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Declining Survivor Benefits and Labor Force Participation

Amanda Geary
University of Kentucky, amanda.geary@uky.edu

AUTHOR

Amanda Geary

I graduated Summa Cum Laude in May 2004 with a Bachelor of Arts degree in Mathematical Economics. I have been an active member of Alpha Kappa Psi Professional Business Fraternity and am also a church lector for the University of Kentucky Newman Center. Throughout the majority of my undergraduate career, I was fortunate to take part in the Computer Science, Engineering, and Mathematics scholarship (CSEMS) program funded by the National Science Foundation. I plan on working until I get married in the spring of 2005, after which I am considering attending graduate school for economics. My personal relationship to the situation presented in this paper has made completing this project a very interesting and also satisfying process.

Mentor:
Dr. Christopher R. Bollinger,
Associate Professor,
Department of Economics

The Social Security Survivorship benefit pays over $5 billion per month to 6 million recipients. Amanda's research is a serious contribution to understanding how the structure of the program affects female labor supply. She observed that the survivor benefits decrease when the children of the deceased turn 18. However, because most individuals do not become self-supporting then, this may induce surviving spouses to work more. Amanda utilized the 1996 panel of the Survey of Income and Program Participation. She constructed a set of variables that measure quarterly changes in labor force participation over a four-year period. She found that widows were far more likely to move from part-time to full-time status as their children turned 18. This finding suggests that there is a substantial effect of the policy on labor force participation. It suggests further research into the well being of these families is important, and her conclusions suggest some interesting and potentially fruitful possibilities for future research. The paper is well done and highly professional.

Declining Survivor Benefits and Labor Force Participation

Abstract

Social Security Survivor Benefits aim to mitigate the problem of raising children on a single income by granting a widow monthly payments in her child's name. However, as each child reaches the age of 18 (or 19, if he or she is attending elementary or high school full-time) his or her benefits are discontinued. As is increasingly common in today's society, simply turning 18 is not indicative of financial independence. This paper attempts to discern whether a widow changes labor force habits when her children become legal adults and survivor benefits are reduced or discontinued. Though many of my results do not give convincing evidence that labor force habits of widows change relative to other women when their children turn 18, I did find that these women are more likely than their non-widowed counterparts to move from part-time to full-time work.

Background

The death of a husband is clearly a traumatic experience for any wife, both emotionally and financially. And, widows with children are put under the additional stress of caring for children on an often drastically reduced income. Social Security Survivor Benefits aim to mitigate this problem by granting the widow monthly payments in her child's name. However, as each child reaches the age of 18 (or 19, if he or she is attending elementary or high school full-time) his or her benefits are discontinued. This continues as each subsequent child becomes a legal adult and the widow is left with no further child survivor benefits. As is increasingly common in today's society, simply turning 18 is not indicative of financial independence. The legal adult will most likely enroll in some form of post-secondary education and will be confronted with the staggering costs of higher education. The widow, however, is given no additional financial support, though the cost of providing assistance to her son or daughter may actually be higher than when the child was covered by survivor benefits. Furthermore, costs associated with raising a family, such as house or car payments, do not go away when the last child

turns 18. This may make it difficult for the widow to maintain the same standard of living held prior to the discontinuation of survivor benefits.

My research followed the behavior of widows before, during, and after the time at which their Social Security Survivor Benefits were discontinued. In particular, I studied changes in labor participation over the period in which survivor benefits began to decline.

The most relevant research on this topic by Brien et al. (2003) addresses the marriage penalty induced by Social Security Survivor Benefits provisions. Their research suggests that because the marriage penalty for widows receiving survivor benefits is greater than the penalty in the tax code, which has been shown to discourage marriage, the survivor benefits penalty will also discourage marriage. Though their paper suggests that survivor benefits are substantial enough to be considered in a decision to marry, it does not discuss whether a similar reduction in benefits due to children reaching the age of 18 affects labor force participation changes by the widow. Other related research on this topic deals only with the increased poverty rate associated with becoming a widow, but does not look specifically at characteristics of women at the completion of survivor benefit disbursement.

A study by Myers et al. (1987) suggests that "the transition into widowhood means higher poverty rates for all subgroups of women, but the difference among the subgroups of widows is considerably smaller than when they were married" (p. 754). Their sample included women who received survivor benefits. If the poverty rate rises for widows compared to their married counterparts, even with federal assistance, I am led to wonder how these women behave when this assistance is dropped. It seems that such a drastic drop in monthly income would require a counter-reaction by the widow, such as obtaining another job, moving from part-time to full-time work, or simply decreasing her standard of living. The change in income and the necessary adjustments to it by this specific group of women appear to have received little notice. My research attempted to discern whether the discontinuation of survivor benefits placed a further substantial hardship on widows, enough hardship to induce them to change labor force habits. I hypothesized that widows will take some action to make up for lost compensation, whether it takes the form of starting work altogether or increasing hours worked.

Methodology

I obtained my data from the 1996 panel of the Survey of Income and Program Participation (SIPP) conducted by the United States Census Bureau. Using the fourth reference month of waves 1-12 of this data, I was able to track the behavior of each subject over a period of time. I determined the wave in which the woman became widowed and the waves in which her children reached the age of 18, signaling a decline in or the end of survivor benefits. The main independent variables were dummy variables that distinguished widows who have at least one child who has reached age 18 and those whose children have not. I tested for any changes in labor force participation, particularly whether the widow began working or changed from part-time work (less than 35 hours per week) to full-time work (greater than 35 hours per week). These variables, along with variables that account for movement out of the labor force or a shift from full-time to part-time, served as the dependent variables for four models.

The original sample included 119,475 observations of women age 29-50. However, I had only 794 women who were widowed or became widowed from one wave to the next. I assigned women the status of "became widowed," those who were not widowed in the previous wave but are in the current wave; "always widowed," those who were widowed in the previous and the current waves; and "never widowed," those who were not widowed in the previous nor the current wave, as a control group. From this point, I created interaction variables for each of these three subgroups. Each subgroup was classified as having some children under 18, "have children;" or as having one or more child who turned 18 from the previous wave to the current wave, "lose children." Then, I was able to identify the exact wave in which a woman became widowed and when some of her children became legal adults, indicating a decline in survivor benefits. After compiling observations from each of the 12 waves, I was able to test for changes in labor force participation around the wave in which the change took place. For an alphabetical listing of variables, accompanied by reference numbers and variable definitions, see the Appendix included in the on-line version of the journal at www.uky.edu/Kaleidoscope/fall2004. All variables will be referred to by their reference numbers in the analyses.

Results

Table 1 presents demographic statistics for each category described above. Information for variables that presumably do not change when children reach age 18 include age, race, and highest level of education attained by the widow. Note that education level may range from 31 to 47, with 31 indicating a less than first grade education and 47 representing a doctorate

Table 1: Descriptive Statistics

Reference Number	Variables	Sample Size	Education		Age		White	Black
			Average	Std. Dev.	Average	Std. Dev.		
3	Always Widowed, Have Children	701	39.88	3.30	41.71	5.60	73%	22%
4	Always Widowed, Lose Children	45	39.96	2.92	44.60	4.52	76%	18%
6	Became Widowed, Have Children	43	40.37	3.45	40.47	6.20	74%	14%
7	Became Widowed, Lose Children	5	41.00	4.06	47.60	1.95	80%	20%
15	Never Widowed, Have Children	77,962	40.44	2.94	36.18	6.81	84%	12%
16	Never Widowed, Lose Children	2,878	39.98	2.99	40.74	6.56	82%	13%

Table 2: Start Work

Reference Number	Variable	Coef.	Std. Err.	t	p-value
1	Age in Years	-0.0011	0.0005	-2.696	< 0.001**
2	Always Widowed	0.0202	0.0298	0.679	< 0.497
3	• Have Children	-0.0235	0.0417	-0.564	< 0.573
4	• Lose Children	-0.2180	0.0663	-3.293	< 0.001**
5	Became Widowed	0.0215	0.0356	0.603	< 0.547
6	• Have Children	-0.0340	0.0493	-0.690	< 0.490
7	• Lose Children	-0.2110	0.0858	-2.461	< 0.014*
8	Change in Education	0.0137	0.0009	15.202	< 0.001**
9	Change in Number of Children	-0.0170	0.0020	-8.651	< 0.001**
10	Education Level	-0.0025	0.0001	-20.710	< 0.001**
12	Have Children	0.0268	0.0412	0.652	< 0.514
13	Lose Children	0.1930	0.0638	3.018	< 0.003**
14	Never Widowed	0.0078	0.0294	0.265	< 0.791
15	• Have Children	-0.0192	0.0412	-0.465	< 0.642
16	• Lose Children	-0.1860	0.0637	-2.925	< 0.003**
18	Race	0.0030	0.0006	5.321	< 0.001**

*Significant at the 5% level.
**Significant at the 1% level.

degree. The value of the education variable increases steadily throughout its range, but a one unit increase does not always indicate an additional year of education, rather, it may represent a few years of education at the lower level, or an additional degree at the higher level.

For all categories of women, average education ranges from high school graduate to some college but no degree. Also, women with children reaching the age of 18 are, on average, older than their counterpart group who have children; women who have never been widowed are, on average, younger than those who became widowed or have always been widowed. The majority of each category is white, with black being the second largest group. As can be seen from the table, the sample size of each category varies widely. Of the categories that I have defined, fewer than 1% of my observations became widowed or have always been widowed. This small sample size makes finding statistically significant results challenging.

I began my analysis by running four standard OLS regressions. The four dependent variables were dummy variables that indicate whether the woman has started working, switched from part-time to full-time and, to check the opposite scenario from what the hypothesis predicts, the other two variables indicate whether a woman has actually stopped working or switched from full-time to part-time. Using the linear probability model, I was able to determine the effect of a one unit change in the independent variable on the dependent variable. In particular, the coefficient of each independent variable represents the change in the probability of being in the set of the dependent variable when the independent variable changes by one unit. My independent variables included all subgroups of women described above: became, always, and never widowed, and dummy variables for those who have children and those whose children are turning 18, as well as interaction variables among these groups. I also included change variables that indicate a difference in the number of children under 18 and the amount of education attained from one wave to the next. Other variables included those listed above in the descriptive statistics table: education, age, and race. The results of the first regression, regressing the dummy variable that indicates whether a woman started working in the period on the other independent variables, are shown in Table 2.

Many of the variables were not statistically significant. However, the variables "became widowed" and "always widowed" are positive, indicating there may be some validity to the hypothesis that widows are more likely to begin working than non-widows. Variables that are significant include numbers 1, 4, 7, 8, 9, 10, 13, 16, and 18. It is not surprising that many of the demographic variables are significant; these variables have a quite substantial number of observations compared to the interaction variables. Furthermore, it makes sense that increasing the amount of education one receives increases the likelihood of that person beginning work, as she may have been in school and out of work in the previous wave.

The probability that a person begins working decreases with age; this can be attributed to job stability and completion of education that is characteristic of older individuals. Also, those with a greater amount of education are less likely to go from not working to working; this agrees with the assumption that more education is indicative of increased ability to hold down a job, as well as increased job stability. An increase in the number of children under the age of 18 decreases the probability that a woman will begin

working, and women who have some children turning 18 are more likely to start working. These scenarios are easily explained; women do not generally begin working when they have an additional child to care for, but may have more time to work once the child is grown.

Although these variables are highly statistically significant, they are not the variables of interest. I am more concerned with women who have lost children, whether they have always been widowed, became widowed, or have never been widowed (variables 4, 7, and 16). Unfortunately, though they are statistically significant, they are significant in the opposite direction than I had hypothesized. My analysis suggests that any of the three categories of women are less likely to begin working when some of their children reach the age of 18. This may be accurate for women who have never been widowed, but, for women who have become or always been widows, this absolutely contradicts the hypothesis.

For completeness, the next regression was run to check the opposite of the hypothesis. I regressed the dummy variable "stop work," an indicator of women who were working in the previous period but are not working in the current period, on the same independent variables as above. Results are shown in Table 3.

Table 3: Stop Work

Reference Number	Variable	Coef.	Std. Err.	t	p-value
1	Age in Years	-0.0009	0.0000	-20.261	< 0.001**
2	Always Widowed	-0.0034	0.0287	-0.119	< 0.905
3	• Have Children	-0.0365	0.0402	-0.909	< 0.363
4	• Lose Children	0.0124	0.0638	0.194	< 0.846
5	Became Widowed	-0.0251	0.0343	-0.073	< 0.465
6	• Have Children	0.0573	0.0474	1.207	< 0.227
7	• Lose Children	-0.0171	0.0826	-0.207	< 0.836
8	Change in Education	-0.0083	0.0009	-9.438	< 0.001**
9	Change in Number of Children	0.0370	0.0019	19.563	< 0.001**
10	Education Level	-0.0018	0.0001	-15.544	< 0.001**
12	Have Children	0.0338	0.0396	0.854	< 0.393
13	Lose Children	0.0042	0.0614	0.069	< 0.945
14	Never Widowed	-0.0073	0.0283	-0.258	< 0.797
15	• Have Children	-0.0306	0.0396	-0.772	< 0.440
16	• Lose Children	0.0487	0.0613	0.794	< 0.427
18	Race	0.0005	0.0005	0.872	< 0.383

**Significant at the 1% level.

Table 4: Part-Time to Full-Time

Reference Number	Variable	Coef.	Std. Err.	t	p-value
1	Age in Years	-0.0005	0.0001	-7.058	< 0.001**
2	Always Widowed	-0.0565	0.0478	-1.183	< 0.237
3	• Have Children	0.12100	.0668	1.811	< 0.070
4	• Lose Children	0.2290	0.1060	2.159	< 0.031*
5	Became Widowed	-0.0815	0.0570	-1.430	< 0.153
6	• Have Children	0.1280	0.0789	1.620	< 0.105
7	• Lose Children	0.0525	0.1370	0.382	< 0.702
8	Change in Education	-0.0012	0.0015	-0.811	< 0.417
9	Change in Number of Children	-0.0096	0.0032	-3.036	< 0.002**
10	Education Level	-0.0035	0.0002	18.151	< 0.001**
12	Have Children	-0.1150	0.0660	-1.744	< 0.081
13	Lose Children	-0.1190	0.1020	-1.164	< 0.244
14	Never Widowed	-0.0361	0.0470	-0.768	< 0.443
15	• Have Children	0.0999	0.0659	1.515	< 0.130
16	• Lose Children	0.1160	0.1020	1.133	< 0.257
18	Race	-0.0032	0.0009	-3.577	< 0.001**

*Significant at the 5% level.
**Significant at the 1% level.

Once again, variables 1, 8, 9, and 10 are statistically significant. Both "change in number of children" and "change in education" have opposite signs from the previous regression, indicating that the assumptions above also hold for the opposite situations. Because "age in years" and "education level" have the same sign, one may conclude that women of all ages and education levels may be prone to starting or stopping work at any time for any given reason. This also means that women are less likely to stop working than to remain working, not just start working. The reverse is also true. In this regression, none of the variables of interest were statistically significant, however, "always widowed, have children" and "became widowed, lose children" (variables 3 and 7) are negative as predicted.

The third part of my analyses regresses the dummy variable "part-time to full-time" on the same set of independent variables. Results are shown in Table 4.

Probably for the same reasons, variables 1 and 9 are statistically significant in the same direction as

Table 4: Part-Time to Full-Time

Reference Number	Variable	Coef.	Std. Err.	t	p-value
1	Age in Years	-0.0005	0.0001	-7.058	< 0.001**
2	Always Widowed	-0.0565	0.0478	-1.183	< 0.237
3	• Have Children	0.12100	0.0668	1.811	< 0.070
4	• Lose Children	0.2290	0.1060	2.159	< 0.031*
5	Became Widowed	-0.0815	0.0570	-1.430	< 0.153
6	• Have Children	0.1280	0.0789	1.620	< 0.105
7	• Lose Children	0.0525	0.1370	0.382	< 0.702
8	Change in Education	-0.0012	0.0015	-0.811	< 0.417
9	Change in Number of Children	-0.0096	0.0032	-3.036	< 0.002**
10	Education Level	-0.0035	0.0002	18.151	< 0.001**
12	Have Children	-0.1150	0.0660	-1.744	< 0.081
13	Lose Children	-0.1190	0.1020	-1.164	< 0.244
14	Never Widowed	-0.0361	0.0470	-0.768	< 0.443
15	• Have Children	0.0999	0.0659	1.515	< 0.130
16	• Lose Children	0.1160	0.1020	1.133	< 0.257
18	Race	-0.0032	0.0009	-3.577	< 0.001**

*Significant at the 5% level.
**Significant at the 1% level.

Table 5: Full-Time to Part-Time

Reference Number	Variable	Coef.	Std. Err.	t	p-value
1	Age in Years	-0.0042	0.0001	-5.723	< 0.001**
2	Always Widowed	-0.0561	0.0458	-1.224	< 0.221
3	• Have Children	0.0417	0.0642	0.650	< 0.516
4	• Lose Children	0.1130	0.1020	1.107	< 0.268
5	Became Widowed	0.0252	0.0548	0.460	< 0.646
6	• Have Children	-0.0269	0.0758	-0.354	< 0.723
7	• Lose Children	0.2240	0.1320	1.699	< 0.089
8	Change in Education	-0.0057	0.0014	-4.027	< 0.001**
9	Change in Number of Children	-0.0179	0.0030	5.926	< 0.001**
10	Education Level	0.0038	0.0002	20.482	< 0.001**
12	Have Children	-0.0460	0.0633	-0.727	< 0.467
13	Lose Children	-0.0847	0.0982	-0.863	< 0.388
14	Never Widowed	-0.0397	0.0452	-0.880	< 0.379
15	• Have Children	0.0270	0.0633	0.426	< 0.670
16	• Lose Children	0.1120	0.0981	1.145	< 0.252
18	Race	-0.0051	0.0009	-6.022	< 0.001**

**Significant at the 1% level.

they are in the first regression. However, this regression yields positive coefficients for four of the interaction variables, 3, 4, 6, and 7. Furthermore, variables 3 and 4, "always widowed, have children" and "always widowed, lose children" are significant at the 7% and approximately 3% levels respectively. This indicates that, on average, women who have always been widowed and have kids are 12% more likely to move from part-time to full-time work than their complement group. Also, women who have always been widowed and whose children are reaching the age of 18 are 23% more likely to move from part-time to full-time work than their complement group.

The final analysis regressed the "full-time to part-time" variable on the independent variables used in the previous analyses. Again, this regression was run to detect behavior that would contradict the hypothesis. Results are shown in Table 5.

Again, variables 1, 8, 9, 10, and 18 were statistically significant. Variables 1, 8, and 9 have the same sign as in the regression run using "stop work" as the dependent variable, which supports the hypothesis that stopping work and decreasing hours to part-time are similar types of behavior. Because "education level" is positive for both "part-time to full-time" and "full-time to part-time," and negative for "start work" and "stop work," I am led to believe that women with increased amounts of education are more likely to move between part-time and full-time work than to completely enter or leave the labor force at any time. In this regression none of my variables of interest are statistically significant.

For further analysis, I performed F-tests to determine whether any of the interaction variables had the same coefficient, in hopes that categories of women with children would behave differently than those losing children, and that women who have never been widowed would not behave the same as those who had. Statistically significant results are listed in Table 6.

Using the "start work" regression, the F-test shows that variables 3 and 4 do not have statistically the same coefficient at the 1% level. The same is true for variables 6 and 7 in the "start work" regression at approximately the 6% level. This indicates that women who have always been widowed and have children have a different likelihood of entering the

labor force than those who are losing children. Also, women who became widowed and have children have a different likelihood of entering the labor force than women who became widowed and have children reaching the age of 18. This result may indicate that widows behave differently when their children become adults but, unfortunately, the coefficients on each of these variables were negative, the opposite of what was hypothesized. In the "stop work" regression, of women who have children turning 18, those who have always been widowed and those who have never been widowed have a different likelihood of leaving the labor force at the 5% level. Once again, these coefficients had the""wrong" sign in the original regression.

The only significantly different coefficients with the hypothesized sign occurred in the "part-time to full-time" model. Of women who have children turning 18, those who have never been widowed and those who have always been widowed behave differently when it comes to moving from part-time to full-time work. In the "part-time to full-time" regression (Table 4) the coefficient of variable 4 is twice as large as the coefficient of variable 16 (though variable 16 is only significant at just above the 25% level), indicating that women who have always been widowed and have children reaching the age of 18 are only slightly more likely to move from part-time to full-time work than their non-widowed counterparts.

Overall, none of the regressions showed very convincing evidence that labor force habits of widows change relative to other women when their children turn 18. I attribute this mainly to the small sample size of widows. Also, four months may not have been enough reaction time for the widow to start working or change to full-time once her children began turning 18. It could also be possible that many of the widows in this sample did not initially rely on the benefit; therefore, taking it away was not detrimental enough to require changes in labor force participation. Another possible outcome that cannot be detected by this analysis is a decrease in the standard of living. The widow may not make up for lost income through additional work hours, but may instead be forced to take other action such as moving into a smaller house or selling a car, etc.

In future research on this topic, I would extend my period of observation to two or more waves. Thus, the effects of a decline in survivor benefits would have more time to be realized, possibly increasing the likelihood of the widow changing labor habits. I would also control for total income in the period before survivor benefits were reduced and the total amount of the benefit received, in order to compare responses to reduction in survivor benefits of low and high income widows. One final addition would be to include observations from other panels of SIPP data, controlling for changes in the economy. This would substantially increase my sample size, making it more possible to identify changes, if any, in labor force participation of widows due to a decrease in survivor benefits.

Works Cited

Brien, Michael J., et al. *Young Widow(er)s, Social Security, and Marriage*. Center for Retirement Research, Boston College. February, 2003.

Myers, Daniel A., et al. "The Transition from Wife to Widow: The Importance of Survivor Benefits to Widows." *Journal of Risk and Insurance* 54 (December, 1987):752-59.

Table 6: F-Test

Reference Number	Regression	Relationship Tested	Variable Numbers Tested	F-stat	p-value
17	Part-Time to Full-Time	Always Widowed, Lose Children = Never Widowed, Lose Children	4 = 16	14.85	< 0.0001**
18	Start Work	Always Widowed, Have Children = Always Widowed, Lose Children	3 = 4	7.10	< 0.0077**
19	Start Work	Became Widowed, Have Children = Became Widowed, Lose Children	6 = 7	3.41	< 0.0647
20	Stop Work	Always Widowed, Lose Children = Never Widowed, Lose Children	4 = 16	4.21	< 0.0401*

*Significant at the 5% level.
**Significant at the 1% level.