

Opportunities for and Barriers to Hiring for Self-Employed and Microbusinesses

Prepared for the National Women's Business Council

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Executive Summary

Entrepreneurship patterns among women differ from the patterns observed among men in many key aspects. Women are less likely to be self-employed than men, and women-owned businesses are less likely to have employees than other firms. Among employing firms, women-owned businesses have, on average, fewer employees.

The purpose of this study is to increase understanding of the reasons why these differences exist. What factors are associated with entrepreneurial success? How do those effects differ for women and men? Such understanding is important if one wishes to identify policy initiatives to increase entrepreneurial success among women.

The study used a combination of descriptive statistical analysis and multivariate models to examine the roles of demographics, family dynamics, and other factors on entrepreneurship. Using data from the Survey of Business Owners Public Use Microdata Set (SBO PUMS) and Panel Study of Income Dynamics (PSID), we were able to observe differences across individual entrepreneurs and individual firms. The PSID data, in particular, offered a unique perspective as it allowed us to observe individuals across time as some of them transitioned in and out of self-employment.

Key Findings

Patterns of entrepreneurship differ significantly for women and men. Previous research like Devine (1994) and our own descriptive analysis revealed lower levels of self-employment among women than among men. Women-owned businesses were less likely to be employers and they had, on average, fewer employees than other firms. This study confirmed that these differences persisted even when controlling for other factors like education, income, and family dynamics.

Controlling for other factors, women are 66 percent less likely to *be self-employed* than men; across time, they are also 37 percent less likely to *become self-employed* and 25 percent more likely to *leave self-employment*. Women-owned businesses are about one-third less likely to have employees than are other firms.

Women entrepreneurs tend to be concentrated in a few industries, including Retail Trade, Health Care and Social Assistance, and Professional Services.

The effects of educational attainment on entrepreneurship differ for women and men. The study results are consistent with previous research like Moutray (2007) that find higher levels of entrepreneurship and entrepreneurial success are associated with higher levels of educational attainment. However, this study demonstrates that the magnitude of those results is different for men and women. For example, women with postgraduate education are nearly 50 percent more likely to be self-employed compared to other women; men with postgraduate education are only about 8 percent more likely to be self-employed relative to other men. Similar disparities exist in the likelihood of being an employer, entering self-employment, and leaving self-employment. Consistently, higher levels of education have a greater impact for women compared to men.

Women consider family dynamics differently than men when making career choices. Marital status, whether an individual has children living at home, and family income each affect entrepreneurial decisions for women and men. In general, higher levels of family income are associated with higher levels of entrepreneurial engagement and success. Married individuals are more likely to be self-employed and to own employing firms, although part of this effect may be attributable to the fact that married individuals tend to have higher family incomes than unmarried individuals. There are at least two ways, however, in which family dynamics affect women and men differently. First, women business owners with children were about 10 percent less likely than other women business owners to have employees, while male business owners with children were slightly more likely to be business owners than male business owners without children.

The most substantial difference between women and men is related to spouse employment status. For both women and men, having a self-employed spouse increased the likelihood of being self-employed. The effect was much larger for women than for men: men with self-employed wives are 4 times more likely to be self-employed than other men, while women with self-employed husbands are over 7 times more likely to be self-employed than other women.

These differences suggest that women, on average, consider family situations differently than do men when deciding whether to be self-employed, enter the workforce working for others, or be out of the workforce. The larger effects of spouse self-employment on women's self-employment suggest that many might be joint owners of businesses with their spouses.

Policy Implications and Areas for Further Study

The ultimate goal of ongoing research into entrepreneurship is to identify areas in which policy and other initiatives might help to promote entrepreneurial success, particularly among groups (like women) who are underrepresented among business owners. In order to suggest strategies for promotion, however, the research must go beyond identifying and quantifying differences to attempt to uncover the reasons for those differences.

There are at least three possible reasons to help explain why the level of entrepreneurial engagement is lower for women than for men:

1. **Differences in aptitude, education, training, and experience.** While such differences do exist (and policies to reduce these are important), our results show that such differences cannot fully explain the lower levels of self-employment and entrepreneurial engagement by women.
2. **"Push" factors.** Previous research – for example, Mora and Dávila (2014) and Clark and Drinkwater (1998) – suggests that discrimination in the paid employment sector and other barriers to paid employment can "push" women or other subgroups into self-employment as the only viable option. Our findings could not definitively identify such effects, but the patterns of entry and exit from self-employment are generally consistent with this explanation. Policies to reduce "push" factors may, paradoxically, reduce self-employment rates among the affected groups, although levels of success among the remaining entrepreneurs should rise.

3. **Barriers to entry.** Lower rates of participation, particularly in specific industries and sectors, may also be attributable to barriers to entry and the absence of support networks. Simply put, women may have a hard time establishing the contacts and customer bases necessary to succeed in industries that have historically been dominated by men. This potential reason is perhaps hardest to quantify and may require further, qualitative research (e.g., surveys and focus groups) to increase understanding.

Further research focused on these three areas and particularly focusing on family dynamics and their impact on entrepreneurial engagement is critical. New data sources like the Panel Study of Entrepreneurial Dynamics may provide additional insight. As longitudinal data sets like the PSID add more information about business ownership, richer dynamic models will also be possible.

Introduction

Many factors affect whether and when business owners choose to hire employees or expand their businesses. Industry, geographic region, and the general state of the economy may all help determine whether a self-employed individual will hire employees, or whether a small business will expand. Additionally, owner characteristics – including age, educational level, sex, and family size – may also play a role. The purpose of this study is to isolate the effects of these factors on business decisions, with a particular focus on how these factors differ, if at all, for women-owned businesses.

We use data from two different sources that allow us to explore these questions in depth. Our analytical approach is twofold. First, we conduct detailed descriptive analysis. This statistical analysis helps us to identify trends and patterns in the data. The second stage of the analysis uses multivariate regression techniques to control for various effects simultaneously. For example, one might observe a difference in employment decisions between women-owned and other firms, but much of the difference might be explained by differences in industry or geographic region. These second-stage results are important because they bring us closer to the underlying reasons behind observed differences. Using regression analysis also helps us distinguish those effects that are statistically significant.

This research has important implications for policy designed to foster job creation by small businesses. To the extent that business expansion and job creation decisions differ for men and women who are self-employed, the research results will also advance understanding of the policies and programs needed to foster opportunities for women business owners.

The first section of the report contains a brief review of recent, relevant studies related to the topic. Following the literature review is a discussion of the two data sources used for the analysis. The next section provides a detailed descriptive analysis of the data. The descriptive analysis is followed by a description of the multivariate models of business ownership. We then present the model results and discuss their possible policy implications. Finally, we present conclusions and recommendations for further work.

Literature Review

There is a substantial literature on small businesses and the impact of changes in the economy on small business hiring. However, there has been comparatively less research on what causes a nonemploying small business to take the step of hiring its first employee, or on the differences between women-owned and men-owned small businesses in this respect. Below is a summary of some of the recent literature surrounding small business ownership and success.

Impact of Gender on Entrepreneurship

Cohoon, et al. (2010) conducted research on the factors motivating women entrepreneurs, whom they identified as they are a particularly understudied group. The authors collected data from 549 respondents or about 40% of the founders from randomly selected high-tech companies who were invited to participate. The findings show that these successful women and men entrepreneurs are

similar in almost every way. They have equivalent levels of education, early interest in starting their own businesses, a strong desire to build wealth or capitalize on a business idea, and access to funding. They largely agreed on the top issues and challenges facing any entrepreneur. However, there were also some small but potentially informative gender differences, including motivations for starting a business and the timing of funding from business partners. Women were more likely to cite a business partner's encouragement as a key incentive to take the plunge into entrepreneurship than men and also more likely than men to get early funding from business partners.

Pines, et al. (2010) analyzed previous studies to determine the impact of gender on entrepreneurship. The 2007 and 2008 Global Entrepreneurship Monitor (GEM) studies examined rates of entrepreneurship in 43 countries, and found that in all 43 countries, the rates of women's entrepreneurship were lower than men's. Additionally, the proportion of women entrepreneurs was higher in countries where income per capita is small and where women have fewer options for earning income. Survival rates for women-owned businesses in all countries are lower than for other businesses. In looking for an explanation for this, they reviewed several studies all of which found no gender differences in the traits and behaviors of business owners. The authors believe this result points to social and economic exclusion and lack of equality as an explanation for the lower survival rates. The authors make several recommendations to both increase the number of women business owners (especially in "male" industries) and improve survival rates; these recommendations include setting up special funds aimed at providing credit for microbusinesses and establishing social and business networks for women business owners. The GEM 2008 study also found that businesses run by women were more profitable than those run by men.

Using data from representative population surveys in 17 countries, Koellinger, et al. (2013) suggested that the lower rate of female business ownership is primarily due to women's lower propensity to start businesses rather than to differences in survival rates across genders. They contended that women are less confident in their entrepreneurial skills, have different social networks and exhibit higher fear of failure than men. The authors found that these variables explain a substantial part of the gender gap in entrepreneurial activity, after controlling for endogeneity. The relative importance varies significantly across countries, but the factors appear to have a universal effect.

Devine (1994) used data from the Current Population Survey (1975 to 1990) to identify the characteristics of self-employed women in the United States. She noted that there was an increase in self-employment over that time period, with an increased representation of women among the self-employed. In 1975, women represented about 1 out of 4 self-employed workers and by 1990, they accounted for about 1 in 3. In 1990, 1 out of 15 employed women was self-employed in her main job, and that figure appeared to be part of an upward trend. The "average self-employed woman" in 1990 was older, more likely to be married with spouse present, to be covered by someone else's health care policy, to be more than a high school graduate, to be in a managerial or administrative occupation, and to work either a relatively small number of hours or a relatively large number of hours per week than the "average wage-and-salary woman." She also earned less money, was less likely to be black, about as likely to have young children and, if married, more likely to have a self-employed husband. The author noted that there was a lot of variation about this "average," and that the self-employment versus wage-

and-salary employment decision appears intricately linked with several other decisions for a woman – as an individual, as a household member, at a point in time, and over the course of her life.

Mora and Dávila (2014) used the SBO PUMS 2007 to identify the causal factors that lead to business success and failure. Focusing primarily on nonwhite women who established new firms in 2007, the authors used a probit regression model to determine the likelihood that those same firms would be shut down by the end of 2007. Their results revealed that businesses started by women, blacks, and Hispanics in 2007 were significantly more likely to cease operations by the end of the year than those formed by non-Hispanic white men. Further, businesses started by black and Hispanic women were at a significantly greater disadvantage in this regard than those owned by non-Hispanic white women and black and Hispanic men. The results from Mora and Dávila's model also showed that new firms with more educated and older owners were more likely to remain open than companies with less educated and younger owners. Specific industries that firms were in also had an effect on which companies were more likely to cease operations.

Mora and Dávila also included own-group unemployment rates for owners (using racial/ethnic group and gender at the state level) to identify whether current labor market conditions affected the success or failure of a firm. Their hypothesis was that discrimination in the for-hire labor market could push individuals otherwise less well suited for entrepreneurship into self-employment. These businesses would be more likely to fail. This model continued to show that new female nonwhite entrepreneurs were significantly more likely than non-Hispanic white women and male nonwhite entrepreneurs to close their businesses by the end of 2007. In other words, labor-market conditions do not completely explain the previous model results. The authors conclude that discrimination in paid employment cannot completely explain why businesses owned by women and nonwhites are less likely to succeed; while they cite the need for further study, they suggest that further emphasis on public programs to foster entrepreneurship among these groups would be helpful.

Research on Hiring by Self-Employed

Fairlie (2013) used the Kauffman Firm Survey (KFS) to examine the hiring of a first employee by new business start-ups. The KFS followed companies that began business in 2004 for the next seven years, collecting information annually on a number of business characteristics including hiring patterns. Most firms hire their first employee within the first three years; 36.6% during the first year, 12.6% the second year, and 4.0% the third year. Over the entire seven year survey period, 58.8% of start-ups hired employees, 13.3% continued with no employees, and the remaining 27.9% went out of business without hiring any employees. The authors found that women-owned businesses were 10 percentage points *less* likely to hire their first employee at years 1, 2 and 7 than other firms. They also found that the more education the owners had, the more likely they were to hire their first employee. The likelihood of hiring their first employee was not strongly correlated with business revenues, but was positively related to both business assets and acquisition of intellectual property.

Davis, et al. (2007) noticed that much of the measurement of economic activity by federal statistical agencies focuses greater attention on larger, more mature business units, so they sought to develop a preliminary version of an integrated Longitudinal Business Database (iLBD) that combines administrative

records and survey-based data for all nonfarm employer and nonemployer business units in the United States. This allowed them to document some basic facts about younger and smaller businesses, as well as follow business transitions between employer and nonemployer (self-employed) status. The authors noted that – although it is tempting to think of the nonemployer business universe as a growth hub for employer businesses that grow into giant corporations and generate thousands of jobs – most nonemployer businesses are quite small and never become employers. Many nonemployer records reflect side jobs, hobby businesses or occasional consulting engagements that generate extra income for households that depend primarily on wages. However, their evidence shows that businesses that start as nonemployers and later hire one or more paid employees account for a sizable share of young employers in the industries they studied. These “migrants” make up 28% of young employers and account for 20% of their revenues. These results indicate that a significant fraction of employers originate as nonemployer businesses.

Hipple (2010) examined unincorporated and incorporated self-employment in the United States. He discussed historical trends in the CPS data series and examined the unincorporated self-employed that have paid employees. The author stated that the proportion of total employment made up of the unincorporated self-employed has fallen gradually since 1967 because of the decline in agricultural employment, a steady decrease in the agricultural self-employment rate, and an increase in the likelihood of businesses to incorporate. Self-employed workers will typically incorporate their businesses in order to receive traditional benefits of the corporate structure. Hipple also noted that a small proportion of unincorporated self-employed and business owners have employees other than the owner. In 2009, 13.6% of the unincorporated self-employed had paid employees, a decline from the 18.7% registered in 2000. Men were nearly twice as likely as women to have paid employees.

Clark and Drinkwater (1998) hypothesized that groups with rising self-employment tendencies due to discrimination in the labor market will experience declining managerial quality. An increased influx of less-qualified, less-experienced individuals into business ownership because of fewer opportunities elsewhere in the labor market could explain a higher failure rate for businesses among these groups. The authors used data on British firms across three separate time periods: 1973-1979, 1983-1989, and 1983-1995, to attempt to correlate the effect discrimination has on nonwhites’ movement into self-employment. They hypothesized that nonwhites are pushed towards self-employment by discrimination in the market for paid-employment. Their findings supported this hypothesis, showing that an increase in the earnings disadvantage experienced by nonwhites coincided with a movement into self-employment by nonwhite workers. However, the authors noted differences in the degree to which individuals migrated to self-employment across ethnic groups. They posited that such differences, in the face of essentially equal levels of paid-employment discrimination, reflect cultural differences among these groups.

A recent Small Business Administration (SBA) Office of Advocacy report by Brian Headd (2010) examined the respective roles of small and large businesses in job creation and destruction using data from the Census Bureau’s Statistics of U.S. Business (SUSB) and Business Dynamics Statistics (BDS) and from the Bureau of Labor Statistics’ (BLS) Business Employment Dynamics (BED). The study found that – while small and large firms have about the same share of jobs – most job creation and destruction occurs

within small firms. This active creation and destruction of jobs and business in general is referred to as “creative destruction” and “represents the economy’s constant evolution from outmoded processes and industries to more productive ones.” The study examined job flows using different data sets and found that the question of whether small or large firms are the major contributor to net job growth can differ depending on data and analysis methodology.

Research on Microbusinesses

Baines and Wheelock (1998) investigated the concerns, needs, and achievements of family-owned microbusinesses in England. The study of 200 microbusinesses, defined as businesses with up to nine employees, showed that patterns of family support for these businesses were extremely similar, including extensive family involvement, in particular the involvement of spouses. Employment growth was a goal for only one in four of the businesses interviewed. The case study material confirmed survey findings that growth-seeking business owners were the most likely to seek out partnerships with non-family members and to participate actively in non-family networks.

Greenbank (2001) contended that business owner-managers always have objectives; however, some of these objectives may not include growth, sales, or profitability. Some of the objectives tend to relate to personal rather than business criteria. After interviewing 55 owner-managers, Greenbank concluded that the vast majority of microbusiness owner-managers indicate little inclination to maximize profit or pursue growth. In practice, he posited, microbusinesses pursue a number of economic and non-economic objectives relating to factors such as income levels, job satisfaction, working hours, control, and flexibility. The impact of this is very important, because it shows that owner-managers often do not initiate changes in the way they run their business when perhaps they should, from an economic standpoint, in favor of keeping their non-economic factors the same.

Effect of Education on Self-Employment

Moutray (2007) used the Panel Study of Income Dynamics (PSID), a longitudinal database administered by the University of Michigan’s Institute for Social Research, to examine the relationship between educational attainment and self-employment. Using univariate statistical comparisons and multivariate logit modeling, he found educational attainment to be an important determinant of self-employment, with more schooling correlating with a higher likelihood of starting one’s own business. The logit analysis also found that, of the variables observed, prior military service had the largest positive impact on self-employment.

Data

Our analysis relied primarily on two complementary datasets: the Survey of Business Owners 2007 Public Use Microdata Set (SBO PUMS) and the Panel Study of Income Dynamics (PSID). The SBO PUMS is a rich data set containing detailed information on over two million business owners and their firms. Data are collected at both the business level and at the owner level for up to four individual owners. The detailed microdata allowed us to examine differences in characteristics and employment-based firm size

across gender, race/ethnic group, industry, and other firm-specific factors. The main disadvantage of the SBO PUMS is that it is a single, cross-sectional sample, with no time series variation.

The Panel Study for Income Dynamics (PSID) is an unconventional choice for examining entrepreneurship in that it is a household-based survey rather than an establishment-based survey. The survey has asked if the respondent was a business owner for the past several waves. However, in the last four biennial waves of the panel survey (2005 through 2011), they have also asked whether the respondent is self-employed.¹ The data also include information on the number of employees for self-employed individuals and information on gross and net income for business owners.

SBO PUMS

The SBO PUMS includes a record and some basic information about each business even if the owner(s) did not respond to the survey. This administrative data was collected from the business during the 2007 Economic Census and includes industry, number of employees, total payroll, and receipts. We excluded any of the “non-responder” records before we began our analysis. This meant our initial estimation dataset had approximately 8,320,048 fewer firms after the weighting variable was applied. Table 1 displays the weighted count of responder firms in our SBO PUMS dataset by firm size category and percent women-owned.

We defined firm size categories in the SBO PUMS data set by the following groups:

- Self-Employed – The business is a non-employer and has 0 employees
- 1-4 Employees – The business is either an employer and has 0 employees or is an employer and has between 1 and 4 employees²
- 5-9 Employees – The business is an employer and has 5 to 9 employees
- 10 + Employees – The business is an employer and has 10 or more employees

Table 1. Number of Firms by Firm Size and Percent Women-Owned (Thousands of Firms)

Percent Woman Ownership	Firm Size Categories				Total
	Self-Employed	1-4 Employees	5-9 Employees	10+ Employees	
0%	6,547	1,306	409	520	8,783
1-24%	194	52	21	43	311
25-49%	263	88	39	69	460
50%	2,487	500	160	165	3,312
51% +	4,499	458	124	127	5,207
Total	13,990	2,404	754	924	18,072

Source: SBO PUMS

¹ Self-employment status is reported by the respondent in the “employment and work” section of the survey, while questions relating to business ownership are included in the income section. Thus, respondents can (and do) report being self-employed but not business owners, or being business owners and not self-employed.

² The SBO PUMS includes both firm employer status (yes or no) and number of employees. These administrative data fields include instances where the firm is characterized as an employing firm, but had no employees at one particular time. The number of employees includes all employees in pay status during the pay period including March 12, 2007.

PSID

The PSID includes information on employment, income, wealth, expenditures, health, education, marriage, childbearing, philanthropy, and numerous other topics. The variables of interest for this research pertain to gender and business ownership. Business ownership variables include whether the respondent and/or the respondent's spouse was self-employed or owned a business, whether self-employment was the respondent's sole employment experience, the occupation and industry involved, whether the business incurred a profit or loss and the amount, and the number of employees working for the firm.

The PSID separately includes self-identified responses about business ownership and self-employment. For our purposes, we define as "self-employed" respondents who indicated that they were self-employed and for whom the firm employment size included only the respondent. We further categorize based on the number of workers reported.

The PSID data are not ideal. First, the data do not indicate percentage of ownership, so we cannot determine whether the business is truly women-owned or not (only if the owner reporting the information is male or female). Second, the sample sizes are relatively small in comparison to the SBO PUMS.

The primary advantage of the PSID is that it allows us to explicitly track changes in self-employment and firm size from one period to the next because of the panel nature of the data. We can construct matched pairs of observations for those respondents who are self-employed and/or business owners. This is similar to the methodology employed in the Business Dynamics Statistics database.

In order to obtain a larger sample spanning a longer time period, we also use data on self-employment from the PSID for the period 1997 through 2011. For this longer data set we do not have consistent information on firm size or business revenue; however, we do have information on income from self-employment.

Table 2 displays weighted and unweighted counts of self-employed individuals in the PSID. Employment and business ownership information are reported for two individuals in the household: the "Head" and a "Wife" (if present).³ Note that, while the weighted data show millions of self-employed individuals, the unweighted sample sizes are quite small for individual waves.

³ If there is a married or cohabiting couple in the household, the PSID automatically designates the man as Head and the woman as Wife. The PSID does not recognize same-sex couples.

Table 2. Number of Self Employed (Weighted and Unweighted) in the PSID

Year	Weighted Data (in thousands)				Unweighted Data			
	Male	Female	Wife	Total	Male	Female	Wife	Total
1997	8,307	1,159	3,331	12,797	518	59	223	800
1999	7,949	1,011	3,250	12,209	503	63	228	794
2001	8,810	774	3,776	13,360	549	59	249	857
2003	9,975	1,554	4,449	15,978	609	102	303	1,014
2005	10,653	1,437	4,713	16,804	642	108	322	1,072
2007	10,544	1,528	4,836	16,907	643	114	326	1,083
2009	9,762	1,244	4,205	15,212	585	100	259	944
2011	9,809	1,370	3,999	15,179	607	102	261	970

Source: PSID

Table 3 shows the weighted and unweighted counts of business owners from the smaller PSID sample (2005 through 2011). Note that the number of business owners and self-employed are not the same. There is a substantial overlap in the data, but there are significant numbers of individuals who identify themselves as business owners but not as self-employed, as well as a substantial number who identify themselves as self-employed but not as business owners.

Table 3. Counts of Business Owners (Weighted and Unweighted) in the PSID

Year	Weighted Data (in thousands)				Unweighted Data			
	Male Head	Female Head	Wife	Total	Male Head	Female Head	Wife	Total
2005	13,063	1,651	10,452	25,167	773	104	671	1,548
2007	13,927	1,665	11,380	26,973	825	111	725	1,661
2009	14,894	1,525	12,715	29,134	867	120	756	1,743
2011	13,737	1,888	10,672	26,297	832	125	704	1,661

Source: PSID

Factors Affecting Business Ownership Status – Descriptive Analysis

Previous studies have shown that several factors affect both the decision to start a business and the decision to transition to an employing firm. In this section we present an initial, descriptive analysis of the relationship between business ownership status or self-employment status and several potential causal factors, including demographic characteristics of the owners, family dynamics, economic conditions, and industry-specific effects.

The purpose of the descriptive analysis is to identify and highlight what appear to be trends in these relationships. They serve to inform the more robust analysis presented in the next sections of the paper.

Demographic Characteristics

In the SBO PUMS dataset, we created two race/ethnic variables: Nonwhite and Hispanic. Both were calculated by summing the responses across owners, weighted for the percentage of the firm each respondent owned. A firm was denoted Nonwhite or Hispanic if this weighted sum exceeded 50%.

Figure 1. Percent Nonwhite by Firm Size and Percent Women-Owned, SBO PUMS

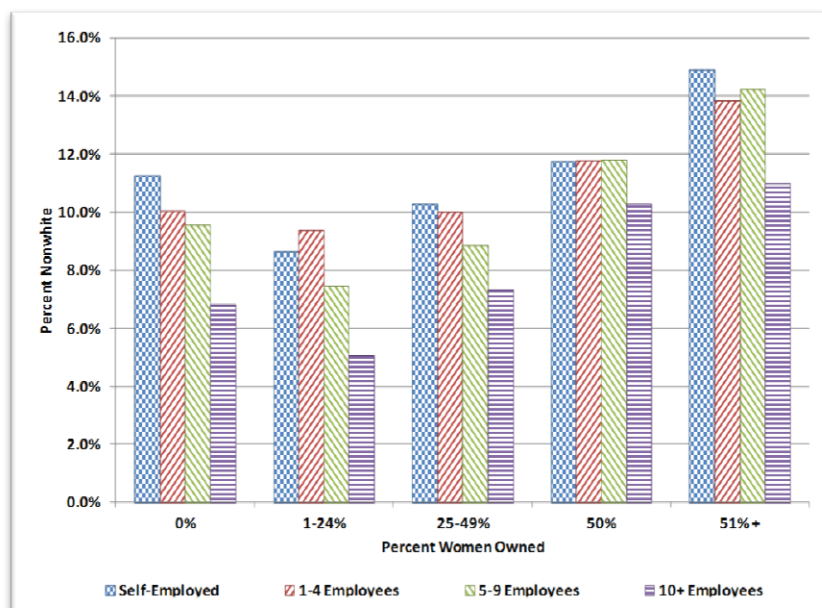


Figure 1 displays the percentage nonwhite-owned firms by firm size and women-owned status. Almost 15% of firms that were majority women-owned also had majority nonwhite owners independent of firm size. Firms that had 10 or more employees were less likely to have nonwhite owners than smaller firms.

Figure 2 shows the percentage of Hispanic-owned firms by firm size and percent women-owned. There is a similar pattern to the nonwhite owned firms in that majority women-owned firms are the category with the highest percentage of Hispanic owners; the percentage of Hispanic owners likewise decreases as firm size increases.

Figure 2. Percent Hispanic by Firm Size and Percent Women-Owned, SBO PUMS

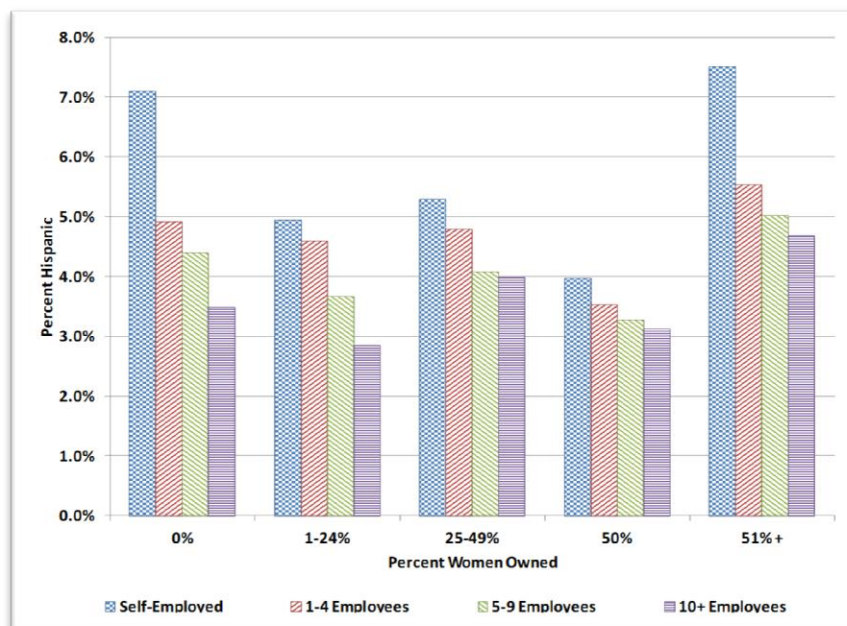


Table 4. Percent Self Employed by Demographic Characteristic, PSID

	Male	Female
Age Group		
Under 35	7.28%	5.45%
35 – 54	15.64%	9.69%
55 – 75	22.36%	12.24%
Education		
HS	13.31%	8.81%
Some College	13.72%	8.66%
4 Yr Degree	16.09%	8.41%
4 Plus	20.48%	12.14%

Source: PSID, 1997 – 2011

Table 4 shows the percent self-employed from the PSID sample for age groups and education groups. These figures are for the 1997 through 2011 waves, pooled, and are restricted to respondents in the labor force. Females are uniformly less likely to be self-employed in each category. Self-employment rates rise with age and also with educational level.

Family Dynamics

The PSID data suggest some interesting relationships between total family income or wealth and self-employment. Across both females and males in the sample, self-employment is associated with higher levels of both income and wealth. Average family income and wealth are highest for wives in the sample, but this is probably because wives are more likely than heads to have a two-earner household.

Wives are more likely overall than male heads to have a self-employed spouse. Nearly 15 percent of wives' spouses were self-employed, compared to about 6 percent of male heads. Part of this difference is because not all male heads have a spouse, but all wives do. Those individuals who are themselves self-employed are much more likely than those who work for others to have a self-employed spouse. About 16 percent of self-employed male heads and 36 percent of self-employed wives have self-employed spouses, compared to 4 percent of male heads and 12 percent of wives who work for others. This finding suggests that a large number of couples are jointly involved in a business; however, we cannot determine that directly from our data set.

Table 5. Percent Self Employed by Family Characteristics, PSID

	Male	Female
Marital Status		
Married	15.97%	10.43%
Unmarried	10.94%	6.26%
Children		
No Children	15.50%	8.73%
Children	13.90%	9.36%

Source: PSID

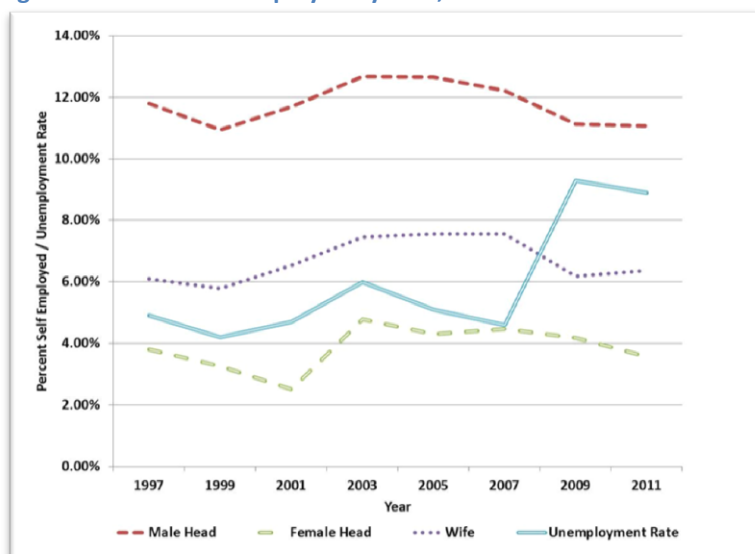
Table 5 provides additional insight from the PSID sample. For both men and women, married individuals are more likely to be self-employed than are unmarried individuals. Men with children are about 39 percent more likely to be self-employed than are men without children; however, the presence of children in the household does not change the likelihood of self-employment for

women. This finding is consistent with the results reported by Devine (1994) using data from the Current Population Survey.

Market Conditions

The relative health of the economy or of specific sectors may affect both the willingness of individuals to form businesses and their decisions to transition to larger firm sizes. The unemployment rate may have a dual effect on self-employment. In a weaker economy (higher unemployment rates) individuals may be less willing to risk self-employment. Conversely, some individuals may choose self-employment as the only available alternative when they are unable to find work elsewhere. We would accordingly expect to see higher unemployment associated with lower rates of employment by these small businesses, and lower likelihood of transitioning from self-employed to an employing firm.

Figure 3. Percent Self Employed by Year, PSID



Because the SBO PUMS data are cross sectional only, most of the analysis of market conditions relies on the PSID data. Figure 3 contrasts the percent self-employed by year from the PSID data with the national unemployment rate in each of those years. There appears to be a relatively weak relationship, with self-employment rates sometimes moving in the same direction as the unemployment rate, and sometimes moving in the opposite direction.

When we focus instead on the transition to self-employment, however, we see a much clearer relationship. Figure 4 shows that, particularly during the recession beginning (in our data) with 2009, higher unemployment rates are correlated with lower rates of entry into self-employment for all three types of individuals.

Figure 4. Percent newly self-employed by year, PSID

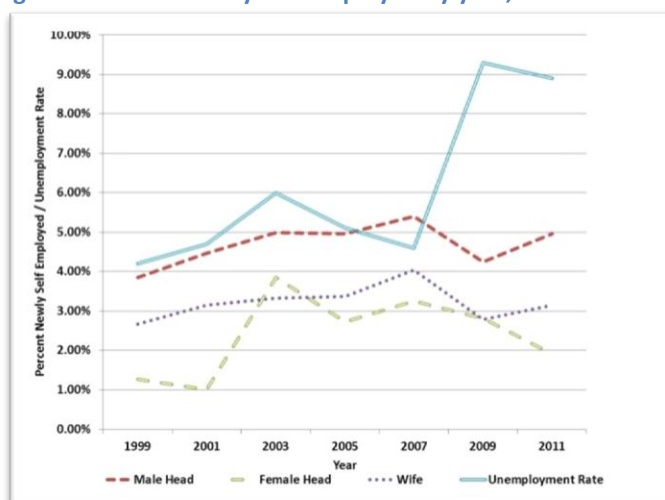


Figure 5. Percent no longer self-employed by year, PSID

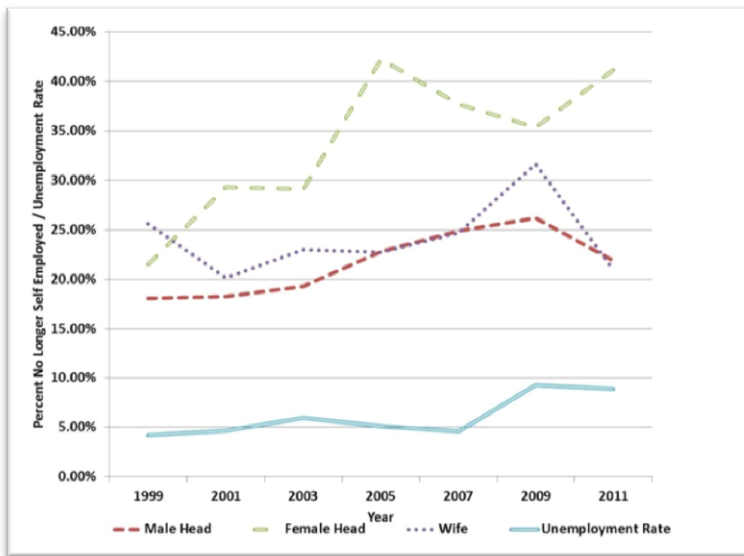


Figure 5 illustrates a similar relationship between the health of the economy and the likelihood that an individual would leave self-employment (to work primarily for others, become unemployed, or leave the workforce). In this case, however, higher unemployment rates are associated with higher probabilities of leaving self-employment. This evidence would suggest that periods of economic contraction will lead to lower levels of self-employment (fewer individuals enter self-employment and more will exit).

Industry and Firm Characteristics

An important policy question that we attempt to answer is whether there are certain business sectors or industries where it makes the most sense to focus policy efforts. The SBO PUMS dataset includes firms in twenty different industry sectors.

Figure 6 shows the percentage of all the firms in the dataset by sector as well as the percentage of majority women-owned firms by sector. Women owners tend to concentrate in some sectors, especially Retail Trade, Health Care, and Other Services; their representation is much lower in the Construction and Transportation sectors. A large percentage (16.28%) of women-owned firms is in the Professional Services sector, but that figure does not differ significantly from the sample-wide number (16.10%).

Figure 6. Percent for all Firm Sizes by Sector, SBO PUMS

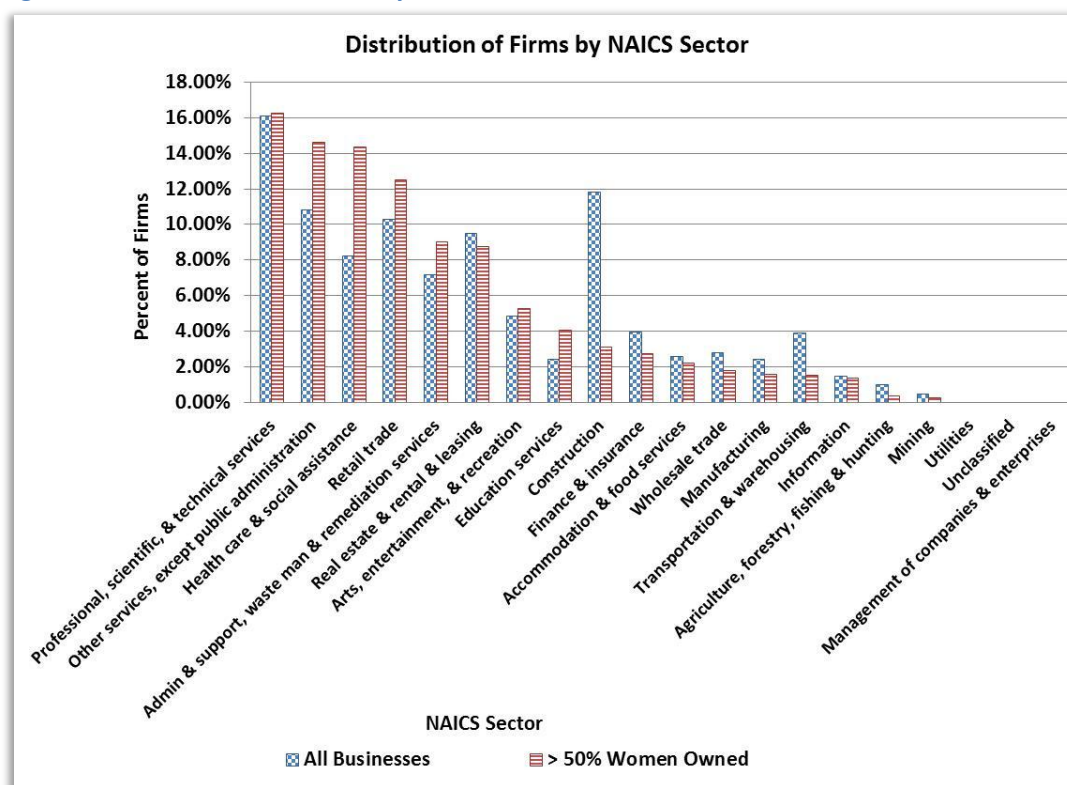


Figure 7 shows the distribution across industry sectors for firms with 10 or more employees, both for all businesses and for women-owned firms. In general, the variation between the entire sample and women-owned firms decreases. For example, construction firms account for 8.72% of the women-owned firms in this size category compared to 13.09% for the entire sample.

Figure 7. Firms with 10 or more employees, percent by Sector, SBO PUMS

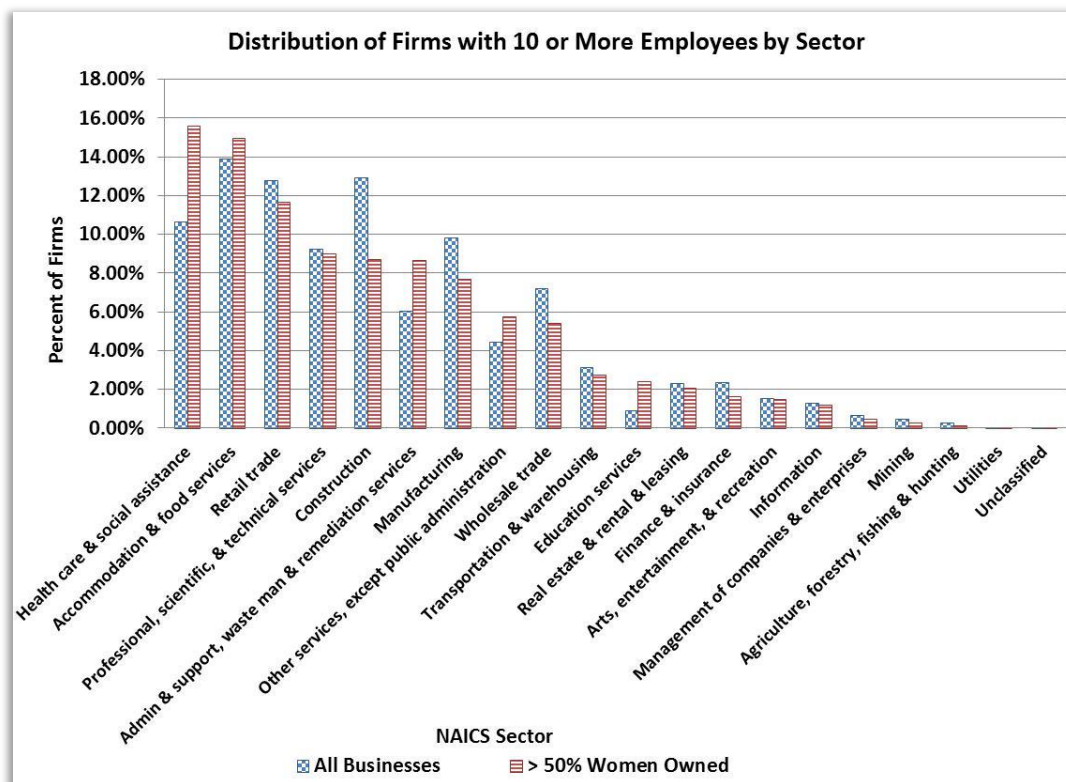


Figure 8. Pct. Businesses Operated as a Franchise by Firm Size and Pct. Women-Owned, SBO PUMS

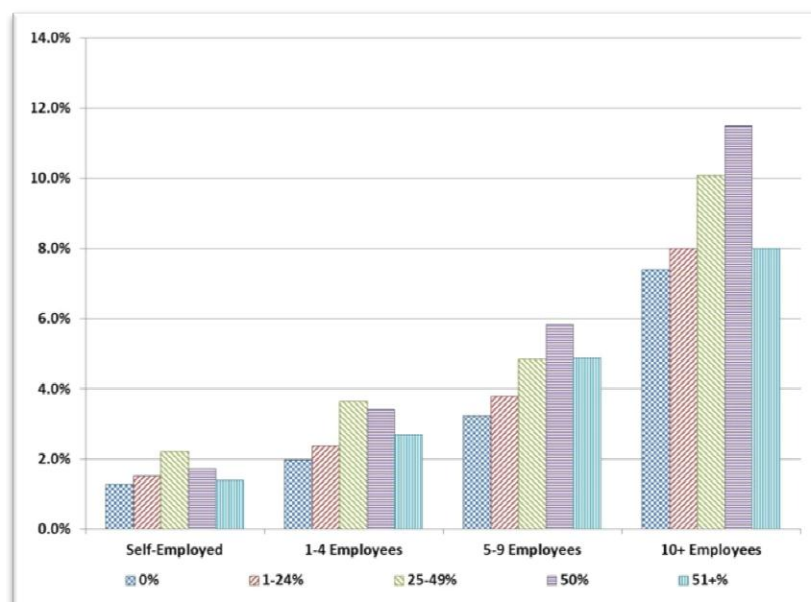


Figure 8 and Figure 9 display the percent of franchises and home-based firms, respectively, by firm size and percent women-owned. Franchises are much more likely to be larger firms while home-based firms are much more likely to be non-employer firms. Franchises are also more likely to be owned in a 50/50 arrangement or where women are the minority owners.

Figure 9. Percent Home-Based Businesses, by Firm Size and Percent Women-Owned, SBO PUMS

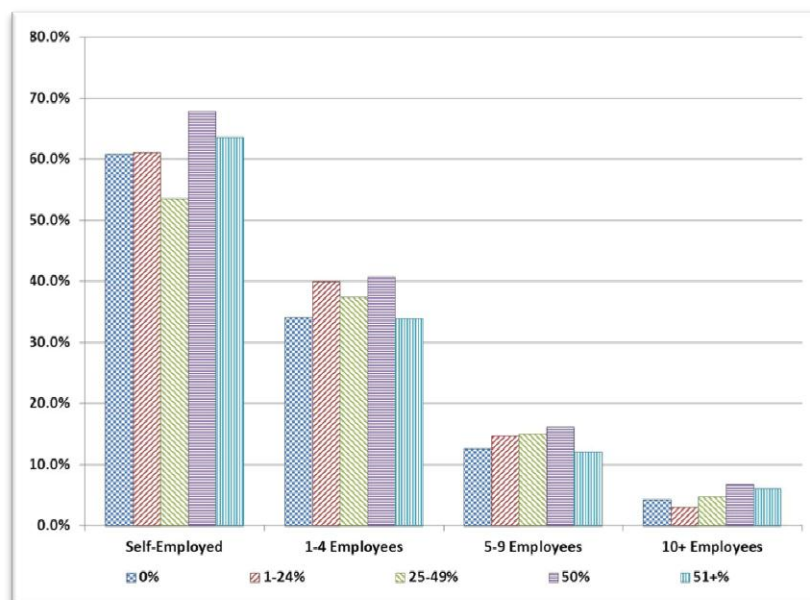


Figure 10. Tenure of Firm by Firm Size, SBO PUMS

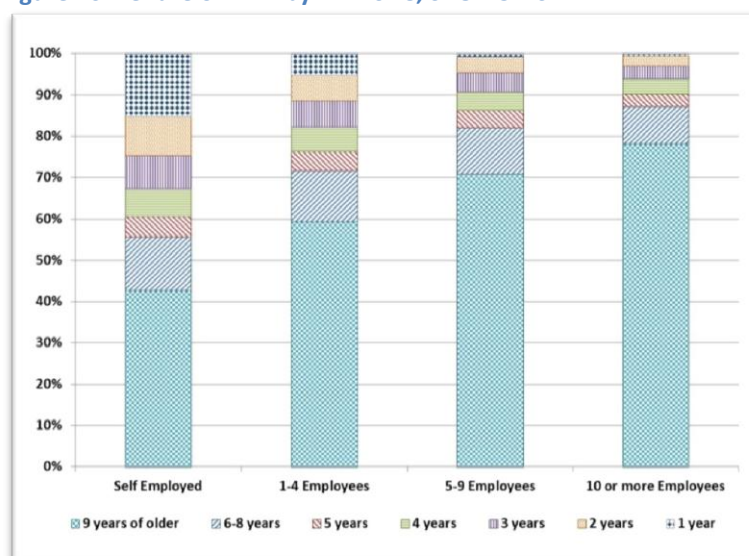


Figure 10 shows the tenure of firms based on firm size. Not surprisingly, newer firms tend to have fewer employees and are more likely to be non-employer firms.

Model Description

Detailed descriptive analysis using both data sources reveals several interesting relationships between factors such as demographics, family dynamics, and economic conditions and business ownership status. More advanced analysis is necessary, however, to isolate and quantify the magnitude of those effects. For example, one might observe that women-owned businesses tend to be smaller and less likely to have employees than other firms. Is that difference merely attributable to owner characteristics, or do other factors – such as industry – play a role?

In order to answer such questions, we developed a series of models of business ownership status for both individuals and establishments. To conceptualize the individual models, consider that individuals reside in one of the following employment states:⁴

1. Not in the labor market
2. Unemployed
3. Employed, primarily working for others
4. Self Employed (primarily working for self, no employees)
5. Microbusiness Owner (self-employed in a business with 1 to 4 employees)
6. Small Business Owner (self-employed in a business with 5 to 9 employees)
7. Large Business Owner (self-employed in a business with more than 9 employees)

In the PSID, employment status is self-reported. Respondents (heads and wives) were asked whether they were self-employed, or employed by someone else. Responses are categorized as:

⁴ This taxonomy is one that we created for purposes of the models employed in this research. As such, the definitions of employment states are specific to this paper and may not be entirely consistent with other publications.

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

as well as additional categories for “Don’t Know,” “Refused to Answer,” and “N/A” (e.g., individual is not working). For our purposes, we identified only those who were “self-employed only” as self-employed.

For firms, the choices are

1. Self-employed (owner with no additional employees)
2. Microbusiness Owner (1 to 4 employees)
3. Small Business Owner (5 to 9 employees)
4. Large Business Owner (10 or more employees)
5. Closure (cease operations)

The probability that an individual or firm will choose any particular state (or, dynamically, move from one state to another) is a function of individual characteristics (I), family dynamics (F), firm characteristics (B), and external market conditions (X). Individual characteristics may include age, gender, race/ethnicity, and educational status. Family dynamics include personal/household income and wealth and spouse’s employment status. Firm characteristics may include industry, geographic region, and business tenure. External market conditions can include both general measures of economic health (e.g., the unemployment rate, new business starts) and sector-specific measures.

Employing this multivariate approach (described in greater detail in Appendix A: Model Methodology) allows us to isolate individual effects and quantify the marginal impact of each factor.

Model Results and Policy Implications

The models of entrepreneurship developed for this analysis provide a detailed look at the factors affecting business owners’ decisions regarding business growth. In this section we present findings related to demographic factors, family dynamics, market conditions, and industry.

Using the data from SBO PUMS, we constructed three sets of models:

1. Probability that the firm is an employer (number of employees is greater than zero)
2. Probability that an employing firm is a microbusiness (fewer than five employees)
3. Probability that an employing firm is a large business (ten or more employees)

From the PSID data we were able to look at more dynamic measures of entrepreneurship:

1. Probability of self-employment (individual is self-employed and may have employees)
2. Probability of being an employer
3. Probability of becoming self-employed
4. Probability of leaving self-employment

We also considered a model of the probability of transition from self-employed to employing firm. However, we were unable to successfully estimate a model from the PSID data given very small sample sizes.

In the following discussion, we illustrate the estimated effects of various factors by estimating *marginal* effects of the explanatory variables relative to a *baseline* (typical) firm or individual. The marginal effect is simply the additional change in the factor of interest (e.g., probability of being self-employed) that is directly attributable to one of the causal factors (e.g., sex). Because the underlying regression models are non-linear, it is difficult to derive these marginal effects directly from the estimated coefficients. Instead, we estimate the value of the dependent variable (e.g., probability of being self-employed) for a typical individual or firm using the estimated coefficients and the mean values of the explanatory variables. We then estimate probabilities varying the value of the variable of interest and report the percentage change in the dependent variable.

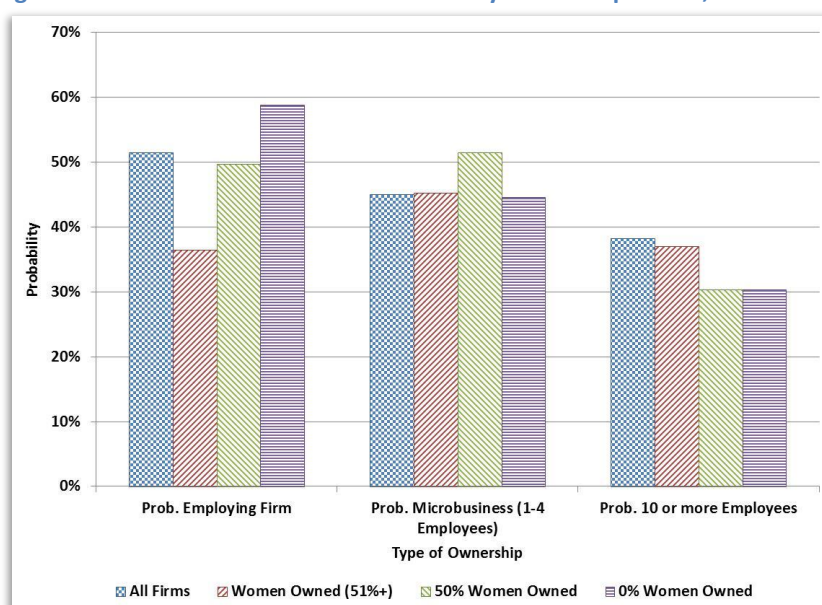
We estimated separate models for females and males using the PSID data. In some cases, these separate regressions revealed different effects for key factors. In the results reported below, all effects are statistically significant at the 5 percent level or better.

Demographic Characteristics

The preliminary descriptive analysis showed that women-owned businesses are less likely to have employees and that women are less likely across all other demographic characteristics to be self-employed. Previous research like Fairlie (2013) also found evidence that women-owned businesses are less likely to have employees than other firms. Self-employment rates increased with level of education and age, and were lower for nonwhites and Hispanics. Previous studies suggest that some observed demographic differences may be at least partially attributed to the influence of other factors. For example, if nonwhites, Hispanics, and women have, in general, lower levels of educational attainment, this differential could explain some of the differences in business ownership and self-employment.

The model results confirm the preliminary finding that women-owned businesses are less likely to have employees. As Figure 11

Figure 11. Firm Size Predicted Probabilities by Ownership Status, SBO PUMS



Note: Businesses that are 1-24% and 25-49% Women-owned are excluded to focus the comparison on the remaining categories.

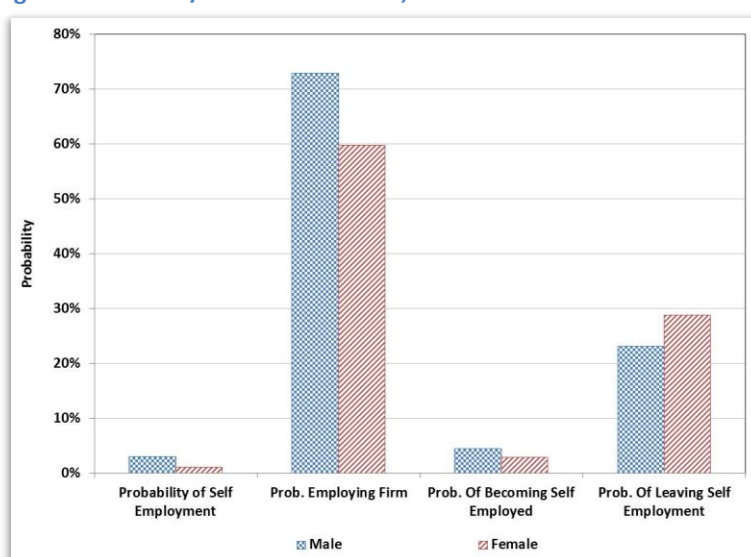
illustrates, women-owned businesses are nearly 30% less likely than the baseline firm to have employees. Businesses that are 50% owned by women appear to be equally likely as the baseline firm to have employees. Both types are much less likely than firms with no female ownership to have employees.

Among employing firms, however, women-owned businesses are just as likely as baseline firms to be microbusinesses or have 10 or more employees. Employing firms with 50% women

ownership are more likely than the baseline firm to be microbusinesses and less likely to be larger employers.

The results from the PSID models confirm what we observed in the descriptive statistics. Controlling for other factors, women are less likely than men to *be self-employed*, to *become self-employed*, and to *be employers*. Self-employed women are more likely to leave self-employment than men. The estimated differences are illustrated in Figure 12. Women are 66 percent less likely to be self-employed and 37 percent less likely to become self-employed than otherwise similar men. Among self-employed individuals, women are 18 percent less likely to be employers and 25 percent more likely to leave self-employment.

Figure 12. Female/Male Differentials, PSID



Given these differences even when we control for differences in education, income, and other factors affecting entrepreneurial activity, our findings are consistent with some of the theories presented in previous studies. For example, Pines, et al. (2010) suggest that inequality and lack of access to financing and business networks by women may be responsible for their lower success rates and participation in business ownership. Koellinger, et al. (2013) hypothesized that both a lack of networks and some unmeasured differences in aptitudes and preferences (e.g., greater fear of failure) help explain the gap.

Mora and Dávila (2014) and Clark and Drinkwater (1998) each find evidence that some portion of self-employment is attributable to discrimination in the paid employment sector of the economy. In other words, members of groups like women and minorities may have faced hiring discrimination and therefore turn to self-employment as the only viable alternative. To the extent that this explanation is true, one would expect those who are “pushed” into self-employment to have less aptitude, interest, and fewer of the necessary skills to be successful business owners. Accordingly, the average self-employed individual in these groups would be less successful (e.g., less likely to be an employer) and more likely to exit self-employment, compared to the typical self-employed individual in another group that does not face discrimination.

Table 6. Race and Firm Size, SBO PUMS

Race	Prob. Employing Firm	Prob. Microbusiness (1-4 Employees)	Prob. 10 or more Employees
White	53.0%	44.4%	39.1%
Nonwhite	39.3%	53.9%	28.3%
Perc. Diff.	-25.7%	21.4%	-27.6%

Source: SBO PUMS

From the SBO PUMS models, we can see that nonwhite-owned firms are 21 to 28 percent less likely to be employing firms, microbusinesses, or larger employers than are otherwise similar firms that are majority owned by whites (see Table 6).⁵

Table 7 shows a similar effect of the race variable from the PSID models.⁶ Nonwhite individuals are 72 percent less likely to be self-employed than whites. Among self-employed individuals, nonwhites are less likely to have employees; however, the difference (12 percent) is much smaller than the difference as estimated by the SBO PUMS models. Nonwhites are also much more likely (25 percent) to leave self-employment. These findings are also consistent with the “push” factors explanation of entrepreneurial success.

⁵ Firm size of 5-9 employees is the omitted group in the regressions, so this group is not included in the comparison table.

⁶ Nonwhite and Hispanic were not statistically significant in the probability of becoming self-employed equations.

Table 7. Race/Ethnic and Self-employment Status, PSID

Race/Ethnic	Probability of Self-employment	Prob. Employing Firm	Prob. of Leaving Self-employment
White	0.3%	67.6%	23.0%
Nonwhite	0.1%	59.5%	28.7%
Perc. Diff.	-72.1%	-12.1%	24.6%
Nonhispanic	—	65.5%	25.3%
Hispanic	—	64.2%	20.3%
Perc. Diff.	—	-2.0%	-19.8%

Source: PSID

Results for Hispanics are not as clear. The Hispanic indicator was only statistically significant for the probability of being an employer and the probability of leaving self-employment equations. Self-employed Hispanics are only 2 percent less likely than others to have

employees. Self-employed Hispanics are 20 percent less likely than others to leave self-employment.

The results also show some notable race/ethnic differences between women and men with respect to the probability of being an employer. Among self-employed individuals Hispanic males are 29 percent less likely to be employers (compared to a *baseline male*⁷), while Hispanic females are nearly 52 percent more likely to be employers compared to otherwise similar (baseline) females. As shown in Table 8, we see similar differences for nonwhites and blacks: males in these groups are less likely

Table 8. Female/Male Differences in Race/Ethnic Effects, PSID

Race/Ethnic	Prob. Employing Firm	
	Male	Female
Baseline	98.6%	39.5%
Hispanic	70.0%	59.9%
Perc. Diff.	-29.0%	51.8%
Nonwhite	69.3%	54.5%
Perc. Diff.	-29.7%	38.2%
Black	64.3%	58.2%
Perc. Diff.	-34.8%	47.5%

Source: PSID

to be employers while females are more likely to be employers. These results are somewhat at odds with other findings in the literature that suggest that “push” factors may compel minorities and women into self-employment at higher rates and that, accordingly, self-employed individuals in those groups will be less successful than others. However, it is also important to note that the number of self-employed female minorities in the PSID sample is very small. For example, there are only 65 self-employed, Hispanic females in the 1997 through 2011 PSID waves.

⁷ For the male/female comparisons, we calculated *baseline male* and *baseline female* probabilities. In each case, we used the mean values of each explanatory variable except sex, and then used the appropriate value of the Male dummy.

Table 9. Age and Education by Self-employment Status, PSID

	Probability of Self- employment	Prob. Employing Firm	Prob. of Becoming Self Employed	Prob. of Leaving Self- employment
Education				
Base Case	1.7%	65.5%	3.4%	25.2%
Some College	—	69.7%	3.2%	23.8%
Perc. Diff.	—	6.4%	-5.5%	-5.7%
Bach. Degree	—	72.7%	3.4%	25.9%
Perc. Diff.	—	11.0%	1.1%	2.7%
Post Grad.	2.7%	71.7%	3.9%	24.1%
Perc. Diff.	56.3%	9.4%	17.2%	-4.6%
Age				
Under 35	0.7%	74.2%	—	38.7%
35 to 54	2.4%	72.2%	—	24.4%
Perc. Diff.	264.4%	-2.7%	—	-36.8%

Source: PSID

Individuals with four-year college degrees are more likely to be employers than the baseline individual; they are more likely both to become self-employed and to leave self-employment. Individuals with some college but no degree are less likely to become self-employed and less likely to leave self-employment (see Table 9). However, self-employed individuals with degrees are more likely than those without degrees to have employees. Individuals with postgraduate schooling are 56 percent more likely than baseline individuals to be self-employed. They are 9 percent more likely to be employers, 17 percent more likely to become self-employed and about 5 percent less likely to leave self-employment.

Younger people in the workforce are much less likely to be self-employed. The probability of self-employment for individuals under 35 is less than one percent, while the probability for those aged 35 through 54 is nearly 2.5 percent. Younger entrepreneurs are also much more likely (37 percent) to leave self-employment compared to those in the 35 – 54 age group. However, entrepreneurs in the younger cohort are nearly 3 percent more likely to be employers.

Table 10. Female/Male Differences in Education Effects, PSID

Education	Probability of Self-employment		Prob. Employing Firm		Prob. of Becoming Self Employed		Prob. of Leaving Self-employment	
	Male	Female	Male	Female	Male	Female	Male	Female
Base	3.0%	1.0%	72.8%	59.7%	4.3%	2.6%	23.2%	28.8%
Some Coll.	—	—	76.1%	64.4%	—	—	23.9%	24.5%
Perc. Diff.	—	—	4.5%	7.8%	—	—	2.7%	-15.0%
Bach. Deg.	—	—	78.4%	68.1%	—	—	22.4%	32.8%
Perc. Diff.	—	—	7.6%	14.0%	—	—	-3.7%	13.6%
Post Grad.	5.0%	1.5%	73.4%	70.4%	4.9%	3.2%	—	—
Perc. Diff.	8.3%	49.0%	0.8%	17.8%	14.5%	21.1%	—	—

Source: PSID

We also observe a number of female/male differences in the effects of the education variables that are consistent with previous studies like Fairlie (2013). Females with postgraduate schooling are substantially more likely to *be self-employed*, *be employers*, and *become self-employed* (see Table 10). Males with postgraduate schooling are also more likely to be self-employed, employers, or become self-employed, but the differences compared to baseline males are much smaller. Females with some college but no degree show a stronger probability relative to baseline to being an employer; they are also 15 percent less likely than the baseline to leave self-employment, while males with some college are slightly more likely to leave self-employment.

An unexplored area of the female/male differences in education is the effect of field of study. Recall that women-owned businesses are concentrated in a few industries, including Health Care and Retail Trade, while they are underrepresented in sectors like Construction. One potential explanation is that women with college and advanced degrees have been less likely than men to obtain degrees in technical fields of study (e.g., engineering) that would allow them to enter certain industries.

Family Dynamics

The descriptive analysis revealed some strong relationships between entrepreneurship and the individual's family situation. Increases in family income and family wealth seem to be correlated with higher incidence of self-employment; individuals whose spouses are self-employed report much higher levels of income and wealth than those without a working spouse or whose spouse works for others. The differential is most pronounced among individuals who are also self-employed. The descriptive analysis also showed that married individuals are more likely to be entrepreneurs. Among men, those with children were more likely to be self-employed, but women with children were not more likely to be self-employed than women without children.

Table 11. Marital Status and Dependents Status by Self-employment Status, PSID

	Probability of Self-employment	Prob. Employing Firm	Prob. of Becoming Self Employed	Prob. of Leaving Self-employment
Marital Status				
Married	1.9%	64.3%	3.2%	24.5%
Unmarried	1.4%	68.3%	3.7%	29.0%
Perc. Diff.	-22.6%	6.2%	14.9%	18.7%
Dependents Status				
No Deps.	1.5%	66.5%	—	26.1%
Dependents	2.0%	64.3%	—	24.3%
Perc. Diff.	33.2%	-3.3%	—	-6.8%

Source: PSID

The model results reinforce the descriptive analysis. Unmarried individuals are 23 percent less likely to *be self-employed*, but unmarried self-employed individuals are slightly (6 percent) more likely to *have employees*.

Even after controlling for age, unmarried individuals are 15 percent more likely to *become self-employed* and 19 percent more likely to *leave self-employment* than are otherwise similar married individuals (see Table 11). Individuals with at least one child under the age of 18 in the household are 33 percent more likely to *be self-employed* and nearly 7 percent less likely to *leave self-employment*. While those with dependents are overall less likely than the baseline individual to *be employers*, males with dependents are slightly (1 percent) more likely to *be employers* and women with dependents are nearly 10 percent less likely than the female baseline to *be employers*.

Table 12. Spouse Employment Status and Family Income by Self-employment Status, PSID

	Probability of Self-employment	Prob. Employing Firm	Prob. of Becoming Self Employed	Prob. of Leaving Self-employment
Spouse Employment Status				
Base Case	1.7%	64.7%	3.4%	25.2%
Works for others	—	69.9%	—	27.7%
Perc. Diff.	—	8.1%	—	10.0%
Works for self	11.1%	73.1%	9.6%	16.7%
Perc. Diff.	546.1%	13.1%	185.0%	-33.8%
Family Income				
Base Case	1.7%	65.5%	3.4%	25.2%
10% Increase	1.8%	66.6%	3.5%	24.7%
Perc. Diff.	3.1%	1.7%	5.2%	-2.0%

Source: PSID

For married individuals, spouse employment status had a very strong impact on self-employment status. As shown in Table 12, individuals who had a self-employed spouse were over five times more likely to *be self-employed*, and nearly three times as likely to *become self-employed* compared to the baseline individual. This pattern mirrors results found by Devine (1994) in the Current Population Survey data. Likewise, they are 13 percent more likely to *be employers* and 34 percent less likely to *leave self-employment*. The results are not as dramatic for individuals whose spouses work for others: these individuals are 8 percent more likely to be employers and 10 percent more likely to leave self-

employment. Recall from the descriptive analysis that self-employed individuals often have a self-employed spouse. These findings, together, suggest that many small businesses may be owned jointly by married couples.

Larger total family incomes are associated with higher likelihood of self-employment. An individual whose family income is 10 percent higher than the baseline (average) is 3 more likely to *be self-employed*, 5 percent more likely to *become self-employed* and a 2 percent less likely to *leave self-employment*.

Table 13. Female/Male Differences in Spouse Employment Status Effects, PSID

Spouse Employment Status	Probability of Self-employment		Prob. Employing Firm		Prob. of Becoming Self Employed		Prob. of Leaving Self-employment	
	Male	Female	Male	Female	Male	Female	Male	Female
Base	3.0%	1.0%	71.2%	59.3%	4.2%	2.6%	23.2%	28.8%
Works for others	—	—	76.1%	65.8%	—	—	24.6%	33.9%
Perc. Diff.	—	—	6.9%	11.0%	—	—	6.1%	17.7%
Works for self	15.1%	8.6%	79.9%	68.8%	11.6%	7.5%	15.8%	19.5%
Perc. Diff.	397.4%	743.9%	12.3%	15.9%	173.3%	185.5%	-32.1%	-32.2%

Source: PSID

Spouse employment effects differ substantially for male heads and wives.⁸ Table 13 shows that male heads whose wives are self-employed are four times more likely to be self-employed than the baseline male, but wives whose husbands are self-employed are over 7 times more likely to be self-employed. Self-employed wives whose husbands work for others are 11 percent more likely to be employers than the baseline wife, and males with wives who work for others are only 7 percent more likely to be employers. Self-employed wives whose husbands work for others are nearly 28 percent more likely to leave self-employment, but self-employed husbands whose wives work for others are only 6 percent more likely to leave self-employment.

While we did not directly measure joint ownership in the PSID dataset, these results suggest that a relatively large portion of women entrepreneurs may jointly own businesses with their husbands and that these joint owners tend to be more successful entrepreneurs in terms of remaining self-employed and having employees in the firm. Stated in another way, women are less likely than men to own a business without their spouses, and they are much more likely to leave self-employment if their spouses are not also self-employed.

Market Conditions

Fluctuations in the business cycle may affect the willingness of individuals to become self-employed and to hire employees for their businesses. The descriptive analysis showed a relatively weak relationship between changes in the unemployment rate and the probability of being self-employed. However, the probability of entering or leaving self-employment seemed to vary strongly with changes in the business cycle.

⁸ Recall that female heads in the PSID data do not have a spouse.

For the PSID models, we measured the effects of changes in three variables across the period 1997 through 2011:

1. The national unemployment rate
2. The annual number of business starts
3. The annual number of business closures

Table 14. Market Factors and Self-employment Status, PSID

	Probability of Self- employment	Prob. Employing Firm	Prob. of Becoming Self Employed	Prob. of Leaving Self- employment
Unemployment				
Base Case	1.7%	65.5%	—	25.1%
10% Increase	1.7%	65.3%	—	25.8%
Perc. Diff.	-2.3%	-0.3%	—	2.8%
Business Starts				
Base Case	9.8%	65.5%	—	—
10% Increase	9.9%	65.4%	—	—
Perc. Diff.	1.1%	-0.2%	—	—

Source: PSID

None of these measures had a statistically significant effect on the probability of becoming self-employed. However, the unemployment rate had a negative effect on the probability of self-employment and the probability of being an employer. Increases in the unemployment rate also increased the likelihood that an individual would leave self-employment. While increases in business starts also reduced the probability of being an employer, such increases increased the probability of self-employment (see Table 14). These relationships make sense, as one would expect an increase in business starts to increase the rate of self-employment. At the same time, a higher proportion of newer firms probably mean that relatively fewer firms are employers.

In a couple of cases, the decisions of women appear to be more responsive to market factors. A 10 percent increase in the unemployment rate increases the probability that a woman will leave self-employment by about 3.5 percent, while a similar increase will raise the likelihood for a man by about 2.4 percent. Likewise, a 10 percent increase in business starts increases the probability of being self-employed for women by about 1.6 percent compared to 0.8 percent for males.

Because the SBO PUMS data do not include any time-series variation, we were unable to include the effects of the business cycle in those models. However, we were able to test the impact of cross-sectional variation by using the annual state unemployment rate for 2007. The unemployment rate did not have a significant effect on the probability of being an employing firm. For firms with employees, increases in the state unemployment rate led to slightly higher probability of being a microbusiness (fewer than five employees). A 10 percent increase in the unemployment rate increases this likelihood by about 1 percent. The unemployment rate has a negative effect on the probability of having ten or more employees. In this case, a 10 percent increase in the state unemployment rate would lead to a 1.3% decrease in the number of firms with 10 or more employees.

Industry and Firm Characteristics

A final set of factors that we examined relate to firm characteristics, including industry or market sector. Are there differences in the probability of becoming an employing firm or transitioning to a larger firm size across these market segments? If so, do these differences vary for women-owned businesses?

Table 15 reports predicted probabilities by firm size for both women-owned firms and all firms for selected industries from the SBO PUMS models.⁹ In the professional services sector, the likelihood of being an employing firm is about the same as the all-industry average for both women-owned and all firms. However, women-owned employing firms in this sector are much more likely to have fewer than 5 employees and are much less likely to have 10 or more employees. The same pattern is true for several other sectors, including Real Estate, Information, Wholesale Trade and Management. The Health sector shows a distinctive pattern. All firms in this sector are somewhat (28 percent) more likely than the average firm across industries to have employees. Women-owned businesses in this sector are 80 percent less likely than other Health Firms and about 75 percent less likely than the average firm across industries to have employees.

In the Administrative sector, women-owned businesses are 45 percent less likely to have employees than the typical firm but women-owned firms with employees are 9 percent more likely to have at least 10 employees. They are also 6 percent less likely to be a microbusiness. It is difficult to determine using the SBO PUMS data why women-owned firms in the Administrative sector appear to be relatively more successful than women-owned firms in other sectors. However, the differences may be attributable to the existence of larger social and business networks for women in this sector, or simply a higher number of women entrepreneurs in the sector. These are factors that Pines, et al. (2010), for example, posited would increase entrepreneurship and business success among women.

⁹ Firm size of 5-9 employees is the omitted group in the regressions, so this group is not included in the comparison table.

Table 15. Industry Effects and Firm Size, SBO PUMS

Industry	Prob. Employing Firm	Prob. Microbusiness (1-4 Employees)	Prob. 10 or more Employees
All Industries			
All Firms	51.5%	45.1%	38.2%
Women-Owned Business	36.5%	45.2%	37.0%
Perc. Diff.	-29.2%	0.3%	-3.2%
Prof. Services			
All Firms	51.1%	55.3%	30.1%
Women-Owned Business	33.7%	62.0%	24.4%
Perc. Diff.	-34.0%	12.1%	-18.8%
Health			
All Firms	65.2%	40.2%	36.4%
Women-Owned Business	13.1%	69.5%	16.9%
Perc. Diff.	-80.0%	73.0%	-53.6%
Retail			
All Firms	59.5%	37.2%	43.6%
Women-Owned Business	34.4%	49.9%	29.2%
Perc. Diff.	-42.1%	34.1%	-33.1%
Administrative			
All Firms	52.5%	45.1%	41.1%
Women-Owned Business	28.7%	42.5%	44.8%
Perc. Diff.	-45.4%	-5.7%	9.2%
Real Estate			
All Firms	29.9%	60.6%	25.2%
Women-Owned Business	22.4%	71.6%	15.8%
Perc. Diff.	-25.3%	18.2%	-37.4%
Information			
All Firms	41.8%	40.0%	46.1%
Women-Owned Business	26.7%	47.2%	38.5%
Perc. Diff.	-36.1%	18.0%	-16.5%
Wholesale			
All Firms	74.5%	38.3%	44.5%
Women-Owned Business	58.5%	43.4%	39.9%
Perc. Diff.	-21.4%	13.2%	-10.2%
Management			
All Firms	64.6%	25.7%	61.1%
Women-Owned Business	48.9%	34.3%	51.0%
Perc. Diff.	-24.3%	33.7%	-16.5%

Source: SBO PUMS

Preliminary descriptive analysis showed that firm tenure had a predictable effect on firm size: newer firms were less likely to have employees and older firms tended to have more employees. The SBO model results confirm and quantify this effect. While about half of all firms have employees, only 1 in 10 women-owned businesses that are 1 year old have employees. Among all one-year old firms, about 1 in 5 have employees.

As firms age, the differentials between women-owned firms and other businesses tend to decline. For example, the difference in the probability of having employees between women-owned and all firms declines from 45 percent for the newest firms to 35 percent for firms that have existed for more than five years. Most dramatic is the difference for firms with 10 or more employees. The difference for firms with one-year tenures is 47 percent, but the differential falls to just 10 percent for firms older than five years (see Table 16).¹⁰

Table 16. Firm Tenure and Firm Size, SBO PUMS

Tenure	Prob. Employing Firm	Prob. Microbusiness (1-4 Employees)	Prob. 10 or more Employees
All Tenure Groups			
All Firms	51.6%	45.1%	37.2%
Women-Owned Business	32.0%	49.5%	33.3%
Perc. Diff.	-38.0%	9.8%	-10.4%
One Year			
All Firms	19.7%	87.8%	7.1%
Women-Owned Business	10.7%	92.1%	3.8%
Perc. Diff.	-45.4%	4.9%	-47.1%
Two Years			
All Firms	35.6%	69.6%	15.5%
Women-Owned Business	21.4%	75.4%	10.9%
Perc. Diff.	-39.8%	8.4%	-29.4%
3 to 5 Years			
All Firms	42.9%	59.3%	23.8%
Women-Owned Business	27.5%	64.1%	18.9%
Perc. Diff.	-35.9%	8.0%	-20.7%
More than 5 Years			
All Firms	57.9%	40.1%	42.5%
Women-Owned Business	37.8%	44.5%	38.4%
Perc. Diff.	-34.7%	10.8%	-9.6%

Source: SBO PUMS

Conclusions and Recommendations for Future Work

Our research examined both establishment and individual data to determine which factors affect entrepreneurial success and to attempt to identify differences between women-owned businesses and other firms. Many of the differences between female and male entrepreneurs and between women-owned and other businesses may be attributable to factors such as industry, business tenure, and individual characteristics like family income and wealth. However, our findings did highlight some key areas in which male/female differences persisted even after controlling for these other factors.

We found, for example, that self-employed women in minority racial and ethnic groups are more likely than self-employed minority men to be employers. Self-employed women overall are less likely to be

¹⁰ Firm size of 5-9 employees is the omitted group in the regressions, so this group is not included in the comparison table.

employers, but our findings are consistent with the theory posited by Clark and Drinkwater (1998) that suggests that groups facing larger obstacles to paid employment may invest more heavily in self-employment. It is possible that the nature of self-employment differs for minority and non-minority women in a way that we have not been able to measure.

Education effects on self-employment and entrepreneurial success are also different for women relative to men. In particular, it appears that postgraduate schooling has a substantially greater impact on a woman's probability of being self-employed, becoming self-employed, and being an employer. Relative to the baseline, having any college at all increases the likelihood of being an employer much more for self-employed women than for self-employed men.

Family dynamics play an important role in determining entrepreneurial success. Whether the individual is married, has children at home, and whether the individual's spouse is employed may all affect the ability or willingness to enter self-employment. We found significant effects for several variables, including marital status, whether the individual had dependent children, spouse's employment status, and family income. The presence of dependent children reduced the likelihood that a self-employed female would be an employer, but the effect for self-employed males was a slight increase.

The biggest female/male differences in family dynamics factors related to spouse employment status, and specifically to the case in which an individual's spouse was self-employed. For both women and men, having a spouse who was self-employed increased the probability of being self-employed or becoming self-employed. The effect was greater for women than men, however. Having a spouse who worked as a paid employee for others increased the probability that a woman was an employer by about 11 percent, compared to a similar increase of 7 percent for men. Conversely, a spouse who worked for others meant an 18 percent greater chance that a woman would leave self-employment, but only a 6 percent increase for males.

Differences across industries between women-owned firms and other firms showed consistent patterns for the most part. In general, women-owned firms were less likely to be employing firms; among employing firms, women-owned firms were more likely to be microbusinesses and less likely to have 10 or more employees. The differences between women-owned firms and other firms were most pronounced in the Health sector, in which women-owned firms were 80 percent less likely to be employers. However, there were some exceptions. In the Administrative sector – while women-owned firms were still less likely to be employers – those women-owned firms that were employers were 9 percent more likely than other firms to have at least ten employees. They were also less likely to be microbusinesses.

Given these differences between females and males (and between women-owned businesses and other firms), our findings suggest that there may be gender-based differences in the nature of self-employment and entrepreneurship, and these differences may lie in the reasons for choosing self-employment. Devine (1994) concluded that the decision to enter self-employment for women, in particular, is intricately linked with other important life choices. For example, women may be more likely to choose self-employment for a set of reasons and family situations that are different than the factors

that motivate most men to make the same choice. In general, the choices made by women appear to be more sensitive to changes in family dynamics and economic conditions compared to the choices made by men.

From a policy perspective, it is important to deepen understanding of the reasons behind observed differences between female and male entrepreneurs. Those reasons might be grouped into three categories:

1. differences in aptitude, education, training, and work experience
2. “push” factors such as discrimination in the paid-employment sector or male-female differences in labor-force participation patterns
3. barriers to success such as lack of social and business networks and exclusion from certain male-dominated sectors

Our initial, descriptive analysis highlighted several gender-based differences in the data; the subsequent regression analysis controlled for measurable differences that may be correlated with gender (i.e., how much of the female-male difference is due to differences in education, family dynamics, and other factors that vary by sex). However, male-female differences persisted even after accounting for these other factors.

Differences attributable to aptitude, education, training, and work experience may be addressed through programs that broaden opportunities for women and encourage their participation in fields of study and occupations in which they have been traditionally underrepresented. Policies to foster business and social networks among female entrepreneurs will be more effective when the underlying causes of underrepresentation stem from lack of access and resistance to entry by established firms.

Much of the previous literature – for example, Mora and Dávila (2014) or Clark and Drinkwater (1998) – suggest that differences in entrepreneurial success are at least partially attributable to “push” factors. That is, discrimination against certain groups (women, minorities) in the paid-employment sector of the labor market “push” individuals into self-employment who would otherwise not choose that employment option. Accordingly, the average entrepreneur among the “pushed” groups will be less well suited (in terms of aptitude, skills, and experience) for self-employment than is the typical individual from a non-pushed group. With higher probabilities of leaving self-employment among women in our models, there is some evidence that the push factors are greater for women than for men. Paradoxically, if policies are pursued to reduce this type of discrimination, one would expect rates of entrepreneurship among women and minorities to decline. However, rates of success would be expected to rise.

Unfortunately, it is difficult to empirically measure the extent to which discrimination has played a part. One potential approach that we have not yet seen would be analogous to models of labor supply and earnings. These models use a two-stage estimation procedure to control for the initial decision to enter the labor market to avoid biased estimates of earnings. Likewise, a two-stage model of (1) the decision to become an entrepreneur and (2) some measure of subsequent business success would allow one to control for the “push” factors.

The PSID data may be a useful resource in the future, particularly as future waves increase the amount of evidence on business ownership and firm size. Another potentially useful data set is the Panel Study of Entrepreneurial Dynamics (PSED). The PSED is a relatively new product developed by the University of Michigan (which also maintains the PSID). The PSED includes a sample of new entrepreneurs (as well as a control sample of non-entrepreneurs) initially sampled in 1998 – 2000 and then interviewed annually. A second wave was initiated in 2005. The datasets include detailed data on the firms and the entrepreneurs. Very small sample sizes will create challenges for developing useful models, but this new data set is worthy of additional exploration.

The final set of factors affecting the relative entrepreneurial success of women and women-owned businesses – barriers to entry in male-dominated sectors and lack of support networks – is perhaps the hardest to quantify. Here, qualitative studies, including surveys and focus groups are likely to be most helpful in identifying the particular challenges that women face in advancing from self-employed individuals to owners of successful, employing firms.

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Appendix A: Model Methodology

There are two basic underlying models used in the regression analysis. The first, using the SBO PUMS data, is an establishment model of business success. The unit of analysis is an individual firm. We examine the following measures of business success in the establishment model:

1. EMPLOYER – the probability that a firm has employees (rather than a single, self-employed individual)
2. MICROBUSINESS – the probability that a firm with employees has fewer than five employees
3. LARGE – the probability that an employing firm has ten or more employees.

For each specification, we estimated logit regressions using alternative sets of explanatory variables. The logit specification is appropriate in this case where the underlying (latent) dependent variable is a probability and the observed dependent variable is binary. The model is of the form

$$Prob[Y = 1] = Pr(Y') = f(X, \beta),$$

where Y is the dependent variable, X is a matrix of explanatory variables, and β is a vector of coefficients. In the logit model, the specific functional form follows the logistic distribution:

$$Pr(Y') = \frac{e^{X\beta}}{1 + e^{X\beta}}.$$

We estimated these models using Maximum Likelihood estimation.

The second basic underlying model is an individual model of entrepreneurial success. We estimated these models using the PSID data. The unit of analysis is one individual who is either the head of a household or the wife. Because the PSID data are longitudinal (tracking households and individuals across time, we were able to exploit the data dynamically in two senses. First, we could use a panel model to control for individual-specific attributes by correlating the decisions and actions of individual across time. Second, we could observe changes in the business ownership status of individuals from one period to the next.

For the individual models, we considered several dependent variables:

1. SELF – individual is self-employed
2. NEWLYSELF – individual became self-employed in the current period
3. NEWLYNOT – individual left self-employment in the current period
4. EMPLOYER – individual's business is an employing firm

For the latter three specifications, we estimated logit models as described above.

For the first specification, we used a panel model, as discussed, to control for individual-specific (unobserved) attributes. We observed that exit rates from self-employment are very high in the first few years after beginning self-employment. As individuals who are less well suited to self-employment voluntarily or involuntarily leave self-employment, the remaining pool of entrepreneurs are those with

the best aptitude and skills for business ownership. To the extent that some of the attributes that affect aptitudes, taste for self-employment, and skills are unobserved, the panel model can correct for them.

The specific functional form for this model is a panel probit. Starting from our previous model specification, we explicitly added an error term. The error term denotes the portion of variation in the dependent variable that is not explained by the (observed) explanatory variables.

$$Pr(Y') = f(X, \beta, \gamma_{j,t})$$

The error term ($\gamma_{j,t}$) varies by individual (j) and time period (t). Let this error term consist of two parts. The first is an individual-specific, permanent component, α_j , while the second is a transitory component, $\varepsilon_{j,t}$

$$\gamma_{j,t} = \alpha_j + \varepsilon_{j,t}.$$

The probability that an individual will remain self-employed is given by

$$Prob[X_{j,t}\delta - \alpha_j > \varepsilon_{j,t}] = \int_{-\infty}^{(X_{j,t}\delta - \alpha_j)} f(\varepsilon_{j,t}) d\varepsilon_{j,t}.$$

With ε distributed normally with mean zero and standard deviation σ_ε , the probability that the individual is self-employed in period t , given that the individual was self-employed through period $t - 1$, is given by

$$\int_{-\infty}^{(X_{j,t}\delta - \alpha_j)} f(\varepsilon_{j,t}) d\varepsilon_{j,t} = F\left[\frac{X_{j,t}\delta - \alpha_j}{\sigma_\varepsilon}\right],$$

where $F(\cdot)$ is the cumulative distribution function of the standard normal random variable.¹² Then, the probability that an individual enters self-employment at $t = 1$, stays through $T - 1$ periods, and leaves in period T , is given by

$$Q_T = \prod_{t=1}^{T-1} \left(F\left[\frac{X_{j,t}\delta - \alpha_j}{\sigma_\varepsilon}\right] \right) \cdot F\left[\frac{-(X_{j,T}\delta - \alpha_j)}{\sigma_\varepsilon}\right],$$

where Q_T is the probability that an individual who enters self-employment at $t = 1$ leaves in period T .

¹²Note that $1 - F[-C] = F[C]$, by the symmetry of the standard normal distribution.

This is a one-factor, variance-components formulation. When an individual arrives at a decision point, it is as if he or she draws an $\varepsilon_{j,t}$ at random from a distribution with mean zero. This distribution is the same for all individuals. Moreover, if the individual stays and comes to another decision point, he or she again draws randomly from the distribution $f(\varepsilon_{j,t})$. This value will be uncorrelated with the previous draw. In addition, the individual has a "permanent" component— α_j —that remains constant across decision points. This component is distributed over all persons according to the density function $f'(\alpha)$, which is also assumed to be normal. A cohort's distribution of α 's changes as members pass through multiple decision points. Those with relatively greater preference for self-employment (higher α 's) will tend to stay at higher rates, so that the distribution of α 's for the remaining group is truncated.

For a cohort of individuals who enter self-employment at period 1, the proportion who stay through period $T-1$, and then leave at T , is

$$Q_T = \int_{-\infty}^{\infty} \prod_{t=1}^{T-1} \left(F \left[\frac{X_{j,t} \delta - \alpha_j}{\sigma_\varepsilon} \right] \right) \cdot F \left[\frac{-(X_{j,T} \delta - \alpha_j)}{\sigma_\varepsilon} \right] f(\alpha_j) d\alpha_j .$$

where $f'(\alpha)$ is the density function of α , with mean μ_α . If α and ε are independent, then

$$\sigma_\gamma^2 = \sigma_\varepsilon^2 + \sigma_\alpha^2 .$$

Define the parameter

$$\rho = \frac{\sigma_\alpha^2}{\sigma_\alpha^2 + \sigma_\varepsilon^2} = \frac{\sigma_\alpha^2}{\sigma_\gamma^2} .$$

This parameter represents the correlation in the total disturbance term between successive time periods. Assuming that the transitory component of the error term, ε , is uncorrelated over time, this term represents the importance of the fixed component of "tastes," α , in explaining the pattern of self-employment over time.

Appendix B: Detailed Results

Survey of Business Owners Public Use Microdata Sample (SBO PUMS)

Data and Variable Descriptions

There are two separate datasets being used for the regression analysis of the SBO PUMS data. The first dataset is with all the responders and uses *SelfEmpl* as the dependent variable for all of the regressions in this dataset. The second dataset is with only the responders that have businesses that employ others (the business has 1 or more employees or is an Employing firm with 0 employees) and uses *BUSSTAT2* and *BUSSTAT4* as dependent variables in the regressions in this dataset.

The variable names and descriptions are shown in Table 17.

Table 17. SBO PUMS Variables

Variable Name	Variable Type	Variable Description
SelfEmp1	Dummy	= 1 if firm is Self-Employed (Business has 0 employees and is a Nonemployer)
BUSSTAT2	Dummy	= 1 if firm is Employing Business (1-4 Employees or 0 employees and is an Employer)
BUSSTAT3	Dummy	= 1 if firm is Employing Business (5-9 Employees)
BUSSTAT4	Dummy	= 1 if firm is Employing Business (10+ Employees)
WOMOWN1	Dummy	= 1 if business is 0% Women-owned
WOMOWN2	Dummy	= 1 if business is 1-24% Women-owned
WOMOWN3	Dummy	= 1 if business is 25-49% Women-owned
WOMOWN4	Dummy	= 1 if business is 50% Women-owned
WOMOWN5	Dummy	= 1 if business is 51+% Women-owned
WHIOWN	Dummy	= 1 if business is 51+% White Owned
EST1	Dummy	= 1 if business with a tenure of 1 year (Established in 2007)
EST2	Dummy	= 1 if business with a tenure of 2 years (Established in 2006)
EST3to5	Dummy	= 1 if business with a tenure of 3-5 years (Established from 2003-2005)
SECTPRO	Dummy	= 1 if business in <i>Professional, Scientific, and Technical Services</i> Sector
SECTOTH	Dummy	= 1 if business in <i>Other Services (except Public Administration)</i> Sector
SECTHEA	Dummy	= 1 if business in <i>Health Care and Social Assistance</i> Sector
SECTRET	Dummy	= 1 if business in <i>Retail Trade</i> Sector
SECTADM	Dummy	= 1 if business in <i>Administrative and Support and Waste Management and Remediation Services</i> Sector
SECTREA	Dummy	= 1 if business in <i>Real Estate and Rental and Leasing</i> Sector
SECTINF	Dummy	= 1 if business in <i>Information</i> Sector
SECTWHO	Dummy	= 1 if business in <i>Wholesale Trade</i> Sector
SECTMAN	Dummy	= 1 if business in <i>Manufacturing</i> Sector
WO5XPRO	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses that are in the <i>Professional, Scientific, and Technical Services</i> Sector
WO5XOTH	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Other Services (except Public Administration)</i> Sector
WO5XHEA	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Health Care and Social Assistance</i> Sector
WO5XRET	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Retail Trade</i> Sector
WO5XADM	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Administrative and Support and Waste Management and Remediation Services</i> Sector
WO5XREA	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Real Estate and Rental and Leasing</i> Sector
WO5XINF	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Information</i> Sector
WO5XWHO	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Wholesale Trade</i> Sector
WO5XMAN	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses in the <i>Manufacturing</i> Sector
WO5xEST1	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses with a tenure of 1 year. (Established in 2007)
WO5xEST2	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses with a tenure of 2 years. (Established in 2006)
WO5xEST3	Interaction Dummy	Interaction between Businesses that are 51+% Women-owned and Businesses with a tenure of 3-5 years. (Established from 2003-2005)

Regression Results

Table 18. SBO PUMS Basic Regression

Variable Name	Dependent Variable		
	SelfEmpl	BUSSTAT2	BUSSTAT4
Constant	0.5306*	-0.5214*	-0.2206*
WOMOWN1	-0.7193*	0.7284*	-0.7421*
WOMOWN3	-0.0051	0.1162*	-0.1632*
WOMOWN4	-1.0836*	0.9760*	-1.1106*
WOMOWN5	-1.8519*	0.9765*	-1.0243*
WHIOWN	0.6226*	-0.4597*	0.5836*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 19. SBO PUMS Adding Tenure Variables

Variable Name	Dependent Variable		
	SelfEmpl	BUSSTAT2	BUSSTAT4
Constant	0.7879*	-0.7639*	0.0045
WOMOWN1	-0.6507*	0.6881*	-0.7032*
WOMOWN3	0.0070	0.1024*	-0.1525*
WOMOWN4	-1.0282*	0.9368*	-1.0750*
WOMOWN5	-1.7418*	0.8954*	-0.9473*
WHIOWN	0.5326*	-0.3607*	0.4889*
EST1	-1.7074*	2.4351*	-2.3586*
EST2	-0.9094*	1.2796*	-1.4659*
EST3TO5	-0.6077*	0.8215*	-0.9197*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 20. SBO PUMS Adding Sector Variables

Variable Name	Dependent Variable		
	SelfEmpl	BUSSTAT2	BUSSTAT4
Constant	0.7697*	-0.6977*	-0.0143
WOMOWN1	-0.6422*	0.6642*	-0.6669*
WOMOWN3	0.0298**	0.1187*	-0.1613*
WOMOWN4	-1.0058*	0.9411*	-1.0598*
WOMOWN5	-1.7233*	0.8712*	-0.9014*
WHIOWN	0.5527*	-0.3784*	0.4786*
EST1	-1.6993*	2.4246*	-2.3374*
EST2	-0.8832*	1.2464*	-1.4318*
EST3TO5	-0.5700*	0.7815*	-0.8798*
SECTPRO	-0.0580*	0.4148*	-0.4181*
SECTOTH	-0.5910*	0.2385*	-0.4605*
SECTHEA	0.2319*	-0.1904*	-0.0766*
SECTRET	0.1971*	-0.2755*	0.1116*
SECTADM	-0.0817*	-0.0644*	0.1427*
SECTREA	-0.8999*	0.6673*	-0.7038*
SECTINF	-0.4333*	-0.2013*	0.2640*
SECTWHO	0.9613*	-0.2843*	0.2165*
SECTMAN	0.5099*	-0.8397*	0.8587*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 21. SBO PUMS Interaction variables between WOMOWN5 and Sectors

Variable Name	Dependent Variable		
	SelfEmpl	BUSSTAT2	BUSSTAT4
Constant	0.7443*	-0.6683*	-0.0432*
WOMOWN1	-0.6553*	0.6626*	-0.6619*
WOMOWN3	0.0262***	0.1191*	-0.1610*
WOMOWN4	-1.0247*	0.9427*	-1.0604*
WOMOWN5	-1.5010*	0.6570*	-0.7378*
WHIOWN	0.5513*	-0.3818*	0.4866*
EST1	-1.6956*	2.4270*	-2.3420*
EST2	-0.8797*	1.2468*	-1.4344*
EST3TO5	-0.5675*	0.7810*	-0.8809*
SECTPRO	-0.0518*	0.3799*	-0.3886*
SECTOTH	-0.4528*	0.2274*	-0.4663*
SECTHEA	0.5319*	-0.2291*	-0.1057*
SECTRET	0.2863*	-0.3549*	0.1958*
SECTADM	0.0042	-0.0291**	0.0933*
SECTREA	-0.9462*	0.5984*	-0.6334*
SECTINF	-0.4285*	-0.2384*	0.2971*
SECTWHO	0.9734*	-0.3085*	0.2317*
SECTMAN	0.5046*	-0.8953*	0.9056*
WO5XPRO	-0.1034*	0.2705*	-0.2345*
WO5XOTH	-0.6114*	0.1251*	-0.0031
WO5XHEA	-0.8823*	0.2738*	0.0764*
WO5XRET	-0.4119*	0.5132*	-0.5769*
WO5XADM	-0.3967*	-0.1104*	0.2057*
WO5XREA	0.2208*	0.4902*	-0.5355*
WO5XINF	-0.0631**	0.2872*	-0.2608*
WO5XWHO	-0.1087*	0.2035*	-0.1348*
WO5XMAN	-0.0294	0.4075*	-0.3585*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 22. SBO PUMS Interaction variables between WOMOWN5 and Tenures

Variable Name	Dependent Variable		
	SelfEmpl	BUSSTAT2	BUSSTAT4
Constant	0.7772*	-0.6961*	-0.0169
WOMOWN1	-0.6409*	0.6643*	-0.6672*
WOMOWN3	0.0302**	0.1189*	-0.1614*
WOMOWN4	-1.0050*	0.9411*	-1.0598*
WOMOWN5	-1.7541*	0.8602*	-0.8804*
WHIOWN	0.5519*	-0.3784*	0.4782*
EST1	-1.7242*	2.3753*	-2.2663*
EST2	-0.9104*	1.2260*	-1.3950*
EST3TO5	-0.6018*	0.7777*	-0.8605*
SECTPRO	-0.0584*	0.4148*	-0.4178*
SECTOTH	-0.5918*	0.2381*	-0.4598*
SECTHEA	0.2296*	-0.1914*	-0.0751*
SECTRET	0.1960*	-0.2756*	0.1119*
SECTADM	-0.0823*	-0.0641*	0.1424*
SECTREA	-0.9002*	0.6671*	-0.7035*
SECTINF	-0.4332*	-0.2010*	0.2635*
SECTWHO	0.9604*	-0.2844*	0.2168*
SECTMAN	0.5094*	-0.8395*	0.8585*
WO5XEST1	0.1070*	0.3063*	-0.5018*
WO5XEST2	0.1108*	0.1142*	-0.2308*
WO5XEST3	0.1336*	0.0234	-0.1250*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Panel Study of Income Dynamics (PSID)

Data and Variable Descriptions

There are three separate datasets being used for the regression analysis of the PSID data. The first dataset is with all the responders, both male and female. The second dataset is a male cohort and the third dataset is a female cohort. Four dependent variables were used for eight different regressions- Those dependent variables are *NewlySelf*, *NewlyNot*, *Employer*, *ProbSelfEmpl*, and *EmpChange*. For each dependent variable, there are two sets of regressions because of collinearity between the spouse employment status variables and total family income. We also estimated separate equations including business starts and closures rather than the national unemployment rate for similar reasons. The *EmpChange* equations were only estimated for the pooled dataset, given that very few of the coefficients in this larger sample were statistically significant.

The variable names and descriptions are shown in Table 23.

Table 23. PSID Variables

Variable Name	Variable Type	Variable Description
NEWLYSELF	Dummy	= 1 if individual was in labor force but not self-employed in year i and in the labor force and self-employed in year $i+2$
NEWLYNOT	Dummy	= 1 if individual was in labor force and self-employed in year i and in the labor force and not self-employed in year $i+2$
EMPLOYER	Dummy	= 1 if individual is self-employed and has employees
ProbSelfEmpl	Dummy	= 1 if individual is self-employed
EmpChange	Dummy	= 1 if individual was self-employed and had no employees in year i and became an employer in year $i+2$
MALE	Dummy	= 1 if individual is male
UNDER35	Dummy	= 1 if individual is under 35 years of age
_35TO54	Dummy	= 1 if individual is 35 to 54 years of age
MARRIED	Dummy	= 1 if individual is married
HISPANIC	Dummy	= 1 if individual is Hispanic
WHITE	Dummy	= 1 if individual is White
BLACK	Dummy	= 1 if individual is Black
SOMECOL	Dummy	= 1 if individual has some college experience
BACHELOR	Dummy	= 1 if individual has a Bachelor's degree
POSTGRAD	Dummy	= 1 if individual has schooling beyond a Bachelor's degree
TOTINC_F	Numerical	Total Family Income
FIRMBIRT	Numerical	Firm Births
DEPENDEN	Dummy	= 1 if individual is has children under the age of 18 in the household
SPSESELF	Dummy	= 1 if individual's spouse is self-employed
SPSEOTH	Dummy	= 1 if individual's spouse works for others
ρ	Correlation	Correlation coefficient in panel models

Regression Results

Table 24. PSID NewlySelf Equation 1

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-3.3089*	-2.7515*	-3.4539*
MALE	0.4227*	Not Used In Regression	Not Used In Regression
UNDER35	-0.0155	-0.0512	-0.0386
_35TO54	-0.1339***	-0.1136	-0.2132***
MARRIED	-0.1216***	-0.2420*	0.0167
HISPANIC	0.2316	0.1411	0.3815
WHITE	-0.0413	-0.0821	0.0286
BLACK	-0.2920*	-0.2605**	-0.3137***
SOMECOL	-0.0698	-0.0571	-0.0864
BACHELOR	-0.0552	-0.0281	-0.0915
POSTGRAD	0.0507	0.0402	0.0692
TOTINCK	0.0021*	0.0020*	0.0023*
UNEMP	-0.0184	-0.0122	-0.0279
DEPENDEN	0.0590	-0.0297	0.2632*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 25. PSID NewlySelf Equation 2

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-3.3314*	-2.7521*	-3.4394*
MALE	0.4947*	Not Used In Regression	Not Used In Regression
UNDER35	-0.0165	-0.0551	-0.0046
_35TO54	-0.1206	-0.0995	-0.1761
MARRIED	-0.1441***	-0.2017***	-0.0087
HISPANIC	0.1887	0.1079	0.3270
WHITE	-0.0317	-0.0598	0.0213
BLACK	-0.2736*	-0.2340***	-0.3156***
SOMECOL	-0.0523	-0.0266	-0.0907
BACHELOR	0.0173	0.0528	-0.0419
POSTGRAD	0.1708**	0.1602	0.1841
SPSEOTH	-0.0469	-0.0748	-0.0837
SPSESELF	1.1591*	1.0967*	1.1429*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 26. PSID NewlySelf Equation 3

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-3.4728*	-2.8008*	-3.7953*
MALE	0.4228*	Not Used In Regression	Not Used In Regression
UNDER35	-0.0136	-0.0478	-0.0405
_35TO54	-0.1290***	-0.1059	-0.2141***
MARRIED	-0.1209***	-0.2403*	0.0168
HDSPANIS	0.2300	0.1392	0.3795
HDWHITE	-0.0423	-0.0841	0.0278
HDBLACK	-0.2951*	-0.2664**	-0.3149***
SOMECOL	-0.0723	-0.0599	-0.0865
BACHELOR	-0.0586	-0.0331	-0.0901
POSTGRAD	0.0449	0.0333	0.0702
TOTINCK	0.0021*	0.0020*	0.0023*
FIRMBIRT	0.0001	-0.0001	0.0003***
DEPENDEN	0.0596	-0.0290	0.2639*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 27. PSID NewlySelf Equation 4

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-3.4345*	-2.7406*	-3.7253*
MALE	0.4949*	Not Used In Regression	Not Used In Regression
UNDER35	-0.0154	-0.0526	-0.0069
_35TO54	-0.1176	-0.0938	-0.1792
MARRIED	-0.1450***	-0.2028***	-0.0093
HISPANIC	0.1881	0.1064	0.3262
WHITE	-0.0323	-0.0617	0.0203
BLACK	-0.2755*	-0.2395***	-0.3158***
SOMECOL	-0.0541	-0.0294	-0.0891
BACHELOR	0.0147	0.0478	-0.0392
POSTGRAD	0.1668**	0.1535	0.1874
SPSEOTH	-0.0455	-0.0719	-0.0841
SPSESELF	1.1608*	1.1007*	1.1417*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 28. PSID NewlyNot Equation 1

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-1.0866*	-1.1526*	-1.2455*
MALE	-0.2047*	Not Used In Regression	Not Used In Regression
UNDER35	0.9255*	0.8301*	1.0769*
_35TO54	0.2786*	0.1742	0.4447*
MARRIED	-0.2585*	-0.3343*	-0.2154***
HISPANIC	-0.3410	-0.1860	-0.5315
WHITE	-0.2265***	-0.1941	-0.2800
BLACK	0.4956*	0.4751**	0.5320**
SOMECOL	-0.1011	0.0314	-0.2915**
BACHELOR	0.0807	-0.0025	0.2167
POSTGRAD	0.0074	-0.0602	0.1122
TOTINCK	-0.0016*	-0.0014*	-0.0020*
UNEMP	0.0605*	0.0500**	0.0785*
DEPENDEN	-0.0702	-0.0222	-0.1284

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 29. PSID NewlyNot Equation 2

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-3.3314*	-2.7521*	-3.4394*
MALE	0.4947*	Not Used In Regression	Not Used In Regression
UNDER35	-0.0165	-0.0551	-0.0046
_35TO54	-0.1206	-0.0995	-0.1761
MARRIED	-0.1441***	-0.2017***	-0.0087
HISPANIC	0.1887	0.1079	0.3270
WHITE	-0.0317	-0.0598	0.0213
BLACK	-0.2736*	-0.2340***	-0.3156***
SOMECOL	-0.0523	-0.0266	-0.0907
BACHELOR	0.0173	0.0528	-0.0419
POSTGRAD	0.1708**	0.1602	0.1841
SPSEOTH	-0.0469	-0.0748	-0.0837
SPSESELF	1.1591*	1.0967*	1.1429*
UNEMP	-0.0117	-0.0058	-0.0211
DEPENDEN	0.0512	-0.0483	0.2495*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 30. PSID NewlyNot Equation 3

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-0.7673*	-0.9066*	-0.7923*
MALE	-0.2044*	Not Used In Regression	Not Used In Regression
UNDER35	0.9129*	0.8289*	1.0310*
_35TO54	0.2492*	0.1561	0.3848**
MARRIED	-0.2725*	-0.3478*	-0.2294***
HISPANIC	-0.3334	-0.1795	-0.5244
WHITE	-0.2275***	-0.1930	-0.2902
BLACK	0.5138*	0.4938*	0.5439**
SOMECOL	-0.0848	0.0389	-0.2560**
BACHELOR	0.0970	0.0038	0.2595***
POSTGRAD	0.0237	-0.0528	0.1475
TOTINCK	-0.0015*	-0.0014*	-0.0019*
FIRMDEAT	0.0001	0.0002	0.0001
DEPENDEN	-0.0745	-0.0287	-0.1246

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 31. PSID NewlyNot Equation 4

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-1.0847*	-1.1891*	-1.2797*
MALE	-0.2637*	Not Used In Regression	Not Used In Regression
UNDER35	0.9462*	0.8591*	1.0593*
_35TO54	0.2790*	0.1831**	0.4078*
MARRIED	-0.2335**	-0.3001**	-0.3083**
HISPANIC	-0.2849**	-0.1438**	-0.4601**
WHITE	-0.2237**	-0.1989**	-0.2407**
BLACK	0.5056*	0.4863**	0.5799**
SOMECOL	-0.1273**	-0.0054**	-0.3000**
BACHELOR	-0.0134**	-0.0889**	0.1059**
POSTGRAD	-0.1117**	-0.1429**	-0.0913**
SPSEOTH	0.0355**	-0.0189**	0.2040**
SPSESELF	-0.6148*	-0.5766*	-0.5451**
UNEMP	0.0546*	0.0442**	0.0731*
DEPENDEN	-0.0942**	-0.0330**	-0.1666**

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 32. PSID EMPLOYER Equation 1

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 – Female
Constant	-1.3224*	-0.9916*	-1.2660*
MALE	0.4731*	Not Used In Regression	Not Used In Regression
UNDER35	1.4552*	1.6220*	1.3983*
_35TO54	1.3540*	1.3983*	1.3409*
MARRIED	-0.1783*	-0.1197*	-0.1735*
HISPANIC	-0.0562*	-0.1416*	0.0061*
WHITE	0.3130*	0.2529*	0.3526*
BLACK	0.0156*	-0.3067*	0.2251*
SOMECOL	0.4507*	0.3577*	0.5086*
BACHELOR	0.5971*	0.4873*	0.6735*
POSTGRAD	0.5462*	0.2126*	0.7797*
TOTINCK	0.0067*	0.0097*	0.0049*
UNEMP	-0.0107*	-0.0135*	-0.0098*
DEPENDEN	-0.0980*	0.0429*	-0.2467*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 33. PSID EMPLOYER Equation 2

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 – Female
Constant	-1.1446*	-0.7005*	-1.1206*
MALE	0.5282*	Not Used In Regression	Not Used In Regression
UNDER35	1.2742*	1.4212*	1.2179*
_35TO54	1.2966*	1.3535*	1.2580*
MARRIED	-0.2924*	-0.1526*	-0.4103*
HISPANIC	-0.1246	-0.2218***	-0.0556
WHITE	0.3468*	0.2884*	0.3842*
BLACK	-0.0204	-0.3906*	0.2294*
SOMECOL	0.5287*	0.4867*	0.5577*
BACHELOR	0.8329*	0.8248*	0.8369*
POSTGRAD	0.8729*	0.6974*	1.0081*
SPSEOTH	0.5033*	0.5416*	0.5744*
SPSESELF	0.6593*	0.7671*	0.7070*
UNEMP	-0.0030	-0.0023	-0.0026
DEPENDEN	-0.0919*	0.0619***	-0.2578*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 34. PSID EMPLOYER Equation 3

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 – Female
Constant	-1.3545*	-1.0100*	-1.3173*
MALE	0.4726*	Not Used In Regression	Not Used In Regression
UNDER35	1.4578*	1.6258*	1.4005*
_35TO54	1.3598*	1.4071*	1.3450*
MARRIED	-0.1759*	-0.1150*	-0.1721*
HISPANIC	-0.0566	-0.1423	0.0056
WHITE	0.3162*	0.2562*	0.3551*
BLACK	0.0151	-0.3097*	0.2254*
SOMECOL	0.4448*	0.3522*	0.5036*
BACHELOR	0.5894*	0.4799*	0.6668*
POSTGRAD	0.5361*	0.2046*	0.7704*
TOTINCK	0.0067*	0.0097*	0.0048*
FIRMBIRT	-0.0001*	-0.0002*	0.0000
DEPENDEN	-0.0973*	0.0437	-0.2464*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 35. PSID EMPLOYER Equation 4

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 – Female
Constant	-1.1084*	-0.6172*	-1.1082*
MALE	0.5284*	Not Used In Regression	Not Used In Regression
UNDER35	1.2756*	1.4237*	1.2188*
_35TO54	1.3005*	1.3598*	1.2604*
MARRIED	-0.2945*	-0.1546*	-0.4123*
HISPANIC	-0.1244	-0.2215***	-0.0556
WHITE	0.3493*	0.2908*	0.3862*
BLACK	-0.0208	-0.3941*	0.2300*
SOMECOL	0.5238*	0.4815*	0.5540*
BACHELOR	0.8260*	0.8173*	0.8318*
POSTGRAD	0.8644*	0.6891*	1.0015*
SPSEOTH	0.5085*	0.5486*	0.5784*
SPSESELF	0.6659*	0.7783*	0.7114*
FIRMBIRT	-0.0001*	-0.0002*	-0.0001
DEPENDEN	-0.0911*	0.0635***	-0.2576*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 36. PSID ProbSelfEmpl Equation 1

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-3.0969*	-2.6559*	-2.9905*
MALE	0.4861*	Not Used In Regression	Not Used In Regression
UNDER35	-0.7424*	-0.7633*	-0.7647*
_35TO54	-0.2478*	-0.2078*	-0.3321*
MARRIED	0.1375*	0.0816	0.2040*
HISPANIC	0.1125	0.0793	0.1407
WHITE	0.3197*	0.3132*	0.3147*
BLACK	-0.2654*	-0.2527**	-0.3016*
SOMECOL	0.0306	0.0607	0.0097
BACHELOR	-0.0822	0.0761	-0.2488*
POSTGRAD	0.1583*	0.2551*	0.0761
TOTINCK	0.0017*	0.0015*	0.0017*
UNEMP	-0.0155*	-0.0137***	-0.0175**
DEPENDEN	0.1309*	0.0523	0.2398*
ρ	0.7992*	0.8126*	0.7828*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 37. PSID ProbSelfEmpl Equation 2

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-3.0537*	-2.6127*	-2.9105*
MALE	0.5543*	Not Used In Regression	Not Used In Regression
UNDER35	-0.7643*	-0.7956*	-0.7510*
_35TO54	-0.2617*	-0.2133*	-0.3363*
MARRIED	0.1026**	0.1226**	0.0677
HISPANIC	0.0676	0.0278	0.1483
WHITE	0.3106*	0.3369*	0.2827*
BLACK	-0.2675*	-0.2197**	-0.3102*
SOMECOL	0.0645	0.0978***	0.0391
BACHELOR	-0.0119	0.1483**	-0.1772**
POSTGRAD	0.2222*	0.3067*	0.1522***
SPSEOTH	-0.0410	-0.0793***	0.0309
SPSESELF	0.9388*	0.8504*	1.0530*
UNEMP	-0.0092***	-0.0087	-0.0100
DEPENDEN	0.1156*	0.0235	0.2217*
ρ	0.7940*	0.8082*	0.7742*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 38. PSID ProbSelfEmpl Equation 3

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-1.4228*	-1.1317*	-1.4906*
MALE	0.2386*	Not Used In Regression	Not Used In Regression
UNDER35	-0.4937*	-0.5347*	-0.4441*
_35TO54	-0.2405*	-0.2446*	-0.2313*
MARRIED	0.0497*	0.0333***	0.0745*
HISPANIC	0.1663*	0.1482*	0.1968*
WHITE	0.1236*	0.1250*	0.1209*
BLACK	-0.2008*	-0.1752*	-0.2362*
SOMECOL	0.0070	-0.0138	0.0274***
BACHELOR	-0.0552*	-0.0265***	-0.1045*
POSTGRAD	0.0353*	0.0254	0.0405***
TOTINCK	0.0016*	0.0017*	0.0014*
FIRMBIRT	0.0001*	0.0001***	0.0002*
DEPENDEN	0.0592*	0.0153	0.1179*
ρ	0.0431*	0.0431*	0.0431*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 39. PSID ProbSelfEmpl Equation 4

Variable	Dataset 1 - All	Dataset 2 - Male	Dataset 3 - Female
Constant	-1.3895*	-1.0773*	-1.4339*
MALE	0.2869*	Not Used In Regression	Not Used In Regression
UNDER35	-0.5082*	-0.5513*	-0.4493*
_35TO54	-0.2386*	-0.2370*	-0.2318*
MARRIED	0.0371**	0.0724*	-0.0204
HISPANIC	0.1378*	0.1246*	0.1627*
WHITE	0.1327*	0.1460*	0.1170*
BLACK	-0.1914*	-0.1609*	-0.2298*
SOMECOL	0.0273**	0.0205	0.0325***
BACHELOR	0.0085	0.0521*	-0.0643*
POSTGRAD	0.1326*	0.1295*	0.1282*
SPSEOTH	-0.0203	-0.0554*	0.0506
SPSESELF	0.7012*	0.6845*	0.7565*
FIRMBIRT	0.0001*	0.0001	0.0001**
DEPENDEN	0.0643*	0.0134	0.1177*
ρ	0.0431*	0.0431*	0.0431*

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 40. PSID EmpChange Equation 1

Variable	Dataset 1 - All
Constant	-5.1472*
MALE	0.6484***
UNDER35	-0.4979
_35TO54	0.4329
MARRIED	0.9819***
HDSPANIS	0.2314
HDWHITE	-1.0122***
HDBLACK	-0.6238
SOMECOL	-0.3944
BACHELOR	-0.4767
POSTGRAD	-0.2721
TOTINCK	0.0009**
UNEMP	-0.3201*
DEPENDEN	-0.2374

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level

Table 41. PSID EmpChange Equation 2

Variable	Dataset 1 - All
Constant	-5.2212*
MALE	0.6608***
UNDER35	-0.4587
_35TO54	0.4905
MARRIED	1.0886***
HDSPANIS	0.1777
HDWHITE	-0.9854***
HDBLACK	-0.6006
SOMECOL	-0.3716
BACHELOR	-0.3986
POSTGRAD	-0.1846
SPSEOTH	-0.1836
SPSESELF	0.4355
UNEMP	-0.3169*
DEPENDEN	-0.2296

* = Significant at the 1% level

** = Significant at the 5% level

*** = Significant at the 10% level