The Earnings Gender Gap for Self-Employed Millennials: Evidence from the NLSY 97

Jessica Simon, Babson College and Megan Way, Babson College

EXTENDED ABSTRACT – September 2013

Is there a difference in the returns to self-employment for women and men of the Millennial generation, and if so, is it related to fertility? Self-employment and entrepreneurship provide significant benefits both to society and individuals, and they are a particular focus of many politicians and policy-makers in their discussions of current issues such as unemployment, education and healthcare. Understanding if the monetary benefits of self-employment are enjoyed similarly between male and female Millennials, particularly as they cope with the aftermath of the Great Recession and deal with their peak years of fertility, is important for policy-makers as well as career and educational advisers to this generation and the next. Prior studies have compared self-employment outcomes for men and women, finding that women, on average, are less likely to be self-employed, less likely to incorporate, earn less and are more likely to return to wage employment. (Fairlie, 2005; Hundley, 2000; Levine & Rubenstein, 2012; Roche, 2013; Williams, 2000) Our study is the first to focus specifically on the earnings and wage gaps between young, self-employed men and women of the early Millennial generation, and to examine how these gaps are related to fertility. We find that there are significant aggregate and per hour earnings differences, in the range of 85% higher earnings for men. Women overall, even childless women, work less than full-time, and men on average work about 10 hours per week more than women, regardless of childbearing. Controlling for other factors we find having a child is negatively correlated with earnings for self-employed women, but not men. Other significant factors include incorporation status, marital status and industry category.

BACKGROUND & LITERATURE REVIEW

[**forthcoming]**

DATA

We use the National Longitudinal Survey of Youth (NLSY) 1997. In 2010, interviews were conducted with 7,479 respondents from the original panel who were then between the ages of 26 and 30. We use earnings data from 2010, as well as data from the panels between 1997 and 2010 to create variables including family, education and work history. Of the 7,479, 8% of respondents (n=499) indicated that their *primary or current job* was self-employed. This is the group that we examine in this analysis.

METHODS

Our descriptive analysis takes advantage of the sample weights included in the NLSY 97, which make the sample representative of this age group in the U.S. as a whole. We create custom weights from the sample weights, given our use of several waves of the data to create the variables. The multiple regression analysis does not use sample weights, and assumes a log-linear relationship between earnings and the covariates in the equation below.

$$\ln W = B + B_1 background + B_2 education + B_3 household + B_4 employment + \varepsilon$$

Where:

- *W* represents a self-employed respondent's weekly earnings as of the survey in 2010, calculated as number of hours worked per week times the hourly wage.
- *Background* represents a vector of demographic characteristics including gender, household income in 1997(base year), and binary variables for African-American and Hispanic/Latino.
- *Education* consists of a vector of binary variables highest education level reached
- *Household* represents a vector of characteristics describing the respondent's family in 2010, including marital status, number of household members under age 18, and respondent's age at birth of first child.
- *Employment* variables include number of years of self-employment between 1997 and 2010, incorporation status of the self-employed business in 2010, whether the self-employed business was a sole proprietorship, number of employees of the self-employed business in 2010, and if the self-employed business was conducted from home
- ε is an error term

RESULTS

Descriptive

Table 1 shows a simple breakdown of the earnings of NLSY 97 respondents who reported they were working, by gender and their self-employment status in 2010.

Table 1. Average Earnings of Working Respondents, NLSY 97, By Gender and Self-Employment Status

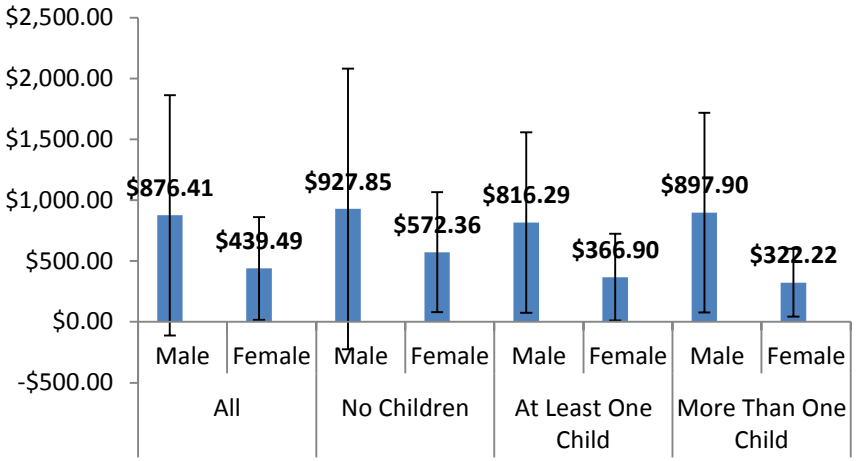
	Self Employed %	Average Earnings if Self-Employed	Average Earnings if Not Self-Employed
Male (n=3199)	9.5%	$1,113.36 ($1,918.90)	$723.45 ($1,092.75)
Female (n=3053)	6.71%	$600.42 ($2,056.00)	$681.07 ($4,025.03)

Note: Data from 2010 interview of NLSY 97 panel members.

Self-employed men, on average, earn about 50% more than salaried men, and this difference is statistically significant at the .05 level. Women, on the other hand, earn less in self-employment than their salaried counterparts, but the difference is insignificant. The difference between male and female self-employment earnings, with men earning 85% more than women, is also significant at a greater than .05 level, and it is this difference that our study attempts to understand.

We further break down the self-employed earnings categories above by examining earnings differences by childbearing status, shown in Figure 1. While the differences in mean weekly earnings between men and women are large and significant in all the categories, the largest is between men and women with more than one child. Men with more than one child on average earn 180% more than women with more than one child.

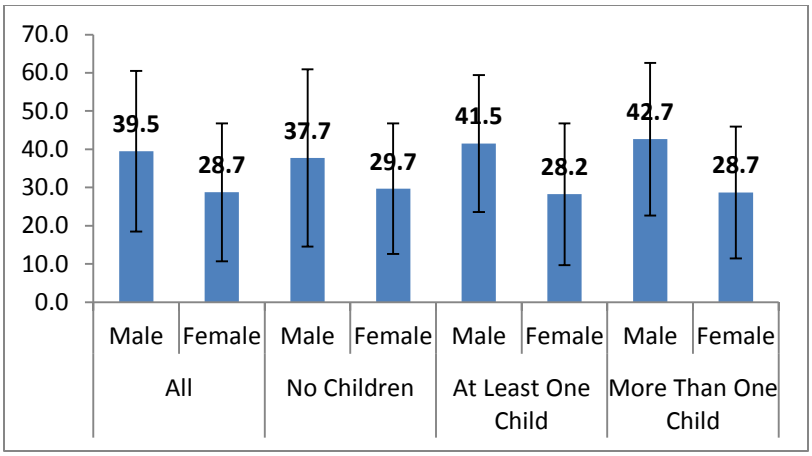
Fig 1. Comparison of Self-Employed Male and Female Average Weekly Earnings, by Childrearing Status (Weighted Descriptive Statistics)



Note: All self-employed *n*=463; Male self-employed *n*=272; Female self-employed *n*=191; Male self-employed with no children *n*=138; Female self-employed with no children *n*=68; Male self-employed with at least one child *n*=134; Female self-employed with at least one child n=123; Male self-employed with more than one child *n*=74; Female self-employed with more than one child *n*=89.

This difference in male/female earnings could in part be explained by differences in work intensity, or hours worked, which are quite different for men and women. Figure 2 shows hours worked per week for the same categories. It is interesting to note the patterns of work hours. Men with children tend to work more, while women with children tend to work less. For men and women with no children, the difference in work hours is a full 8 hours, with childless women not even breaching the full-time work level. These results are consistent with prior studies such as Hundley (2000), although have yet to be explained. For the NLSY 97 respondents we cannot explain whether, or if, the average number of hours worked reflects a desire for work-life balance, self-selection into occupations that do not require full-time work or discrimination by clients/customers whereby women are unable to generate full-time hours. Whatever the reason, the difference in hours worked does not seem to fully explain the difference in earnings; the 180% difference in earnings for men and women with more than one child is in part due to the 49% difference in mean hours worked, but clearly there is more to the story.

Fig 2. Comparison of Self-Employed Male and Female Average Work Hours per Week, by Childrearing Status (Weighted Descriptive Statistics)



Note: All self-employed *n*=483; Male self-employed *n*=285; Female self-employed *n*=198; Male self-employed with no children *n*=146; Female self-employed with no children *n*=70; Male self-employed with at least one child *n*=139; Female self-employed with at least one child n=128; Male self-employed with more than one child *n*=77; Female self-employed with more than one child *n*=91.

Multiple Linear Regression

To see if gender and childbearing status are correlated with earnings, while controlling for other relevant factors, we performed an OLS regression, summarized in Table 2. The results suggest that the gender earnings gap for self-employed Millenials is explained by underlying characteristics of these men and women, and their industry of choice, and is also associated with a negative correlation between childbearing and earnings for women only. Incorporation status is strongly positively correlated with earnings, and the young men in this sample incorporate their business at more than twice the rate of women (24% vs 11%). Being married is negatively correlated with earnings, and young women in this age range are twice as likely to be married as their male counterparts (47% vs 23%). While having children was not correlated with lower earnings for men, for women it is associated with a steep decline in earnings, of over 50% (although the significance of this coefficient is borderline at p=0.091.) Self-employment in industries most commonly associated with women, represented by the category of education, health, social and other (non-professional) services, is also correlated with much lower earnings.

Table 2. Results of OLS Regressions

Variable	**Model 1 : Reduced Form** Coefficient (Standard Error)	**Model 2: Full Model** Coefficient (Standard Error)
Constant	6.456***	5.740***
	(0.107)	(0.854)
Sex - female	-0.744***	0.047
	(0.157)	(0.266)
Marital status in 2010 - married	0.107	-0.465*
	(0.192)	(0.273)
Marital status in 2010 – never married and cohabitating		-0.179
		(0.227)
Has biological children	-0.222*	0.310
	(0.131)	(0.232)
Interaction of female and marital status	0.076	0.040
	(0.273)	(0.405)
Ln of gross household income in 1997		0.022
		(0.070)
Race - black		-0.267
		(0.212)
Race - Hispanic or Latino		0.090
		(0.211)
Highest education completed – high school diploma		-0.060
		(0.188)
Highest education completed – associates degree		-1.110***
		(0.345)
Highest education – bachelor's degree or higher		-0.017
		(0.247)
Number of household members under age 18 in 2010		-0.042
		(0.068)
Total number of years respondent reported any job between 1997 and 2010		0.023
		(0.034)
Total number of years respondent reported self-employed job between 1997 and 2010		0.071**
		(0.31)
Main job - was self-employed business incorporated in 2010		0.664***
		(0.211)
Main job – was self-employed business sole proprietorship in 2010		0.361
		(0.241)
Main job - number of employees in se business in 2010		0.000
		(0.001)

Main job – was self-employed business conducted from home in 2010	-0.394**	
	(0.183)	
Main job – self-employed industry in education, health, social, or other services	-0.435**	
	(0.182)	
Interaction of female and having biological children	-0.558*	
	(0.329)	
Interaction of female and cohabitating (unmarried)	-0.006	
	(-0.002)	
Adjusted R-Squared	0.073	0.164
No. Observations	421	245

Notes: Standard errors are reported in parentheses below coefficients.
*, **, *** denotes significance at the 90%, 95%, and 99% level, respectively.

DISCUSSION AND CONCLUSIONS

[Forthcoming]

REFERENCES

Fairlie, R. W. (2005). Self-employment, entrepreneurship, and the NLSY79. *Monthly Labor Review, 128*(2), 40-47.

Hundley, G. (2000). Male/Female Earnings Differences in Self-Employment: The Effects of Marriage, Children, and the Household Division of Labor. *Industrial and Labor Relations Review, 54*(1), 95-114. doi: 10.2307/2696034

Levine, R., & Rubenstein, Y. (2012). *Does Entrepreneurship Pay? The Michael Bloombergs, the Hot Dog Vendors, and the Returns to Self-Employment*. Working Paper: Haas School of Business. University of California, Berkeley.

Roche, K. (2013). Reconciling gender differences in the returns to education in self-employment: Does occupation matter? *The Journal of Socio-Economics, 44*(C), 7.

Williams, D. R. (2000). Consequences of self-employment for women and men in the United States. *Labour Economics, 7*(5), 665-687. doi: http://dx.doi.org/10.1016/S0927-5371(00)00017-8