

UC Santa Cruz

Working Paper Series

Title

Why Are Black-Owned Businesses Less Successful than White-Owned Businesses? The Role of Families, Inheritances, and Business Human Capital

Permalink

<https://escholarship.org/uc/item/5gk2188g>

Authors

Fairlie, Robert W
Robb, Alicia M.

Publication Date

2005-12-01

Why Are Black-Owned Businesses Less Successful than White-Owned Businesses? The Role of Families, Inheritances, and Business Human Capital

Robert W. Fairlie
Department of Economics, University of California, Santa Cruz
rfairlie@ucsc.edu

Alicia M. Robb
Foundation for Sustainable Development and University of California, Santa Cruz
alicia@fsdinternational.org

December 2005

This research was partially funded by the Russell Sage Foundation and Kauffman Foundation. The research in this paper was conducted while the authors were Special Sworn Status researchers of the U.S. Census Bureau at the Center for Economic Studies and California Research Data Center at U.C. Berkeley. This paper has been screened to insure that no confidential data are revealed. The data can be obtained at a Census Research Data Center or at the Center for Economic Studies (CES) only after approval by the CES and IRS. See <http://www.ces.census.gov/> for details on the application and approval process. The views expressed here are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Russell Sage Foundation, the Kauffman Foundation, the U.S. Census Bureau, or the Board of Governors of the Federal Reserve System. We would like to thank Ken Brevoort, Tim Bates, Ken Couch, Tom Dunn, Kevin Moore, John Wolken, and seminar participants at the Winter 2003 Meetings of the American Economic Association, the Board of Governors of the Federal Reserve System, the University of Maryland, the Urban Institute, Baruch College, Yale University, Dartmouth College and the NBER Workshop on Entrepreneurship for their comments and suggestions. Bill Koch and Garima Vasishtha provided excellent research assistance.

Abstract

Four decades ago, Nathan Glazer and Daniel Patrick Moynihan made the argument that the black family "was not strong enough to create those extended clans that elsewhere were most helpful for businessmen and professionals." Using data from the confidential and restricted access Characteristics of Business Owners Survey, we investigate this hypothesis by examining whether racial differences in family business backgrounds can explain why black-owned businesses lag substantially behind white-owned businesses in sales, profits, employment size and survival probabilities?

Estimates from the CBO indicate that black business owners have a relatively disadvantaged family business background compared with white business owners. Black business owners are much less likely than white business owners to have had a self-employed family member owner prior to starting their business and are less likely to have worked in that family member's business. We do not, however, find sizeable racial differences in inheritances of business. Using a nonlinear decomposition technique, we find that the relatively low probability of having a self-employed family member prior to business startup among blacks does not generally contribute to racial differences in small business outcomes. Instead, the lack of prior work experience in a family business among black business owners, perhaps by limiting their acquisition of general and specific business human capital, negatively affects black business outcomes. We also find that limited opportunities for acquiring specific business human capital through work experience in businesses providing similar goods and services contribute to worse business outcomes among blacks. We compare these estimates to contributions from racial differences in owner's education, startup capital, geographical location and other factors.

1. Introduction

The plight of African-Americans in the labor market is one of the most studied topics by economists, sociologists and other social scientists over the past several decades. Interestingly, however, much less attention has been drawn to the plight of blacks in the main alternative form of making a living -- business ownership. More than 1 out of every 10 working-age adults in the United States owns a business (U.S. Census Bureau 1993). Furthermore, the difference between the rate of business ownership among African-Americans and whites is striking. Approximately 11.6 percent of white workers are self-employed business owners, whereas only 3.8 percent of black workers are self-employed business owners. Several recent studies have examined the causes of the dearth of black-owned businesses and find that relatively low levels of education, assets, and parental self-employment are partly responsible (see Bates 1997, Fairlie 1999, and Hout and Rosen 2000 for a few recent examples). Although these results are informative, they do not shed light on why black-owned firms lag behind white-owned firms. For example, Census estimates indicate that black-owned firms have lower revenues and profits, hire fewer employees, and are more likely to close than white-owned businesses (U.S. Census Bureau 1997).

The relative lack of success of black-owned businesses in the United States is a major concern among policymakers. It is particularly troubling because business ownership has historically been a route of economic advancement for disadvantaged groups. It has been argued, for example, that the economic success of several immigrant groups in the United States, such as the Chinese, Japanese, Jews, Italians, and Greeks, is in part due to their ownership of small businesses (See Loewen 1971, Light 1972, Baron et al. 1975, and Bonacich and Modell 1980). In addition, many states and the federal government are currently promoting self-employment as a way for families to leave the welfare and unemployment insurance rolls.¹ The lack of business success among blacks also contributes to racial tensions in urban areas throughout the United

¹ See Guy, Doolittle, and Fink (1991) and Raheim (1997) for the AFDC program, and U.S. Department of Labor (1992) and Benus et al. (1995) for the UI program.

States. The recent racial conflicts between Koreans and African-Americans in many large cities are in large part due to the presence of successful Korean-owned businesses in black communities (Yoon 1997 and Min 1996). It has also been argued that political influence comes with success in small business (Brown, Hamilton, and Medoff 1990).

Another reason for concern about the lack of business success among African-Americans is that they have made little progress in rates of business ownership even in light of the substantial gains in education, earnings, and civil rights that they have made during the twentieth century. The 3 to 1 ratio of white to black self-employment rates noted above has remained roughly constant over the past 90 years (Fairlie and Meyer 2000). The question of why there was no convergence in racial self-employment rates over the twentieth century is an important one. Early researchers emphasized the role that past inexperience in business played in creating low rates of business ownership among blacks. In particular, Du Bois (1899), and later Myrdal (1944), Cayton and Drake (1946) and Frazier (1957) identify the lack of black traditions in business enterprise as a major cause of low levels of black business ownership at the time of their analyses.

The lack of black traditions in business argument relies on a strong intergenerational link in business ownership. Theoretically, we might expect the link to be strong due to the transmission of general business or managerial experience in family-owned businesses ("general business human capital"), the acquisition of industry- or firm-specific business experience in family-owned businesses ("specific business human capital"), the inheritance of family businesses, and the correlation among family members in preferences for entrepreneurial activities.² Past empirical research supports this conjecture. The probability of self-employment is substantially higher among the children of the self-employed (see Lentz and Laband 1990, Fairlie 1999, Dunn and Holtz-Eakin 2000, and Hout and Rosen 2000). There is also evidence

² Dunn and Holtz-Eakin (2000) consider an additional explanation. Successful business owners may be more likely to transfer financial wealth to their children potentially making it easier for them to become

suggesting that current racial patterns of self-employment are in part determined by racial patterns of self-employment in the previous generation (Fairlie 1999 and Hout and Rosen 2000).

Although these findings indicate that the intergenerational transmission of business ownership is important in creating racial disparities in *rates* of business ownership, little is known about whether it also contributes to racial disparities in business outcomes *conditioning* on ownership. Can these patterns explain why black-owned businesses have worse outcomes than white-owned firms? In particular, do black business owners have limited opportunities for the acquisition of general and specific business human capital from working in family-owned businesses and the receipt of business inheritances, in addition to less education and access to financial capital. And, can these disparities explain why black-owned businesses lag substantially behind white-owned businesses in sales, profits, employment size and survival probabilities?

Previous studies have not examined these issues in detail primarily because only a few nationally representative datasets contain a large enough sample of black firms and information on parental and family self-employment, and to our knowledge, only one nationally representative dataset contains information on business inheritances and previous work experience in businesses owned by family members.³ The Characteristics of Business Owners (CBO) contains detailed information on the characteristics of both the business and the owner, but has been used by only a handful of researchers. The lack of use appears to be primarily due to difficulties in accessing and reporting results from these confidential, restricted-access data. All research using the CBO must be conducted in a Census Research Data Center or at the Center for Economic Studies (CES) after approval by the CES and IRS, and all output must pass strict disclosure regulations.

In this paper, we use data from the CBO to explore the role that intergenerational links in self-employment play in contributing to racial differences in the following small business

self-employed. Their empirical results, however, suggest that it plays only a modest role.

outcomes: closure, profits, employment size, and sales. We build on previous findings using the CBO indicating that previous work experience in a family member's business and previous work experience in a business providing similar goods and services have large positive effects on small business outcomes, whereas having a self-employed family member and business inheritances play only a minor role (Fairlie and Robb 2005). A careful examination of how these measures of family business background differ by race may uncover some answers. The inability of blacks to acquire general and specific business human capital through exposure to businesses owned by family members may contribute to their limited success in business ownership.

2. Data

The 1992 Characteristics of Business Owners (CBO) survey was conducted by the U.S. Bureau of the Census to provide economic, demographic and sociological data on business owners and their business activities (see U.S. Census Bureau 1997, Bates 1990a, Headd 1999, and Robb 2000 for more details on the CBO). There were oversamples of black-, Hispanic-, other minority-, and female-owned businesses. The survey was sent to more than 75,000 firms and 115,000 owners who filed an IRS form 1040 Schedule C (individual proprietorship or self-employed person), 1065 (partnership), or 1120S (subchapter S corporation). Only firms with \$500 or more in sales were included. The universe from which the CBO sample was drawn represents nearly 90 percent of all businesses in the United States (U.S. Census Bureau, 1996).⁴ Response rates for the firm and owners surveys were approximately 60 percent. All estimates reported below use sample weights that adjust for survey non-response (Headd, 1999). We provide more details on the CBO in the Appendix.

The CBO is unique in that it contains detailed information on both the characteristics of business owners and the characteristics of their businesses. For example, owner characteristics

³ The CBO also contains information on prior work experience in a managerial capacity and prior work experience in a business whose goods/services were similar to those provided by the owner's business.

include education, detailed work experience, hours worked in the business and how the business was acquired, and business characteristics include profits, sales, employment and industry. Most business characteristics refer to 1992, with the main exception being closure which is measured over the period 1992 to 1996. Important for this analysis, the CBO contains information on business inheritances, business ownership among family members, and prior work experience in a family member's business and a large oversample of black-owned businesses.

The sample used below includes firms that meet a minimum weeks and hours restriction. Specifically, at least one owner must report working for the business at least 12 weeks in 1992 and at least 10 hours per week. This restriction excludes 22.1 percent of firms in the original sample. The weeks and hours restrictions are imposed to rule out very small-scale business activities such as casual or side-businesses owned by wage/salary workers. We also impose tighter restrictions on weeks and hours worked to check the sensitivity of our main results and comment on these below.

In multi-owner firms, which represent 20.6 percent of the sample, we identify one person as the primary owner of the business. The primary owner is identified as the owner working the most annual hours in 1992 (weeks*hours). In the case of ties, we identify the primary owner as the person who founded the business. Finally, all remaining ties are resolved by assigning a random owner. The primary business owner is used to identify all owner characteristics of the firm, such as marital status, education, prior work experience, and family business background. The race and sex of the firm, however, are identified by majority ownership, which is the method used by SMOBE/SWOBE (U.S. Bureau of the Census, 1996, Robb 2000).

3. Racial Differences in Small Business Outcomes

Black-owned firms have worse outcomes than white-owned firms. Table 1 reports estimates of closure rates between 1992 and 1996, and 1992 profits, employment size, and sales

⁴ These businesses, however, represent a much smaller percent of total employment.

from the CBO. The magnitude of these differences in business outcomes is striking. For example, only 13.9 percent of black-owned firms have annual profits of \$10,000 or more, compared to 30.4 percent of white-owned firms. In fact, the entire distribution of business net profits before taxes for black-owned firms is to the left of the distribution for white-owned firms (with the exception of the largest loss categories).⁵ Surprisingly, nearly 40 percent of all black-owned firms have *negative* profits. Black-owned firms also have lower survival rates than white-owned firms. The average probability of business closure between 1992 and 1996 is 26.9 percent for black-owned firms compared to 22.6 percent for white-owned firms.

Black-owned firms are substantially smaller on average than are white-owned firms. Mean sales or total receipts among black-owned firms were \$59,415 in 1992. Average sales among white-owned firms were nearly 4 times larger. The difference is not simply due to a few very large white firms influencing the mean. Median sales for black firms were one half that of white firms, and the percent of black firms with sales of \$100,000 or more was less than half the percent of white firms. Black-owned firms also hire fewer employees than white-owned firms. On average, they hire only 0.63 employees, whereas white-owned firms hire 1.80 employees. Interestingly, only 11.3 percent of black-owned firms hire *any* employees. In comparison, 21.4 percent of white-owned firms hire at least 1 employee.

Estimates from other data sources paint a similarly bleak picture for the state of black business. Closure rates are high among black-owned firms (Bates 1997, Robb 2000, Boden and Headd 2002, and Robb 2002). Data from the Survey of Small Business Finances show that black owned businesses had lower sales, employment, and profits, as well as higher bankruptcies and credit risk ratings (Bitler, Robb, and Wolken, 2001 and Robb 2005). Using data from the Panel Study of Income Dynamics, Fairlie (1999) finds that the annual exit rate from self-employment for black men is twice the rate for white men.

⁵ The CBO only includes a categorical measure for profits.

4. Racial Differences in Family Business Background

An extensive literature addresses the "breakdown" of the African-American family (Wilson 1987, Tucker and Mitchell-Kernan 1995, Wilson 2002). Blacks are 40.1 percent less likely to be married than are whites, and black women are 78.8 percent more likely to have an out-of-wedlock birth than are white women (U.S. Census Bureau 2001 and National Center for Health Statistics 2002). The result is that 53.3 percent of black children live with only one of their parents compared with 21.5 percent of white children (U.S. Census Bureau 2001). In addition, previous research indicates that the probability of self-employment is substantially higher among the children of the self-employed than among the children of the non-self-employed (see Lentz and Laband 1990, Fairlie 1999, Dunn and Holtz-Eakin 2000, and Hout and Rosen 2000). These studies generally find that an individual who had a self-employed parent is roughly two to three times as likely to be self-employed as someone who did not have a self-employed parent. The high incidence of growing up in a single-parent family and the strong intergenerational link in self-employment may limit business ownership opportunities for blacks.

Concerns about the negative consequences of weak family ties on business opportunities among blacks are not new. In fact, four decades ago Nathan Glazer and Daniel Patrick Moynihan made the argument that the black family "was not strong enough to create those extended clans that elsewhere were most helpful for businessmen and professionals (Glazer and Moynihan 1970, p.33)." More recently, Hout and Rosen (2000) note a "triple disadvantage" faced by black men in terms of business ownership. They are less likely than white men to have self-employed fathers, to become self-employed if their fathers were not self-employed, and to follow their father in self-employment. Furthermore, Fairlie (1999) provides evidence from the PSID that current racial patterns of self-employment are in part determined by racial patterns of self-employment in the previous generation.

We know less, however, about whether blacks and whites differ in work experience in family businesses and their likelihood of receiving business inheritances, and whether these

patterns contribute to why black firms are less successful than white firms. Estimates from the CBO indicate that black and white primary business owners have different family business backgrounds. Table 2 reports the percentage of owners that had a family member who was a business owner and the percentage of owners that worked for that family member.⁶ More than half of all white business owners had a self-employed family member owner prior to starting their business. In contrast, approximately one-third of black business owners had a self-employed family member.

Although family members may include spouses and siblings in addition to parents, these findings are consistent with Hout and Rosen's (2000) finding of a lower probability of self-employment among the children of self-employed parents (the "intergenerational pick up rate with respect to self-employment") for blacks than for whites.⁷ To see this, we express the joint probability of having a self-employed parent

($S_{t-1}=1$) and child (S_t) as:

$$(4.1) \quad P(S_t=1, S_{t-1}=1) = P(S_t=1 | S_{t-1}=1)P(S_{t-1}=1) = P(S_{t-1}=1 | S_t=1)P(S_t=1).$$

Assuming a steady state equilibrium, $S_t=S_{t-1}$ and one-to-one matching of parents to children, the intergenerational pick up rate equals the probability of a business owner having a self-employed parent. We find a black/total ratio of 0.632 for the probability of having a self-employed family member, which is in the range of Hout and Rosen's (2000) estimates.

⁶ The questions ask (1) "Prior to beginning/acquiring this business, had any of your close relatives ever owned a business OR been self-employed? (Close relatives refer to spouses, parents/guardians, brothers, sisters, or immediate family)", and (2) "If "Yes," did you work for any of these relatives?" (U.S. Census Bureau 1997, p. C-4).

⁷ The percent of owners that had a self-employed family member prior to business startup certainly overstates the percent of owners that had a self-employed parent, but the discrepancy may not be that large. The strong positive influence of parental self-employment is common to brothers suggesting that a propensity for business ownership runs in families (Dunn and Holtz-Eakin 2000), and the question on the CBO asks whether the owner had a self-employed family member *prior* to starting his/her business limiting the likelihood that older siblings are referring to younger self-employed siblings. Furthermore, estimates from the 2002 Current Population Survey indicate that the average probability of having a self-employed spouse among all self-employed business owners is only 24 percent. We suspect that a large percentage of affirmative responses to the CBO question on whether the owner had a self-employed family member prior to starting his/her business refer to the owner's parents.

Family businesses may provide important opportunities for acquiring general and specific business human capital (Lentz and Leband 1990, Fairlie and Robb 2005). Estimates from the CBO indicate that conditional on having a self-employed family member, black business owners were also less likely to have worked for that person than were white business owners. Only 37.4 percent of black business owners who had a self-employed family member worked for that person's business, whereas 43.9 percent of white business owners who had a self-employed family member worked for that person's business.⁸ Finally, black business owners overall were much less likely than white business owners to work for a family member's business. The unconditional rate of working for family member's business was 12.6 percent for blacks and 23.3 percent for whites.

Black business owners were slightly less likely to inherit their businesses than were white owners (Table 2). Only 1.4 percent of black owners inherited their firms compared with 1.7 percent of white owners. These rates of inheritance are very low and suggest that racial differences in inheritances cannot explain much of the gaps in small business outcomes. These estimates are consistent with estimates of racial differences in inheritances and gifts from the Federal Reserve's Survey of Small Business Finances (SSBF). Estimates from the SSBF indicate that 4.2 percent of white firms and 4.0 percent of black firms are inherited or acquired as gifts. Unfortunately, the SSBF questionnaire does not distinguish between inheritances and gifts.

Overall, the estimates reported in Table 2 indicate that black business owners have a relatively disadvantaged family business background compared to white business owners. The lack of family business experience may contribute substantially to the relative lack of success of black-owned businesses because of limited opportunities to receive the informal learning or apprenticeship type training that occurs in working in a family business. Family businesses provide an opportunity for family members to acquire general business human capital and in many cases also provide the opportunity for acquiring specific business human capital. The

⁸ These patterns may in part be due to lower employment levels among black-owned firms.

impact of racial differences in these opportunities on racial differences in small business outcomes, however, is an open question. To answer this question we next investigate the determinants of small business outcomes.

5. The Determinants of Small Business Outcomes

To better understand why racial differences in business outcomes exist, we first model the determinants of small business outcomes. Logit and linear regression models are estimated for the probability of a business closure from 1992-1996, the probability that the firm has profits of at least \$10,000 per year, the probability of having employees, and log sales.⁹ Table 3 reports estimates of marginal effects for the logit regressions and coefficients for the OLS regression. We include the race, sex, region and urbanicity of the firm, and the education level, marital status and previous work experience of the owner as controls. We also include the family business background variables listed in Table 2 and two related business experience variables.

After controlling for numerous owner and business characteristics, black-owned businesses continue to lag behind white-owned businesses. In all specifications except the closure probability equation, the coefficient estimate on the black-owned business dummy variable is large, negative and statistically significant. In the closure probability equation, the coefficient estimate is positive, but statistically insignificant. Evidently, our regressors cannot explain all of the differences between blacks and whites in small business outcomes (we discuss these issues further in the next section).

⁹ The profit measure available in the CBO is categorical. We estimate a logit model for the cutoff of \$10,000 to make it easier to interpret the coefficients and perform the decomposition described below. The regression and decomposition results using a cutoff of \$25,000 are similar to those reported below. The other possible cutoff of \$100,000 yielded too few observations in which the dependent variable equals one. We also find similar results in estimating an ordered probit for profits (Fairlie and Robb 2005). We also estimate a logit model for the employment probability because most of the variation in employment among small businesses is between 0 and 1 employee. Roughly 80 percent of firms have no employees and only a small percent have more than 5 employees.

Similar to previous studies, we find that small business outcomes are positively associated with the education level of the business owner.¹⁰ For example, businesses with college-educated owners have a 0.055 lower probability of closure, a 0.113 higher probability of having large profits, a 0.060 higher probability of having employees, and have approximately 25 percent higher sales on average than businesses with owners who did not graduate from high school. The general and specific knowledge and skills acquired through formal education, especially at the college and graduate level, may be useful for running a successful business. The owner's level of education may also serve as a proxy for his or her overall ability or as a positive signal to potential customers, lenders or other businesses. Female-owned businesses are less successful and are smaller on average than are male-owned businesses, which is consistent with previous findings indicating that self-employment is associated with higher earnings for men, but lower earnings for women (see Hundley 2000 for example). Firms located in urban areas are more likely to close and are less likely to have employees, but are more likely to have large profits and have higher sales than firms located in non-urban areas.

Having a family business background is important for small business outcomes.¹¹ The main effect, however, appears to be through the informal learning or apprenticeship type training that occurs in working in a family business and not from simply having a self-employed family member. The coefficient estimates on the dummy variable indicating whether the owner had a family member who owned a business are small and statistically insignificant in all of the specifications except for the closure probability equation. In contrast, working at this family member's business has a large positive and statistically significant effect in all specifications. The probability of a business closure is 0.042 lower, the probability of large profits is 0.032 higher, the probability of employment is 0.055 higher, and sales are roughly 40 percent higher if the

¹⁰ For example, using the 1982 CBO, Bates (1990b) finds that small business failures generally decrease with the education level of the owner.

¹¹ See Fairlie and Robb (2005) for a more detailed discussion of the effects of family business background variables on small business outcomes.

business owner had worked for one of his/her self-employed family members prior to starting the business.¹² The effects on the closure, profit and employment probabilities represent 15.3 to 26.6 percent of the sample mean for the dependent variables.

Perhaps not surprisingly, inherited businesses are more successful and larger than non-inherited businesses. The coefficients are large, positive (negative in the closure equation) and statistically significant in all specifications. Inheritances may represent a form of transferring successful businesses across generations, but their overall importance in determining small business outcomes is slight at best. Although the coefficient estimates are large in the small business outcome equations, the relative absence of inherited businesses (only 1.6 percent of all small businesses) suggests that they play only a minor role in establishing an intergenerational link in self-employment.¹³

The strong effect of previous work experience in a family member's business on small business outcomes suggests that family businesses provide an important opportunity for family members to acquire human capital related to operating a business. The general lack of significance of having a self-employed family member may indicate that correlations across family members in entrepreneurial preferences and ability are less important in creating an intergenerational link in business ownership. There is the possibility, however, that the more able children are the ones that are more likely to work in family businesses.

The CBO also provides detailed information on other forms of acquiring general and specific business human capital. Available questions include information on prior work experience in a managerial capacity and prior work experience in a business whose goods and services were similar to those provided by the owner's business. These variables may have an important effect on small business outcomes. There may also exist important racial differences in

¹² These estimates are not overly sensitive to the exclusion of firms started before 1980 or the inclusion of the age of the firm (with the exception of the inheritance variable). In addition, estimates from the log sales specification are not sensitive to the exclusion of firms with extremely large annual sales.

¹³ As expected, the removal of business inheritances from the specifications does not affect the coefficients

the extent to which these methods of acquiring general and specific business human capital are used, thus leading in turn to racial differences in business outcomes.

The effects on small business outcomes of working for a self-employed family member are generally stronger than the effects of previous work experience in a managerial capacity. Management experience has a similar size effect in the profit and employer probability equations, but has a much smaller effect on log sales and a positive and statistically significant effect on business closures. Management experience prior to starting or acquiring a business generally improves business outcomes, but has a less consistent effect than experience working for a close relative.

The CBO also provides information on whether the owner worked in a business whose goods and services were similar to those provided by his/her business. This more general case of acquiring specific business human capital appears to be very important. In fact, the coefficient estimates on a dummy variable for whether the owner had work experience in a similar business are comparable in size to the coefficient estimates on prior work experience in a family member's business in the closure probability and log sales equations. The coefficient estimate is smaller in the employer probability equation, but larger in the profits equation. In all specifications, the coefficient estimates are large and statistically significant.

The inclusion of prior managerial experience and similar business experience suggests that the large, positive coefficient estimates on working for a self-employed family member are not simply capturing the effects of management experience or specific business human capital on small business outcomes. Instead, prior work experience in a family member's business has an independent effect on small business outcomes, which may in part be due to the acquisition of less specific, general business human capital. In contrast, the independent effects of having a family member who owns a business on small business outcomes are not large. Finally, inherited businesses may be more successful on average than non-inherited businesses, but their limited

on other variables.

representation among the population of small businesses suggests that they are only a minor determinant of small business outcomes.

MISSING DATA

A concern with the estimates reported in Table 3 is the amount of missing data for some of the independent variables in the CBO. Approximately 10 percent of the observations for each of the specifications reported in Table 3 are excluded because of missing values for one or more of the independent variables. Although these levels of missing data are not extremely high, we examine the sensitivity of our results to two alternative methods of correcting for missing data. First, we estimate regressions in which dummy variables are included for missing values of specific independent variables.¹⁴ For example, if the education level of the business owner is missing then the four education level dummy variables would be equal to zero and a special missing education dummy variable would be equal to one. Thus, the missing observation for owner's education would not contribute to the coefficient estimates on the main education level dummies, but would contribute to coefficient estimates on other variables. This technique is becoming increasingly common in the literature because it is easy to implement and allows for an increase in the efficiency of some coefficient estimates. Although not reported, we find estimates that are similar to the ones reported in Table 2 for all four specifications.

We also address the missing data problem by using multiple imputation (see Rubin 1987, Schafer and Olsen 1998, and Schafer 1997, 1999 for more details).¹⁵ The multiple imputation technique essentially replaces each missing value in the data with a set of plausible values resulting in separate datasets that include the true values for nonmissing observations and the imputed variables for missing observations. The Markov Chain Monte Carlo (MCMC) method is

¹⁴ Race, gender, region, and urbanicity are from administrative record data and have no missing values.

¹⁵ The technique has been discussed recently in the Economics literature (Brownstone and Valetta 2001) and has been used to impute income and wealth variables in the Survey of Consumer Finances (Kennickell 1998).

used to impute the missing observations, which is preferred in the case of an arbitrary missing data pattern (Schafer 1997). The means and covariances between the variables for the non-missing observations and the assumption that the variables have a multivariate normal distribution are used to impute missing values. The correlations between all of the variables in the main specification and additional variables measuring financial capital, industry and start year of the firm are used to improve the imputations. We also placed restrictions on minimum and maximum values and rounding. Logit or linear regressions are then run on five separately imputed datasets.¹⁶ The results from the five runs are combined for inference and adjustments are made for sampling variance. The resulting coefficient estimates summarize this information and their standard errors capture the variability of estimates across the five runs, which differs from the typical overstatement of the statistical precision of estimates from single imputation methods. We report the multiple imputation coefficient estimates and their standard errors in Appendix 1. Despite the large increase in sample size, the estimates are similar to those reported in Table 3. Thus, the removal of observations with missing data does not appear to overly affect our results.

ADDITIONAL ESTIMATES

We investigate whether the regression estimates are sensitive to alternative samples. First, we estimate regressions using a sample that excludes firms with less than \$5,000 in startup capital. We do not use this restriction in the original sample because most businesses report requiring very little in startup capital, and, in fact, many large successful businesses started with virtually no capital. For example, estimates from the CBO indicate that among businesses with sales of \$100,000 to \$200,000 per year, approximately 40 percent of firms required less than \$5000 in startup capital (U.S. Census Bureau 1997). We also do not exclude these firms in the original sample because we are concerned that the receipt of startup capital may be related to the

¹⁶ The gains in efficiency are small after increasing the number of imputations above five (Schafer and Olsen 1998).

potential success of the business (we discuss this issue further below). Although mean outcomes among businesses that started with \$5,000 or more in startup capital are better than those for all businesses, we find roughly similar estimates for most variables in the regression models. In particular, we find that having a self-employed family member has little effect on outcomes, whereas prior work experience in a family member's business improves outcomes. One difference in results is that the estimated relationship between owner's education and small business outcomes is now somewhat weaker, possibly due to a strong correlation between education and startup capital. Overall, these estimates indicate that the findings regarding the importance of family business backgrounds in contributing to small business success are not due to the inclusion of smaller, less successful firms that require little or no startup capital.

Although not reported, we also check the sensitivity of our results to the removal of part-time business owners. In particular, we estimate means and a separate set of regressions that only include businesses with at least one owner who works 30 hours or more per week and 36 weeks or more per year. This restriction reduces our sample size by roughly 20 percent. The original coefficient estimates are not overly sensitive to this additional exclusion restriction. In fact, we also estimate regressions that include even tighter hours and weeks worked restrictions and find roughly similar results. Finally, we estimate regressions that exclude partnerships. We find similar results using this sample, which represents 93 percent of the original sample. Overall, the regression results are not sensitive to these alternative sample restrictions.

FINANCIAL STARTUP CAPITAL AND INDUSTRY

Two additional factors that are associated with business success are access to startup capital and the industry of the business. The causal effects of these two variables on business outcomes, however, are difficult to estimate. We first discuss the results for startup capital.

A large and growing literature examines the importance of personal wealth as a potential determinant of self-employment. Numerous studies using various methodologies, measures of

wealth and country microdata explore the relationship between wealth and self-employment. Most studies find that asset levels (e.g. net worth) measured in one year increase the probability of entering self-employment by the following year.¹⁷ The finding has generally been interpreted as providing evidence that entrepreneurs face liquidity constraints, although there is some recent evidence against this interpretation (Hurst and Lusardi 2004). The main concerns with the liquidity constraint interpretation are that business ownership may be an effective method of acquiring wealth and that individuals who are adept at accumulating wealth perhaps through wage/salary work may be the same ones who are the most successful at starting businesses.¹⁸ In both cases, the positive relationship between wealth and business ownership is not caused by the inability of the entrepreneur to obtain financial capital due to liquidity constraints.

Although we do not present new evidence on the debate over whether entrepreneurs face liquidity constraints, we note the possibility that the owner's level of wealth may affect future business success. In particular, if liquidity constraints bind the owner's wealth may affect the scale or success of the entrepreneurial venture because this wealth can be invested directly in the business or used as collateral to obtain business loans. Constant returns to scale production implies that liquidity constrained entrepreneurs might start smaller businesses, and liquidity constraints may create undercapitalized businesses. In both cases, the businesses created by liquidity-constrained entrepreneurs might have worse outcomes than those created in the absence of liquidity constraints.

Unfortunately, the CBO does not contain a measure of the owner's net worth prior to starting the business.¹⁹ Instead, the CBO contains categorical information on "the total amount of

¹⁷ For example, see Evans and Jovanovic (1989), Evans and Leighton (1989), Meyer (1990), Holtz-Eakin, Joulfaian, and Rosen (1994), Lind and Ohlsson (1996), Black, de Meza and Jeffrey (1996), Blanchflower and Oswald (1998), Dunn and Holtz-Eakin (2000) Fairlie (1999, 2002), Earle and Sakova (2000), Johansson (2000), Taylor (2001), Holtz-Eakin and Rosen (2004), and Hurst and Lusardi (2004).

¹⁸ See Bradford (2003) for evidence on wealth accumulation among black and white entrepreneurs.

¹⁹ The CBO does not include any measure of the owner's net worth. Using the 1987 CBO, Astebro and Bernhardt (2005) instead use instrumented household income as a proxy for household wealth and find a positive relationship between this variable and startup capital controlling for other owner and business

capital required to start/acquire the business" (U.S. Census Bureau 1997, p. C-15). Some caution is warranted when exploring the relationship between this measure of startup capital and business outcomes. Related to the aforementioned problems, the amount of required startup capital is potentially endogenous to business success because potentially successful business ventures are likely to generate more startup capital than business ventures that are viewed as being potentially less successful (Bates 1990b). Thus, we cannot determine with certainty that lower levels of startup capital are primarily driven by constraints in obtaining financing. In support of the use of this measure, however, there is evidence suggesting that the size of inheritances received by individuals increases the amount of capital invested in the business (Holtz-Eakin, Joulfaian, and Rosen 1994a). This finding suggests that the receipt of inheritances might relieve liquidity constraints, and thus lower levels of startup capital, at least partly, reflect barriers to access to financial capital.²⁰

The industry of the business is also likely to be associated with the size and success of the business. Some industries have higher business turnover rates than others, most notably retail and services (Robb 2000, Reynolds and White 1997, and Humphreys and McClung 1981). Estimates from the CBO also indicate large industry differences in business outcomes (U.S. Census Bureau 1997). For example, businesses in construction and transportation, communications and utilities have substantially higher closure rates than businesses in manufacturing and finance, insurance and real estate firms. Wholesale trade and manufacturing firms have higher sales than firms in other industries, and personal services industry have the lowest average sales of all industries. Although large differences in business outcomes exist across industries it is difficult to interpret these patterns. A major problem is that the choice of industry and the choice of starting and the

characteristics.

²⁰ Hurst and Lusardi (2004) find, however, that future inheritances also increase the probability of self-employment entry suggesting that liquidity constraints are not the underlying cause of the positive relationship between inheritances and entrepreneurship.

size of a business may be simultaneously determined. Furthermore, industry choice may be correlated with unobserved preferences for the scale of the business and entrepreneurial ability.

In light of these concerns, we estimate a second set of small business outcome regressions that include dummy variables for different levels of startup capital and major industry categories in addition to the independent variables included in the previous equations. Estimates are reported in Table 4. As expected, small business outcomes are positively associated with the amount of required startup capital. The coefficients on the startup capital dummies are large, positive (negative for the closure probability), and statistically significant in all specifications.²¹ Industry is also linked to business success as many of the dummy variables for industries are large in magnitude and statistically significant. The left-out category in the regressions is retail trade. The estimates vary across specifications, however, making it difficult to summarize the association between industries and business outcomes.

It is also important to note that the addition of startup capital and industry does not overly influence the estimated effects of the family business background, human capital and business human capital variables. The coefficient estimates on having a self-employed family member and inheriting the business do not change substantially. The coefficient estimates on previous work experience in a family member's business are generally smaller in absolute value (although statistically significant) in the new specifications. The coefficients on prior work experience in a similar business are also very similar, and the estimated effects of owner's education do not change substantially after including startup capital and industry. The black coefficients, however, decline precipitously in absolute value in all, but one of the specifications. We discuss this issue further in the next section.

6. Identifying the Causes of Racial Differences in Small Business Outcomes

²¹ To address concerns that startup capital may have differential effects over time, we estimate a set of regressions that exclude firms started before 1980 and examine the coefficient estimates on startup capital.

Estimates from the CBO indicate that black business owners have less family business experience than white business owners (Table 2). They also have lower levels of education and startup capital, and differ from white business owners along other lines (Appendix 2). Furthermore, the estimates reported in Tables 3 and 4 indicate that many of these variables are important determinants of small business outcomes. Taken together these results suggest that racial differences in family business background, education, and startup capital contribute to why black-owned businesses have worse outcomes on average than white-owned businesses. The impact of each factor, however, is difficult to summarize. In particular, we wish to identify the separate contributions from racial differences in the distributions of all of the variables or subsets of variables included in the regressions.

To explore these issues further, we employ a variant of the familiar technique of decomposing inter-group differences in a dependent variable into those due to different observable characteristics across groups and those due to different "prices" of characteristics of groups (see Blinder 1973 and Oaxaca 1973). The technique that we describe here takes into account the nonlinearity of the logit regressions used to estimate the closure, profit, and employment probability equations discussed above.²² We use the standard Blinder-Oaxaca decomposition for the log sales specification.

For a linear regression, the standard Blinder-Oaxaca decomposition of the white/minority gap in the average value of the dependent variable, Y , can be expressed as:

$$(5.1) \bar{Y}^W - \bar{Y}^M = \left[(\bar{X}^W - \bar{X}^M) \hat{\beta}^W \right] + \left[\bar{X}^M (\hat{\beta}^W - \hat{\beta}^M) \right]$$

where \bar{X}^j is a row vector of average values of the independent variables and $\hat{\beta}^j$ is a vector of coefficient estimates for race j . For a nonlinear equation, such as $Y = F(X \hat{\beta})$, the decomposition can be written as:

We find similarly strong evidence that startup capital is positively associated with business outcomes.
²² See Fairlie (1999) for more details.

$$(5.2) \bar{Y}^W - \bar{Y}^M = \left[\sum_{i=1}^{N^W} \frac{F(X_i^W \hat{\beta}^W)}{N^W} - \sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^W)}{N^M} \right] + \left[\sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^W)}{N^M} - \sum_{i=1}^{N^M} \frac{F(X_i^M \hat{\beta}^M)}{N^M} \right],$$

where N^j is the sample size for race j . This alternative expression for the decomposition is used because \bar{Y} does not necessarily equal $F(\bar{X} \hat{\beta})$. In both (5.1) and (5.2), the first term in brackets represents the part of the racial gap that is due to group differences in distributions of X , and the second term represents the part due to differences in the group processes determining levels of Y . To calculate the decomposition, define \bar{Y} as the mean business outcome and F as the logistic cumulative distribution function.²³

An equally valid method of calculating the decomposition is to use the minority coefficient estimates, $\hat{\beta}^M$, as weights for the first term and the white distributions of the independent variables, \bar{X}^W , as weights for the second term. This alternative method of calculating the decomposition often provides different estimates, which is the familiar index problem with the Blinder-Oaxaca decomposition technique. A third alternative is to weight the first term of the decomposition expression using coefficient estimates from a pooled sample of the two groups (see Oaxaca and Ransom 1994 for example). We follow this approach to calculate the decompositions. In particular, we use coefficient estimates from a logit regression that includes a sample of all racial groups.

The first term in (5.2) provides an estimate of the contribution of racial differences in the entire set of independent variables to the racial gap. An additional calculation, however, is needed to identify the contribution of racial differences in specific variables to the gap. For

²³ A useful property of the logit regression that includes a constant term, is that the average of the predicted probabilities must equal the proportion of ones in the sample. In contrast, the predicted probability evaluated at the means of the independent variables is not necessarily equal to the proportion of ones, and in the sample used here it is likely to be smaller because the logit function is convex for values less than 0.5.

example, assume that X includes two variables, X_1 and X_2 . The independent contribution of X_1 to the racial gap can then be expressed as:

$$(5.3) \frac{1}{N^M} \sum_{i=1}^{N^M} F(X_{1i}^W \hat{\beta}_1^* + X_{2i}^W \hat{\beta}_2^*) - F(X_{1i}^M \hat{\beta}_1^* + X_{2i}^W \hat{\beta}_2^*),$$

where $\hat{\beta}^*$ is the vector of pooled coefficients. Similarly, the contribution of X_2 can be expressed as:

$$(5.4) \frac{1}{N^M} \sum_{i=1}^{N^M} F(X_{1i}^M \hat{\beta}_1^* + X_{2i}^W \hat{\beta}_2^*) - F(X_{1i}^M \hat{\beta}_1^* + X_{2i}^M \hat{\beta}_2^*).$$

The contribution of each variable to the gap is thus equal to the change in the average predicted probability from replacing the white distribution with the minority distribution of that variable while holding the distribution of the other variable constant.²⁴ The calculation of (5.3) and (5.4), however, is not possible without first matching the white distribution of X_1 and the minority distribution of X_2 . We draw a random subsample of whites with a sample size equal to N_B and randomly match it to the minority sample.

The decomposition estimates obtained from this procedure depend on the randomly chosen subsample of whites. Therefore, to obtain estimates that use the entire white sample, we draw a large number of random white subsamples. We then calculate the mean value of estimates from all of these samples. In the decompositions reported below, we use 1000 random subsamples of whites to calculate these means.

Table 5 reports estimates from this procedure for decomposing the black/white gaps in small business outcomes. The separate contributions from racial differences in each set of independent variables are reported. As noted above, the black/white gaps in small business outcomes are large. Racial differences in the male/female ownership of the firm contribute

²⁴ Unlike in the linear case, the independent contributions of X_1 and X_2 depend on the value of the other variable. This implies that the choice of a variable as X_1 or X_2 (or the order of switching the distributions) is potentially important in calculating its contribution to the racial gap.

significantly to the gaps in small business outcomes. The large contributions are the result of a higher percentage of black-owned firms also being female-owned than white-owned firms, and the less successful and smaller nature of female-owned businesses overall. Lower marriage rates among blacks also contribute to the black/white gaps in small business outcomes.

Although racial disparities in education are smaller for business owners than the general population, low levels of education among black business owners relative to white business owners appear to have a negative effect on business outcomes. Twenty-seven percent of black business owners have a college education compared to 33.2 percent of white business owners (see Appendix 2).²⁵ These educational differences, however, do not translate into large effects as racial differences in the education level of the owner explain from 2.4 to 6.5 percent of the black/white gaps in small business outcomes. Black business owners are less educated on average than are white business owners, but this appears to be only a minor hindrance to starting and running successful businesses.

Although black-owned businesses have a different regional distribution and are more likely to be located in urban areas than are white-owned businesses, racial differences in geographical locations do not appear to contribute substantially to the gaps in small business outcomes. Racial differences in the amount of prior work experience and management experience either have small effects or have mixed effects across specifications.

As reported in Table 2, black business owners are much less likely to have a self-employed family member than are white business owners. This difference, however, is unimportant in explaining racial disparities in profits, employment, and sales. The only exception is that racial differences in having a self-employed family member explain 8.9 percent of the black/white gap in closure rates. The contribution of group differences in parental self-employment to racial differences in small business outcomes appears to be smaller than the

²⁵ For all adults ages 25 and over, 11.9 percent of blacks and 22.1 percent of whites completed 4 years or more of college in 1992 (U.S. Bureau of the Census 1994).

contribution to rates of self-employment and entry into self-employment. Estimates from the PSID indicate that differences in the probability of having a self-employed father explain 8 to 14 percent of the black/white gap in the entry rate into self-employment and 4 to 6 percent of the gap in the self-employment rate (Fairlie 1999).

The explanatory power of racial differences in prior work experience in a family member's business is stronger. With the exception of the profits specification, racial differences in this variable explain 5.6 to 11.6 percent of the black/white gaps in small business outcomes. Apparently, the lack of work experience in family businesses among future black business owners, perhaps by restricting their acquisition of general and specific business human capital, limits the successfulness of their businesses relative to whites.

Providing some additional evidence on this point, racial differences in prior work experience in a business providing similar goods and services consistently explain a small part of the gaps in outcomes. Although the coefficient estimates in the small business outcome regressions were generally similar in magnitude to coefficient estimates on the family business work experience variable, the contributions from racial differences are somewhat smaller. The racial disparity in the percent of owners that worked in a family member's business is larger than the disparity in the percent of owners that worked in a business with similar goods and services (Table 2).

Black-owned businesses are less likely to be inherited than white-owned businesses and inherited businesses are generally more successful than non-inherited businesses, but racial differences in business inheritances explain virtually none of the gaps in small business outcomes. The overall likelihood of business inheritances (1.6 percent) is just too small to play a major role in explaining racial differences in business outcomes.

The finding is interesting in light of the finding in the literature that blacks are less likely to receive inheritances and typically receive much smaller inheritances than whites. In fact, there is recent evidence suggesting that the lack of inheritances among blacks is one of the primary

factors explaining why blacks have asset levels that are substantially lower than white levels (Menchik and Jianakoplos 1997, Gittleman and Wolff 2000, and Avery and Rendall 2002). Furthermore, the receipt of inheritances is a major determinant of starting businesses (Holtz-Eakin, Joulfaian, and Rosen 1994a and Blanchflower and Oswald 1998) suggesting that lower levels of inheritances among blacks contributes to lower rates of business ownership. Focusing on business inheritances and small business outcomes, however, apparently changes the conclusion on the importance of racial differences in inheritances.

GENDER DIFFERENCES

We also investigate whether the decomposition results hold separately for male- and female-owned businesses. Overall, male and female business owners have fairly similar family business backgrounds. Estimating separate business outcome regressions, we also find that human capital, business human capital and family business experiences are similarly related to business success for men and women (see Fairlie and Robb 2005). We find a strong positive relationship between business outcomes and owner's education levels for both men and women. Having a self-employed family member has no effect on business outcomes, but prior work experience in a family business has large effects on business outcomes for both men and women. We also find that prior work experience in a similar business improves outcomes for both genders, whereas prior management experience has inconsistent effects. Apparently, human capital and business human capital are similarly related to business success for men and women.

The next question is whether the explanations for black/white disparities in business outcomes differ between male- and female-owned businesses. Tables 6 and 7 report estimates from separate decompositions for racial differences in business outcomes for men and women, respectively. Estimates reported in these tables from the CBO indicate that black firms have substantially worse outcomes than white firms on average for both men and women. Black male

and female firms are more likely to fail, have lower profits and sales, and are less likely to hire employees than are white male and female firms, respectively.

Estimates from the decompositions indicate roughly similar patterns for the family business background variables. Racial differences in having a self-employed family member explain very little of the gaps in business outcomes, whereas having prior work experience in a family member's business explains part of the gaps. Racial differences in business inheritances explain virtually none of the gap for either men or women.

For additional explanatory factors, we find that racial differences in management experience continue to have inconsistent explanatory power across specifications. Racial differences in prior work experience in similar businesses contributes to the black/white gaps in business outcomes for men, but does not contribute to the gaps for women. Lower levels of education among blacks explain part of the gaps in business outcomes for men, but not for women. Racial differences in marital status explain a much larger portion of the disparities in business outcomes for women than for men. Black female business owners are less likely to be married than are white female business owners, and marital status is associated with better business outcomes. The contribution estimates from racial differences in region and urbanicity are similarly inconsistent across specifications.

Overall, the decompositions indicate some differences in the results for men and women, but the main findings for the family business background variables are similar. Racial differences in prior work experience in family businesses explain part of the gaps in business outcomes, whereas racial differences in having self-employed family members and business inheritances have little explanatory power. We continue to group men and women in the remaining analyses.

STARTUP CAPITAL AND INDUSTRY DIFFERENCES

Table 8 reports the results of decompositions that include contributions from racial differences in startup capital and industry. Again, there is some concern about the exogeneity of

these two measures in determining small business outcomes, and thus the results should be interpreted with caution. Black-owned firms clearly have less startup capital than white-owned firms. For example, 8.1 percent of black-owned businesses required at least \$25,000 in startup capital compared to 15.7 percent of white-owned businesses. These racial differences in startup capital explain a substantial portion of the black/white gaps in small business outcomes. The contribution estimates range from 14.5 to 43.2 percent.²⁶ Clearly, lower levels of startup capital among black-owned firms are associated with less successful businesses.

An important question is whether these lower levels of startup capital are related to difficulties in obtaining funding because of low levels of personal wealth and/or lending discrimination. A large literature documents the alarmingly low levels of personal wealth among blacks in the United States.²⁷ The median level of net worth for black households is \$6,166, compared to \$67,000 for white households (U.S. Census Bureau 2005). These enormous disparities in wealth may translate into differential access to startup capital because personal wealth can be invested directly in the business or used as collateral to obtain business loans. Recent research also indicates that black firms may face lending discrimination which potentially exacerbates the problem (see Blanchflower, Levine and Zimmerman 2003 and Cavalluzzo and Wolken 2002 for example). Blacks may also have less access to family wealth through inheritances, loans and equity investments (Bates 1997). All of these factors may contribute to the substantially lower levels of startup capital among black business owners than among white business owners. In the end, however, we cannot rule out the possibility that racial disparities in startup capital may also be caused by differences in the types, scale or potential successfulness of businesses that black entrepreneurs start.²⁸

²⁶ Fairlie (1999) finds that racial differences in asset levels explain approximately 15 percent of the black/white gap in transition rates into self-employment and from 1.8 to 11.1 percent of the black/white gap in transition rates out of self-employment.

²⁷ See Blau and Graham (1990), Oliver and Shapiro (1995) and Menchik and Jianakoplos (1997) for example.

²⁸ Interestingly, black-owned firms have lower levels of startup capital across all major industries (U.S.

Black and white firms concentrate in different industries (see Appendix 2). Black firms are underrepresented in construction, manufacturing, wholesale trade, agricultural services and finance, insurance and real estate relative to white firms. Black firms are more concentrated in transportation, communications and public utilities, and personal services than white firms. These industries generally have worse business outcomes than the previous industries, but as noted above the regression results provide mixed evidence on which industries are associated with the worst outcomes. The overall contribution of racial differences in industry concentrations, however, is clear -- black-owned businesses appear to be overrepresented in less successful industries relative to white-owned businesses. The decomposition estimates indicate that industry differences explain 7.0 to 20.5 percent of the racial differences in business outcomes.

Businesses owned by blacks and whites may concentrate in different industries for several reasons. First, capital constraints may limit which industries an individual can enter due to higher capital requirements of certain industries (Bates, 1997). In addition, industry choice may be constrained due to a lack of relevant skills and discrimination (Boden, 1996, Boden and Nucci 2002, and Robb, 2000). Discrimination may occur directly in self-employment through limited opportunities to penetrate networks, such as those in construction (Bates 1993, Feagin and Imani 1994, Bates and Howell 1997). Third, differences in industry concentrations may simply be due to differences in preferences. Finally, differences in entrepreneurial ability may lead to different choices of industries. Unfortunately, these potential explanations affect the interpretation of the decomposition results. The main concern is that industry choice may simply be a measure of business success implying that black firms are limited to certain industries because they are less successful and not because the industry concentration of black firms leads to less success.

Census Bureau 1997).

Overall, racial differences in the explanatory variables explain a large percentage of the total black/white gaps in small business outcomes. They explain nearly 50 percent of the racial gap in profits or employment, and nearly 70 percent of the total gap in log sales. The entire black/white gap in business closure rates is explained by racial differences in the explanatory variables. The remaining or "unexplained" portion of the racial gaps in small business outcomes may be due to lending discrimination and consumer discrimination against black-owned firms, the omission of important unmeasurable or difficult-to-measure factors such as risk aversion and networks, or the inability to accurately measure racial differences in *access* to capital.²⁹ We discuss these potential explanations in the next section.

OTHER POTENTIAL EXPLANATIONS

Recent evidence indicates that black-owned businesses experience higher loan denial probabilities and pay higher interest rates than white-owned businesses even after controlling for differences in credit-worthiness, size and other factors (see Blanchflower, Levine and Zimmerman 2003 and Cavalluzzo, Cavalluzzo, and Wolken 2002 for example). Black-owned firms are also more likely to report not applying for loans because of concerns over being denied and that the availability of credit was a major problem. Lending discrimination may result in restricted access to capital for black startups as discussed above, but may also result in less access to financial capital for operations and expansion for existing black firms.

Consumer discrimination against black-owned firms is another potential explanation for remaining differences. Using microdata from the 1980 Census, Borjas and Bronars (1989) find that blacks negatively select into self-employment, with the most able blacks remaining in the wage/salary sector, whereas whites positively select into self-employment and negatively select into wage/salary work. These findings are consistent with white consumers having a distaste for purchasing goods and services from minority businesses. Using recent panel data from the CPS,

²⁹ See Fairlie (2002) for evidence on risk aversion.

Kawaguchi (2004) finds that among African-Americans low earners are the most likely to enter into business ownership, whereas both low and higher earning whites are the most likely to enter self-employment. He notes that this finding is consistent with the theoretical predictions of consumer and credit market discrimination against blacks. In contrast to these results, Meyer (1990) does not find evidence supporting the consumer discrimination hypothesis. Using data from the 1987 Characteristics of Business Owners (CBO), he finds that black businesses are relatively more common in industries in which white customers more frequently patronize black businesses.

Racial differences in networks may also contribute to the lack of success among black businesses. Previous research indicates that the size and composition of social networks is associated with self-employment (Allen 2000) and having close friends and neighbors in business and being a member of a business network are positively associated with outcomes among nascent entrepreneurs (Davidsson and Honig 2003). If black firms have limited access to business, social or family networks or have smaller networks then they may be less likely to enter business and create successful businesses.³⁰ These networks may be especially important in providing financing, customers, technical assistance, role models, and contracts.³¹ These same networks, however, are likely to also be useful for finding employment in the wage/salary sector creating a dampening effect on self-employment.

In an earlier study, Fratoe (1988) finds that black business owners were less likely to have business role models, obtain loans from other family members and use family members as unpaid labor. Social networks may be especially important in industries such as construction in which deals are often made in informal settings (Feagin and Imani 1994). If minorities are blocked from these industries perhaps due to discrimination then their business networks may be restricted (Bates 1993, Feagin and Imani 1994, Bates and Howell 1997). Examining the retail

³⁰ Kalnins and Chung (2005) provide evidence that Gujarati immigrant entrepreneurs in the hotel industry rely on help from social networks to operate their businesses.

industry in New York, Rauch (2001) finds evidence that African-Americans businesses were less able to organize "mutual self-help" than immigrant businesses. A major limitation of this explanation is that they are difficult to analyze empirically. The problem is that success in business for some groups may simply create larger and more efficient business and social networks. Thus, it is difficult to identify the direction of causation between networks and success.

7. Conclusions

An important finding in the rapidly growing literature on self-employment is that the probability of business ownership is substantially higher among the children of business owners than among the children of non-business owners (Lentz and Laband 1990, Fairlie 1999, Dunn and Holtz-Eakin 2000, and Hout and Rosen 2000). Recent evidence also suggests that current racial patterns of self-employment are in part determined by racial patterns of self-employment in the previous generation (Fairlie 1999 and Hout and Rosen 2000). Using data from the confidential and restricted access Characteristics of Business Owners Survey, we expand on these results by exploring whether the intergenerational transmission of business ownership is also important in creating racial disparities in business outcomes *conditioning* on ownership. In particular, we explore whether limited opportunities for the acquisition of general and specific business human capital from working in family-owned businesses and the receipt of business inheritances, in addition to education, financial capital and geographical location, can explain why black-owned businesses lag substantially behind white-owned businesses in sales, profits, employment size and survival probabilities?

Estimates from the CBO indicate that black-owned firms have lower profits and sales, hire fewer employees, and are more likely to close than white-owned businesses. We also find that black business owners have a relatively disadvantaged family business background compared

³¹ See Shane and Cable (2002) for evidence on the impact of network ties on financing of new firms.

to white business owners. Black business owners are much less likely than white business owners to have had a self-employed family member owner prior to starting their business and are less likely to have worked in that family member's business. Only 12.6 percent of black business owners had prior work experience in a family member's business compared to 23.3 percent of white business owners. Racial differences and overall rates of business inheritances were much smaller. The percent of business owners inheriting their firms was 1.4 percent for blacks and 1.7 percent for whites.

Using a nonlinear decomposition technique, we find that the lower probability of having a self-employed family member prior to business startup among blacks than among whites does not generally contribute to racial differences in small business outcomes. Instead, the lack of prior work experience in family businesses among future black business owners, perhaps by restricting their acquisition of general and specific business human capital, limits the successfulness of their businesses relative to whites. With the exception of the profits specification, racial differences in this variable explain 5.6 to 11.6 percent of the gaps in small business outcomes. Providing some additional evidence on the importance of limited opportunities for acquiring business human capital, racial differences in prior work experience in similar businesses also consistently explain part of the gaps in small business outcomes. Furthermore, the combination of these two factors suggests that racial differences in opportunities to acquire business human capital in general contribute substantially to black/white differences in small business outcomes.

Black-owned businesses are less likely to be inherited than white-owned businesses and inherited businesses are generally more successful than non-inherited businesses, but racial differences in business inheritances explain virtually none of the gaps in small business outcomes. The overall likelihood of business inheritances (1.6 percent) is just too small to play a major role in explaining racial differences in business outcomes.

We also examine the contributions of other factors to racial differences in small business outcomes. Lower levels of education among black business owners relative to white business owners explain a modest portion (2.4 to 6.5 percent) of the black/white gaps in small business outcomes. Although black-owned businesses have a different regional distribution and are more likely to be located in urban areas than are white-owned businesses, racial differences in geographical locations do not appear to contribute substantially to the gaps in small business outcomes. Racial differences in the amount of prior work experience and management experience either have small effects or have mixed effects across specifications. Lower levels of startup capital among black-owned firms, however, are associated with less successful businesses. Racial differences in startup capital explain from 14.5 to 43.2 percent of the gaps in small business outcomes. Although the contributions are large, the results should be interpreted with caution because of endogeneity issues.

Our estimates indicate that blacks are less likely than whites to have previous work experience in a family member's business and are less likely to have previous work experience in a similar business. The relative lack of opportunities for acquiring general and specific business human capital apparently has a negative effect on the outcomes of black-owned firms. This finding has important policy implications. Most minority business development policies currently in place, such as set-asides and loan assistance programs, are targeted towards alleviating financial constraints not towards providing opportunities for work experience in small businesses. To break the "vicious" cycle of low rates of business ownership and negative business outcomes being passed from one generation of blacks to the next, programs that directly address deficiencies in family business experience, possibly through an expansion of apprenticeship-type entrepreneurial training programs, may be needed.

References

- Allen, W. David. 2000. "Social Networks and Self-Employment," Journal of Socio-Economics, 29: 487-501.
- Avery, RB and M.S. Rendall. 2002. "Lifetime Inheritances of Three Generations of Whites and Blacks," American Journal of Sociology, 107 (5): 1300-1346.
- Astebro T. and I Bernhardt. 2005. "The Winners Curse of Human Capital," Small Business Economics, forthcoming.
- Baron, Salo W., et al. 1975. Economic History of the Jews, New York: Schocken.
- Bates, Timothy. 1990a. "The Characteristics of Business Owners Data Base," Journal of Human Resources 25(4): 752-56.
- Bates, Timothy. 1990b. "Entrepreneur Human Capital Inputs and Small Business Longevity," Review of Economics and Statistics 72 (4): 551-59.
- Bates, Timothy. 1993. *Banking on Black Enterprise*. Washington, D.C.: Joint Center for Political and Economic Studies.
- Bates, Timothy. 1997. Race, Self-Employment & Upward Mobility: An Illusive American Dream, Washington, D.C.: Woodrow Wilson Center Press and Baltimore: John Hopkins University Press.
- Bates, Timothy, and David Howell. 1997. "The Declining Status of African American Men in the New York City Construction Industry. In *Race, Markets, and Social Outcomes*, edited by Patrick Mason and Rhonda Williams. Boston: Kluwer.
- Benus, J. M., Johnson, T. R, Wood, M., Grover, N., & Shen, T. 1995. Self-employment programs: A new reemployment strategy: Final report on the UI Self-Employment Demonstration (Unemployment Insurance Occasional Paper 95-4). Washington, DC: U.S. Department of Labor, Employment and Training Administration, Unemployment Insurance Service.
- Bitler, Marianne, Alicia Robb, and John Wolken, 2001. "Financial Services Used by Small Businesses: Evidence from the 1998 Survey of Small Business Finances" Federal Reserve Bulletin, Vol. 87, April 2001.
- Black, Jane, David de Meza, and David Jeffrey. 1996. "House Prices, The Supply of Collateral and the Enterprise Economy." The Economic Journal. 106 (434):60-75
- Blanchflower, David G., and Andrew J. Oswald. 1998. "What Makes an Entrepreneur?" Journal of Labor Economics, 16 (1), pp. 26-60.
- Blanchflower, David G., P. Levine and D. Zimmerman. 2003. "Discrimination in the small business credit market", Review of Economics and Statistics, November, 85(4), pp. 930-943.
- Blau, Francine, and David Graham. 1990. "Black-White Differences in Wealth and Asset Composition," Quarterly Journal of Economics, pp. 321-339.

Blinder, Alan S. 1973. "Wage Discrimination: Reduced Form and Structural Variables." Journal of Human Resources 8: 436-455.

Boden, R. (1996), "Gender and Self-Employment Selection: An Empirical Assessment," Journal of Socio-Economics, 25(6), pp. 671-682.

Boden, Rick and Brian Headd. 2002. "Race and Gender Differences in Business Ownership and Business Turnover." Business Economics, October.

Boden R. and A. Nucci. 2002. "On the Survival Prospects of Men's and Women's New Business Ventures," Journal of Business Venturing.

Bonacich, Edna and John Modell. 1980. The Economic Basis of Ethnic Solidarity in the Japanese American Community. Berkeley: University of California Press.

Borjas, George, and Stephen Bronars. 1989. "Consumer Discrimination and Self-Employment," Journal of Political Economy, 97, pp. 581-605.

Bradford, William D. 2003. "The Wealth Dynamics of Entrepreneurship for Black and White Families in the U.S.," Review of Income and Wealth, 49(1): 89-116.

Brown, Charles, James Hamilton, and James Medoff. 1990. Employers Large and Small, Cambridge: Harvard University Press.

Brownstone, David, and Robert Valletta. 2001. "The Bootstrap and Multiple Imputations: Harnessing Increased Computing Power for Improved Statistical Tests," Journal of Economic Perspectives, 15 (4): 129-141.

Cavalluzzo, Ken, Linda Cavalluzzo, and John Wolken. 2002. "Competition, Small Business Financing, and Discrimination: Evidence from a New Survey," Journal of Business, Vol. 25 no. 4.

Cavalluzzo, Ken and John Wolken. 2002. "Small Business Loan Turndowns, Personal Wealth and Discrimination." Finance and Economics Discussion Series 2002-35, Board of Governors of the Federal Reserve System, August 2002.

Cayton, Horace R. and St. Clair Drake. 1946. Black Metropolis. London: Jonathan Cape.

Christopher, Jan E. 1998. "Minority Business Formation and Survival: Evidence on Business Performance and Viability," The Review of Black Political Economy. 26 (3), Summer: 37-72.

Christopher, Jan. 1993. Empirical Analyses of the Factors Influencing Business Performance. Ph.D. Dissertation, Howard University.

Davidsson, Per and Honig, Benson, 2003. "The role of social and human capital among nascent entrepreneurs," Journal of Business Venturing, Elsevier, vol. 18(3), pages 301-331.

Du Bois, W.E.B. 1899. The Philadelphia Negro, Philadelphia: University of Pennsylvania.

- Dunn, Thomas A. and Douglas J. Holtz-Eakin. 2000. "Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links," Journal of Labor Economics 18 (2): 282-305.
- Earle, John S., and Zuzana Sakova. 2000. "Business start-ups or disguised unemployment? Evidence on the character of self-employment from transition economies," Labour Economics, 7:(5): 575-601.
- Evans, David and Boyan Jovanovic. 1989. "An Estimated Model of Entrepreneurial Choice Under Liquidity Constraints." Journal of Political Economy 97(4):808-27.
- Evans, David, and Linda Leighton. 1989. "Some Empirical Aspects of Entrepreneurship," American Economic Review, 79, pp. 519-535.
- Fairlie, Robert W. 1999. "The Absence of the African-American Owned Business: An Analysis of the Dynamics of Self-Employment." Journal of Labor Economics, 17(1): 80-108.
- Fairlie, Robert W. 2002. "Drug Dealing and Legitimate Self-Employment," Journal of Labor Economics 20 (3): 538-567.
- Fairlie, Robert W., and Bruce D. Meyer. 2000. "Trends in Self-Employment among Black and White Men: 1910-1990." Journal of Human Resources, 35(4): 643-669.
- Fairlie, Robert W., and Alicia Robb. 2005. "Families, Human Capital, and Small Businesses: Evidence from the Characteristics of Business Owners Survey," Economic Growth Center, Yale University, Center Discussion Paper No. 871.
- Feagin, Joe R., and Nikitah Imani. 1994. "Racial barriers to African American entrepreneurship: an exploratory study," Social Problems, November, 41(4): 562-585.
- Fratoe, F. (1988). "Social Capital of Black Business Owners," The Review of Black Political Economy, Spring, 33-50.
- Frazier, E. Franklin (1957): The Negro in the United States, 2nd Edition, New York: McMillan.
- Gittleman, Maury, and Edward N. Wolff. 2000. "Racial Wealth Disparities: Is the Gap Closing?" Working Paper.
- Glazer, Nathan and Daniel P. Moynihan. 1970. Beyond the Melting Pot: the Negroes, Puerto Ricans, Jews, Italians, and Irish of New York City, 2nd Edition. Cambridge: MIT Press.
- Guy, Cynthia, Fred Doolittle, and Barbara Fink. 1991. Self-Employment for Welfare Recipients: Implementation of the SEID Program. New York: Manpower Demonstration Research Corporation.
- Headd, Brian. 2002. "Redefining Business Success: Distinguishing Between Closure and Failure," Small Business Economics, forthcoming.
- Headd, Brian. 1999. "The Characteristics of Business Owners Database, 1992." U.S. Census Bureau, Center for Economic Studies, Working Paper Series, CES-WP-99-8.

Holtz-Eakin, Douglas, Joulfaian, David, and Rosen, Harvey. 1994a. "Entrepreneurial Decisions and Liquidity Constraints." Rand Journal of Economics 23: 334-347.

Holtz-Eakin, Douglas, David Joulfaian, and Harvey Rosen. 1994b. "Sticking It Out: Entrepreneurial Survival and Liquidity Constraints," Journal of Political Economy, pp. 53-75.

Holtz-Eakin, Douglas, and Harvey Rosen. 2004. "Cash Constraints and Business Start-Ups: Deutschmarks Versus Dollars," Syracuse University Working Paper.

Hout, Michael and Harvey S. Rosen. 2000. "Self-Employment, Family Background, and Race," Journal of Human Resources, 35 (4): 670-692.

Humphreys, M.A. and McClung J. 1981. "Women Entrepreneurs in Oklahoma," Review of Regional Economics and Business, 6 (2), 13-20.

Hundley, Greg. 2000. "Male/Female Earnings Differences in Self-Employment: The Effects of Marriage, Children, and the Household Division of Labor." Industrial and Labor Relations Review. 54(1):95-104.

Hurst, Erik, and Annamaria Lusardi (2004): "Liquidity Constraints, Household Wealth, and Entrepreneurship," Journal of Political Economy, 112(2): 319-347.

Johansson, Edvard. 2000. "Self-employment and Liquidity Constraints: Evidence from Finland." Scandinavian Journal of Economics, 102 (1):123-134.

Kalnins, Arturs, and Wilbur Chung. 2005. Social Capital, Geography, and Survival: Gujarati Immigrant Entrepreneurs in the U.S. Lodging Industry," Management Science, (forthcoming).

Kawaguchi, Daiji. 2004. "Positive, Non-Earnings Aspects of Self-Employment: Evidence from Job Satisfaction Scores." University of Tsukuba Institute of Policy and Planning Sciences Working Paper.

Kennickell, Arthur B. 1998. "Multiple Imputation in the Survey of Consumer Finances," Paper Prepared for the August 1998 Joint Statistical Meetings.

Kijakazi, K. 1997. *African-American Economics Development and Small Business Ownership*. New York and London: Garland Press.

Lentz, Bernard, and David Laband. 1990. "Entrepreneurial Success and Occupational Inheritance among Proprietors," Canadian Journal of Economics, 23, No. 3, pp. 563-579.

Light, Ivan. 1972. Ethnic Enterprise in America. Berkeley: University of California Press.

Lindh T., and H. Ohlsson. 1996. 'Self-employment and windfall gains: evidence from the Swedish lottery', Economic Journal, 106: (439), November, pp.1515-1526.

Loewen, James W. 1971. The Mississippi Chinese: Between Black and White. Cambridge: Harvard University Press.

Meyer, Bruce. 1990. "Why Are There So Few Black Entrepreneurs?" National Bureau of Economic Research, Working Paper No. 3537.

Min, Pyong Gap. 1996. Caught in the Middle: Korean Merchants in America's Multiethnic Cities. Berkeley: University of California Press.

Menchik, Paul L. and Nancy A. Jianakoplos. 1997. "Black-White Wealth Inequality: Is Inheritance the Reason?," Economic Inquiry, 35(2), p. 428-442.

Myrdal, Gunnar. 1944. An American Dilemma, New York: Harper and Brothers.

National Center for Health Statistics. 2002. "Births: Final Data for 2001," National Vital Statistics Reports, Volume 51, Number 2. Washington, D.C.: Centers for Disease Control and Prevention.

Oaxaca, Ronald. 1973. "Male-Female Wage Differentials in Urban Labor Markets," International Economic Review, 14 (October), 693-709.

Oaxaca, Ronald, and Michael Ransom. 1994. "On Discrimination and the Decomposition of Wage Differentials," Journal of Econometrics, 61, 5-21.

Oliver, Melvin L. and Thomas M. Shapiro. 1995. Black Wealth/White Wealth: A New Perspective on Racial Inequality, New York: Routledge.

Raheim, Salome (1997): "Problems and prospects of self-employment as an economic independence option for welfare recipients," Social Work, 42, 1, pp. 44-53.

Rauch, James E. 2001. "Black Ties Only? Ethnic Business Networks, Intermediaries, and African-American Retail Entrepreneurship," in James E. Rauch and Alessandra Casella, eds., Networks and Markets, New York: Russell Sage Foundation.

Reynolds, P. and S. White. 1997. The Entrepreneurial Process: Economic Growth, Men, Women, and Minorities. Quorum Books, Westport.

Robb, Alicia M. 2005. "Fear in Financing: the Borrowing Experiences of Black-Owned Small Businesses," Working Paper.

Robb, Alicia. 2002. "Entrepreneurship: A Path for Economic Advancement for Women and Minorities?," Journal of Developmental Entrepreneurship, Volume 7, No. 4.

Robb, Alicia. 2000. "The Role of Race, Gender, and Discrimination in Business Survival", Doctoral Dissertation, University of Michigan Press.

Rubin, Donald B. 1987. Multiple Imputation for Nonresponse in Surveys, New York: John Wiley.

Schafer, Joseph L. 1997. Analysis of Incomplete Multivariate Data. London: Chapman and Hall.

Schafer, Joseph L. 1999. "Multiple Imputation: a Primer," Statistical Methods in Medical Research, 8: 3-15.

Schafer, Joseph L., and Maren K. Olsen. 1998. "Multiple Imputation for Multivariate Missing-Data Problems: A Data Analyst's Perspective," Multivariate Behavioral Research, 33 (4): 545-571.

- Shane, Scott, and Daniel Cable. 2002. "Network Ties, Reputation, and the Financing of New Ventures." *Management Science* 48, no. 3: 364-81.
- Taylor, Mark. 2001. "Self-Employment and Windfall Gains in Britain: Evidence from Panel Data." *Economica*. 63, pp. 539-565.
- Tucker, M. Belinda, and Claudia Mitchell-Kernan. 1995. The Decline in Marriage Among African-Americans: Causes, Consequences, and Policy Implications. New York: Russell Sage Foundation.
- U.S. Census Bureau. 1993. 1990 Census of the Population, Social and Economic Characteristics, United States, Washington D.C.: Government Printing Office.
- U.S. Census Bureau. 1994. "Educational Attainment in the United States: March 1993 and 1992," Current Population Reports, Population Characteristics, P20-476.
- U.S. Census Bureau. 1996. 1992 Survey of Minority Owned Business Enterprises, Black. Washington, D.C.: Government Printing Office.
- U.S. Census Bureau. 1997. 1992 Economic Census: Characteristics of Business Owners. Washington, D.C.: U.S. Government Printing Office.
- U.S. Census Bureau. 2001. "America's Families and Living Arrangements: March 2000," Current Population Reports, P20-537. U.S. Census Bureau: Washington, D.C.
- U.S. Census Bureau. 2005. Asset Ownership of Households: 2000, http://www.census.gov/hhes/www/wealth/1998_2000/wlth00-1.html
- U.S. Department of Labor. 1992. Self-Employment Programs for Unemployed Workers. Unemployment Insurance Occasional Paper 92-2. Washington: USGPO.
- Wilson, William J. 1987. The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy. Chicago: University of Chicago Press.
- Wilson, James Q. 2002. The Marriage Problem: How Our Culture Has Weakened Families, New York: HarperCollins.
- Yoon, In-Jin. 1997. On My Own: Korean Businesses and Race Relations in America, Chicago: University of Chicago Press.

Data Appendix

The Characteristics of Business Owners (CBO)

The 1992 Characteristics of Business Owners (CBO) Survey is the third survey of its kind conducted by the Bureau of the Census. The first two surveys were conducted for 1982 and 1987. Minorities and women were oversampled to allow researchers to more reliably study these businesses and business owners. The sample for the CBO is a sub-sample of the Survey of Minority-Owned Business Enterprises (SMOBE) and drawn from the businesses that responded to the SMOBE. The SMOBE had a 77 percent response rate.

The 1992 CBO survey was conducted by the U.S. Census Bureau to provide economic, demographic and sociological data on business owners and their business activities (see U.S. Census Bureau 1997, Bates 1990a, Headd 1999, and Robb 2000 for more details on the CBO). The survey was sent to more than 75,000 firms and 115,000 owners who filed an IRS form 1040 Schedule C (individual proprietorship or self-employed person), 1065 (partnership), or 1120S (subchapter S corporation). Larger C corporations were not included because of the difficulty in asking owner questions for many investors. C corporations as a tax filing status, however, are becoming less popular relative to S corporations due to changes in tax laws (Headd 1999).

The CBO and underlying SMOBE contain only firms with \$500 or more in annual sales. The universe from which the CBO sample was drawn represents nearly 90 percent of all businesses in the United States (U.S. Census Bureau, 1996). Response rates for the firm and owners surveys were approximately 60 percent. All estimates reported below use sample weights that adjust for survey non-response (Headd 1999).

The CBO is unique in that it contains detailed information on both the characteristics of business owners and the characteristics of their businesses. For example, owner characteristics include education, detailed work experience, hours worked in the business, marital status, age, weeks and hours worked, personal income, and how the business was acquired. Business characteristics include closure, profits, sales, employment, industry, startup capital, types of customers, health plans, and exports. Most business characteristics refer to 1992, with the main exception being closure which is measured over the period 1992 to 1996. Additional advantages of the CBO over other nationally representative datasets for this analysis are the availability of measures of business ownership among family members and the large oversample of black-owned businesses. In particular, the CBO contains rare or unique information on business inheritances, business ownership among family members, prior work experience in a family member's business, and prior work experience in a business whose goods/services were similar to those provided by the owner's business. The CBO allows us to conduct a detailed analysis of the determinants of racial patterns in several business outcomes, such as closure rates, sales, profits, and employment size. In particular, the CBO allows us to identify the owner and business characteristics that are associated with business success.

The main disadvantage is that the CBO does not contain information on a comparison group of wage/salary workers. Therefore it is difficult to examine the determinants of business ownership rates using these data. Another disadvantage is that there may be nonresponse bias and recall bias associated with conducting the survey in 1996. Although sample weights are used that correct for non-response, there is some concern that closure rates are underestimated for the period from 1992 to 1996 in the CBO. Businesses that closed or moved over this period may have been less likely to respond to the survey which was sent out at the end of the period. Indeed, Robb (2000) showed, through matching the CBO to administrative records for employer firms using the Business Information Tracking Series (BITS), that nonrespondents had a higher rate of closure than respondents (14 percentage points). Racial differences in closure rates, however, were similar for respondents and nonrespondents.

Given the detailed information on both owner and business characteristics, the oversamples of minority-owned businesses, and availability since 1982, it is surprising that the

CBO microdata have only been used by a handful of researchers to study minority businesses (see Bates 1997 and many other studies; Christopher, 1993, 1998; Kijakazi, 1997, and Robb 2000, 2002). The lack of use appears to be primarily due to difficulties in accessing and reporting results from these confidential, restricted-access data. All research using the CBO must be conducted in a Census Research Data Center or at the Center for Economic Studies (CES) after approval by the CES and IRS, and all output must pass strict disclosure regulations.

Table 1
 Small Business Outcomes by Race
 Characteristics of Business Owners, 1992

	All Firms	White-Owned Firms	Black-Owned Firms
Percent of firms in 1992 no longer operating in 1996 (Closure)	22.5%	22.6%	26.9%
Percent of firms with a net profit of at least \$10,000	30.1%	30.4%	13.9%
Percent of firms with a positive net profit	74.5%	75.1%	60.7%
Percent of firms with 1 or more paid employees	21.3%	21.4%	11.3%
Mean number of employees	1.77	1.80	0.63
Mean sales	\$212,791	\$219,190	\$59,415
Mean log sales	10.10	10.10	9.43
Sample size	38,020	15,872	7,565

Notes: (1) The sample includes businesses that are classified by the IRS as individual proprietorships or self-employed persons, partnerships and subchapter S corporations, have sales of \$500 or more, and have at least one owner who worked at least 12 weeks and 10 hours per week in the business. (2) All estimates are calculated using sample weights provided by the CBO.

Table 2
 Family Business Background by Race
 Characteristics of Business Owners, 1992

	All Firms	White-Owned Firms	Black-Owned Firms
Percent of owners that had a self-employed family member prior to starting firm	51.6%	53.1%	33.6%
Percent of owners that previously worked in that family member's business (conditional)	43.6%	43.9%	37.4%
Percent of owners that previously worked in a family member's business (unconditional)	22.5%	23.3%	12.6%
Percent of owners that inherited their businesses	1.6%	1.7%	1.4%
Percent of owners that previously worked in a business with similar goods/services	50.1%	50.4%	43.1%
Percent of owners that have previous work experience in a managerial capacity	55.2%	55.6%	47.1%
Sample size	38,020	15,872	7,565

Notes: (1) The sample includes businesses that are classified by the IRS as individual proprietorships or self-employed persons, partnerships and subchapter S corporations, have sales of \$500 or more, and have at least one owner who worked at least 12 weeks and 10 hours per week in the business. (2) All estimates are calculated using sample weights provided by the CBO.

Table 3
Logit and Linear Regressions for Small Business Outcomes
Characteristics of Business Owners, 1992
Specification

	(1)	(2)	(3)	(4)
Dependent variable	Closure (1992-96)	Profits \$10,000+	Employer Firm	Ln Sales
Black-owned business	0.0212 (0.0130)	-0.1786 (0.0207)	-0.0951 (0.0166)	-0.4636 (0.0554)
Latino-owned business	-0.0138 (0.0121)	-0.0443 (0.0144)	0.0231 (0.0116)	0.0660 (0.0490)
Native American-owned business	-0.1176 (0.0554)	0.0422 (0.0530)	0.0717 (0.0415)	0.3991 (0.1879)
Asian-owned business	-0.0457 (0.0145)	0.0259 (0.0145)	0.0728 (0.0115)	0.4709 (0.0539)
Female-owned business	0.0247 (0.0050)	-0.2107 (0.0066)	-0.0616 (0.0051)	-0.6941 (0.0206)
High school graduate	-0.0209 (0.0085)	0.0624 (0.0112)	0.0447 (0.0092)	0.1534 (0.0351)
Some college	-0.0101 (0.0084)	0.0724 (0.0111)	0.0471 (0.0091)	0.0570 (0.0351)
College graduate	-0.0553 (0.0093)	0.1133 (0.0118)	0.0606 (0.0097)	0.2397 (0.0383)
Graduate school	-0.1491 (0.0107)	0.2127 (0.0122)	0.1650 (0.0097)	0.6115 (0.0404)
Urban	0.0164 (0.0058)	0.0447 (0.0069)	-0.0343 (0.0055)	0.1008 (0.0234)
Prior work experience in a managerial capacity	0.0655 (0.0054)	0.0265 (0.0063)	0.0513 (0.0052)	0.2089 (0.0217)
Prior work experience in a similar business	-0.0425 (0.0049)	0.1024 (0.0059)	0.0432 (0.0048)	0.4087 (0.0202)
Have a self-employed family member	-0.0200 (0.0055)	0.0113 (0.0067)	-0.0022 (0.0055)	-0.0356 (0.0227)
Prior work experience in a family member's business	-0.0419 (0.0069)	0.0322 (0.0079)	0.0552 (0.0063)	0.3784 (0.0273)
Inherited business	-0.1007 (0.0237)	0.1097 (0.0217)	0.2006 (0.0157)	1.3144 (0.0800)
Mean of dependent variable	0.2280	0.2980	0.2070	10.0725
Sample size	33,485	30,500	34,179	34,179

Notes: (1) The sample includes businesses that are classified by the IRS as individual proprietorships or self-employed persons, partnerships and subchapter S corporations, have sales of \$500 or more, and have at least one owner who worked at least 12 weeks and 10 hours per week in the business. (2) Logit models are used for Specifications 1-3 and OLS is used for Specification 4. (3) Marginal effects and their standard errors (in parenthesis) are reported. (4) All specifications also include a constant, and dummy variables for marital status of primary owner, region, and work experience of the primary owner.

Table 4
Logit and Linear Regressions for Small Business Outcomes
Characteristics of Business Owners, 1992

Dependent variable	Specification			
	(1)	(2)	(3)	(4)
	Closure (1992-96)	Profits \$10,000+	Employer Firm	Ln Sales
Black-owned business	0.0077 (0.0133)	-0.1684 (0.0213)	-0.0703 (0.0176)	-0.3215 (0.0506)
Latino-owned business	-0.0143 (0.0123)	-0.0444 (0.0149)	0.0277 (0.0126)	0.0735 (0.0447)
Native American-owned business	-0.1270 (0.0564)	0.0322 (0.0548)	0.0696 (0.0454)	0.3468 (0.1706)
Asian-owned business	-0.0091 (0.0149)	-0.0176 (0.0150)	-0.0164 (0.0128)	0.0216 (0.0495)
Female-owned business	0.0150 (0.0053)	-0.1943 (0.0069)	-0.0498 (0.0057)	-0.5708 (0.0193)
High school graduate	-0.0065 (0.0087)	0.0428 (0.0116)	0.0251 (0.0099)	0.0324 (0.0325)
Some college	0.0095 (0.0086)	0.0637 (0.0115)	0.0398 (0.0098)	0.0011 (0.0322)
College graduate	-0.0433 (0.0096)	0.0855 (0.0123)	0.0470 (0.0106)	0.1441 (0.0355)
Graduate school	-0.1617 (0.0117)	0.1573 (0.0137)	0.1674 (0.0115)	0.5567 (0.0397)
Urban	0.0079 (0.0059)	0.0610 (0.0071)	-0.0144 (0.0059)	0.1831 (0.0214)
Prior work experience in a managerial capacity	0.0826 (0.0056)	0.0075 (0.0066)	0.0212 (0.0057)	0.0401 (0.0200)
Prior work experience in a similar business	-0.0505 (0.0052)	0.0962 (0.0061)	0.0426 (0.0053)	0.4081 (0.0187)
Have a self-employed family member	-0.0181 (0.0057)	0.0004 (0.0069)	-0.0057 (0.0060)	-0.0651 (0.0207)
Prior work experience in a family member's business	-0.0323 (0.0071)	0.0210 (0.0081)	0.0344 (0.0069)	0.2300 (0.0250)
Inherited business	-0.0761 (0.0246)	0.1351 (0.0238)	0.2267 (0.0182)	1.3143 (0.0764)

(continued)

Table 4 (continued)
 Logit and Linear Regressions for Small Business Outcomes
 Characteristics of Business Owners, 1992

Explanatory Variables	Specification			
	(1)	(2)	(3)	(4)
Startup capital:	-0.0871	0.1505	0.1487	0.7156
\$5,000-\$24,999	(0.0061)	(0.0068)	(0.0059)	(0.0214)
Startup capital:	-0.1308	0.2312	0.3077	1.4676
\$25,000-\$99,999	(0.0090)	(0.0088)	(0.0070)	(0.0291)
Startup capital:	-0.2295	0.1791	0.3735	2.1520
\$100,000 or more	(0.0166)	(0.0125)	(0.0099)	(0.0422)
Agricultural services	0.0112	-0.0111	-0.1586	-0.9204
	(0.0164)	(0.0184)	(0.0167)	(0.0574)
Mining and construction	0.0438	0.0528	-0.0353	-0.2546
	(0.0096)	(0.0111)	(0.0090)	(0.0350)
Manufacturing	-0.0625	0.0358	0.0035	-0.1055
	(0.0171)	(0.0166)	(0.0129)	(0.0532)
Wholesale	0.0057	0.1305	-0.0006	0.6082
	(0.0148)	(0.0153)	(0.0127)	(0.0518)
FIRE	-0.0609	0.0771	-0.1856	-0.4926
	(0.0109)	(0.0122)	(0.0109)	(0.0367)
Trans., communications, and public utilities	0.0600	0.1205	-0.1523	-0.3300
	(0.0130)	(0.0147)	(0.0139)	(0.0486)
Personal services	0.0195	-0.0488	-0.1161	-0.7430
	(0.0079)	(0.0096)	(0.0077)	(0.0286)
Professional services	0.0973	0.0650	-0.1191	-0.7021
	(0.0089)	(0.0110)	(0.0092)	(0.0328)
Uncoded industry	0.0198	-0.1020	-0.5054	-0.9842
	(0.0132)	(0.0183)	(0.0334)	(0.0490)
Mean of dependent variable	0.2280	0.2975	0.2066	10.0668
Sample size	33,116	30,271	33,701	33,701

Notes: (1) The sample includes businesses that are classified by the IRS as individual proprietorships or self-employed persons, partnerships and subchapter S corporations, have sales of \$500 or more, and have at least one owner who worked at least 12 weeks and 10 hours per week in the business. (2) Logit models are used for Specifications 1-3 and OLS is used for Specification 4. (3) Marginal effects and their standard errors (in parenthesis) are reported. (4) All specifications also include a constant, and dummy variables for marital status of primary owner, region, and work experience of the primary owner.

Table 5
Decompositions of Black/White Gaps in Small Business Outcomes
Characteristics of Business Owners, 1992

	Specification			
	(1)	(2)	(3)	(4)
Dependent variable	Closure	Profits	Employer	Ln Sales
Black mean	0.2696	0.1410	0.1121	9.4241
White mean	0.2282	0.3004	0.2067	10.0680
Black/white gap	-0.0414	0.1594	0.0946	0.6439
Contributions from racial differences in:				
Sex	-0.0032 7.7%	0.0253 15.9%	0.0083 8.8%	0.0689 10.7%
Marital status	-0.0037 8.9%	0.0044 2.8%	0.0042 4.4%	0.0166 2.6%
Education	-0.0027 6.5%	0.0056 3.5%	0.0023 2.4%	0.0156 2.4%
Region	-0.0033 8.0%	0.0032 2.0%	-0.0050 -5.3%	0.0139 2.2%
Urban	-0.0026 6.3%	-0.0060 -3.8%	0.0051 5.4%	-0.0154 -2.4%
Prior work experience	0.0011 -2.7%	-0.0017 -1.1%	-0.0008 -0.8%	-0.0011 -0.2%
Prior work experience in a managerial capacity	0.0061 -14.7%	0.0016 1.0%	0.0042 4.4%	0.0178 2.8%
Prior work experience in a similar business	-0.0025 6.0%	0.0036 2.3%	0.0017 1.8%	0.0277 4.3%
Have a self-employed family member	-0.0037 8.9%	0.0017 1.1%	-0.0004 -0.4%	-0.0070 -1.1%
Prior work experience in a family member's business	-0.0048 11.6%	0.0027 1.7%	0.0053 5.6%	0.0412 6.4%
Inherited business	-0.0002 0.5%	0.0005 0.3%	0.0002 0.2%	0.0021 0.3%
All included variables	-0.0200 48.3%	0.0409 25.7%	0.0251 26.5%	0.1910 29.7%

Notes: (1) The samples and regression specifications are the same as those used in Table 3.
(2) Contribution estimates are mean values of the decomposition using 1000 subsamples of whites. See text for more details

Table 6
Decompositions of Black/White Gaps in Small Business Outcomes for Men
Characteristics of Business Owners, 1992

	Specification			
	(1)	(2)	(3)	(4)
Dependent variable	Closure	Profits	Employer	Ln Sales
Black mean	0.2496	0.1902	0.1310	9.6709
White mean	0.2189	0.3661	0.2311	10.3259
Black/white gap	-0.0306	0.1759	0.1001	0.6550
Contributions from racial differences in:				
Marital status	-0.0005 1.7%	0.0007 0.4%	0.0004 0.4%	-0.0034 -0.5%
Education	-0.0065 21.1%	0.0086 4.9%	0.0038 3.8%	0.0315 4.8%
Region	-0.0009 3.0%	0.0020 1.1%	-0.0024 -2.4%	0.0265 4.1%
Urban	-0.0032 10.5%	-0.0067 -3.8%	0.0059 5.9%	-0.0141 -2.1%
Prior work experience	0.0000 0.0%	-0.0034 -1.9%	-0.0005 -0.5%	-0.0023 -0.4%
Prior work experience in a managerial capacity	0.0094 -30.7%	0.0023 1.3%	0.0047 4.7%	0.0206 3.2%
Prior work experience in a similar business	-0.0040 13.2%	0.0067 3.8%	0.0022 2.2%	0.0355 5.4%
Have a self-employed family member	-0.0002 0.7%	0.0017 1.0%	-0.0001 -0.1%	-0.0113 -1.7%
Prior work experience in a family member's business	-0.0057 18.5%	0.0016 0.9%	0.0052 5.2%	0.0416 6.4%
Inherited business	-0.0003 0.8%	0.0006 0.4%	0.0014 1.4%	0.0057 0.9%
All included variables	-0.0119 38.8%	0.0142 8.1%	0.0206 20.5%	0.1304 19.9%

Notes: (1) The samples include only male-owned businesses. The regression specifications are the same as those used in Table 3. (2) Contribution estimates are mean values of the decomposition using 1000 subsamples of whites. See text for more details

Table 7
Decompositions of Black/White Gaps in Small Business Outcomes for Women
Characteristics of Business Owners, 1992

	Specification			
	(1)	(2)	(3)	(4)
Dependent variable	Closure	Profits	Employer	Ln Sales
Black mean	0.2968	0.0767	0.0865	9.0901
White mean	0.2475	0.1693	0.1563	9.5221
Black/white gap	-0.0494	0.0926	0.0697	0.4321
Contributions from racial differences in:				
Marital status	-0.0120 24.2%	0.0061 6.6%	0.0091 13.0%	0.0364 8.4%
Education	0.0048 -9.8%	0.0024 2.6%	-0.0001 -0.2%	0.0183 4.2%
Region	-0.0070 14.1%	0.0038 4.1%	0.0007 1.0%	-0.0040 -0.9%
Urban	0.0001 -0.2%	-0.0054 -5.8%	0.0030 4.3%	-0.0189 -4.4%
Prior work experience	0.0016 -3.2%	-0.0016 -1.7%	-0.0022 -3.2%	-0.0047 -1.1%
Prior work experience in a managerial capacity	0.0012 -2.5%	0.0007 0.7%	0.0046 6.6%	0.0103 2.4%
Prior work experience in a similar business	0.0002 -0.5%	-0.0003 -0.4%	-0.0002 -0.2%	0.0078 1.8%
Have a self-employed family member	-0.0122 24.6%	0.0025 2.7%	-0.0010 -1.4%	-0.0005 -0.1%
Prior work experience in a family member's business	0.0003 -0.7%	0.0045 4.8%	0.0050 7.2%	0.0353 8.2%
Inherited business	0.0006 -1.2%	0.0002 0.2%	-0.0017 -2.4%	-0.0050 -1.2%
All included variables	-0.0222 44.9%	0.0128 13.9%	0.0171 24.6%	0.0752 17.4%

Notes: (1) The samples include only female-owned businesses. The regression specifications are the same as those used in Table 3. (2) Contribution estimates are mean values of the decomposition using 1000 subsamples of whites. See text for more details

Table 8
Decompositions of Black/White Gaps in Small Business Outcomes
Characteristics of Business Owners, 1992

	Specification			
	(1)	(2)	(3)	(4)
Dependent variable	Closure	Profits	Employer	Ln Sales
Black mean	0.2692	0.1414	0.1116	9.4221
White mean	0.2288	0.3003	0.2065	10.0615
Black/white gap	-0.0404	0.1590	0.0948	0.6394
Contributions from racial differences in:				
Sex	-0.0019 4.7%	0.0231 14.6%	0.0060 6.3%	0.0562 8.8%
Marital status	-0.0030 7.5%	0.0055 3.5%	0.0041 4.3%	0.0118 1.8%
Education	-0.0031 7.8%	0.0045 2.8%	0.0013 1.4%	0.0066 1.0%
Region	-0.0031 7.6%	0.0035 2.2%	0.0010 1.0%	0.0160 2.5%
Urban	-0.0012 2.9%	-0.0078 -4.9%	0.0021 2.2%	-0.0277 -4.3%
Prior work experience	0.0014 -3.5%	-0.0021 -1.3%	-0.0010 -1.1%	-0.0032 -0.5%
Prior work experience in a managerial capacity	0.0065 -16.1%	0.0005 0.3%	0.0018 1.9%	0.0035 0.5%
Prior work experience in a similar business	-0.0029 7.1%	0.0042 2.6%	0.0022 2.3%	0.0277 4.3%
Have a self-employed family member	-0.0032 7.8%	0.0001 0.0%	0.0009 1.0%	-0.0128 -2.0%
Prior work experience in a family member's business	-0.0032 7.9%	0.0019 1.2%	0.0033 3.4%	0.0246 3.8%
Inherited business	-0.0001 0.1%	0.0005 0.3%	0.0000 0.0%	0.0007 0.1%
Startup capital	-0.0175 43.2%	0.0231 14.5%	0.0350 36.9%	0.1512 23.6%
Industry	-0.0083 20.5%	0.0112 7.0%	0.0092 9.7%	0.0633 9.9%
All included variables	-0.0395 97.7%	0.0683 42.9%	0.0658 69.4%	0.3179 49.7%

Notes: (1) The sample and regression specifications are the same as those used in Table 4. (2) Contribution estimates are mean values of the decomposition using 1000 subsamples of whites. See text for more details.

Appendix 1
Multiple Imputation Regressions for Small Business Outcomes
Characteristics of Business Owners, 1992

	Specification			
	(1)	(2)	(3)	(4)
Dependent variable	Closure (1992-96)	Profits \$10,000+	Employer Firm	Ln Sales
Black-owned business	0.0213 (0.0121)	-0.1866 (0.0197)	-0.1038 (0.0157)	-0.4883 (0.0522)
Latino-owned business	-0.0190 (0.0113)	-0.0340 (0.0135)	0.0167 (0.0111)	0.0552 (0.0463)
Native American-owned business	-0.1220 (0.0522)	0.0338 (0.0502)	0.0650 (0.0396)	0.3944 (0.1783)
Asian-owned business	-0.0473 (0.0135)	0.0198 (0.0137)	0.0696 (0.0110)	0.4549 (0.0508)
Female-owned business	0.0199 (0.0047)	-0.2066 (0.0063)	-0.0640 (0.0049)	-0.6942 (0.0197)
High school graduate	-0.0280 (0.0080)	0.0634 (0.0108)	0.0390 (0.0090)	0.1620 (0.0346)
Some college	-0.0188 (0.0080)	0.0734 (0.0105)	0.0419 (0.0088)	0.0781 (0.0342)
College graduate	-0.0619 (0.0089)	0.1141 (0.0112)	0.0542 (0.0097)	0.2428 (0.0373)
Graduate school	-0.1596 (0.0102)	0.2187 (0.0119)	0.1581 (0.0098)	0.6181 (0.0396)
Urban	0.0171 (0.0055)	0.0476 (0.0066)	-0.0291 (0.0053)	0.1260 (0.0225)
Prior work experience in a managerial capacity	0.0617 (0.0053)	0.0247 (0.0062)	0.0529 (0.0052)	0.2395 (0.0228)
Prior work experience in a similar business	-0.0423 (0.0049)	0.1014 (0.0057)	0.0414 (0.0049)	0.3862 (0.0208)
Have a self-employed family member	-0.0241 (0.0059)	0.0174 (0.0065)	0.0011 (0.0056)	-0.0138 (0.0231)
Prior work experience in a family member's business	-0.0389 (0.0083)	0.0311 (0.0077)	0.0535 (0.0074)	0.3607 (0.0327)
Inherited business	-0.1266 (0.0225)	0.1378 (0.0200)	0.1987 (0.0145)	1.2058 (0.0736)
Mean of dependent variable	0.2253	0.3009	0.2131	10.0995
Sample size	37,156	33,804	38,020	38,020

Note: (1) The sample includes businesses that are classified by the IRS as individual proprietorships or self-employed persons, partnerships and subchapter S corporations, have sales of \$500 or more, and have at least one owner who worked at least 12 weeks and 10 hours per week in the business. (2) Logit models are used for Specifications 1-3 and OLS is used for Specification 4. (3) Marginal effects and their standard errors (in parenthesis) are reported. (4) All specifications also include a constant, and dummy variables for marital status of primary owner, region, and work experience of the primary owner. (5) Missing values for all independent variables are imputed. See text for more details.

Appendix 2
Means of Selected Variables
Characteristics of Business Owners. 1992

	White-Owned Firms	Black-Owned Firms
Female-owned business	0.3268	0.4261
Married	0.8041	0.7293
Never married	0.1398	0.1392
High school graduate	0.2651	0.2230
Some college	0.3123	0.3423
College graduate	0.1962	0.1292
Graduate school	0.1353	0.1437
Northeast	0.0643	0.0194
Midatlantic	0.1469	0.1315
East North Central	0.1666	0.1403
West North Central	0.0847	0.0330
South Atlantic	0.1597	0.3259
East South Central	0.0518	0.0792
West South Central	0.0999	0.1443
Mountain	0.0670	0.0163
Urban	0.7351	0.8877
Prior work experience: less than 2 years	0.0707	0.0680
Prior work experience: 2-5 years	0.1641	0.1500
Prior work experience: 6-9 years	0.1507	0.1445
Prior work experience: 10-19 years	0.2973	0.3143
Prior work experience: 20 years or more	0.2578	0.2393
Sample size	14,282	6,831
Startup capital: \$5,000-\$25,000	0.2374	0.2107
Startup capital: \$25,000-\$100,000	0.1095	0.0645
Startup capital: \$100,000+	0.0475	0.0168
Agricultural services	0.0269	0.0175
Mining and construction	0.1261	0.0718
Manufacturing	0.0330	0.0168
Wholesale	0.0360	0.0112
FIRE	0.0987	0.0609
Trans., communications, and public utilities	0.0389	0.0834
Personal services	0.2616	0.3287
Professional services	0.1937	0.2060
Uncoded industry	0.0391	0.0572
Sample size	14,068	6,743

Notes: (1) The sample includes businesses that are classified by the IRS as individual proprietorships or self-employed persons, partnerships and subchapter S corporations, have sales of \$500 or more, and have at least one owner who worked at least 12 weeks and 10 hours per week in the business. (2) The samples are those used in Specifications 3 and 4 of Tables 6 and 8.