Earnings Growth among Disadvantaged Business Owners

Final Report to the Office of Advocacy, U.S. Small Business Administration

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Summary of Findings

Academicians and policymakers have argued that self-employment provides a route out of poverty and an alternative to unemployment or discrimination in the labor market. Existing research, however, provides little evidence from longitudinal data on the relationship between business ownership and economic advancement for disadvantaged groups. Using data from the 1979-98 National Longitudinal Survey of Youth (NLSY), this report examines the long-term earnings patterns of young disadvantaged business owners and makes comparisons to young wage/salary workers. The analysis focuses on several disadvantaged groups -- less educated young men and women, blacks, and Hispanics. All of these groups have relatively low earnings in the labor market, limited financial resources, and low rates of business ownership.

The main findings from this analysis for less-educated business owners by gender are:

1. Less-educated young men who own a business earn more than $12,000, on average, than their counterparts employed in the wage/salary sector. Even after controlling for a large number of individual characteristics, the results indicate that self-employed men earn nearly $10,000 more than similar wage/salary workers. This difference is statistically significant.

2. The results suggest that young less-educated female business owners also earn more on average than do less-educated women employed in the wage/salary sector, however, the difference is only $2500. The difference remains similar after controlling for individual characteristics and is statistically significant.

3. A large percentage of young less-educated business owners have very high earnings, however, a large percentage also have very low earnings. For example, 22.0 percent of less-educated self-employed men earn more than $50,000 compared to only 5.6 percent of less-educated men employed in the wage/salary sector. In contrast, 41.6 percent of less-educated self-employed women earn less than $10,000, whereas 17.2 percent of less-educated wage/salary women earn this amount.

4. Comparisons between self-employment and wage/salary income in previous studies have often been criticized for favoring the self-employed because of the inclusion of the returns to capital. A careful adjustment for the opportunity cost of invested business capital, however, has only a minor effect on the main results presented in this report.

5. Estimates from fixed effects earnings regressions for less-educated young men indicate that the self-employed initially experience slower earnings growth than less-educated wage/salary workers. This pattern reverses after several years resulting in faster earnings growth and the self-employed earning nearly 18 percent more than wage/salary workers after 18 years of potential work experience.

6. For less-educated young women, the results indicate that the self-employed initially experience slower earnings growth, but after 11 years of potential work experience have faster earnings growth. For almost all years, the self-employed are predicted to earn less than wage/salary workers. These results, however, appear to be sensitive to the treatment of low earnings observations.

Earnings patterns for minority business owners are also examined in this report. The focus in this analysis, however, is not limited to only less-educated minorities and includes all minorities. The main findings by gender are:

1. An examination of mean earnings among black and Hispanic business owners indicates that self-employed black and Hispanic men have higher mean and median earnings than their wage/salary counterparts. The results for black and Hispanic women, however, are mixed.

2. The results indicate, however, that black and Hispanic business owners earn considerably less than white business owners. For example, self-employed black and Hispanic men earn 35.5 and 18.9 percent less than self-employed white men, respectively. Racial disparities in average business equity are even more striking. Average business equity for self-employed black men is 53.7 less than the average for self-employed whites and average business equity for self-employed Hispanic men is 52.0 percent less than for whites.

3. Estimates from fixed-effects earnings regressions for black men do not indicate a statistically significant difference in earnings growth between the self-employed and wage/salary workers.

4. For Hispanic men, the relative self-employment earnings coefficients suggest that the self-employed start at much lower earnings levels than do wage/salary workers, but experience faster growth rates. After 18 years of potential work experience, the self-employed are predicted to earn roughly 25 percent more than are wage/salary workers. The relative growth coefficients are statistically significant.

5. The relative self-employment earnings coefficients are not statistically significant for both black and Hispanic women, possibly due to small sample sizes.

These results provide evidence that, for at least some disadvantaged young men, business ownership provides a route for economic advancement. The evidence is less clear for the

contribution of self-employment to economic mobility for disadvantaged young women. It is important, however, to keep in mind that these results do not provide an answer to the question of whether a randomly chosen disadvantaged youth will experience faster earnings growth in self-employment than in wage/salary work as they simply make comparisons between the actual experiences of disadvantaged youths in the two sectors. In other words, self-employment may not represent an effective method of economic mobility for *all* disadvantaged workers, but may instead be effective for only a minority of disadvantaged workers.

Contents of the Report

This report uses data from the 1979 to 1998 National Longitudinal Survey (NLSY) to examine the earnings patterns of young disadvantaged business owners. To place these earnings patterns into context, comparisons are made to young disadvantaged wage/salary workers. The key question is whether disadvantaged youths who are self-employed early in their careers experience faster earnings growth than young disadvantaged wage/salary workers. The focus of the analysis is on the actual experiences of disadvantaged workers in the two sectors and cannot provide an answer to whether self-employment provides a better option than wage/salary work for *all* disadvantaged youths.

The report is organized as follows: Section 1 provides an introduction and background to the topic. Section 2 describes the data and sample criteria used in the analysis, and Section 3 examines the self-employment rates and earnings of young less-educated men and women. In Section 4, earnings regressions are estimated for less-educated youths. Section 5 examines patterns of business ownership and earnings among blacks and Hispanics. Earnings regressions are estimated for these two groups in Section 6. Section 7 concludes. Finally, all tables, figures and appendices are included at the end of the report.

1. Introduction

There has been a proliferation of "micro-enterprise" or "entrepreneurial" training programs targeted toward disadvantaged groups in recent years. The Aspen Institute's *1999 Directory of U.S. Microenterprise Programs* lists over 340 programs in the United States (Severens and Kays 1999).[1] Experimental programs promoting self-employment as a way to

[1] See Balkin (1989) for an earlier list and description of many of the programs promoting self-employment among low-income people.

leave the welfare and unemployment insurance rolls are two well-know examples of these types of programs.[2] There also exist a large number of federal, state and local government programs providing set-asides and loans to minorities and women, although many of these programs have been legally challenged in the past decade.[3]

This interest in micro-enterprise programs has been spurred by arguments from academicians and policymakers that self-employment provides a route out of poverty and an alternative to unemployment or discrimination in the labor market.[4] For example, Glazer and Moynihan (1970, p. 36) argue that "business is in America the most effective form of social mobility for those who meet prejudice." Proponents also note that many disadvantaged groups facing discrimination or blocked opportunities in the wage/salary sector have used business ownership as a source of economic advancement. It has been argued, for example, that the economic success of earlier immigrant groups in the United States, such as the Chinese, Japanese, Jews, Italians, and Greeks, is in part due to their ownership of small businesses (See Loewen 1971, Light 1972, Baron et al. 1975, and Bonacich and Modell 1980). More recently, Koreans have purportedly used business ownership for economic mobility (Min 1989, 1993).

Although these arguments have resulted in the creation of a plethora of micro-enterprise or entrepreneurial training programs in the United States, there is very little empirical evidence indicating that business ownership provides an avenue for economic advancement. In fact, previous research indicates that many ethnic entrepreneurs are marginal (Light and Rosenstein 1995), small businesses have high failure rates (Bates 1989, 1990, Meyer 1990, Holtz-Eakin,

[2] See Guy, Doolittle, and Fink (1991) and Raheim (1997) for descriptions of the welfare program, and see U.S. Department of Labor (1992), Benus et al. (1995) and Vroman (1997) for descriptions of the UI program.
[3] See Bates (1993) for a description of programs promoting self-employment among minorities.
[4] See Glazer and Moynihan (1970), Light (1972, 1979), Sowell (1981), and Moore (1983).

Joulfaian and Rosen 1994, and Fairlie 1999), there is more downward mobility in the income distribution among high-income self-employed workers than among high-income wage/salary workers (Holtz-Eakin, Rosen and Weathers 2000), and retail firms owned by less-educated blacks, Korean immigrants and Chinese immigrants produce hourly returns that are below the minimum wage (Bates 1997). On the other hand, previous studies find that a high self-employment rate for an ethnic or racial group is strongly associated with a high average income for that group (Fairlie and Meyer 1996), the self-employed earn more on average than wage/salary workers (Borjas 1986, 1999, Meyer 1990, and Fairlie and Meyer 2000), there is more upward mobility in the income distribution among high-income self-employed workers than among high-income wage/salary workers (Holtz-Eakin, Rosen and Weathers 2000), and income inequality across education levels has not risen among the self-employed in recent decades as it has among wage/salary workers (Borjas 1999). With the exception of Holtz-Eakin, Rosen and Weathers (2000), none of these studies, however, provide evidence from longitudinal data covering many years on the relationship between business ownership and economic advancement for disadvantaged groups.[5]

This report uses data from the National Longitudinal Survey (NLSY) to examine the earnings patterns of young disadvantaged business owners. To place these earnings patterns into context, comparisons to young disadvantaged wage/salary workers are made. The key question is whether disadvantaged youths who are self-employed early in their careers experience faster earnings growth than young disadvantaged wage/salary workers. The answer to this question

[5] Holtz-Eakin, Rosen and Weathers (2000) take a different approach than that of this paper and examine one-year and five-year mobility rates in the income distribution for prime-age self-employed and wage/salary workers using data from the 1968 to 1990 waves of the Panel Study of Income Dynamics.

may shed light on the potential for self-employment to provide a source of economic mobility and self-sufficiency for disadvantaged groups.

The focus is on disadvantaged youths because this group has largely been overlooked in the creation of micro-enterprise training programs. Entrepreneurial education and training may serve as a useful intervention program for at-risk youths possibly redirecting them from criminal activities into becoming owners of legitimate businesses (Light and Rosenstein 1995, and Myers 1989). These types of programs may especially be useful because at-risk youths often demonstrate a keen interest in business ownership and show disdain for available wage/salary jobs (Light and Rosenstein 1995).[6]

The earning patterns of several disadvantaged groups are examined. The patterns for young less-educated business owners are first examined. Less-educated youths face limited opportunities for rapid earnings growth in the wage/salary sector and have experienced declining wages relative to the wages of their college-educated counterparts.[7] On the other hand, an enormous literature finds that less-educated workers have lower earnings, assets, and other financial resources than more-educated workers suggesting that this group has limited resources to start and maintain businesses. In fact, previous research finds that less-educated workers have lower self-employment rates, are less likely to start businesses and have higher business failure rates (see Bates 1990 and Fairlie 1996 for example). The question of whether business ownership can provide an opportunity for rapid earnings growth for this group, however, remains unanswered.

[6] There also appears to be a high level of interest in self-employment among youths in general and among youths in a large number of countries (Blanchflower and Oswald 1998a).

[7] See Levy and Murname (1992) and Katz and Autor (1999) for reviews of the literature on wage inequality.

The earnings patterns for black and Hispanic business owners are also examined. The differences between African-American and Hispanic self-employment rates and the white self-employment rate are striking. Approximately, 11.6 percent of white workers are self-employed, whereas only 3.8 percent of black workers and 6.8 percent of Hispanic workers are self-employed (U.S. Bureau of the Census 1993). Furthermore, the 3 to 1 ratio of white to black self-employment rates has remained roughly constant over the past 80 years (Fairlie and Meyer 2000). Of the blacks and Hispanics who are self-employed, their businesses have lower revenues and profits, hire fewer employees, and are more likely to fail than white-owned businesses (U.S. Bureau of the Census 1997). The relative absence of black and Hispanic-owned businesses in the United States is a major concern among policymakers.

Although a rapidly growing literature documents and examines the causes of ethnic and racial differences in rates of business ownership in the United States, there is very little empirical evidence from longitudinal data on the relationship between business ownership and economic mobility for disadvantaged minorities.[8] An important unanswered question is whether business ownership provides a route for economic advancement for at least the relatively few blacks and Hispanics who are self-employed.[9] I explore this question by examining the long-term earnings patterns of young black and Hispanic business owners. Comparisons are made between the self-employed and wage/salary workers with similar levels of potential work experience.

[8] A few recent studies include Bates (1997), Blanchflower, Levine, and Zimmerman (1998), Fairlie (1999), Fairlie and Meyer (2000), and Hout and Rosen (2000).

[9] Holtz-Eakin, Rosen and Weathers (2000) find that low-income self-employed workers experienced more upward mobility in the income distribution than did low-income wage/salary workers. Furthermore, they find some evidence that self-employment was more successful for blacks than non-blacks.

2. Data

This report uses data from the National Longitudinal Survey of Youth (NLSY), a nationally representative sample of 12,686 men and women who were between the ages of 14 to 22 when they were first interviewed in 1979.[10] Survey members were interviewed annually from 1979 to 1994, and in 1996 and 1998. I exclude the sample of 1,280 youth designed to represent the population who were enlisted in the four branches of the military as of September 30, 1978 and the supplemental sample of 1,643 economically disadvantaged non-black, non-Hispanic youths. In the less-educated sample, I also exclude all individuals whose highest grade completed during the sample period is greater than 12th grade and the supplemental black and Hispanic observations. The resulting samples are random samples of less-educated, black, Hispanic and non-black, non-Hispanic youths (referred to as whites).

Self-employed workers are defined as those individuals who identify themselves as self-employed in own business, professional practice, or farm on the class of worker question for the current or most recent job.[11] I remove individuals who report being enrolled in school and workers who report working fewer than 300 hours in the previous calendar year. The hours restriction rules out very small-scale business activities. In all annual earnings comparisons, the focus is on workers reporting at least 1400 hours in the past calendar year. The focus on full-time, full-year workers removes concerns over differences in hours worked between the self-employed and wage/salary workers.

[10] See Center for Human Resource Research (1999) for additional details on the NLSY sample.
[11] Unpaid family workers are not counted as self-employed. The current or most recent job or "Current Population Survey (CPS) employer" is defined as the job with the most hours for those who worked during the survey week and as the most recent job for those who did not work during the survey week. More details are provided in Center for Human Resource Research (1999).

Total annual earnings are calculated by summing the responses to questions on military income, wage and salary income, and business or farm income (after expenses) in the past calendar year. I add the income from all three sources because 56.9 percent of the self-employed with positive earnings in my sample report wage and salary income, but do not report business income. This is only partly due to incorporated business owners reporting their income as wage and salary income -- 55.3 percent of unincorporated business owners with positive total earnings report zero business income. As suggested by Jay Zagorsky at the Center for Human Resource Research, Ohio State University, it may partly be due to the ordering of questions on the questionnaire. Respondents were asked 1) How much money did you get from the military?, 2) Excluding military pay, how much money did you get from wages, salary, commissions or tips?, and 3) Excluding anything you already mentioned did you receive any business income? Thus, some of the self-employed may have reported their income in the second question and did not correct their mistake. Another possibility is that the self-employed report only their labor income from the business under wage/salary income. I explore this issue further below.

Earnings observations in all years are inflated to 1998 dollars. The responses for each of these three sources of income are top coded at $75,000 from 1979 to 1984, $100,000 from 1985 to 1994, and the top 2 percent for 1996 and 1998. Instead of using these top codes, I impose the 1994 top code in 1998 dollars for all years, which equals $109,987. I set all top coded values to $150,000.[12]

3. Self-Employment Rates and Earnings among Less-Educated Youths

The plight of less-educated youths in self-employment is first examined. As noted above, less-educated youths face limited opportunities for rapid earnings growth in the wage/salary sector and have experienced declining wages relative to the wages of their college-educated counterparts. However, this group also has limited resources to start and maintain businesses and have low rates of self-employment relative to more-educated workers. Figures 1 and 2 report self-employment rates by age for less-educated men and women who worked at least 300 hours in the past calendar year. The self-employment rate is defined as the fraction of workers that is self-employed. The reported estimates indicate that self-employment rates increase sharply with age. At age 18-21, only 4.1 percent of less-educated men are self-employed and 1.6 percent of less-educated women are self-employed. By age 38-41, the male self-employment rate is 11.9 percent and the female self-employment rate is 7.1 percent. The estimates also indicate that less-educated men have much higher average probabilities of choosing self-employment than do less-educated women. These two findings are similar to those reported in previous studies using samples that include workers of all ages and education levels.

In Table 1, mean, median, and the standard deviation of total annual earnings for self-employed and wage/salary youths are reported. I include all less-educated youths who worked at least 1400 hours in the past calendar year. On average, self-employed men earn substantially more than wage/salary men. The difference in average annual earnings is more than $12,000. Apparently, higher average self-employment earnings are not entirely due to differences in observed characteristics. Controlling for age, education, family characteristics, region, urbanicity, local unemployment rates, and AFQT scores, I find that self-employed men earn

[12] In the most recent years of the NLSY, the average value of all top coded observations is assigned to top

$9776 more than less-educated wage/salary workers. The coefficient is statistically significant and is reported in Appendix Table 1.

The comparison of average earnings reveals a similar pattern for less-educated women. Self-employed women earn $2,500 more than wage/salary women. Again this difference is not entirely due to differences in observable characteristics. Controlling for the characteristics listed above, I find that self-employed women earn $2,124 more, on average, than wage/salary women. The coefficient is statistically significant and is reported in Appendix Table 1.

A comparison of median earnings tells a similar story for less-educated men, but not for less-educated women. Median earnings is higher for self-employed men than for wage/salary men, whereas median earnings is lower for self-employed women. The gap for men, however, is much smaller ($3,606). For both men and women, median incomes are lower than average incomes among the self-employed. Because the median measures the middle observation in the distribution (i.e. the 50th percentile) it is less influenced by a small group of high earners than the mean. Another interesting comparison between self-employment and wage/salary earnings for this group is the difference in variability. The standard deviation of self-employment income is substantially higher than that of wage/salary income among both less-educated young men and women.

In addition to these estimates, earnings distributions for full-time workers are displayed in Figures 3 and 4. The reported values along the X-axis represent the midpoint of their range.[13] The figures generally confirm what we would expect from analyzing the estimates reported in Table 1. For men, the self-employment earnings distribution is visibly more disperse than the wage/salary earnings distribution. This is primarily due to the thicker upper tail of the self-

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coded observations. These are generally close to $150,000.

employment distribution. Twenty-two percent of self-employed men earn $50,000 or more, compared to only 5.6 percent of wage/salary men.[14] Evidently, some less-educated young men own very successful businesses. Another difference between the two distributions is that the self-employed are less likely to have earnings in the middle of the wage/salary distribution. The bottom tails of the distribution, however, are fairly similar.

Among women, the self-employment earnings distribution also appears more disperse than the wage/salary earnings distribution. In this case, however, it appears to be primarily due to a high concentration of self-employed women at the bottom of the distribution. Forty-two percent of self-employed women earn $10,000 or less, compared to only 17.2 percent of wage/salary women. This is surprising as these estimates condition on full-time work. Apparently, many young women who choose self-employment have very low annual earnings. Whether this is partly due to life-style choices is an interesting question.

RETURNS TO CAPITAL

One issue that arises in comparing self-employment earnings to wage/salary earnings from survey data is the treatment of returns to capital. In the NLSY, the question regarding self-employment income asks "How much did you receive after expenses?" from your farm or business in the past calendar year. Although there is some uncertainty, respondents are likely to interpret this question to include both the returns to labor and the returns to capital. As noted above, however, the majority of the self-employed report their earnings as wage/salary income and not as business income. In the case of the respondent reporting income as business income it

[13] For example, $20,000 includes all earnings observations between $19,750 and $20,249.
[14] Forty-six percent of the less-educated self-employed men who earn $50,000 or more are in the Construction industry. Among self-employed men earning less than $50,000, 36.6 percent are in the

would be preferable to remove the returns to capital before making comparisons to the earnings of wage/salary workers. [15] This may not pose a substantial problem, however, because many business owners do not invest large amounts of capital. Data from the 1992 Characteristics of Business Owners survey indicate that 57 percent of small businesses require less than $5000 of startup capital (U.S. Bureau of the Census 1997).[16]

The NLSY contains two variables that may shed some light on the issue. It contains the market value of the individual's farm, business and/or other real estate and the total amount of debt owed on this farm, business and/or other real estate.[17] These two variables, however, suffer from three major problems. First, they are only available for 1985 to 1990 and 1992 to 1998. Second, both measures include other real estate. There is a separate question asking whether the individual owns other real estate, however, a question on the value of the other real estate does not exist. Third, I do not have information on the percent of the business owned by the respondent. Seventy-six percent of small business owners have individual proprietorships (U.S. Bureau of the Census 1997). With these reservations in mind, I proceed.

To remove the returns to capital from total self-employment income, I first need to calculate an opportunity cost for this capital. I calculate the owner's equity in the business, farm and other real estate and multiply this by the rate of return on an alternative asset. I calculate

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Construction industry.

[15] See Yuengert (1996) for a thorough discussion of the issues. Using data on both total income from the business and reported labor income from the 1989 Survey of Consumer Finances, he finds that the self-employed, on average, understate their labor earnings by 38 percent and overstate their capital income

[16] The definition of small business used in the CBO is anyone who filed an IRS form 1040 Schedule C (individual proprietorship or self-employed person), 1065 (partnership), or 1120S (subchapter S corporation).

[17] The instructions on the two questions were 1) ""Market Value" is defined as "how much the respondent would reasonably expect someone else to pay if the item(s) were sold today in its/their present condition: not the original price the respondent paid for the item(s)," and 2) "What is the total amount of debts or liabilities you ... owe on this operation or property? Include any unpaid mortgages. (Do not include any

estimates using both a less risky alternative (30-year Treasury Bond) and a more risky alternative (the S&P 500).[18] I then subtract this opportunity cost of capital from reported business income.[19] I do not subtract the opportunity cost of capital from reported wage/salary income for business owners. I assume that this income measure only captures the returns to labor.

Estimates of adjusted self-employment and wage/salary income are reported in Table 2. I also report the average market value, debt and equity in business, farm and other real estate. Among young men, less-educated business owners have businesses worth $64,700, on average. Their average debt on these businesses totals $27,649. Young less-educated female business owners have smaller businesses. The average market value of their businesses is $42,624. The debt on their businesses, however, is proportionately lower.

As mentioned above, it is unfortunate that the respondent's equity in other real estate I cannot be removed from total equity. I can, however, examine total equity for those individuals who report not owning other real estate. Of course, this is problematic because the value of other real estate may be positively correlated with the value of their business. Therefore, removing this group is likely to provide a downward estimate of the average market value of all businesses. Nevertheless, it is useful for a comparison. After removing these individuals, I find an average business market value of $32,826 for self-employed men and $21,984 for self-employed women. The actual average business values of the self-employed are likely to lie between these estimates and those reported in Table 2. I proceed assuming the higher business value which in turn will provide a more conservative estimate of self-employment earnings.

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commodity credit loans.)."

[18] I calculate the average annual real rate of return from 1985 to 1998 for both investments. The rate of return on the Treasury bond and S&P 500 are 4.8 and 10.4 percent, respectively.

[19] I censor equity and adjusted business income at zero.

In Table 2, unadjusted earnings for the self-employed and wage/salary workers for 1985-90 and 92-98 are also reported. As expected, mean earnings is higher than reported in Table 1. The differences between self-employment and wage/salary are generally similar. For both men and women, the self-employed have higher earnings than wage/salary workers. As expected, the removal of the opportunity cost of business, farm and other real estate equity decreases relative self-employment earnings. For less-educated men, the difference between mean self-employment earnings and wage/salary earnings, however, remains large even when using the S&P 500 as the alternative investment. Self-employed men earn $10,803 more on average than wage/salary workers. The earnings differences also decrease, but remain positive for less-educated women after adjusting for the opportunity cost of business equity. To conclude, the simple method used here to remove the returns to capital indicates that average self-employment earnings remain higher than average wage/salary earnings for less-educated youths. The adjustment for the opportunity cost of capital does not substantially affect earnings comparisons. Given these results and the uncertainty over how respondents interpret the income questions I use total earnings in the following regression analysis.[20]

4. Earnings Growth among Less-Educated Youths

Overall, the results presented above provide evidence that male less-educated business owners earn more than less-educated wage/salary workers. The evidence is less clear, however,

[20] There exist at least two additional potential problems with reported business income. First, is the ambiguity regarding how reinvested profits are treated. As the question in the NLSY is written, we do not know whether respondents incorrectly subtract reinvested profits from total self-employment income. To complicate issues further, this may differ depending on how the profits are reinvested. Purchases of small equipment may be considered expenses, whereas purchases of large items such as buildings or vehicles may be considered profits as they are more likely to be depreciated over a long period of time. Second, it is unclear how an individual reports the returns to the labor of other family members.

for less-educated women. These estimates, which do not fully exploit the longitudinal nature of the data, provide some suggestive evidence that self-employed men experience faster earnings growth than their wage/salary counterparts. Of course, this inference relies on the assumption that the two groups have the same initial earnings levels at entry into the labor market and have the same age distribution. In fact, previous studies find that the self-employed are older on average than are wage/salary workers, and differ in other important ways.[21] Another problem with the interpretation is that workers may select into the sector that provides the highest expected earnings. Therefore, even after controlling for differences in observable characteristics self-employed and wage/salary workers may differ in unobservable characteristics.

Do young less-educated business owners experience faster earnings growth than their counterparts employed in the wage/salary sector? To explore this question, I compare the earnings patterns of less-educated youths who were self-employed early in their careers to the earnings patterns of those who were wage/salary workers. The sample includes observations for less-educated youths who report working at least 1400 annual hours in the survey year.

Separate log earnings regressions for men and women are estimated. I control for current self-employment and wage/salary status and for differences in observable and unobservable characteristics. Specifically, I estimate the following reduced form equation for annual earnings:

$$(4.1) \quad \ln y_{it} = \alpha_i + X_{it}'\beta + \gamma_1 t + \gamma_2 t^2 + \pi S_{it} + \gamma_1^S t S_{it} + \gamma_2^S t^2 S_{it} + \varepsilon_{it},$$

where y_{it} is individual i's annual earnings in year t, α_i is an individual-level fixed effect, X_{it} is vector of time-varying independent variables, t is a time trend which equals zero at the completion of formal schooling, S_{it} is a dummy variable indicating whether the individual is self-

[21] These studies generally find that being male, white, older, married and an immigrant, and having a self-employed parent, higher asset levels and more education increase self-employment. See Aronson (1991)

employed in year t, and ε_{it} is the error term.[22] The individual-level fixed effects control for all observable and unobservable characteristics that do not change over time. The dummy variable for current self-employment status and its interactions with the time trend variables allow the earnings growth patterns to differ between self-employed and wage/salary workers. The difference between self-employment and wage/salary earnings at time t is equal to $\pi + \gamma_1^S t + \gamma_2^S t^2$. Because individuals make transitions between self-employment and wage/salary over time, comparisons of self-employment and wage/salary earnings for the same individual in different years contribute to identifying these coefficients. Furthermore, allowing S_{it} to vary over time implies that the earnings growth coefficients are not determined solely by individuals who remain self-employed for many consecutive years. No restrictions are placed on movements into and out of self-employment over years of potential work experience. Thus, an individual can contribute to the self-employment earnings coefficients in one year and the wage/salary coefficients in another year.

Although estimates from Equation (4.1) are useful in determining whether less-educated youths who choose self-employment experience faster earnings growth on average than their wage/salary counterparts, it is impossible to infer from these estimates whether self-employment is a "better" option for the randomly chosen less-educated youth. The standard economic model of the self-employment decision posits that workers choose the sector that provides the highest expected income or utility (see Evans and Jovanovic 1989, Rees and Shah 1986, and Reardon 1997 for a few examples). The fixed effects included in Equation (4.1) control for the part of this selection that remains constant over time, however, they do not control for the possibility of

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for a review of earlier studies in this literature, and Hout and Rosen (2000), Blanchflower and Oswald (1998b), Dunn and Holtz-Eakin (2000), and Fairlie (1999) for a few recent examples.

a selection bias associated with workers choosing the sector that provides the fastest growth in earnings. Due to a lack of credible identifying instruments and the likely sensitivity of estimates to distributional assumptions, however, I do not address this issue. The difficulty lies in identifying a variable that theoretically affects the decision to become self-employed, but does not affect self-employment and wage/salary earnings patterns.

I now turn to the results for less-educated men. It is difficult to interpret the separate shift, linear growth and quadratic growth coefficients for relative self-employment earnings in Equation (4.1). Instead of simply reporting these coefficients, I simulate earnings patterns for the self-employed relative to wage/salary workers. These simulations are displayed in Figure 5 (the actual coefficient estimates are reported in Appendix Table 2). The figure displays the difference between log self-employment earnings and log wage/salary earnings (i.e. relative self-employment earnings) from the time less-educated workers enter the labor market (time=0) to 18 years later. I do not report estimates for more than 18 years because I want to remain well within the distribution of values for t in the sample.[23] The estimates displayed in the figure also provide an approximate estimate of the percentage difference between self-employment and wage/salary earnings. The exact percentage effect on the earnings difference equals $e^{\delta}-1$, where $\delta=\pi + \gamma_1{}^{S}t + \gamma_2{}^{S}t^2$.

The estimates for men indicate that self-employed youths initially experience slower earnings growth than wage/salary workers. After 7 years of potential work experience, the self-employed earn 9.7 percent less than wage/salary workers. Starting around year 7, the self-employed experience faster earnings growth. This faster earnings growth eliminates the earnings

[22] I include marital status, children, and local unemployment rates as time varying controls.
[23] The sample size declines steadily from 420 at 18 years to 111 at 22 years. For 23 to 25 years, there are

differential after 12-13 years and allows relative self-employment earnings to grow to nearly 18 percent after 18 years.[24] The two growth coefficients are jointly statistically significant using an F-test. The estimated time pattern suggests that on average less-educated male business owners may struggle when they have only a few years of work experience relative to wage/salary workers, but ultimately experience higher earnings. This pattern may also explain why less-educated men have relatively low rates of self-employment as many may not be able to survive the initial years of relatively low earnings.

Figure 6 displays relative self-employment earnings for young less-educated women. The estimated pattern indicates that the self-employed initially experience slower earnings growth then after 11 years of potential work experience have faster earnings growth. The difference between these results and those for less-educated men is that for almost all reported years, self-employed women earn less on average than do wage/salary workers. In fact, at year 11 the self-employed are predicted to earn more than 100 percent less than wage/salary workers. These results seem implausibly large in light of the two growth coefficients being jointly significant.

Note that the results in Figure 4 indicate that a large percentage of self-employed less-educated women have very low earnings. There is the possibility that the results are due to taking logs of small earnings values, which may have a strong influence on the coefficient estimates. The common approach taken in the literature on the wage/salary sector is to remove "implausibly" low hourly wages (e.g. less than $2 per hour) in the estimation of log earnings

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60 observations.

[24] The trajectory of relative self-employment earnings suggests that the self-employed will earn considerably more than wage/salary worker after 26 or more years. It would be unwise to make this inference, however, as the regressions are estimated with a sample of young workers who have a maximum of 25 years of experience. Thus, this would be the equivalent of making out of sample

regressions. In the case of the self-employed, however, it is more problematic because these low earnings may be perfectly plausible as there exists no minimum wage for business owners. A simple method of checking the sensitivity of results to this concern is to censor all very low earnings observations. Specifically, I assign all earnings observations below $500 to equal $500. In the sample of less-educated women, 5.4 percent of the self-employed and 0.7 percent of wage/salary workers are censored at $500. I display estimates in Figure 8. The result of censoring is to shift the entire time pattern upward and slightly to the left. Self-employment earnings now grow faster than wage/salary earnings after 9 years instead of 11. Also, the minimum value for relative self-employment earnings is now 47.8 percent. Apparently, the estimates for less-educated women are somewhat sensitive to taking logs of low earnings levels.

The results for young less-educated men are not overly sensitive to these low earnings observations (reported in Figure 7). In this case, 1.8 percent of the self-employed and 0.7 percent of wage/salary workers are censored at $500. The time pattern shifts upward and to the right somewhat.

In all of the regressions discussed above, I enforce a consistent top code of $109,987 for each income question and assign these observations a value of $150,000. To determine whether my estimates of earnings growth are sensitive to these observations, I estimate Equation (4.1) assigning $109,987 to all top-coded values of the income questions. This will further limit the influence that these high earnings observations have on the time trends. As noted in the previous section, the self-employed are more likely to experience high earnings than are wage/salary workers. The simulations are displayed in Figures 9 and 10. For both less-educated men and women, the time patterns are very similar to those displayed in Figures 5 and 6. Evidently, the

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predictions.

faster rates of earnings growth among the self-employed are not simply due to the original assignment of values to top coded observations.

5. Black and Hispanic Business Ownership

This report also explores whether business ownership can provide a source of upward mobility for blacks and Hispanics. As noted above, blacks and Hispanics have low rates of business ownership. Furthermore, black and Hispanic businesses have lower revenues and profits, hire fewer employees, and are more likely to fail than white-owned businesses. The racial disparities in business ownership and outcomes are a major concern among policymakers as self-employment is viewed as providing a route out of poverty and an alternative to unemployment or discrimination in the labor market.

Before examining self-employment and wage/salary earnings patterns for blacks and Hispanics, however, it is useful to document racial differences in self-employment rates and earnings. Table 3 reports self-employment rates by sex and race. In this table and the following analysis, I include all young blacks and Hispanics in the sample. I do not restrict the samples to include only less-educated workers. The reported estimates indicate that self-employment rates differ substantially by race.[25] Similar to estimates reported in previous studies, blacks and Hispanics are much less likely to be self-employed than are whites. Only 4.8 percent of black men are self-employed compared to 9.6 percent of white men. The Hispanic male rate of 6.9 percent is also lower than the white rate, but higher than the black rate. Among women, the black/white and Hispanic/white self-employment rate ratios are similar to those for men. The

[25] The rates are generally similar when including only workers with at least 1400 hours in the past calendar year.

main difference, however, is that for all racial groups female self-employment rates are lower. Although not reported, self-employment rates increase rapidly with age for all groups.

These estimates from the NLSY are comparable to those from 1990 Census microdata using a similar age group (reported in Appendix Table 3). I generally find slightly lower rates using the Census, but the relative differences between the races are similar. Blacks and Hispanics are substantially less likely to own businesses than are whites.[26]

Although relatively few blacks and Hispanics are self-employed it is important to determine whether these minority business owners are successful. In Table 4, I report the mean, median, and standard deviation of total annual earnings for black and Hispanic self-employed and wage/salary youths. I only include full-time workers, defined here as working at least 1400 hours in the past calendar year, to control for differences in hours worked. I first discuss the results for men. For both black and Hispanic men, the self-employed earn substantially more on average than do wage/salary workers. Self-employed blacks and Hispanics earn $6819 and $10,981 more than their wage/salary counterparts, respectively.[27] These differences are large, representing 30-40 percent of average wage/salary earnings. A comparison of means can create a distorted picture, however, if a few business owners are extremely successful.[28] Comparing median income levels removes these concerns. For both blacks and Hispanics, median self-

[26] The relative patterns are similar to those found using data from the Current Population Survey (U.S. Small Business Administration 1999, Fairlie 2000) and the GSS (Hout and Rosen 2000).
[27] Controlling for age, education, family characteristics, region, urbanicity, local unemployment rates, and AFQT scores, I find that self-employed black men earn $6039 more than black wage/salary workers and self-employed Hispanic men earn $13,143 more than Hispanic wage/salary workers. Both estimates are statistically significant. Portes and Zhou (1999) find similar results using data from the 1990 Census. They find higher actual and adjusted earnings among self-employed native-born blacks and Hispanic immigrants than their counterparts in the wage/salary sector.
[28] I should note, however, that this problem is mitigated somewhat by the top coding described above.

employment earnings are higher than median wage/salary earnings, however, the differences are much smaller.

Although average and median earnings are higher for self-employed blacks and Hispanics, it is important to also compare the variance of earnings in the two sectors. For both races, the standard deviation of self-employment income is substantially higher than that of wage/salary income. This dissimilarity is also apparent when examining earnings distributions for self-employed and wage/salary workers. In Figures 11 and 12, I display earnings distributions for black and Hispanic men. For both groups, a much larger percentage of the self-employed have very high or very low earnings than wage/salary workers. For example, 18 percent of self-employed blacks earn more than $60,000 whereas only 4 percent of blacks in the wage/salary sector have earnings at this level. At the other end of the distribution, 15 percent of self-employed blacks earn less than $10,000 compared to 8 percent of wage/salary blacks.

Characteristics of the earnings distribution for white men are also reported in Table 4 and Figure 13. The most notable difference is that white men earn substantially more than either black or Hispanic men in both the self-employment and wage/salary sectors.[29] Of interest to this analysis, however, is the difference between the two sectors. Using mean or median earnings, self-employed white men earn substantially more than their wage/salary counterparts. The differences are also similar in magnitude when measured as a percentage of wage/salary earnings. Finally, the comparison of self-employment and wage/salary earnings distributions for white men reveals similar patterns as those for black and Hispanic men.

[29] The earnings differences between minorities and whites in the wage/salary sector has been documented and studied extensively in the literature (see Altonji and Blank 1998 for a recent review). Previous estimates also indicate that black- and Hispanic-owned businesses have lower profits and sales than do white-owned businesses (see U.S. Small Business Administration 1999 and U.S. Bureau of the Census 1997).

Table 4 also reports estimates of the mean, median and standard deviation for self-employment and wage/salary earnings for black and Hispanic women. I should note, however, that some caution is warranted in interpreting the estimates for self-employment earnings as sample sizes are small. Similar to the results for men, I find that self-employed black and Hispanic women earn more than black and Hispanic women working in the wage/salary sector, although the difference is small for black women.[30] A major difference, however, is that median self-employment earnings are lower than median wage/salary earnings for black and Hispanic women. Median self-employment earnings are roughly $2000-$3000 less than median wage/salary earnings. Therefore, an evaluation regarding whether self-employed minority women earn more or less than minority women working in the wage/salary sector depends on the measure chosen.

The estimates reported in Table 4 also indicate that self-employment earnings have a higher variance than wage/salary earnings for black and Hispanic women. The earnings distributions presented in Figures 14 and 15 support this finding. Higher percentages of black and Hispanic women who are self-employed are found in the tails of the earnings distribution. Finally, I find that black and Hispanic women who are self-employed or work in the wage/salary sector earn less than white women. The one surprising exception is that mean earnings among self-employed Hispanic women is slightly higher than mean earnings among white women.

[30] Controlling for differences in observable characteristics, I find that self-employed Hispanic women earn $2198 more than Hispanic wage/salary workers. The estimated difference in earnings among black women, however, is small and statistically insignificant.

RETURNS TO CAPITAL

Does adjusting for the returns to capital affect the earnings comparisons for blacks and Hispanics? I use the procedure described above to remove the opportunity cost of business equity from business income. Specifically, I calculate the owner's equity in the business, farm and other real estate and multiply this by the rate of return on an alternative asset. I calculate estimates using both a less risky alternative (30-year Treasury Bond) and a more risky alternative (the S&P 500). In comparisons for minorities, this may not pose a substantial problem, however, because many business owners do not invest large amounts of capital. Data from the 1992 Characteristics of Business Owners survey indicate that the percent of black- and Hispanic-owned businesses started with less than $5000 of capital are 67 and 59 percent, respectively (U.S. Bureau of the Census 1997).

Estimates of adjusted self-employment and wage/salary income are reported in Table 5. I also report the average market value, debt and equity in business, farm and other real estate. Self-employed blacks and Hispanics have substantially lower levels of equity than do whites. Furthermore, within each racial group self-employed women have lower levels of equity than do self-employed men.[31]

Table 5 also reports unadjusted earnings for the self-employed and wage/salary workers for 1985-90 and 92-98. As expected, mean earnings are larger than reported in Table 4. The differences between self-employment and wage/salary are generally similar. For all groups, the self-employed have higher earnings than wage/salary workers. As expected, the removal of the opportunity cost of business, farm and other real estate equity decreases relative self-employment earnings. For black and Hispanic men, however, the difference between mean self-

[31] I also calculate business equity for the sample of self-employed who report not owning any other real

employment earnings and wage/salary earnings, however, remains large even when using the S&P 500 as the alternative investment. Self-employed blacks earn $5413 more on average than wage/salary workers, and self-employed Hispanics earn $9879 more. The earnings differences also decrease, but remain positive for black and Hispanic women after adjusting for the opportunity cost of business equity. To conclude, the simple method used here to remove the returns to capital indicates that average self-employment earnings remain higher than average wage/salary earnings for blacks and Hispanics. The adjustment for the opportunity cost of capital does not substantially affect earnings comparisons. Given these results and the uncertainty over how respondents interpret the income questions I use total earnings in the remainder of the analysis for minorities.

6. Estimates of Earnings Patterns among Black and Hispanic Business Owners

Overall, the results presented in Tables 4 and 5, and Figures 11-16 provide evidence that self-employed black and Hispanic men earn more than black and Hispanic wage/salary workers. The evidence is less clear, however, for women. These estimates, which do not fully exploit the longitudinal nature of the data, provide some suggestive evidence that self-employed blacks and Hispanics experience faster earnings growth than their wage/salary counterparts. Of course, this inference relies on the assumption that the two groups have the same initial earnings levels at entry into the labor market and have the same age distribution. Another problem with the interpretation is that workers may select into the sector that provides the highest expected earnings. Therefore, even after controlling for differences in observable characteristics self-employed and wage/salary workers may differ in unobservable characteristics.

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estate. These levels of equity are from 7.6 to 29.8 percent lower than the levels reported in Table 3.

Do black and Hispanic business owners experience faster earnings growth than black and Hispanic wage/salary workers? To explore this question, I compare the earnings patterns of black and Hispanic youths who were self-employed early in their careers to the earnings patterns of those who were wage/salary workers. Specifically, I estimate Equation (4.1) separately for each race and sex. In this equation, I control for current self-employment and wage/salary status and for differences in observable and unobservable characteristics. As a reminder, although estimates from Equation (4.1) are useful in determining whether minorities who choose self-employment experience faster earnings growth on average than their wage/salary counterparts, it is impossible to infer from these estimates whether self-employment is a "better" option for the randomly chosen black or Hispanic.

I now turn to the results for black men. Because of the difficulty in interpreting the separate shift, linear growth and quadratic growth coefficients for relative self-employment earnings in Equation (4.1), I simulate earnings patterns for the self-employed relative to wage/salary workers. These simulations are displayed in Figure 17 (the actual coefficient estimates are reported in Appendix Table 4). The point estimates indicate that black men who are self-employed initially experience slower earnings growth than wage/salary workers, then after several years of potential work experience this reverses and they experience faster earnings growth and higher earnings. The two growth interaction coefficients, however, are not jointly statistically significant. I cannot reject the null hypothesis that the time trend interactions are different between the self-employed and wage/salary workers at conventional levels of significance. After removing these interactions, I find a positive and statistically significant coefficient on the self-employment dummy variable. This result confirms the previous findings that the self-employed earn more on average than wage/salary workers among black men.

Figure 18 displays the results for the sample of Hispanic men. The patterns suggest that Hispanic men who are self-employed start at much lower earnings levels than do wage/salary workers, however, they experience faster growth rates. In fact, the self-employed earn slightly more than wage/salary workers after 9 years of potential work experience. The hypothesis that the self-employment and wage/salary time trend coefficients are the same is easily rejected for Hispanic men. The time pattern suggests that on average self-employed Hispanic men may struggle in the first few years of owning a business relative to wage/salary workers, but ultimately experience higher earnings. This pattern may also explain why Hispanic men have relatively low rates of self-employment as many may not be able to survive the initial years of relatively low earnings.

To place the relative self-employment earnings patterns among blacks and Hispanics into context, it is useful to compare them to the patterns for white men. Figure 19 displays the results. The time pattern is strikingly similar to that for black men. The self-employed initially have lower earnings and slower growth than wage/salary workers. After several years, however, they experience faster growth and eventually higher earnings. The two growth coefficients are jointly significant at the α=0.05 level. The similarity of results suggests the possibility that the lack of statistical significance for the results among blacks may be due to small sample sizes. However, if the black and white male patterns are truly similar then it raises the question of why black self-employment rates are so much lower than white rates. It may have to do with blacks having difficulty obtaining credit (see Fairlie 1999 and Blanchflower, Levine and Zimmerman. 1998).

Figures 20 and 21 display the results for black and Hispanic women, respectively. The coefficient estimates imply similar patterns for the two groups. In both cases, the self-employed

initially earn considerably less than wage/salary workers, but essentially catch up after 10 years. For both groups, however, the pair of growth interactions is not jointly significant. Thus, it is difficult to infer much from these results. In contrast, the results for white women are statistically significant and indicate a different pattern (reported in Figure 22). Relative self-employment earnings start out positive then become negative. After several years relative growth becomes positive and the gap narrows. The effects seem implausibly large, however. At 11 years, the self-employed earn more than 70 percent less than wage/salary workers. It is unclear what causes these patterns.

ADDITIONAL ESTIMATES

In all of the regressions discussed above, I enforce a consistent top code of $109,987 for each income question and assign these observations a value of $150,000. To determine whether my estimates of earnings growth are sensitive to these observations, I estimate Equation (4.1) assigning $109,987 to all top-coded values of the income questions. This will further limit the influence that these high earnings observations have on the time trends. As noted in the previous section, the self-employed are more likely to experience high earnings than are wage/salary workers. For all groups, the estimated relative self-employment earnings patterns are very similar to those displayed in Figures 17-22. Evidently, the faster rates of earnings growth among the self-employed are not simply due to the original assignment of values to top coded observations.

Figures 11-16 also indicate that the self-employed are more likely to experience very low earnings observations than are wage/salary workers. Using a log specification for the earnings regression may allow these low earnings observations to overly influence the coefficient

estimates. A simple method of checking the sensitivity of results to this concern is to censor all very low earnings observations. Specifically, I assign all earnings observations below $500 to equal $500.[32] In the sample, 2.3 percent of the self-employed and 0.6 percent of wage/salary workers are censored at $500. For black men, censoring results in a similar pattern for relative log self-employment earnings with the curve shifting up slightly. The curve for Hispanic men shifts up more moving the "breakeven" point to the left. Relative self-employment earnings now become positive at 4 years instead of 9 years. For white men, the curve shifts upward to the point where relative self-employment earnings are always positive. The curve for black women shifts upward slightly, whereas the curve for Hispanic women shifts downward. Finally, the curve becomes more compressed for white women, but has a very similar shape. Overall, these results suggest that the shape of the relative log self-employment earnings patterns are not sensitive to censoring at $500, however, for most groups it appears as though relative self-employment earnings would be higher.

I also examine whether previous self-employment has an independent effect on current earnings. For example, past self-employment may have a negative effect on wage/salary earnings if business failures often result in the owners being forced to take inferior wage/salary jobs. On the other hand, the experience gained from running a small business, even if it was unsuccessful, may be valuable to some employers. I include a vector of lag values of self-employment status for the previous five years in Equation (4.1). Most of the coefficient estimates on the lag values of self-employment are statistically insignificant across samples. Furthermore, among the few statistically significant coefficients many are implausibly large. For

[32] Another approach would be to exclude these observations from the sample, which is similar to the common approach of removing "implausibly" low hourly wages (e.g. less than $2 per hour) in the

example, I find a coefficient of 0.4214 on self-employment lagged four years for Hispanic women. I also experimented with including fewer lags and found roughly the same results. Overall, the findings from these regressions do not provide clear evidence that lagged self-employment has an independent effect on current earnings.

7. Conclusions

Data from the National Longitudinal Survey (NLSY) are used to examine the earnings patterns of young less-educated business owners and make comparisons to young less-educated wage/salary workers. The results indicate that, on average, self-employed men earn substantially more than wage/salary men. The difference in average annual earnings is more than $12,000. The results also indicate that young less-educated female business owners earn more on average than do women employed in the wage/salary sector, however, the difference is only $2500. These differences are not overly sensitive to controlling for differences in individual characteristics, including AFQT scores, or removing the opportunity cost of invested capital in the business. They are also statistically significant.

Estimates from the fixed-effects earnings regressions for less-educated young men, indicate that the self-employed initially experience slower earnings growth than wage/salary workers. After 7 years of potential work experience, the self-employed earn 9.7 percent less than wage/salary workers. Starting around year 7, the self-employed experience faster earnings growth. This faster earnings growth eliminates the earnings differential after 12-13 years and allows relative self-employment earnings to grow to nearly 18 percent after 18 years of potential work experience. The estimated time pattern suggests that on average less-educated male

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estimation of log earnings regressions among wage/salary workers. In the case of the self-employed,

business owners may struggle in the first few years relative to wage/salary workers, but ultimately experience higher earnings.

For less-educated young women, the results indicate that the self-employed experience slower earnings growth then after 11 years experience faster earnings growth. For almost all years the self-employed are predicted to earn less than wage/salary workers. These results, however, appear to be sensitive to the treatment of very low earnings observations. Therefore, they are difficult to interpret.

The results presented here provide evidence that, for at least some less-educated youths, business ownership provides a route for economic advancement. Of course, we cannot determine whether business ownership provides more mobility for the randomly chosen less-educated youth. These results also do not support the conclusion that self-employment is a "better" option than wage/salary work for *all* less-educated youths. This finding, however, is important in light of the relatively small potential for rapid earnings growth among less-educated wage/salary workers and the declining wage prospects for this group relative to their college-educated counterparts. Currently, the focus of major job training programs for disadvantaged youths, such as JTPA Title IIC and Job Corps, is on providing training for jobs in the wage/salary sector. The addition of a microenterprise or entrepreneurial training and assistance component to these programs, however, may allow more less-educated youths to experience sizeable earnings growth. There may exist a large number of less-educated youths who possess the skills and desire to become self-employed, but ultimately do not create small businesses due to a lack of knowledge of business opportunities, sector-specific human capital, and financial capital.

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however, it is more problematic because these low earnings may be perfectly plausible.

Data from the National Longitudinal Survey (NLSY) are also used to examine the earnings patterns of young black and Hispanic business owners and make comparisons to young black and Hispanic wage/salary workers. I find that self-employed black and Hispanic men have higher mean and median earnings than their wage/salary counterparts. The results for black and Hispanic women, however, are mixed.

Comparisons of the earnings growth of self-employed minorities to the earnings growth of minorities employed in the wage/salary sector are also made. In particular, I estimate fixed-effects earnings regressions that control for differences in time-invariant observable and unobservable characteristics and time-varying observable characteristics. For black men, the point estimates from these earnings regressions are not statistically significant. For Hispanic men, the relative self-employment earnings coefficients suggest that the self-employed start at much lower earnings levels than do wage/salary workers, but experience faster growth rates. In fact, the self-employed earn slightly more than wage/salary workers after 9 years of potential work experience. The relative growth coefficients are statistically significant. These patterns suggest that on average self-employed Hispanic men may struggle in the first few years of owning a business relative to wage/salary workers, but ultimately experience higher earnings. Finally, the relative self-employment earnings coefficients are not statistically significant for both black and Hispanic women, possibly due to small sample sizes.

The results presented here provide some evidence that business ownership may provide a route for economic advancement among minority men when compared to opportunities in the wage/salary sector. The evidence is less clear for the contribution of self-employment to economic mobility for black and Hispanic women. Unfortunately, these results do not provide an answer to the question of whether a randomly chosen minority or all minorities, will

experience faster earnings growth in self-employment than in wage/salary work as they simply make comparisons between the actual experiences of minorities who are self-employed and employed in the wage/salary sector. Perhaps future research will shed light on this question.

Although self-employed black and Hispanic men earn more on average than their counterparts in the wage/salary sector, they earn considerably less than self-employed white men. The estimates from Table 3 indicate that self-employed black and Hispanic men earn 35.5 and 18.9 percent less than self-employed white men, respectively. The differences in business equity, however, are even more striking. Average business equity for self-employed black men is 53.7 less than the average for self-employed whites and average business equity for self-employed Hispanic men is 52.0 percent less than for whites.[33] Among women, self-employed blacks and Hispanics also have substantially lower levels of business equity than do whites. These disparities are important in light of the controversy surrounding set-aside programs that target government contracts for disadvantaged and minority-owned firms. Many of these programs, which were created in the late 1970s to mid 1980s, have been both judicially and legislatively challenged and dismantled in the past decade. In particular, the landmark 1989 *City of Richmond v Croson Co.* Supreme Court decision, invalidated the use of local and state programs unless they were used as narrowly tailored remedies for identified discrimination. More recently, the 1995 *Adarand Constructors, Inc. v. Peña* Supreme Court decision and state referendums passed in California (Proposition 209 in 1996) and Washington (1998) further jeopardize the future of government set-asides. The elimination of these programs may further

[33] The differences are even larger when I include only those who report not owning other real estate.

exacerbate racial inequalities in small business outcomes as well as in rates of business ownership.[34]

[34] Chay and Fairlie (1998) provide some evidence that the minority business set-aside programs created in many large cities in the 1980s led to an increase in the number of black-owned construction firms.

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Table 1
Self-Employment and Wage/Salary Earnings for Full-Time Less-Educated Workers
NLSY (1979-98)

	Men		Women	
	Self-Employed	Wage/Salary	Self-Employed	Wage/Salary
Mean	$37,907	$25,564	$20,563	$18,060
Median	$26,606	$23,000	$13,198	$16,359
Standard Deviation	$37,591	$15,167	$26,427	$10,519
Sample Size	1382	15405	411	10142

Note: The sample consists of less-educated youths who worked at least 1400 hours in the survey year.

Table 2
Self-Employment and Wage/Salary Earnings for Full-Time Less-Educated Workers
NLSY (1985-98)

	Self-Employed	Wage/Salary	Difference
Men			
Market Value of Business, Farm and Other Real Estate	$64,700	$3,973	$60,727
Debt Owed on Business, Farm and Other Real Estate	$27,649	$1,549	$26,100
Equity in Business, Farm and Other Real Estate	$37,051	$2,424	$34,627
Unadjusted Earnings	$39,957	$27,319	$12,638
Adjusted Earnings (30-Year Treasury Bond)	$39,010	$27,292	$11,718
Adjusted Earnings (S&P 500)	$38,072	$27,270	$10,803
Sample Size	1037	10767	
Women			
Market Value of Business, Farm and Other Real Estate	$42,624	$4,009	$38,615
Debt Owed on Business, Farm and Other Real Estate	$16,203	$1,394	$14,809
Equity in Business, Farm and Other Real Estate	$26,421	$2,616	$23,806
Unadjusted Earnings	$22,183	$19,174	$3,009
Adjusted Earnings (30-Year Treasury Bond)	$21,688	$19,156	$2,532
Adjusted Earnings (S&P 500)	$21,285	$19,141	$2,144
Sample Size	315	6962	

Notes: (1) The sample consists of youths who worked at least 1400 hours in the survey year. (2) Adjusted earnings remove the opportunity cost of equity in business, farm and other real estate. See text for more details.

Table 3
Self-Employment Rates by Race
NLSY (1979-98)

	Men		Women	
Race	SE Rate	N	SE Rate	N
Blacks	4.8%	12682	2.6%	11623
Hispanics	6.9%	8957	4.6%	7282
Whites	9.6%	24207	6.6%	21602

Notes: (1) The sample consists of youths who worked at least 300 hours in the survey year. (2) White race includes all non-black, non-Hispanic individuals.

Table 4
Self-Employment and Wage/Salary Earnings, Full-Time Workers
NLSY (1979-98)

	Men		Women	
	Self-Employed	Wage/Salary	Self-Employed	Wage/Salary
Blacks				
Mean	$ 31,280	$24,461	$ 20,584	$ 20,168
Median	$ 22,261	$ 21,523	$ 14,916	$ 18,002
Standard Deviation	$ 29,486	$ 16,268	$ 25,557	$ 11,998
Sample Size	410	9476	178	8179
Hispanics				
Mean	$ 38,678	$ 27,697	$ 24,702	$ 21,660
Median	$ 26,344	$ 24,801	$ 17,899	$ 19,693
Standard Deviation	$ 41,167	$ 17,225	$ 33,819	$ 12,674
Sample Size	470	7001	158	5121
Whites				
Mean	$ 46,952	$ 33,663	$ 24,509	$ 24,088
Median	$ 33,002	$ 29,534	$ 17,912	$ 20,912
Standard Deviation	$ 46,102	$ 22,290	$ 26,534	$ 15,625
Sample Size	2028	19141	835	14898

Notes: (1) The sample consists of youths who worked at least 1400 hours in the survey year. (2) White race includes all non-black, non-Hispanic individuals.

Table 5
Self-Employment and Wage/Salary Earnings, Full-Time Workers
NLSY (1985-98)

	Men			Women		
	Self-Employed	Wage /Salary	Difference	Self-Employed	Wage /Salary	Difference
Blacks						
Market Value of Business, Farm and Other Rea	$33,590	$2,017	$31,573	$13,797	$1,429	$12,368
Debt Owed on Business, Farm and Other Real	$11,045	$983	$10,063	$974	$577	$397
Equity in Business, Farm and Other Real Estate	$22,544	$1,034	$21,510	$12,823	$852	$11,970
Unadjusted Earnings	$31,550	$25,093	$6,457	$21,199	$20,703	$496
Adjusted Earnings (30-Year Treasury Bond)	$31,014	$25,084	$5,930	$21,056	$20,701	$355
Adjusted Earnings (S&P 500)	$30,489	$25,076	$5,413	$20,998	$20,699	$300
Sample Size	339	7681		157	6612	
Hispanics						
Market Value of Business, Farm and Other Rea	$36,646	$5,866	$30,780	$25,270	$4,529	$20,741
Debt Owed on Business, Farm and Other Real	$13,289	$2,859	$10,430	$13,008	$1,909	$11,099
Equity in Business, Farm and Other Real Estate	$23,356	$3,006	$20,350	$12,262	$2,620	$9,642
Unadjusted Earnings	$39,688	$28,486	$11,201	$23,828	$22,327	$1,501
Adjusted Earnings (30-Year Treasury Bond)	$39,017	$28,460	$10,557	$23,529	$22,322	$1,206
Adjusted Earnings (S&P 500)	$38,317	$28,439	$9,879	$23,283	$22,317	$966
Sample Size	391	5557		130	4039	
Whites						
Market Value of Business, Farm and Other Rea	$81,287	$7,896	$73,390	$47,622	$8,870	$38,753
Debt Owed on Business, Farm and Other Real	$32,644	$3,186	$29,458	$17,478	$3,887	$13,591
Equity in Business, Farm and Other Real Estate	$48,642	$4,710	$43,932	$30,144	$4,983	$25,162
Unadjusted Earnings	$48,943	$34,796	$14,146	$25,654	$24,858	$797
Adjusted Earnings (30-Year Treasury Bond)	$47,661	$34,753	$12,909	$25,054	$24,828	$226
Adjusted Earnings (S&P 500)	$46,417	$34,718	$11,699	$24,637	$24,807	-$170
Sample Size	1617	15379		673	11665	

Notes: (1) The sample consists of youths who worked at least 1400 hours in the survey year. (2) White race includes all non-black, non-Hispanic individuals. (3) Adjusted earnings remove the opportunity cost of equity in business, farm and other real estate. See text for more details.

Figure 1
Self-Employment Rates By Age
Less-Educated Men - NLSY (1979-98)

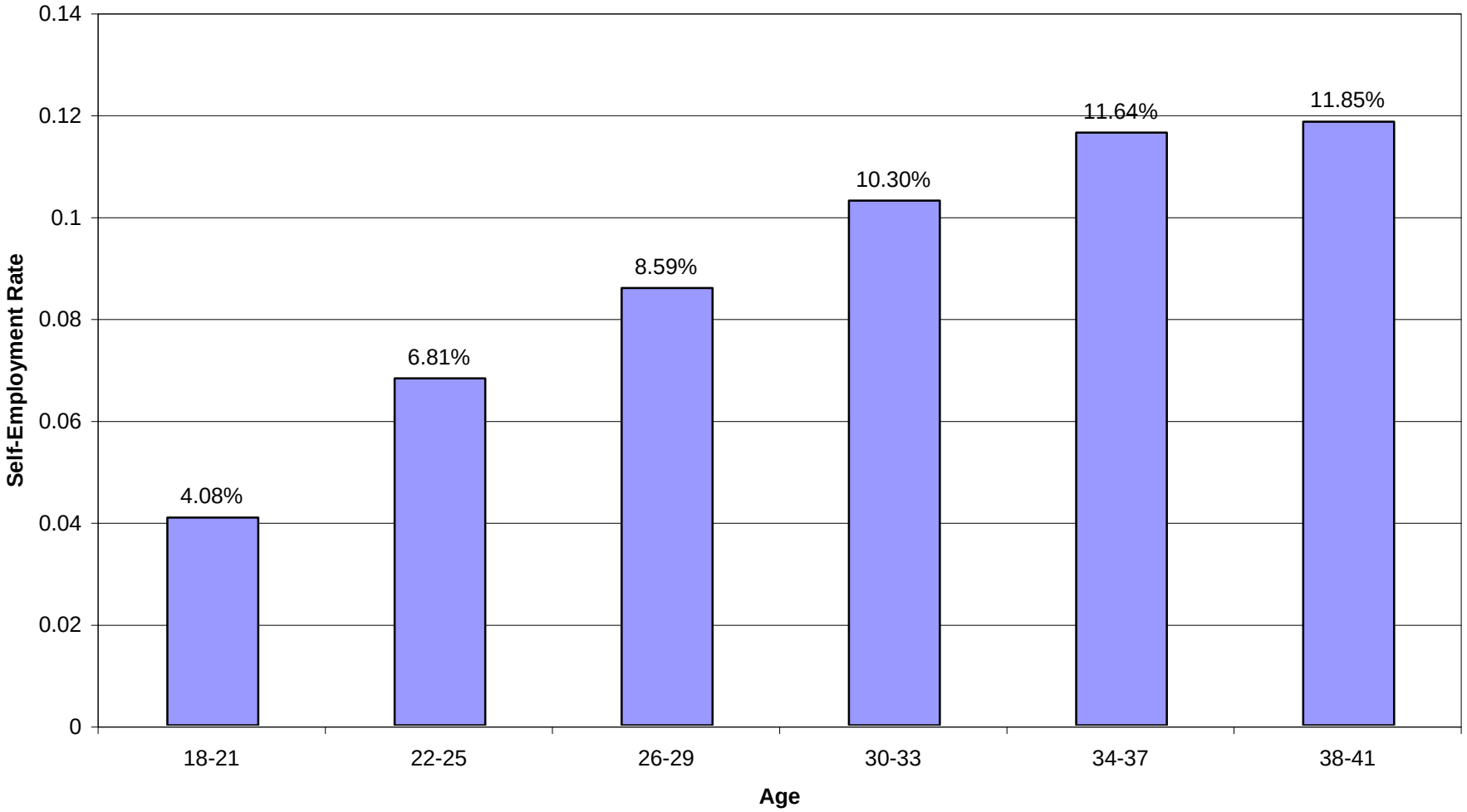


Figure 2
Self-Employment Rates by Age
Less-Educated Women - NLSY (1979-98)

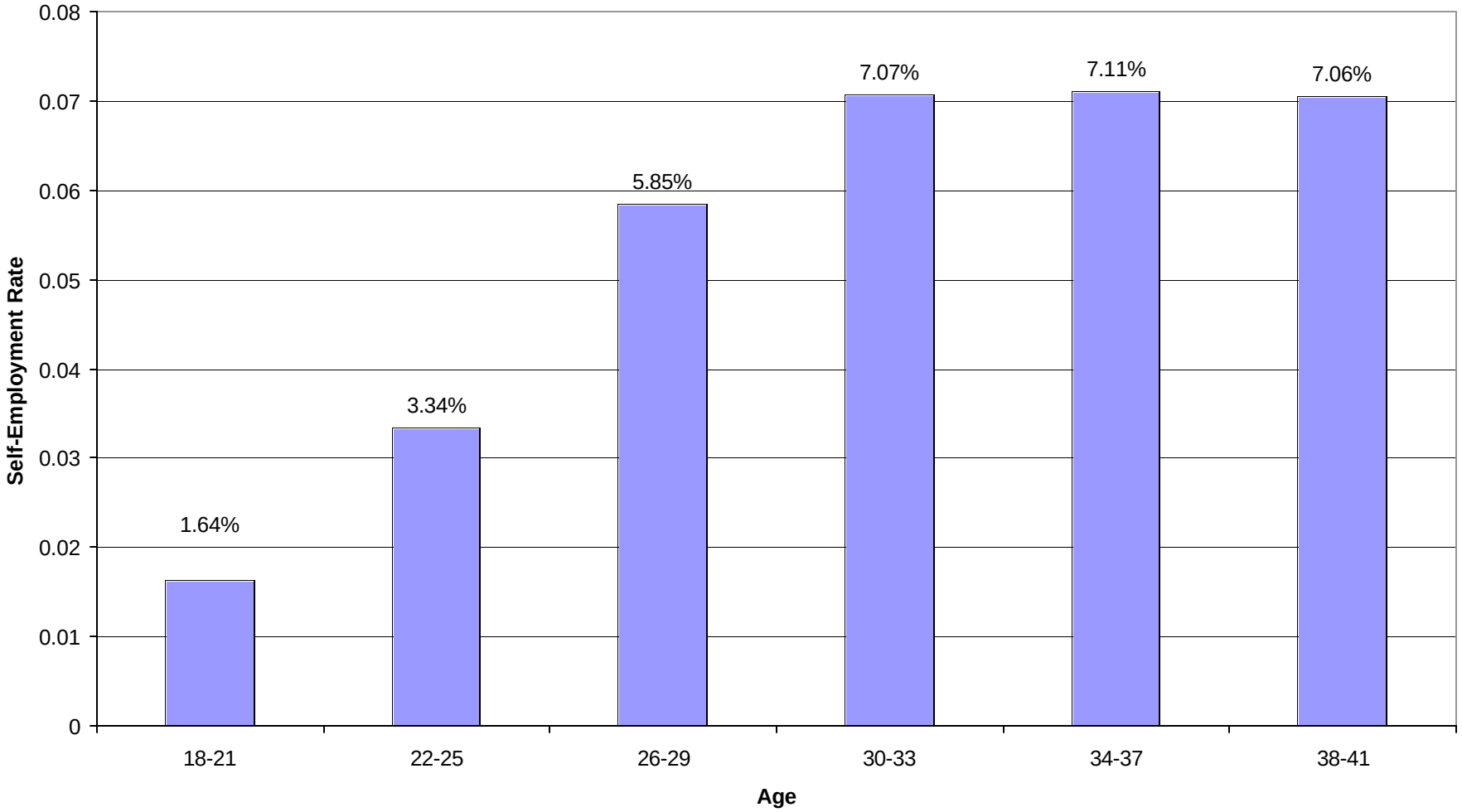


Figure 3
Earnings Distributions for Less-Educated Young Men
NLSY (1979-98) Full-Time Workers

Figure 4
Earnings Distributions for Less-Educated Young Women
NLSY (1979-98) Full-Time Workers

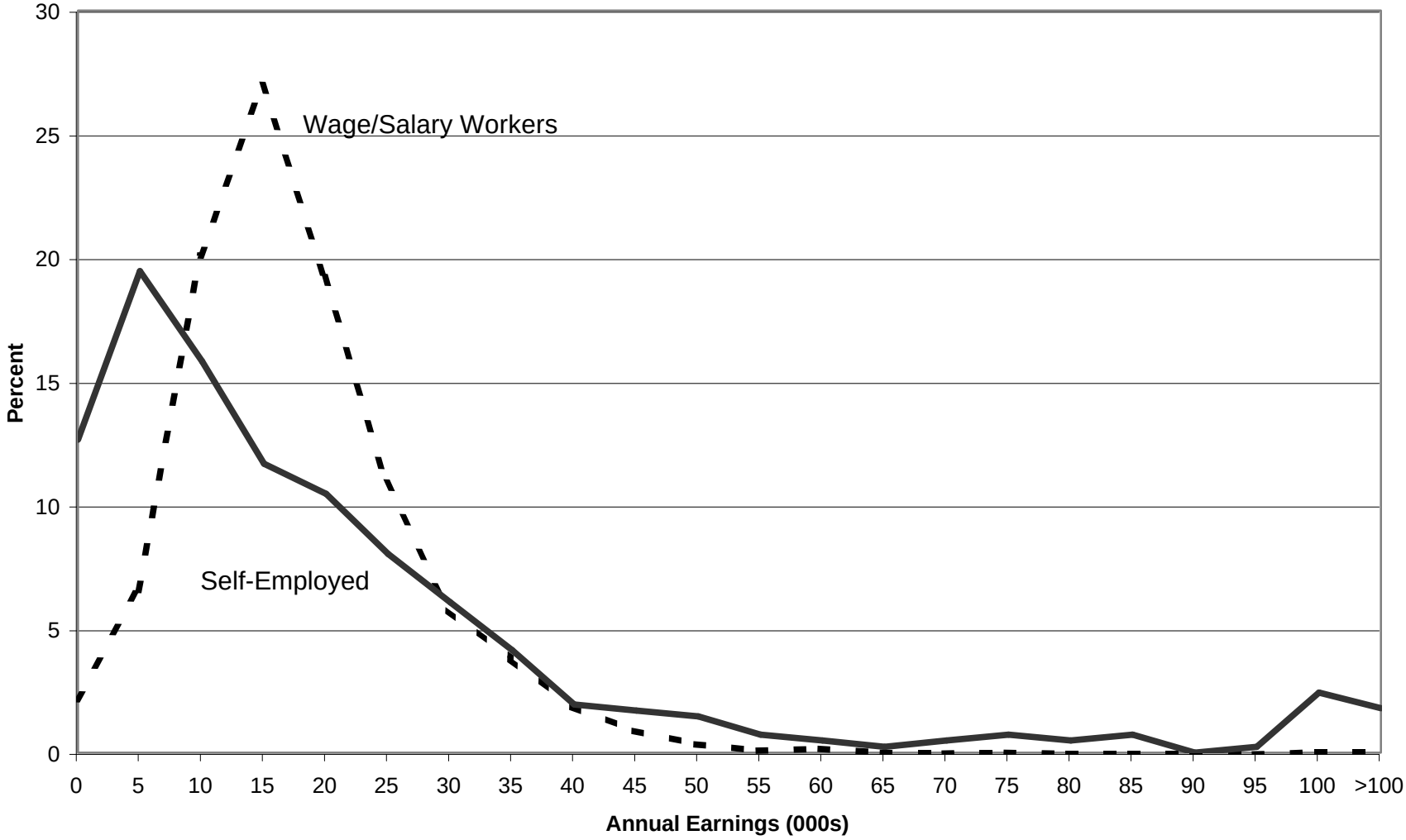


Figure 5
Combined Effects of Relative Log Self-Employment Earnings Coefficients
Less-Educated Men - NLSY (1979-98)

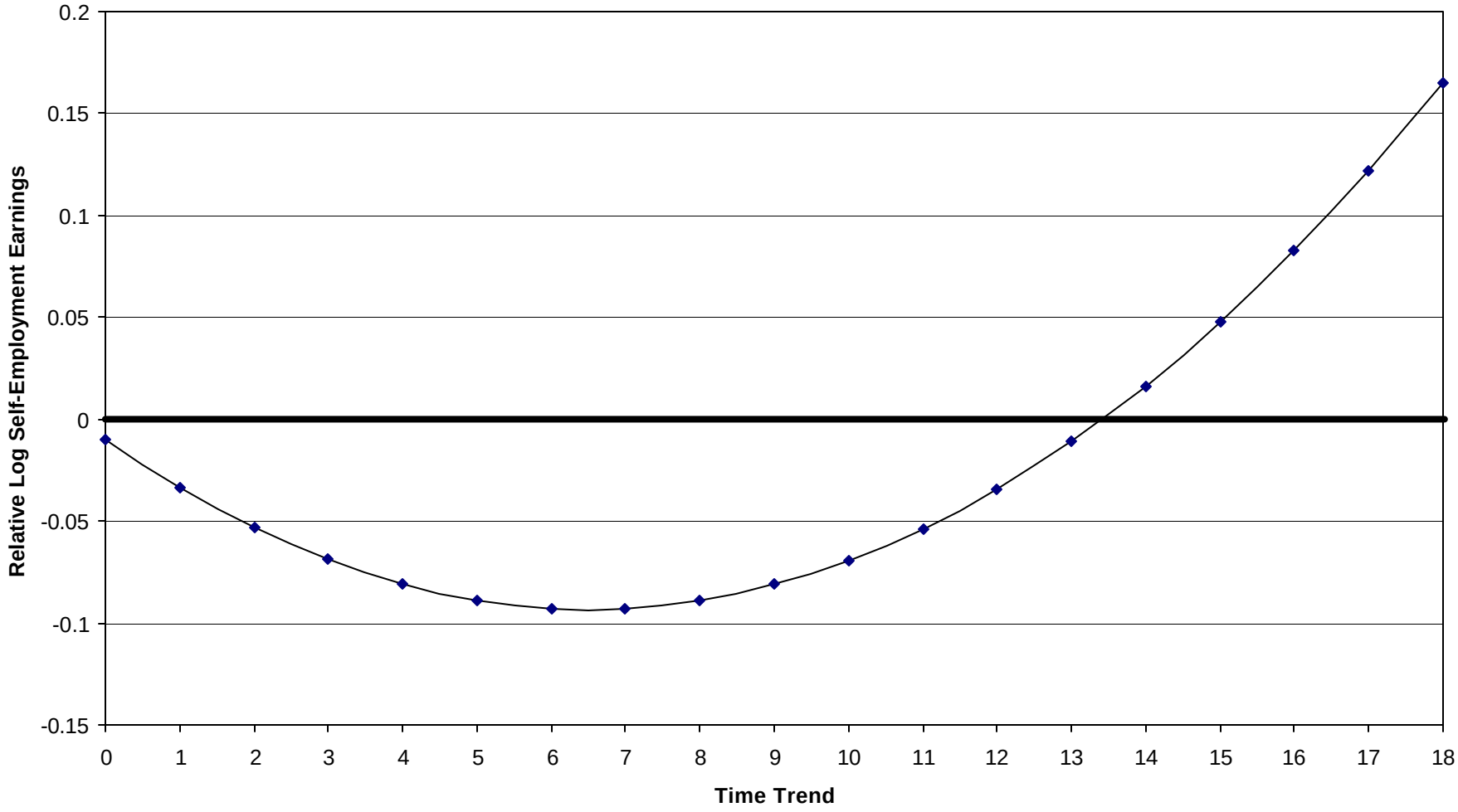


Figure 6
Combined Effects of Relative Log Self-Employment Earnings Coefficients
Less-Educated Women - NLSY (1979-98)

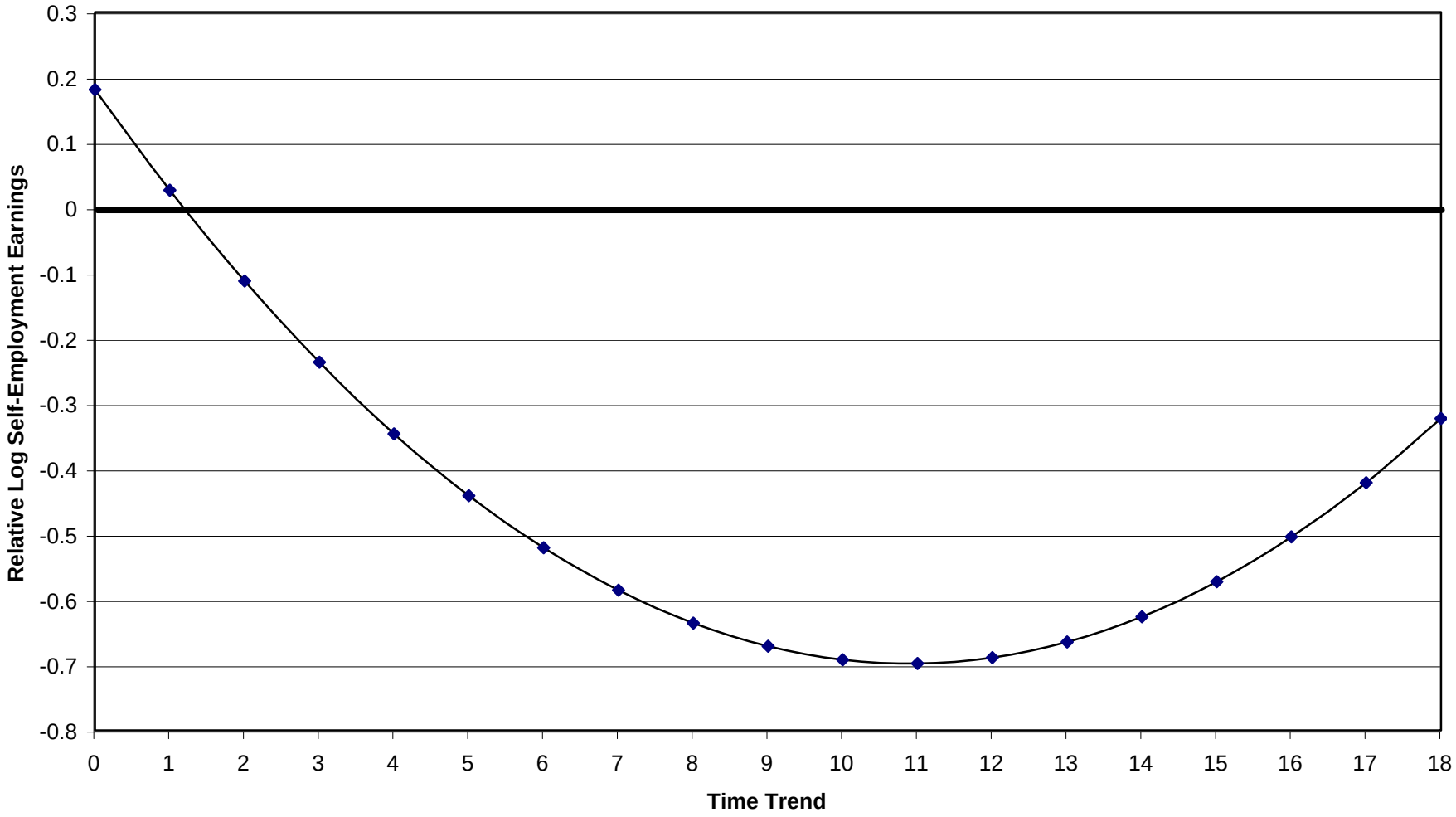


Figure 7
Combined Effects of Relative Log Self-Employment Earnings Coefficients - Censored
Less-Educated Men - NLSY (1979-98)

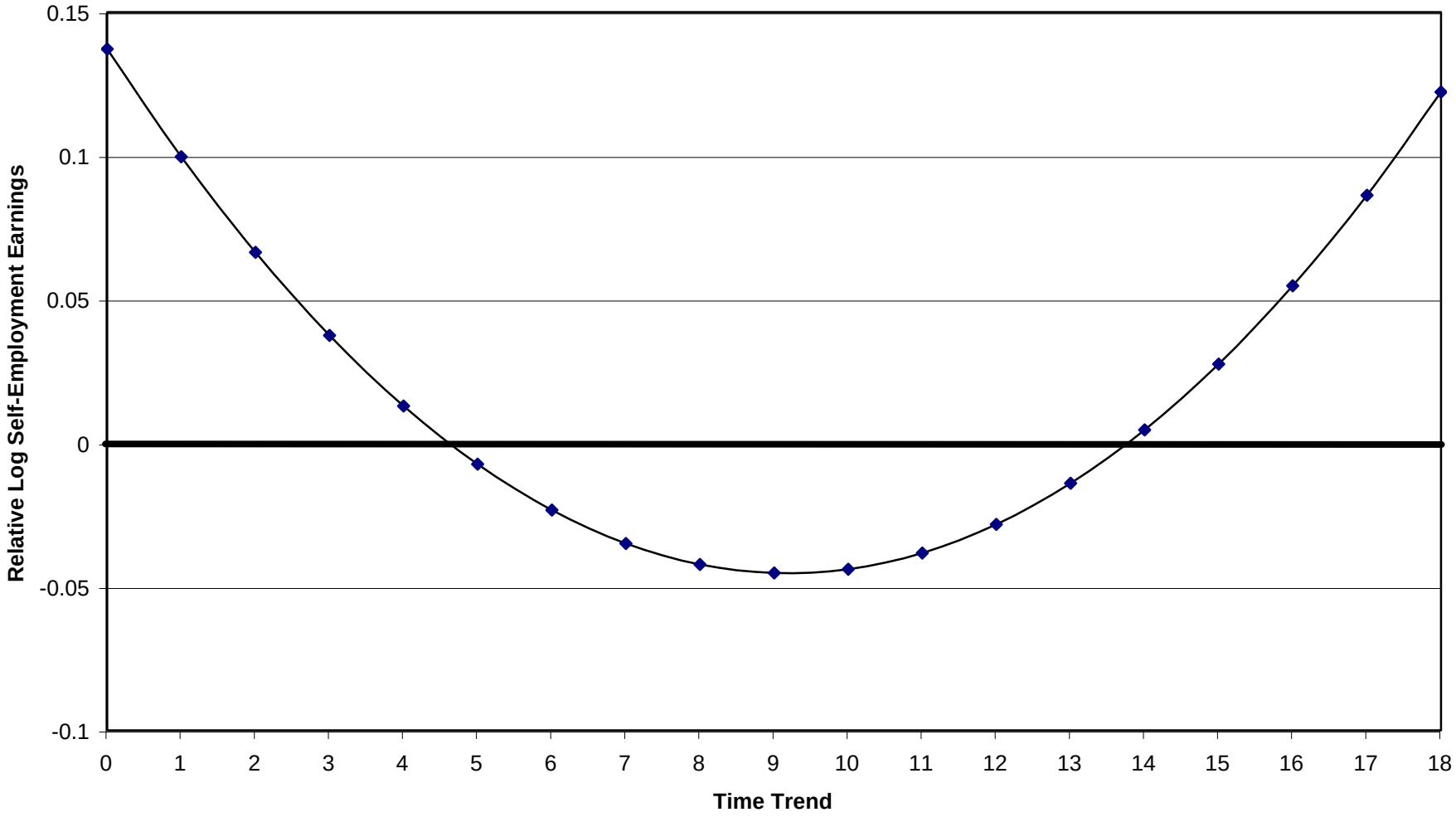


Figure 8
Combined Effects of Relative Log Self-Employment Earnings Coefficients - Censored
Less-Educated Women - NLSY (1979-98)

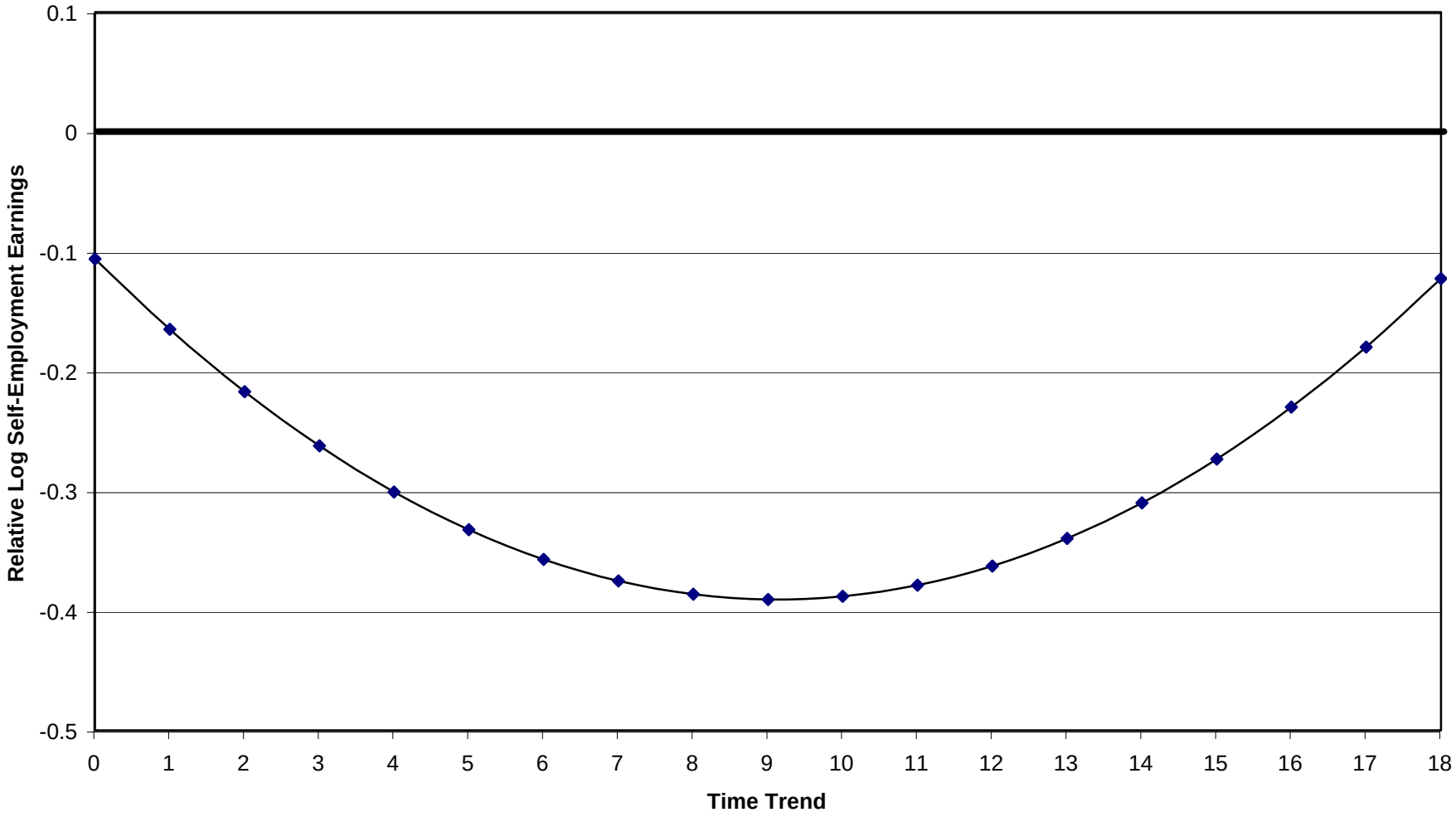


Figure 9
Combined Effects of Relative Log Self-Employment Earnings Coefficients - Top Codes
Less-Educated Men - NLSY (1979-98)

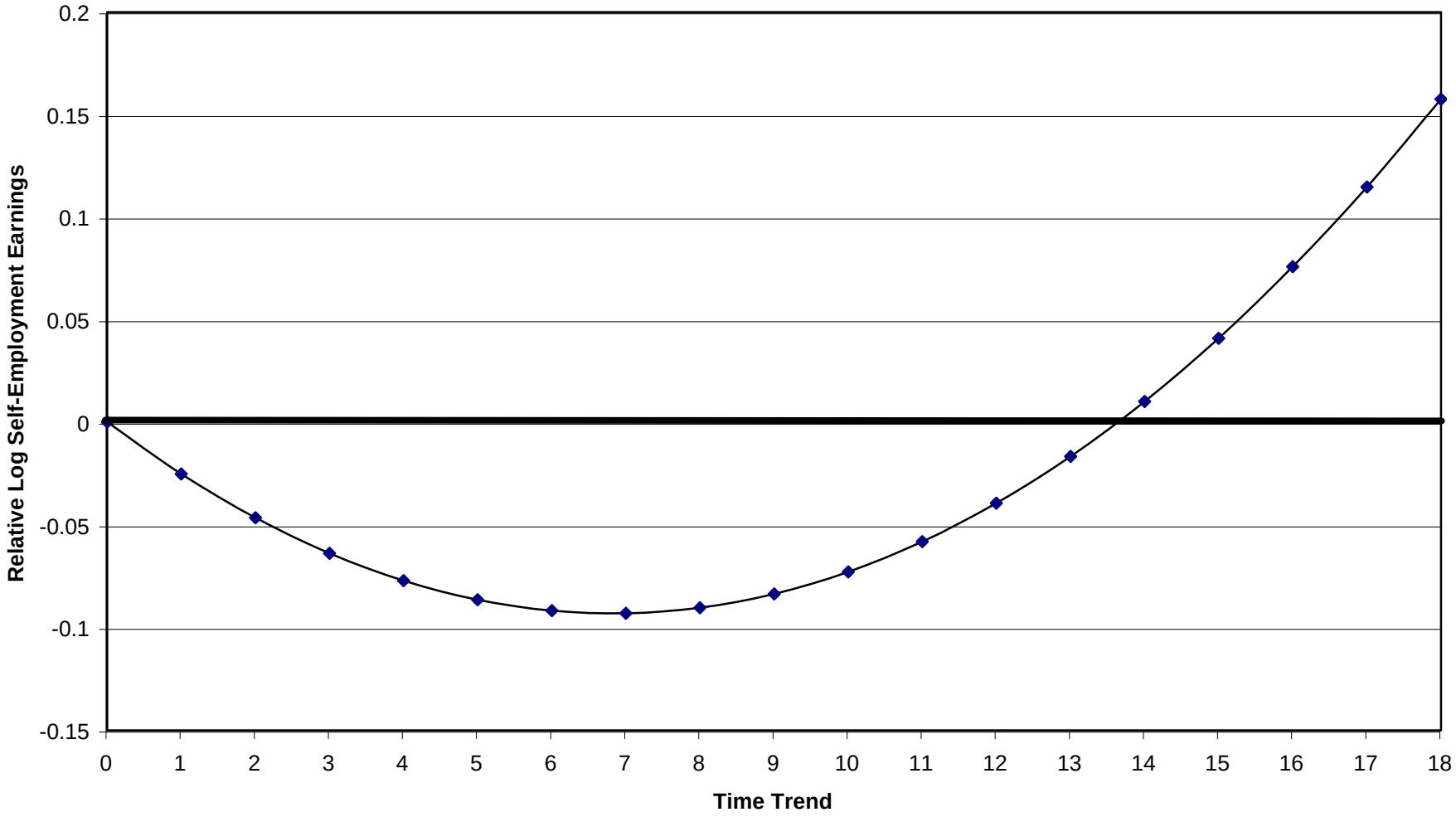


Figure 10
Combined Effects of Relative Log Self-Employment Earnings Coefficients - Top Codes
Less-Educated Women - NLSY (1979-98)

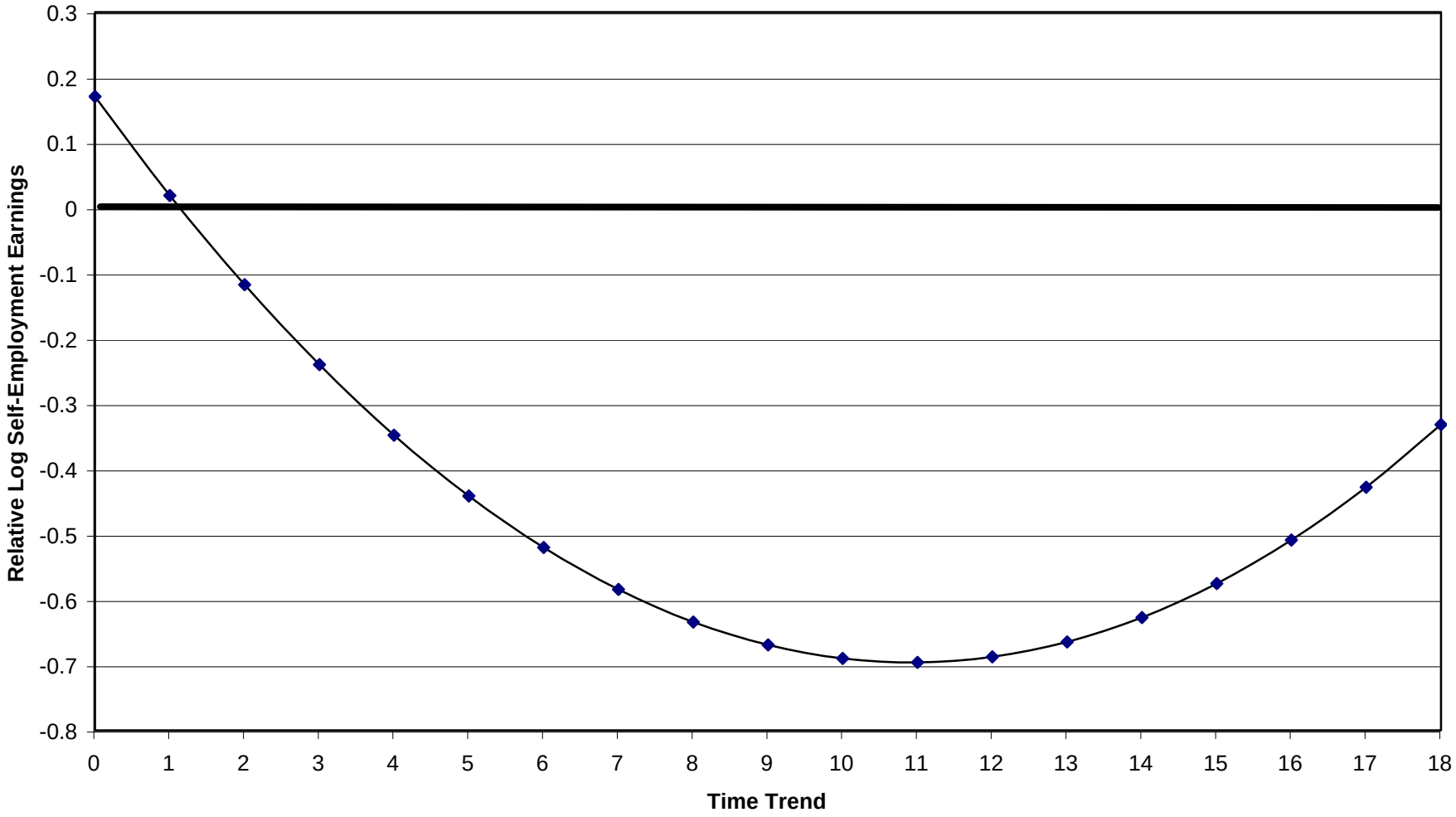


Figure 11
Earnings Distributions for Black Men, Full-Time Workers
NLSY (1979-98)

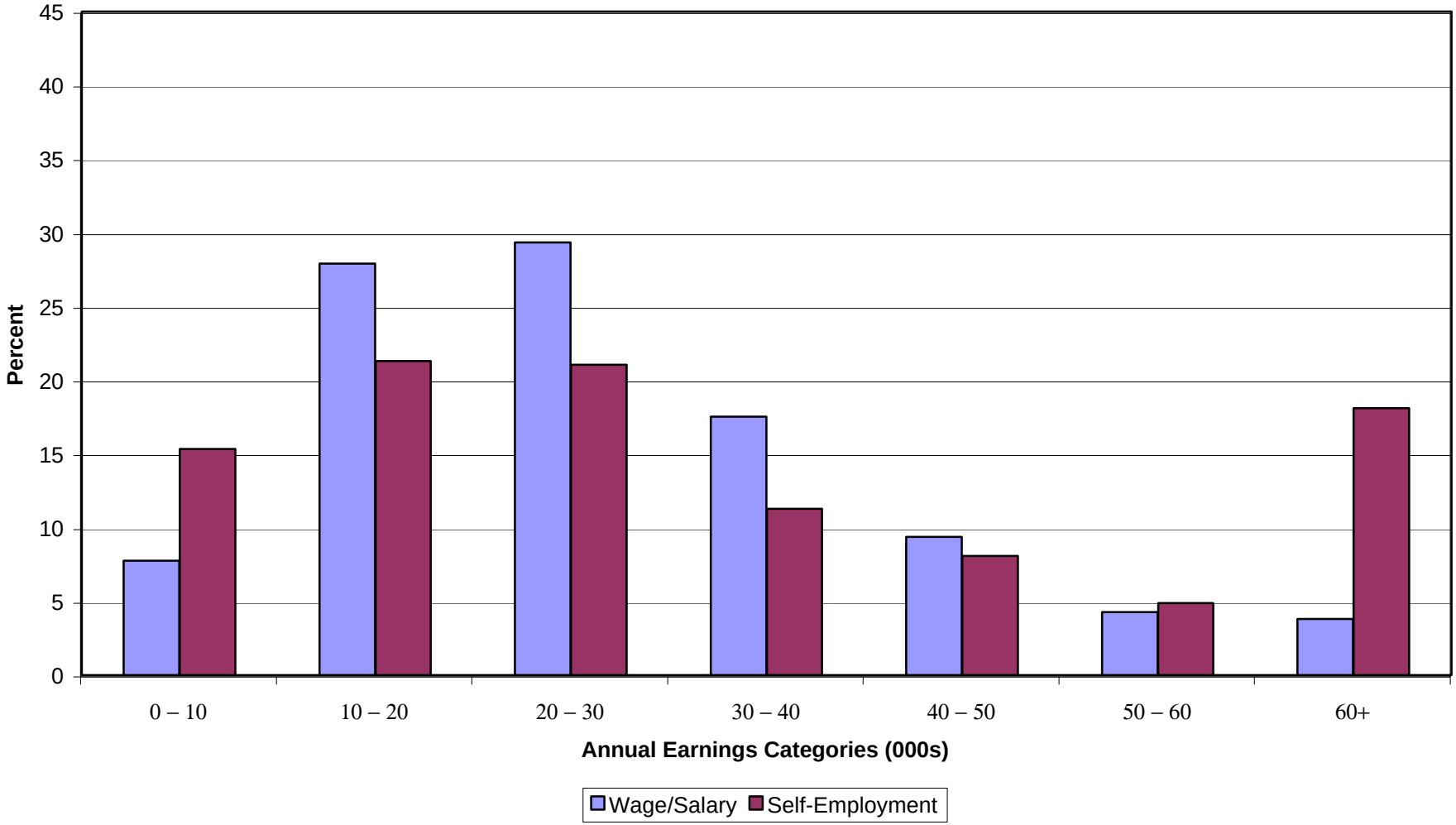


Figure 12
Earnings Distributions for Hispanic Men, Full-Time Workers
NLSY (1979-98)

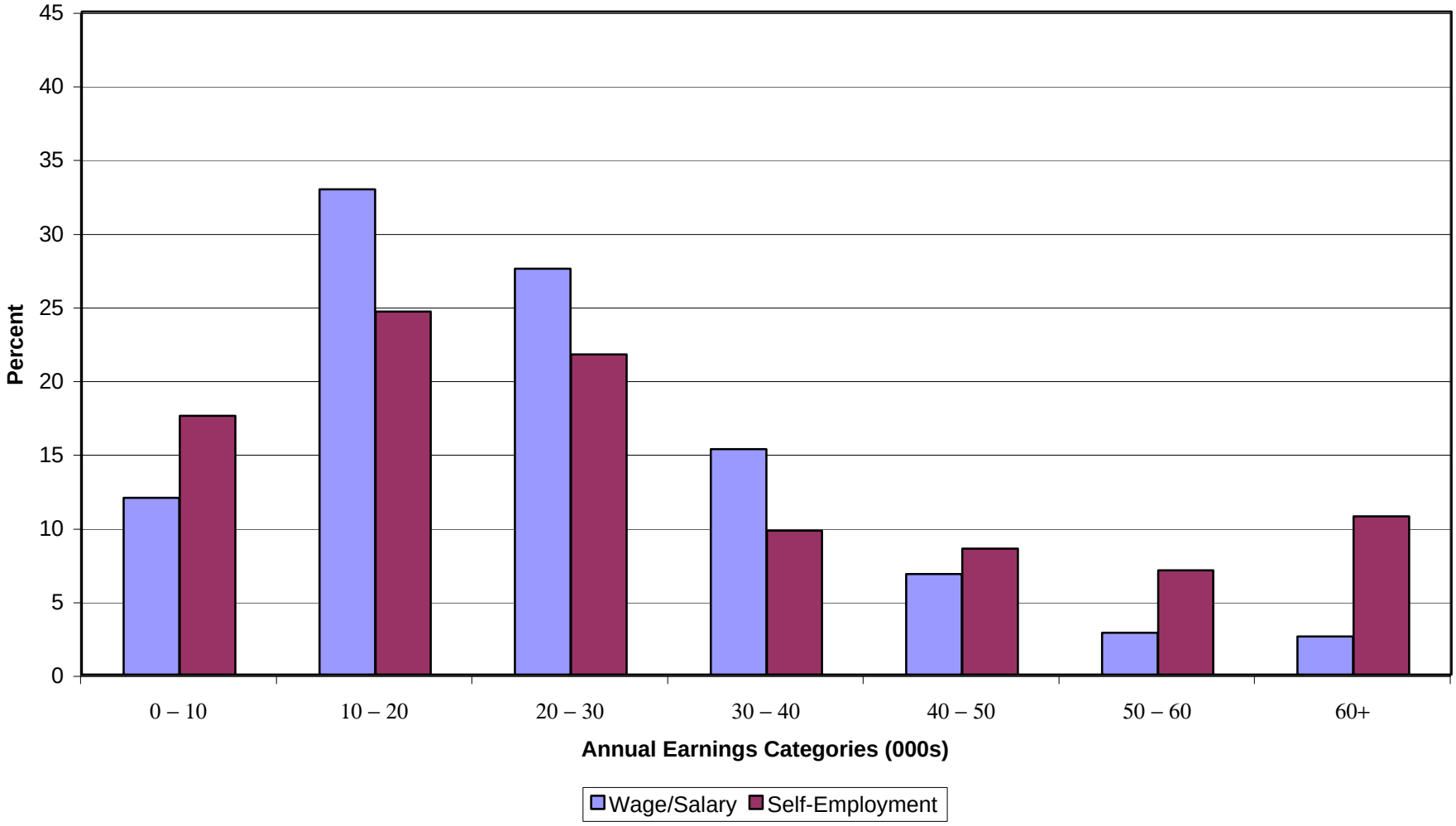


Figure 13
Earnings Distributions for White Men, Full-Time Workers
NLSY (1979-98)

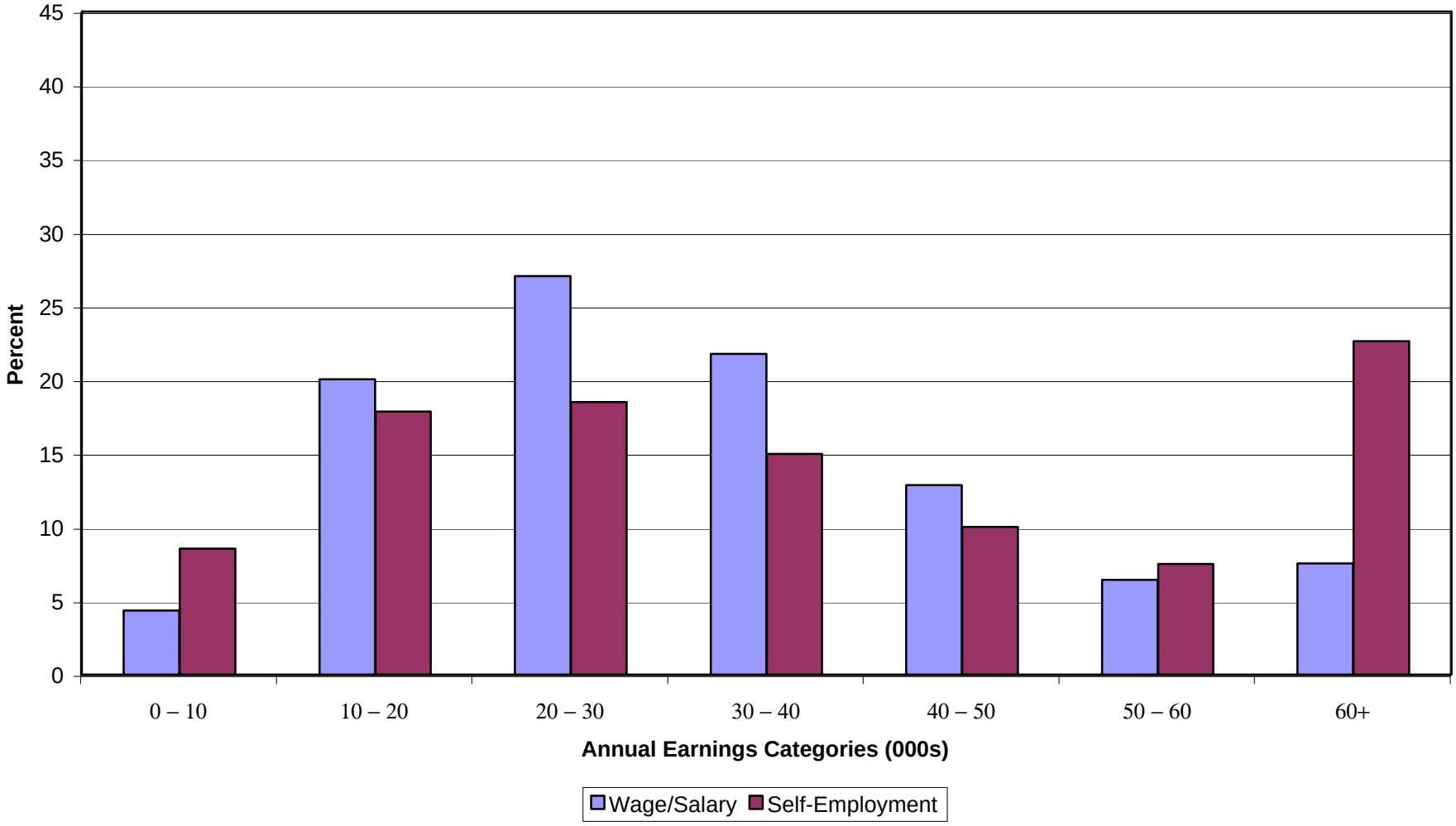


Figure 14
Earnings Distributions for Black Women, Full-Time Workers
NLSY (1979-98)

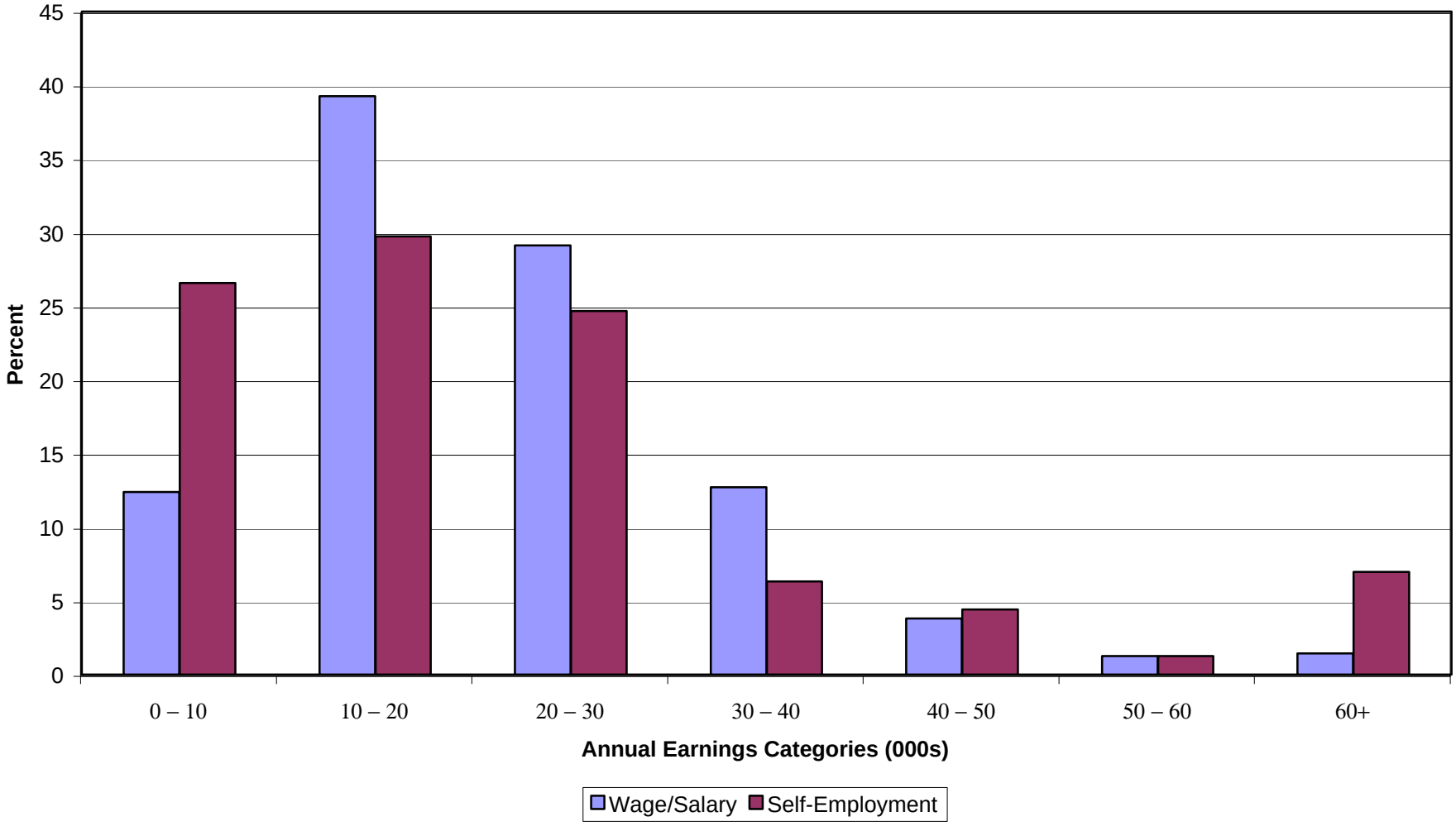


Figure 15
Earnings Distributions for Hispanic Women, Full-Time Workers
NLSY (1979-98)

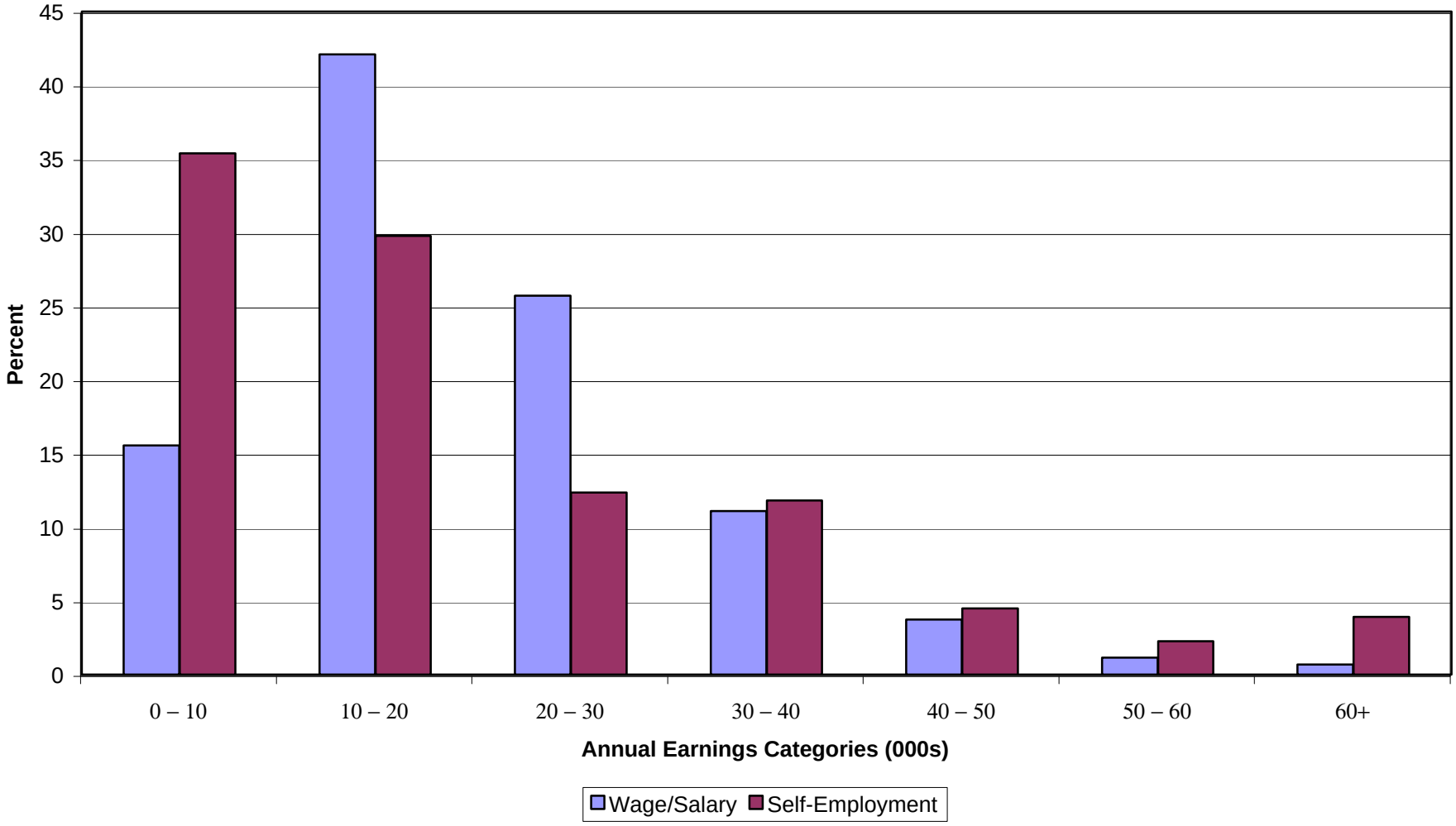


Figure 16
Earnings Distributions for White Women, Full-Time Workers
NLSY (1979-98)

Figure 17
Combined Effects of Relative Log Self-Employment Earnings Coefficients
Black Men - NLSY (1979-98)

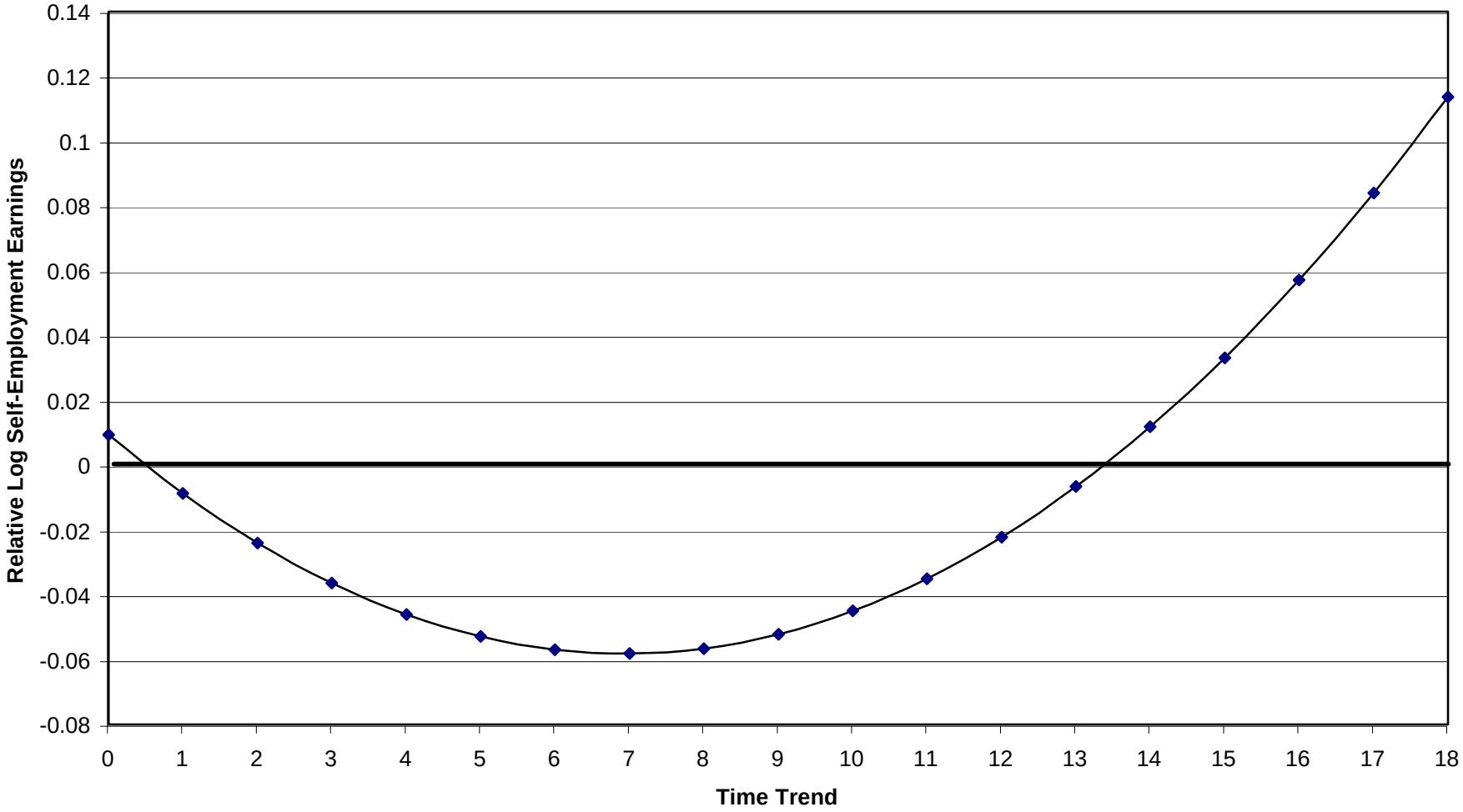


Figure 18
Combined Effects of Relative Log Self-Employment Earnings Coefficients
Hispanic Men - NLSY (1979-98)

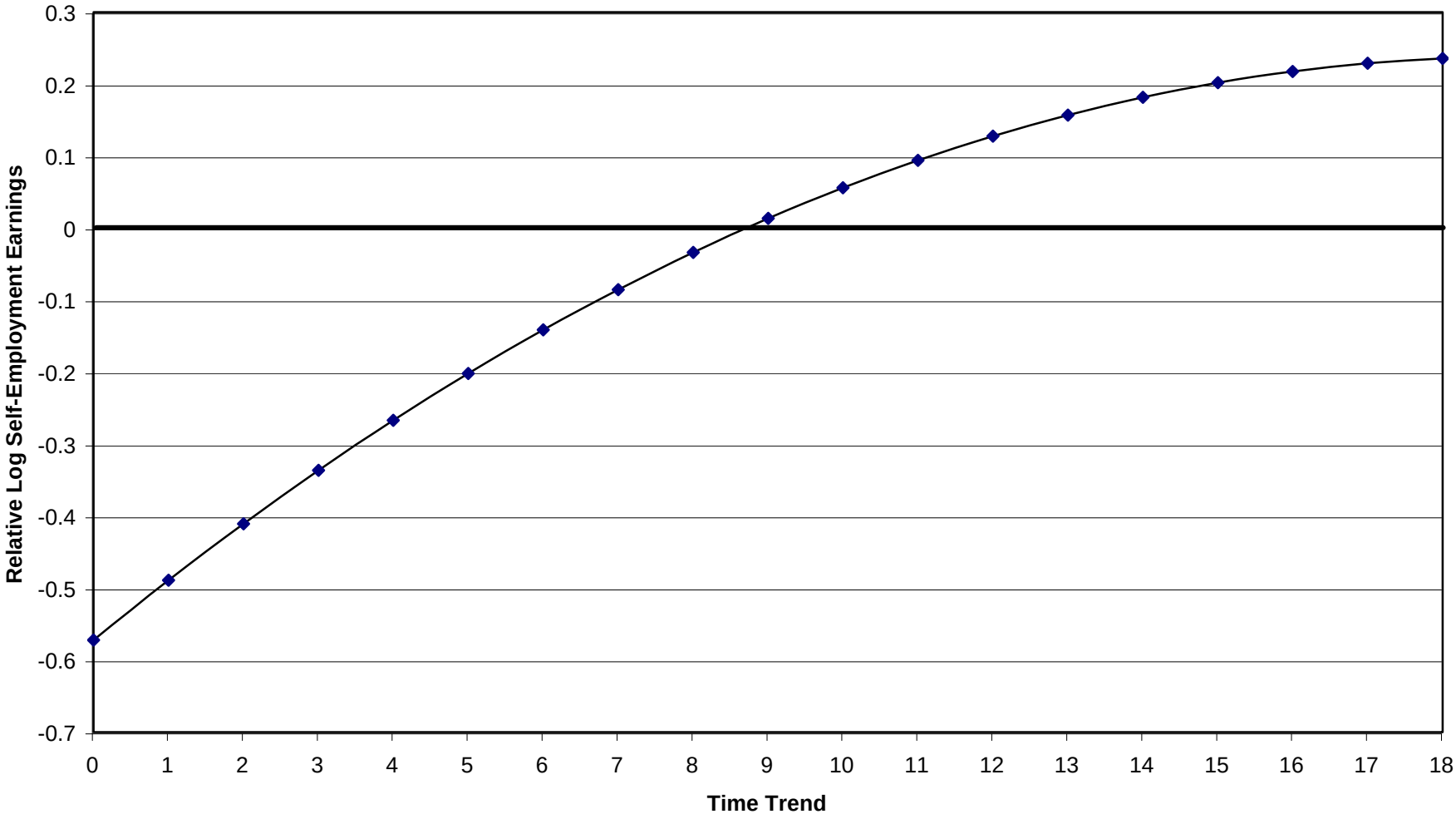


Figure 19
Combined Effects of Relative Log Self-Employment Earnings Coefficients
White Men - NLSY (1979-98)

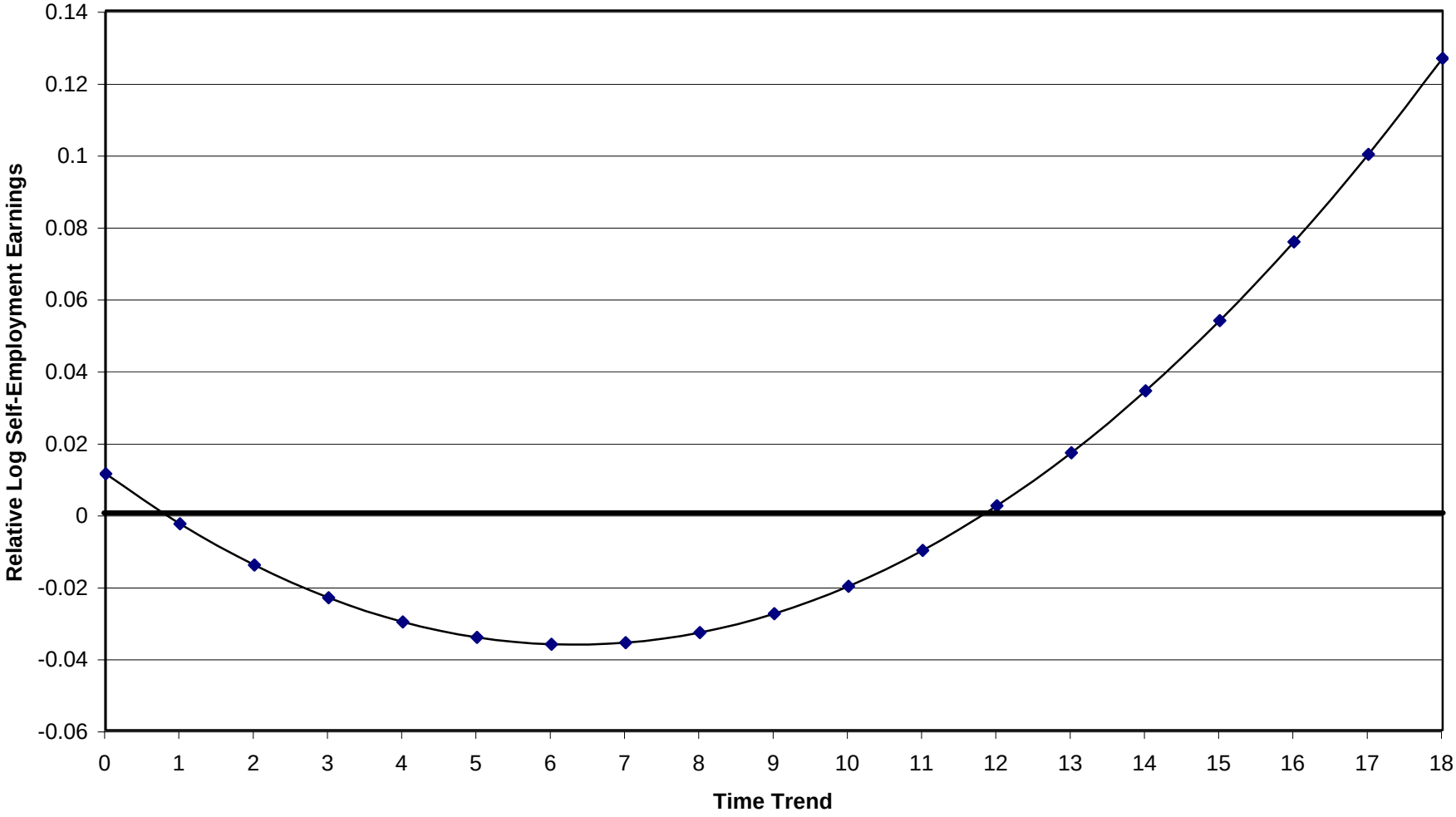


Figure 20
Combined Effects of Relative Log Self-Employment Earnings Coefficients
Black Women - NLSY (1979-98)

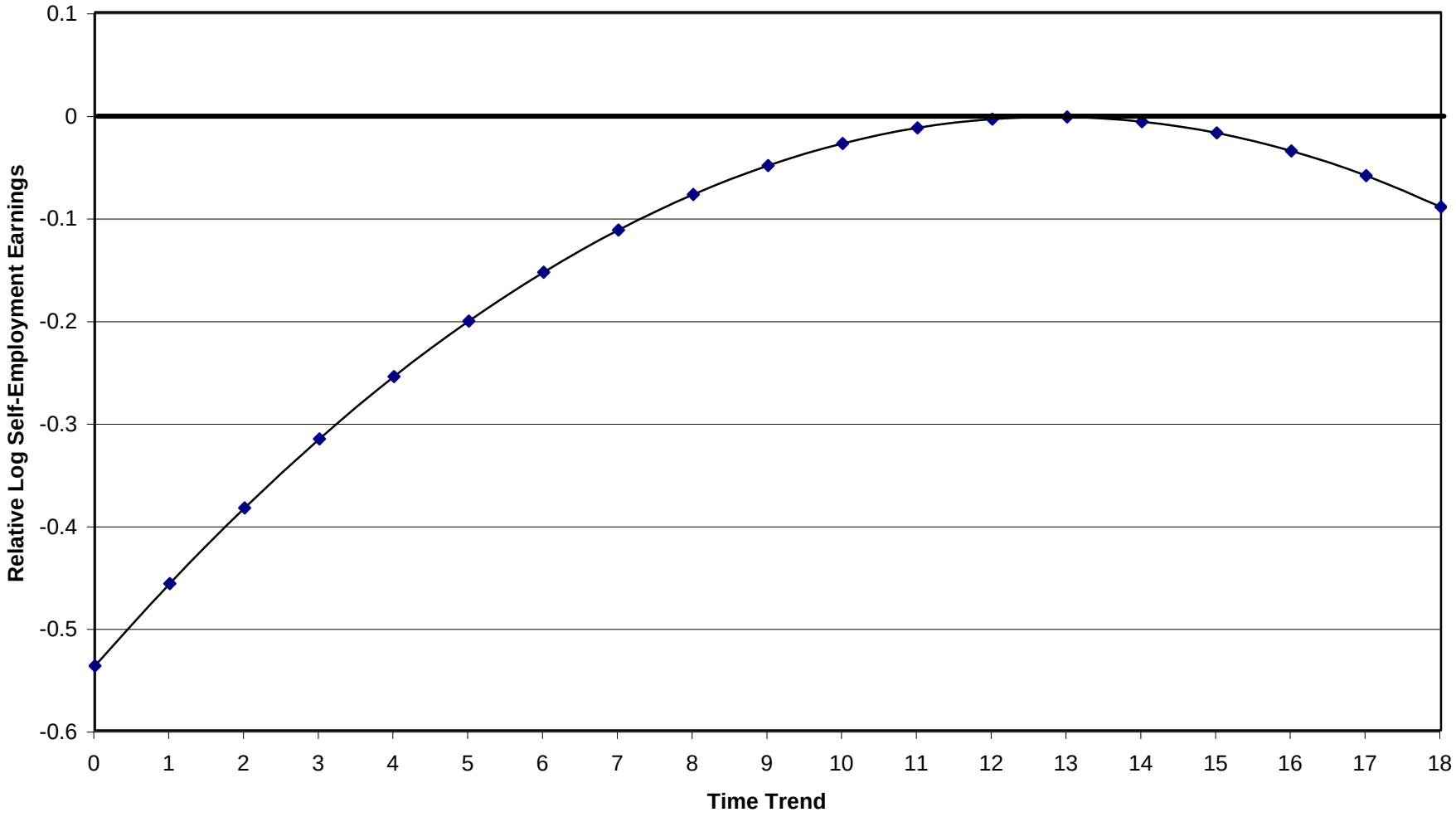


Figure 21
Combined Effects of Relative Log Self-Employment Earnings Coefficients
Hispanic Women - NLSY (1979-98)

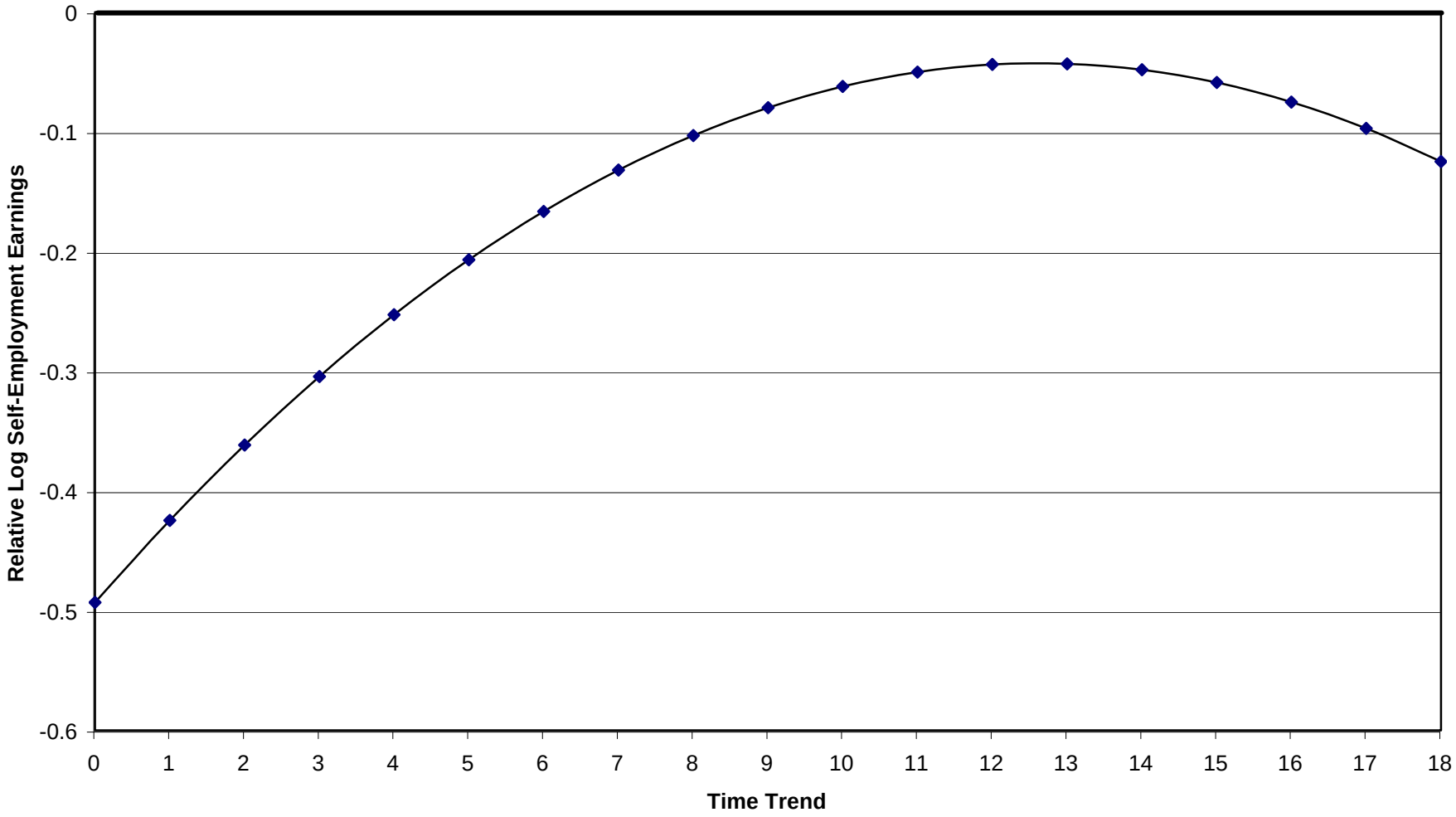
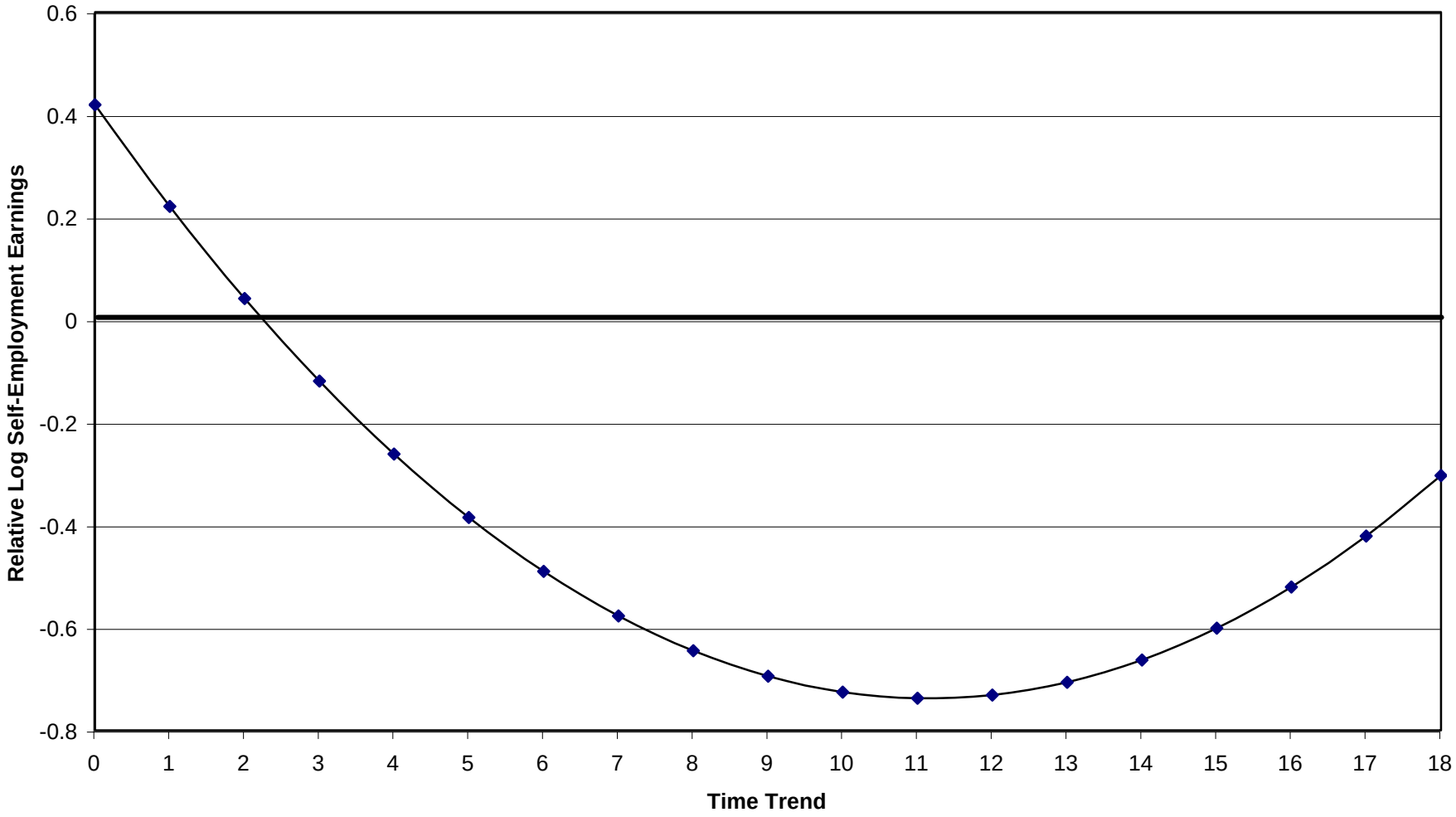


Figure 22
Combined Effects of Relative Log Self-Employment Earnings Coefficients
White Women - NLSY (1979-98)



Appendix Table 1
Earnings Regressions for Less-Educated Workers
NLSY (1979-98)

Explanatory Variables	Men	Women
Self-Employed	9776.25	2124.53
	(481.88)	(542.44)
Age	784.15	549.37
	(29.26)	(22.95)
Black	-2974.05	-682.94
	(461.08)	(376.82)
Hispanic	-1125.00	572.83
	(569.30)	(431.51)
Born Abroad	-37.42	1887.60
	(766.47)	(527.43)
High School Graduate	3528.58	2869.11
	(344.88)	(327.43)
Adjusted AFQT Score	97.26	86.40
	(6.54)	(5.31)
R-Square	0.20	0.14
Sample Size	16787	10553

Notes: The sample consists of youths who worked at least 1400 hours in the survey year. (2) Standard errors are in parentheses below coefficient estimates. (3) All specifications include marital status, number of children, geographical area controls, urbanicity, and dummies for the local unemployment rate.

Appendix Table 2
Fixed Effects Earnings Regressions for Less-Educated Workers
NLSY (1979-98)

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Time Trend	0.1171	0.1025	0.1173	0.0946	0.0915	0.0945
	(0.0060)	(0.0034)	(0.0060)	(0.0071)	(0.0041)	(0.0071)
Time Trend Squared	-0.0041	-0.0032	-0.0041	-0.0027	-0.0024	-0.0027
	(0.0003)	(0.0002)	(0.0003)	(0.0003)	(0.0002)	(0.0003)
Self-Employed	-0.0096	0.1372	0.0004	0.1814	-0.1062	0.1707
	(0.1212)	(0.0699)	(0.1210)	(0.2569)	(0.1504)	(0.2567)
Time Trend*	-0.0256	-0.0397	-0.0274	-0.1615	-0.0623	-0.1587
Self-Employed	(0.0224)	(0.0129)	(0.0223)	(0.0445)	(0.0260)	(0.0444)
Time Trend Squared*	0.0020	0.0022	0.0020	0.0074	0.0034	0.0073
Self-Employed	(0.0010)	(0.0006)	(0.0010)	(0.0018)	(0.0011)	(0.0018)
R-Square	0.3474	0.5421	0.3471	0.4287	0.5644	0.4288
Sample Size	16467	16467	16467	10372	10372	10372

Notes: (1) The sample consists of youths who worked at least 1400 hours in the survey year. (2) Standard errors are in parentheses below coefficient estimates. (3) All specifications include individual fixed effects, marital status, number of children, and dummy variables for the local unemployment rate. (4) Specifications (2) and (5) censor earnings at $500, and specifications (3) and (6) set top-coded values to $109,987.

Appendix Table 3
Self-Employment Rates and Earnings Estimates
1990 Census

	Men		Women	
	Self-Employed	Wage/Salary	Self-Employed	Wage/Salary
Blacks				
Self-Employment Rate	3.70%		1.91%	
Mean Earnings	$35,523	$28,023	$23,617	$23,990
Sample Size	3,435	102,949	1,779	103,732
Hispanics				
Self-Employment Rate	6.23%		4.24%	
Mean Earnings	$37,649	$27,350	$24,039	$22,292
Sample Size	6,886	107,720	2,388	62,749
Whites				
Self-Employment Rate	10.89%		6.30%	
Mean Earnings	$49,337	$38,802	$26,745	$27,257
Sample Size	133,113	1,055,508	44,797	744,168

Notes: (1) The sample consists of individuals (ages 22-41) who worked at least 300 hours in the survey year. (2) White race includes all non-black, non-Hispanic individuals. (3) All estimates use sample weights provided by the Census.

Appendix Table 4
Fixed Effects Earnings Regressions
NLSY (1979-98)

	Men			Women		
	Blacks	Hispanics	Whites	Blacks	Hispanics	Whites
Time Trend	0.0992	0.1478	0.1109	0.0949	0.1193	0.1020
	(0.0076)	(0.0083)	(0.0046)	(0.0088)	(0.0099)	(0.0049)
Time Trend Squared	-0.0034	-0.0052	-0.0039	-0.0028	-0.0039	-0.0031
	(0.0003)	(0.0004)	(0.0002)	(0.0004)	(0.0005)	(0.0002)
Self-Employed	0.0093	-0.5720	0.0112	-0.5371	-0.4931	0.4196
	(0.2134)	(0.2003)	(0.0856)	(0.4218)	(0.4000)	(0.1325)
Time Trend*	-0.0195	0.0852	-0.0151	0.0835	0.0714	-0.2074
Self-Employed	(0.0396)	(0.0368)	(0.0168)	(0.0771)	(0.0683)	(0.0252)
Time Trend Squared*	0.0014	-0.0022	0.0012	-0.0033	-0.0028	0.0093
Self-Employed	(0.0017)	(0.0016)	(0.0008)	(0.0034)	(0.0029)	(0.0011)
R-Square	0.4157	0.4038	0.3864	0.3970	0.4272	0.4831
Sample Size	10563	8062	22770	8652	5638	16971

Notes: (1) The sample consists of youths who worked at least 1400 hours in the survey year. (2) Standard errors are in parentheses below coefficient estimates. (3) All specifications include individual fixed effects, marital status, number of children, and dummy variables for the local unemployment rate. (4) White race includes all non-black, non-Hispanic individuals.