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ScienceDirect
Research in Social Stratification and Mobility 26 (2008) 307–322
Research in Social Stratification and Mobility
http://elsevier.com/locate/rssm

Assessing the Horatio Alger myth: Is self-employment especially beneficial for those from less-advantaged family backgrounds?

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Received 31 January 2008; received in revised form 25 August 2008; accepted 18 September 2008

Abstract

The findings of this study contradict the popular belief that self-employment is especially beneficial as a path to economic progress for those from more disadvantaged backgrounds. Data from the National Longitudinal Survey of Youth 1979 Cohort (NLSY79) show that the relative earnings gain from being self-employed rather than working for an organization actually increases with the level of socioeconomic background. Those from a higher socioeconomic background can expect to earn much more in self-employment than in organizational employment while those from the lower socioeconomic background can expect to earn much less. While there are some indications that the more disadvantaged are more likely to attain very high incomes if they do become self-employed, the percentage of this group who attain higher incomes through self-employment is lower than it is for higher socioeconomic groups.

Keywords: Self-employment; Upward mobility myths

Self-employment has been widely countenanced as a path of economic advancement for those who are outside the mainstream of economic opportunity. Horatio Alger-type accounts of boot-strapping entrepreneurs abound in popular literature and the case histories of famous business persons (Alger, 1872; Brenner, 1987; Gilder, 1981). Social scientists have portrayed self-employment as a way out of poverty for minorities and immigrants (Lipset & Bendix, 1959; Glazer & Moynihan, 1970; Green & Pryde, 1990; Light, 1979; Sowell, 1981). Wage and salary workers also have positive views of self-employment. Blue-collar workers studied by Chinoy (1955) saw it as a way to improve their position in society and surveys cited by Steinmetz and Wright (1989) and Blanchflower and Oswald (1998) show that most wage and salary workers in the United States and the United Kingdom aspire to self-employment.

Despite these indications, whether or not, and in what manner self-employment advances the interests of those from more disadvantaged family backgrounds are questions that require empirical resolution. As described below, the evidence is mixed. Moreover, there is no clear-cut *a priori* case that self-employment has special benefits for the disadvantaged. The access to capital and business opportunities provided by a family background of greater wealth should be especially advantageous in self-employment. The effects of employer discrimination that is sometimes thought to make self-employment more attractive to minorities could be offset by the effects of consumer or lender discrimination.

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0276-5624/$ – see front matter
doi:10.1016/j.rssm.2008.09.001

1. Self-employment and economic mobility: evidence and theory

Assertions that self-employment particularly benefits those with fewer advantages in life are typically based on variants of the so-called disadvantage theory of self-employment which sees self-employment as a more rewarding outlet for those unable to gain the full returns to their productive potential in organizational employment (Light & Rosenstein, 1995; Wong, 1992). There are several ways that members of specific groups might be blocked from realizing their earnings potential through organizational work. Because of race, gender, or social background, they may be subject to employment discrimination. Because of limited educational access, they may lack credentials required by employers. In some cases, an individual's work productivity could be so low that self-employment is the only available form of market work.

Some writers on entrepreneurship see disadvantage in the form of adverse events or life experiences that increase the motivation to succeed in self-employment. A sudden deterioration in economic circumstances may stimulate some to start their own business (Brenner, 1987; Mensch, 1979). A deprived childhood may drive some persons toward entrepreneurship in order to avoid reliance on others (Sarachek, 1978).

The available evidence is mixed. Some ethnic or racial groups who might be expected to face barriers to organizational employment seem to do relatively better in self-employment, but these outcomes appear mainly confined to recent immigrants. Korean immigrants studied by Min (1984) received relatively greater returns on their human capital when self-employed. Census data by Portes and Zhou (1996, 1999) show that mainly foreign-born groups, such as Cubans, Chinese, and Koreans made greater annual earnings gains by being self-employed than did mainly native-born groups, such as Japanese, Whites and African-Americans. But the positive impact of self-employment on annual earnings may have to be discounted by evidence that immigrant business owners work long hours (Portes & Zhou, 1999) and obtain low returns on their business capital (Bates, 1997). African-Americans have a lower self/organizational earnings ratio than the general population (Sexton & Robinson, 1989). Evidence that African-Americans and Hispanics face discrimination in credit markets (Blanchflower, Levine, & Zimmerman, 2003; Cavalluzzo, Cavalluzzo, & Wolken, 2002) shows that minorities also face barriers in self-employment.

There is evidence that some of those with lower earnings potential benefit from a move to self-employment. Holtz-Eakin, Rosen, and Robert (2000) used data from the Michigan Panel Study of Income Dynamics to show that low income wage and salary workers who became self-employed improved their earnings more than those who stayed in organizations. Data from the National Longitudinal Survey of Youth 1979 analyzed by Fairlie (2004) showed that among persons without schooling beyond grade 12, those who moved to self-employment had higher earnings growth than those who stayed in organizations. However, these studies do not show whether or not a move to self-employment provides greater earnings gains to the more disadvantaged. Since the samples are confined to the disadvantaged, the prospect that the more advantaged make even greater earnings gains if self-employed is not ruled out. Moreover, the estimated gains in earnings due to self-employment made by the disadvantaged may be biased upward if self-employed entry for this group is restricted to a proportionately smaller sub-set with special skills and resources.

Some ethnic groups have very high self-employment rates, but these effects seem confined to recent immigrants. Minorities with long histories of social and economic disadvantage in the U.S., notably African-Americans and Hispanics have well-below average self-employment rates (Portes & Zhou, 1999; Sexton & Robinson, 1989; Tang, 1995). Moreover, those immigrant groups with high self-employment rates have more human capital and generally come from more favorable social and economic situations in their home countries (Light & Rosenstein, 1995). Fairlie and Meyer (1996) showed that those racial/ethnic groups with greater earnings potential as indicated by educational attainment and other attributes associated with higher productivity also had higher self-employment rates.

Given the longstanding interest in the intergenerational transfer of economic status (Masagli & Hauser, 1983; Solon, 1992), there is surprisingly little direct information about how family background affects self/organizational earnings or self-employment probability. Studies of successful entrepreneurs by Collins, Moore, and Unwalla (1964) and Sarachek (1978) found that a relatively high proportion were from disadvantaged family backgrounds insofar as they experienced non-existent or poor relationships with their fathers, and were often from family backgrounds of modest means or poverty. However, such results are not easily generalized, as there is no information on comparison groups of unsuccessful entrepreneurs or wage and salary workers in general. Direct comparisons of the backgrounds of self- and organizationally employed individuals are not definitive. Duncan's (1965) tabula-

tions of 1962 Current Population Survey data showed that among workers in the professional and technical occupations, the self-employed were more likely to be from higher status backgrounds. Among the self-employed, 48% had professional or managerial fathers and 58% held first jobs as professionals, while among the salaried, 30% had professional fathers and 40% had professional first jobs. The mechanisms underlying the positive correlation between parental occupational level and self-employment are not clear, however. Given Dunn and Holtz-Eakin's (2000) finding that employment mode is not substantially affected by parental financial assets, it appears that parental occupational level is not just a surrogate for the ability to finance a business.

2. Effects of socioeconomic background

The analysis focuses on the effects of socioeconomic background—the social and economic position of an individual's family in their formative years as reflected in income, occupational status, and educational attainment of their parents, and household amenities that affect the capacity to do well in market work. Background socioeconomic status has been strongly linked to earnings (Duncan, Featherman, & Duncan, 1972; Hill & Stafford, 1977; Sewell & Hauser, 1975) and is, therefore, a fundamental source of advantage (or disadvantage) for individuals seeking to improve their economic position. The effects of background socioeconomic status are also important to the analysis of the effects of prior generations on employment mode, where so far the main finding has been that individuals with a self-employed parent are more likely to be self-employed (Dunn & Holtz-Eakin, 2000; Hout & Rosen, 2000). While this result supports explanations based on parent-to-offspring transmission of business expertise, it is also possible that the positive effect of parental self-employment is a reflection of the omitted influence of socioeconomic background.[1]

Whether self-employment is relatively more or less beneficial to those from less advantaged family backgrounds depends on whether or not background socioeconomic status provides relatively greater advantages in self-employment or in organizational employment. In this regard, there are several sometimes competing effects.

A more advantaged socioeconomic background may increase an individual's relative advantage in organizational employment because it helps them acquire the credentials necessary for organizational jobs. Since credentials are obtained through education and since socioeconomic background positively affects educational attainment (Bidwell & Friedkin, 1988; Blau & Duncan, 1967; Sewell & Hauser, 1975) then those from well-off backgrounds should do better in organizational employment.

In several other ways, however, a more advantaged socioeconomic background could provide greater benefit in self-employment. Individuals from wealthier families have better access to financial capital, mitigating the liquidity constraints that confront entrepreneurs (Blanchflower & Oswald, 1998; Evans & Jovanovic, 1989). To the extent that family bonds of trust and mutual obligation enable intra-family loans to dispense with the mechanisms that govern commercial lending, such loans can be made at lower interest rates. Wealthier parents have the resources to respond more generously to the obligation to financially help their offspring. The networks of the wealthier family are more likely to connect to other sources of capital.

Higher socioeconomic background may also be associated with the development of personal competencies that are more valuable in self-employment. The learning opportunities in the more advantaged household should enhance the literacy and numerical skills useful in the operation of one's own business. The enhanced ability and motivation to learn that has been associated with higher socioeconomic background (Hill & Stafford, 1977) may be especially valuable in self-employment, where those who learn from prior experience and adapt to changing markets are more likely to succeed.

Socioeconomic background might also affect vocational choice in ways that incline better-off individuals toward self-employed ventures which while riskier also yield higher incomes. The idea that self-employed jobs offer the chance of higher earnings while exposing the incumbent to greater losses is common to scholarly analyses of entrepreneurship (Kilhstrom & Laffont, 1979). There are two mechanisms whereby individuals from better off backgrounds will more often occupy the riskier but more rewarding self-employed jobs. First, a wealthier family provides some insurance against business losses. Because family funds can provide basic sustenance or support for a career redirection when a business venture fails, members of better off families should be willing to consider a wider range of self-employment

[1] The evidence that self-employed males have higher incomes than similar organizationally employed males (Portes & Zhou, 1999) suggests a positive correlation between paternal self-employment and background family socioeconomic status; therefore, if the true effect of socioeconomic status on self-employment probability is positive, the estimated effect of paternal self-employed in models that have so far excluded socioeconomic background is likely to be biased upward.

options including riskier and potentially more profitable ones. Second, individuals from wealthier families may have a more favorable assessment of the returns available to riskier ventures. Since they are likely exposed to economically better-off persons (such as parents and family friends) during their developmental years, they are likely to more strongly believe that the assumption of higher risk through entrepreneurial pursuits leads to higher incomes. In contrast, those from less well-off families are likely to place greater value on traditional long-term employment relationship providing job security and guaranteed employee benefits. Thus, consistent with Halaby's (2003) finding that persons from wealthier families are more likely to favor 'entrepreneurial' over 'bureaucratic' jobs, such individuals will be more likely to be observed on relatively more rewarding self-employed jobs.

3. Tests for the effects of socioeconomic background on economic advancement through self-employment

The analysis of the roles of self-employment in the economic advancement of the disadvantaged is based on three sets of estimates. The first set is of estimates of the effects of socioeconomic background on earnings in self-employment relative to organizational employment and on the likelihood of self-employment. The effect of socioeconomic background on self/organizational earnings sets the foundation, showing whether self-employment is relatively more or less beneficial for the disadvantaged. The effect of socioeconomic background on the probability of self-employment shows the extent to which the individuals from specific backgrounds participate in the gains to self-employment (if any) and also can be used to check whether the estimates of the effects of socioeconomic background on relative earnings are affected by selectivity bias.

Findings that the self/organizational earnings ratio decreases with socioeconomic status and that the more disadvantaged are equally or more likely to be self-employed supports the hypothesis that self-employment is relatively more beneficial to the more disadvantaged who are shown to make greater earnings gains in self-employment and to participate at least as frequently in the gains. Further, the greater extent of self-employment among the disadvantaged indicates that the higher self/organizational earnings for this group is not due to the selection into self-employment of only a smaller number of especially productive members. Using a similar logic, the finding that the self/organizational relative earnings increases with background socioeconomic status and that the more disadvantaged are equally or less likely to be self-employed contradicts the hypothesis that self-employment is more beneficial for the disadvantaged.

Other possible combinations of estimates, where background socioeconomic status has opposite effects on relative earnings and self-employment likelihood do not justify any definitive conclusion. The coexistence of higher (lower) relative earnings with lower (higher) incidence of self-employment across levels of background socioeconomic status is difficult to interpret as it requires explanation as to why individuals who appear to gain more in an employment mode are less likely to enter that mode. It is possible is that the effect of socioeconomic background on relative earnings is itself biased due to due to sample selectivity and/or omitted variable bias not accounted for in the estimates of the effects of background on earnings.

The second set of estimates comprises self/organizational earnings differences by levels of socioeconomic status. Such estimates show how much a member of a socioeconomic group can expect to gain or lose by being self-employed. Even if it is found that the self/organizational relative earnings are higher for the more advantaged, it is still be possible that the disadvantaged will do better in self-employment, thus providing encouragement to policy advocates who promote self-employment as a path out of poverty.

The third set of estimates address the extent to which self-employment helps individuals from disadvantaged backgrounds attain some very high, albeit arbitrarily defined, earnings level. The chance of making it to a high earnings level is a legitimate aspiration available to all members of society. Moreover, persons from disadvantaged background who have highly visible economic success serve role models for other members of their group (Portes & Zhou, 1999).

4. Data

The primary sample comprises male workers drawn from the National Longitudinal Survey of Youth 1979 Cohort (NLSY79)—a rich source of data, including well-established attributes of socioeconomic background, other elements of family background, and measures of mental ability. In view of gender differences in the structure of earnings models arising out of male/female differences in the motives for self-employment (Hundley, 2000), where women use self-employment for household production and men use it to maximize earnings, the analysis is confined to males.

Table 1
Variable definitions, means and standard deviations by employment mode: NLSY79[a].

Variable		Self-employed[b]	Organizationally employed
Age	Age in 1998	36.49	36.46
		(2.27)	(2.27)
African-American	1 if African-American	.15	.20
		(.35)	(.41)
Hispanic	1 if Cuban, Chicano, Mexican, Mexican-American, Puerto, Puerto-Rican, and other Hispanic	.09	.15
		(.29)	(.35)
Intact	Lived with biological father and mother at age 14	.81	.82
		(.39)	(.39)
Number of siblings	Number of siblings in family 1979	3.27	3.53
		(2.14)	(2.49)
Non-English	Language other than English spoken in household	.17	.21
		(.37)	(.42)
AFQT	Armed Forces Qualification Test Score (1980)	50.44	46.45
		(28.69)	(29.32)
Ethnic propensity	Self-employment propensity of ethnic group	8.80	8.25
		(3.26)	(3.50)
Enterprising father	1 if father in Holland 'Enterprising occupation	.23	.16
		(.42)	(.37)
Religion	(1 = father catholic, 0 otherwise)	.35	.37
		(.47)	(.47)
Self-esteem	Self esteem score (1980)	1.69	1.72
		(.40)	(.39)
Drop out	1 if 0–11 years school	.13	.13
		(.32)	(.31)
High school	1 if high school diploma	.66	.61
		(.47)	(.49)
Bachelor degree	1 if BA or BS degree	.16	.19
		(.37)	(.38)
Graduate degree	1 if MA, MBA, MS, MSW or PhD degree	.03	.05
		(.15)	(.22)
Professional degree	MD, LLD, or DDS degree	.02	.01
		(.14)	(.10)
SES	Background Socioeconomic Status Score (if father employed in 1979)	19.35	18.25
		(5.43)	(5.68)
Annual earnings	Total income ($) received from military service, wage	54,215.94	40,900.73
	or salary, and farm or business(less expenses) in 1997	(54,969.12)	(32,529.24)
Average hourly earnings	Annual earnings ÷ annual hours	22.30	18.23
		(25.82)	(15.63)
Sample size[b]		234	2286

Note. Standard deviations in parentheses.
[a] Sample for whom observations on father's occupation in 1979 was available.
[b] Includes 17 individuals with non-positive earnings (annual and hourly earnings ≤0).

The NLSY79, a panel study of individuals born between 1957 and 1964, who have been interviewed regularly since 1979 provided a sample of 2520 employed males with usable observations in 1998 (Table 1). An index of background socioeconomic status was derived from factor analyses of background family characteristics that have been found to be consistently related to economic achievement, human capital, and occupational attainment (Duncan et al., 1972; Nakao & Treas, 1994; Sewell & Hauser, 1975; Stevens & Featherman, 1981). For those 2520 individuals with an employed father in 1979, the index (SES) includes mother's schooling, father's schooling, two measures of father's occupational level, and the availability of reading materials

in the home.[2] The mental ability measure is provided by the scores on the Armed Forces Qualification Test (AFQT)—a composite of four tests of reading comprehension, arithmetic reasoning, word knowledge, and mathematics knowledge from the 10 tests of the Armed Services Vocational Aptitude Battery (ASVAB) administered to over 90% of the NLSY79 panel in 1980.

5. Analysis

5.1. Effects of SES on self/organizational relative earnings

Summary estimates of self/organizational relative earnings and self-employment rates arranged by quartiles of socioeconomic background in Table 2 contradict the hypothesis that self-employment is relatively more beneficial for those from less advantaged backgrounds. Self-employment provides the largest percentage gains in average earnings to those from the most advantaged backgrounds and the smallest gains, if any, to the least advantaged. Because in any period, some self-employed businesses may not be profitable whereas all organizational workers will have positive earnings, relative earnings and self-employment rates are computed from samples that alternatively exclude and include the self-employed without positive earnings. Estimates from the sample that exclude the non-positive earners can be compared to those from most previous studies which estimate semi-logarithmic earnings models, and therefore exclude non-positive earners. Such estimates are upward biased because they exclude self-employed with the lowest earnings. The estimates of self/organizational earnings when non-positive earners are excluded exceed the estimates when non-positive earners are included, with the greatest difference for the second quartile of socioeconomic status—the group that contains more than half the self-employed with non-positive earnings.[3] It should be noted that because the value of zero is assigned to the earnings of self-employed with negative earnings in the NLSY79 data, the estimates from the samples that include non-positive earners would also be biased upward, although by a smaller amount than the estimates from samples that exclude them.

Several estimates of the effects of background socioeconomic status on self/organizational relative earnings and self-employment probability are derived from alternative model specifications and estimation methods. All models control for several background attributes which, which while not typically considered a component of socioeconomic background, could affect self/organizational earnings or employment mode. These variables capture the effects household attributes such as an intact family unit, a language other English spoken at home, and the number of siblings. A mental ability score (AFQT) controls for the effects of cognitive abilities that have been found to affect earnings in previous studies (for example, Neal and Johnson, 1996).

The analysis start with familiar semi-logarithmic earnings equation

$$\ell n\, W_s = X_s\beta_s + \gamma_s SES + u_s \tag{1}$$

$$\ell n\, W_o = X_o\beta_o + \gamma_o SES + u_o, \tag{2}$$

where W_s and W_o are earnings for the self- and organizational sectors, SES is background socioeconomic status and the X's are other explanatory variables. Most of the analysis is of hourly earnings. Since annual earnings are dependent on annual hours worked, and annual hours vary widely, hourly earnings is a better indicator of the returns to actual work effort. The hourly earning may also in some respect provide a better basis for judging economic welfare, since the individual who has higher work productivity will, for any attained earnings level, have more time to engage in other valued pursuits such as household production, family life, and the enjoyment of leisure.

To test for selectivity effects, Lee's (1983) procedure was used to construct selectivity adjustment variables from a multinomial logit model of the allocation of individuals to employment mode

$$P(I = m) = \frac{\exp(Z\gamma_m)}{\sum_m(\exp(Z\gamma_m)}, \tag{3}$$

where Z are explanatory variables that include all X's as well as others that affect employment mode but

[2] Measures of the father's occupational level in 1979 were provided by the General Educational Development (GED) and Specific Vocational Preparation (SVP) scores from the Dictionary of Occupational titles (U.S. Department of Labor, 1977) assigned to each individual by three-digit census codes. As shown in Aldrich and Buchele (1986), for example, GED and SVP explain much of the variance in individual and median occupational earnings. Weights for the composite index of socioeconomic background were derived from factor analysis, and the index (SESF) for those with valid occupational data for the father was computed as .552(mother's schooling) + .654(father's schooling) + .918(father's GED) + .884(father's SVP) + .504(magazines in home at age 14) + .526 (newspapers in home at age 14) + .394(library card in home at age 14).

[3] Of the 234 self-employed males, 17 had non-positive earnings, and 10 of these were from the second quartile of SES.

Table 2
Self/organizational relative earnings and percentage self-employed by background socioeconomic status: NLSY79.

	Non-positive earners excluded[a]			Non-positive earners included		
	Relative earnings[b]		% self-employed[c]	Relative earnings[b]		% self- employed[c]
	Hourly	Annual		Hourly	Annual	
1st quartile	.87	1.00	6.37	.81	.93	7.32
(SES < 15.68) 2nd quartile	1.21	1.43	7.66	1.00	1.18	9.11
(15.68 < SES < 19.04) 3rd quartile	1.19	1.27	9.40	1.16	1.23	9.67
(19.04 < SES < 21.04)						
4th quartile	1.47	1.51	11.25	1.43	1.47	11.54 (SES > 21.04)

[a] Excludes 17 self-employed with non-positive earnings (3 from 1st quartile, 10 from 2nd quartile, 2 from 3rd quartile, 2 from 4th quartile).
[b] Self/organizational relative earnings = $((\bar{W}_s - \bar{W}_o)/\bar{W}_o)$, where $\bar{Y}_s$ = average earnings of self-employed and $\bar{W}_o$ is average earnings of organizational workers.
[c] % self-employed = $100(N_s/(N_s + N_o))$, where N_s is the number of self-employed and N_o is the number of organizationally employed.

not relative earnings, and m indexes the three categories of employment mode, self-employed with positive earnings, self-employed with non-positive earnings, and organizationally employed. The selectivity adjustment variables $\lambda_m = \phi(\Phi^{-1}[P_m(Z\gamma_m)])/P_m(Z\gamma_m)$ were entered in the earnings models (1) for self-employed with positive earnings ($m = s$), and (2) organizational employees ($m = o$).

Because plausible estimates of selectivity adjustment models require the exclusion of some determinants of mode choice from earnings models (Stoltzenberg & Relles, 1997), several candidates for variables that affect employment mode but not earnings were identified. These includes measures of self esteem, hypothesized to affect confidence in entrepreneurial action (Casson, 1982), religion which has been found to affect self-employment propensities in European samples (Le, 1999), Fairlie and Meyers' (1996) estimates of the extent of self-employment in the individual's ethnic group to capture the ethnic resources conducive to entrepreneurship,[4] and a dummy indicating whether the father's occupation is characterized by Holland's (1973) 'enterprising' attributes to capture family exposure to skills and values supportive of self-employment.[5]

Estimates using all of these instruments (Table 3, Ia and Ib) and various subsets of them showed no statistical support for selectivity bias in either the self-employed or organizational earnings equations. In view of prior evidence that selectivity effects are sample dependent and disappear in more fully specified models in which proxies for family financial capital are used (Le, 1999) analysis focuses on estimates without selectivity adjustments. In all earnings models, the SES coefficient for the self-employed is greater than the coefficient for the organizationally employed, confirming a strong tendency for self/organizational relative earnings to increase with SES. The difference between self- and organizational SES coefficients $\hat{\gamma}_s - \hat{\gamma}_o$ ($t = (\hat{\gamma}_{\gamma s} - \hat{\gamma}_{\gamma o})/\sqrt{\hat{\sigma}^2_{\gamma s} + \hat{\sigma}^2_{\gamma o}}$) is .080($t = 4.70$) from models without selectivity variables (IIa and IIb) and .070($t = 2.69$) from the selectivity adjusted models, Ia and Ib.

To explore possible avenues by which socioeconomic background is transmitted to earnings, human capital variables were added to the earnings models. Given the well-established positive associations between socioeconomic background and educational attainment (Bidwell & Friedkin, 1988; Sewell & Hauser, 1975) and the positive effect that schooling has on self/organizational relative earnings (Borjas & Bronars, 1989; Evans & Leighton, 1989; Friedland & Little, 1981; Sexton & Robinson, 1989), it is possible that the positive effect of socioeconomic background on self/organizational earnings is transmitted through education. As shown in IIIa and IIIb, the SES coefficient remains substantively unchanged when educational qualification variables are added to self-and organizational employed model and the estimated difference between SES coefficients $\hat{\gamma}_s - \hat{\gamma}_o = .075(t = 3.72)$, suggesting that the effects of

[4] Fairlie and Meyer's measures of the expected incidence of self-employment among the individual's ethnic group adjusted for the effects of demographic characteristics and human capital were matched to 29 categories of ethnic origin provided in the NLS79 data set.
[5] Enterprising one of six sets of occupation types that Holland and others have found to anchor vocational choice. Gottfredson and Brown's (1977) matching of Holland career anchors to 1970 Census three-digit occupations was used to identify the enterprising occupations.

Table 3
Determinants of average hourly earnings, semilogarithmic models: NLSY79.

	Self (Ia)	Org. (Ib)	Self (IIa)	Org. (IIb)	Self (IIIa)	Org. (IIIb)
Constant	2.29	1.87**	1.31	1.27**	.92	1.63**
	(.21)	(7.32)	(.65)	(5.16)	(.69)	(6.02)
Age	−.003	.005	.004	.02**	.04	.01
	(.05)	(.65)	(1.12)	(4.49)	(.80)	(1.58)
African-American	.12	.032	−.06	−.09**	.08	−.007
	(.14)	(.28)	(.26)	(2.22)	(.33)	(.16)
Hispanic	1.11	.09	.97**	−.01	.68	.04
	(1.55)	(.99)	(2.71)	(.19)	(2.65)	(.61)
Intact	−.05	.05	−.02	.10**	−.03	.02
	(.19)	(1.16)	(.10)	(2.94)	(.17)	(.49)
Number of siblings	−.07	−.006	−.08*	−.02**	−.08*	−.01
	(1.37)	(.67)	(2.10)	(3.01)	(2.15)	(1.51)
Non-English	−.03	.04	−.05	−.01*	−.06	.11
	(.13)	(.67)	(.19)	(1.96)	(.24)	(.20)
AFQT	.005	.008**	.005	.009**	.004	**
Drop out	(1.53)	(10.62)	(1.53)	(13.81)	(1.41)	(7.93)
					–	–
High school					.026	.16**
					(.09)	(3.56)
Bachelor degree					.15	.38**
					(.43)	(6.16)
Graduate degree					−.19	.50**
					(.40)	(6.16)
Professional degree					.53	.65**
					(.91)	(4.19)
λ	−.64	.18				
	(.21)	(.13)				
SES	.078**	.008**	.082**	.002	.080**	.005
	(2.96)	(2.06)	(4.92)	(.67)	(4.64)	(1.57)
R^2	.202	.137	.201	.137	.237	.166
Sample size	217	2286	217	2,286	217	2.286

Statistically significant at .10 level.
* Statistically significant at .05 level.
** Statistically significant at .01 level.

socioeconomic background on self-employed earnings and self/organizational relative earnings are independent of educational attainment.

Other evidence supports the conclusion that the estimated positive effect of socioeconomic status on self/organizational earnings is not due to selection bias. First, the self-employed with non-positive earnings are drawn more frequently from the lower socioeconomic levels, with 76.5% of the omitted self-employed non-earners falling below the median level of SES.[6] Thus, the positive association between SES and self/organizational earnings cannot be attributed to the more frequent exclusion of self-employed with non-positive earnings from the more advantaged groups. Second, as shown in Table 4, the coefficient on the SES variable in the dichotomous logit model of self-employment probability is positive (though not significant). Thus, the self-employed from higher socioeconomic levels cannot be considered to be a relatively more select groups than the self-employed from lower socioeconomic levels.

The Tobit procedure (Tobin, 1958) was used to estimate earnings models with the absolute values of earnings as the dependent variable. The use of absolute, rather than logarithmic earnings measures has two possible benefits. By allowing observations with non-positive values of earnings to enter the models, information on

[6] The 17 self-employed with non-positive earners who are excluded from sample of 234 self-employed comprise 3 from 1st quartile, 10 from 2nd quartile, 2 from 3rd quartile, 2 from 4th quartile of SES.

Table 4
Estimated logit marginal effects on probability of self-employment: NLSY79.

	Trichotomous logit		Dichotomous logit
	Self (earnings > 0)	Self (earnings ≤ 0)	
Constant	−2.95*	−1.83	−2.69**
	(2.17)	(.47)	(2.96)
Age	.025	−.021	.002
	(.78)	(.23)	(.97)
African-American	−.70**	−.23	−.05**
	(2.66)	(.35)	(2.84)
Hispanic	−5.08	.73	−.04
	(1.42)	(.66)	(1.47)
Intact	.15	.27	.008
	(.80)	(.56)	(.55)
Number of Siblings	−.032	−.16	−.002
	(.90)	(1.64)	(.89)
Non-English	−0.65	−1.41	−.008
	(1.26)	(1.36)	(.44)
AFQT	−.0001	−.030**	.00004
	(.06)	(2.93)	(.116)
SES	.0015	.0029	.0018
	(.89)	(.63)	(1.43)
Self-esteem	−.15	−.20	
	(.77)	(.36)	
Entrepreneur	−.08	−.09	
	(.55)	(.23)	
Ethnic propensity	−.0005	−.006	
	(.21)	(.76)	
Religion	−.064	.20	
	(.38)	(.39)	
χ^2	35.56	32.75	

* Statistically significant at .05 level.
** Statistically significant at .10 level.

all self-employed can be used. Coefficients that represent differences in earnings can be particularly useful when analyzing groups such as self-employed who are more heavily represented at the extremes of the earnings distribution (Portes & Zhou, 1999). The Tobit procedure is appropriate when, as is the case of the NLSY79 data, the dependent variable is truncated at zero (Winship & Mare, 1992).

Estimation of a preliminary Tobit model from a pooled sample of both self- and organizationally employed using the same explanatory variables supplemented by a dummy variable, $M = 1$ produced a coefficient of 2.63 ($t = 2.42$), indicating that a typical (randomly chosen) individual would expect a net earnings gain of $2.63 by being self- employed. Given the hypothesis that the effect of self-employment is conditioned by socioeconomic status M is fully interacted with SES and all explanatory variables (allows for a full set of structural coefficients to differences between sectors)

$$W = \alpha + \alpha' M + \sum_k \beta_k X_k + \sum_k \beta'_k M \times X_k + \gamma_0 \mathrm{SES} + \gamma_1 \mathrm{SES}^2 + \gamma'_0 M \times \mathrm{SES} + \gamma'_1 M \times \mathrm{SES}^2 \quad (4)$$

The quadratic term, SES^2 allows for non-linearities in the effect of SES on absolute earnings. Estimates of the absolute difference between self- and organizational earnings, D, are given by

$$D = \hat{W}_s - \hat{W}_0 = \hat{\alpha}' + \sum_k \hat{\beta}'_k X_k + \hat{\gamma}'_0 \mathrm{SES} + \hat{\gamma}'_1 \mathrm{SES}^2$$

Table 5
Determinants of average hourly earnings, tobit models: NLSY79.

	Model I		Model II		Model III	
Constant	3.48		2.84		2.83	
	(.59)		(.52)		(.52)	
Age	.18	−.76	.17	.006	.17	−.40
	(1.20)	(1.49)	(1.16)	(.79)	(1.17)	(.78)
African-American	1.76†	−4.81	1.60†	.050	1.60†	−1.59
	(1.93)	(1.43)	(1.72)	(1.09)	(1.74)	(.45)
Hispanic	.90	.19	.93	.047	.93	8.22
	(.62)	(.04)	(.65)	(.69)	(.65)	(1.55)
Intact	1.69*	−3.97	1.69*	.05	1.69	−1.21
	(2.11)	(1.38)	(2.06)	(1.04)	(2.11)	(.41)
Number of siblings	−.15	−.48	−.17	−.014†	−.17†	−1.14
	(.99)	(.85)	(1.20)	(1.91)	(1.21)	(1.90)
Non-English	.45	2.15	.17	.036	.17	2.00
	(.38)	(.57)	(.14)	(.65)	(.15)	(.52)
AFQT	.15**	−.035	.15**	.005	.15	−.003
	(10.12)	(.71)	(10.54)	(.11)	(10.61)	(.53)
Self-employed		44.13*		25.25		17.14
		(2.14)		(1.34)		(.91)
SES	−.29	−2.77**				
	(1.19)	(3.43)				
SES^2	.153*	.116**				
	(2.29)	(5.20)				
First quartile (G1 = 1)						
2nd quartile (G2 = 1)			1.22	2.32	1.22	5.24
			(1.21)	(.65)	(1.21)	(1.39)
3rd quartile (G3 = 1)			.15	5.87†	.15	6.40†
			(.13)	(1.68)	(.14)	(1.69)
4th quartile (G4 = 1)			3.13**	12.48**	3.13**	13.55**
			(2.70)	(3.20)	(2.72)	(3.40)
Sigma	15.74		15.68		15.80	
Sample size	2520		2520		2503	

† Statistically significant at .10 level.
* Statistically significant at .05 level.
** Statistically significant at .01 level.

As the estimates $\hat{\gamma}_0'$ and $\hat{\gamma}_1'$ (model 1 Table 5) show, the size of the earnings difference increases withSES^2. The effect of SES is given by the composite coefficient

$$\frac{\partial D}{\partial \mathrm{SES}} = \hat{\gamma}_o' + 2\hat{\gamma}_1' \mathrm{SES}$$

which, as shown in Table 6, is positive and statistically significant across the range of values of SES. At the median value of SES, for example, $\partial D/\partial \mathrm{SES} = 4.51$ ($t = 5.22$).

A second model used dummies to represent background socioeconomic status

$$W = \alpha + \alpha' M + \sum_k \beta_k X_k + \sum_k \beta_k' M \times X_k + \sum_{j=2}^{4} \phi_j G_i + \sum_{j=2}^{4} \phi_j' M \times G_j, \quad (5)$$

where $G_j = 1$ for the jth quartile of socioeconomic status. The interaction coefficients, $\hat{\phi}_j'$ provide measures of how the self/organizational earnings difference for individuals in the jth quartile compares with the self/organizational earnings difference for other quartiles. For example, based on estimates of model II Table 5, the difference between self- and organizational hourly earnings for the fourth quartile is $12.48 greater than the difference for the first quartile. A comparison of the Tobit estimates of (5) from the sample that excludes the non-positive earners (model III) can be compared with model II to gauge the effects of omitting the self-employed with non-positive earnings. The self/organizational relative earnings estimates are higher when non-positive earners are excluded and the difference is greatest for the second quartile of SES—the group with the majority of non-positive earners.

Table 6
Effects of socioeconomic level on self/organizational hourly earnings difference.

Socioeconomic level	$\partial D/\partial$SES[a]
10th percentile (SES = 11.03)	2.58**
	(5.26)
25th percentile (SES = 15.68)	3.65**
	(5.23)
Mean (SES = 18.35)	4.26**
	(5.26)
Median (SES = 19.40)	4.52**
	(5.23)
75th percentile (SES = 21.04)	4.89**
	(5.22)
90th percentile (SES = 25.12)	5.84**
	(5.26)

$\frac{\partial D}{\partial SES} = \partial(\hat{W}_s - \hat{W}_0)/\partial SES = \hat{\gamma}_2 + 2\hat{\gamma}_3 SES$ (Model I, Table 5).
[a] t-values in parentheses. $t = \sqrt{\hat{\sigma}_{22} + 4SES\hat{\sigma}_{23} + 4SES^2\hat{\sigma}_{33}}$.
** Statistically significant at .01 level.

5.2. Self/organizational earnings differences by SES

Even though model estimates show self/organization relative earnings increases with socioeconomic status, they do not show whether or not, and by how much a person of any given level of socioeconomic background gains from being self-employed. To this end, earnings model coefficients were used generate estimates of self/organizational earnings ratios that would be expected at various levels of SES.

The semi-logarithmic models of self- and organizationally employed (IIa and IIb in Table 3) provide predictions of the average earnings that sample members would receive in self and organizational employment when characterized by specific levels of SES, i.e.,

$$\frac{\bar{\hat{W}}_s}{\bar{\hat{W}}_0} = \frac{\sum_i \exp(X_i\hat{\beta}_s + \hat{\gamma}_s SES_p)}{\sum_i \exp(X_i\hat{\beta}_o + \hat{\gamma}_o SES_p}$$

where SES_p is the pth percentile SES score that is assigned to all sample members.

For the Tobit model (4), the self/organizational earnings ratio for SES_p is

$$\frac{n\hat{\alpha}' + \sum_i\sum_k \hat{\beta}'_k X_{ki} + n\hat{\gamma}'_0\text{SES}_p + n\hat{\gamma}'_1\text{SES}_p^2}{n\hat{\alpha} + \sum_i\sum_k \hat{\beta}_k X_{ki} + n\hat{\gamma}_o\text{SES}_p + n\hat{\gamma}_1\text{SES}_p^2}$$

Table 7
Predicted self/organization relative earnings ratios: by socioeconomic status.

	Semi-logarithmic	Tobit			
	I	II	III	IV	V
SES level					
10th percentile	.50	.54			.57
25th percentile	.74	.68			.76
Mean	.89	.85			1.08
Median	1.01	.96			1.08
75th percentile	1.17	1.13			1.21
90th percentile	1.64	1.63			1.63
SES category					
1st quartile			.81	.87	
2nd quartile			.90	1.16	
3rd quartile			1.17	1.24	
4th quartile			1.46	1.53	

Notes. (I) Calculated from Model II (IIa and IIb) in Table 3 (excluding non-positive earners).
(II) Calculated from Tobit Model 1 in Table 5 (including non-positive earners).
(III) Calculated from Tobit Model 2 in Table 5 (including non-positive earners).
(IV) Calculated from Tobit Model 3 in Table 5 (excluding non-positiver earners).
(V) Calculated from Tobit Model 4 in Table 5 (including non-positive earners) with annual earnings as dependent variable.

As shown in Table 7 (columns I and II), the estimated self/organizational ratios from the semi-logarithmic models and Tobit model (4) are quite similar. Self-employed earnings are about half of organizational earnings at the 10th percentile, and more than 60% greater than organizational earnings at the 90th percentile. The estimates of the self/organizational earnings ratio from the Tobits are slightly smaller at most SES levels—as expected given the inclusion of the non-positive (self-employed) earners in the Tobit model estimates.

The coefficients from the Tobit model (5) were used to compute the self/organizational earnings ratios for each of the j quartiles of SES.

$$\frac{n\hat{\alpha}' + \sum_i\sum_k \hat{\beta}'_k X_k + \hat{\phi}'_j}{n\hat{\alpha} + \sum_i\sum_k \hat{\beta}'_k X_k + \hat{\phi}_j}$$

As shown in Table 7 (column III), self/organizational earnings ratios estimated from the sample that includes the self-employed with non-positive earnings varies widely across socioeconomic classes, with self-employed earnings being 46% greater than orga-

Table 8
Probabilities of attaining earnings levels by socioeconomic status and employment mode[a].

SES	Mode	Hourly earnings		Annual earnings			
		Top 10%	Top 25%	Top 50%	Top 10%	Top 25%	Top 50%
1st quartile	Self	.075	.175	.325	.075	.175	.325
	Organizational	.038	.129	.323	.038	.129	.323
2nd quartile	Self	.16	.229	.361	.18	.344	.456
	Organizational	.07	.170	.438	.06	.181	.435
3rd quartile	Self	.14	.38	.625	.15	.41	.573
	Organizational	.07	.23	.545	.08	.26	.554
4th quartile	Self	.32	.50	.70	.40	.55	.71
	Organizational	.17	.43	.69	.18	.46	.68

[a] Probability of attaining earnings level = n_s^a/n_s where n_s^a is the number of self-employed in SES quartile (1st, 2nd, 3rd, or 4th) who attain the higher income level (top 10%, top 25%, or top 50%) and n_s is the number in the group who are self-employed.

nizational earnings for those from the top quartile of background socioeconomic status and 19% lower for those from the bottom quartile. The estimates of the self/organizational earnings differential from the sample that excludes the non-positive earners (column IV) exceeds estimates from the sample that includes them by 6 to 7 percentage points for the 1st, 3rd, and 4th quartiles and by 26 percentage points for the 2nd quartile (which contains most of the self-employed with non-positive earnings).

Estimates of self/organizational annual earnings estimated using coefficients of model (4) in Table 7 (column IV) follow a similar pattern to estimates based on hourly earnings (shown in column II). The self/organizational earnings ratios are somewhat greater, reflecting the greater annual hours in the self-employed sector, but still increase markedly with socioeconomic status.

Given the apparently substantial impact of socioeconomic background on earnings in self-employment, it is worth contemplating how much of the earnings advantage that self-employed are observed to hold over organizational workers can be attributed to the relatively higher SES levels of the self-employed. The Tobit earnings models were used to predict the change in average self-employed earnings if the self-employed were endowed with the by average SES of organizational workers. Based on the coefficients of model I in Table 5, the average earnings of self-employed would decline by $1.42 if the self-employed sample members were instead endowed with the average SES of organizational workers—an amount equal to 34.9% of the overall self/organizationally employed earnings difference ($22.30 − $18.23 = $4.07).

5.3. SES and attainment of high earnings through self-employment

Two probability estimates are used to assess the role that self-employment plays in helping those from less-advantaged reach the upper echelons of income earners.

The first estimate is of the probability that a person from specific socioeconomic group will attain a

Table 9
Proportion of individuals attaining high earnings level who are self-employed[a].

SES	Hourly earnings attainment		Annual earnings attainment			
	Top 10%	Top 25%	Top 50%	Top 10%	Top 25%	Top50%
1st quartile	.148	.096	.067	.212	.112	.057
2nd quartile	.167	.112	.075	.212	.157	.096
3rd quartile	.176	.147	.109	.158	.142	.100
4th quartile	.190	.130	.119	.219	.137	.120

[a] Estimated probability that person from the SES level reaching level of earnings attainment = $n_s^a/(n_s + n_o)$, where n_s^a is the number of self-employed in the SES quartile group who attain specified income level (top 10%, top 25%, top 50% of all earnings), n_s is the number in the group who are self-employed, and n_o is the number of organizationally employed.

level of high earnings if they are self-employed, i.e., n_s^a/n_s, where n_s^a is the number of self-employed from the group who attain the higher earnings level and n_s is the number from the group who are self-employed. As reported in Table 8, a person from the bottom quartile of socioeconomic background is more likely to reach the top decile or top quartile of earnings if they are self- rather than organizationally employed. Of the disadvantaged who are self-employed, 7.5% are in the top 10% of earnings levels and 17.5% are the top 25% whereas of the disadvantaged who become organizationally employed, 3.8% are in the top decile and 12.9% in the top quartile. It is also true, however, that a relatively small proportion of the disadvantaged who do attain the higher level of economic attainment are self-employed.

The second estimate is of the probability that members of the group who attain the specified level of attainment do so by being self-employed, i.e., $n_s^a/(n_s + n_o)$, where n_o is the number of group members who work for an organization. As shown in Table 9, 14.8% of the disadvantaged who attain earnings in the top decile are self-employed. Larger proportions of the more advantaged groups who reach the higher levels of economic attainment are self-employed. Clearly, overall, the great majority of people who experience upward mobility do so through organizational rather than self-employment.

6. Conclusions

The results do not support the idea that self-employment is especially useful as a path to economic advancement by those from more humble family backgrounds. Males from higher-level socioeconomic backgrounds have higher self/organizational relative earnings and there is some evidence that they are more likely to be self-employed. Those from a higher socioeconomic background can expect to earn much more in self-employment than in organizational employment while those from the lower socioeconomic background can expect to earn much less. There are some indications that the individual from relatively disadvantaged background might have a greater chance of attaining very high earnings levels (such as being among the top 10% of all income earners) if they become self-employed. Still, the percentage of group members who attain the top earnings levels through self-employment is no greater for the most disadvantaged and maybe slightly less—a reflection of the lower propensity for self-employment among the lower socioeconomic levels.

Our findings, which pertain to the mostly native-born U.S. workers, help fill the gap between what is known about self-employment in general and what is known from the large literature on immigrant self-employment. While many immigrants may be drawn to self-employment because their lack of recognized credentials or English-language skills render them less attractive to employers, research has shown that self-employment is for the most part especially rewarding and more attractive to well-educated immigrants with middle or upper class upbringings in their home country. Thus, in both recent immigrant and the native-born populations, those from more advantaged backgrounds derive greater earnings benefit from self-employment and are more likely to be self-employed.

Although the estimated effects of socioeconomic background are clear and robust, the mechanisms producing them are still not precisely identified. But evidence that parental financial assets do not strongly affect employment mode (Dunn & Holtz-Eakin, 2000) suggests that these mechanisms extend beyond the provision of business capital by well-to-do parents, and encompass the positive effects of higher socioeconomic background status on the willingness to undertake riskier and more profitable self-employed ventures, the ability to persist with business ventures even when not profitable in the short term, better access to networks of customers and lenders, and exposure to life experiences that provide insights into more profitable market opportunities.

The results have implications for the role that self-employment plays in society and for the decisions made by individuals and policymakers. In the current context, self-employment cannot generally be construed as a path to economic opportunity for the disadvantaged. Thus, policies to improve access to self-employment by means other than those that actually improve competencies that produce success in self-employment are unlikely to improve the lot of the disadvantaged.

Policy makers who are interested in self-employment and the promotion of entrepreneurship should, however, be interested in what it is about socioeconomic background that leads to success in self-employment. Those interested in expanding the scope for self-employed success will be advised to explore mechanisms that provide those elements of social capital, values and attitudes associated with higher-level socioeconomic background that seem also serve to increase earnings in self-employment. Unfortunately, such mechanisms are likely to be complicated and difficult to mimic through public programs.

Instead, attempts to increase the self-employment rate of groups with lower income levels may be best served by actions to improve their members' general economic welfare so that later generations have family backgrounds more amenable to success in self-employment. Paradoxically, the policies that increase self-employment rates and success in the long run may involve those measures such as laws against employment discrimination, and support for job training and human capital accumulation that first improve the wage and salary earnings of group members.

A comparison of the results of this study with others offers the lesson that while various indicators of disadvantage (for example, lower background socioeconomic status and, minority group membership) may be positively correlated, they may also affect earnings or employment mode in very different ways. Future analyses that recognize these competing effects might help explain why some characteristics that might prevent an individual from fully realizing their earnings potential in wage and salary employment are not associated with either greater relative earnings in self-employment or higher self-employment rates. For example, the relatively low self-employed earnings and low self-employment rates of African-Americans and most Hispanic groups may be found to be attributable to the effects of lower background socioeconomic statuses that place them at even greater disadvantage in self-employment.

The tendencies captured in the data do not mean that self-employment might not be helpful to persons for whom self-employment is the only viable alternative to unemployment or dependency. For example, there may be individuals whose productivity is so low due a disability (Fuchs, 1982) or life situation such as homelessness (Balkin, 1992) that no employer will hire them. Others exposed to a sudden unpredicted reduction in employer demand for their labor may find the costs of moving to a new occupation or region to be prohibitive (Granger, Stanworth, & Stanworth, 1995).

The finding those from more advantaged socioeconomic backgrounds should on average have greater self/organizational relative earnings does not rule out the possibility that individuals judged to be disadvantaged on the basis of some other attribute, such as a low level of education, might be observed making greater earnings gains if they become self-employed. This could occur if those from the ranks of the less educated who move to self-employment are a more select group than those from the ranks of the more educated who make a similar move—a scenario that fits both with evidence of the lower self-employment rates among the less educated (Fairlie & Meyer, 1996) and the notion that those with less education may face higher hurdles in acquiring capital to enter self-employment; thus only the especially talented and/or hardworking are observed in self-employment. Consequently, the findings of greater earnings advantage in self-employment for the higher socioeconomic status are not inconsistent with the findings of Fairlie (2004) and Holtz-Eakin et al. (2000) that individuals with low educational levels or low organizational earnings who move to self-employment enjoy greater earnings increases than those who stay in organizational work.

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