Survivor Benefits and Early Claiming of Social Security*

Janice Compton, University of Manitoba
Robert A. Pollak, Washington University in St. Louis and NBER

September 15, 2015

PRELIMINARY AND INCOMPLETE DRAFT: Please do not cite or quote

Spouses often have conflicting interests over when to claim social security benefits. Yet both the scholarly and popular literatures generally ignore the possibility of such conflicts. Indeed, the scholarly literature on retirement and the claiming of social security benefits focuses almost exclusively on the behavior of unmarried individuals.[1]

We address one important aspect of the claiming conflict by analyzing a highly stylized two-period model with a single consumption good. We assume that one spouse, for definiteness, the husband, will die at the end of period 1, while the other spouse, the wife, will die at the end of period 2. We assume this is common knowledge and focus on the allocation of consumption between period 1 and period 2. We assume that the government provides survivor benefits (i.e., transfer payments to the surviving spouse in period 2), and that the couple can borrow against these benefits. We use this highly stylized model to clarify the early claiming conflict. Although we focus on social security, private pensions often allow early claiming or other options that allow greater current consumption but reduce payments to the surviving spouse. Thus, the claiming conflict goes beyond social security.

Even with very strong simplifying assumptions, a stripped down model requires at least three types of moving parts. A minimal model requires assumptions about (1) preferences, (2) couple decision making, and (3) the feasible set.

To avoid additional complexity, we assume that expectations (e.g., about the rate of return on savings) are held with certainty, although we do not assume that these expectations are correct. We ignore "behavioral" considerations; if early claiming is driven primarily by behavioral considerations, then our stylized model misses the mark.

We denote the intertemporal consumption vector by (C1,C2), where C1 denotes total consumption in period 1 and C2 consumption in period 2. Because we are interested only in intertemporal allocation, we make an assumption that avoids the need to consider the allocation of consumption within period 1. Specifically, we assume that consumption in period 1 is a household public good so that the need to allocate consumption within period 1 does not arise.[2]

In order to isolate the claiming issue, we assume away six complications. Specifically, we assume
       (1) consumption in period 1 is a household public good
       (2) no household production
       (3) no labor-leisure choice. (If there is labor supply in period 1, hours of market work and leisure are fixed exogenously.)
       (4) no uncertainty
       (5) no children
       (6) no bequests, except to the surviving spouse

In this stripped down model, the only issue is allocation between period 1 and period 2. Because there is no uncertainty, if the husband (i.e., short-lived spouse) has the power to make the allocation decision unilaterally, the problem is like a bequest problem with one potential beneficiary.[3] If the wife (i.e., the

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[1] A notable exception is Lundberg (1999), an important paper that has been virtually ignored.

[2] A less satisfactory alternative that appears to avoid the need to consider allocation within period 1 is to assume that consumption in period 1 is a private good, but that its allocation determined by a single-valued allocation rule that maps total consumption in period 1 into the period 1 consumption of each spouse. This alternative is less satisfactory because different assumptions about couple decision making (e.g., about bargaining power) imply not only different savings decisions but also different allocations within period 1. The private good alternative also raises issues about intertemporal Pareto efficiency

[3] Because there is no uncertainty, it is not a life insurance problem.

long-lived spouse) has the power to decide unilaterally, the problem is simply an intertemporal allocation decision.[4] A definite assumption about which spouse will die first simplifies the exposition and avoids the need to refer to "the short-lived spouse" and "the long-lived spouse." Given the set-up, who has decision-making power is crucial.

1. The Feasible Set

As Becker (1962) argued in a more general context, the feasible set is the place to begin. To introduce notation, we begin with the case in which the government provides no survivor benefits, so that the consumption of the surviving spouse in period 2 depends entirely on saving in period 1 and the rate of return on saving. We then introduce survivor benefits and the possibility of borrowing against survivor benefits. [5]

When there are no survivor benefits, the feasible set is defined by the linear budget constraint
$$C1 + (1/1+r)C2 = A$$
or, equivalently,
$$C2 = (1+r) A - (1+r)C1$$
where $(C1,C2)$ is the intertemporal consumption vector, A is initial assets, and r the rate of return on saving. We denote the intercepts (i.e., the maximum values of C1 and C2) by C1@ and C2@. In this case, the intercepts are given by C1@ = A and C2@ = (1+r)A and the slope of the budget line is -(1+r).

Figure 0: The Feasible Set
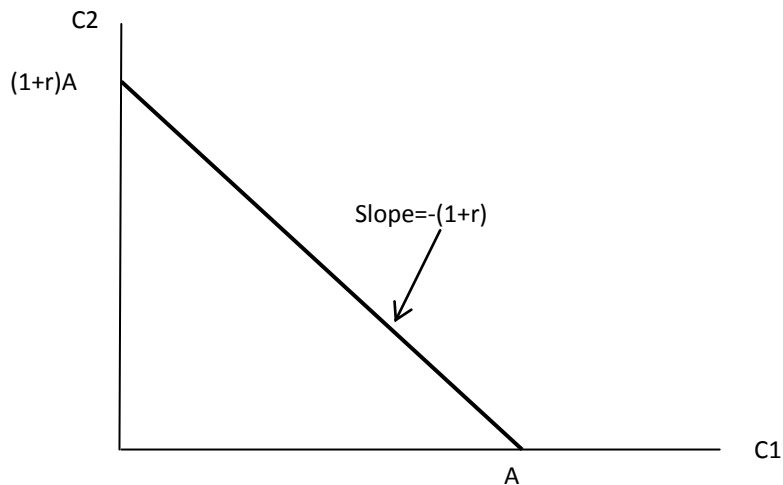
We treat both A and r as predetermined. We ignore the possibility that when the government provides survivor benefits, the amount of the benefit and the policy parameters (e.g., the interest rate for borrowing against survivor benefits) affect past saving and, hence, initial assets. We assume that spouses have identical beliefs about the rate of return and that they hold these beliefs with certainty. These expectations may differ from one couple to another, and we do not assume that these expectations are accurate.

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[4] In a two-period model there is scope for time preference but not for hyperbolic discounting.
[5] The survivor benefits are akin to social security benefits. Whether or not the couple is able to borrow against survivor benefits corresponds to early claiming of social security benefits.

We consider a sequence of cases in which the government provides survivor benefits that differ in the amount of the survivor benefit and the interest rate at which the couple can borrow against survivor benefits.

Case 1. Couples cannot borrow against the survivor benefit. We denote a survivor benefit against which the couple cannot borrow by B**. There are two types of equilibria, one on the linear segment and the other at the kink. Kinks in the boundary of the feasible set are "attractors": equilibria are more likely at kinks than at any particular point on a linear segment of the frontier. Which equilibria is realized depends on the amount of the survivor benefit, initial assets, and the rate of return of saving as well as on preferences and on couple decision making.

Figure 1: With Survivor Benefit, Couples cannot borrow against survivor benefit

C

C

C

$B^*+(1+r)A$

$B^*+(1+r)A$

$B^*+(1+r)A$

B^*

B^*

B^*

C

C

C

A

A

A

Low Survivor Benefits

Mid Survivor Benefits

High Survivor Benefits
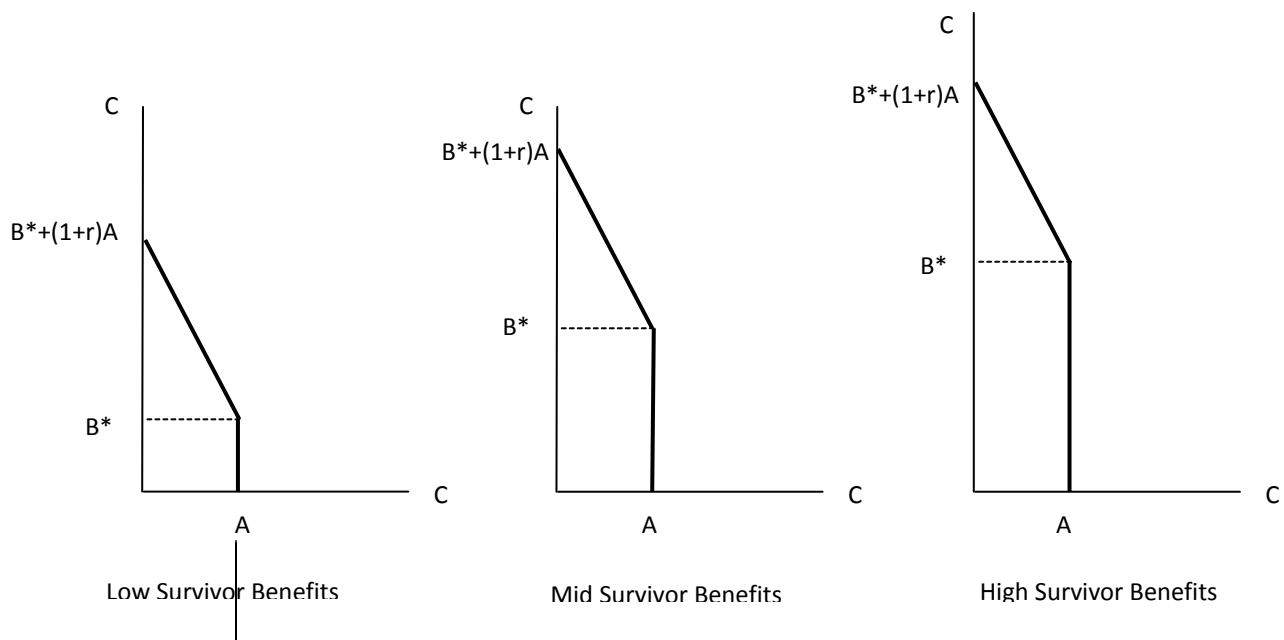
We can characterize the feasible set in terms of the amount of the survivor benefit. A small survivor benefit B** is equivalent to an increase in initial assets of $(1/1+r)$ B**. An increase in the survivor benefit implies that the wife will receive more period 2 consumption, just as she would if the government provided the couple with a transfer that increased initial assets.[6] If the survivor benefit is large, then all of A is allocated to period 1 consumption and the equilibrium is at the kink rather than on the linear segment of the frontier.

Case 2. Suppose the couple can borrow against the survivor benefit. We denote a survivor benefit against which the couple can borrow by B* and the rate at which they can borrow against it by r*. We distinguish between two cases on the basis of the relationship between r and r* : r ≥ r* and r < r*.

Case 2.1. If r ≥ r*, then it is optimal (i.e., Pareto efficient) for the couple to borrow the full amount of the

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[6] This ignores labeling effects. Calling the survivor benefit a "survivor benefit" rather than simply a "transfer" or "benefit" may increase the likelihood that it will increase the consumption of the surviving spouse.

survivor benefit at rate r* and invest it at the higher rate, r. In this case the frontier is linear with slope -(1+r): there is no kink. That is, when the rate of return from investing is greater than the rate at which the couple can borrow, then borrowing the entire survivor benefit is optimal regardless of preferences for period 1 versus period 2 consumption. Borrowing against the survivor benefit does not imply that the wife's consumption in period 2 will be less than B*. This case provides a strong rationale for early claiming, although one may question whether the expectation that r ≥r* is realistic. The budget constraint (i.e., the boundary of the feasible set) is …..

Figure 2.1: Couple can borrow against survivor benefits, r≥r*
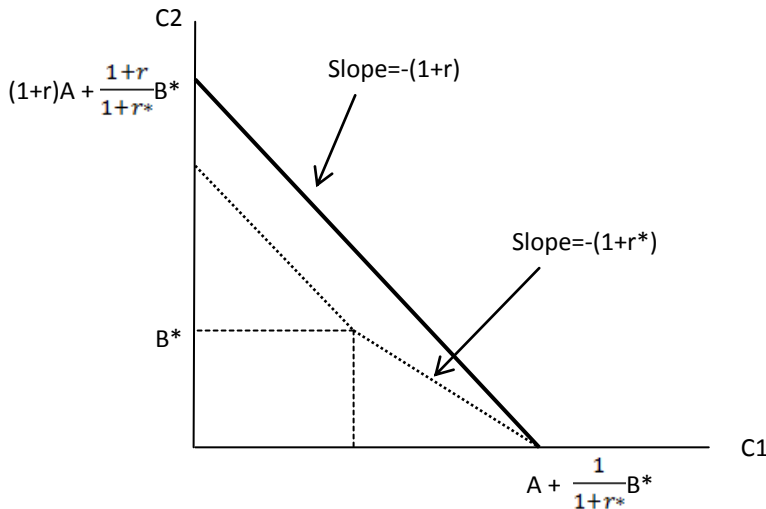
Case 2.2 If r < r*, then the boundary of the feasible set consists of two linear segments and a kink where they intersect. The slopes of the two linear segments are -(1+r) and -(1+r*). As r* grows large, the steep segment approach the vertical and equilibrium at the kink becomes more likely in the sense that it holds for a larger class of preferences and models of couple decision making.

Figure 2.2: Couple can borrow against survivor benefits, r<r*
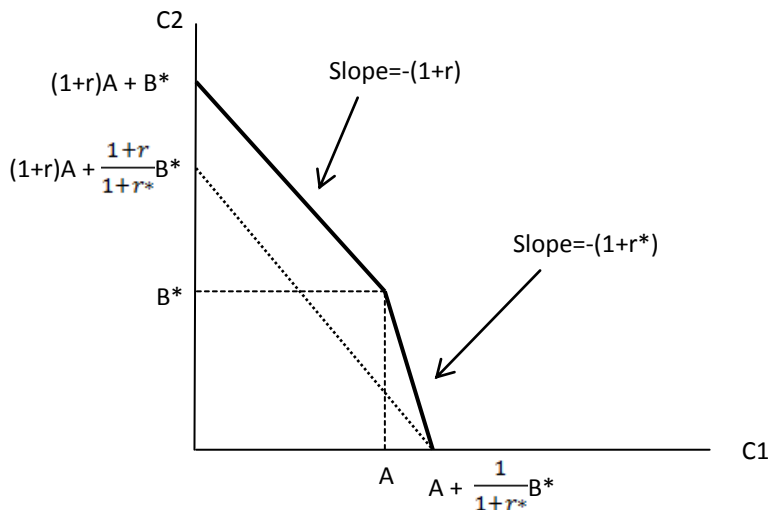
The intercepts (the maximum values of C1 and C2) are given by
  C1@ = A + (1/ 1 + r*) B*
  C2@ = (1+r)A + B*.
  The kink is at (A,B*).
  The equation for the shallow segment is
  C1 + (1/1+r) C2 = A + (1/1+r)B*
  or, solving for C2:
  C2 = [(1+r) A + B*] - (1+r)C1
  The equation for the steep segment is
  C1 + (1/1+r*)C2 = A + (1/1+r*)B*
  or, solving for C2:
  C2 = [(1+r*)A + B*] - (1+ r*) C1

Whether the equilibrium is on the shallow segment, at the kink, or on the steep segment depends on preferences and on couple decision making. Taking preferences as fixed, a low level of B* makes it more likely that the equilibrium will be on the shallow segment where positive saving augments the wife's consumption in period 2. Increases in B* beyond an initial low level reduce saving and move the equilibrium toward and, eventually, to the kink. Beyond this level, further increases in B* move the equilibrium to the steep segment, implying borrowing against the survivor benefit. In this case, such borrowing implies that the wife's period 2 consumption is less than B*.

Case 3. Now suppose there is a borrowing limit. In this case there are 3 policy parameters, {r*,B*,B**}, where B* is the maximum or full survivor benefit and B** the minimum survivor benefit. Hence, the couple can borrow at most (B* - B**). Again we distinguish between two cases
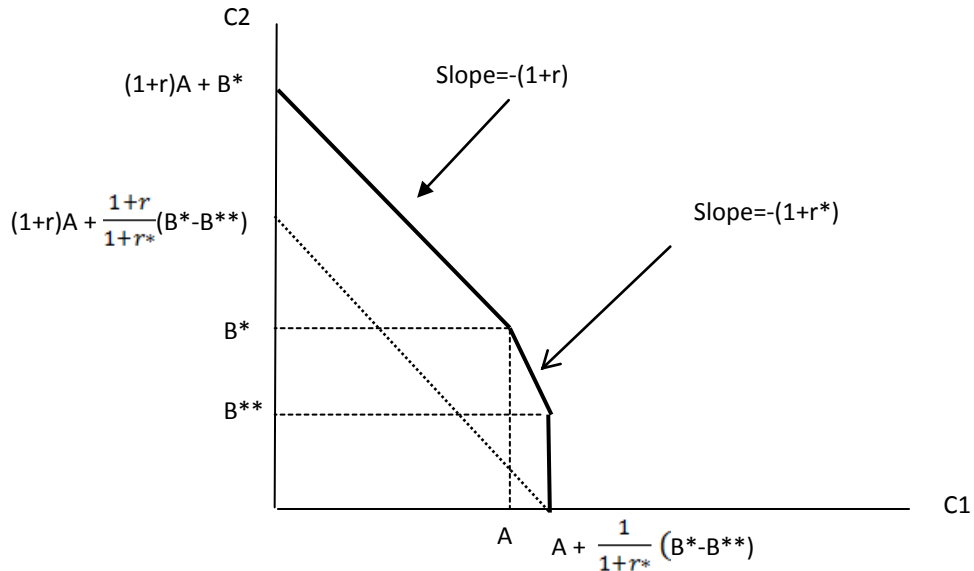(3.1) r ≥ r* and
(3.2) r < r*.

Case 3.1. If r ≥ r*, then it is optimal to borrow up to the borrowing limit. The boundary of the feasible set consists of two linear segments, one of which is vertical.

Figure 3.1: With borrowing limits, r≥r*
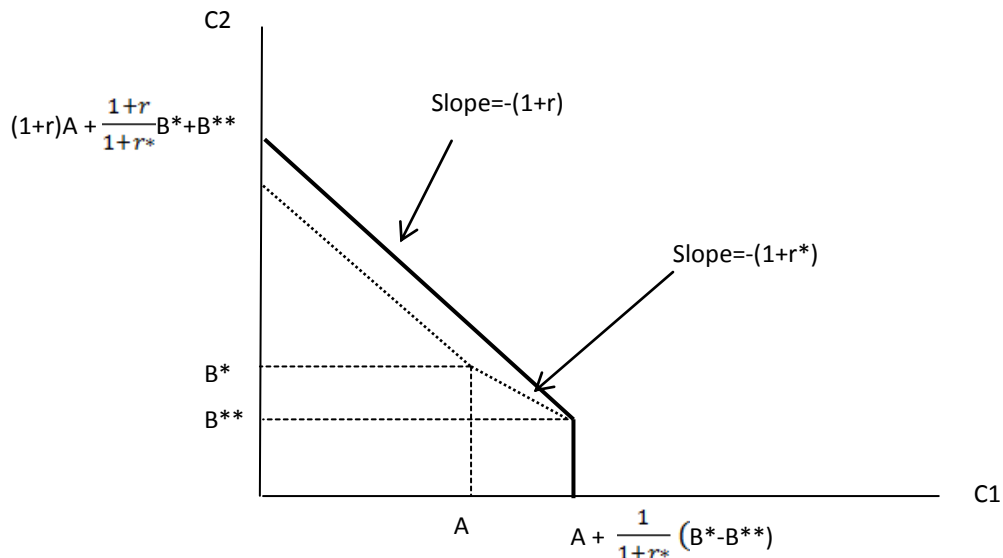
<u>Case 3.2.</u> If r < r*, then the boundary of the feasible set has three linear segments, one of which is vertical, and two kinks.

<u>Figure 3.2: With borrowing limits, r<r*</u>

To summarize: we have distinguished among three cases:
      1. No borrowing against the survivor benefit
      2. No limit on borrowing against survivor benefit
            2.1 if r ≥ r*, it is always optimal to borrow the full amount and the boundary of the feasible set is linear
            2.2 if r < r*, the boundary of the feasible set consists of two linear segments and a kink
      3. limit on borrowing against survivor benefit
            3.1 if r ≥ r*, it is always optimal to borrow up to the borrowing limit;
            3.2 if r < r*, the boundary of the feasible set consists of three linear segments, one of which is linear, and two kinks.

Couples with greater resources are more likely to save in order to increase wife's consumption beyond survivor benefit.

2. Preferences

We denote the preferences of the husband by U^h(C1,C2) and the preferences of the wife by U^w(C1,C2). We depart from the standard specification of altruism which assumes that the couple's social welfare function is a weighted sum of the spouses' utility functions, where altruism is reflected in a single multiplicative "altruism" parameter. Instead, we specify a parametric functional form which we variously interpret as a unitary utility function for the couple, as the husband's utility function, or as the wife's utility function. More specifically, we assume that the utility function is of the Klein-Rubin-Stone-Geary form -- the utility function that generates the Linear Expenditure System (LES). The utility function is given by

U^i(C1,C2) = $\alpha 1^i$ log (C1 - b1i) + $\alpha 2^i$ log (C2 - b2i) i = h, w,

where $\alpha 1^i > 0$, $\alpha 2^i > 0$, and $\alpha 1^i + \alpha 2^i = 1$. (The summation condition is a harmless normalization.)

This utility function is well-behaved provided (C1 -$b1^i$) > 0 and (C2 - $b2^i$) > 0, and we assume that these conditions are satisfied. This utility function is a Cobb-Douglas with a translated origin. When $b1^i$ = $b2^i$ = 0, the LES reduces to the Cobb-Douglas. Except in the Cobb-Douglas case, the LES is nonhomothetic and, hence, implies that couples with more resources do not behave as scaled up versions of couples with less.

If we interpret the LES utility function as the husband's, it is not meaningful to ask "how altruistic is the husband toward the wife?" But we can ask, "if the husband had complete decision-making power, which parameters of the husband's utility function are associated with greater period 2 consumption by the wife?" Because the wife wants period 1 as well as period 2 consumption, explicit focus on her period 2 consumption is crucial. When the husband has complete decision-making power, it is easy to show that a higher value of $b2^h$ is associated with greater period 2 consumption by the wife, while a greater value of $b1^h$ is associated with less period 2 consumption by the wife. A higher value of $\alpha 2^h$ (and a correspondingly lower value of in $\alpha 1^h$) is associated with greater period 2 consumption by the wife.

The standard Beckerian specification of "altruism" assumes that one spouse has a "social welfare function" of the form W(C1,C2) = W*[V^h, V^w] = V^h + δV^w where the altruism parameter, $\delta*$, reflects the "weight" given to the other spouse's "self-regarding utility," where self-regarding utility depends only on the individual's own consumption and not on the consumption of the other spouse. If $\delta*$ = 0, then the altruist places no weight on the spouse's utility or consumption. If $\delta*$ = 1, it is tempting to say that the altruist gives equal weight to his own utility and that of the spouse, but this interpretation presumes interpersonally comparable cardinal utilities. To justify these interpersonal comparisons requires far stronger assumptions about preferences than implied by the von Neumann-Morgenstern axioms for decision-making under uncertainty.

Two strong functional form assumptions drive the standard analysis. The first,
        W(C1,C2) = W*[V^h, V^w]
implies that the altruist's social welfare function depends on and only on the spouses' self-regarding utility functions. ftn: ((This assumption rules out "merit goods" or "paternalistic preferences." In the introduction to the Enlarged Edition of the *Treatise*, Becker (1991, p. 10) acknowledges that ruling out merit goods is "the most unsatisfactory aspect" of his discussion of the Rotten Kid Theorem.)) The second assumption
        W*[V^h, V^w] = V^h + δV^w
means that the social welfare function is a weighted sum of the spouses' self-regarding utility functions. This is a strong functional form restriction.[7]

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[7] An alternative, for example, is a Cobb-Douglas form
        W**[V^h, V^w] = [V^h]$^{\delta**}$ [V^w]$^{(1-\delta**)}$ or, in log form

3. Couple Decision Making

This parametric specification of preferences provides a framework for thinking about couple decision making. We distinguish among four types of models of couple decision making:

(1) unitary models
(2) the Rotten Kid Theorem (RKT) model (i.e., Becker's "altruist model" in which one spouse is a virtual dictator
(3) bargaining models
(4) reduced form allocation rules

Unitary models assume or conclude that couples behave as if they are maximizing a "couple," "household," or "family" utility or social welfare function. Some models specify the couple's utility function directly, while others derive it from underlying assumptions about individuals' preferences and couple decision making. But many models of couple decision making imply that couple behavior cannot be rationalized by a utility function.[8]

The RKT model -- the model underlying Becker's Rotten Kid Theorem -- postulate that one spouses, usually the "husband-father-dictator-patriarch" -- has the power to make all decisions subject to the other spouse's participation constraint. Thus, the RKT model is a limiting case of bargaining models in which one spouse has a virtual monopoly on bargaining power. The RKT model is sometimes referred to as "the altruist model" (Pollak, 2003). The power aspect of the RKT model is distinct from the assumption that spouses are "altruistic" in the sense that they care about each other's utility or consumption.

Reduced form allocation rules sidestep the need to specify the way in which couples make decisions. We can interpret LES demand functions as reduced form allocation rules.

We describe the couple as deciding, even if, as with the unitary model, it is not specified who is deciding or if, as with RKT models, one spouse has all the decision-making power.

We begin with the RKT model. This is not an entirely comfortable choice, but virtually no bargaining models allow for altruism. Instead, the standard assumption is that each spouse cares only about his or her individual consumption, and spouses are connected either by production complementarities or joint consumption of household public goods.

$$W^{**}[V^h, V^w] = \delta^{**} \log V^h + (1-\delta^{**}) \log V^w.$$

In the absence of uncertainty, the multiplicative and logarithmic forms of the Cobb-Douglas are equivalent but they imply different behavior under uncertainty

[8] In the simplest case, utility maximization implies that spouses "pool" their resources, while many bargaining models imply nonpooling.

4. Empirical work

The theoretical work considers the decision of social security claiming by married individuals. For the theory, we have abstracted from the work decision (for now). For the empirical work, we want to consider both the work decision and the social security claiming decision of married women. We focus on the relationship between education, marital history and these two decisions as they are observable demographic attributes that affect both the resource constraints outlined in the theory, as well as both altruism and marital bargaining.

The empirical work is currently in two parts. The first uses IPUMS data to investigate the effect of education and marital history on the probability of work. The second uses HRS data to investigate the effect of education and marital history on the relationship between the timing of social security claiming and retirement from the labor force.

4.1 IPUMS: Employment status of married women

To what extent does education itself (e.g., college graduation) affect the work decisions of older women and to what extent is their higher labor force participation due to other characteristics that are correlated with education? For example, compared with other women, college graduate women are likely to have more interesting, less physically demanding careers that began later in life. However, they are also less likely to have been divorced, marry later in life and have older children. In this paper, we focus on the effect of marital history of married women aged 55-65 and their spouses, how this is related to education and how these two characteristics affect employment status.

We begin by verifying that the increase in the proportion working is not isolated in unmarried women (otherwise, our focus on decisions of married couples would be misplaced). From IPUMS U.S. Census data, the following shows the proportion of college graduate[9] women who are currently working, separate by current marital status (IPUMS does not provide previous marriages for 1990 and 2000). For women aged 55-65, the increase in the proportion employed between 2000 and 2010 was 5% for unmarried women (includes SNM, divorced/separated and widowed) and was 12% for married women.

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[9] Sidenote on education. The group whose education lies between HS graduate and college graduate are diverse. When looking at census data, if we separate those who have 'some post-secondary' and those who have completed an Associates Degree, we often find that women with an Associates degree are more similar to those with bachelor's degrees than to women with some post-secondary, when looking at labor force statistics. However, when looking at marriage/education, those with Associates degrees look different than those with bachelors degrees. To be clear, throughout this, we distinguish between those with "some college" and "college graduates." The similarity/dissimilarity of those with Associates degrees cannot be determined in the HRS due to sample size.

College Graduates, Women Not Married

	1990	2000	2010
45-54	0.842	0.837	0.820
55-65	0.583	0.620	0.651
66-74	0.168	0.190	0.237

College Graduates, Women Married

	1990	2000	2010
45-54	0.784	0.793	0.776
55-65	0.498	0.552	0.617
66-74	0.125	0.149	0.188

We define marital history in a manner similar to the common description of joint education.

    Power Couples: Couples in which both have a college degree
    Half-power (her): Couples in which only she has a college degree
    Half-power (him): Couples in which only he has a college degree
    Low-power Couples: Couples in which neither has a college degree

Likewise,

    MPower Couples: Couples in which both have been married previously
    Half-MPower (Her): Couples in which only she was married previously
    Half-MPower (Him): Couples in which only he was married previously
    LowMPower Couples: Couples in which neither was married previously.

Unlike the previous census data, the IPUMS ACS data for 2010 does provide marital history – number of previous marriages. The following table shows that the relationship between education category and marital history.

				Education		
		Low Power Couples	Half Power (Her)	Half Power (Him)	Power Couples	All
Marital History	Low MPower (Neither)	56.70	51.87	64.21	69.80	60.31
	Half MPower (Her)	9.69	8.58	9.02	7.38	8.99
	Half MPower (Him)	8.50	14.16	6.03	8.06	8.50
	MPower (Both)	25.11	25.39	20.74	14.76	22.20
	Total	100.00	100.00	100.00	100.00	100.00

As shown in the table, power couples are much more likely to be Low MPower (neither previously married), and less likely to be MPower (both previously married) compared to the other education groups. Women in couples where only they have a college degree are more likely to be married to men who have been previously married (14.16%, compared to 6-8% for other education types.

Consider this another way. Consider the women who are college graduates (Half-power (Her) and Power). If she is in a couple where neither have been previously married, 74% of spouses have college degrees; if only she has been married previously, 64% of spouses have college degrees; if only he has

been married previously, 50% of spouses are college graduates; and if both have been previously married, 53% are college graduates.

How does this relate to bargaining power? Both relative education and relative marital history are potential determinants of within-marriage bargaining power. For example, one might consider that, all else equal, women in half MPower (her) couples would have lower bargaining power than women in half MPower (him) couples. A spouse who had been previously married may bring less of their income into the household (due to child support/alimony) than spouses who are on their first marriage and may have a lower divorce threat point if one believes that there is a social stigma against multiple divorces, but not against first divorces.   Following that, all else equal, we would expect the lowest bargaining power would be found for women who are in couples that are described as Half-Power (Him) and Half-MPower (Her). Likewise, we would expect the highest bargaining power would be found for women in couples described as Half-Power (Her) and Half-MPower (Him).

Would those with more bargaining power be more likely or less likely to work?   If working longer means building up larger pensions and/or social security endowments, and if couples enjoy retirement more when both are retired, one could argue that men would prefer to retire earlier than women, given the longer life expectancy of women. So women with higher bargaining power would be more likely to work, all else equal. It's a possibility.

Does employment differ by marital history? The following shows employment rates for women aged 55-65, by joint education and marital history for 2010.
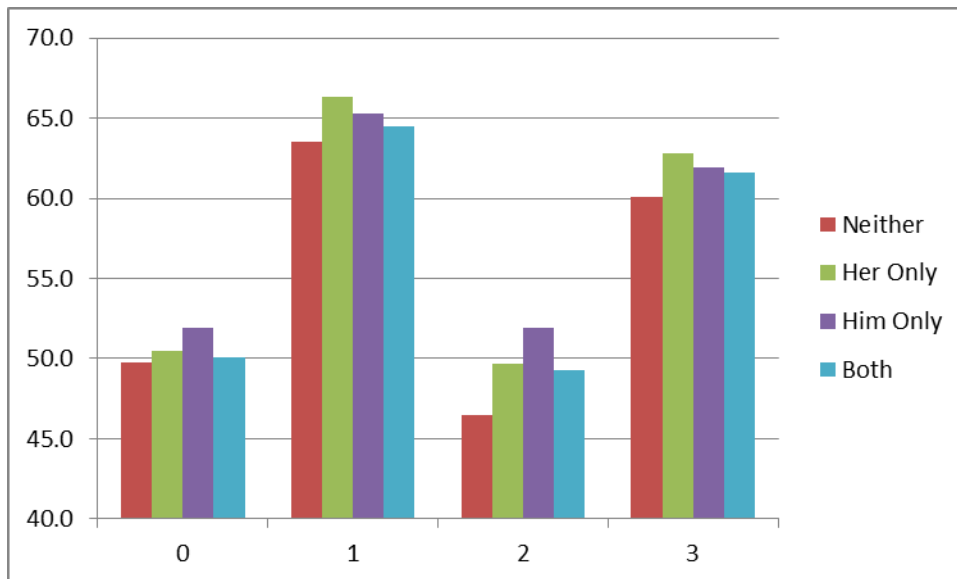
Clearly, women without college degrees are less likely to be employed than those with college degrees. The education differences trump the differences in marital history, but there are some interesting patterns. For the two categories where women are college graduates the highest employment rates are for women who have been previously married. For the two categories where women do not have college degrees, the highest employment rates are for women whose husband was previously married. Across all groups, those women in couples where neither had previously been married have the lowest employment rates.

Of course, these are only raw data. There may be other demographic differences across marital history

groups that can explain the employment differences.

- The average age of the women in the four marriage categories is the same. These are women between the ages of 55-65 and the average age of each ranges between 59.3 – 59.8
- The average age of their spouses is much different. Within each marital history group, spouse's age does not differ across education groups. But across marital history groups, spouse's age is much different. The youngest are spouses of women in couples where only she is married more than once – spouses are 57-58 on average; neither married 60-61 on average, both married more than once 61-62 and him married more than once, 63-64.
- The probability that there are children in the household differs little across education groups but find large differences by marital history. The average is about 10 percentage points less if both spouses have been married more than once (15%) compared to him only previously married (24-26), her only previously married (25-28) and neither (27-30). Of those with children, the average age of those children does not differ greatly, about 24-28 for the neither previously married couples and slightly younger for the others. Within marital history groups, power couples have the youngest children in the household.
- There is a large difference by immigrant status. Among those in the neither previously married category 17-21% are immigrants, compared to 14-18% among those women in couples where only he was previously married, 9-11% of women in couples where only she was previously married, and 6-9% in couples where both were previously married.
- There are some interesting differences by race. Among women in couples where neither were previously married or he was previously married, 76% are Non-Hispanic White; this compares to 81.5% of women in couples where she was previously married and 86% of women in couples where neither was previously married. On the other hand, 11% of women in Low-MPower couples (neither) are "other race" while only 4.4% of women in MPower couples (both) are "other race".

4.1.1 Regression Analysis.

As a preliminary, exploratory regression, we ran logits on the probability of employment for married women aged 45-54 (col 1), women aged 55-65 (col 2) and women aged 55-65 by marital history (cols 3-7). Controls include joint education group (power status), spouse's labor force status, joint marital history status, presence of children, and (not shown) age, age of spouse, race, immigrant and recent immigrant status.

The results for the first two columns are the same: education power variables are as expected – women who are college graduates are more likely to be employed than those without while those whose husbands have college degrees are less likely to work than those whose husbands do not have college degrees. Spouses being unemployed and NILF negatively affect the probability of employment. The presence of young children reduces employment while the presence of college-aged children increases employment. In terms of marital history, the regression results suggest that compared with women in couples where neither had been previously married, those in couples where only she was previously married are less likely to work, while those in couples where only he was previously married are more likely to work (consistent with our bargaining hypothesis). We find no difference between the probability of working for women in couples where both had been previously married.

Logit Regressions: Probability of Employment. 2010 ACS. Married Women. Odds Ratios displayed.

	45-54	55-65	55-65 Low Power	55-65 Half (Her)	55-65 Half (Him)	55-65 Power
Education Power (Omitted Category: Low Power Couples						
Half Power (Her)	0.823***	0.541***				
	(0.0223)	(0.0201)				
Half Power (Him)	-0.153***	-0.153***				
	(0.0174)	(0.0161)				
Power	0.297***	0.312***				
	(0.0159)	(0.0145)				
Spouse's Employment Status (Omitted: Employed)						
Spouse Unemployed	0.686	-0.126***	-0.158***	-0.129	-0.0164	-0.0400
	(1.049)	(0.0264)	(0.0338)	(0.0887)	(0.0708)	(0.0676)
Spouse NILF	0.392	-0.677***	-0.611***	-0.661***	-0.680***	-0.892***
	(1.049)	(0.0126)	(0.0165)	(0.0422)	(0.0339)	(0.0291)
Marriage History (Omitted: Neither previous married)						
She Previous Married	**-0.0925***	**-0.0700***	**-0.126***	-0.0114	-0.0557	**0.0862***
	(0.0196)	**(0.0201)**	**(0.0267)**	(0.0715)	(0.0484)	**(0.0483)**
He Previous Married	**0.0459**	**0.0695***	**0.0467***	**0.106***	**0.121**	**0.104**
	(0.0196)	**(0.0206)**	**(0.0278)**	**(0.0585)**	**(0.0588)**	**(0.0466)**
Both Previous Married	0.000776	0.00495	**-0.0591***	**0.0795***	**0.0687**	**0.150***
	(0.0161)	(0.0137)	**(0.0178)**	**(0.0465)**	**(0.0349)**	**(0.0356)**
Children in HH (Omitted: No children in HH)						
Kids <12	-0.460***	-0.448***	-0.351***	-0.548**	-0.629***	-0.563***
	(0.0183)	(0.0642)	(0.0898)	(0.215)	(0.177)	(0.125)
Teenagers (12-17)	-0.0199	-0.142***	-0.193***	-0.0747	-0.0993	-0.153**
	(0.0168)	(0.0349)	(0.0534)	(0.110)	(0.0898)	(0.0632)
Young Adults (18-24)	0.110***	0.144***	0.0989***	0.195***	0.250***	0.141***
	(0.0175)	(0.0227)	(0.0325)	(0.0734)	(0.0560)	(0.0459)
Won't Leave (25+)	-0.0798***	-0.0101	-0.0783***	0.0718	0.118***	0.0981**
	(0.0263)	(0.0171)	(0.0218)	(0.0613)	(0.0448)	(0.0433)
Observations	151,587	145,898	79,805	13,602	21,819	30,672

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2010 IPUMS Census data. Also included in controls are age, age of spouse, race, immigrant, recent immigrant.

4.2   HRS: Social Security Claiming and Retirement from the Labor Force

Delaying social security claiming is more beneficial to women than to men, all else equal, due to the longer life expectancy of women. Social security and employment need not be connected – individuals can claim social security and continue to work or retire without claiming social security – but for many, these are closely related. Suppose social security claiming and retirement from the labor force are perfectly correlated – individuals retire when they collect social security. Then, under the assumption that women benefit more from delayed social security claiming, as women's bargaining power increases within marriages, they would work longer and claim social security at a later age.
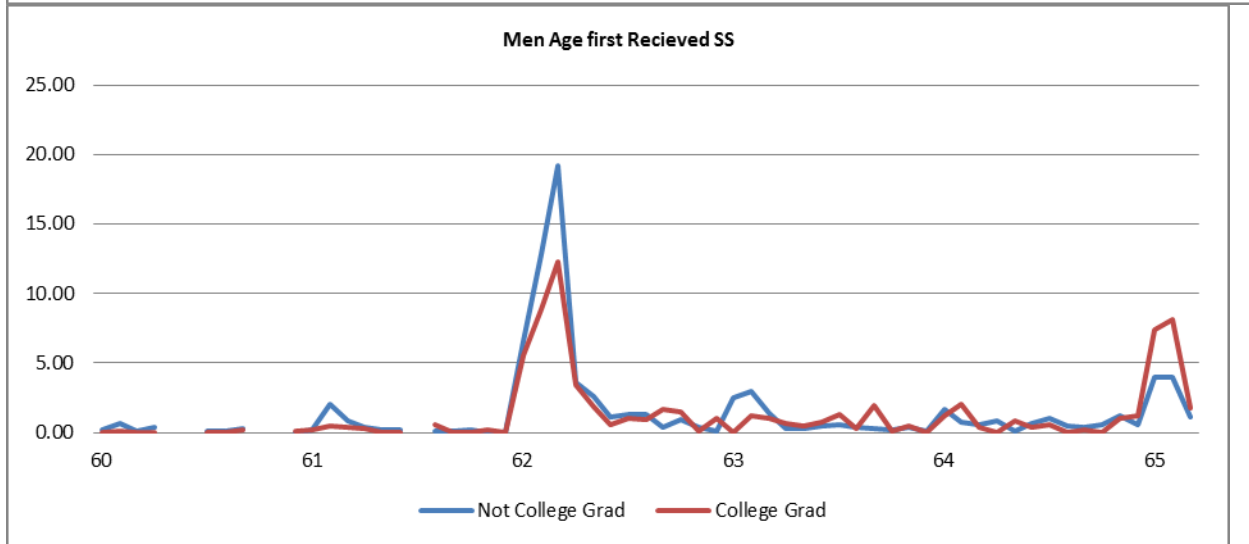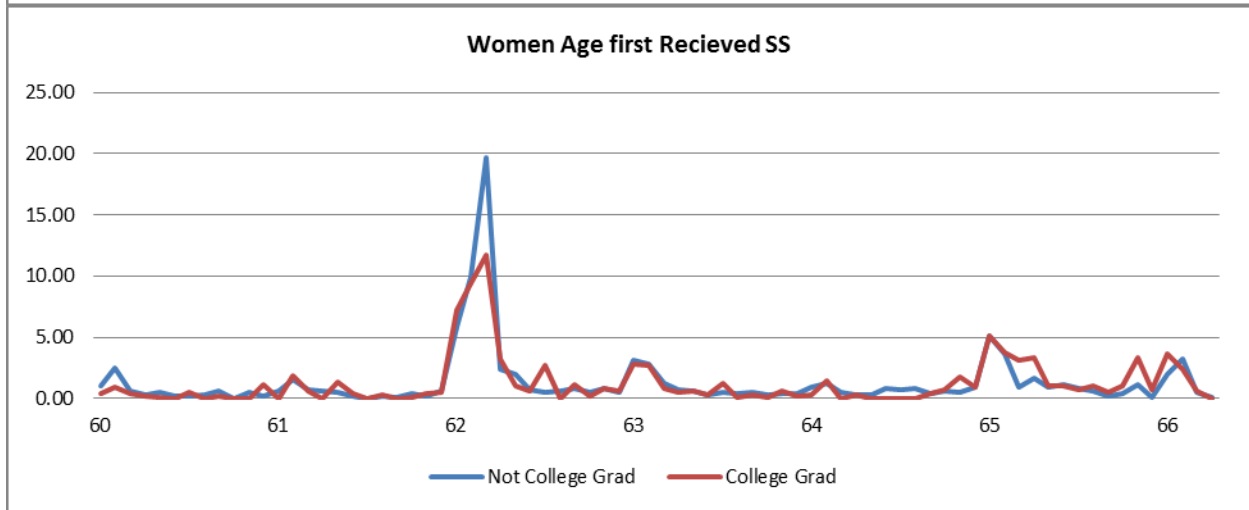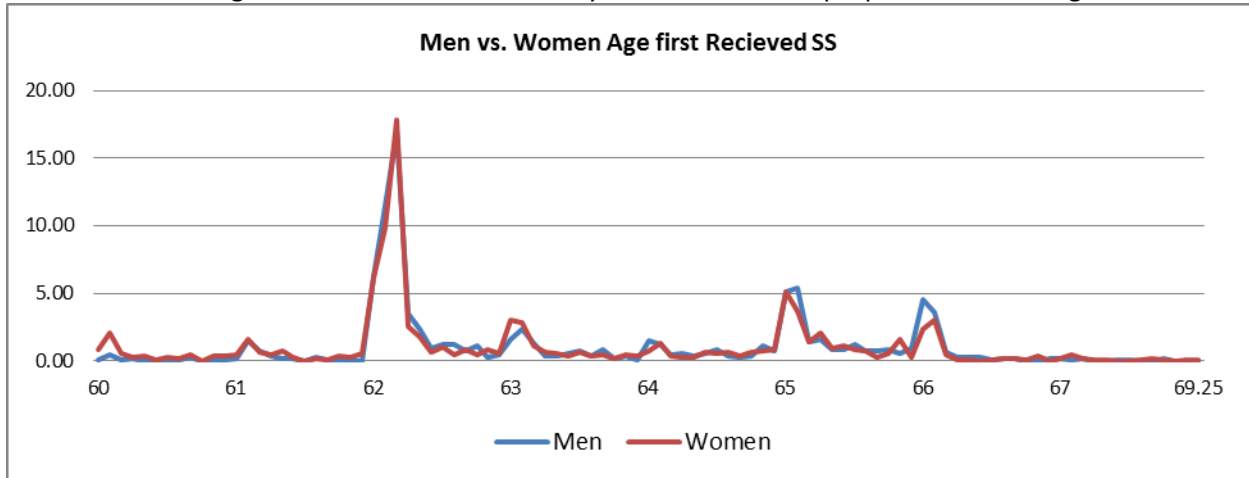
We use the RAND HRS dataset to investigate the relationship between education, marital history, social security claiming and work.   We keep all observations for whom we know the month when they first received Social Security. We dropped those individuals who are observed to have ever received Disability Social Security, as those claiming disability benefits would have other incentives and constraints. We also drop those who exited the labor force prior to age 56.
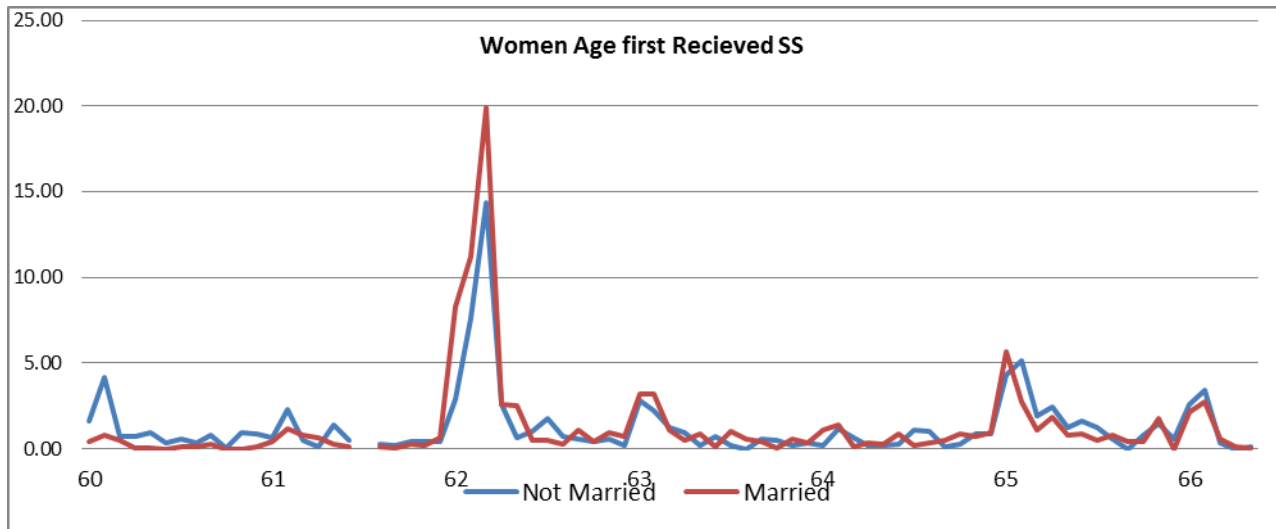
The sample includes 1411 men and 1254 women.   Unfortunately, due to the small sample size, the cells get relatively small when we begin to slice the data by marital status, marital history and education. Our primary split of the data distinguishes between those who claimed social security benefits at or before age 62 (allowed 62+2 months as cut-off), and those who delayed claiming benefits. The following table shows sample size. Once the data is cut to married and college graduates, the sample size gets very small.

	At 62	After 62	Total
Males	**906**	**505**	**1,411**
Not College Grad	592	390	982
College Grad	314	115	429
Married	141	88	229
Not Married	756	415	1,171
Females	**798**	**456**	**1,254**
Not College Grad	602	381	983
College Grad	196	75	271
Not Married	301	122	423
Married	484	333	817
Total	1,704	961	2,665

Marital Status is determined for the month first received Social Security

We first consider age first received Social Security.   These show the proportion at each age.


Men vs. Women Age first Recieved SS

Legend: Men, Women

Women Age first Recieved SS

Legend: Not College Grad, College Grad

Men Age first Recieved SS

Legend: Not College Grad, College Grad

Women Age first Recieved SS

The patterns are similar, regardless of the demographic. The highest proportion receive Social Security benefits at (or just months after) age 62. There is another small increase at age 65. The spike at age 62 is higher for those without a college degree, and for women who are married.

4.2.1   Social Security Claiming and Retirement from the Labor Force

The following graphs show the hazard into retirement – the probability of retiring in month *t* conditional on observing work in *t-1*. Retirement is really 'non-work' here - the probability that the individual stopped working. They may return to work in the future. We have created the graphs where retirement is defined only if the individual is never again observed working while they are in the panel. There is little observable difference.

Month 0 is the month in which the individual first received Social Security. We graph separately those who received Social Security at or before age 62 and those who delayed claiming.

Women

Legend: SSat62smooth, SSafter62smooth


Men

Legend: SSat62smooth, SSafter62smooth
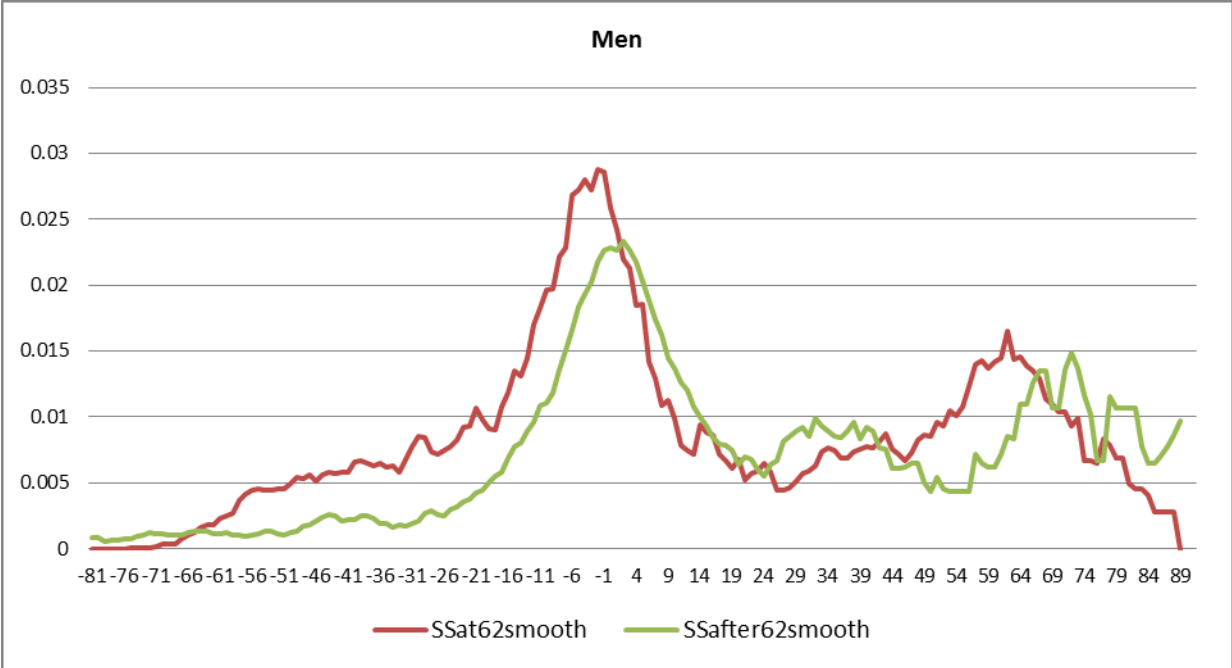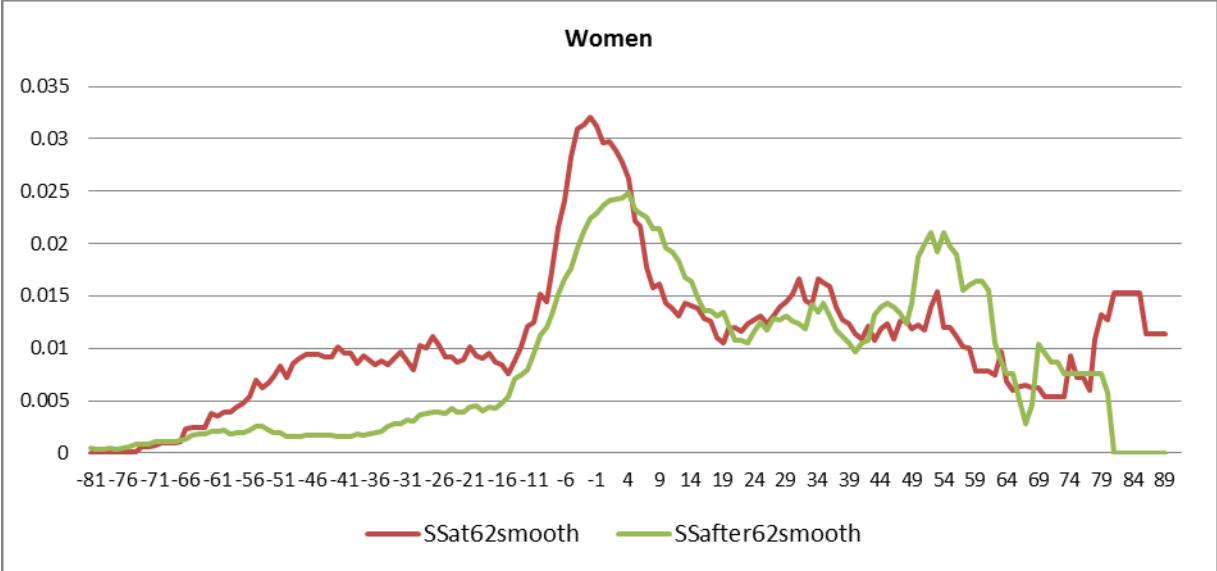
For both men and women, retirement is more likely just prior to receiving social security. Those claiming at age 62 are more likely to retire prior to receiving social security.

The following two graphs show the hazard into retirement, centered on the month in which the individual first received social security, for women with and without college degrees. For women who are not college graduates, the pattern is similar to above – higher hazard rates close to the month when they first received social security.

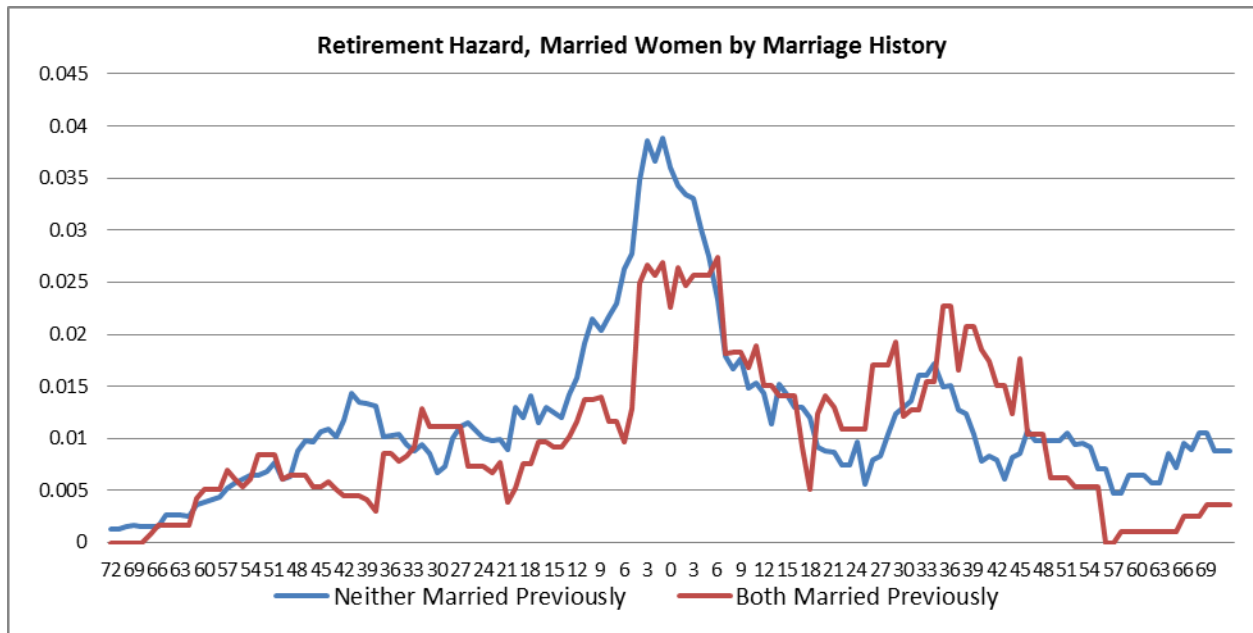**Women Not College Graduates**
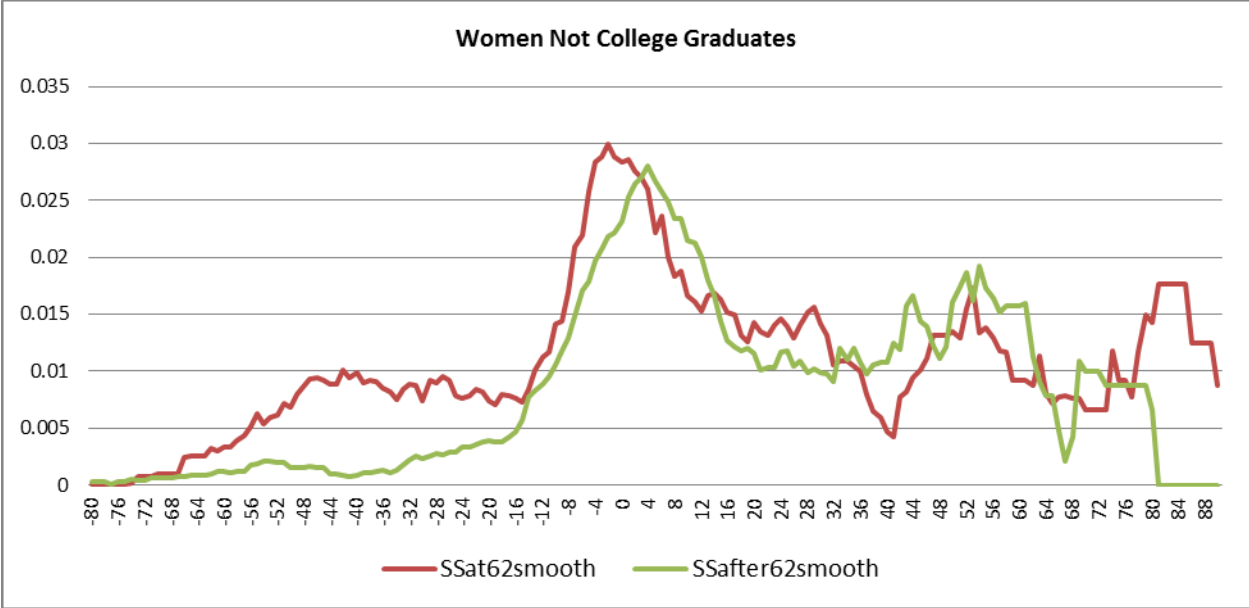
For college graduate women, there is less of an increase at month 0. For those who received social security at age 62, there is undoubtedly a high hazard at the time of Social Security receipt. However, there is an equally high retirement hazard three years later, at age 65. For college graduate women claiming after age 62, there is very little observable relationship between the month of claiming social security and work.

Women College Graduates
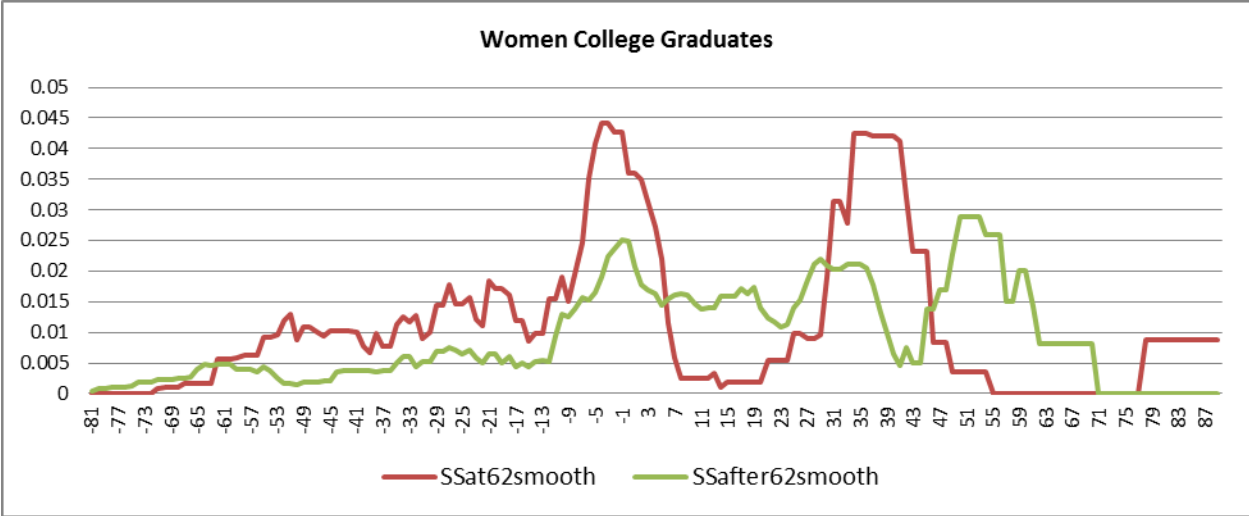
Marital History

Sample sizes here are too small for these graphs, other than those women for whom neither spouse were previously married (589 obs) and those for whom both spouses were previously married (201).

Those with previous marriages have a flatter hazard into retirement, compared with those in couples where neither have been previously married. Recall that women college graduates are more likely to be in the former category.

The raw data show that there are some interesting patterns that emerge when we consider marital history and education.

Next Steps:
1. Joint hazard regressions for women on the probability of retirement and the probability of social security claims to determine effect of education and marital history. We hope to have these results for the 18th.
2. Joint hazard on husband and wife retirement/social security claims.
3. Refine notion of 'retirement' – how does part-time employment enter?
4. Investigate link between education, marital history and life expectancy. We know college educated have higher life expectancy and those in stable marriages have higher life expectancy. How does joint education and joint marital history correlate with life expectancy?

References

Becker, Gary S., "Irrational Behavior and Economic Theory," *Journal of Political Economy*, Vol.70, No. 1, (February 1962), 1-13.

Lundberg, Shelly, "Family Bargaining and Retirement Behavior," in Henry Aaron, ed. *Behavioral Dimensions of Retirement Behavior*. Russell Sage/Brookings, 1999, 253-272.

Pollak, Robert A., "Gary Becker's Contributions to Family and Household Economics," *Review of Economics of the Household*, Vol. 1, No 1-2 (January-April 2003), 111-141.