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The Impact of Human Capital Measures on Firm Performance: A Comparison by Gender, Race, and Ethnicity

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Prior research suggests that firms owned by women and minorities are smaller, less profitable, and less growth-oriented than those owned by white men. Prior research also suggests that firm performance is influenced by the firm owner's level of human capital in the form of education, employment experience, and life experiences that might help him to prepare for the challenges of small business ownership. This article compares the performance of firms owned by white men to those owned by white women and by minority small business owners to determine if higher levels of human capital eliminate performance gaps between them. Results reveal that firms owned by white and black women and firms owned by black men were still significantly smaller, even controlling for industry sector and various measures of human capital. Contrary to prior research, however, firms owned by women and minorities were no less profitable nor less likely to grow. The sole exception to this finding was that firms owned by Asian men were significantly less likely to exhibit sales growth than firms owned by white men.

I. Introduction

Small firms are a vital part of the United States economy. The U.S. Small Business Administration defines a small firm as one that has 500 or fewer employees. Using this definition, ninety-nine percent of all firms in the U.S. would be categorized as small businesses. Data compiled by the SBA indicate that there were 22.9 million small firms in this country in 2002 (Small Business by the Numbers, 2003). These firms generated over half of gross domestic product and employed more than half of the work force. In fact, small firms have been responsible for sixty to eighty percent of net new jobs. Small firms are also an important part of economic development, particularly for many urban communities. They provide jobs as

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well as products and services that make it possible and desirable for individuals and families to live and work in the inner city.

Women-owned and minority-owned firms are a special subset of small firms overall. Although their numbers are small relative to firms owned by white men, they are growing rapidly. According to U.S. Census data, there were 5.4 million women-owned small firms in the United States in 1997 (Small Business Economic Indicators for 2002, 2003). These firms generated $818.7 billion in revenues and employed 7.1 million people. The number of women-owned firms increased by sixteen percent from 1992 to 1997 compared to a growth rate of six percent for small firms overall. During the same timeframe, revenues for women-owned firms increased by thirty-three percent compared to an increase of twenty-four percent for all small firms. The growth picture for minority-owned firms is even more dramatic. In 1997 there were 3.25 million minority-owned small businesses in the United States (Minorities in Business, 1999). These firms generated $495 billion in revenues and employed nearly four million individuals. The number of minority-owned firms increased by 168 percent from 1987 to 1997, while revenues grew by 343 percent.

In spite of their growing numbers, however, women- and minority-owned firms continue to lag firms owned by white men in a number of performance measures. Typically, they are smaller in terms of assets, revenues, and profits. Further, they tend to be more heavily concentrated in retail and service lines of business which are more competitive and correspondingly, less profitable. Part of the performance discrepancy may be due to differences in life style choices on the part of different small business owners. Part of it may be due, however, to differences in the capabilities and resources that firm owners have to draw upon. This research will examine the effect of one type of resource, human capital, on the performance of small women- and minority-owned firms to determine if higher levels of human capital are associated with higher levels of firm performance.

II. Prior Research

Prior research has fairly consistently indicated that women-owned small businesses under-perform businesses owned by men in measures of size and growth. In a study of over 300 women business owners in Indiana over a three year period, Kalleberg and Leicht (1991) observed that women-owned firms were smaller than those owned by men. They also found that the women-owned firms had a lower level of earnings and earnings growth. Similarly, in a study of Canadian small businesses, Riding and Swift (1990) noted that women-owned firms were smaller and younger than firms owned by men. Further, they found that the women-owned firms in their sample had lower rates of sales growth and were concentrated in the service and retail sectors.

Coleman (1999) used data on U.S. firms from the 1993 National Survey of Small Business Finances to find that women-owned firms were smaller and younger than men-owned firms. She also found that women-owned firms had lower levels of revenues, were more likely to be organized as sole proprietorships, and were more likely to be in service lines of business. Using data from the 1998 Survey of Small Business Finances, Bitler et al. (2001) noted that women-owned firms were smaller than men-owned firms in terms of sales, assets, and number of employees.

Du Rietz and Henrekson (2000) conducted a large study of Swedish firms to examine performance measures such as sales, employment and profitability. They observed that women-owned firms were smaller and had lower rates of sales growth. When they controlled for differences in firm size, however, they found no differences in profitability between women- and men-owned firms. In a study of over 14,000 Australian firms, Watson (2002)

found that although men-owned firms had significantly higher levels of assets, women-owned firms actually outperformed men-owned firms in terms of both return on assets and return on equity. Further, when he controlled for both industry and age of the business, Watson found no significant variation in business performance by gender. In contrast, Robb (2002), using U.S. Census data, found that women-owned firms were significantly more likely to go out of business than men-owned firms.

There are relatively few studies examining the performance of minority-owned firms. Blanchflower et al. (1999) found that black-owned firms were younger, smaller, and more likely to be located in urban areas. They also found that black-owned firms were more likely to be sole proprietorships and to have a history of credit difficulties. Similarly, Bitler et al. (2001) observed that minority-owned firms were smaller than firms owned by white men in terms of total sales, assets, and number of employees. Using the Characteristics of Business Owners data base, Bates (1989) found that black-owned firms were significantly less profitable and had a significantly higher failure rate than white-owned firms. Robb (2002) also found that firms owned by black business owners were significantly less likely to survive than those owned by white business owners. She noted, however, that businesses owned by black and Asian women were significantly less likely to close than businesses owned by black and Asian men.

III. The Role of Human Capital

Some researchers contend that performance differences between firms are at least partially attributable to differences in levels of human capital (Boden & Nucci, 2000; Carter et al., 1997; Cooper et al., 1994; Watson et al., 1998). Human capital refers to inputs such as education, prior experience in business, and life experiences that might help to prepare an entrepreneur for the challenges of business ownership.

The importance of human capital has been highlighted in studies that link human capital measures such as education and experience with firm survival. In a study of U.S. firms, Bates (1995) found that firms having more highly educated owners were more likely to survive. Cressy (1996) had similar findings in a study of British firms as did Lussier and Pfeifer (2001) in a study of Croatian firms. Cressy (1996) also noted that prior work experience and previous experience with self employment increased the likelihood of firm survival.

Human capital has also been linked with measures of firm performance. Schiller and Crewson (1997) observed that more highly educated men were more likely to have successful entrepreneurial ventures. Correspondingly, they found that prior work experience and years of self-employment contributed to firm success in women. In a study of Jamaican firms, Honig (1998) found that a college education roughly doubled the level of the entrepreneur's earnings. Further, he noted that years of experience in business were positively associated with increasing profits.

Chandler and Hanks (1998) studied American firms in Utah to find that firms with high levels of human capital and high levels of financial capital had a higher ratio of sales to earnings than other firms. In a study of Finnish firms, Kangasharju and Pekkala (2002) found that firms run by more highly educated entrepreneurs experienced higher growth rates during both economic booms and recessions. Pena (2002) studied Spanish firms to find that growth companies were more likely to be operated by entrepreneurs with college degrees. Pena also noted that prior experience in a managerial position was a significant factor in determining the growth rate of a firm.

The research cited above seems to point to a link between measures of human capital and firm performance. This research will explore that link by using data from the 1998 Survey of Small Business Finances to determine if women- and minority-owned firms do, in fact,

under-perform firms owned by men. Further, it will seek to determine if higher levels of human capital have the effect of eliminating performance differences between firms.

IV. Description of the Data

Data for this study are drawn from the 1998 Survey of Small Business Finances (SSBF) conducted every five years by the Federal Reserve Board. The 1998 Survey is the most recent for which data are publicly available. It includes balance sheet and income statement data on 3,561 U.S. small firms defined as firms having 500 or fewer employees. Survey firms represent a random sample stratified by size, geographic location, gender, and the racial or ethnic identity of the firm owner. Sample weights are provided in order to make it possible to construct population estimates from the sample data. In addition to demographic data, the SSBF provides a wealth of information on the sample firms' use of financial products and services as well as on their use of financial service providers. It is the largest and most comprehensive data set of its type. The 1998 SSBF includes data on 2,190 firms owned by white men, 605 firms owned by white women, 195 firms owned by black men, 79 firms owned by black women, 209 firms owned by Hispanic men, 55 firms owned by Hispanic women, 153 firms owned by Asian men, and 50 firms owned by Asian women.

Table I provides a univariate comparison of variables representing various aspects of human capital for firms included in the 1998 SSBF. It reveals that Hispanic men were significantly less likely to have completed high school (Ed1) than white men. Further it reveals that white men were significantly more likely to have completed college than all other groups with the exception of Asian men and Asian women (Ed4). Firms owned by white women, black women, and Hispanic men were significantly more likely to be organized as sole proprietorships (Soleprop) than firms owned by white men. Firms owned by white women and Hispanic men were significantly more likely to be defined as family-owned firms (Family), although a high percentage of all of the firms included in this study were owned by only one family. A surprisingly small percentage of firms were inherited from prior generations (Inherit), and there were no significant differences between groups. White males were significantly older (Ownage) and had significantly more business experience (Exp) than all other groups. In addition, the firms owned by white men were significantly older (Firmage).

Table II includes an industry comparison of firms included in the 1998 SSBF broken down by gender, race, and ethnicity. It reveals that, as suggested in prior research, women-owned firms were significantly more likely to be in service lines of business (Serv) than firms owned by white men. Firms owned by Asian men and women were also significantly more likely to be in retail lines of business (Retail). All groups, with the exception of firms owned by black men, were significantly less likely to be in construction (Construc) than firms owned by white men.

Table III provides univariate comparisons for various performance measures according to gender, race, and ethnicity. It reveals that firms owned by white men were significantly larger than firms owned by all other group in terms of total assets (Totassts) and total number of employees (Totemp). Firms owned by white men were also significantly larger than all other groups with the exception of firms owned by Asian men in terms of total sales (Totsales). Interestingly enough, however, firms owned by white men were significantly less profitable (ROS) than firms owned by white women, black women, Hispanic women, and Hispanic men. There were no significant differences between the groups based on having positive rather than zero or negative profits (Someprof). Firms owned by white men had significantly lower year to year growth rates in sales (Growth) than firms owned by all four groups of women and by

Hispanic men. Finally, firms owned by black men were significantly more likely to have zero or negative growth (Somegrow) than firms owned by white men.

These univariate results seem to suggest that there are performance differences between small firms by race, gender, and ethnicity although perhaps not as many as we might have expected. They also seem to suggest that we cannot make a blanket statement to the effect that women- and minority-owned firms under-perform firms owned by white men. These results show that, although women and minority-owned firms tend to be smaller in terms of total sales, total assets, and total number of employees, they are typically no less profitable nor less likely to grow.

V. Multivariate Analysis

A shortcoming of univariate analysis is that it examines the effect of only one variable in isolation on the dependent variable, in this instance, some measure of size, profitability, or growth. It is very likely that other important independent variables have been omitted from the model. In contrast, multivariate analysis examines the simultaneous impact of multiple independent variables on a dependent variable thus increasing the likelihood that relevant variables will be included. As a next step in this analysis, a series of multivariate models was developed having some measure of firm performance as the dependent variable and a series of independent variables representing gender, race, and ethnicity, as well as variables representing various aspects of human capital. The model took the following form:

Model 1

Logsales (or Logassts)= $a + b_1$ed2 + $b_2$ed3 + $b_3$ed4 + $b_4$soleprop + $b_5$family + $b_6$inherit + $b_7$ownage + $b_8$firmage + $b_9$exp + b_{10}whitewom +b_{11}blackmen + b_{12} blackwom + b_{13}hispmen + b_{14}hispwom + b_{15}asianmen + b_{16}asianwom + e

Dependent and independent variables included in the model are defined in the Appendix. The dependent variable, Logsales, represents the log of 1998 sales and is a measure of firm size. In a second iteration of the model, the log of total assets (Logassts), also a measure of firm size, was substituted as the dependent variable. The logged form of both variables was used because Table I indicates that firm size and firm assets were highly skewed.

Independent variables represent firm or owner characteristics that could be expected to contribute to human capital. The variables Ed2, Ed3, and Ed4 represent various educational levels. Prior research has suggested that more highly educated firm owners tend to operate more successful firms (Kangasharju & Pekkala, 2002; Pena, 2002; Schiller & Crewson, 1997) The lowest educational level, Ed1 (did not graduate from high school), was omitted as the reference variable.

The variable Soleprop identifies firms that are organized as sole proprietorships and thus do not have the benefit of the education or experience that could be provided by partners (Carter et al., 1997). The variable Family indicates those firms that are defined by the firm owner as being owned primarily by one family, while the variable Inherit indicates those firms that were inherited. The owners of family-owned firms should be able to benefit from the human capital provided by other family members. Similarly, owners who have inherited their firms should benefit not only from the accumulated experience of prior generations but also from the experience of growing up in the business.

Ownage and Firmage were included as independent variables to reflect the fact that older firm owners would have accumulated a greater amount of life experience, judgment, and maturity, while older firms would have weathered the shocks typically experienced by early

stage firms. The variable Exp indicates the firm owner's number of years of prior business experience. One would anticipate that more experienced owners would be better equipped for firm survival and success (Honig, 1998; Pena, 2002; Schiller & Crewson, 1997; Watson et al., 1998). The variables Whitewom, Blackmen, Blackwom, Hispmen, Hispwom, Asianmen, and Asianwom are indicators of gender and race or ethnicity. The variable representing white men was omitted as the reference variable.

A considerable amount of prior research has revealed that women- and minority-owned firms tend to be more heavily concentrated in the less growth oriented and less profitable sectors of service and retail (Carter et al., 1997; Du Rietz & Henrekson, 2000; Loscocco & Robinson, 1991; Robb, 2002; Rogers et al., 2001). Since the intent of this paper is to compare the performance of women- and minority-owned firms to comparable firms owned by white men, the multivariate analyses are confined to firms in the service and retail sectors. This will eliminate the potentially confounding effect of having a larger number of firms owned by white men operating in sectors such as manufacturing and construction which are characterized by larger and more profitable firms.

The results of Model 1 are provided in Table IV. They reveal that, even controlling for differences in human capital and industry sector, firms owned by white men were still significantly larger than firms owned by white women, black women, and black men in terms of total sales and total assets. Firms owned by white men were also significantly larger than firms owned by Hispanic men in terms of total assets. It is noteworthy, however, that when we do control for human capital and industry sector, firms owned by white men were no larger than firms owned by Hispanic women, Asian women, or Asian men. Further, although they were larger than Hispanic men in terms of total assets, they were not significantly larger in terms of total sales.

Table IV also shows that firms organized as sole proprietorships (Soleprop) or owned primarily by one family (Family) tend to be smaller as one would anticipate. Conversely, inherited firms (Inherit) tend to be significantly larger as do older firms (Firmage). Presumably, these firms benefit from having more years of longevity and experience. Younger firm owners (Ownage) having more years of experience (Exp) also tend to operate significantly larger firms, possibly suggesting that younger owners are more aggressive in their growth expectations.

Another measure of firm size is the firm's number of employees. A second model was constructed to examine the relationship between the owner's level of human capital and total number of employees. In this instance, the same independent variables were used in the model as in Model 1. In addition, the log of 1998 sales (Logsales) was added as an independent variable since it seems reasonable that the number of employees would be affected by the level of sales.

Model 2

$$\text{Totemp} = a + b_1\text{logsales} + b_2\text{ed2} + b_3\text{ed3} + b_4\text{ed4} + b_5\text{soleprop} + b_6\text{family} + b_7\text{inherit} + b_8\text{ownage} + b_9\text{firmage} + b_{10}\text{exp} + b_{11}\text{whitewom} + b_{12}\text{blackmen} + b_{13}\text{blackwom} + b_{14}\text{hispmen} + b_{15}\text{hispwom} + b_{16}\text{asianmen} + b_{17}\text{asianwom} + e$$

The results of this model, also provided in Table IV, demonstrate that when we control for firm size, human capital, and industry sector, only firms owned by Asian men were significantly smaller than firms owned by white men in terms of total number of employees. Women-owned firms and firms owned by black and Hispanic men were not significantly smaller using this measure of firm size. This finding is noteworthy, because it suggests that if women-owned and

minority-owned firms can achieve the same level of sales as firms owned by white men, they are just as willing and able to generate employment opportunities. Table IV also reveals that sole proprietorships (Soleprop) and family owned firms (Family) had a significantly smaller number of employees as expected. Conversely, inherited firms (Inherit) and older firms (Firmage) had a significantly larger number of employees.

A second measure of firm performance is profitability. Two independent variables were used to determine firm profitability, return on sales (ROS), a continuous variable, and a dichotomous variable distinguishing between firms having positive versus zero or negative profits (Someprof). A Tobit model was constructed using return on sales as the dependent variable while a separate logistic regression model was constructed using the dichotomous variable Someprof as the dependent variable. A Tobit model is appropriate in instances where the dependent variable is truncated in some way (Amemiya, 1984; Tobin, 1958). In this instance, negative ROS values were assigned a value of zero. Logistic regression is appropriate in instances where the dependent variable is dichotomous (0,1) rather than continuous (Aldrich & Nelson, 1984; Cramer, 1991; Demaris, 1992). The models had the following form:

Model 3 (Tobit)

$$ROS = a + b_1 logsales + b_2 ed2 + b_3 ed3 + b_4 ed4 + b_5 soleprop + b_6 family + b_7 inherit + b_8 ownage + b_9 firmage + b_{10} exp + b_{11} whitewom + b_{12} blackmen + b_{13} blackwom + b_{14} hispmen + b_{15} hispwom + b_{16} asianmen + b_{17} asianwom + e$$

Model 4 (Logistic)

$$Someprof = a + b_1 logsales + b_2 ed2 + b_3 ed3 + b_4 ed4 + b_5 soleprop + b_6 family + b_7 inherit + b_8 ownage + b_9 firmage + b_{10} exp + b_{11} whitewom + b_{12} blackmen + b_{13} blackwom + b_{14} hispmen + b_{15} hispwom + b_{16} asianmen + b_{17} asianwom + e$$

The results of these models are provided in Tables V and VI. Table V reveals that, controlling for firm size, human capital, and industry sector, firms owned by white women and firms owned by black women were actually significantly more profitable (ROS) than firms owned by white men. Sole proprietorships (Soleprop) and inherited firms (Inherit) also had significantly higher levels of profitability. It is very probable that sole proprietorships have less overhead than firms organized as corporations. Further, there is no tax incentive for firms organized as sole proprietorships to achieve lower levels of profitability. Inherited firms may be more profitable because they have the benefit of more years of experience and longevity.

Table VI demonstrates that firms owned by Asian men were significantly more likely to have positive profits rather than zero or negative profits (Someprof) than firms owned by white men. In addition, larger firms (Logsales), firms organized as sole proprietorships (Soleprop), and older firms (Firmage) were significantly more likely to have positive profits.

The final measure of firm performance used was firm growth. Growth was determined by two variables, the first of which measured the annual growth rate in sales from 1997 to 1998 (Growth). The second growth variable was a dichotomous variable separating those firms that had positive year to year growth in sales from those that had zero of negative growth (Somegrow). Models using the two growth variables, one truncated at a lower boundary of zero and the second dichotomous, took the following form:

Model 5 (Tobit)

Growth= a + $b_1$logsales + $b_2$ed2 + $b_3$ed3 + $b_4$ed4 + $b_5$soleprop + $b_6$family + $b_7$inherit + $b_8$ownage + $b_9$firmage + b_{10}exp + b_{11}whitewom +b_{12}blackmen + b_{13}blackwom + b_{14}hispmen + b_{15}hispwom + b_{16}asianmen + b_{17}asianwom + e

Model 6 (Logistic)

Somegrow= a + $b_1$logsales + $b_2$ed2 + $b_3$ed3 + $b_4$ed4 + $b_5$soleprop + $b_6$family + $b_7$inherit + $b_8$ownage + $b_9$firmage + b_{10}exp + b_{11}whitewom +b_{12}blackmen + b_{13}blackwom + b_{14}hispmen + b_{15}hispwom + b_{16}asianmen + b_{17}asianwom + e

The results of Models 5 and 6 are provided in Tables V and VI. Table V indicates that, controlling for firm size, human capital, and industry sector, firms owned by white women experienced a significantly higher growth rate than firms owned by white men. There were no significant differences in the growth rates between firms owned by white men and those owned by any of the other groups. Larger firms (Logsales) and younger firms (Firmage) grew more aggressively as one might expect. Larger firms obviously have had growth aspirations in the past, and younger firms may have more aggressive goals for growth. Interestingly enough, sole proprietorships (Soleprop) had higher growth rates than firms having other organizational forms, possibly because they were starting from a relatively low level of sales. Inherited firms (Inherit) had significantly lower growth rates, suggesting that later generations may not be as aggressive as the original entrepreneurs where growth is concerned.

Table VI provides the results for the Somegrow model (Model 6). It reveals that firms owned by Asian men were significantly less likely to have positive rather than zero or negative growth (Somegrow) than firms owed by white men. Firms owned by other groups were just as likely to experience a positive year to year growth rate in sales. Table VI also shows that larger firms (Logsales) and firms organized as sole proprietorships (Soleprop) were significantly more likely to have a positive growth rate. Similarly, firms headed by less experienced owners (Exp) were more likely to have positive growth, possibly suggesting that owners having less experience are more likely to associate growth with performance. Conversely, inherited firms (Inherit) were significantly less likely to have a positive growth rate. As noted above, it may be that later generations are less ambitious than the founding entrepreneur.

VI. Summary and Conclusions

Prior research indicates that women- and minority-owned firms are smaller, less profitable, and less growth-oriented than firms owned by white men. The size, growth, and profitability of a firm is heavily influenced by the type of business, however, and prior research also reveals that women- and minority-owned firms tend to be heavily concentrated in the service and retail sectors which are highly competitive and, hence, less profitable. The hypothesis of this paper is that firm success is at least partially determined by industry sector as well as by the firm owner's level and type of human capital. Human capital refers to things such as education, prior work or managerial experience, and life experiences that help to prepare the entrepreneur for the challenges of firm ownership. In this paper we control for both industry sector and various types of human capital to determine if there are still performance differences between firms owned by women and minorities and those owned by white men.

Findings reveal that, controlling for industry sector and human capital, firms owned by white women, black women, and black men were still significantly smaller than firms owned by white men in terms of total sales and total assets. Firms owned by Hispanic men were

significantly smaller than firms owned by white men in terms of total assets but not in terms of sales. There were no significant size differences, however, between firms owned by white men and those owned by Hispanic women or Asian men and women.

An important consideration relating to small firms is their ability to generate jobs that would benefit the economy. These findings reveal there were almost no significant differences between firms owned by white men and those owned by women and minorities in terms of their willingness and ability to generate jobs when we control for industry sector, human capital, and firm size. The only firms that had a significantly smaller number of total employees were those owned by Asian men.

These results also indicate that women- and minority-owned firms were no less profitable than firms owned by white men. In fact, firms owned by white women and black women were significantly more profitable than firms owned by white men. Similarly, there were no significant differences in the year to year growth rate in sales aside from the fact that firms owned by white women had a significantly higher growth rate than firms owned by white men, while firms owned by Asian men were significantly less likely to grow at all.

In summary, these findings indicate that, when we control for industry sector and human capital, most of the supposed performance differences between women- and minority-owned firms disappear. It does seem that firms owned by white women and black men and women are still somewhat smaller than firms owned by white men, but aside from that, women- and minority-owned firms are no less profitable nor less likely to grow.

Overall, these findings seem to suggest that firm performance is heavily influenced by industry selection (and with it firm size) and by the firm owner's level of human capital. These results are significant, because they highlight the importance of preparation and planning well in advance of business ownership. They suggest the desirability of having potential entrepreneurs weigh the relative attractiveness of various industries and businesses in order to select a business that will provide opportunities for profitability and growth. Further, these results highlight the importance of the entrepreneur's personal qualifications, or the human capital attributes that help to prepare him for success in that business. Finally, these findings suggest that if we can find ways to help women- and minority entrepreneurs make good choices about the businesses they start, and if we can help them to acquire human capital in the form of education and relevant experience, we can increase their chances for success.

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Table I

Variables Representing the Human Capital Characteristics of Small Firms

Variable	White Men	White Women	Black Men	Black Women	Hispanic Men	Hispanic Women	Asian Men	Asian Women
N	2190	605	195	79	209	55	153	50
Ed1	2.79%	2.93%	4.50%	5.35%	11.70%**	6.78%	0.72%	4.79%
Ed2	19.75%	22.60%	19.62%	16.91%	20.30%	28.60%	11.66%*	15.63%
Ed3	26.85%	31.88%*	27.96%	48.85%**	27.34%	32.49%	19.51%	6.24%*
Ed4	50.61%	42.59%**	47.92%	28.89%**	40.66%**	32.13%*	68.11%**	73.34%**
Soleprop	45.91%	56.51%**	52.59%	70.01%**	54.18%**	49.35%	46.37%	57.96%
Family	87.35%	91.70%**	93.47%	93.49%	94.23%**	94.72%	84.25%	88.01%
Inherit	4.14%	4.49%	3.52%	4.97%	3.81%	2.24%	2.53%	2.18%
Ownage	50.93	49.26**	49.51*	48.29**	47.84**	48.19**	46.84**	44.46**
Firmage	14.55	11.43**	12.00**	8.74**	11.33**	9.64**	10.01**	9.42**
Experience	19.91	15.03**	15.87**	11.96**	16.26**	13.82**	14.47**	11.20**

*differences from white men are significant at the .05 level
**differences from white men are significant at the .01 level

Table II

Industry Breakdown for Firms included in the 1998 SSBF (amounts shown are percentages of the total)

Variable	White Men	White Women	Black Men	Black Women	Hispanic Men	Hispanic Women	Asian Men	Asian Women
N	2190	605	195	79	209	55	153	50
Serv	40.01	49.15**	46.54	65.11**	46.17	54.97**	48.35**	50.61**
Manufac	8.96	7.74	5.81	0.00	10.64	4.62	5.98	5.46
Transp	3.67	3.59	4.45	3.97	5.21	4.99	3.99	0
Retail	25.46	26.98	23.77	26.02	25.54	27.19	34.76*	35.21*
Ins/RE	6.94	5.97	6.96	3.72	4.61	4.22	2.21	4.67
Construc	14.38	5.56**	11.93	1.19**	7.45*	3.83**	4.70**	4.06**
Mining	0.48	0.22	0.00	0	0	0.17	0	0

*differences from white men are significant at the .05 level
**differences from white men are significant at the .01 level

Table III

Variables Representing Performance Characteristics of Small Firms

Variable	White Men	White Women	Black Men	Black Women	Hispanic Men	Hispanic Women	Asian Men	Asian Women
N	2190	605	195	79	209	55	153	50
Sales								
Mean	$1,226,729	$585,144**	$357,236**	$100,933**	$391,112**	$548,082**	$818,775	$432,214**
Median	$195,026	$91,593	$73,466	$30,000	$119,626	$80,000	$250,000	$102,000
Assets								
Mean	$519,018	$241,811**	$142,229**	$41,743**	$147,748**	$233,548*	$346,558*	$218,447**
Median	$67,877	$32,919	$38,456	$11,500	$34,700	$36,250	$65,000	$23,625
Employees								
Mean	9.85	6.24**	5.57**	3.85**	6.02**	6.65**	7.28**	6.12**
Median	4.00	3.00	3.00	2.00	3.00	3.00	4.00	2.00
ROS								
Mean	0.25	0.30**	0.27	0.36**	0.31**	0.36**	0.27	0.28
Median	0.15	0.19	0.19	0.37	0.24	0.32	0.20	0.19
Growth								
Mean	0.17	0.21**	0.17	0.25**	0.23**	0.31**	0.17	0.32**
Median	0.04	0.05	0.00	0.09	0.04	0.21	0.009	0.12
Someprof	80.12%	77.10%	75.16%	78.77%	80.64%	76.76%	86.69%	71.02%
Somegrow	59.29%	59.90%	48.02%*	60.49%	58.07%	66.66%	50.75%	59.13%

*differences from white men are significant at the .05 level
**differences from white men are significant at the .01 level

Table IV

Multivariate Analysis: Measures of Firm Size (Regression Analysis) Parameter Estimates

Variables	Logsales	Logassts	Totemp
Intercept	13.93650**	12.26913**	-75.93305**
Logsales	not included	not included	7.58051**
Ed2	-0.07498	0.35655	3.14073
Ed3	0.13404	0.48050	3.02107
Ed4	0.46641	0.80438**	7.52139
Soleprop	-2.05704**	-1.72057**	-6.46992**
Family	-0.50165**	-0.57479**	-13.15145**
Inherit	0.84337**	0.78987**	11.23402**
Ownage	-0.03200**	-0.02576**	0.14647
Firmage	0.03199**	0.02855**	0.35439**
Exp	0.03913**	0.04000**	0.01078
Whitewom	-0.55523**	-0.53772**	1.59856
Blackmen	-0.90105**	-0.40532**	6.32006
Blackwom	-1.37529**	-1.24813**	7.32694
Hispmen	-0.36784	-0.55836**	-1.06350
Hispwom	-0.45739	-0.44806	3.44971
Asianmen	0.19407	0.09965	-10.21942**
Asianwom	-0.11968	-0.27342	4.21601
R-square	0.3291	0.3285	0.2795
Pr>F	0.0001	0.0001	0.0001

*results significant at the .05 level
**results significant at the .01 level

Table V

Multivariate Analysis: Measures of Firm Profitability and Growth (Tobit Analysis) Parameter Estimates

Variables	ROS	Growth
Intercept	0.0619	-0.2631**
Logsales	0.0062	0.0330**
Ed2	0.0050	-0.0008
Ed3	-0.0048	0.0397
Ed4	-0.0069	0.0351
Soleprop	0.1765**	0.0579**
Family	-0.0060	-0.0004
Inherit	0.0644*	-0.1228**
Ownage	-0.0011	-0.0002
Firmage	0.0014	-0.0052**
Exp	0.0012	-0.0039**
Whitewom	0.0382*	0.0523*
Blackmen	0.0244	-0.0043
Blackwom	0.0882*	0.0727
Hispmen	0.0422	0.0417
Hispwom	0.0953	0.0883
Asianmen	0.0468	-0.0444
Asianwom	0.0213	0.1291

*results significant at the .05 level
**results significant at the .01 level

Table VI

Multivariate Analysis: Measures of Firm Profitability and Growth (Logistic Regression Analysis) Parameter Estimates

Variables	Someprof	Somegrow
Intercept	-3.4601**	-3.0641**
Logsales	0.3612**	0.2621**
Ed2	0.5991	0.3928
Ed3	0.3793	0.4970
Ed4	0.2627	0.4601
Soleprop	1.0132**	0.2681**
Family	-0.0518	0.2119
Inherit	0.4060	-0.5390**
Ownage	-0.0115	-0.00009
Firmage	0.0144*	-0.00749
Exp	0.0117	-0.0141*
Whitewom	0.2270	0.1688
Blackmen	0.0867	-0.3737
Blackwom	0.4618	0.2428
Hispmen	0.2474	-0.1284
Hispwom	0.0403	0.1502
Asianmen	0.7728*	-0.4965*
Asianwom	-0.2339	-0.0151

*results significant at the .05 level
**results significant at the .01 level

Appendix

Definition of Variables

Totemp: Total full-time equivalent employees for 1998.

Totassets: Total assets for 1998.

Sales: Total sales for 1998.

Growth: Year to year growth rate in sales; (Sales 1998-Sales 1997)/Sales 1997.

ROS: return on sales; 1998 profits/1998 total sales. Firms with negative profits were assigned an ROS of 0.

Somegrow: Dichotomous variable coded as a "1" if the firm had positive growth in sales from 1997 to 1998.

Someprof: Dichotomous variable coded as a "1" if the firm had positive net income in 1998.

Ed1: Dichotomous variable coded as a "1" if the firm owner did not complete high school.

Ed2: Dichotomous variable coded as a "1" if the firm owner graduated from high school.

Ed3: Dichotomous variable coded as a "1" if the firm owner attended but did not graduate from college or attended a vocational or trade school.

Ed4: Dichotomous variable coded as a "1" if the firm owner graduated from college or graduate school.

Soleprop: Dichotomous variable coded as a "1" if the firm was organized as a sole proprietorship.

Family: Dichotomous variable coded as a "1" if the firm was more than 50% owned by a single family.

Inherit: Dichotomous variable coded as a "1" if the firm owner inherited the business.

Ownage: Age of the firm owner in years.

Firmage: Age of the firm in years.

Exp: Owner's years of experience in managing or owning a business.

Whitemen: Dichotomous variable coded as a "1' if the firm was more than 50% owned by white men.

Whitewom: Dichotomous variable coded as a “1’ if the firm was more than 50% owned by white women.

Blackmen: Dichotomous variable coded as a “1’ if the firm was more than 50% owned by black men.

Blackwom: Dichotomous variable coded as a “1’ if the firm was more than 50% owned by black women.

Hispmen: Dichotomous variable coded as a “1’ if the firm was more than 50% owned by Hispanic men.

Hispwom: Dichotomous variable coded as a “1’ if the firm was more than 50% owned by Hispanic women.

Asianmen: Dichotomous variable coded as a “1’ if the firm was more than 50% owned by Asian men.

Asianwom: Dichotomous variable coded as a “1’ if the firm was more than 50% owned by Asian women.