Optimal retirement ages for couples considering Social Security payments and withdrawals from private savings

Michael Tucker[a]

[a]Department of Finance, Dolan School of Business, Fairfield University, Fairfield, CT 06824, USA

Abstract

Munnell and Soto's (2007) work on the optimal age to initiate Social Security benefits for couples is extended to a model that adds withdrawals from private savings to Social Security benefits. Optimal retirement age is found to be a function of savings and the rate of return on those savings. Savings with zero or minimal return reduce or eliminate the motivation for postponing retirement. As the rate of return on those savings rises, delay becomes increasingly beneficial. A reduction in savings at retirement can result in several years of delay in retirement to achieve prior expected income with greater delays a function of the portion of expected retirement income to be derived from savings. © 2009 Academy of Financial Services. All rights reserved.

1. Introduction

Couples deciding on retirement have a more complex decision set than single prospective retirees do. Life expectancy discrepancies between men and women make the longer-lived spouse's life expectancy the dominant consideration. Age differentials between spouses are also of importance particularly because wives are typically younger than husbands further extending the joint life expectancy of the couple. Social Security (SS) payments may differ between spouses as well with each able to obtain higher payments if retirement is delayed. Munnell and Soto (2007) found that it was typically financially optimal for husbands to delay

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* Corresponding author. Tel.: +1-203-254-4000; fax: +1-203-254-4105.
  E-mail address: MTucker@mail.fairfield.edu

retirement to as late as age 69 in most cases while wives retired at 62 using the life expectancy present value (PV) of SS payments as the exclusive decision variable. This study adds a constant stream of withdrawals from private savings to SS payments to arrive at total retirement income. Income from accumulated savings with minimal or no expected real return reduce or eliminate delay in retiring but as expected returns on savings rise, delaying retirement becomes increasingly financially attractive.

Working an extra year may mean greater retirement payments from savings and higher SS payments but the tradeoff is fewer years to enjoy enhanced income. Future payments are adjusted downward by both the declining likelihood of being alive to receive them and the time value of money as calculated from the perspective of the preretirement decision point of age 62. For couples, concern over the financial fate of the longer-lived spouse can motivate extending labor force participation to provide greater assurance of preventing an impoverished widowhood. Decisions for couples assume altruistic spouses seek joint optimality. Beyond altruism, the cooperative dynamic of couples is likely engaged in determining retirement ages.

2. Literature review

Couples tend to retire at the same time (Gustman and Steinmeier, 2000) though not necessarily at the same ages. This may be because of a preference for joint retirement regardless of economic advantage. The retirement of one spouse would therefore influence the retirement of the other. As they age, couples coordinate their labor supply decisions more consistently (Johnson and Favreault, 2001). They may value joint leisure greater than more money. Striking a balance between foregone leisure and paid employment can be motivating factors in deciding upon retirement age. The quality of continued employment is also an issue. Analysis of the Retirement History Survey shows that 30% to 40% of couples quit the labor force within one year of each other (Blau, 1998). Six to 9% leave their jobs in the same month. From these findings, it could be concluded that the value of mutual retirement is a strong consideration. Couples also have significantly longer life expectancies than singles with men gaining the most from marriage (Smith and Zick, 1994). This could effect decision making and perhaps delay the husband's retirement if he perceives a longer life expectancy than an unmarried man does. Spousal selection and the habits of joint lifetime decision making may also bias couples to prefer similar retirement timing.

A husband can maximize benefits for his wife by delaying SS payments and in so doing, optimizes benefits for the couple. The wife generally makes the couple better off by claiming as early as possible depending on the percentage those benefits are of the wife's (Munnell and Soto, 2007). Women claiming early can take advantage of their longer expected benefit period. Wives also get survivor benefits that means they collect the higher benefits earned by the husband. For couples, the delay of the husband's benefits enhance those benefits by 8% per annum each year retirement is delayed beyond age 62 for those born between 1943 and 1954 (Social Security Online, 2009).

As unmarried individuals with differing life expectancies, men maximize lifetime present value of payments by collecting at 62 whereas longer-lived women optimize at 68 (Munnell

and Soto, 2007). However, delay produces only a small 2% advantage. As a couple deciding cooperatively, considerations of each other's life expectancy should be the dominant factor rather than individual PV of SS payments. Age differential is also a factor. The younger the woman in the marriage, the more years she is likely to live as a widow with his full SS benefits. The longer he delays retirement, the greater those benefits will be. The younger she is the more financially important delay becomes since she not only has a greater life expectancy but also adds to that their age differences.

SS benefits make up ~40% of retirement income with the remainder coming from savings, investments, earnings, and defined benefit plans (Bureau of Labor Statistics, 2001; Employee Benefit Research Institute, 2003; Rose, 2007). In the analysis below, these relationships will be a starting point to approximating private retirement savings at age 62. Savings may change the retirement decision. Delayed withdrawal of savings particularly when contributions to savings can continue beyond age 62 coupled with compounding returns increases the expected payout stream from savings. For delayed retirement, increasing payments from savings are offset by the diminishing probability of receiving those payments and the time value of money.

A married woman's benefits depend on three possible sources: based on her own earnings, spousal benefits based on her husband's earnings, and survivor benefits based on 100% of her husband's benefits. Munnell and Soto (2007) find that both a couple's age differential and their relative SS primary insurance amount (PIA) at the age of 62 are determinants in arriving at an optimal retirement age for each as a couple. For wives more than three years younger than their husbands it is optimal to initiate SS at 62 for all levels of PIA ratios relative to their spouse's. Age difference is immaterial when her PIA is greater than 40% of her husband's PIA, that is, her PIA ratio. Spousal benefits payable to nonworking wives at 50% of their husband's benefits can only be collected when he retires. Spousal benefits are only of importance when the wife's PIA is less than 50% of her husband's. For the majority of couples where wives have accumulated SS savings, mortality adjusted future benefits discounted at 3% are greatest when the wife retires at 62 and the husband at 69 (Munnell and Soto, 2007). Most married men claim SS benefits at age 62 or 63 which is an optimal decision for single men (Munnell and Soto, 2007; Spitzer, 2006). Sass, Sun, and Webb (2007) find that although this translates into only a 4% loss to the household, it is a much larger 20% loss to the surviving spouse's benefits. Husbands appear to undervalue survivor benefits.

Delay can be seen as making an annuity purchase in exchange for a higher income stream of SS benefits. Delay implies an exchange of private financial wealth for SS wealth. By delaying a household acquires additional longevity insurance in the form of greater SS benefits. Factoring this into an analysis of optimal retirement for couples of the same age increases the optimal age of SS initiation from 66 to 68 (Sun and Webb, 2009).

Friedman and Phillips (2008) view SS initiation as a sequential decision process in which an individual or couple ask if it is best to initiate now or postpone for one period. Cost or benefit analysis is done each period. Delaying means higher SS benefits the following period and all subsequent periods. Delay is an investment of the forgone benefits. The internal rate of return (IRR) of the postponement is compared to a risk free real rate of return and the postponement decision made on that basis. An assumption is made that the beneficiary lives

for a set number of actuarially determined years rather than weighting each benefit received by the probability of receiving it. Married couples of the same age in this analysis jointly retire at age 68. There is no allowance for differential spousal retirement decisions.

Life expectancies may also vary among potential benefit recipients. Low earners, particularly men, have shorter life expectancies and have more to gain by taking benefits as early as possible (Duggan and Soares, 2002). Life expectancies for poor couples are also lower than for those of widows, divorcees, and individuals never married with high income (Rogers, 1995). Poor couples are less likely to have significant savings and are more dependent on SS benefits.

3. Modeling retirement

The Center for Retirement Research at Boston College generously provided the Excel model used by Munnell and Soto (2007). The Munnell and Soto model incorporates benefits available to married women including spousal benefits and widow benefits. To ease calculation, PIA is considered the same at each age of retirement though in reality PIA would increase along with the payout which means the SS benefits are slightly underestimated. Munnel and Soto use a 3% discount rate as will be used here together with the 1948 cohort mortality tables to calculate annual survival probability. The basic Munnell and Soto model will be extended to include private savings and withdrawal assumptions under various scenarios.

Monte Carlo simulations using different withdrawal rates from savings have concluded withdrawing 4% of savings accrued at the initial year of withdrawal balances the risk of savings exhaustion and the maintenance of a standard of living (Charnes, 2005; Milevsky, 2006; Milevsky and Robinson, 2005). Payout from private savings is assumed to be 4% of the accumulated savings available in the year of retirement. Because we will be using real returns throughout, withdrawals are therefore fixed in real terms and are in effect a real annuity payment with a finite term. The income from savings will pay a fixed real dollar amount from inception with that income continuing beyond the death of one spouse. These payments constitute a joint and survivor annuity. This real annuity will expire when savings are exhausted and we will explore those implications later. By contrast, SS is a real annuity with the valuable benefit of promising perpetual payments. The baseline year for savings accumulation is when the husband is age 62. Because contributions to savings continue for each working spouse, the amount available to retirees grows by those contributions and by compounding savings at age 62. Once both are retired, the retirement payout from savings is fixed in real terms at 4% of the accumulated savings. Savings not withdrawn continue to compound at a real rate of 2%. This rate of return is set low to reflect conservative investments. The real rate of return is an important variable and the initial 2% return constraint will be relaxed in subsequent analyses. Prospective retirees with more of their income dependent on withdrawals from savings will find delay only marginally increases real private income at low rates of return on savings. Those with a greater percentage of income derived from SS benefits on the other hand get 8% higher real payments in exchange for each year of delay. Joint private savings at retirement are calculated as a function of the spouse's

SS payout at 62 and the PIA ratio of the wife to the husband. The joint savings payout is 166.67% of the husband's SS benefit at age 62. Savings withdrawn relative to SS benefits is derived from the assumption that ~40% of retirement income on average consists of SS benefits. Forty percent of income translates to a 1:1.5 ratio with each $1 of SS payments being met with $1.50 of private savings income. Maximum accumulated savings at age 62 is defined as a function of the husband's SS benefits weighted by the ratio of the wife's PIA to the husband's PIA, $PW = \dfrac{PIA_w}{PIA_h}$, and maximum accumulated savings at age 62 are a function of his SS benefits and the PIA ratio: $SS_{h62}*1.667/0.04*((PW+1)/2)$.

If the husband's SS benefits at age 62 are $12,000 per year then the maximum dollar amount in the savings portfolio is $500,000 where both couples have equal PIA, that is, PIA ratio of 1 or PW = 1. Even if we include primary residences as savings this level of savings may be high. Because we are concerned with the impact of private savings that will be drawn upon in retirement, using higher assumed savings levels will make the impact of income from private savings more noticeable if there is an impact. This level of savings will subsequently be adjusted down to determine the sensitivity of retirement delay to accumulated savings. In our initial example, annual savings withdrawals are fixed at $20,000 in real dollars (.04*500,000) if the husband retires at age 62 with a PIA ratio of one. If both spouses work, contributions to private savings after age 62 are assumed to be relative to their PIA ratio at age 62. A nonworking wife with zero earned PIA will make no future contributions to private savings. She can begin receiving SS benefits when her husband files for benefits as a percentage of his benefits. These benefits will be 50% of her husband's benefits subject to becoming 100% upon his death. Note that a wife can begin collecting her own benefits upon retirement before her husband and then switch over to 50% of his benefits if spousal benefits are greater than her own benefits when he retires. For a working wife, if her PIA is 60% of her husband's then she contributes to private savings: 0.60/(1+0.60) or 37.5% and he contributes 1-(0.60/(1+0.60)) or 62.5% of 1% of the savings portfolio at age 62. Each contributes until their individual year of retirement that means the working husband may be contributing while his nonworking spouse is not contributing. There is no withdrawal from private savings until both are retired. Each annual SS payment and savings withdrawal is weighted by the probability of that recipient living one more year before discounting. Withdrawals from savings are weighted by the maximum joint probability of living one more year, that is, the wife's probability of living an additional year because we assume she will outlive her husband. The probability weighted payments are discounted by 3% and summed to time zero, his age 62. The present value of different retirement strategies and possibilities are compared to arrive at the optimal retirement age for couples with different input parameters. There are a great many combinations and permutations possible. Making some assumptions will limit the scope of the analysis but still enable reasonable insights. We assume that the wife (*w*) will have equal or lower income than the husband (*h*) and savings are not withdrawn until he retires. She may collect SS before his retirement. To arrive at the optimal ages for husband and wife to retire we will

maximize the initiation of SS and savings withdrawals for each that in the husband's case is the same age by using the expression:

$$\sum_{t=i}^{112} \frac{SPmt_{hi}p_{wt} + SSPmt_{hi}p_{mt}}{(1+r)^t} + \sum_{t=n}^{112} \frac{SSPmt_{wn}p_{wt}}{(1+r)^t} \tag{1}$$

With the following constraints:

Age of husband's SS benefit initiation: $70 \geq i \geq 62$ and
Age of wife's SS benefit initiation: $70 \geq n \geq 62, n \leq i$,
p_{ht} = probability of a husband living one more year at age t,
p_{wt} = probability of a wife living one more year at age t,
$SSPmt_{hi}$ = Social Security payment of husband at age i which is his retirement age,
$SSPmt_{wn}$ = Social Security payment of wife at age n which is her retirement age,
r = real discount rate that is set at 3% for this analysis,
$SPmt_{hi}$ = annual savings withdrawals fixed at 4% of total savings accrued at the age when both spouses are retired which in all cases is determined by the retirement age of the husband, i. Accumulated savings at his retirement is a combination of annual contributions to savings and the real rate of return, rr, on the savings portfolio:

$$S_{62}\left(\prod_{n}^{N}\left(1 + \left[\frac{PW}{1+PW}\right]*.01\right)^{n-62} * \left(\prod_{i}^{I}\left[1 + \left(1 - \frac{PW}{1+PW}\right)\right]*.01\right)^{i-62}\right)$$

$$*(1+rr)^{i-62}.$$

The real rate of return, rr, is initially set at 2%, i is the husband's retirement age and n is the wife's retirement age subject to constraints as shown above. $SPmt_{hi}$ is weighted by the probability of the wife's surviving in year t under the assumption that the wife will outlive the husband.

Because this study is an extension of Munnell and Soto (2007), which excluded taxes, with the intent of determining the impact of the addition of private income to SS benefits on optimal retirement age, taxes are similarly excluded. Progressive tax rates motivate delaying initiating SS benefits and withdrawals from tax-deferred savings until retirement. For couples, 50% of SS benefits are taxed when combined income is between $32,000 and $44,000 (Social Security Administration, 2009). Combined income consists of adjusted gross income plus nontaxable interest and ½ of SS benefits. If income is above $44,000 85% of SS benefits are taxed. When one spouse dies, the combined income threshold drops to $25,000. In addition, if SS benefits are initiated before full retirement age, each two dollars of earnings above $14,160 reduce SS benefits by $1.

Couples with little or no income besides SS benefits are more likely to have had lower earnings, subsequent lower SS benefits and therefore low or no taxes on benefits particularly because the IRS defined combined income halves SS benefits in its calculation of the tax rate to apply to SS benefits.

Couples with higher incomes will likely have higher benefits plus a greater likelihood of

Table 1 Optimal retirement age (husband/wife)

Age difference	PIA of low earner as a percent of high earner's PIA					
	0%	30%	50%	70%	90%	100%
	Real return on Savings of 4%					
0	62, 62	62, 62	62, 62	62, 62	62, 62	62, 62
3	62, 62	62, 62	62, 62	62, 62	62, 62	62, 62
5	65, 62	62, 62	62, 62	62, 62	62, 62	62, 62
	Real return on Savings of 6%					
0	65, 65	65, 65	67, 62	67, 62	67, 62	67, 62
3	68, 65	68, 65	68, 62	68, 62	68, 62	68, 62
5	68, 63	68, 62	69, 62	69, 62	69, 62	69, 62

income from other sources making reaching the threshold of 50% to 85% of their benefits being taxable more likely. Wealthier retirees' benefits may be subject to the same marginal tax rate whether they retire at 62 or 70. If retiring at 62 would mean income just below the 50% or even between the 50% and 85% taxable benefit threshold, delaying retirement would mean an increase of real dollar SS benefits that would likely cross these thresholds. The longer the delay the more likely taxes on benefits will be incurred. Future research will have to determine if taxes are an important variable in considering retirement age.

4. Optimal retirement age

Initial calculations using a 2% real rate of return on savings find that PV is maximized for the husband and wife when both retire at age 62. This finding is insensitive to the relative youth of the wife or her PIA ratio. This is quite different from Munnell and Soto (2007) findings using SS benefits alone where the optimal retirement ages for working spouses were 69 for the husband and 62 for the wife when the PIA of the wife was greater than 35% of her husband's. Where the only benefits are from SS and those benefits are increasing with each year of delay, there is motivation to delay particularly to optimize lifetime income for couples. Stipulating that no withdrawals from savings occur until the husband is retired may have some effect on the divergent results but that is by no means the entire story.

In the initial optimization solution to Eq. (1), the expected real rate of return on savings is set to a low 2%, below the discount rate of 3%. If we set the expected real rate of return higher, delaying retirement beyond age 62 for husbands becomes a more economically desirable choice. With the real rate set at 6% delaying retirement is optimal at all PIAs and age differences (Table 1). A 4% real rate of return only makes a difference at zero PIA with a five-year spousal age difference. Note that the wife's delayed retirement at zero PIA is strictly a function of being able to collect spousal benefits at the initiation of her husband's benefits at a 6% real rate of return. A wife three years younger than her husband with a zero PIA ratio delays collecting benefits until her husband retires at age 68 because she is not eligible for spousal benefits until he retires. A 4% real rate of return on the saving portfolio is not sufficient to marginally increase the present value of retirement income to delay

Table 2 Husband's optimal retirement age at different savings and real rates of return with equal PIA (PW = 1)

Savings at 62	$rr = 0\%$	$rr = 2\%$	$rr = 4\%$	$rr = 6\%$
$0	69	69	69	69
$50,000	68	69	69	69
$100,000	67	68	68	69
$150,000	62	62	68	68
$200,000	62	62	67	68
$250,000	62	62	62	68
$300,000	62	62	62	68
$350,000	62	62	62	67
$400,000	62	62	62	67
$450,000	62	62	62	67
$500,000	62	62	62	67

retirement at higher PIAs; access to savings withdrawals at age 62 overcomes the value of delay even with the lure of increasing SS benefits. At a 6% real rate of return on savings marginal gains to savings and resulting higher retirement income are sufficient to motivate delay. Delaying drawing down savings to accumulate greater savings is worthwhile at higher returns. Both savings and real rates of return on those savings change the optimal age of retirement but in opposite directions. Table 2 shows the husband's optimal age of retirement for the couple when there is no age disparity and PIA for each spouse is equal at different levels of accumulated savings and real rates of return. Under all combinations, wives optimally retire at age 62. At equal PIA, savings sufficient to support 60% of retirement income were earlier calculated to be $500,000. Smaller levels of savings, S_{62}, are substituted into Eq. (1) along with different real rates or return (rr). Income from savings at a 0% real rate of return reduces the optimal age of retirement even at low levels of savings. As the expected real rate of return increases, the marginal rate of decline in delay of retirement slows. Savings and income from those savings that will increase only minimally from continued working contributions combined with zero or at low real rates of return raises the PV of total retirement income at age 62 sufficiently to reduce or eliminate delaying retirement beyond what it would be if SS benefits were the sole consideration. As the expected real rate of return on age 62 savings increases and the prospective income from those savings rises, the PV of total retirement income goes up sufficiently to make it optimal to delay retirement in the same way that increases in SS benefits make optimal retirement for couples a matter of the husband delaying retirement. Savings reduces postponement of retirement at the age of 62 while rising returns on those savings make it worthwhile to postpone retirement. Higher expected real rates of return such as 6% entail an aggressive investment strategy less likely to be desirable or appropriate for retirees. In the absence of higher real rates of return even moderate accumulated savings and the income from those savings will induce earlier retirement than when retirement income is dependent on SS benefits alone.

Unlike with SS benefits, savings withdrawals may be exhausted before death. Table 3 shows the range of a husband's retirement ages from 62 to 70 at different rates of return and the age of the husband when savings are exhausted. Even at a low 2% real rate of return

Table 3 Age of husband when savings are exhausted at different real rates of return and retirement ages[a]

Husband's retirement age	$rr = 0\%$	$rr = 2\%$
62	87	97
63	88	98
64	89	99
65	90	100
66	91	101
67	92	102
68	93	103
69	94	104
70	95	105

[a]For $rr \geq 4\%$ savings last beyond age 112.

private savings last until the husband is age 97. At zero return, there is some reason for concern. If a long-term investment portfolio can only obtain a zero real rate of return over an extensive period, SS benefits would also likely be at risk. Returns of 4% or greater modeled earlier would extend the savings portfolio beyond current life expectancies.

5. An unexpected decline in savings at retirement

If a couple is about to retire and their savings portfolio experiences a severe drop in value similar to that of many investors in 2008, their actual payouts under the same fixed 4% withdrawal from savings accrued at retirement will be considerably below anticipated levels. Before and after economic loss comparisons are made for spouses of the same age to accommodate a complete set of payments from SS and savings. Change in first year retirement income for a couple with the husband retiring at age 62 is

$$\frac{.04*S_{62}*(1 - d) + SSPmt_{h62} + SSPmt_{w62}}{04*S_{62} + SSPmt_{h}62 + SSPmt_{w62}} - 1, \tag{2}$$

where d is the decline in the value of the savings portfolio just before retirement.

Table 4 shows that the greater the PIA ratio, the more extensive is the reduction in anticipated savings withdrawals. The damage is more serious to couples with a greater savings stake since a greater portion of their retirement income is based on savings. As Table 5 shows, it takes more years for couples with higher PIA ratios to raise their combined

Table 4 Change in annual retirement income at different declines in savings if retiring at age 62

PIA ratio	Savings decline (d) at age 62		
	20%	30%	40%
100%	−9.1%	−13.6%	−18.2%
70%	−9.1%	−13.6%	−18.2%
30%	−8.5%	−12.7%	−17.0%
0%	−7.2%	−10.9%	−14.5%

Table 5   Years' delay of retirement required to recover expected age 62 retirement income after 30% decline in savings at age 62

PIA ratio	$rr = 2\%$	$rr = 4\%$	$rr = 6\%$
100%	5	4	4
70%	4	4	3
30%	4	3	3
0%	3	3	3

retirement income to the level anticipated at age 62 before savings losses. Even though SS payments increase with greater delays in retirement, compounding returns on savings and continued contributions are needed to reclaim earlier total income.

6. Required minimum distribution

Deciding how much to withdraw from tax deferred savings is not entirely left to personal preferences. It is also a function of the IRS required minimum distribution (RMD) that goes into effect at age 70.5. RMD is the reciprocal of the uniform life expectancy as determined by the IRS at each successive age. IRS life expectancy tables are more optimistic than SS tables. RMD begins below 4% but by age 85 it is 6.8% of the *remaining portfolio*. RMD withdrawal is not always below the previously assumed fixed minimum annual withdrawals of 4% of savings *at the time of retirement*. The declining IRS savings baseline to which higher withdrawal rates are to be applied diminishes the impact of RMD making it of minor importance for couples with targeted withdrawals. If we assume all savings are composed of tax deferred accounts which are withdrawn at the greater of RMD or 4% withdrawal rates that increase with delayed retirement, optimal retirement ages are virtually identical to those found without considering RMD. The only differences that occur are further delays for couples where the wife has had no SS income and therefore a zero PIA ratio. Applying RMD results in little change in withdrawals and produces virtually the same optimal retirement age.

7. Conclusion

Using the model Munnell and Soto (2007) used to determine optimal age to claim Social Security as a baseline; their analysis is extended to couples to include private savings withdrawals that are in effect a real joint and survivor annuity terminating at the exhaustion of savings. Even low prospective retirement income from savings at age 62 is sufficient to minimize or eliminate all postponement of retirement when real rates of return are low or zero. Instead of possible caddishness or lack of financial sophistication proposed by Sass, Sun, and Webb (2007), it could be savings and low expected real returns that are factors explaining why married men choose to retire early. As expected real returns on savings increase prospective income from those savings they make delaying retirement financially

beneficial for the couple. This functions similarly to the rising level of SS benefits that make a husband's delayed retirement optimal for the couple. If prospective retirees are extremely risk averse and limit invested savings to Treasury Inflation Protected Securities (TIPS), the 2.35% real return (Friedman and Philips, 2008) would be insufficient motivation to delay retirement particularly if savings are moderate to substantial and a couple's PIA ratio is high. More aggressive investing required to garner higher real rates of return are likely unsuitable for retirees. Accumulated savings in the absence of higher real rates of return will therefore motivate earlier retirement.

A decline in savings at retirement can lead to years of retirement delay if a couple aspires to retire at previously anticipated income levels. Couples with higher anticipated income from savings will need to postpone retirement for as long as five years if they are to regain their initial targeted income levels. Higher real rates of return on savings reduce delay as do rising SS benefits incurred by delaying retirement.

Because this study was an extension of Munnell and Soto (2007), taxes were excluded. Further research needs to consider whether taxes are a factor in motivating retirement age. As a comparative and extended analysis, the main finding is that having some savings that can be withdrawn as level real payments can make delaying retirement less financially beneficial to couples when expected real returns on those savings are zero or otherwise low. The incentive of higher real rates of return and subsequent higher savings withdrawals create a delay in retirement pattern similar to that found for SS benefits alone by Munnell and Soto (2007).

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