

Human Capital and Women's Business Ownership

by

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for



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Arlington, VA 22201 [74] pages, under contract no SBAHQ-06-M-0481.

Women entrepreneurs are among the fastest growing groups of business owners. The number of women starting and owning businesses increased dramatically over the last few decades. Furthermore, the types of businesses women tend to own are changing. An explanation for why women have emerged as an important entrepreneurial group and why they have moved beyond traditional sectors can be found in examinations of changes in women's human capital—especially their educational attainment and occupational representation.

Two implications of these changes are the increase and associated structural shifts in women's self-employment. As women have become better educated and as they have had the opportunity to follow a career, they have been able to develop not only their educational, but also their occupational and entrepreneurial skills and therefore become more prepared to enter self-employment.

The changes in women's educational and career attainment may, however, have multifaceted characteristics. Women might have increased their enrollment in college compared to men, but they may still differ in terms of the types of subjects in which they are enrolled. Additionally, women might not yet be as well represented as men in managerial and executive positions, which would prepare them for running their own business. Given these trends and issues, the authors of this paper are interested in the following research questions:

- What are the trends in human capital improvement for women?
- What is the relationship between various types of human capital and women's business ownership?
- How does the relationship between human capital and women's business ownership compare to other demographic groups?

Answering these questions will shed light on the relationship between different elements of human capital and self-employment among women.

Overall Findings

This analysis shows that self-employed women differ on most human capital variables compared to women who are wage and salary-earning earners. The study finds that self-employed women have more education and increased their educational attainment at a faster rate compared to other working women. The percentage of self-employed women in managerial occupations consistently exceeded the rate for other working women, and self-employed women participated in different industries than other working women. Self-employed women were also more likely to be self-employed in the previous year, were older than wage and salary-earning women, and had greater income diversity.

Self-employed men and women differ little in education, experience and preparedness—at least by the end of the study period. Important differences remain when considering occupational and industry experience. A lower percentage of self-employed women hold managerial occupations than do self-employed men, and there are lower rates of self-employment in industries where there is less overall female participation (such as communications, transportation, wholesale trade, manufacturing, and construction).

Highlights

- Self-employed women differ from wage and salary-earning women on most of the human capital variables that were examined; however, there is no strong association between such factors as age, cur-

rent earnings, education, and income diversity and self-employment among women.

- There is a strong association between 1) holding a managerial occupation and 2) industry sector participation and self-employment among women.

- Contrary to expectations, neither wage and salary-earning nor self-employed women significantly shifted industry participation over this portion of the study period. However, wage and salary-earning women were somewhat more likely than self-employed women to be in industries with the greatest degree of female ownership (primarily social services and education services). Self-employed women were more likely to be in industries with a medium presence of female ownership. This suggests, according to the authors, that self-employed women were branching out of industries traditionally associated with women.

- More self-employed men hold an advanced degree compared to self-employed women over the study period, but the gap narrowed considerably by 2006.

- Self-employed minorities were slightly more likely than self-employed whites to have a college degree throughout much of the study period. By 2006, the percentage of all self-employed groups by race and gender having a college degree were clustered around 22 to 23 percent.

- Earnings data show that the self-employed were most likely to be either in the first (lowest) or fourth (highest) quartile.

- High percentages of the self-employed were in the 40–49 and 50–59 age groups.

Scope and Methodology

This analysis uses data from the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) (formerly the Annual Demographic Supplement or March Supplement.) The CPS is a monthly survey of households conducted by the Bureau of Census for the Bureau of Labor Statistics that provides data on the labor force, employment, unemployment and persons not in the labor force.

The authors use CPS data to explore the relationships between entrepreneurship and the broader concept of human capital, including education, experience, and entrepreneurial preparedness measures, for three sub-samples of the CPS data from 1994 to 2006. First, they examine the effect of these factors

on women to determine if different levels of human capital are related to self-employed women compared to wage and salary-earning women. Second, comparisons are made between self-employed women and men on various human capital components. Finally, the authors broaden their analysis to determine how these relationships explain self-employment among minorities and whites, as defined within the CPS.

A series of cross tabulations are utilized to examine these relationships for each sub-sample over thirteen years to determine if there are changes that follow the trends we have discussed above and to determine if certain types of human capital are likely to affect self-employment differently among the three sub-samples. Finally, the authors conducted statistical tests of significance and strength of association between each variable and each category of self-employed.

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Introduction

This study examines the relationship between human capital and women's self-employment. We explore the trends in women's human capital acquisition, focusing on a distinction between general and specific human capital. We further distinguish the acquisition of education, experience, and entrepreneurial preparedness within the general and specific categories to examine how different types of human capital influence women's self-employment. Using data from the Current Population Survey¹ for the period between 1994 and 2006, we analyze human capital characteristics of self-employed women and compare them to other working women and self-employed men. We also consider how human capital varies between self-employed whites and minorities. In doing so, we provide a detailed definition of human capital and present a differentiated perspective on the link between women's human capital advancement and self-employment.

In this paper, we first present an examination of the literature on human capital and entrepreneurship, especially among women. In particular, we classify general and specific human capital and highlight the ways in which different types of skills and experiences influence self-employment. After a discussion of our methodology and data sources, we present the analysis of trends in human capital and self-employment for women. We examine how human capital for self-employed women compares to human capital for other working women and self-employed men and between self-employed whites and minorities. We show how human capital acquisition varies for self-employed women relative to each of these groups and describe which are most relevant to business creation among women. The paper concludes with an assessment of whether our definition of human capital improves on standard measures of human capital in explaining self-employment among women.

Human Capital and Business Ownership among Women

Examining women's self-employment and their human capital gains is critical and timely. Women entrepreneurs are among the fastest growing groups of business owners. The number of women starting and owning businesses increased dramatically over the last few decades. Between 1997 and 2004, the growth in the number of women-owned businesses (at least 51 percent of the owners were women) was nearly two and half times the rate of all U.S. privately held firms (22.9 percent versus 9 percent), and employment in these firms grew more

than three times faster than all firms (39 percent versus 11.6 percent) according to estimates from the Center for Women's Business Research (Center for Women's Business Research 2004). Further, the number of self-employed women more than doubled between 1979 and 2003 (Fairlie 2004). Women's share of total incorporated and unincorporated self-employment is now approximately 35 percent.

Furthermore, the types of businesses women tend to own are changing. While women have traditionally founded businesses in the retail and service sectors (Loscocco and Robinson 1991; Moore and Buttner 1997; Anna, Chandler et al. 1999), they are increasingly represented in non-traditional industries such as high-technology, construction, transportation, public utilities, business consulting, and other types of services (Langowitz 2003; Center for Women's Business Research 2004).

An explanation for why women have emerged as an important entrepreneurial group and why they have moved beyond traditional sectors can be found in examinations of changes in women's human capital—especially their educational attainment and occupational representation. Goldin (2005; 2006) shows how women have changed their educational enrollment from majors focused on consumption to those focused on investment. Specifically, women started to have a more expanded horizon whereby they would increasingly plan “for careers rather than jobs” (Goldin 2006, 16). These altered expectations, in turn, led women to increase and redirect their investments in education. These changes began in the late 1960s and early 1970s, but the trends continue. Today, women have surpassed their male counterparts in terms of educational attainment.

One implication of these changes is the increase and associated structural shifts in women's self-employment. As women have become better educated and as they have had the opportunity to follow a career, they have been able to develop not only their educational, but also their occupational and entrepreneurial skills and therefore become more prepared to enter self-employment. Brush et al. argue that there is a “new generation of women entrepreneurs” emerging who see business ownership as a viable career option (Brush, Carter et al. 2004).

The changes in women's educational and career attainments may, however, have multifaceted characteristics. Women might have increased their enrollment in college compared

to men, but they may still differ in terms of the types of subjects in which they are enrolled. Additionally, women might not yet be as well represented as men in managerial and executive positions, which would prepare them for running their own business.

Given these trends and issues, we are interested in the following research questions:

- What are the trends in human capital improvement for women?
- What is the relationship between various types of human capital and women business ownership?
- How does the relationship between human capital and women's business ownership compare to other demographic groups?

Answering these questions will allow us to shed light on the relationship between different elements of human capital and self-employment among women.

Literature Review

Human capital is considered critical to economic growth and entrepreneurship. In economics, new growth theory stresses the connection between human capital and economic growth (Romer 1986; Lucas 1988; Glaeser 1998; Glaeser 2000). Florida's recent definition of what he calls the "creative class" also relies on human capital as the key factor in regional economic development (Florida 2002). Most studies proxy human capital with educational attainment, either through the level of education/degree attained or the number of years of school. This ties directly to the view that businesses will choose to start and grow in areas where there is an abundant and well-educated labor pool (Markusen, Hall et al. 1986; Malecki 1997; Florida 2002; Hackler 2003; Chapple, Markusen et al. 2004; Hackler 2004). Therefore, human capital is at the center of explanations of economic growth and more specifically, it has been linked to entrepreneurial performance. Research has shown that educational attainment is significantly and positively associated with entrepreneurial performance (Lynskey 2004; Weaver, Dickson et al. 2006; Mayer, Hackler et al. forthcoming). Other studies note that self-employed workers "are found at both ends of the educational spectrum," but the incorporated self-employed are much more likely to have advanced degrees (Hipple 2004, p. 17).

Defining human capital solely using educational attainment, however, is limiting because it leaves out many relevant sets of experiences and skills a person needs to become self-employed and to operate as a successful entrepreneur. These experiences and skills may be fairly generic. For example, a person's educational attainment, general work experience, or their preparedness for entrepreneurship in the form of life experience and financial capital may influence the ways in which that person operates as an entrepreneur. On the other hand, a person may possess more specific skills and experiences pertinent to self-employment. These include a specific education in the form of an advanced degree in the field in which he or she operates the business. Specific experiences and skills are usually obtained from working in certain occupations or industries. Lastly, nascent entrepreneurs may gain specific insights into self-employment because they may have been culturally exposed to entrepreneurship through another family member or work in certain executive or managerial positions. These examples highlight the varied nature of human capital as it relates to self-employment or entrepreneurship.

Some research also suggests differences between general and specific human capital (Brüderl, Preisendörfer et al. 1992; Madsen, Neergaard et al. 2003); although the labels for these concepts differ, such as industry-specific and firm-specific human capital (Pennings, Lee et al. 1998) or embodied versus career capital (Terjesen 2005). Others have added entrepreneur-specific human capital (Bosma, Praag et al. 2004) or general and specific business human capital (Fairlie and Robb 2007). While the definitions and operationalization of specific and general human capital differ widely, researchers agree on the need to focus on the different dimensions in order to clarify which aspects of human capital affect self-employment. For this study, we use a three-part definition of human capital which includes education, experience and entrepreneurial preparedness, while also distinguishing each of these human capital components by their general and specific natures. In the following sections, we review the literature concerning these varied aspects of human capital.

Education

Education refers to the formal acquisition of skills and credentials. Becker (1975) differentiates between general and specific education whereby the former is associated with the acquisition of skills “not specifically related to the business sector and entrepreneurial activity concerned” (Madsen, Neergaard et al. 2003, 428). Most often this type of general education is

defined by educational attainment measures such as years of education or highest degree attained. In contrast to general education, specific education refers to certain types of skills attained through courses in special fields or through the pursuit of advanced degrees (Madsen, Neergaard et al. 2003). Such specialist education may be relevant for entrepreneurship in certain fields such as high-technology.

Kim, Aldrich and Keister (2006) found that the educational background is positively associated with being a nascent entrepreneur. More specifically, their research shows that college graduates were twice as likely to become self-employed as people with high school degrees or less. Examining the effects of post-college education, they state, however, that it had no impact on nascent entrepreneurship. Their results “suggest a curvilinear impact of education: both too little and too much education discourages attempted entrepreneurship” (Kim, Aldrich et al. 2006, 16). Educational levels are not only associated with the likelihood of entering entrepreneurship, but also with the venture’s performance. For example, Bosma et al. (2004) note that higher education significantly influences the performance of entrepreneurial ventures as measured by profits.

While the aforementioned studies focus on entrepreneurs in general, studies about women entrepreneurs have found that women do not differ much from men regarding general characteristics such as birth order, marital status or entrepreneurial motivations (Brush 1992). However, regarding education, women entrepreneurs have differed from their male counterparts. Brush (1992) reviewed the literature and found that while women’s educational levels are similar to men, their fields of study differ widely. Traditionally, women have pursued degrees in liberal arts and humanities rather than engineering, computer science, or business. This may influence the types of businesses women start. However, several years later, Brush et al. (2004) described how women entrepreneurs have changed and are entering sectors where they have not been represented traditionally. Education may play a role in the types of sectors women entrepreneurs choose for their ventures. For example, in a study of highly educated women entrepreneurs in Sweden, Holmquist and Sundin (1990) found that female entrepreneurs with an education exceeding 12 years chose non-traditional trades.

There have been significant changes in women's educational attainment as well as the type of education women are gaining. Goldin (2005) notes that starting in the early 1970s women began to change the types of majors for their undergraduate education. She states that women "moved into those that were career-oriented and often led to advanced degrees. And their majors shifted to subjects that were more similar to those of their male counterparts" (p. 8). Furthermore, women's enrollment in professional degree programs such as those in medical schools, business schools and dentistry also began to rise starting in the early 1970s. Thus, women's educational attainment not only changed in terms of their increased enrollment in college, but also in terms of the nature of their enrollment.

Experience

Work experience in general and more specifically experiences gained from working in certain industries and in certain types of occupations may also influence entrepreneurship. By focusing on experience, we expand the human capital definition and include the extent to which a woman has gained skills and knowledge that go beyond a formal education. Entrepreneurship studies using the human capital theory approach have widely used such an expanded definition (Pena 2002).

A variety of studies have shown that entrepreneurial success is often influenced and shaped by the experiences entrepreneurs have gained during their prior employment (Carter and Cannon 1992; Moore and Buttner 1997; Terjesen 2005). Shane (2000) identifies three important contributions of prior work experience that are important to the process of entrepreneurship. They include the prior knowledge of markets, insights about ways of serving these markets and knowledge of customer problems. Some of these experiences may endow the entrepreneur with a general set of skills, while others—such as knowledge of markets and customers—can be very specific to the industry of the new venture. Most studies agree that there is a significant relationship between prior work experience in the same industry or line of business and venture success (Brüderl, Preisendörfer et al. 1992; Cooper, Gimeno-Gascon et al. 1994; Roggenkamp and White 1998; Bosma, Praag et al. 2004).

Kim et al. (2006) utilize a range of variables that define prior work experience. These include years of managerial experience, years of other full-time experience, prior startup

experience, and current self-employment. They argue that these experiences contribute in important ways to the likelihood of entrepreneurial entry. Of the four variables, they find that full-time work experience and previous start-up experience were not positively associated with entry into self-employment.

Relevant experience can also be gained in the same industry as the entrepreneur later operates his or her business. Such specific prior experience seems to influence business performance and survival (Pennings, Lee et al. 1998; Pena 2002), probably because of the type of knowledge one gains about markets, customers, and products. Bosma et al. (2004) find that “former experience of the business founder in the industry in which he starts his business appears to improve all performance measures” (p. 232). However, without adequate business and managerial skills, women entrepreneurs might be limited in how they can apply their specific industry knowledge to a new venture (Roggenkamp and White 1998).

In regard to women entrepreneurs, we can note that women business owners typically have fewer years of industry experience than their male counterparts (Carter, Williams et al. 1997) and that they are less likely to have startup experience (Cromie and Birley 1991). In addition, women tend to not be as well represented in executive and managerial positions (Catalyst 2006), and their careers are more likely to be interrupted (Evetts 1993). Thus, women may stop short in gaining managerial experience, a type of work experience most critical to entrepreneurship. Kim et al. (2006), for example, find that managerial experience is positively related with being a nascent entrepreneur. Interestingly, their study also notes that full-time work experience by itself is not significant and that age is negatively associated with being a nascent entrepreneur. Focusing on women managers, Terjesen (2005) finds that prior work experience—what she calls “embedded career capital”—is leveraged by women entrepreneurs when founding and growing their businesses. Thus, this kind of capital is transferable and useful to the venture the entrepreneur starts.

Occupational segmentation and segregation also have considerable influence on experience as it relates to women’s business ownership and self-employment. A variety of studies have examined the extent to which women have experienced segmentation and segregation in the labor market (Bagchi-Sen 1995; Gittelman and Howell 1995; Anker 1997;

Bauder 2001; Xu, Tan et al. 2006). In general, these studies highlight both gender segmentation and gender segregation patterns in labor markets. Carter notes that “most women still hold low-paid, unskilled or semi-skilled positions” and that their work is often part-time, concentrated in the service sector and lower paid than men’s (Carter 2000). This may have significant influence on women’s self-employment, particularly regarding the kinds of sectors in which they would start a business and their overall business performance (Mayer forthcoming). On the other hand, women’s segmentation and segregation implies that women may often hit the “glass ceiling” in their careers, which in turn might become the motivation for a woman to start a business (Heilman and Chen 2003; Mattis 2004).

Entrepreneurial Preparedness

Entrepreneurial preparedness refers to the personal skills, attitudes and resources gained outside of formal education and work experience. Financial capital, in the form of earning power and as an indirect measure of resources and success, is one component of entrepreneurial preparedness. Life experience, as measured by age, comprises another general component of entrepreneurial preparedness. More specifically notions of entrepreneurial preparedness might come from the cultural and family background of the entrepreneur. Having another person in the household who is self-employed might bestow a certain perspective on entrepreneurship that others without such cultural exposure might not have.

Within the literature, entrepreneurial preparedness has multiple connotations, with age typically being the most common measure in studies of human capital. Rae (2005), however, presents an interesting theorization about life stage events and entrepreneurship. This research focuses on “mid-career entrepreneurs” (MCEs) in the United Kingdom. MCEs are entrepreneurs who start their own business between the ages of 35 and 55. MCEs come from a broad social and demographic background. They try to develop entrepreneurial skills in their mid-careers in order to find new opportunities for economic activity and extend their working lives. By their mid-career, MCEs have gained considerable life experience and may well be at the peak of their potential and capability, yet a number of studies have shown the dissatisfaction and need for change experienced by people in this age group. With regard to female entrepreneurs, Rae mentions “the frustration and anger which women experienced in organizations” (p. 565). In her perspective, self employment means “liberation” from this situation.

Growing up in a family or environment in which entrepreneurship is a common occurrence may also influence self-employment. For example, children of entrepreneurial parents are more likely to become entrepreneurs in their adult careers (Blau and Duncan 1967). Indeed, recent research also suggests that an intergenerational link seems to affect business ownership, where individuals who had self-employed parents may have greater general business or managerial experience and be more likely to be a business owner (Lentz and Laband 1990; Fairlie 1999; Dunn and Holtz-Eakin 2000; Hout 2000; Fairlie and Robb 2007). In their study of French women entrepreneurs, Orhan and Scott (2001) found that the women in the sample were influenced by their family environment. In their study of highly educated Swedish women entrepreneurs, Holmquist and Sundin (1990) find that these women business owners often had mothers who were entrepreneurs themselves. Being exposed to entrepreneurs in the same household is likely to provide women with a role model, opportunities to exchange ideas and lessons learned, and the ability to learn from failures and successes. Other studies, however, present a more varied perspective on the influence of family. Cooper et al. (1994), for example, find that “having parents who had owned a business contributed to marginal survival, but not to growth” (389). However, contrasting this study, Brüderl et al. (1992) find that a self-employed father did not increase the prospects of a venture’s survival. This is echoed by Kim et al. (2006) who find that levels of entrepreneurial involvement among family had no association with being a nascent entrepreneur.

Financial capital is another significant component in self-employment and contributes in important ways to entrepreneurial preparedness. Personal earning power and the ability to accumulate capital for investment in a business are especially critical for women entrepreneurs. Further, a certain level of earnings can help mitigate the risk of starting a new venture. As individuals decide whether to pursue an entrepreneurial venture or self-employment, they likely evaluate the nature of the opportunity and its associated risk. The expected value of the venture may be combined with evaluation of both the actual expected cost and opportunity cost (Shane 2000). Individuals that do not rely entirely on wage and salary income may feel less risk in choosing to start a business because they have some source of other income. Income diversity, then, may also be a relevant factor.

Finally, immigrant status has also been studied in relationship to business ownership. A 2006 study from the National Venture Capital Association reported on the “striking propensity” of immigrants to start companies, especially in the technology field (Anderson 2006). A study of small business formation in 2007 also noted the importance of immigrant entrepreneurs among the significant new demographic trends in small business ownership (Institute for the Future 2007).

Summary

As the literature review indicates, the connection between entrepreneurship and human capital is not fully represented by education, which represents only one phase of an individual’s human capital accumulation. Consequently, this study suggests that occupational skills and their enhancement through the workplace, as well as the entrepreneurial preparedness that women gain outside their formal education, are essential to women’s entrepreneurship. In the next section we describe how we have attempted to operationalize several of the variables described above under education, experience and entrepreneurial preparedness. We have categorized these variables as either “general” or “specific” human capital in order to further differentiate and highlight the factors that are most relevant to women’s business ownership or self-employment.

Data and Methodology

Data Source

This analysis uses data from the Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC). This was formerly called the Annual Demographic Supplement or March Supplement. The CPS is a monthly survey of households conducted by the Bureau of Census for the Bureau of Labor Statistics; it provides data on the labor force, employment, unemployment and persons not in the labor force.

The CPS is used for this analysis because it provides the best combination of accessible data on individual business owners (self-employed) and a wide variety of social, demographic and economic characteristics. The CPS also provides the best data source to examine trends in both business ownership and human capital over several years. Other studies examining the trends and demographics of self-employed business owners have also used this data source

(Fairlie 2004; Hipple 2004). The ASEC is used because it provides more detailed economic information and includes a larger total sample and larger minority sample than the basic monthly survey.

Microdata for the CPS were accessed through DataFerrett² for 1994-2006. We selected 1994 as the beginning year for the study for two reasons. First, the CPS was redesigned in 1994, making comparisons with previous years impossible, especially for self-employment among women (Polivka 1996). Second, the mid-1990s coincided with a period of fast growth among women owned businesses (Brush, Carter et al. 2004; Center for Women's Business Research 2004).

Variables

1. Self-Employment

We use the CPS code “class of worker, current status” to identify both the incorporated and unincorporated self-employed to represent primary business owners. The dataset we created from the CPS ASEC for this study includes only individuals who work at least 15 hours per week and are over the age of 20. These choices were made to allow comparisons among self-employed women and the overall female adult working population. Individuals whose secondary occupation is self-employment³ or are who farm self-employed are not included among the self-employed here, consistent with other studies (Fairlie 2004).

2. Demographic Characteristics

We use gender and race codes to examine the following demographic groups within the data set:

- Working women not self-employed (wage and salary workers in the private sector and federal, state or local government)
- Self-employed women
- Self-employed men
- Self-employed—white (all origins, all genders)

- Self-employed—minority (all races besides white, all origins, all genders)⁴

3. Human Capital Variables

Table 1 lists the CPS variables used to assess the human capital factors that we selected for analysis based on the literature review. The CPS variables have been recoded to enable the correlation analysis.

Table 1: Human Capital Variables from the Current Population Survey

	<i>General Human Capital</i>	<i>Specific Human Capital</i>
Education	<u>Educational Attainment</u> —Highest level of school completed, bachelors degree <u>Current Enrollment</u> —School enrollment, college only	<u>Advanced Degree</u> —Highest level of school completed, graduate degree
Experience	<u>Work Experience</u> —Hours worked per week <u>Previous Job</u> —Class of worker, past year	<u>Current Occupation</u> —Current occupation - executive, administrative, and managerial only <u>Industry</u> —Current industry by low, medium, and high women-owned business presence as percentage of all self-employed ⁵
Entrepreneurial Preparedness	<u>Financial (Earning Power)</u> —Total earnings (wage and salary or self-employment earnings) <u>Age</u> —Age, minimum 20 years <u>Foreign Born</u> —Foreign born regardless of citizenship	<u>Financial (Income Diversity)</u> —Other income besides earnings <u>Previous Occupation</u> —Occupation held longest in past year, executive, administrative, and managerial only

Summary data from the CPS for each variable by demographic group for each year of the study period are provided in the Appendix, Figures 1 to 43. Appendix Tables 5-8 contain the variables for general and specific human capital.

Several major changes relevant to this study were made to the CPS in 2003. The most important change was the shift to occupational and industrial classification systems derived from

the 2000 Standard Occupational Classification (SOC) and the 2002 North American Industry Classification System (NAICS). According to the BLS, these changes “created a complete break in comparability with existing data series at all levels of occupation and industry aggregation” (Bureau of Labor Statistics 2007). Therefore, we present occupation and industry data for 2003-2006 separately from the 1994-2002 data. While conversion factors have been developed, the results are not considered useful for measuring change over time. The responses and codes for race and Hispanic origin also changed in 2003. While we are able to present limited data by race, we do not offer an analysis of Hispanic self-employment because of the major definitional changes during the period of study.⁶

One of the expected advantages of the CPS dataset was the ability to identify instances in which more than one individual within a household is self-employed. As discussed in the literature review, a family or environment in which entrepreneurship is a common occurrence may influence self-employment, and we viewed this factor as an important element of entrepreneurial preparedness. Unfortunately, the way in which the CPS codes different members of a household did not allow us to identify the link between two or more self-employed individuals within the same household. Therefore, this variable is not analyzed in this report.

While the CPS offers the best data to address our research questions, it is not perfect. One challenge is the need to start our analysis in 1994. Our literature review suggests that the changes in women’s human capital began earlier, although the growth in women’s business ownership is more recent. It would be ideal to track trends in education and experience over longer periods of time. A related point is that past experience is not fully captured in the survey, although an advantage of the CPS data is that occupation, employment status, and industry experience data for the past year as well as the current time of the survey are available.

Another challenge is that changes in the occupational and industrial measures—the key elements of our “experience” factor—make it difficult to track trends even within the 1994-2006 timeframe. While we present the data for 1994-2002 and then 2003-2006, this division raises more questions than it answers as we see some shifts in occupation and industry patterns, but no clear trends. It will be worthwhile in the future to continue to examine how women’s occupational and industrial sector participation change over time and how these factors under the

new definitions are related to self-employment. This issue is especially important regarding industrial sector participation since the NAICS codes provide a much more detailed look at the components of the services sector in which women have typically had more self-employment and business ownership.

Finally, since the CPS does not survey the same set of individuals every year, we cannot track changes over time that may be relevant for understanding self-employment. For example, it would be useful to know how many years one has been in a management occupation or a specific industry sector, rather than only knowing this information for the current or last year. However, it is still useful to compare aggregate data for different categories of the self-employed year by year, and this is how we present our analysis in this paper.

Methodology

We use the dataset defined above to explore the relationships between entrepreneurship and the broader concept of human capital, including education, experience, and entrepreneurial preparedness measures, for three sub-samples of the CPS data from 1994 to 2006. First, we examine the effect of these factors on women to determine if different levels of human capital are related to self-employed women compared to wage and salary working women. Second, we compare how self-employed women and men differ on these human capital components. Finally, we broaden our analysis to determine how these relationships explain self-employment among minorities and whites, as defined within the CPS.

We utilized a series of cross tabulations to examine these relationships for each sub-sample over thirteen years to determine if there are changes that follow the trends we have discussed above and to determine if certain types of human capital are likely to affect self-employment differently among the three sub-samples. Finally, we conducted statistical tests of significance and strength of association between each variable and each category of self-employed.⁷

Analysis

Women and Self-Employed Women

This section compares general and specific human capital and human capital trends for women employed in wage and salary positions and self-employed women.

General Human Capital

Education

We examined educational attainment differences using the traditional measure of college education. During the first years of the period, self-employed women actually were slightly less likely to have a college degree than women employed in wage and salary positions. Beginning in 1997 and continuing through 2006, self-employed women were more likely to have a college degree. While the trend in the increase in educational attainment is clear, our analysis did not reveal a strong association between self-employment among women and a college education (Figure 1).

We also considered whether current college enrollment is related to self-employment. We selected this variable to attempt to capture the ongoing accumulation of human capital, in addition to the static measure of the acquired level of education. Our findings showed that self-employed groups were less likely to be enrolled in college than the general population, and this holds true for self-employed women compared to all women (Figure 2). We believe the low level of current enrollment among the self-employed is related to the higher than average education already attained by the self-employed and may also reflect the difficulties of balancing the time commitments of both self-employment and college enrollment. Accordingly, our analysis did not show a strong association between self-employment among women and current college enrollment.

Experience

As discussed in the literature review, the experience of individuals in the workplace has a large and direct impact on the types of skills and capacities acquired. The first variable we selected to represent experience was number of hours worked, which suggests time spent in a

position can prepare a person for a diversity of situations. However, the hours worked variable in the CPS limits us to examining how current work patterns vary among women and the comparison self-employment groups. This means that hours worked is not a useful human capital variable in our framework. Still, it is interesting to note the differences that emerge among our different categories. In this instance, non-self-employed women work more hours than self-employed women, but there is greater variation among self-employed women. A much lower percentage of self-employed women have a 36-45 hour work week, but higher percentages work either less than 25 hours or more than 46 hours (Figures 3 and 4) compared to wage and salary-earning women.

The second experience variable describes the category of work activity (private sector, government, or self-employed) for the previous year. This variable helps demonstrate in a very general way the type of work experience of self-employed individuals compared to all individuals. Naturally, most self-employed women were also self-employed in the previous year. Approximately 12 percent of self-employed women were previously employed in the private sector, while only 1 percent was employed in government in 2006. By contrast, 74 percent of all wage and salary-earning women were employed in the private sector, while 13 percent were employed in government. The percentage of self-employed women who were self-employed in the previous year grew slowly but steadily from 87 percent to 90 percent from 1994 to 2006 (Figure 5).

Entrepreneurial Preparedness

Within general human capital, the final component is entrepreneurial preparedness, or the foundation on which to build from basic experience toward a goal of self-employment. We include a person's financial situation, age, and birth status inside or outside the U.S. to examine this concept.

In regard to individual finances, personal earning power can represent both professional achievement and the ability to accumulate capital for investment in a business. We examine total earnings (including wage, salary, and self-employment earnings) to analyze these relationships. However, as with hours worked, the earnings variable reflects *current* self-employment earnings, which may vary for many reasons and does not necessarily show preparedness. Accordingly,

earnings are not a useful human capital variable but show interesting differences among the comparison groups.

Earnings data were grouped by quartiles for this assessment with the first quartile representing the lowest earnings and the fourth quartile the highest. Overall, we found higher percentages of self-employed women in both the first (lowest) and fourth (highest) quartiles compared to all women (Figure 6). Self-employed women were more likely to earn the least while wage and salary-earning women were more likely to earn within the next highest category. The distribution of wage and salary-earning women among the quartiles remained steady over the period, while the percentage of self-employed women in the first quartile declined and the percentage in the third and fourth quartiles increased slightly. Our analysis showed a moderate association between self-employment among women and earnings for the first three years, but not for later years given the statistically acceptable interpretation of the measures of association reported (see Table 2 notes for explanation).

**Table 2. Cross-tab Statistics for Self-Employed Women vs. Wage & Salary-Earning Women
by Financial (Earnings)**

	<i>Chi-Square</i>	<i>p value</i>	<i>Measure of Association (p value)</i>					
			<i>Cramer's V</i>	<i>p value</i>	<i>Phi</i>	<i>p value</i>	<i>Contingency Coefficient</i>	<i>p value</i>
<i>Year</i>								
1994	7819.47	0.000	0.194	0.000	0.336	0.000	0.318	0.000
1995	8021.98	0.000	0.197	0.000	0.341	0.000	0.323	0.000
1996	6786.81	0.000	0.193	0.000	0.335	0.000	0.318	0.000
1997	6482.61	0.000	0.187	0.000	0.324	0.000	0.308	0.000
1998	6330.62	0.000	0.185	0.000	0.320	0.000	0.305	0.000
1999	6547.13	0.000	0.187	0.000	0.323	0.000	0.308	0.000
2000	6593.36	0.000	0.185	0.000	0.321	0.000	0.305	0.000
2001	5770.88	0.000	0.177	0.000	0.306	0.000	0.292	0.000
2002	10158.91	0.000	0.184	0.000	0.318	0.000	0.303	0.000
2003	9364.40	0.000	0.177	0.000	0.307	0.000	0.293	0.000
2004	9145.02	0.000	0.177	0.000	0.306	0.000	0.293	0.000
2005	8446.15	0.000	0.171	0.000	0.296	0.000	0.284	0.000
2006	8385.36	0.000	0.171	0.000	0.296	0.000	0.283	0.000

Note: Measures of association indicate the strength of the relationship; however between categorical variables, the statistically acceptable interpretation differs from the interpretation of Pearson correlation coefficients used to analyze the strength of association between continuous variables. For the Cramer's V measures of association reported, the following interpretations of the coefficients are: 1) if the measure of association is below 0.1, the relationship is very weak; 2) if between 0.1 and 0.19, the relationship is weak; 3) if between 0.19 and 0.29, the relationship is moderate; and finally 3) if above 0.3, the relationship is strong. For the Phi and Contingency Coefficient measures of association also reported, the interpretations are: 1) -1.0 to -0.7 denotes a strong negative association; 2) -0.7 to -0.3 denotes a weak negative association; 3) -0.3 to +0.3 denotes little or no association; 4) +0.3 to +0.7 denotes a weak positive association; and 5) +0.7 to +1.0 denotes a strong positive association.

Age captures life experience as well as experience in the work place and attainment of skills. The category with the greatest growth in self-employment has been ages 55-64; while the age category 65+ has the highest rate of self-employment. (U.S. Small Business Administration, 2004, 192) As we would expect, self-employed women are more likely to be older than their non-self-employed cohort. Our data, for instance, showed the greatest differences in the 40+ age groups (Figures 8 and 9). While we hypothesize that age represents entrepreneurial preparedness, the literature suggests that this factor may also capture portions of the population that are being pushed from or are dissatisfied with traditional workplaces (Rae 2005). While the trends show

differences between the self-employed and wage and salary-earning women, our analysis did not show a strong association between self-employment and age.

The final component of entrepreneurial preparedness under the general human capital category is whether an individual is foreign-born. Immigrant self-employment grew nearly 50 percent from 1995 to 2002 (U.S. Small Business Administration, 2004), and the role of foreign-born entrepreneurs in technology sectors has been frequently addressed. However, we found little difference on this factor when comparing wage and salary-earning women to self-employed women (Figure 10).

Specific Human Capital

Education

The percentage of wage and salary-earning women and self-employed women with graduate degrees has increased steadily over the study period. Previous research has shown that holding an advanced degree is not necessarily as strong a predictor of self-employment as a basic college degree. However, our analysis indicates that advanced education is not detrimental to predicting self-employment. This finding holds across all self-employed comparison groups. Self-employed women were more likely to have graduate degrees in comparison to non-self-employed women (Figure 11), but our analysis did not reveal a strong association between self-employment among women and holding an advanced degree.

Experience

We examined how current and previous occupations as executives, administrators, and managers are connected to self-employment.⁸ We found very little difference between current occupation and occupation held the previous year; thus we only present the current occupation data here. Our expectation is that such occupations provide the opportunity for individuals to gain skills that are important to self-employment, such as financial budgeting, project management, and development of interpersonal skills with staff and clients. Over the course of the period, the self-employed groups were more likely to be in executive, administrative, and managerial occupations compared to the wage and salary-earning women (Figures 12 and 13).

Our analysis showed a strong association (all above the statistically acceptable 0.3 for Cramer's V) between self-employment among women and current managerial occupations (Table 3).

Table 3. Cross-tab Statistics for Self-Employed Women vs. Wage & Salary-Earning Women by Current Occupation (Executive, Managerial, Administrative vs. Other)

	<i>Chi-Square</i>	<i>p value</i>	<i>Measures of Association</i>					
			<i>Cramer's V</i>	<i>P value</i>	<i>Phi</i>	<i>p value</i>	<i>Contingency Coefficient</i>	<i>p value</i>
<i>Year</i>								
1994	37216.20	0.000	0.518	0.000	0.733	0.000	0.591	0.000
1995	37618.26	0.000	0.522	0.000	0.739	0.000	0.594	0.000
1996	33237.65	0.000	0.524	0.000	0.741	0.000	0.596	0.000
1997	33256.66	0.000	0.518	0.000	0.733	0.000	0.591	0.000
1998	32925.54	0.000	0.516	0.000	0.730	0.000	0.590	0.000
1999	33868.19	0.000	0.520	0.000	0.735	0.000	0.592	0.000
2000	35110.93	0.000	0.523	0.000	0.740	0.000	0.595	0.000
2001	33400.76	0.000	0.520	0.000	0.736	0.000	0.593	0.000
2002	53850.16	0.000	0.518	0.000	0.732	0.000	0.591	0.000
2003	51975.97	0.000	0.511	0.000	0.723	0.000	0.586	0.000
2004	52736.23	0.000	0.520	0.000	0.736	0.000	0.593	0.000
2005	51377.88	0.000	0.517	0.000	0.731	0.000	0.590	0.000
2006	53180.21	0.000	0.526	0.000	0.744	0.000	0.597	0.000

We also considered specific industry experience. For this study, we examined self-employment in three industry categories defined by the percentage of female self-employment among total self-employed in 1994. Our objective was to determine whether, over time, women were moving out of the most “traditional” female industry categories and into a broader set of activities, as well as the relationship between industry category and self-employment. Figure 14 compares the percentage of wage and salary-earning women and self-employed women in industries with a very high percentage (greater than 66 percent) of female self-employment. For the period from 1994 to 2002, these industries were social services and education services, and

they account for less than 20 percent of total employment among women. Slightly more wage and salary-earning women than self-employed women were active in these two industries.

The second category has a middle range of women-owned businesses (33 percent-66 percent). For the period 1994-2002, these industries included medical services, hospitals, entertainment/recreation services, personal services, business services, private household services, retail and utilities. More self-employed women were active in this category of industries compared to wage and salary-earning women (Figure 15).

The third category includes industries with a relatively low percentage (less than 33 percent) of women-owned businesses and includes communications, transport, other professional services, finance, insurance and real estate (FIRE), wholesale trade, manufacturing, construction, mining, and forestry/fishing. Approximately the same percentages of all women and self-employed women were active in these industries (Figure 16).

Contrary to expectations, neither wage and salary nor self-employed women significantly shifted industry participation over this portion of the study period. For the majority of the years in the time period 1994-2002, approximately 50-55 percent of self-employed women were in industries that had a moderate presence of women's business ownership followed by 30-35 percent presence in industries with the lowest percentage of women-owned businesses. The remainder were industries with a high percentage of women-owned business. However, wage and salary-earning women were somewhat more likely than self-employed women to be in industries with the greatest degree of female ownership, while self-employed women were better represented in the middle group. This suggests that self-employed women were branching out of the most traditional outlets for their gender and that the effect of labor segmentation described in the literature may not be as strong as expected.

The industry definitions and distribution changed, but the themes remained the same for 2003-2006 (Figures 17-19). More wage and salary-earning women than self-employed women were active in the industries with a high percentage of women-owned businesses (education & health services only), while more self-employed women were active in the industries with a medium percentage of women-owned businesses (wholesale and retail trade, financial activities, professional and business services, leisure and hospitality, and other services). The figures were

very similar to those in 1994-2002 for industries with a low percentage of women-owned businesses (agriculture/forestry/fishing, mining, construction, manufacturing, transport and utilities and information—financial activities and professional services moved to the “medium” category for this period). Across the entire time period, our analysis showed a strong association (all above the statistically acceptable 0.3 for Cramer’s V) between self-employment among women and industry experience (Table 4).

Table 4. Cross-tab Statistics for Self-Employed Women vs. Wage & Salary-Earning Women by Industry (Low, Medium, High Presence of Self-Employed Women)

	<u>Chi-Square</u>	<u>p value</u>	<u>Measures of Association</u>					
			<u>Cramer's V</u>	<u>p value</u>	<u>Phi</u>	<u>p value</u>	<u>Contingency Coefficient</u>	<u>p value</u>
<i>Year</i>								
1994	25176.48	0.000	0.348	0.000	0.603	0.000	0.516	0.000
1995	24691.95	0.000	0.346	0.000	0.599	0.000	0.514	0.000
1996	22124.30	0.000	0.349	0.000	0.605	0.000	0.518	0.000
1997	22058.86	0.000	0.345	0.000	0.597	0.000	0.512	0.000
1998	21673.80	0.000	0.342	0.000	0.593	0.000	0.510	0.000
1999	22499.76	0.000	0.346	0.000	0.599	0.000	0.514	0.000
2000	23204.16	0.000	0.347	0.000	0.602	0.000	0.516	0.000
2001	21997.45	0.000	0.345	0.000	0.597	0.000	0.513	0.000
2002	35356.54	0.000	0.342	0.000	0.593	0.000	0.510	0.000
2003	39751.51	0.000	0.365	0.000	0.633	0.000	0.535	0.000
2004	39684.88	0.000	0.368	0.000	0.638	0.000	0.538	0.000
2005	38282.64	0.000	0.364	0.000	0.631	0.000	0.533	0.000
2006	38934.82	0.000	0.368	0.000	0.637	0.000	0.537	0.000

Entrepreneurial Preparedness

The final specific human capital factor we examine is income diversity. Our expectation is that self-employed individuals may be able to rely on diversified income that comes neither from wages nor self-employment. Income diversity would be perceived as mitigating risk and supplying funding, thereby encouraging self-employment. We categorized the diversified income

into four quartiles. Since most households showed little variation on this factor, only the fourth quartile (highest amount of “other” income) included income that would be at all sufficient to serve this purpose. Self-employed women had greater income diversity at this level in comparison to non-self-employed women (Figure 20), but there was not a strong association between self-employment among women and income diversity.

Summary

Self-employed women differ from wage and salary-earning women on most of the human capital variables that we examined in the categories of education, experience, and entrepreneurial preparedness. However, we identified a strong association between only a smaller set of these variables and self-employment among women: holding an executive/managerial occupation and participating in certain non-female-dominant industry segments. These factors both fall into our “specific human capital” framework.

Self-Employed Women and Self-Employed Men

This section takes the same framework and compares self-employed women and men to identify ways in which human capital may affect male and female self-employment differently.

General Human Capital

Education

In the early part of the study period, a greater percentage of self-employed men held a college degree than self-employed women. By 2003, however, the percentages were nearly identical, as the educational attainment among self-employed women increased faster than among self-employed men (Figure 21). Still, for the entire 13 year period, self-employed men were more likely to have a college degree. Very low percentages of self-employed men or women are currently enrolled in a college or university (Figure 22).

Experience

Again, while not a human capital variable, our analysis showed interesting differences on hours worked between self-employed men and women (Figures 4 and 23). Self-employed men were more likely to work the greatest number of hours, with very low percentages working less

than 25 hours. Self-employed women were more evenly distributed across the quartiles, with a larger percentage working less than 25 or 35 hours. The differences for women may partly reflect the fact that in the CPS sample, they often represent the second income of many households. In fact the majority of the self-employed women in these data were listed as the “non-primary respondent,” in contrast to the self-employed men. In terms of the category of work activity for the previous year, a slightly greater percentage of self-employed men had been self-employed in the previous year, compared with self-employed women; this gap appears to be narrowing over time (Figure 24).

Entrepreneurial Preparedness

We again report our findings on earnings despite its weakness as a human capital variable. A much lower percentage of self-employed male earnings are in the first (lowest) quartile compared to self-employed women, while they have a much higher percentage of earnings in the fourth (highest) quartile (Figures 7 and 25). Given that self-employed women as a group are working fewer hours, we would also expect that they would earn less.

We see few differences on age between self-employed men and women, though there are slightly more self-employed men than women in the ages 50-59 and 60+ categories (Figures 9 and 26). The percentages of foreign-born self-employed men and women are also approximately the same throughout this period (Figure 27). Neither age nor whether an individual is foreign born is strongly associated with self-employment among men or women.

Specific Human Capital

Education

More self-employed men hold an advanced degree compared to self-employed women over the study period, but the gap had narrowed considerably by 2006 (Figure 28).

Experience

A greater percentage of self-employed men are in managerial occupations compared to self-employed women, and there has been little overall variation over the study time period (Figures 29 and 30).

Since the industry categories are defined by percentage of female versus male business owners, data for these categories contain no surprises. In terms of industry experience, by definition, a much smaller percentage of self-employed men are active in the industry categories with a high percentage of women-owned businesses and a much higher percentage are in the categories with low percentages of women-owned businesses. As would be expected, self-employed men throughout the time period were most likely to be in industries with the lowest female (i.e., highest male) rates of business ownership (Figures 31-36).

The percentages of self-employed men and women in the fourth (highest) quartile of “other” income were very close, with women slightly higher throughout the study period (Figure 37). While men are more likely to have some income diversity it leaned to lower income categories.

Summary

Self-employed men and women look surprisingly similar on several of the human capital variables analyzed for this study—at least by the end of the study period. Key areas where there are still differences are in holding an executive or managerial occupation and participating in certain male- versus female-dominant industry segments, though the latter is a definitional issue. The wide gap in advanced degrees seen at the beginning of the study period had largely closed by 2006. There are also significant differences in hours worked and earnings, but, as discussed above, these do not capture human capital but instead reflect current working conditions.

Differences Among Self-Employed Whites and Minorities

This section compares human capital factors among self-employed white and minority groups.

General Human Capital

Education

Self-employed minorities were slightly more likely than self-employed whites to have a college degree throughout much of the 13 year study period (Figure 21). By 2006, the percentage of all self-employed groups by race and gender having a college degree were clustered around

22-23 percent. Very low percentages of white and minority self-employed were also enrolled in college, consistent with the findings in the previous sections (Figure 22).

Experience

Self-employed whites and minorities followed a similar pattern in terms of hours worked, with the largest percentages working more than 36 hours (Figures 38 and 39). Minority and white self-employed persons also had similar previous work experience, with approximately 90 percent self-employed in the previous year—similar to men and women self-employed in 2006 (Figure 24). However, there were notable differences by race throughout the study period. In 1994, for example, lower percentages of minority self-employed had been self-employed during the previous year compared to white self-employed, while higher percentages had been employed elsewhere in the private sector.

Entrepreneurial Preparedness

Earnings data show the self-employed most likely to be either in the first (lowest) or fourth (highest) quartile, whether white or minority (Figures 40 and 41). We believe this reflects the number of self-employed women in both samples. Earnings for self-employed minorities are more varied, with a higher percentage in the first quartile compared to white self-employed.

Again, high percentages of self-employed, irrespective of race, were in the 40-49 and 50-59 age groups (Figures 42 and 43). Minority self-employed were somewhat “younger” in the first few years of the 13 year period, with relatively higher percentages in the 20-29 and 30-39 age groups, but they more closely followed the same pattern as the other categories for most of the later years. As expected, a much larger percentage of minority self-employed were foreign born than were white self-employed or other self-employed categories we examined (Figure 27).

Specific Human Capital

Education

The percentage of both white and minority self-employed holding a graduate degree hovered around 13-14 percent for much of the study period, though with greater variation over time among the minority self-employed (Figure 28).

Experience

Roughly the same percentage (22-25 percent) of minority and white self-employed held managerial occupations throughout the study period, which is very close to the percentage for male self-employed and greater than that for female self-employed (Figure 29).

In terms of industry experience, minority self-employed had a strong overall and relative presence in industries with a medium degree of women-owned businesses and relatively less presence in those with a low rate of women-owned businesses compared to white self-employed and male self-employed (Figures 31-36). By contrast, whites had a tendency toward industries with a lower degree of female ownership. This is strongly influenced by the number of self-employed white males. Yet self-employed minorities were more likely to be in industries that are less traditionally male. The industries with moderate degrees of female ownership may have lower barriers to entry for both minorities and women.

Entrepreneurial Preparedness

Self-employed minorities had less income diversity at the fourth quartile than any other self-employed category considered here (Figure 37). In general, self-employed minorities had the greatest variation in income diversity and were most likely to have “other” income in the lowest quartile, indicating that self-employed minorities had less access to other non-job related sources of financial support.

Implications

Our analysis points to several implications in regard to the set of questions defined at the paper’s outset.

Trends in Human Capital

The main area in which women’s human capital clearly increased over the study period is in educational attainment. More women were completing college and receiving advanced degrees by 2006 compared to 1994. Self-employed women increased their educational attainment at both the college and graduate levels at a faster rate compared to wage and salary-earning women.

Slight increases were also seen in the percentage of wage and salary-earning women in managerial occupations and those who were foreign born. The percentage of self-employed women in managerial occupations stayed approximately the same throughout the study period, but consistently exceeded the rate for wage and salary-earning women. The percentage of wage and salary-earning women and self-employed women who were foreign born remained comparable throughout the period.

We did not identify any notable human capital increases over the study period in terms of current enrollment, previous work experience, age, industry experience, or income diversity for wage and salary or self-employed women.

Relationships between Human Capital and Self-Employment among Women

The analysis showed that self-employed women differ on most human capital variables compared to wage and salary-earning women. In terms of general human capital, self-employed women had more education (college degree), were more likely to be self-employed in the previous year, and were older than wage and salary-earning women. By our measures of specific human capital, self-employed women were more likely to hold a graduate degree, be in managerial occupations, work in industries with a medium presence of women owned businesses, and have greater income diversity.

While there are clear differences, we identified strong associations between only a small set of human capital variables and self-employment among women. The critical variables are holding a managerial occupation and participating in industries with a medium presence of women owned businesses. These variables represent examples of specific human capital. The data support the hypothesis that specific experience affects the decision among women to choose self-employment.

Human Capital Differences among Self-Employed Men and Women

In terms of general human capital, self-employed men and women differ little by our measures of education, experience and preparedness—at least by the end of the study period. In the first few years, self-employed women did lag self-employed men by both of the education measures, but the gap had largely closed by 2006.

Differences remain among several of the specific human capital factors. A lower percentage of self-employed women hold managerial occupations than do self-employed men. The distribution of self-employed men and women among industry sectors also remains different, with relatively low rates of self-employed women involved in industries such as communications, transport, wholesale trade, manufacturing and construction, which also reflects the lower level of overall female participation in these sectors. Finally, self-employed women are more likely to have higher levels of income diversity than self-employed men.

Since wage and salary-earning women lag self-employed women, who in turn lag self-employed men, on the occupation and industry factors that are most strongly associated with self-employment, it appears that continued labor market segmentation may affect the overall levels of women's business ownership. However, two findings—that self-employed women are not concentrated in a few sectors dominated by women and that by 2003 such industries as financial activities and professional services had gone from a low to medium rate of women's business ownership—suggest that the effect of labor market segmentation may be weakening over time. Our analysis supports the findings of other smaller scale survey research, that self-employed women are entering a broader set of industries, especially in comparison to non-self-employed women (Loscocco and Robinson 1991; Moore and Buttner 1997; Anna, Chandler et al. 1999; Langowitz 2003; Center for Women's Business Research 2004).

Human Capital Differences among Self-Employed Minorities and Whites

Our analysis shows few human capital differences between minority and white self-employed. The only notable differences are the percentage of minority self-employed who are foreign born, their industry experience and the level of income diversity. However, minority self-employed showed greater year-to-year variation on several variables, such as educational attainment and previous experience, which may reflect the relatively small sample size as well as definitional changes in 2003.

A New Definition of Human Capital

Finally, at the outset of this research, we proposed that human capital is not just formal education or educational attainment, even though this is the most often utilized proxy for human capital. The literature on the importance of human capital to entrepreneurship attempts to define

in more detail the critical elements of human capital; however, few studies have attempted to examine what the various layers of human capital are and how they can be represented through a large-scale data analysis as we have conducted. As our analysis indicates, indeed, different types of human capital influence self-employment in the various groups in dissimilar ways.

To examine the overall impact of these components of general and specific human capital, two indices were calculated to reflect the additive effect of general and specific human capital. These indices were compared to the traditional measure of human capital (educational attainment) for each self-employment group (women, men, whites, and minorities). For each group, the measures of association for the cross tabulations with the additive indices increased in comparison to those of the simple educational attainment variable.

Although this is a simple statistical test of the overall effect of our theoretically-evolved definition of human capital, this research has provided a comprehensive analysis of how entrepreneurship in various population groups differs over time and in relation to human capital, which has an ever-growing importance in explaining not just entrepreneurship, but also economic growth. We have a clearer view and understanding of the development of human capital skills and capacities in women, men, whites, and minorities, and we have detailed their evolution over a span of time greater than the past decade.

Summary

This analysis shows that self-employed women differ on most human capital variables compared to women who are wage and salary employees. The study finds that self-employed women have more education and increased their educational attainment at a faster rate compared to other working women. The percentage of self-employed women in managerial occupations consistently exceeded the rate for other working women, and self-employed women participated in different industries than other working women. In terms of general human capital, self-employed men and women differ little by our measures of education, experience and preparedness—at least by the end of the study period. In the first few years, self-employed women did lag self-employed men by educational attainment, but the gap had largely closed by 2006. Differences remain among several of the specific human capital factors, specifically occupational and industry experience. This study indicates that different types of human capital

influence self-employment in the various groups in dissimilar ways and that the analysis of general and specific human capital helps to better understand women's self-employment in relation to other self-employed groups and to other working women.

The analysis of general and specific human capital reveals several trends that create a better understanding of self-employment in general and self-employment for women in particular. Regarding self-employment in general, some components of human capital remain constant for all groups throughout the study period. First, formal educational attainment is relevant at all levels, including advanced degrees. Other smaller scale studies reviewed above suggest that these are likely to be professional degrees in legal, medical, business fields. Second, all self-employed groups tend to be older than the non-self-employed. Third, self-employed individuals are more likely to have previous as well as current occupations that provide executive, administrative, and managerial experience.

The analysis also indicates some distinct differences for self-employment based on gender and race. In regard to gender, self-employed women work fewer hours and have lower earnings than other self-employed groups or wage and salary-earning women—yet the variation in both hours and earnings is greater for self-employed women. Self-employed women also seem to be able to depend on more income diversity, while self-employed minorities have the least income diversity. The analysis of industry experience also suggests that self-employed women are moving into industries that have lower degrees of female business ownership through the time period, implying that self-employment may provide fewer barriers to entry and make participating in those industries easier than through traditional career channels. With respect to race, our analysis of native and foreign born status indicates that immigrants represent a large share of self-employed minorities. And, like women, self-employed minorities are entering industries with less female-business ownership through the time period.

This study provides a unique way to understand the evolution of self-employment through the lens of human capital. Our large-scale, multi-year analysis demonstrates how education, experience, and entrepreneurial preparedness are important components of both general and specific human capital. The analysis also shows how human capital acquisition varies for self-employed women relative to other working women as well as self-employed men,

whites, and minorities, and describes the human capital factors that are the most important for business creation and entrepreneurship.

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Endnotes

¹ For more information about the data see www.census.gov/cps/.

² DataFerrett is a “data extraction software and a data mining tool that accesses data stored in the DataWeb.” The DataWeb is a network of online data libraries. Topics include census, economic and health data, among others. The DataWeb is a collaboration of the US Census Bureau and the Centers for Disease Control.

³ While we recognize moonlighting as an important entrepreneurial category, for this purpose we chose to focus on main job self-employed to represent business owners. A separate issue is whether moonlighting—or self-employment as a second occupation—is a human capital variable that predicts main job self-employment. While moonlighting may be a step into self-employment, it could also represent taking a wage job to supplement income from self-employment. Further the “moonlighting” definitions in CPS (either SEOTR or WSAL-Y_N +SEMP-Y_N) would not make sense given the self-employed definition. Since we used the class of worker, main job codes for self employed, then they would either be self employed twice (SEOTR) or they would be moonlighting with a wage job (WSAL-Y_N +SEMP-Y_N) which isn't a human capital issue.

⁴ The race variables changed significantly in 2002, expanding from 4 options to 21 options in the survey. For this reason and to ensure that we had enough self-employed respondents in each category to enable useful comparisons, we limit this analysis to white and all other minorities. We did not divide these groups by gender, again to ensure we had sufficient numbers of respondents in both categories. We recognize and wish to emphasize, however, that neither category is treated entirely consistently for the entire study period, but we did not see major jumps in the data that suggest a significant discontinuity between years.

⁵ Industries were divided into three categories based on the percentage of female self-employment relative to total self-employment. Industries with zero to 33.3 percent of female self-employment were labeled low; industries with 33.34 to 66.67 percent were labeled medium; and industries above 66.67 percent of female self-employment presence were labeled as high. The industries changed in 2003 due to the conversion from SIC to NAICS; although the percentage cut-offs remained the same, industries in each category varied. For 1994, the low category included communications, transport, other professional services, FIRE, wholesale trade, manufacturing, construction, mining, forestry and fishery; the medium category included medical services, hospitals, entertainment and recreation, personal services, business and auto services, private household services, retail trade, and utilities; the high category included social services and educational services. For 2003, the low category included agriculture, forestry and fishery, mining, construction, manufacturing, transport and utilities, and information; the medium category included wholesale and retail trade, financial activities, professional and business services, leisure and hospitality, and other services; the high category included educational and health services.

⁶ Ethnic origin questions designed to identify Hispanic respondents fell from 10 response options to 5, and discontinuities were immediately obvious in the data between 2002 and 2003. For this reason, we do not present data for the Hispanic self-employed in this report.

⁷ The chi-square tests showed that the bivariate relationships between all variables and all self-employment categories were significant in every case. However, only some of the relationships demonstrated moderate to very strong symmetric measures of association (Cramer's V, contingency coefficients, and phi). Only the results for these cross-tabulations are shown in tables.

⁸ Since only 20 percent of self-employed women report they hold managerial positions, we do not believe the response to this question is skewed by the fact of self-employment. 2003-2006 data are considered separately since the occupational codes used by the CPS changed from the previous period.

Appendix

**Figure 1. Educational Attainment – Bachelor’s Degree
Wage/ Salary Women and Self-Employed Women, 1994-2006**



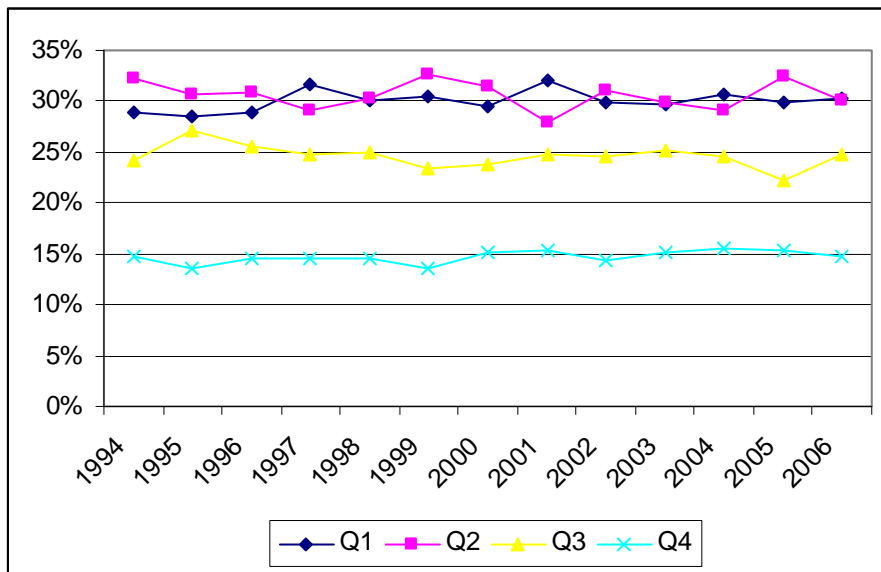
**Figure 2. Current Enrollment in College or University
Wage/ Salary Women and Self-Employed Women, 1994-2006**



**Figure 5. Previous Year Work Experience
Wage/ Salary Women and Self-Employed Women, 1994-2006**



**Figure 6. Earnings by Quartile (Q1=lowest)
Wage/Salary Women, 1994-2006**



**Figure 7. Earnings by Quartile (Q1=lowest)
Self-Employed Women, 1994-2006**

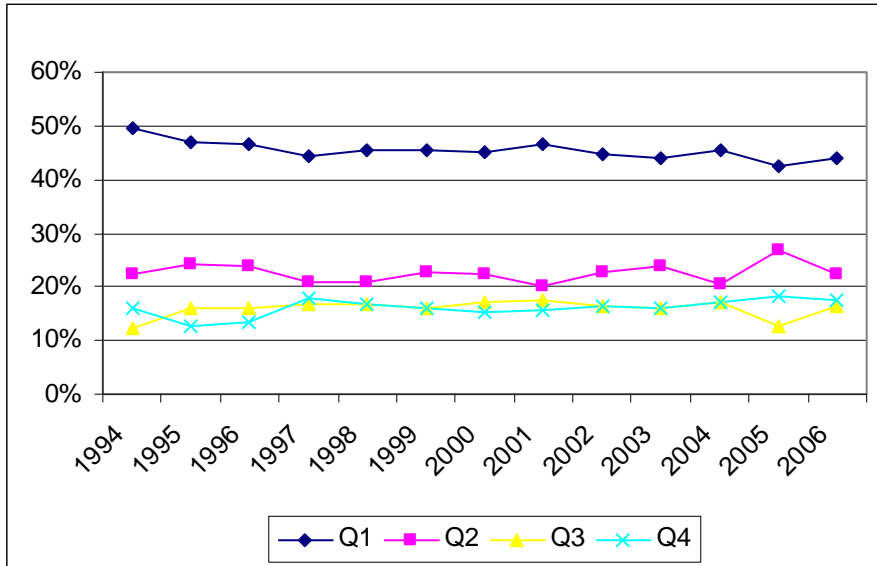


Figure 8. Wage/Salary Women by Age Category, 1994-2006

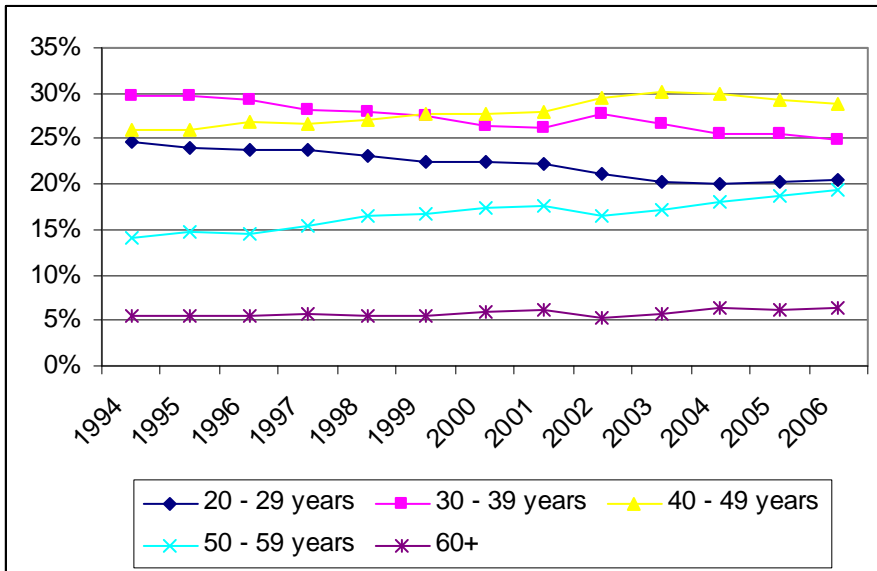


Figure 9. Self-Employed Women by Age Category, 1994-2006

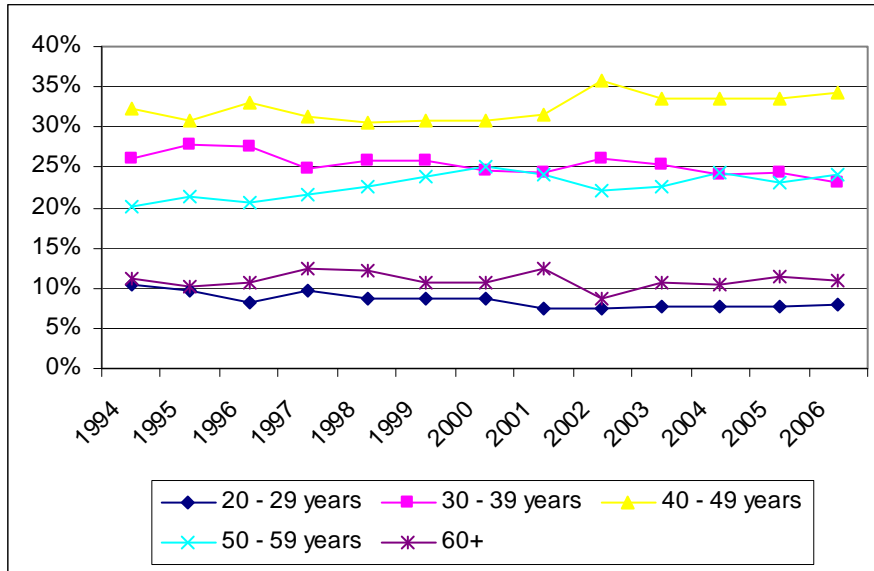


Figure 10. Percentage of Foreign Born Wage/ Salary Women and Self-Employed Women, 1994-2006



**Figure 11. Educational Attainment – Graduate Degree
Wage/ Salary Women and Self-Employed Women, 1994-2006**



**Figure 12. Percentage in Executive, Administrative and Management Occupations
Wage/ Salary Women and Self-Employed Women, 1994-2002**



Figure 13. Percentage in Executive, Administrative and Management Occupations Wage/ Salary Women and Self-Employed Women, 2003-2006

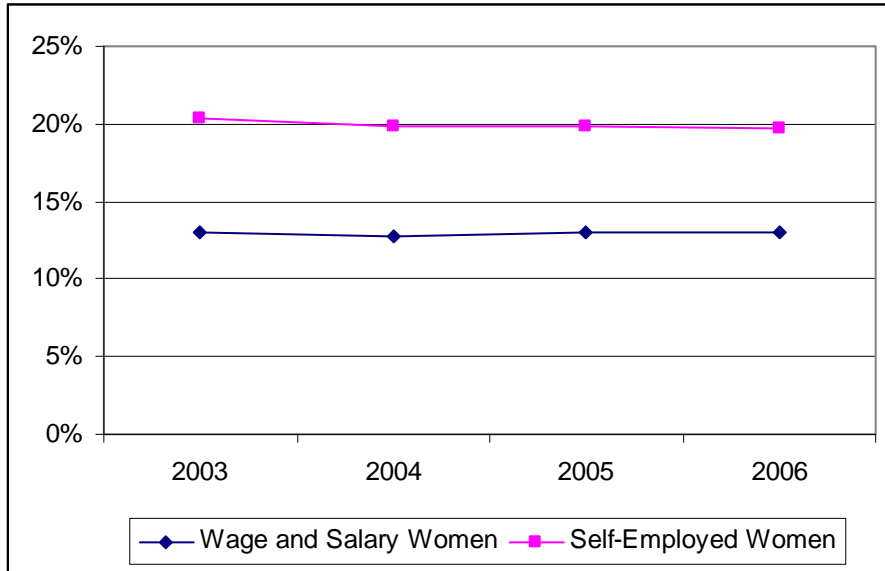


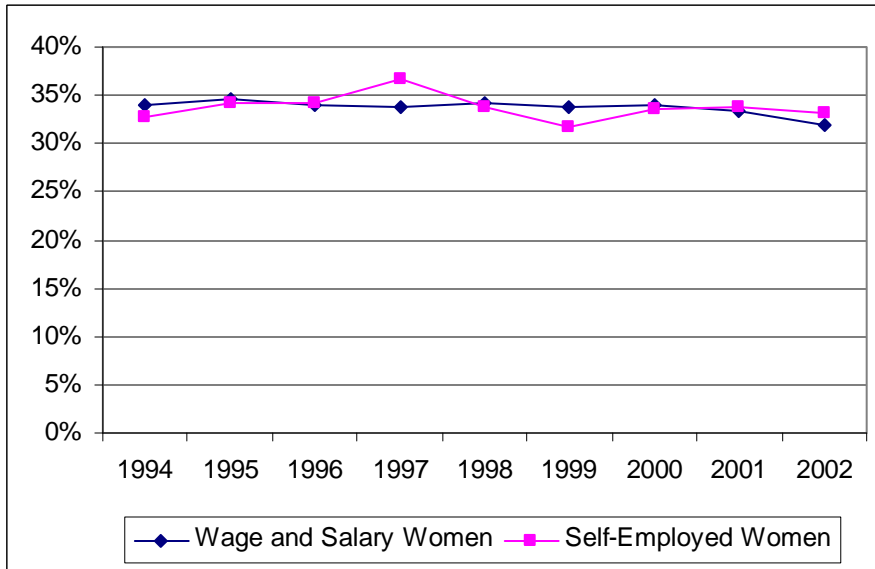
Figure 14. Industry Experience -- Percentage in Industries with a High Rate of Women-Owned Businesses Wage/ Salary Women and Self-Employed Women, 1994-2002



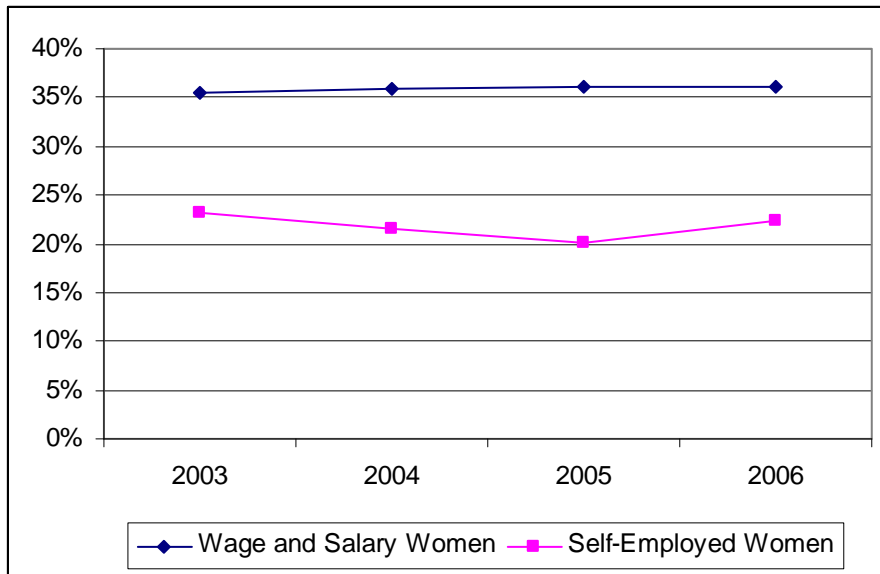
**Figure 15. Industry Experience -- Percentage in Industries with a Medium Rate of Women-Owned Businesses
Wage/ Salary Women and Self-Employed Women, 1994-2002**



**Figure 16. Industry Experience -- Percentage in Industries with a Low Rate of Women-Owned Businesses
Wage/ Salary Women and Self-Employed Women, 1994-2002**



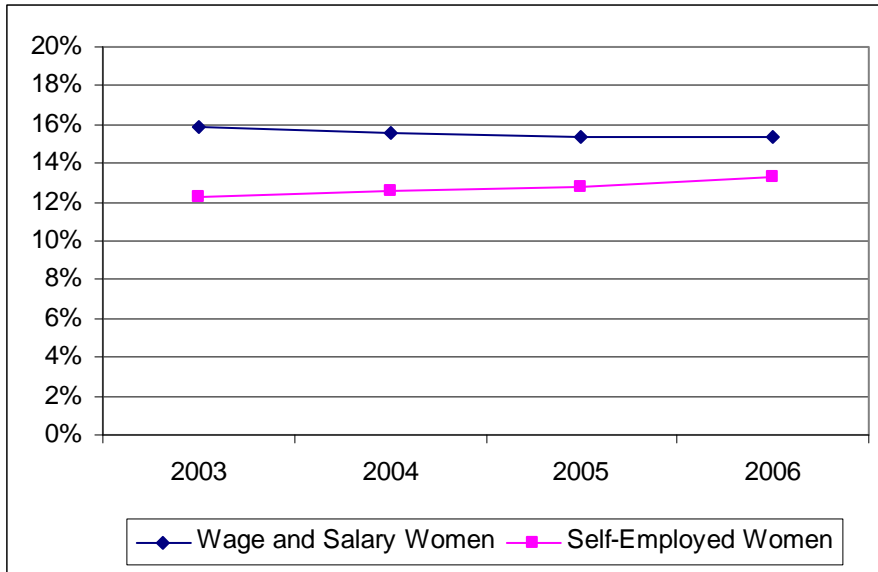
**Figure 17. Industry Experience -- Percentage in Industries with a High Rate of Women-Owned Businesses
Wage/ Salary Women and Self-Employed Women, 2003-2006**



**Figure 18. Industry Experience -- Percentage in Industries with a Medium Rate of Women-Owned Businesses
Wage/ Salary Women and Self-Employed Women, 2003-2006**



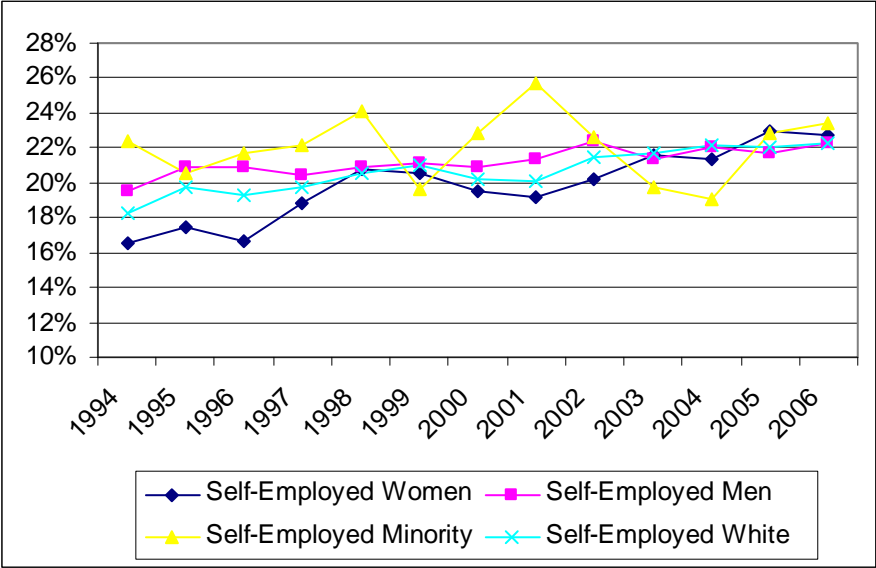
**Figure 19. Industry Experience -- Percentage in Industries with a Low Rate of Women-Owned Businesses
Wage/ Salary Women and Self-Employed Women, 2003-2006**



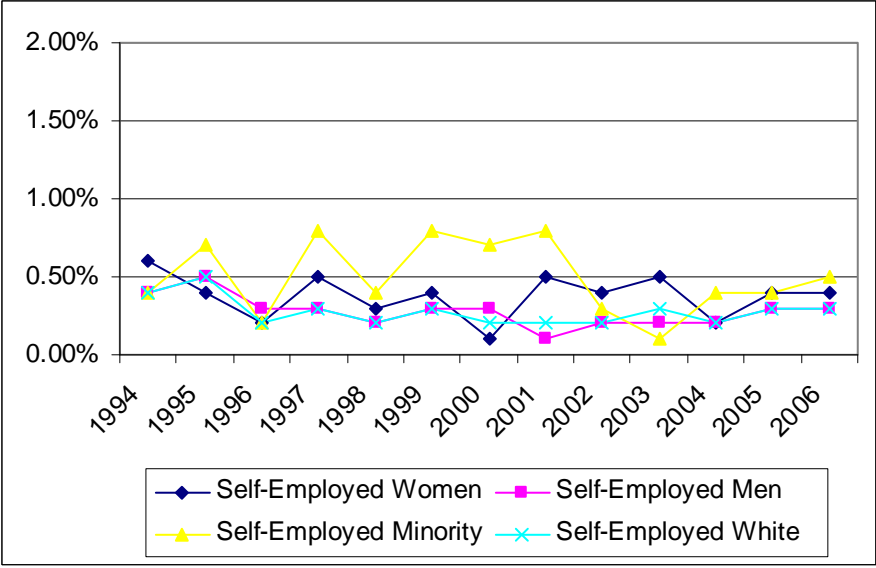
**Figure 20. Income Diversity -- Percentage in 4th Quartile (Highest Level)
Wage/ Salary Women and Self-Employed Women, 1994-2006**



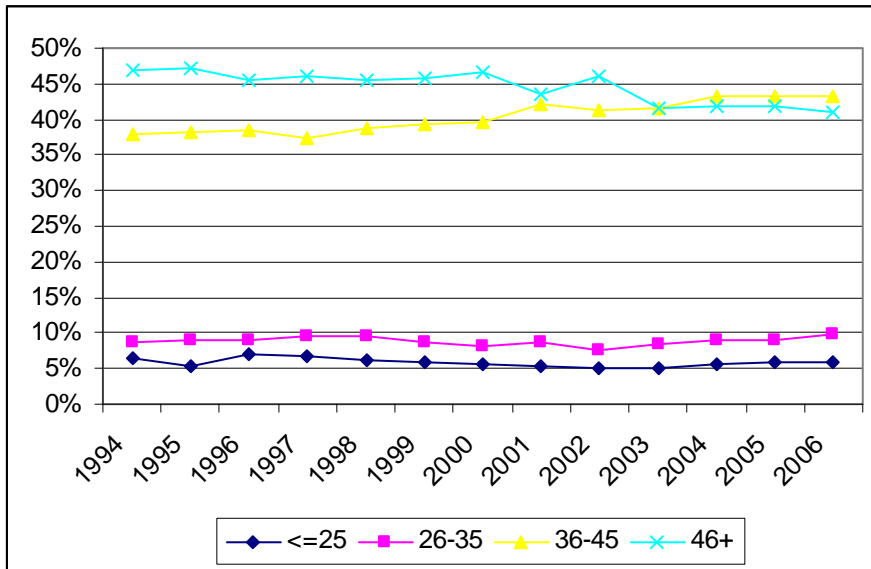
**Figure 21. Educational Attainment – Bachelor’s Degree
Self-Employed Categories, 1994-2006**



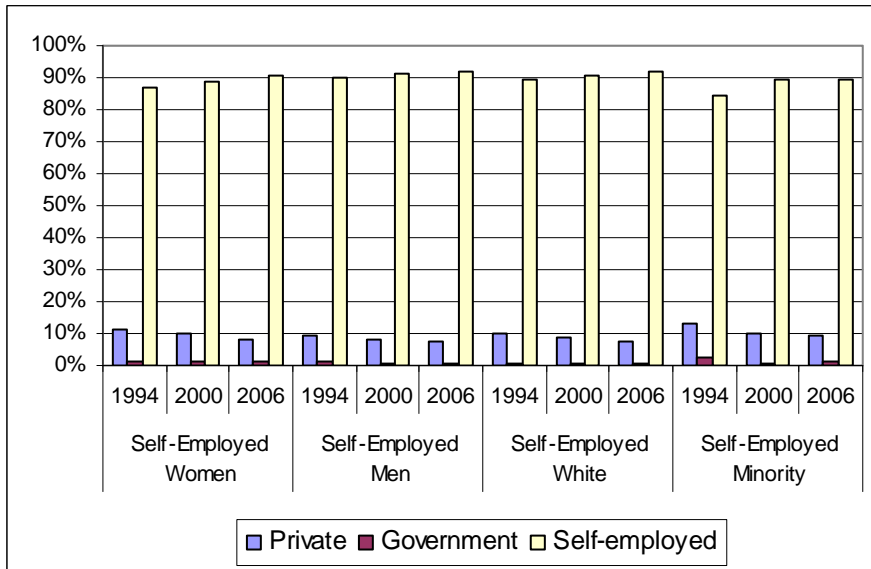
**Figure 22. Current Enrollment in College or University
Self-Employed Categories, 1994-2006**



**Figure 23. Hours Worked per Week
Self-Employed Men, 1994-2006**



**Figure 24. Previous Year Work Experience
Self-Employed Categories, 1994-2006**



**Figure 25. Earnings by Quartile (Q1=lowest)
Self-Employed Men, 1994-2006**

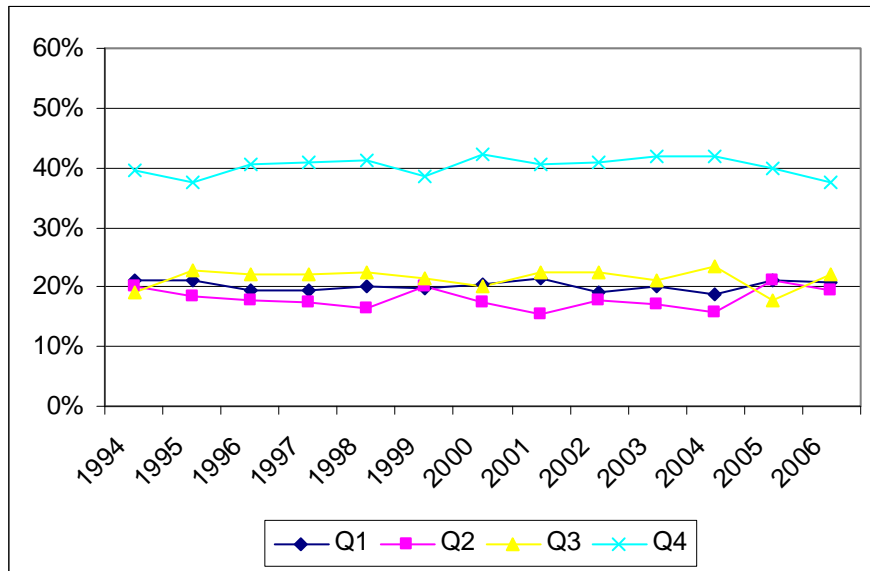


Figure 26. Self-Employed Men by Age Category, 1994-2006

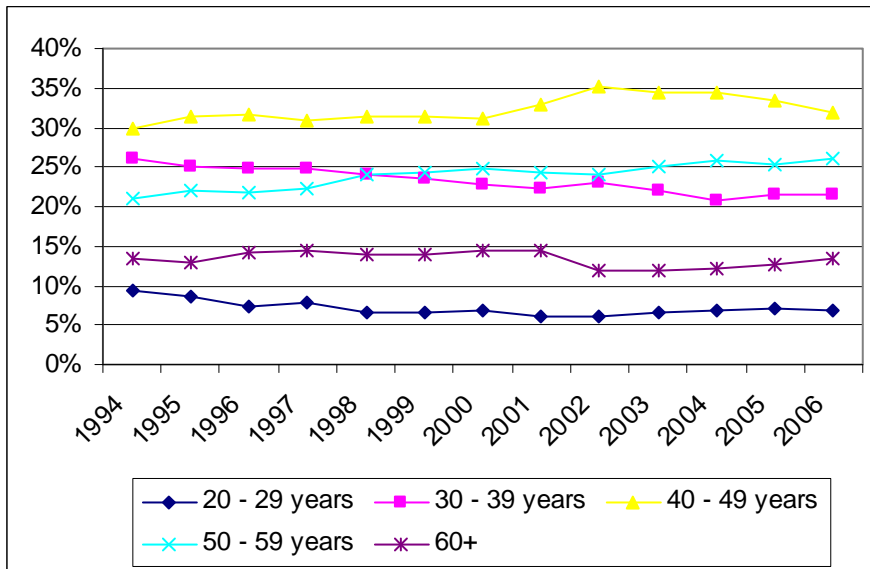


Figure 27. Percentage of Foreign Born Self-Employed Categories, 1994-2006



Figure 28. Educational Attainment – Graduate Degree Self-Employed Categories, 1994-2006

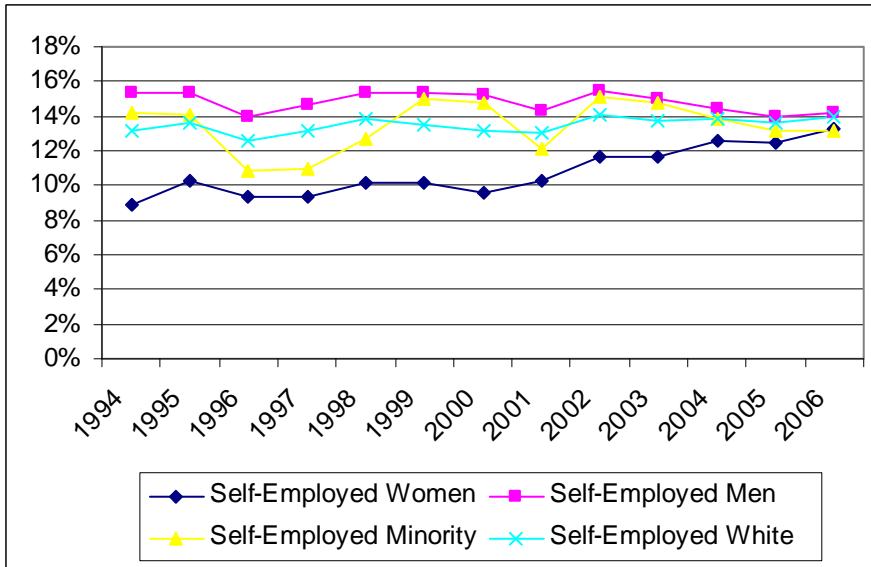


Figure 29. Percentage in Executive, Administrative and Management Occupations Self-Employed Categories, 1994-2002

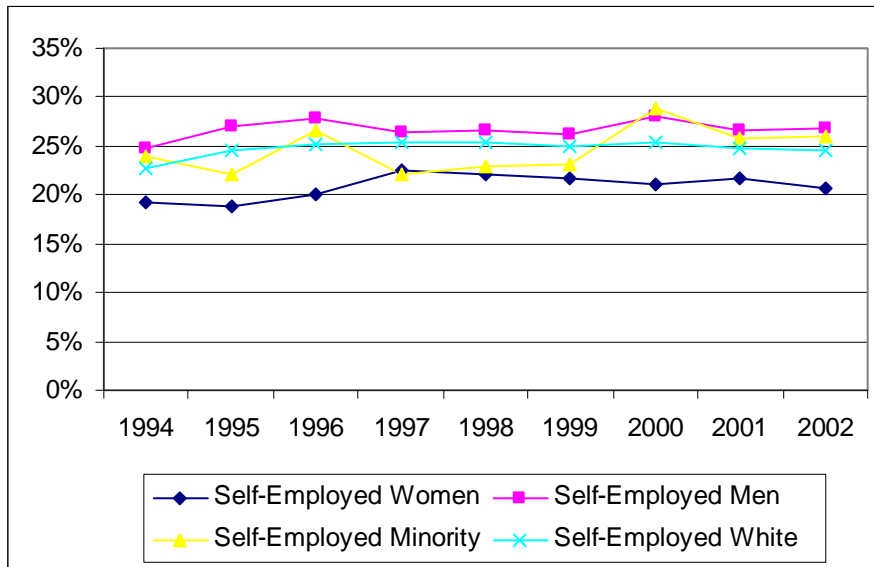
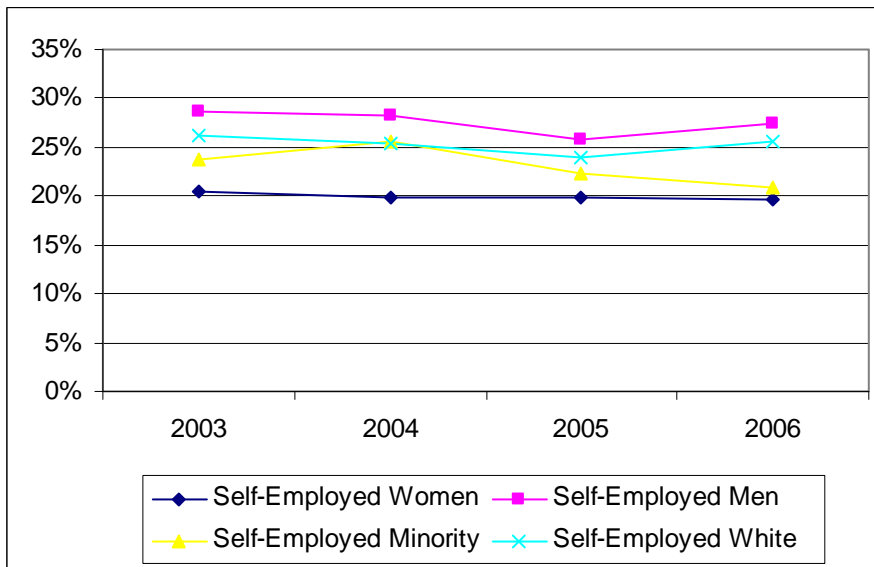
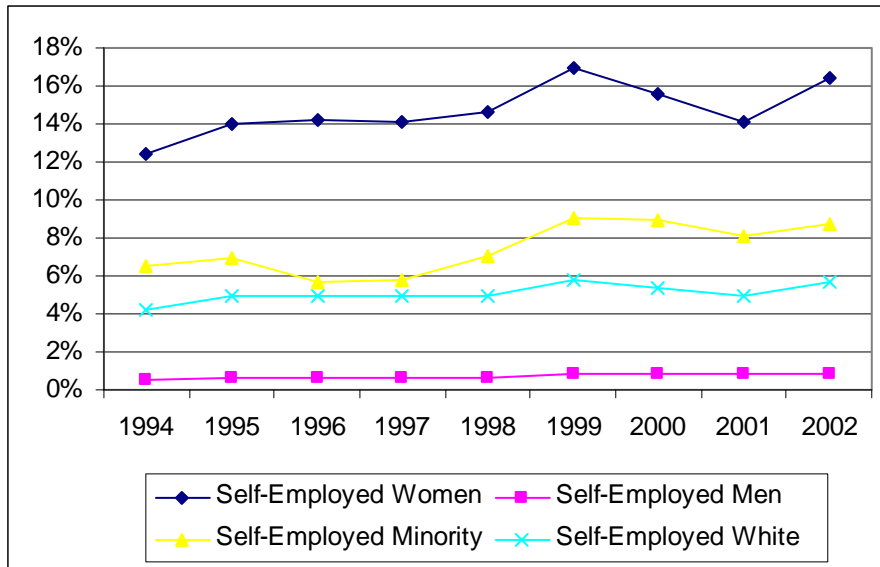


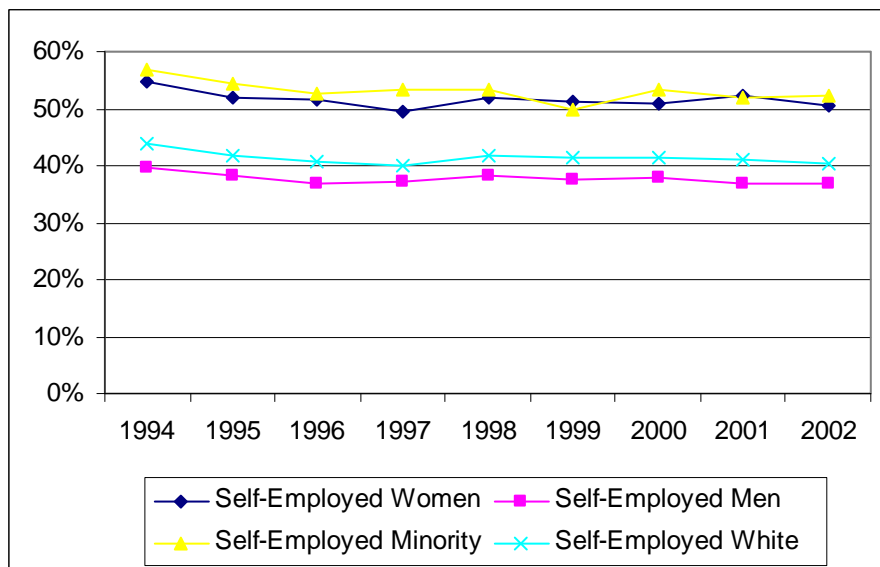
Figure 30. Percentage in Executive, Administrative and Management Occupations Self-Employed Categories, 2003-2006



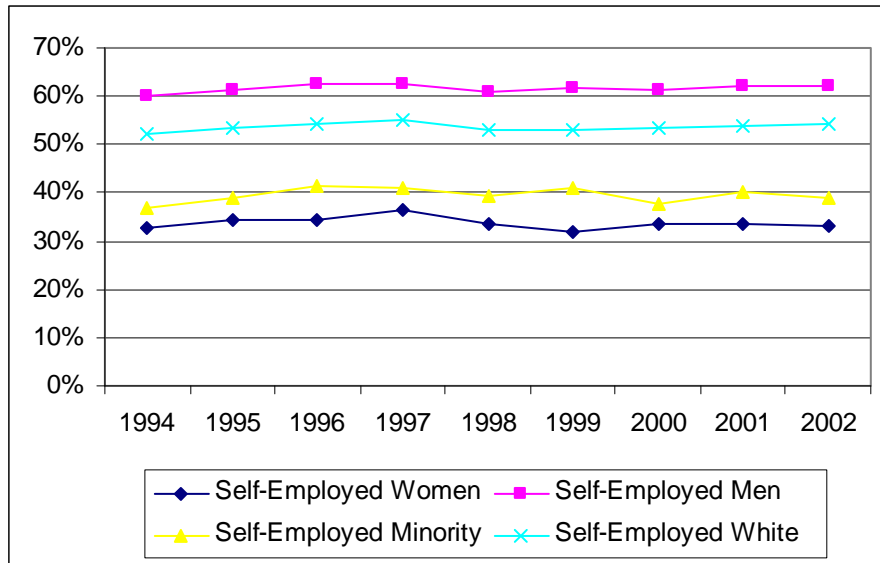
**Figure 31. Industry Experience -- Percentage in Industries with a High Rate of Women-Owned Businesses
Self-Employed Categories, 1994-2002**



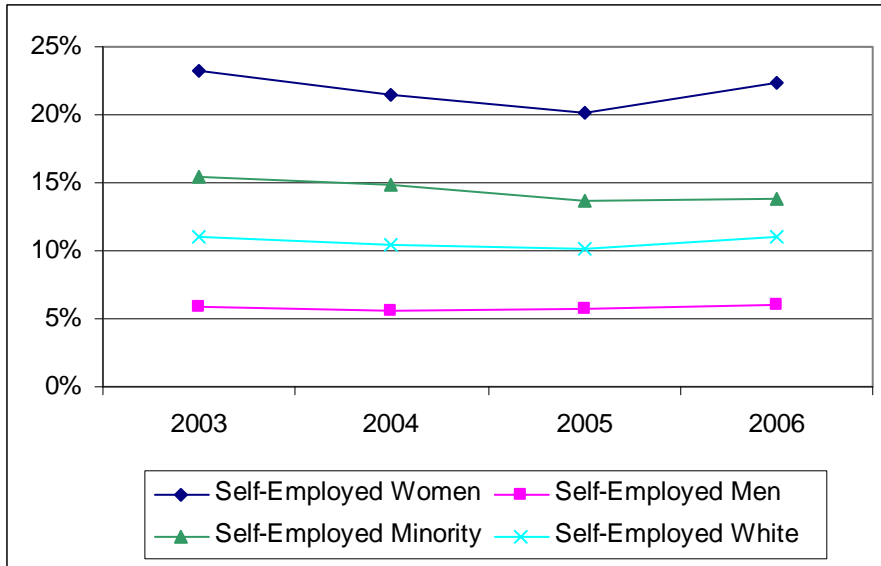
**Figure 32. Industry Experience -- Percentage in Industries with a Medium Rate of Women-Owned Businesses
Self-Employed Categories, 1994-2002**



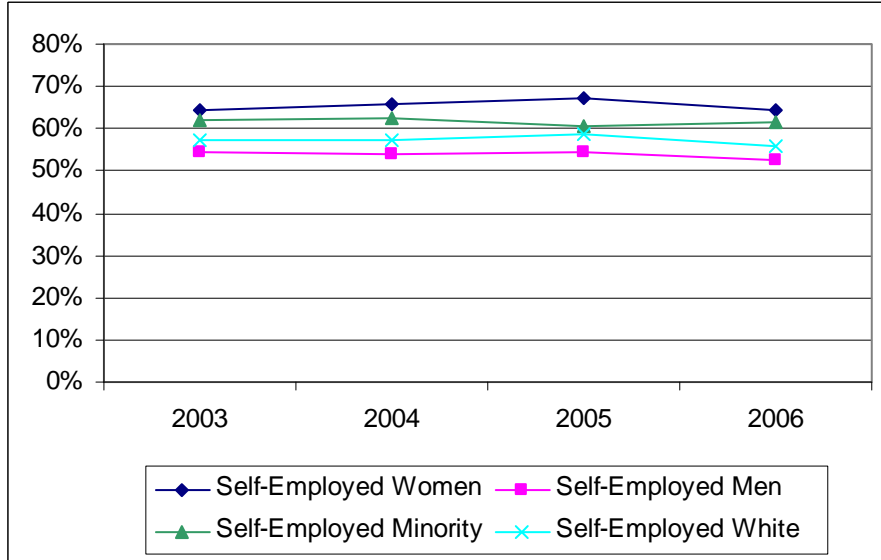
**Figure 33. Industry Experience -- Percentage in Industries with a Low Rate of Women-Owned Businesses
Self-Employed Categories, 1994-2002**



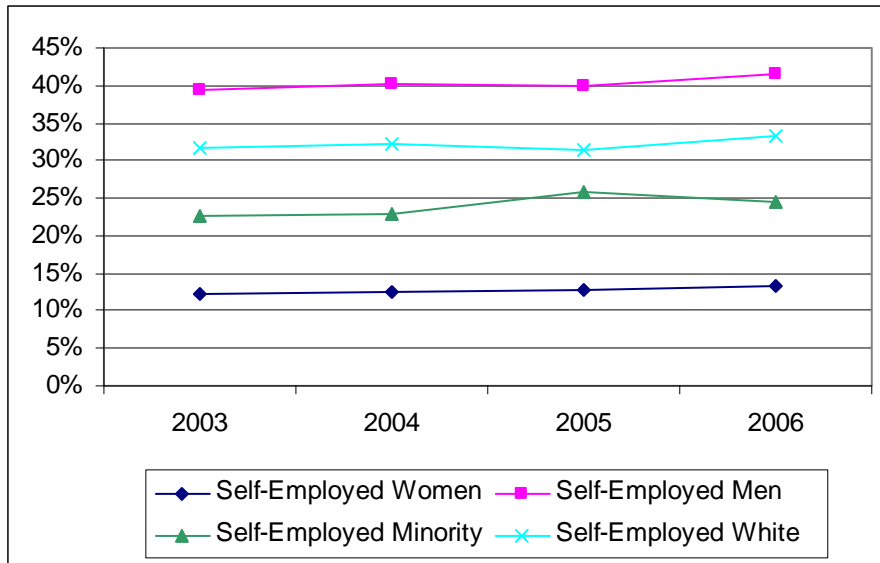
**Figure 34. Industry Experience -- Percentage in Industries with a High Rate of Women-Owned Businesses
Self-Employed Categories, 2003-2006**



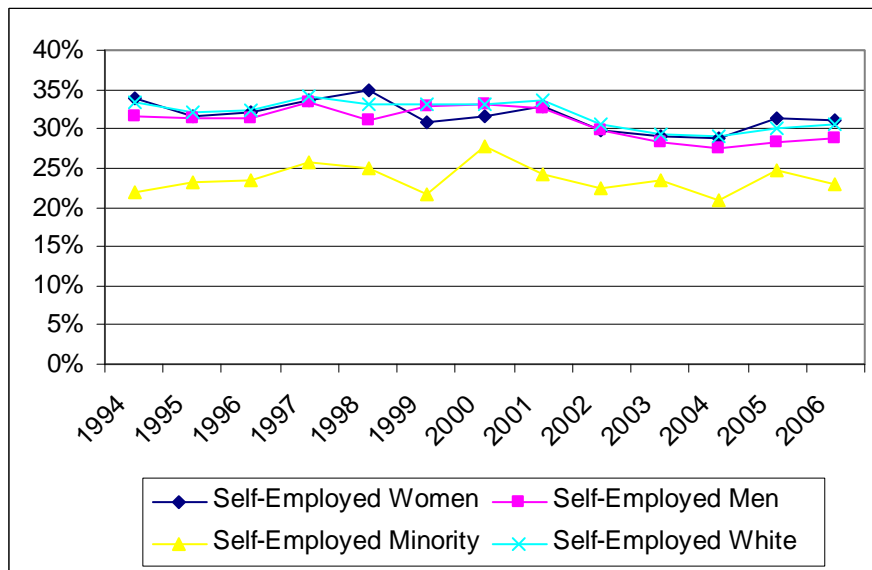
**Figure 35. Industry Experience -- Percentage in Industries with a Medium Rate of Women-Owned Businesses
Self-Employed Categories, 2003-2006**



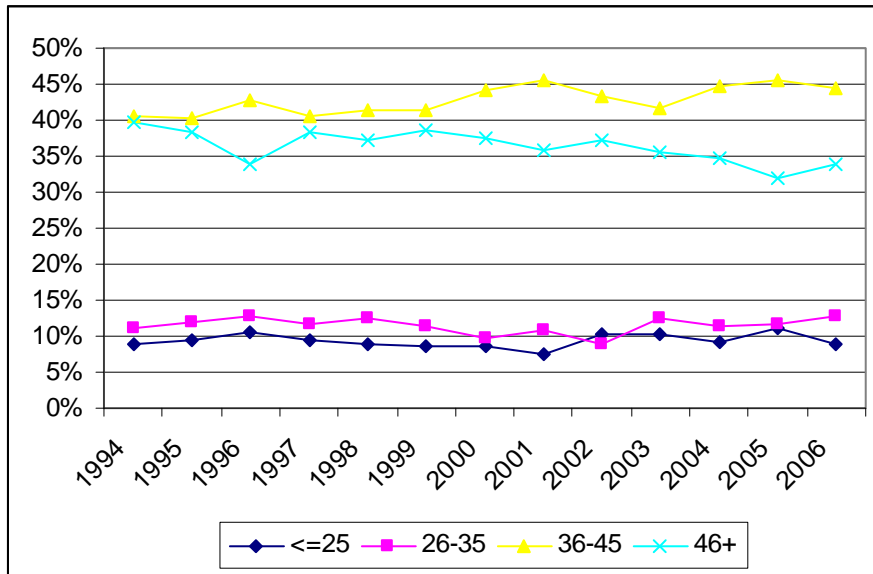
**Figure 36. Industry Experience -- Percentage in Industries with a Low Rate of Women-Owned Businesses
Self-Employed Categories, 2003-2006**



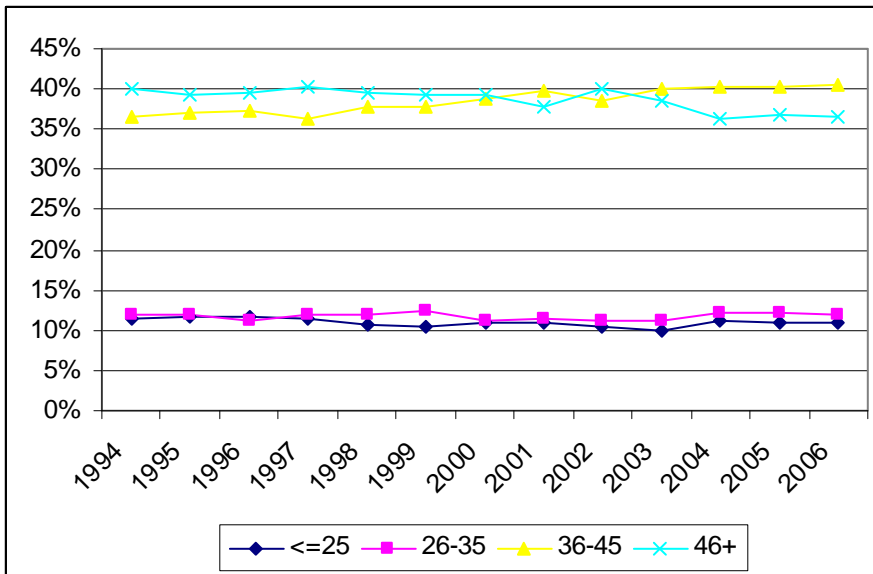
**Figure 37. Income Diversity -- Percentage in 4th Quartile (Highest Level)
Self-Employed Categories, 1994-2006**



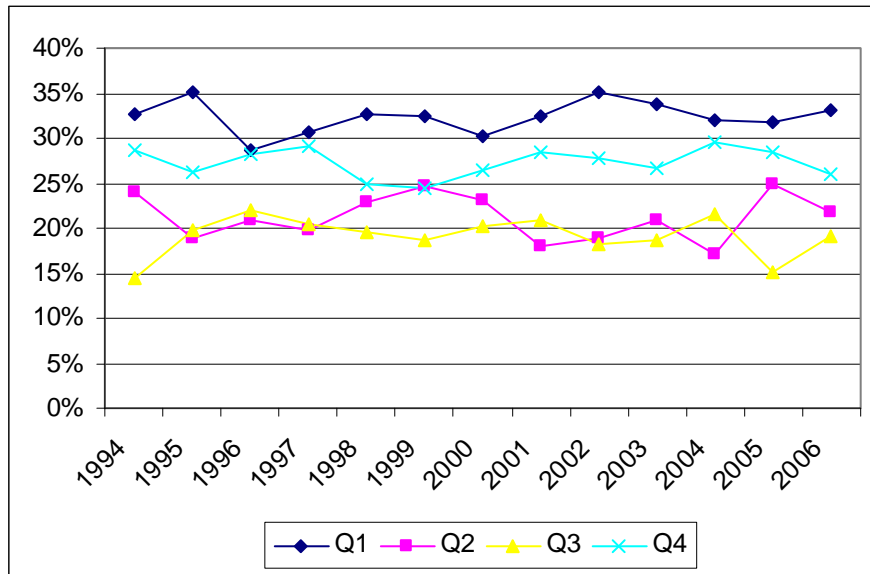
**Figure 38. Hours Worked per Week
Self-Employed Minority, 1994-2006**



**Figure 39. Hours Worked per Week
Self-Employed White, 1994-2006**



**Figure 40. Earnings by Quartile (Q1=lowest)
Self-Employed Minority, 1994-2006**



**Figure 41. Earnings by Quartile (Q1=lowest)
Self-Employed White, 1994-2006**

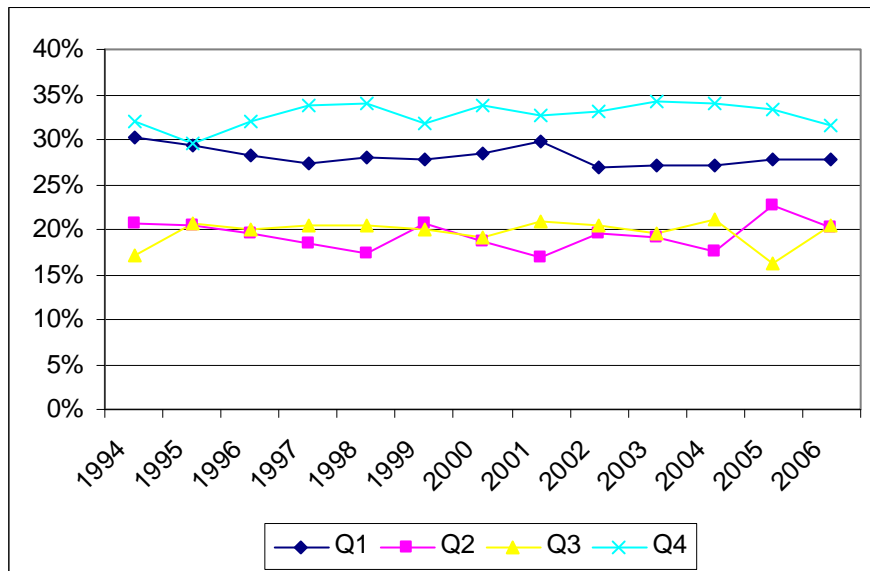


Figure 42. Self-Employed Minority by Age Category, 1994-2006

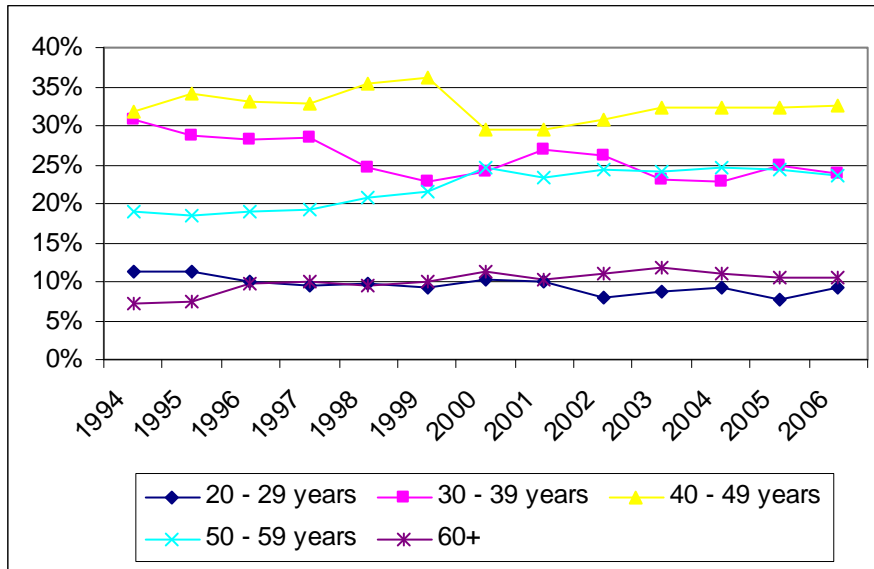
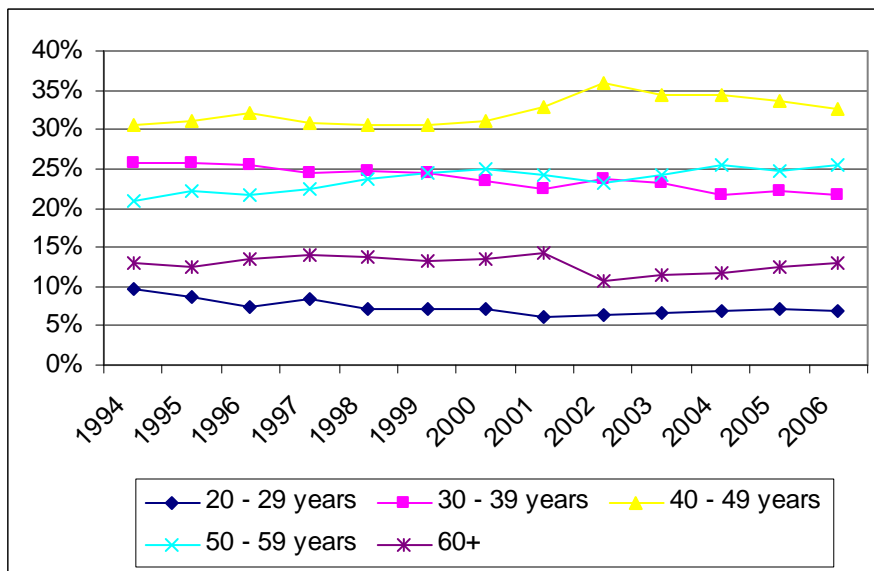


Figure 43. Self-Employed White by Age Category, 1994-2006



Appendix - Table 5.

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<i>Total Number in Survey</i>	69,273	68,925	60,461	61,929	61,728	62,609	64,082	61,702	100,538	99,356	97,419	96,253	96,013
<i>Self-Employed Women</i>	2,356	2,311	1,959	2,088	1,957	1,957	2,003	1,871	3,068	3,105	3,178	3,260	3,181
<i>Wage & Salary Women</i>	27,843	27,710	24,492	25,160	25,237	25,591	26,131	25,281	41,787	41,115	40,369	39,733	39,450
<i>Self-Employed Men</i>	4,768	4,615	4,086	4,331	4,040	3,956	3,964	3,681	5,980	6,389	6,295	6,388	6,409
<i>Self-Employed Minority</i>	571	583	442	502	490	525	535	529	1,008	1,088	1,183	1,230	1,250
<i>Self-Employed White</i>	6,553	6,343	5,603	5,917	5,507	5,388	5,432	5,023	8,040	8,406	8,290	8,418	8,340

Appendix - Table 6. General Human Capital Variables

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Percentage with Bachelor's Degree Only													
<i>Self-Employed Women</i>	17%	17%	17%	19%	21%	21%	20%	19%	20%	22%	21%	23%	23%
<i>Wage & Salary Women</i>	17%	18%	18%	18%	19%	19%	19%	19%	20%	20%	20%	21%	21%
<i>Self-Employed Men</i>	20%	21%	21%	20%	21%	21%	21%	21%	22%	21%	22%	22%	22%
<i>Self-Employed Minority</i>	22%	21%	22%	22%	24%	20%	23%	26%	23%	20%	19%	23%	23%
<i>Self-Employed White</i>	18%	20%	19%	20%	21%	21%	20%	20%	22%	22%	22%	22%	22%
Percentage Currently Enrolled in College or University													
<i>Self-Employed Women</i>	0.6%	0.4%	0.2%	0.5%	0.3%	0.4%	0.1%	0.5%	0.4%	0.5%	0.2%	0.4%	0.4%
<i>Wage & Salary Women</i>	3.1%	3.0%	3.1%	3.1%	3.1%	2.9%	2.8%	3.0%	2.9%	2.9%	3.0%	3.0%	3.1%
<i>Self-Employed Men</i>	0.4%	0.5%	0.3%	0.3%	0.2%	0.3%	0.3%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%
<i>Self-Employed Minority</i>	0.4%	0.5%	0.2%	0.3%	0.2%	0.3%	0.2%	0.2%	0.2%	0.3%	0.2%	0.3%	0.3%
<i>Self-Employed White</i>	0.4%	0.7%	0.2%	0.8%	0.4%	0.8%	0.7%	0.8%	0.3%	0.1%	0.4%	0.4%	0.5%
Percentage by Class of Worker for Job Held Previous Year													
<u><i>Self-Employed Women</i></u>													
<i>Private</i>	12%	11%	11%	10%	10%	8%	10%	9%	9%	9%	8%	9%	8%
<i>Government</i>	1%	2%	2%	1%	2%	1%	1%	2%	1%	1%	1%	1%	1%
<i>Self-employed</i>	87%	87%	87%	89%	88%	91%	89%	89%	90%	90%	91%	90%	90%
<i>Other</i>	0.1%	0.0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<u><i>Wage & Salary Women</i></u>													
<i>Private</i>	78%	79%	79%	80%	80%	80%	79%	80%	80%	79%	79%	79%	79%
<i>Government</i>	21%	21%	20%	20%	19%	19%	20%	20%	20%	21%	20%	21%	20%
<i>Self-employed</i>	0.5%	0.4%	0.4%	0.6%	0.7%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
<i>Other</i>	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
<u><i>Self-Employed Men</i></u>													

<i>Private</i>	9%	11%	10%	9%	7%	9%	8%	9%	8%	8%	8%	8%	7%
<i>Government</i>	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
<i>Self-employed</i>	90%	88%	89%	91%	92%	91%	91%	91%	91%	91%	92%	91%	92%
<i>Other</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
<u><i>Self-Employed Minority</i></u>													
<i>Private</i>	13%	15%	13%	10%	8%	11%	10%	10%	8%	9%	9%	10%	9%
<i>Government</i>	3%	2%	1%	2%	2%	1%	1%	1%	1%	2%	2%	1%	1%
<i>Self-employed</i>	84%	82%	86%	89%	90%	88%	89%	89%	91%	89%	90%	89%	90%
<i>Other</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
<u><i>Self-Employed White</i></u>													
<i>Private</i>	10%	11%	10%	9%	8%	8%	9%	9%	8%	8%	8%	9%	8%
<i>Government</i>	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
<i>Self-employed</i>	89%	88%	89%	90%	91%	91%	91%	90%	91%	91%	92%	91%	92%
<i>Other</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Percentage by Age Category</i>													
<u><i>Self-Employed Women</i></u>													
<i>20 - 29 years</i>	10%	10%	8%	10%	9%	9%	9%	8%	7%	8%	8%	8%	8%
<i>30 - 39 years</i>	26%	28%	28%	25%	26%	26%	25%	24%	26%	25%	24%	24%	23%
<i>40 - 49 years</i>	32%	31%	33%	31%	31%	31%	31%	32%	36%	34%	34%	34%	34%
<i>50 - 59 years</i>	20%	21%	21%	22%	23%	24%	25%	24%	22%	23%	24%	23%	24%
<i>60+</i>	11%	10%	11%	12%	12%	11%	11%	13%	9%	11%	10%	11%	11%
<u><i>Wage & Salary Women</i></u>													
<i>20 - 29 years</i>	25%	24%	24%	24%	23%	22%	23%	22%	21%	20%	20%	20%	20%
<i>30 - 39 years</i>	30%	30%	29%	28%	28%	28%	26%	26%	28%	27%	26%	26%	25%
<i>40 - 49 years</i>	26%	26%	27%	27%	27%	28%	28%	28%	29%	30%	30%	29%	29%
<i>50 - 59 years</i>	14%	15%	15%	15%	16%	17%	17%	18%	17%	17%	18%	19%	19%
<i>60+</i>	6%	5%	5%	6%	6%	6%	6%	6%	5%	6%	6%	6%	6%

<i>Self-Employed Men</i>													
20 - 29 years	9%	9%	7%	8%	7%	7%	7%	6%	6%	7%	7%	7%	7%
30 - 39 years	26%	25%	25%	25%	24%	24%	23%	22%	23%	22%	21%	22%	22%
40 - 49 years	30%	32%	32%	31%	31%	31%	31%	33%	35%	35%	34%	33%	32%
50 - 59 years	21%	22%	22%	22%	24%	24%	25%	24%	24%	25%	26%	25%	26%
60+	13%	13%	14%	14%	14%	14%	15%	15%	12%	12%	12%	13%	14%
<i>Self-Employed Minority</i>													
20 - 29 years	11%	11%	10%	9%	10%	9%	10%	10%	8%	9%	9%	8%	9%
30 - 39 years	31%	29%	28%	29%	25%	23%	24%	27%	26%	23%	23%	25%	24%
40 - 49 years	32%	34%	33%	33%	36%	36%	30%	30%	31%	32%	32%	32%	33%
50 - 59 years	19%	19%	19%	19%	21%	22%	25%	23%	24%	24%	25%	24%	24%
60+	7%	7%	10%	10%	9%	10%	11%	10%	11%	12%	11%	11%	11%
<i>Self-Employed White</i>													
20 - 29 years	10%	9%	8%	8%	7%	7%	7%	6%	6%	7%	7%	7%	7%
30 - 39 years	26%	26%	26%	24%	25%	25%	23%	23%	24%	23%	22%	22%	22%
40 - 49 years	31%	31%	32%	31%	31%	31%	31%	33%	36%	34%	34%	34%	33%
50 - 59 years	21%	22%	22%	22%	24%	25%	25%	24%	23%	24%	25%	25%	26%
60+	13%	13%	13%	14%	14%	13%	13%	14%	11%	12%	12%	12%	13%
Percentage Foreign Born													
<i>Self-Employed Women</i>	11%	10%	10%	11%	11%	13%	12%	14%	13%	12%	13%	13%	15%
<i>Wage & Salary Women</i>	10%	10%	11%	11%	12%	11%	12%	13%	12%	12%	12%	13%	13%
<i>Self-Employed Men</i>	11%	12%	11%	12%	13%	13%	13%	13%	13%	13%	13%	14%	15%
<i>Self-Employed Minority</i>	45%	43%	38%	44%	44%	42%	42%	44%	43%	41%	36%	37%	39%
<i>Self-Employed White</i>	8%	8%	8%	9%	10%	10%	10%	10%	9%	9%	10%	10%	11%

Appendix - Table 7. Specific Human Capital Variables

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Percentage with Graduate Degree													
<i>Self-Employed Women</i>	9%	10%	9%	9%	10%	10%	10%	10%	12%	12%	13%	13%	13%
<i>Wage & Salary Women</i>	7%	8%	7%	7%	8%	8%	8%	8%	9%	9%	9%	10%	10%
<i>Self-Employed Men</i>	15%	15%	14%	15%	15%	15%	15%	14%	16%	15%	14%	14%	14%
<i>Self-Employed Minority</i>	14%	14%	11%	11%	13%	15%	15%	12%	15%	15%	14%	13%	13%
<i>Self-Employed White</i>	13%	14%	13%	13%	14%	14%	13%	13%	14%	14%	14%	14%	14%
Percentage with Executive, Administrative and Managerial Occupations													
<i>Self-Employed Women</i>	19%	19%	20%	23%	22%	22%	21%	22%	21%	20%	20%	20%	20%
<i>Wage & Salary Women</i>	13%	13%	13%	14%	14%	14%	14%	15%	15%	13%	13%	13%	13%
<i>Self-Employed Men</i>	25%	27%	28%	26%	27%	26%	28%	27%	27%	29%	28%	26%	28%
<i>Self-Employed Minority</i>	24%	22%	27%	22%	23%	23%	29%	26%	26%	24%	26%	22%	21%
<i>Self-Employed White</i>	23%	25%	25%	25%	25%	25%	25%	25%	25%	26%	25%	24%	26%
Percentage by Industry Categorized by Low, Medium and High Rates of Women-Owned Businesses													
<u><i>Self-Employed Women</i></u>													
<i>Low</i>	33%	34%	34%	37%	34%	32%	34%	34%	33%	12%	13%	13%	13%
<i>Medium</i>	55%	52%	52%	49%	52%	51%	51%	52%	50%	65%	66%	67%	65%
<i>High</i>	12%	14%	14%	14%	15%	17%	16%	14%	16%	23%	22%	20%	22%
<u><i>Wage & Salary Women*</i></u>													
<i>Low</i>	34%	35%	34%	34%	34%	34%	34%	33%	32%	16%	16%	15%	15%
<i>Medium</i>	44%	43%	44%	44%	44%	43%	43%	44%	44%	43%	43%	43%	43%
<i>High</i>	17%	17%	17%	17%	17%	18%	18%	18%	18%	35%	36%	36%	36%
<u><i>Self-Employed Men</i></u>													
<i>Low</i>	60%	61%	63%	62%	61%	62%	61%	62%	62%	40%	40%	40%	42%
<i>Medium</i>	40%	38%	37%	37%	38%	38%	38%	37%	37%	55%	54%	54%	53%

<i>High</i>	1%	1%	1%	1%	1%	1%	1%	1%	1%	6%	6%	6%	6%
<i>Self-Employed Minority</i>													
<i>Low</i>	37%	39%	42%	41%	39%	41%	38%	40%	39%	23%	23%	26%	25%
<i>Medium</i>	57%	54%	53%	53%	54%	50%	53%	52%	52%	62%	62%	60%	62%
<i>High</i>	7%	7%	6%	6%	7%	9%	9%	8%	9%	16%	15%	14%	14%
<i>Self-Employed White</i>													
<i>Low</i>	52%	54%	54%	55%	53%	53%	53%	54%	54%	32%	32%	31%	33%
<i>Medium</i>	44%	42%	41%	40%	42%	41%	41%	41%	40%	57%	57%	59%	56%
<i>High</i>	4%	5%	5%	5%	5%	6%	5%	5%	6%	11%	10%	10%	11%
Percentage with the Highest Level (4th Quartile) of Income Diversity													
<i>Self-Employed Women</i>	34%	32%	32%	34%	35%	31%	32%	33%	30%	29%	29%	31%	31%
<i>Wage & Salary Women</i>	23%	24%	25%	25%	25%	24%	24%	25%	25%	26%	25%	25%	25%
<i>Self-Employed Men</i>	32%	31%	31%	33%	31%	33%	33%	33%	30%	28%	28%	28%	29%
<i>Self-Employed Minority</i>	22%	23%	24%	26%	25%	22%	28%	24%	22%	24%	21%	25%	23%
<i>Self-Employed White</i>	33%	32%	32%	34%	33%	33%	33%	34%	31%	29%	29%	30%	31%

* Does not add to 100% because industry categories do not include public administration positions

Appendix - Table 8. Hours and Earnings

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Percentage Working Each Range of Hours													
<u>Self-Employed Women</u>													
<=25	21%	24%	21%	20%	20%	19%	21%	21%	21%	20%	21%	21%	20%
26-35	18%	18%	16%	17%	17%	20%	17%	16%	17%	17%	18%	18%	17%
36-45	35%	35%	36%	35%	37%	36%	39%	36%	35%	38%	36%	37%	36%
46+	26%	23%	26%	28%	26%	26%	24%	26%	27%	25%	24%	25%	26%
<u>Wage & Salary Women</u>													
<=25	13%	13%	13%	13%	13%	12%	12%	11%	12%	12%	13%	12%	12%
26-35	14%	14%	14%	13%	14%	13%	13%	13%	13%	14%	13%	14%	14%
36-45	62%	62%	63%	64%	63%	64%	64%	66%	65%	65%	64%	64%	64%
46+	10%	10%	11%	11%	11%	11%	11%	10%	10%	10%	10%	10%	11%
<u>Self-Employed Men</u>													
<=25	6%	5%	7%	7%	6%	6%	6%	5%	5%	5%	6%	6%	6%
26-35	9%	9%	9%	10%	10%	9%	8%	9%	8%	9%	9%	9%	10%
36-45	38%	38%	38%	37%	39%	39%	40%	42%	41%	42%	43%	43%	43%
46+	47%	47%	45%	46%	45%	46%	47%	43%	46%	42%	42%	42%	41%
<u>Self-Employed Minority</u>													
<=25	9%	9%	11%	10%	9%	9%	9%	8%	10%	10%	9%	11%	9%
26-35	11%	12%	13%	12%	12%	11%	10%	11%	9%	13%	11%	12%	13%
36-45	40%	40%	43%	40%	41%	42%	44%	46%	43%	42%	45%	45%	44%
46+	40%	38%	34%	38%	37%	38%	38%	36%	37%	36%	35%	32%	34%
<u>Self-Employed White</u>													
<=25	12%	12%	12%	11%	11%	10%	11%	11%	10%	10%	11%	11%	11%
26-35	12%	12%	11%	12%	12%	12%	11%	11%	11%	11%	12%	12%	12%
36-45	36%	37%	37%	36%	38%	38%	39%	40%	38%	40%	40%	40%	41%

46+	40%	39%	40%	40%	39%	39%	39%	38%	40%	39%	36%	37%	36%
Percentage by Earnings Quartile													
<u>Self-Employed Women</u>													
Q1	49%	47%	47%	44%	46%	45%	45%	47%	45%	44%	45%	42%	44%
Q2	22%	24%	24%	21%	21%	23%	22%	20%	23%	24%	21%	27%	23%
Q3	12%	16%	16%	17%	17%	16%	17%	18%	16%	16%	17%	13%	16%
Q4	16%	13%	14%	18%	17%	16%	15%	16%	16%	16%	17%	18%	17%
<u>Wage & Salary Women</u>													
Q1	29%	29%	29%	32%	30%	31%	30%	32%	30%	30%	31%	30%	30%
Q2	32%	31%	31%	29%	30%	33%	32%	28%	31%	30%	29%	32%	30%
Q3	24%	27%	26%	25%	25%	23%	24%	25%	25%	25%	25%	22%	25%
Q4	15%	14%	15%	14%	15%	14%	15%	15%	14%	15%	16%	15%	15%
<u>Self-Employed Men</u>													
Q1	21%	21%	20%	20%	20%	20%	20%	22%	19%	20%	19%	21%	21%
Q2	20%	18%	18%	17%	16%	20%	17%	15%	18%	17%	16%	21%	19%
Q3	19%	23%	22%	22%	22%	22%	20%	22%	22%	21%	23%	18%	22%
Q4	40%	38%	40%	41%	41%	39%	42%	41%	41%	42%	42%	40%	38%
<u>Self-Employed Minority</u>													
Q1	33%	35%	29%	31%	33%	32%	30%	33%	35%	34%	32%	32%	33%
Q2	24%	19%	21%	20%	23%	25%	23%	18%	19%	21%	17%	25%	22%
Q3	15%	20%	22%	21%	20%	19%	20%	21%	18%	19%	22%	15%	19%
Q4	29%	26%	28%	29%	25%	24%	26%	29%	28%	27%	30%	28%	26%
<u>Self-Employed White</u>													
Q1	30%	29%	28%	27%	28%	28%	28%	30%	27%	27%	27%	28%	28%
Q2	21%	21%	20%	18%	17%	21%	19%	17%	20%	19%	18%	23%	20%
Q3	17%	21%	20%	20%	21%	20%	19%	21%	21%	20%	21%	16%	20%
Q4	32%	30%	32%	34%	34%	32%	34%	33%	33%	34%	34%	33%	32%