80)	8.739	(14.4)	-5.490	(5.20)
age	.0356	(.96)	.0551	(3.46)	.168	(3.78)
agesq/100	-.0380	(.96)	-.0615	(3.46)	-.177	(3.62)
education	.0297	(2.32)	.0436	(5.76)	.0063	(.50)
d70-74	.110	(.80)	-.106	(.91)	-.204	(.70)
d65-69	.154	(1.06)	-.0201	(.18)	-.415	(1.47)
d60-64	.121	(.91)	.0836	(.75)	-.276	(1.00)
d50-59	.0762	(.51)	.0303	(.25)	-.213	(.68)
MEX. IMM:						
constant	3.835	(2.86)	8.440	(15.0)	-6.574	(4.58)
age	.134	(1.86)	.0753	(4.18)	.161	(2.31)
agesq/100	-.168	(1.92)	-.0864	(4.01)	-.167	(2.00)
education	.0221	(1.55)	.0209	(4.10)	.0387	(2.21)
d70-74	.0718	(.42)	.123	(2.30)	-.487	(2.04)
d65-69	-.0933	(.63)	.198	(3.20)	-.228	(.97)
d60-64	-.0320	(.18)	.270	(3.79)	-.487	(1.80)
d50-59	.0460	(.28)	.332	(3.87)	-.142	(.50)
OTHER HISP. IMM:						
constant	5.220	(4.54)	8.483	(14.6)	-4.930	(3.71)
age	.0399	(.97)	.0471	(2.70)	.0699	(1.10)
agesq/100	-.0360	(.79)	-.0492	(2.41)	-.0685	(.92)
education	.0357	(1.86)	.0434	(5.60)	.0467	(2.53)
d70-74	-.240	(1.44)	.111	(2.05)	-.151	(.65)
d65-69	-.0454	(.37)	.287	(4.27)	.0999	(.45)
d60-64	-.0688	(.51)	.360	(4.48)	.317	(1.36)
d50-59	-.0387	(.23)	.297	(3.30)	.0373	(.12)

TABLE 6(continued)

coefficients (t-stats in parentheses)

	Self-employed earnings equation		wage-employed earnings equation		index function	
	coef.	tstat	coef.	tstat	coef.	tstat
South	-.0149	(.44)	-.0496	(2.90)	.137	(2.58)
language	-.0882	(1.56)	-.156	(5.31)	-.155	(2.13)
%Mexico	-.0140	(1.23)	-.0253	(4.75)	.0443	(2.79)
%Cuba	-.0013	(.47)	-.0061	(2.90)	.0003	(.05)
China	.0606	(.67)	.0148	(.27)	.141	(.84)
%China	-.0111	(.20)	-.0263	(.59)	.258	(2.45)
homeself	.0306	(.68)	-.0107	(.66)	.251	(5.22)
GNP78/1000	.0184	(1.32)	.0324	(4.67)	.0561	(3.55)
miles/1000	-.0090	(.57)	-.0012	(.14)	.0734	(2.85)
avgtax$25	-.0062	(1.30)	-.0036	(1.53)	.0081	(1.05)
variance	.0820	(1.17)	.268	(3.64)	-	
cov	-.0808	(.45)	.0311	(.61)	-	
lambda	-.0882	(2.35)	.0079	(.57)		

Log-likelihood=-110957.05 n=10,241

TABLE 7

Immigrant Assimilation Rates, by Sector, and Combined Total

Group and Year of Immigration	Estimates of Earnings Growth, Relative to Native Controls of Same Ethnic Group, 1970-80 (t-statistics)		
	(Borjas) Wage-employed Sample Only	Self-employed Sample Only	Weighted Average of Two Sectors
White			
1965-69	.1620	.4204	.1867
	(12.8)	(6.48)	(14.9)
1960-64	.0751	.1925	.0831
	(6.45)	(3.62)	(6.20)
1950-59	.0526	.2398	.0636
	(4.46)	(5.11)	(5.39)
Asian			
1965-69	.2371	.7025	.3052
	(3.44)	(2.13)	(4.49)
1960-64	.1466	.3798	.1997
	(1.90)	(1.18)	(2.65)
1950-59	.0603	-.0731	.0378
	(.79)	(.19)	(.49)