

## THE WEALTH DYNAMICS OF ENTREPRENEURSHIP FOR BLACK AND WHITE FAMILIES IN THE U.S.

BY WILLIAM D. BRADFORD\*

*University of Washington*

Among black and white families, entrepreneurs hold disproportionately more wealth than workers. Black entrepreneurs hold a lower fraction of black family wealth than white entrepreneurs hold of white family wealth, because black families have a lower rate of entrepreneurship. Black and white entrepreneurs have more upward and less downward mobility in the wealth distribution than black and white workers, respectively. The black entrepreneurs and white entrepreneurs have similar upward mobility and black entrepreneurs less downward mobility in the wealth distribution. The entrepreneurs save at higher rates than workers, and the saving rates of black entrepreneurs and white entrepreneurs are not found to differ.

### 1. INTRODUCTION

Consider family wealth (or net worth), the sum of the family's assets less its debts. This study links data on family wealth accumulation and the decision of individuals to start or run their own firms—i.e. engage in entrepreneurship. Only recently have scholars begun to intensely compare the wealth accumulation of entrepreneurs relative to workers. Quadrini (1999, 2000) and Gentry and Hubbard (2000) show that entrepreneurs are more upwardly mobile in the wealth distribution, and achieve higher wealth levels and wealth-income ratios than workers. Gentry and Hubbard also show that the saving rate of entrepreneurs is higher than that of workers.

This paper augments those studies along three lines. First, I separate entrepreneurs by race and compare black entrepreneurs with white entrepreneurs. There is a growing literature on the participation of ethnic minorities in entrepreneurship, particularly the relatively low entrepreneurship rate of blacks in the U.S.<sup>1</sup> Numerous writers have promoted the engagement of blacks in entrepreneurship as a way to significantly reduce the wealth disparity between black and white Americans.<sup>2</sup> Heretofore, no study has documented to what extent both black and white entrepreneurs actually achieve higher wealth-levels when one controls for education, age and other factors that ordinarily affect wealth

*Note:* Previous versions of this paper were presented at the 2000 session of the National Economic Association, and the 2002 session of the Midwest Economic Association. I am appreciative of helpful comments from those at these sessions and from Alan Hess, Paul Malatesta and Wayne Ferson. I am also grateful for helpful suggestions of the referees.

\*Correspondence to: William D. Bradford, School of Business Administration, Box 353200, University of Washington, Seattle, WA 98195-3200, U.S.A. (bradford@u.washington.edu).

<sup>1</sup>For example, see Bates (1997), Fairlie (1999), Fairlie and Meyer (2000) and Hout and Rosen (2000).

<sup>2</sup>For example, see Boston (1999), Wallace (1993) and Butler (1991). This idea goes at least as far back as the early 1900s. See Harmon *et al.* (1929).

accumulation.<sup>3</sup> Second, I control for demographic and other relevant factors when comparing the wealth transitions of entrepreneurs with workers. The transition matrices of Quadrini, and Gentry and Hubbard do not control for factors that would ordinarily affect the relative wealth change. Third, I use a larger sample and more descriptive personal variables than Gentry and Hubbard in comparing the saving rates of entrepreneurs with those of workers.

I frame the analysis into three questions. First, to what extent do both black and white entrepreneurs hold higher levels of wealth than workers, when controlling for relevant variables? Second, are both black and white entrepreneurs upwardly mobile in the wealth distribution, before and after adjusting for personal characteristics? Third, do both black and white entrepreneurs display higher wealth-income ratios and saving rates than workers? My results in response to these questions are as follows.

First, both black and white entrepreneurs hold higher fractions of wealth relative to their fraction of the population in their racial groups. But black entrepreneurs hold a lower fraction of black family wealth than white entrepreneurs hold of white family wealth. The reason is the lower rate of entrepreneurship among black families rather than a lower relative wealth advantage of black entrepreneurs over black workers. These are univariate analyses. Ordinary least squares (OLS) and quantile (median) regressions show that controlling for education, age and other relevant variables, both white and black entrepreneurs hold more wealth than the other categories (including workers) within their race groups, and the absolute wealth advantage of white entrepreneurs over white workers is larger than that of black entrepreneurs over black workers. While the wealth advantage of white workers over black workers is statistically significant in the OLS regression and not statistically significant in the median regression, the wealth advantage of white over black entrepreneurs is statistically significant at the 0.10 level for both the OLS and median regressions. The data come from the Panel Study of Income Dynamics (PSID), and do not capture the very top of the wealth distribution, which is disproportionately white. The results here should be considered as referring to wealth up to the 98th percentile.<sup>4</sup>

The second question refers to wealth mobility. Here I trace the changes in wealth for entrepreneurs and workers over 1984–89 and 1989–94. The resulting transition matrices show that both black and white continuing entrepreneurs have more upward mobility and less downward mobility in the wealth distribution than

<sup>3</sup>Various studies have compared the earnings of the entrepreneurs with wage/salary workers. See Aronson (1991), Devine (1994), Ferber and Waldfogel (1998), and Hamilton (2000). Some studies have found that wage/salary earnings exceed those of the entrepreneurs in the U.S., while others have found the reverse. One problem with these studies is that the entrepreneurs tend to underreport earnings in order to reduce tax liabilities. I know of no research on how underreporting varies according to the differing characteristics of the entrepreneurs. Another problem is the proper adjustment to earnings for certain benefits (e.g. health) that more wage/salary workers receive than do the entrepreneurs. Wealth accumulation is an obvious alternative to earnings. To the extent that underreported income and the net impact of benefits show up in personal assets, then wealth is better than earnings as a measure of the economic impact of entrepreneurship.

<sup>4</sup>Wealth data from the PSID line up reasonably closely through the 98th percentile with data from the Survey of Consumer Finances, which oversamples high wealth families. See Juster *et al.* (1999).

continuing workers in their respective race group. The transition matrices also show that white entrepreneurs have more upward mobility and less downward mobility than black entrepreneurs. But these matrices do not control for variables other than work category. Logistic regressions that control for variables such as education, age and receipt of a gift or inheritance, show that race is not statistically significant in predicting the upward mobility of entrepreneurs, and that black continuing entrepreneurs display less downward mobility than white continuing entrepreneurs.

The third question relates to the saving rates of the black and white entrepreneurs. Here the univariate comparisons show that the wealth-income ratios of both black and white entrepreneurs are higher than those of workers in their racial groups, and the wealth-income ratios of white entrepreneurs are higher than those of black entrepreneurs. The OLS and median regressions confirm that white entrepreneurs have higher wealth-income ratios than white workers and black entrepreneurs. But the regressions also indicate that the wealth-income ratios of the black entrepreneurs are equal to (OLS regression) or lower than (median regression) those of black workers. The results for saving rates differ somewhat. The saving rates of black and white entrepreneurs are higher than those of black and white workers, respectively, and the black and white entrepreneurs' saving rates are not found to differ.

Several observations flow from these results. First, Quadri (1999) concluded that entrepreneurship tends to increase the concentration of wealth in the U.S. The results of this study indicate that entrepreneurship among black families has reduced wealth concentration by shifting more wealth to black families, who are disproportionately at the lower end of the wealth spectrum. Second, one must be careful in projecting the effect of more black entrepreneurs on wealth concentration. This study documents the favorable impact on wealth of black entrepreneurs compared to black workers. But what are the influences that produce the favorable results of black entrepreneurs, and can these influences be transferred to new black business entrants? Further research is needed before we can project that higher rates of black entrepreneurship will further reduce the wealth gap between black and white Americans.

Third, the saving rates of black entrepreneurs are higher than those of black workers, and are not found to differ from those of white entrepreneurs (controlling for demographic variables). Part of the difference between black families and white families in the saving rate might come from the lower rate of entrepreneurship among black families. Thus it is useful to understand the root causes of these higher saving rates and the extent to which new black entrepreneurs will display these higher saving rates. More broadly, the findings here suggest that research on family saving decisions in general and the saving decisions of wealthy and high-income families should encompass the role of entrepreneurship in affecting such decisions.

The rest of this paper is organized as follows. Section 2 analyzes the predictive content of race and entrepreneurship in determining the wealth accumulation of families. Section 3 examines the extent to which race and participation in entrepreneurship affect the change in the family's position in the wealth distribution

over 1984–89 and 1989–94. Section 4 analyzes the wealth-income ratios and saving rates of families, as associated with race and participation in entrepreneurship. Section 5 overviews and discusses the findings of the study.

## 2. ARE BLACK AND WHITE ENTREPRENEURS WEALTHIER?

### 2.1. *Entrepreneurship and Wealth*

What should be expected about the relative wealth of entrepreneurs compared to that of workers? Several theoretical models of entrepreneurship exist in the economics literature. Lucas (1978) assumes that there is a distribution of managerial talent across individuals in the work force. Those who become entrepreneurs are those with the most managerial talent. One can extend this model to consider any talent that can result in higher income under entrepreneurship, such as financial acumen (the latter is suggested by a referee). In Kihlstrom and Laffont's (1979) model, the decision to become an entrepreneur is based on a comparison of the risky return to self-employment to the less risky return of wage/salary work.<sup>5</sup> In Evans and Jovanovic (1989), the individual chooses the work sector that provides the highest expected net income, but the choice is subject to a liquidity constraint. Jovanovic (1982) derives a dynamic model in which firms discovering that they are efficient survive and expand output, while firms discovering that they are not efficient fail. Proceeding from each of the models is the conclusion that earnings over time should be greater for entrepreneurs than for wage/salary workers. The higher earnings then lead to higher wealth creation. In contrast, Hamilton (2000) expresses the argument that entrepreneurs may trade lower earnings for the nonpecuniary benefits of business ownership. Entrepreneurship offers greater freedom and control in the work place, and workers may choose self-employment despite self-employment earnings below their paid employment alternative.<sup>6</sup> Here the earnings and wealth of entrepreneurs may not be higher than those of workers.

The theoretical frameworks of Gentry and Hubbard, and Quadrini (2000) directly focus on wealth. They conclude that entrepreneurs should hold higher wealth than workers because of three factors. The first factor is the incentive of a household to accumulate the minimal capital requirements needed to engage in entrepreneurship or to implement larger projects. The second factor relates to the uninsurable entrepreneurial risk encountered by business households. Because entrepreneurs face greater financial risk than workers and are risk averse, their patterns of savings are more conservative. The third factor that underlies the difference or change in saving behavior results from the cost of external financing available to potential entrepreneurs. The high interest rate paid on borrowing increases the marginal return on saving for those entrepreneurs whose level of wealth is lower than the level of capital invested in their business. In conclusion, the tradeoff of employment earnings for the nonpecuniary benefits of entrepreneurship can lead to the hypothesis of lower wealth for entrepreneurs; but the

<sup>5</sup>Carroll (1994) and Fairlie and Meyer (2000) provide empirical evidence that the return to self-employment is more risky than that of the wage/salary status.

<sup>6</sup>Hamilton cites studies that are consistent with this view.

various other approaches imply that entrepreneurs will have higher wealth than workers.

## 2.2. *Differences in Wealth Accumulation*

Table 1 shows the means and medians of family wealth in five-year intervals 1984–99, inclusive, reported in 1999 dollars.<sup>7</sup> The wealth statistics are weighted cross-sectional snapshots of the families' financial traits. Table 1 includes wealth statistics on all four standard work categories: entrepreneurs (self-employed),<sup>8</sup> workers, retired, and unemployed. The mean and median family wealth of both the black and white entrepreneurs are larger than any of the other work categories in their racial groups. Indeed, the mean and median wealth of black and white entrepreneurs are at least twice the overall mean and median of their racial groups. But the black entrepreneurs differ from the white entrepreneurs in at least three respects.

First, the mean and median wealth of the black entrepreneurs are lower than those of the white entrepreneurs: the black-white ratio for the mean and median wealth of entrepreneurs are 0.21 and 0.33, respectively in 1994. But both of these compare favorably with the black-white group mean and median ratios of 0.20 and 0.12, respectively. Second, entrepreneurs are a lower fraction of the black families than of white families. In 1994, for example, the black entrepreneurs were 3.7 percent of black families compared to 12.8 percent for white families. This reflects the lower rate of business ownership observed and analyzed in previous studies.<sup>9</sup> Third, the black entrepreneurs hold a lower percentage of total black family wealth than the white entrepreneurs of total white family wealth. While black entrepreneurs hold 13.7 percent of black family wealth, white entrepreneurs hold 31.1 percent of white family wealth. The lower ratio of wealth for black entrepreneurs results primarily from the lower percentage of black entrepreneurs among black families. Both the mean and median entrepreneurs to group wealth ratios for black entrepreneurs (2.70 and 8.00) are higher than for white entrepreneurs (2.52 and 2.90).

## 2.3. *OLS and Median Regressions Predicting Wealth*

Table 1 shows that entrepreneurs hold higher levels of wealth than other work categories. But such univariate comparisons do not control for demographics and other factors that might cause differences in wealth. For example, life cycle analyses conclude that younger adults hold less wealth than older adults. Thus multi-

<sup>7</sup>All dollar figures are in 1999 dollars throughout the paper. The CPI-U-X1 is used for calculating real 1999 monetary values.

<sup>8</sup>Two possible definitions of entrepreneurs emanate from the PSID data. One question is "Did you (Head) or anyone else in the family own a business at any time during the previous year or have a financial interest in any business enterprise?" and the second is "In your main job, are you (Head) self-employed or do you work for someone else?" Those answering "yes" to the first definition can be workers who have a minority interest in a small business. A "yes" to self-employed in the second definition means that at least the person's human capital is at risk in the venture. There is substantial overlap in respondents that answer yes to both questions, but the two sets are not identical. I use the self-employment definition. The results of the tests are similar using both methods.

<sup>9</sup>See Bates (1997), Fairlie (1999), Fairlie and Meyer (2000) and Hout and Rosen (2000).

TABLE 1  
FAMILY WEALTH, WHITE AND BLACK FAMILIES, BY EMPLOYMENT STATUS IN 1999 DOLLARS

	White Families					Black Families				
	Group	Entrpnrs	Workers	Retired	Unemp	Group	Entrpnrs	Workers	Retired	Unemp
<i>1984</i>										
Mean	176,954	473,280	133,864	215,005	64,533	30,633	94,861	34,091	40,823	10,788
Median	61,733	214,864	47,318	105,508	16,997	3,848	40,087	9,621	13,950	0
N	4,341	469	2,783	677	399	2,576	74	1,509	384	609
Subgroup to group mean	1.00	2.67	0.76	1.22	0.36	1.00	3.10	1.11	1.33	0.35
Subgroup to group median	1.00	3.48	0.77	1.71	0.28	1.00	10.42	2.50	3.63	0.00
% of group population	100.0	10.61	60.31	19.25	9.83	100.0	2.35	60.67	18.47	18.50
% of group wealth	100.0	28.55	45.30	22.51	3.64	100.0	6.35	56.78	29.97	6.90
Black/white ratio										
Mean						0.17	0.20	0.25	0.19	0.17
Median						0.06	0.19	0.20	0.13	0.00
<i>1989</i>										
Mean	193,891	609,651	115,950	230,377	85,596	39,750	144,031	37,916	66,801	8,157
Median	63,147	251,244	44,337	122,263	16,123	6,583	71,208	8,061	23,781	0
N	4,475	588	2,924	695	268	2,608	103	1,625	409	471
Subgroup to group mean	1.00	3.14	0.60	1.19	0.44	1.00	3.62	0.95	1.68	0.21
Subgroup to group median	1	3.98	0.7	1.94	0.26	1.00	10.82	1.22	3.61	0.00
% of group population	100.0	12.43	60.38	20.55	6.65	100.0	3.06	61.27	18.20	17.48
% of group wealth	100.0	38.16	36.35	22.37	3.12	100.0	8.82	65.46	22.98	2.74
Black/white ratio										
Mean						0.21	0.24	0.33	0.29	0.10
Median						0.10	0.28	0.18	0.19	0.00
<i>1994</i>										
Mean	198,499	500,242	140,580	227,342	88,913	38,758	104,686	36,268	62,894	14,453
Median	69,698	202,348	49,463	121,409	13,490	8,431	67,449	10,679	20,235	0
N	4,699	618	2,976	818	287	2,610	112	1,614	436	448
Subgroup to group mean	1.00	2.52	0.71	1.15	0.45	1.00	2.70	0.94	1.62	0.37
Subgroup to group median	1.00	2.90	0.71	1.74	0.19	1.00	8.00	1.27	2.40	0.00
% of group population	100.0	12.76	59.74	21.13	6.36	100.0	3.71	62.77	17.74	15.78
% of group wealth	100.0	31.18	42.18	23.67	2.97	100.0	13.73	58.67	23.75	3.84
Black/white ratio										
Mean						0.20	0.21	0.26	0.28	0.16
Median						0.12	0.33	0.22	0.17	0.00

Source: Author's calculations using data from the PSID Supplemental Wealth Files.

ivariate models will be used to examine the relationship between wealth and entrepreneurship while controlling for the impact of other variables. In order to test the statistical significance of the differences in wealth between entrepreneurs, workers and other categories, I estimate a model in which the family's wealth is regressed on predictor variables, including work category and race. Let  $X_i$  be a vector of independent variables for family  $i$ . The basic model specifies the level of wealth to be linear in  $X_i$ :

$$W_i = a + X_i\beta_i + \varepsilon_i$$

where  $W_i$ ,  $a$ ,  $\beta_i$  and  $\varepsilon_i$  are wealth for family  $i$ , the regression intercept, the slope parameters, and the error term, respectively. The variables in the regressions are described as follows:

- Black: African American dummy, black head of household = 1, white = 0.
- Age: Young = less than 35, Middle = 35–54, Old = 55 or older.
- Male: Male = 1, Female = 0.
- Married: Married, not separated = 1, Single, divorced or separated = 0.
- Education: Dummy variables for (1) less than high school, (2) high school only, (3) high school plus college but no degree, and (4) college degree.
- Children less than 18 years old in residence: Actual number.
- Dependants outside of the family: Actual number.
- Permanent income: Income over the previous five years.
- Permanent income square: The square of permanent income.
- Health: Excellent or Good = 1, Fair or Poor = 0.
- Home ownership: Yes = 1, No = 0.
- Received a gift/inheritance: The head or spouse (if any) received assets (cash or other) from an inheritance (dummy variable).
- Employment category: Dummy variables represent Entrepreneur, Worker, Retired, or Unemployed.
- Region: States are divided into nine regions; see the Appendix for details. Dummy variables are used, with the North Atlantic region being the reference region.

Previous research has shown that in regressions that pool both black and white families, the binary variable Black is negative and statistically significant in predicting family wealth. I will avoid redundancy and report only regressions that reflect the issues at hand: the impact of entrepreneurship on the wealth of black and white families. Thus the regressions here predict wealth for (1) black families and white families separately, with entrepreneurship as a predictor variable,<sup>10</sup> and

<sup>10</sup>A reviewer has correctly observed that if wealth (through minimum capital requirements and liquidity constraints) affects entry into entrepreneurship, then there is a simultaneous relationship between wealth and entrepreneurship: using entrepreneurship as an independent variable in predicting wealth will make the coefficients inefficient. However, the degree to which wealth impacts business entry is unsettled. Holtz-Eakin *et al.* (1994) and others provide evidence supporting this relationship, but Hurst and Lusardi (2001) provide strong evidence that it does not. Meyer (1990), who focused on black entrepreneurs, uses several data sets and does not find any evidence that financial resources play a role in explaining the transition to entrepreneurship. Dunn and Holtz-Eakin (1995) find some but overall weak evidence that wealth affects entrepreneurship among the young. My purpose is to provide evidence on the empirical relationship in a standard regression setting, thus I include entrepreneurship as a regressor in one set of the models that predict wealth.



(2) entrepreneurs and workers separately, with race as a predictor variable. Both mean regressions (OLS) and median (quantile) regressions are reported, so that expression (1) can represent the conditional mean or the conditional median regression function. Median regressions are of interest if one is concerned about the median of wealth for families with a set of characteristics. In addition, the skewness and fat tails of the wealth distribution may make the median more relevant than the mean, which is focus of the OLS regression. I will also examine the predictive content of the models using a slightly modified regression decomposition (Blinder (1973), Oaxaca (1973)) that allows for median regression models.<sup>11</sup>

Table 2 shows the results of the OLS regressions predicting the amount of wealth separately for white families and black families, and for entrepreneurs and workers. The years observed are 1984, 1989 and 1994.<sup>12</sup> The results of the black and white family models show that with the exception to be noted, for both black and white families, age, education, marriage, home ownership, good health, and the receipt of an inheritance are positively associated with wealth. The exception is the median regression for black families for which marriage is positive but has a negligible t-value. The number of children has a consistently negative impact on wealth.

In both the OLS and median regressions, both black and white entrepreneurs hold higher wealth than workers in their groups. The wealth advantage for white entrepreneurs over white workers is \$226,382 and \$108,285 for the mean and median regressions, respectively. The advantage of black entrepreneurs over black workers is \$64,506 and \$27,244. A Chow test of the difference between white families and black families in the entrepreneurship coefficient is statistically significant at the 0.01 level: the absolute wealth advantage of white entrepreneurs over white workers is larger than that of black entrepreneurs over black workers.

Following Blinder (1973), Oaxaca (1973) and most similar studies, I measure the difference in wealth between groups (the wealth gap) as the difference in the summary wealth statistic for each group. Here the summary statistic includes both the mean and the median, the latter resulting from the coefficients of the median regressions.<sup>13</sup> The wealth gap is analyzed by separating it into the portion attributable to differences in the average characteristics of the two groups (education, age, marital status, etc.), the “explained” portion, and the portion attributable to other influences, the “unexplained” portion. One can use either the black or white coefficients to calculate the explained and unexplained portions. I present results using both sets of coefficients. In the decompositions, white families are projected to have higher wealth using both sets of coefficients. Thus white families display higher wealth partly because they have more traits associated with higher wealth than do black families. Typically, the more dissimilar the two wealth functions, the larger the difference in the explained portion. The decompositions indicate

<sup>11</sup>The wealth decompositions for the median follow Altonji and Doraszelski (2001).

<sup>12</sup>The weights for the 1999 data are not available in the format required for reliable estimates in greater detail. See the Appendix.

<sup>13</sup>In the mean regressions, the predicted wealth for each family  $i$  times the sample weight  $i$  summed over all  $i$  equals the mean wealth of each group. In general, this is not true for median regression models, so the sample median differs from the mean of the predicted medians. I use the predicted medians to measure the wealth gap in the median models. The results are similar if the group median is used.



TABLE 2A  
REGRESSIONS EXPLAINING FAMILY WEALTH (DEPENDENT VARIABLE: REAL WEALTH, \$1999)

Indep. Variables <sup>#</sup>	Ordinary Least Squares Regressions				Median Regressions			
	White Families		Black Families		White Families		Black Families	
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	-224,535	-13.3***	-41,785	-6.6***	-76,803	-9.6***	-7,047	-659.0***
Age < 35 (young)	-27,540	-3.9***	-4,713	-1.9*	-13,585	-4.5***	-412	-100.9***
Age > 54 (old)	100,432	13.0***	33,733	10.9***	49,157	13.4***	4,923	1,005.1***
Education (years)	7,267	6.9***	3,471	8.3***	4,156	8.5***	539	797.2***
No. of children	-13,148	-4.6***	-2,263	-2.6***	-9,478	-7.8***	-267	-207.9***
No. of deps outside	15,087	1.8*	-114	-0.1	3,797	1.0	-119	-26.2***
Male	3,054	0.3	7,153	2.5**	3,845	0.8	1,273	265.4***
Married	23,108	2.7***	7,770	2.3**	16,017	4.0***	0.6113	0.1
Health exc. or good	35,402	4.6***	3,229	1.3	16,474	4.5***	1,151	283.0***
Own home	82,239	12.2***	42,468	17.7***	60,179	19.4***	36,279	9,160.7***
Retired	100,173	10.8***	-9,563	-2.6***	22,986	5.1***	214	38.1***
Entrepreneur	226,382	29.4***	64,506	11.2***	108,285	31.4***	27,244	3,407.6***
Unemployed	58,770	4.8***	-2,058	-0.7	11,431	2.0**	313	64.4***
Permanent Income	0.5029	13.8***	-0.2557	-8.4***	-0.0004	0.0	-0.0264	-537.3***
Perm. inc. squared	1.11E-07	3.5***	1.11E-06	18.1***	6.19E-07	43.2***	3.49E-07	3,624.8***
Inheritance received	63,571	10.2***	24,759	6.0***	37,001	12.9***	-597	-94.0***
N		9,327		5,235		9,327		5,235
Adjusted R <sup>2</sup>		0.3319		0.3643	Psdo R <sup>2</sup>	0.2357		0.2656

*Regression Decompositions of the Race Gap in Wealth*

	Ordinary Least Squares Regressions Wealth Estimates	Median Regressions Wealth Estimates
White coefficients		
A. White traits	176,422	118,619
B. Black traits	33,725	33,626
Black coefficients		
C. Black traits	32,526	21,329
D. White traits	86,455	51,966
E. Total gap: A - C	143,896	97,290
Explained gap using		
White coeff.: A - B	142,697	84,993
% (A - B)/E	99.2	87.4
Explained gap using		
black coeff.: D - C	53,929	30,637
% (D - C)/E	37.5	31.5

Notes: #Time and region dummies are also included as control variables in regressions.  
\*\*\*0.01 \*\*0.05 \*0.10.

Source: PSID Core and Supplemental Files, and the author's calculations.

TABLE 2B  
REGRESSIONS EXPLAINING FAMILY WEALTH (DEPENDENT VARIABLE: REAL WEALTH, \$1999)

Indep. Variables <sup>#</sup>	Ordinary Least Squares Regressions				Median Regressions			
	White Families		Black Families		White Families		Black Families	
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	-115,174	-1.5	-95,678	-7.8***	-78,059	-2.2**	-14,426	-3.6***
Black	-113,386	-1.9*	-13,874	-2.5**	-41,989	-2.0*	-2,602	-1.5
Age < 35 (young)	-83,850	-2.7***	-23,954	-5.5***	-38,137	-3.0***	-10,457	-8.0***
Age >54 (old)	176,308	6.1***	84,110	16.1***	138,091	10.4***	47,769	27.1***
Education (years)	-3,402	-0.8	4,347	5.6***	-822	-0.4	1,681	6.7***
No. of children	-15,910	-1.5	-5,507	-3.1***	-6,824	-1.5	-3,810	-7.2***
No. of other dependants	8,003	0.3	5,767	1.3	-20,362	-1.5	227	0.1
Male head	41,985	0.9	-9,369	-1.6	21,272	0.9	-27	0.0
Married couple	11,048	0.3	2,435	0.4	12,269	0.8	4,722	2.5**
Health exc. or good	21,557	0.6	4,646	0.8	8,120	0.5	4,138	2.1**
Own home	153,092	5.0***	55,524	12.4***	113,855	8.4***	43,392	30.3***
Permanent income	1.4541	11.9***	0.3589	12.7***	1.0261	19.1***	-0.1007	-11.0***
Perm. inc squared	-4.58E-07	-5.3***	2.30E-07	8.9***	-2.66E-07	-7.4***	7.98E-07	93.6***
Inheritance received	75,503	3.1***	54,691	11.7***	35,732	3.4***	25,437	17.1***
N		1,543		9,327		1,543		9,327
Adjusted R <sup>2</sup>		0.3163		0.3208	Psdo R <sup>2</sup>	0.2014		0.2678

*Regression Decompositions of the Employment Category Gap in Wealth*

	Ordinary Least Squares Regressions Wealth Estimates	Median Regressions Wealth Estimates
Entr. coefficients		
A. Entr. traits	368,990	262,537
B. Worker traits	290,726	210,857
Worker coefficients		
C. Worker traits	113,567	77,523
D. Entr. traits	149,475	111,336
E. Total Gap: A - C	255,423	185,014
Explained gap using entr. coeff.: A - B	78,264	51,680
% (A - B)/E	30.6	27.9
Explained gap using worker coeff.: D - C	35,908	33,813
% (D - C)/E	14.1	18.3

Notes: #Time and region dummies are also included as control variables in regressions.

\*\*\*0.01 \*\*0.05 \*0.10.

Source: PSID Core and Supplemental Files, and the author's calculations.

substantial differences between the wealth functions of black and white families, since the explained portions of the mean and median regressions using the white family coefficients (99 and 87 percent, respectively) are much larger than the explained portions using the black family coefficients (38 and 32 percent). These results are consistent with Blau and Graham (1990).

Although the difference in wealth between white entrepreneurs and white workers is larger than that between black entrepreneurs and black workers, not yet quantified are the wealth differences between white entrepreneurs and black entrepreneurs compared to those between white workers and black workers.<sup>14</sup> In the mean and median regressions for entrepreneurs and workers, Black has a negative sign, and for the median regression Black is not statistically significant. The advantages for white entrepreneurs over black entrepreneurs are \$113,000 and \$42,000 in the mean and median regressions, while the advantages for white workers over black workers are \$14,000 and \$3,000.

Age, home ownership, and the receipt of an inheritance are positively associated with wealth for both entrepreneurs and workers. But while education is positively associated with wealth for workers, it is not statistically significant for entrepreneurs. The same relationship holds with the number of children. In the decompositions, entrepreneurs are projected to have higher wealth using both sets of coefficients. Thus empirically entrepreneurs display higher wealth in part because they have more traits associated with higher wealth than do workers. In addition, more of the wealth gap between entrepreneurs and workers is explained by the entrepreneurs' coefficients than those of the workers for both the mean and median regressions. This implies that these two groups have different wealth functions. But the difference in the explained gap using the entrepreneurs/workers grouping is smaller than that using the white families/black families grouping. This is evidence that the differences in the wealth functions by race are larger than the differences in wealth functions by employment category.

To summarize, OLS and median regression models that predict wealth show that controlling for education, age and other relevant variables, both white and black entrepreneurs hold more wealth than the other categories (including workers) within their race groups, and the absolute wealth advantage of white entrepreneurs over white workers is larger than that of black entrepreneurs over black workers. While the wealth advantage of white workers over black workers is statistically significant in the OLS regression and not statistically significant in the median regression, the wealth advantage of white over black entrepreneurs is statistically significant at the 0.10 level for both the OLS and median regressions.

### 3. DO BLACK AND WHITE ENTREPRENEURS ACHIEVE MORE UPWARD WEALTH MOBILITY?

The focus of this section is whether entrepreneurs achieve more favorable wealth mobility than workers. The theoretical influences leading to higher or lower

<sup>14</sup>Since (F1)  $WE^* - WW^* > BE^* - BW^*$ , it follows that (F2)  $WE^* - BE^* > WW^* - BW^*$ , where W, B, W\* and E\* are white, black, worker and entrepreneur, respectively. But the left and right side of F2 may be + and +, - and -, or + and -. It is of interest to determine which of the three relationships holds.

wealth changes for entrepreneurs compared to those for workers are discussed in Section 2. Conceptually, in seeking the best outcome, a person will stay a worker or entrepreneur or, subject to barriers, switch to the other status. I examine the empirical outcomes of these choices by using the PSID data to follow the employment status and changes in wealth of entrepreneurs and workers over the 1984–89 and 1989–94 periods.<sup>15</sup> The PSID wealth data reflect a long-term panel with annual reinterview rates in the range of 97–98 percent. Thus wealth changes for individual families can be directly examined over an extended period.<sup>16</sup>

Two analyses are conducted. First, I derive transition matrices, as does Quadrini (1999, 2000), except that I separate entrepreneurs and workers into the black and white categories. Second, I proceed in a more theoretically sound manner by using logistic regressions to observe the wealth transitions of entrepreneurs and workers, while controlling for other variables that effect changes in wealth. Table 3 reports the wealth transition matrices of four sub-samples of both the black and white entrepreneurs and workers. “Staying workers” (“staying entrepreneurs”) started and ended the five-year period as workers (entrepreneurs); and “switching workers” (“switching entrepreneurs”) moved from worker (entrepreneur) to entrepreneur (worker) over the period. The families of the four groups have been divided according to the families’ wealth ranks at the start and end of each five-year period. A family may start or end in the top third, middle third or bottom third of the entire wealth distribution. Note that the wealth ranks reported are based upon all families, not just workers and entrepreneurs. Each employment category (e.g. staying workers) has three rows that refer to the families that started in the bottom, middle and top third. The three columns represent the percent of the families that started in that row (e.g. bottom third) that ended the five-year period in the bottom third, middle third or top third. In the case of those who started each five-year period as workers, the following relationships obtain:

- (a) Bottom third: For both the white and black groups, the fraction of families moving to a higher tier is greater for the workers that moved into entrepreneurship than for staying workers. A higher fraction of white switching workers than black switching workers moved to a higher tier.
- (b) Middle third: For both black and white workers the outcomes for workers moving into entrepreneurship are more favorable than the outcomes of staying workers. The percentage of switching workers that moved up is higher and that moved down is lower for the white workers than for the black workers.

<sup>15</sup>Continuing entrepreneurs in 1989–94, for example, can include entrepreneurs who had failed and switched to another entrepreneurial venture by 1989, workers who had “failed” (released by their employers) and started their own business by 1989, and entrepreneurs who failed during 1989–94 but remained in entrepreneurship (switched to another venture, etc.). Continuing workers also includes corresponding failures and successes. The tests determine whether entrepreneurs or workers—in light of both successes and failures within the groups—perform better in wealth mobility after controlling for relevant variables; and if the results are consistent for both black and white entrepreneurs and workers.

<sup>16</sup>The PSID follows young adults as they leave home and form their own families. In this way, the panel regenerates a new sample and, with weights, can provide a national estimate of income, wealth and saving.

TABLE 3  
 FIVE YEAR TRANSITION MATRICES FOR CHANGES IN WEALTH POSITION, COMBINED RESULTS  
 FOR 1984–89 AND 1989–94

Starting Third	Ending Third			Ending Third			Stat. Sig.#
	Bottom	Middle	Top	Bottom	Middle	Top	
<i>White workers/entrepreneurs</i>							
	<i>Staying Workers</i>			<i>Switching Workers</i>			
Bottom	69.9	26.4	3.7	58.8	25.8	15.5	***
Middle	17.7	63.5	18.8	16.8	44.3	38.9	***
Top	2.4	21.7	76.0	1.2	13.8	85.1	**
	<i>Switching Entrepreneurs</i>			<i>Staying Entrepreneurs</i>			
Bottom	72.1	18.6	9.3	31.4	42.9	25.7	***
Middle	32.3	50.0	17.7	12.8	47.0	40.2	***
Top	3.7	23.5	72.8	2.3	8.8	88.9	***
<i>Black workers/entrepreneurs</i>							
	<i>Staying Workers</i>			<i>Switching Workers</i>			
Bottom	81.4	17.1	1.5	48.0	44.0	8.0	***
Middle	31.9	60.1	8.1	27.8	50.0	22.2	***
Top	13.5	36.5	50.0	16.7	16.7	66.7	**
	<i>Switching Entrepreneurs</i>			<i>Staying Entrepreneurs</i>			
Bottom	93.8	6.3	0.0	50.0	25.0	25.0	***
Middle	50.0	50.0	0.0	12.5	68.8	18.8	**
Top	28.6	14.3	57.1	6.3	25.0	68.8	***

Notes: \*0.10 \*\*0.05 \*\*\*0.01. #Statistical significance of row differences.

A chi-square or Fisher test was used to test the difference in the distribution of the rows. The latter was used when the number of cases in one or more cells might result in a chi-square test being inappropriate.

The selected subsamples were categorized into three groups according to where the family ranked in the wealth distribution of all families at the start of the five-year period. The starting third for 1984–89 is which third of the wealth distribution the family ranked in 1984. The starting third for 1989–94 is determined by the family ranking in 1989. The matrices show the relative mobility of the families rather than the absolute change in wealth.

Source: PSID Core and Supplemental Wealth Files and the author's calculations.

- (c) Top third: For both the black and white groups, the percentage of families falling to lower tiers is smaller for switching than for other worker families. However, the outcomes for the white switching workers are more favorable than for the black switching workers.

In the case of those that started as entrepreneurs, the following relationships hold.

- (a) Bottom third: For both the black and white groups, the percentage of staying entrepreneurs that moved to a higher tier is greater than is the percentage for switching entrepreneurs. The percentage of white staying entrepreneurs that moved to a higher tier is greater than that of the black entrepreneurs.
- (b) Middle third: For both black and white groups, the percentage of upwardly mobile families is higher for the staying entrepreneurs than for the switching entrepreneurs. Compared to the black entrepreneurs, the percentage of white staying entrepreneurs that moved to the top tier is higher and that which fell to the bottom tier is lower.

- (c) Top third: For both black and white entrepreneurs the percentage of families falling to a lower tier is smaller for staying entrepreneurs than for switching entrepreneurs. A lower fraction of the white entrepreneurs fell to a lower tier than did the black entrepreneurs.

These results demonstrate that a higher (lower) fraction of continuing and new workers stay in or move to lower (higher) wealth positions than continuing and new entrepreneurs. The advantage of entrepreneurship holds for both black and white families. In addition, a higher (lower) fraction of continuing and new white entrepreneurs stay in or move to higher (lower) wealth positions than continuing and new black entrepreneurs. However, one should determine the extent that these relationships hold when controlling for variables that ordinarily effect wealth transition. In order to test the statistical significance of the effect of race and entrepreneurship on wealth mobility, I estimate a logistic model using the same variables included in Table 2. Two models are estimated:  $P(1) = \text{Prob}(\text{Family above the bottom tier falls into the bottom tier}) = F(\text{Independent variables})$ ; and  $P(2) = \text{Prob}(\text{Family below the top tier moves into the top tier}) = F(\text{Independent variables})$ . The independent variables include the race of the family, its involvement in entrepreneurship, and the other independent variables. Table 4 shows the logistic regressions of the entrepreneurs and workers for 1984–89 and 1989–94. The reference work category is Staying Entrepreneurs. Interaction terms for Black and the other three work categories are also included.

The  $P(1)$  logistic regression takes those families that were above the bottom third of the wealth distribution at the start of the period (e.g. 1984) and utilizes the independent variables to estimate the odds that the family falls into the bottom third of the wealth distribution by the end of the period (e.g. 1989). Positive coefficients indicate that more of that variable leads to a higher probability of falling into the bottom third from the middle or upper third. The  $P(1)$  regression coefficients generally show the expected signs: more education, higher age, male, married, good health, home ownership, and receipt of a gift/inheritance reduce the probability of the family's wealth falling into the bottom tier of the wealth distribution. Having more children and the single female status (compared to the single male reference) increase the probability of the family's wealth falling into the bottom third. Staying Entrepreneurs is the reference work category, and the coefficients of the other three categories are positive. Thus relative to Staying Entrepreneurs, each of the other categories increases the probability of the family's wealth falling into the bottom tier. Each of the interaction terms is positive. This indicates that being black (instead of white) in each of these work categories increases the probability of wealth falling into the bottom third. Given how this regression model and its interaction terms are constructed, the coefficient labeled "Black" represents the difference in the effect on  $P(1)$  between black staying entrepreneurs and white staying entrepreneurs, controlling for the effect of the other variables. The negative sign for Black indicates that when the other variables are controlled for, black staying entrepreneurs have a lower probability of wealth falling into the bottom tier. This coefficient is statistically significant at the 0.05 level.

The logistic model for  $P(2)$  estimates the odds that a family below the top third in the wealth distribution at the start of the five-year period is in the top third at the end of the period. Positive coefficients indicate that more of that

TABLE 4

LOGISTIC MODELS PREDICTING INDIVIDUAL FAMILY TRANSITIONS IN THE WEALTH DISTRIBUTION IN THE FIVE-YEAR PERIODS 1984-89 AND 1989-94

Probability that a Family above the Bottom Third Falls into the Bottom Third				Probability that a Family Below the Top Third Rises into the Top Third			
Independent Variables <sup>#</sup>	Coeff.	Wald Chi-square	Stzd. Coeff.	Independent Variables <sup>#</sup>	Coeff.	Wald Chi-square	Stzd. Coeff.
Intercept	-1.9261	480.4***		Intercept	-2.3842	806.7***	
Black	-1.0225	4.5**	-0.6110	Black	-0.2159	1.0	-0.1684
Education:				Education:			
H.S. only	-0.4454	158.2***	-0.5196	H.S. only	0.4369	99.7***	0.4714
Coll, no degree	-0.8531	430.9***	-0.8745	Coll, no degree	0.8686	370.2***	0.8223
Coll degree	-1.3803	1,033.2***	-1.6157	Coll degree	1.2614	831.3***	1.2048
Age:				Age:			
<35	0.4207	241.8***	0.4663	<35	-0.1329	28.5***	-0.1489
>54	-0.4678	71.8***	-0.3822	>54	0.0083	0.0	0.0040
Married	-0.6153	264.2***	-0.6515	Married	0.2057	39.6***	0.2294
Single female	0.1317	9.4***	0.1057	Single female	-0.8770	357.4***	-0.8109
No. of children	0.1700	221.2***	0.4858	No. of children	-0.1851	243.1***	-0.4838
No. of deps outside	-0.2587	48.5***	-0.3085	No. of deps outside	0.1716	67.7***	0.1756
Health exc. or good	-0.0937	3.8*	-0.0553	Health exc. or good	-0.0292	0.3	-0.0171
Own home	-0.9546	971.4***	-0.8089	Own home	0.2959	88.9***	0.3318
Gift/inheritance	-1.0417	169.3***	-0.6978	Gift/inheritance	0.9165	516.9***	0.4415
Staying worker (WW)	0.3522	46.6***	0.3846	Staying worker (WW)	-1.2204	832.2***	-0.9188
Switching worker (SW)	0.1807	5.8**	0.1028	Switching worker (SW)	-0.1680	9.3***	-0.0879
Switching entrepreneur (SE)	0.9130	151.9***	0.4649	Switching entrepreneur (SE)	-0.7624	114.0***	-0.2882
Black × WW	1.3843	8.2***	0.8009	Black × WW	-0.3294	2.2	-0.2526
Black × SW	2.2004	16.3***	0.1790	Black × SW	-0.2019	0.4	-0.0232
Black × SE	1.6275	8.3***	0.1189	Black × SE	-0.2301	1.1	-0.0293
Middle tier wealth at start	1.7967	1,773.3***	2.2249	Middle tier wealth at start	1.2554	1,453.6***	1.4051
Minus 2 log likelihood		11,963***		Minus 2 log likelihood		10,602***	
N		3,977				5,082	

Notes: Level of statistical significance: \*0.10, \*\*0.05 \*\*\*0.01.

<sup>#</sup>Time and region dummies are also included as control variables in regressions.

Source: PSID Core and Supplemental Wealth Files and author's calculations.



variable leads to a higher probability of moving into the upper third from the middle or lower third. The variables representing personal characteristics have the appropriate signs. Here the coefficients reflecting the other work categories are negative, indicating that relative to staying entrepreneurs, being in these other categories reduces the probability of the family moving into the top third of wealth. The interaction terms are not statistically significant, indicating that race does not matter for the three work categories in moving into the top tier of wealth. The Black coefficient is negative, but not statistically significant. Thus when controlling for the other variables in the model, being a black staying entrepreneur instead of a white staying entrepreneur does not effect the probability of moving into the top tier of wealth.

To summarize, the transition matrices show that both black and white entrepreneurs who remain in business have more upward mobility and less downward mobility in the wealth distribution than those in their respective races who remain workers. The transition matrices also show that white entrepreneurs have more upward mobility and less downward mobility than black entrepreneurs. The logistic regression models, which control for variables such as education, age and receipt of a gift or inheritance, reinforce that staying entrepreneurs have more upward mobility and less downward mobility in the wealth distribution than staying workers. Thus the traits that characterize entrepreneurs are shown to result in more upward mobility for both black and white entrepreneurs. The logistic regressions also show that black staying entrepreneurs display less downward mobility than white staying entrepreneurs, and that the difference in upward mobility between black staying entrepreneurs and white staying entrepreneurs is not statistically significant.

#### 4. DO BLACK AND WHITE ENTREPRENEURS HAVE HIGHER WEALTH-INCOME RATIOS AND SAVINGS RATES?

The greater wealth of business families relative to worker families would be less interesting if business families also earn more income (in proportion to wealth). To what extent are the wealth-income ratios of entrepreneurs also higher than those of workers? Figure 1 shows the average per-family wealth of black and white workers and entrepreneurs in each income decile, as a percentage of total per-family wealth. The deciles are calculated based on the entire population (including retired and unemployed). The mean family wealth of entrepreneurs is higher than that of workers in every income group. This relationship holds for both black and white entrepreneurs in their respective racial groups.

In order to test the statistical significance of the differences in the wealth-income ratio of entrepreneurs and workers, I compute OLS and median regressions using the independent variables specified above, augmented by family wealth as an independent variable. I combine the data for 1984, 1989 and 1994, and use time indicator variables. Table 5 provides the results of the regressions, which are performed on the combined black and white workers and entrepreneurs (model 1), black families (model 2), white families (3), entrepreneurs (4) and workers (5). The values of  $R^2$  (adjusted  $R^2$  for OLS and pseudo  $R^2$  for the median regression)

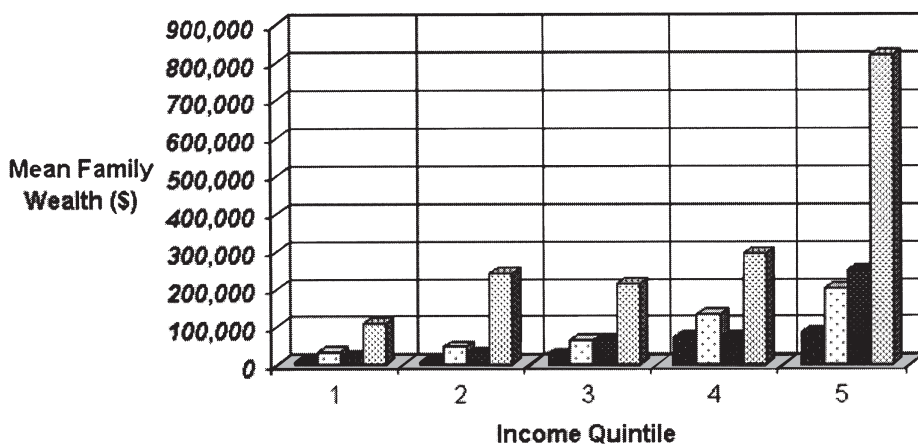


Figure 1. Mean Family Wealth of Entrepreneurs and Workers by Income Quintile, Combined Data for 1984, 1989 and 1994

range from 0.31 to 0.54. Model 1 for both types of regression shows that the wealth-income ratios of blacks families are lower than those of white families, and the wealth-income ratios of workers are lower than those of entrepreneurs. In model 2, the wealth-income ratios of black entrepreneurs are not statistically different than those of black workers in the OLS regression, but the black entrepreneurs have lower wealth-income ratios than black workers at the 0.01 level in the median regression. In contrast, for model 3, the wealth income ratios of white entrepreneurs are found to exceed those of white workers in both types of regression. In model 4, the wealth-income ratios of the black entrepreneurs are less than those of the white entrepreneurs, for both types of regression. In model 5, the difference in the wealth-income ratios between black workers and white workers is not statistically significant in the OLS regression, but the black workers' ratios are lower at the 0.01 level in the median regression. I also observe that the black group appears to have structural differences in how the personal variables associate with the wealth-income ratio. While for the black group the coefficients of the old age category and college degree category are negative (the latter significant at the 0.10 level), both are it positive and statistically significant for the white group.

The upward mobility in the wealth distribution (and wealth-income ratios) of continuing and entering entrepreneurs, and the downward mobility of households that exit entrepreneurship, suggest that entrepreneurship is related to household saving. In defining saving, I take a broad definition of family wealth to capture the relationship of entrepreneurship to both business and nonbusiness saving. That is, I define the saving rate as the change in wealth (e.g. 1994 wealth minus 1989 wealth) divided by the income from the starting year to the ending year (e.g. 1989 through 1993). The definition of saving here includes the changes in the market value of assets arising from both passive and active saving, that is, returns on prior saving and current net contributions to savings. I sum active and passive saving to

TABLE 5  
REGRESSION MODELS PREDICTING WEALTH-INCOME RATIOS, COMBINED DATA FOR ENTREPRENEURS AND WORKERS IN 1984, 1989 AND 1994

	(1) All Families		(2) Black		(3) White		(4) Entrepreneurs		(5) Workers	
	Coeff.	t-val	Coeff.	t-val	Coeff.	t-val	Coeff.	t-val	Coeff.	t-val
<i>OLS regressions</i>										
Intercept	0.89247	3.5***	2.40573	5.6***	0.74704	2.5**	0.72833	0.5	1.04326	5.1***
Black	-0.31067	-2.1**					-2.78077	-2.2**	-0.03821	-0.3
Age:										
<35	-0.57085	-5.2***	-0.70126	-3.4***	-0.57184	-4.5***	-1.17447	-1.8*	-0.47688	-5.5***
>54	1.28334	9.0***	-0.30042	-1.0	1.37221	8.3***	1.61462	2.5**	0.98026	8.3***
Education:										
HS only	0.49264	3.5***	0.34166	1.4	0.52590	3.1***	0.83364	1.1	0.37641	3.3***
Coll, no degree	0.52167	3.4***	0.52763	1.9*	0.57655	3.1***	1.09203	1.4	0.29185	2.3**
Coll degree	0.78557	5.1***	-0.07812	-0.2	0.87115	4.8***	1.33695	1.8*	0.46772	3.7***
Married	0.07422	0.5	0.13088	0.5	0.07731	0.5	0.68974	0.9	-0.09058	-0.8
Single female	-0.03035	-0.2	-0.08002	-0.3	-0.03066	-0.2	0.66396	0.7	-0.03313	-0.3
No. of children	-0.06436	-1.4	-0.04518	-0.6	-0.0674	-1.2	0.14148	0.6	-0.08372	-2.2**
No. of deps outside Worker	-0.41956	-3.5***	0.05312	0.3	-0.53356	-3.6***	0.26753	0.5	-0.60886	-6.1***
Own home	-2.11683	-16.0***	0.44343	1.1	-2.24470	-15.1***				
Health exc. or good	1.78559	15.5***	1.54303	7.2***	1.74980	12.9***	3.69009	5.7***	1.42065	15.5***
Income/1,000	0.15535	0.9	0.04556	0.2	0.21265	1.0	0.32230	0.4	0.17786	1.3
(Income/1,000) <sup>2</sup>	-0.03910	-27.7***	-0.08630	-12.4***	-0.03810	-24.1***	-0.06406	-13.6***	-0.02960	-20.6***
Wealth	6.07E-06	5.0***	1.81E-04	4.7***	5.97E-06	4.4***	1.62E-05	5.1***	1.04E-05	6.5***
Adjusted R <sup>2</sup>	6.35E-06	98.7***	2.09E-05	55.0***	6.16E-06	86.5***	6.02E-06	24.9***	6.78E-06	117.3***
	0.46		0.43		0.49		0.31		0.54	

<i>Median regressions</i>										
Intercept	0.44856	13.8***	-0.00544	-0.4	0.43352	8.7***	1.48126	5.2***	0.46327	14.0***
Black	-0.18104	-10.1***					-0.95902	-4.7***	-0.14682	-8.4***
Age:										
Young	-0.18314	-14.0***	-0.00856	-1.6	-0.19763	-9.9***	-0.30839	-2.6***	-0.14665	-11.1***
Old	0.43039	23.1***	0.09666	12.8***	0.46147	16.4***	0.80914	5.9***	0.24727	12.6***
Education:										
HS only	0.09806	5.7***	0.02424	4.3***	0.09253	3.4***	0.23054	1.5	0.07478	4.3***
Coll, no degree	0.11894	6.3***	0.05856	8.4***	0.11824	4.0***	0.25847	1.6	0.09571	4.9***
Coll degree	0.13191	6.9***	0.05074	6.1***	0.13659	4.7***	0.31994	2.0**	0.08995	4.5***
Married	0.05239	2.9***	-0.01295	-1.8*	0.06731	2.4**	0.19476	1.2	0.03704	2.0**
Single female	-0.00957	-0.5	-0.02692	-4.0***	0.01557	0.5	-0.33517	-1.6	-0.01065	-0.5
No. of children	-0.04568	-8.5***	-0.00765	-4.1***	-0.04588	-5.5***	-0.05170	-1.1	-0.03267	-6.0***
No. of depts outside	-0.01401	-1.0	-0.00087	-0.1	-0.04548	-1.9*	0.02388	0.2	-0.00435	-0.3
Worker	-0.42896	-26.4***	0.04565	5.2***	-0.45348	-19.1***				
Own home	0.66059	47.0***	0.17740	33.1***	0.68782	31.9***	1.73182	13.2***	0.53394	37.6***
Health exc. or good	0.07803	3.7***	0.00265	0.4	0.08804	2.6***	-0.54725	-3.1***	0.09126	4.2***
Income/1,000	-0.01214	-72.9***	0.00517	32.4***	-0.01313	-54.3***	-0.03133	-34.4***	-0.01383	-62.2***
(Income/1,000) <sup>2</sup>	-1.56E-05	-148.1***	-1.77E-04	-302.6***	-1.48E-05	-97.5***	-3.85E-06	-8.7***	-1.01E-06	-4.0***
Wealth	8.24E-06	975.8***	1.93E-05	989***	8.13E-06	679.9***	7.42E-06	137.3***	951E-06	819***
Pseudo R <sup>2</sup>	0.43		0.38		0.44		0.37		0.46	
N	14,495		4,732		9,763		1,796		12,699	

Notes: \*0.10 \*\*0.05, \*\*\*0.01. Time and region dummies are also included as control variables in regressions.

Source: PSID Core and Supplemental Data Files and the author's calculations.

TABLE 6  
DESCRIPTIVE STATISTICS FOR BLACK AND WHITE  
ENTREPRENEURS AND WORKERS, COMBINED STATISTICS  
FOR 1984-89 AND 1989-94

	Black Families	White Families
N	1,874	4,543
Mean saving rate for group	5.43%	8.79%
Mean saving rate by category:		
Staying entrepreneurs	18.29%	10.29%
Switching entrepreneurs	5.20%	11.24%
Switching workers	31.17%	16.55%
Staying workers	4.69%	7.83%
Education:		
Less than HS	21.13%	13.54%
HS only	44.77%	32.41%
Coll, no degree	20.47%	22.70%
Coll degree	12.80%	30.99%
Age:		
Young (21-34)	45.71%	39.65%
Middle (35-54)	48.46%	50.81%
Old (55 and over)	5.83%	9.54%
Male head of household	55.86%	85.40%
Married couple	38.14%	67.50%
Mean no. of children	1.0433	0.9427
Mean no. of deps outside	0.1501	0.0827
Health exc. or good	84.71%	94.15%
Own home	41.48%	67.66%
Receive gift or inher.	1.21%	7.20%
Mean real wealth start (\$)	43,185	207,116
Mean real wealth end (\$)	54,681	250,156
Mean real total income (\$)	209,764	369,581
Mean change in real wealth (\$)	11,496	43,040
Staying entrepreneurs	52	526
Switching entrepreneurs	39	178
Switching workers	51	278
Staying workers	1,732	3,561

*Source:* PSID Core and Supplemental Wealth Files and author's calculations.

reflect that rational and informed families consider the financial impact of both as they allocate their resources.<sup>17</sup> I use the income from the start to the end as a proxy for permanent family income.<sup>18</sup>

Table 6 displays the mean saving rate of black and white families, along with descriptive variables describing both sets of families. The statistics summarize two

<sup>17</sup>Juster, Smith and Stafford (1999) discuss the issues of using these and other available survey data to measure saving rates.

<sup>18</sup>Alternatively, one could estimate permanent income as a function of family demographics and use predicted income as a measure of permanent income. As observed by Gentry and Hubbard (2000, p. 30), this method has two problems in estimating the association between entrepreneurship and saving. First, entrepreneurship likely entails unobservable differences in talent that would not be captured by a regression that estimates permanent income. By using predicted income for the family, one ignores the unobservable talent that is reflected by current income. Second, many of the variables that are likely candidates to predict permanent income (age, experience, education, etc.) may have independent effects on saving decisions.

time periods: 1984–89 and 1989–94. The families described have the same head of household over each five-year period, and those who were either workers or entrepreneurs over the period. The mean saving rate of the black families is 5.4 percent, compared to 8.8 percent for the white families. The black families are characterized by the younger age, poorer health, lower rate of home ownership, and the lower propensity to receive a gift or inheritance. As noted earlier, the black families also have a lower rate of entrepreneurship than the white families. Table 7 shows the results of OLS and median regressions of the saving rate as a function of the independent variables used earlier, including the entrepreneurial transitions category. The dichotomous entrepreneurial categories utilize staying workers as the reference category.

The consistent relationship in Table 7 is the higher saving rates of both black and white staying entrepreneurs.<sup>19</sup> The coefficient for this category is statistically significant in both the OLS and median regressions at the 0.01 level in model 1, the regression that combines black and white families, and in models 2 and 3, the regressions of black families and white families, respectively. In both the OLS and median models, the saving rates for workers switching to entrepreneurship are higher than for staying workers in model 1. While these relationships carry over to the individual median regressions for models 2 and 3, the OLS coefficients for switching workers of black families (model 2) are not statistically significant, and for white families (model 3) the OLS coefficient is statistically significant only at the 0.10 level. In model 1, the coefficient for Black is small in absolute terms, and not statistically significant. This indicates that race does not matter in predicting saving rates as measured here, when the effect of the other variables are considered. The saving rate generally increases with income in all of the regressions, particularly in the higher income levels. But the black families display less of this relationship than the white families.<sup>20</sup> Age and education are not found to be statistically significant in the OLS regressions of model 1, while both are statistically

<sup>19</sup>One possible explanation for the higher saving rate for entrepreneurs over workers is that some workers may be covered by the employers' pension plans, while entrepreneurs must save for their retirement in their personal assets. Data available only in 1984 provide crude information to test this relationship. In 1984 there were extensive questions on pension plans of the respondents, including: (1) Are you covered by a pension or retirement plan on your present job? (2) Have you worked under the main or basic plan long enough to earn the right to be vested? (3) How are the benefits for your pension determined—by a definite formula based on years of service or salary, or by the amount of money in your account, or both ways? (4) What is the approximate dollar amount in your retirement benefit account right now? (5) How much could you take out of this account today if you were to leave this employer? I tested five regression models for 1984–89 that augmented model 1 in Table 7 by an independent variable reflecting the answers to these questions. Model 1a: I added the binary variable 1 = No, 0 = yes to pension plan coverage. Model 1b: 1 = not vested, 0 = vested. Model 1c: 1 = no pension plan, 0 = yes for defined benefit or combination pension plan. Model 1d: dollar amount in the retirement account. Model 1e: dollar amount that could be taken out now. Each of the five regression coefficients was positive, and the coefficients for 1a, 1b and 1c were statistically significant, while 1d and 1e were not. Tests showed that the coefficient for staying entrepreneurs was larger than each of 1a, 1b and 1c at the 0.01 level. The conclusion is that using these measures, the saving rate of entrepreneurs is higher than that of workers with no pensions. Gentry and Hubbard also concluded that the differences between entrepreneurs and workers in saving rates were quite large relative to reasonable estimates of contribution rates for pensions.

<sup>20</sup>I also conducted regressions that calculated the savings rate as the change in wealth divided by five (the average change in wealth), divided by the average of the income in the first year and the last year of the five-year period. This is the measure used by Gentry and Hubbard. The results using the Gentry-Hubbard are consistent with the results reported here.

TABLE 7  
REGRESSION MODELS PREDICTING SAVING RATES, COMBINED DATA FOR ENTREPRENEURS AND WORKERS IN 1984-89 AND 1989-94

	(1) Combined		(2) Black		(3) White		(4) Staying Entrepreneurs		(5) Staying Workers	
	Coeff.	t-val	Coeff.	t-val	Coeff.	t-val	Coeff.	t-val	Coeff.	t-val
<i>DLS regressions</i>										
Intercept	-0.214189	-1.6	0.104432	1.0	-0.227046	-1.3	-0.521027	-1.3	-0.116371	-0.8
Black	-0.022730	-0.3					0.123876	0.2	-0.070558	-0.9
Age:										
<35	0.032978	0.6	-0.088259	-2.0**	0.044567	0.7	0.598730	3.4***	-0.068840	-1.2
>54	-0.104506	-1.2	0.103371	1.2	-0.096806	-0.9	-0.048144	-0.3	0.108439	1.1
Educations:										
HS only	0.036295	0.5	0.016882	0.3	0.031416	0.3	-0.347963	-1.6	0.056983	0.7
Coll, no degree	-0.037239	-0.5	0.049165	0.8	-0.053801	-0.5	-0.274794	-1.2	0.020827	0.2
Coll degree	-0.120827	-1.5	0.159997	2.2**	-0.149317	-1.5	-0.539363	-2.5**	0.007320	0.1
Married	-0.031693	-0.4	-0.003563	-0.1	-0.027798	-0.3	0.284148	1.3	-0.053781	-0.7
Single female	0.208489	2.5**	-0.076308	-1.3	0.227247	2.2**	0.167941	0.5	0.128929	1.5
No. of children	-0.035676	-1.6	-0.038382	-2.3**	-0.033079	-1.2	-0.024242	-0.4	-0.035433	-1.4
No. of deps outside	0.058882	1.1	0.021789	0.9	0.073933	1.0	0.072805	0.4	-0.010681	-0.2
Health exc. or good	-0.001172	0.0	0.015077	0.3	0.015685	0.1	0.170896	0.6	0.012384	0.1
Own home	0.028274	0.5	0.191675	4.2***	0.033640	0.5	0.123348	0.6	0.138670	2.2**
Gift/inheritance	2.07E-06	3.1***	1.39E-05	4.4***	2.05E-06	2.6***	1.60E-06	2.1**	3.84E-06	2.6***
Staying worker	-0.486458	-6.4***	-0.533557	-3.8***	-0.469611	-5.2***				
Switching worker	-0.395817	-2.4**	-0.473828	-2.5**	-0.271275	-1.9*				
Switching entrepreneur	-0.469220	-2.1**	0.059729	0.4	-0.380512	-2.3**				
Perm. income/1,000	0.001540	9.5***	-0.000397	-0.8	0.001552	8.1***	0.001926	6.4***	0.001107	4.6***
(Perm. income/1,000) <sup>2</sup>	-9.33E-09	-0.2	1.39E-06	1.9*	-2.29E-08	-0.5	-2.19E-07	-3.4***	2.85E-07	3.1***
Starting real wealth	-1.27E-06	-37.7***	-4.16E-06	-65.5***	-1.22E-06	-30.8***	-5.96E-07	-12.6***	-2.48E-06	-46.2***
Adjusted R <sup>2</sup>	0.18		0.49		0.17		0.26		0.29	



<i>Median regressions</i>										
Intercept	-0.047408	-3.3***	-0.009565	-0.7	-0.063332	-2.9***	-0.034667	-0.2	-0.033569	-3.2***
Black	-0.004228	-0.5					-0.027750	-0.2	-0.014934	-3.4***
Age:										
Young	0.004538	0.9	-0.009806	-1.4	-0.005458	-0.7	0.103728	1.4	-0.011750	-3.0***
Old	0.026106	2.7***	0.018731	1.2	0.028842	2.0**	-0.053356	-0.6	0.034788	4.4***
Education:										
HS only	0.010802	1.5	0.011234	2.1**	0.014218	1.3	0.013411	0.1	0.009974	2.0*
Coll, no degree	0.016257	2.0**	0.016550	1.5	0.021144	1.8*	-0.098925	-1.0	0.011137	1.9*
Coll degree	0.030703	3.7***	0.001461	0.1	0.028998	2.4**	-0.096041	-1.0	0.022571	3.6***
Married	0.001621	0.2	-0.014735	-1.6	0.008837	0.8	0.119813	1.2	-0.009076	-1.6
Single female	0.000594	0.1	-0.011516	-1.5	0.005574	0.4	0.291300	1.6	-0.002939	-0.5
No. of children	-0.015349	-6.9***	0.000850	0.4	-0.014932	-4.5***	-0.058792	-2.1**	-0.08185	-5.0***
No. of deps outside	0.010775	1.6	0.017408	1.2	-0.003602	-0.4	-0.072012	-1.0	0.003675	0.9
Health exc. or good	0.008688	0.9	0.010489	1.8*	0.012441	0.8	-0.030247	-0.3	0.014563	2.2**
Own home	0.010417	1.8*	0.0479776	2.2**	0.009294	1.1	-0.032579	-0.4	0.023800	5.7***
Gift/inheritance	2.10E-06	33.2***	8.72E-06	1.5	2.01E-06	22.7**	1.50E-06	14.0***	4.33E-06	42.7***
Staying worker	-0.137286	-17.4***	-0.219468	-2.0**	-0.137084	-4.8***				
Switching worker	-0.051769	-4.3***	-0.010687	-0.1	-0.043530	-1.5				
Switching entrepreneur	-0.165312	-11.7***	-0.178537	-2.4**	-0.160995	-5.4***				
Perm. income/1,000	0.000302	18.0***	-0.000093	-0.7	0.000333	13.8***	0.000824	6.3***	0.000299	16.4***
(Perm. income/1,000) <sup>2</sup>	5.51E-08	12.4***	1.25E-06	2.7***	7.82E-08	12.0***	-6.40E-08	-2.8***	1.37E-07	16.5***
Starting real wealth	-6.13E-07	-174.3***	-3.72E-06	-3.1***	-7.47E-07	-138.4***	-6.01E-07	-24.6***	-1.18E-06	-330.1***
Pseudo R <sup>2</sup>	0.07		0.20		0.07		0.09		0.08	
N	6,464		1,885	4,579		586		5,328		

Source: PSID data and the author's calculations.

significant in the median regression of model 1. This difference holds because age and education are significant predictors for white families but not black families in model 1 for the median regressions. Marriage is not found to be statistically significant in these regressions. In both types of regressions of model 4 (continuing entrepreneurs), race is not statistically significant in predicting the saving rate for entrepreneurs. However, in model 5, for staying workers race is not statistically significant in the OLS regression, while the median regression indicates that black workers save less than white workers at the 0.01 level.

In summary, univariate comparisons show that the wealth-income ratios of both black and white entrepreneurs are higher than those of workers in their racial groups, and the wealth-income ratios of white entrepreneurs are higher than those of black entrepreneurs. The regressions confirm that white entrepreneurs have higher wealth-income ratios than white workers, and that white entrepreneurs have higher wealth-income ratios than the black entrepreneurs. But the regressions also show that black entrepreneurs have the same (OLS regression) or lower (median regression) wealth-income ratios than black workers. The results for saving rates differ somewhat. The saving rates of black and white continuing entrepreneurs are higher than those of black and white workers, respectively, and the black and white entrepreneurs' saving rates are not found to differ at statistically significant levels.

## 5. OVERVIEW AND DISCUSSION

### 5.1. *Overview*

In the U.S., wealth is disproportionately distributed towards white families in relation to black families. Among both black and white families, wealth is disproportionately distributed towards entrepreneurs instead of workers. However, black entrepreneurs hold a lower fraction of black wealth than white entrepreneurs hold of white wealth, because of the lower rate of entrepreneurship among blacks. Both black and white entrepreneurs have more upward mobility and less downward mobility in the wealth distribution than black and white workers, and ignoring other variables that effect wealth mobility, black entrepreneurs have less upward and more downward mobility than white entrepreneurs. If one controls for variables that would ordinarily affect wealth mobility, then black entrepreneurs and white entrepreneurs have the same upward mobility and black entrepreneurs less downward mobility in the wealth distribution. The saving rate of entrepreneurs is higher than that of workers, and the black and white entrepreneurs' saving rates are not found to differ when I control for other variables that are associated with saving rates.

### 5.2. *Discussion*

Can entrepreneurship among black families significantly reduce the gap in wealth between black and white families in the U.S.? Although I find that existing black entrepreneurs have higher wealth, higher savings rates and more upward wealth mobility than black workers, I do not show how and if these traits would

hold for new black entrepreneurs if the rate of black entrepreneurship increases. Further research is needed to quantify the causes and consistency of these traits. In addition, I find neither the wealth-income ratios nor the saving rates of black entrepreneurs are higher than those of white entrepreneurs. Thus, given a much higher starting wealth of the white entrepreneurs, the disparity between black and white entrepreneurs in the U.S. will continue in the future unless significant acts occur that provide wealth increasing advantages to black entrepreneurs. Of course, “affirmative action” programs for this purpose (such as government set-asides) have existed in various state and local governments and the U.S. federal government since the 1970s. Many of these programs have been criticized as unfair and ineffective (and have been made illegal in some jurisdictions), and are now being reduced or eliminated in many government jurisdictions, including the U.S. government (see Bates, 1995; Ruffin, 1999). Private sector programs that enhance black entrepreneurship have not had nor are expected to have a significant impact in this arena.

The entrepreneurship rate of black families is about one-third that of white families, and this ratio remained roughly constant over the 20th century (Fairlie and Meyer, 2000). Realistically, it will be a significant challenge simply to increase the rate of entrepreneurship among black families to two-thirds that of white families; and given the size of the wealth disparity and the uncertainty about the characteristics of new black entrepreneurs, it is highly uncertain that they would significantly reduce the gap in wealth between black and white families. However, one can argue (for example, see Oliver and Shapiro, 1995) that black entrepreneurship should be supported simply because past acts have restricted black Americans from participating equitably in the U.S. economy, and the opportunity to participate and achieve should be fully available to them as well as other U.S. citizens.

## APPENDIX

### A. *Definition of Wealth*

Wealth includes real estate (own or main home, second home, rental real estate, land contract holdings), cars, trucks, motor homes, boats, farm or business, stocks, bonds, mutual funds, savings and checking accounts, money market funds, certificates of deposit, government savings bonds, Treasury bills, IRAs, bond funds, cash value of life insurance policies, valuable collections for investment purposes, and rights in trust or estate, less mortgage, credit card, and other debt on such assets. This measure does not include wealth in the form of private pensions or expected social security retirement benefits. The total sample is representative of the U.S. population when sample weights provided by the PSID are used. Through funding from the Survey of Economic Opportunity the data set over-samples lower-income and black American families.<sup>21</sup> I use the 1984, 1989, 1994 wealth data in the most detailed analyses for this study. I do not examine the 1999

<sup>21</sup>These data contain essentially only black and white families. Originally, other ethnic groups (Latinos, Asian, and native Americans) were not to be represented in the sample.

data in as much detail, since they are not sufficiently refined for the more detailed analyses.<sup>22</sup>

### B. *Self-employment in PSID*

For a detailed description of the Panel Study of Income Dynamics, see Hurst, Luoh and Stafford (1998). The wealth data used in this study comes from the supplement on household family wealth funded by the National Institute on Aging. The information on Employment Category and Self-employment is based upon questions asked during the interviews. The categories I use are based upon the possible answers as reported by the PSID. The first question asked which relates to defining employment categories is: “We would like to know about what you do—are you (Head) working now, looking for work, retired, keeping house, a student, or what?” The PSID categorized the respondent’s answer as follows:

1. Working now.
2. Only temporarily laid off.
3. Looking for work, unemployed.
4. Retired.
5. Permanently disabled; temporarily disabled.
6. Keeping house.
7. Student.
8. Other.

I categorize those answering 1 as either entrepreneurs or wage/salary depending on how the question below was answered. Responses 2, 3, 6, 7 and 8 were categorized as “unemployed.” Answers 4 and 5 were categorized as “retired.” For those answering “Working now,” they are then asked “Do you work for someone else, yourself, or what?”

The possible answers from this question are:

1. Someone else.
2. Both someone else and self.
3. Self only.

Those responding as 1 or 2 were placed into the wage/salary category. There were relatively few answering 2. I conducted tests including 2 in 1 both 1 and 3, and found very little difference in our results.

### C. *Regional Specifications of the States*

1. New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.
2. North Atlantic (excluded region): New Jersey, New York, Pennsylvania.
3. Southeast: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia.
4. East South Central: Alabama, Kentucky, Mississippi, Tennessee.
5. Oil states: Arkansas, Louisiana, Oklahoma, Texas.

<sup>22</sup>The 1999 data are the early release version. Family weights for 1999 were unavailable and we used 1997 family weights. This essentially means that the 1999 wealth data statistics are for families with the same head in 1997 and 1999.

6. Plains states: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota.
7. Mountain states: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming.
8. West: Alaska, California, Hawaii, Oregon, Washington.
9. Great Lakes: Illinois, Indiana, Michigan, Ohio, Wisconsin.

## REFERENCES

- Altonji, J. and U. Doraszelski, "The Role of Permanent Income and Demographics in Black/White Differences in Wealth," NBER Working Paper No. 8473, 2001.
- Altonji, I., F. Hayashi, and L. Kotlikoff, "Parental Altruism and Inter Vivos Transfers: Theory and Evidence," *Journal of Political Economy*, 105, 1121–66, 1997.
- Aronson, Robert L., *Self-employment: A Labor Market Perspective*, ILR Press, Cornell University, Ithaca, NY, 1991.
- , "Why Do Minority Business Development Programs Generate So Little Minority Business Development?," *Economic Development Quarterly*, 9, 3–14, 1995.
- Bates, Timothy, *Race, Self-employment and Upward Mobility*, The Johns Hopkins University Press, Baltimore, 1997.
- Blau, Francine D. and John W. Graham, "Black-White Differences in Wealth and Asset Composition," *Quarterly Journal of Economics*, 105, 321–39, 1990.
- Blinder, Alan F., "Wage Discrimination: Reduced Form and Structured Estimates," *Journal of Human Resources*, 8, 436–55, 1973.
- Boston, Thomas, *Affirmative Action and Black Entrepreneurship*, Routledge, New York, 1999.
- Butler, John S., *Entrepreneurship and Self-Help Among Black Americans*, State University of New York Press, Albany, NY, 1991.
- Carroll, Christopher D., "How Does Future Income Affect Current Consumption?," *Quarterly Journal of Economics*, 109, 111–47, 1994.
- Devine, Theresa J., "Characteristics of Entrepreneurs Women in the United States," *Monthly Labor Review*, 117, 20–34, 1994.
- Dunn, Thomas and Douglas Holtz-Eakin, "Capital Market Constraints, Parental Wealth and the Transition to Self-Employment among Men and Women," Discussion Paper, Bureau of Labor Statistics, 1995.
- Evans, D. S. and B. Jovanovic, "An Estimated Model of Entrepreneurial Choice Under Liquidity Constraints," *Journal of Political Economy*, 97, 808–27, 1989.
- Fairlie, Robert W., "The Absence of the African-American Owned Business: An Analysis of the Dynamics of Self-Employment," *Journal of Labor Economics*, 17, 80–108, 1999.
- Fairlie, Robert W. and Bruce D. Meyer, "Trends in Self-employment among White and Black Men During the Twentieth Century," *Journal of Human Resources*, 35, 643–69, 2000.
- Ferber, Marriane A. and J. Waldfogel, "The Long-term Consequences of Nontraditional Employment," *Monthly Labor Review*, 121, 3–12, 1998.
- Gentry, William and R. Glenn Hubbard, "Entrepreneurship and Household Saving," NBER Working Paper No. 7894, 2000.
- Hamilton, Barton H., "Does Entrepreneurship Pay? An Empirical Analysis of the Returns to Self-Employment," *Journal of Political Economy*, 108, 604–31, 2000.
- Harmon, J. A. Lindsay and Carter Woodson, *The Negro as a Businessman*, McGrath, College Park, MD, 1929.
- Holtz-Eakin, Douglas, David Joulfaian, and Harvey Rosen, "Sticking It Out: Entrepreneurial Survival and Liquidity Constraints," *Journal of Political Economy*, 102, 53–75, 1994.
- Hout, Michael and Harvey S. Rosen, "Self-employment, Family Background, and Race," *Journal of Human Resources*, 35, 670–92, 2000.
- Hurst, Erik, Ming Ching Luoh, and Frank P. Stafford, "The Wealth Dynamics of American Families, 1984–1994," *Brookings Papers on Economic Activity*, 1, 267–329, 1998.
- Hurst, Erik and Annamaria Lusardi, "Liquidity Constraints, Wealth Accumulation, and Entrepreneurship," Working Paper, University of Chicago Business School, 2001.
- Jovanovic, Boyan, "Selection and the Evolution of Industry," *Econometrica*, 50, 649–70, 1982.
- Juster, F., James P. Smith, and Frank P. Stafford, "The Measurement and Structure of Household Wealth," *Labor Economics*, 6, 253–75, 1999.

- Kihlstrom, Richard and Jean-Jacques Laffont, "A General Equilibrium Entrepreneurial Theory of Firm Formation Based on Risk Aversion," *Journal of Political Economy*, 87, 719–48, 1979.
- Lucas, Robert, "On the Size Distribution of Firms," *Bell Journal of Economics*, 9, 508–23, 1978.
- Menchik, Paul L. and Nancy A. Jianakoplos, "Black-White Wealth Inequality: Is Inheritance the Reason?," *Economic Inquiry*, 35, 428–42, 1997.
- Meyer, Bruce D., "Why Are There So Few Black Entrepreneurs?" NBER Working Paper No. 3537, 1990.
- Oaxaca, Ronald L., "Male-Female Wage Differentials in Urban Labor Markets," *International Economic Review*, 14, 693–709.
- Oliver, Melvin L. and Thomas M. Shapiro, *Black Wealth/White Wealth: A New Perspective on Racial Inequality*, Routledge, New York, 1995.
- Quadrini, Vincenzo, "The Importance of Entrepreneurship for Wealth Concentration and Mobility," *The Review of Income and Wealth*, 45, 1–19, March 1999.
- , "Entrepreneurship, Saving, and Social Mobility," *Review of Economic Dynamics*, 3, 1–40, 2000.
- Ruffin, David C., "Assault Continues on Set-Asides," *Focus*, 27, 7, 1999.
- Wallace, Robert L., *Black Wealth Through Entrepreneurship*, Duncan and Duncan, Inc., Englewood, Maryland, 1993.
- Wolff, Edward N., "Recent Trends in the Size Distribution of Household Wealth," *Journal of Economic Perspectives*, 12, 131–50, 1998.