

**Why Don't People Annuitize?  
The Role of Advice Provided by Retirement Planning Software**

John A. Turner

May 2010

**PRC WP2010-07**

**Pension Research Council Working Paper  
Pension Research Council**

The Wharton School, University of Pennsylvania  
3620 Locust Walk, 3000 SH-DH  
Philadelphia, PA 19104-6302  
Tel: 215.898.7620 Fax: 215.573.3418  
Email: [prc@wharton.upenn.edu](mailto:prc@wharton.upenn.edu)  
<http://www.pensionresearchcouncil.org>

Opinions and conclusions are solely those of the author(s) and do not reflect views of the institutions supporting the research, with whom the authors are affiliated, or the Pension Research Council. Copyright 2010 © Pension Research Council of the Wharton School of the University of Pennsylvania. All rights reserved.

## **Why Don't People Annuitize? The Role of Advice Provided by Retirement Planning Software**

John A. Turner

This study investigates whether users of 25 free retirement planning programs available on the internet are advised to annuitize, in situations where it clearly would be advisable to do so. Our main conclusion is that the programs generally do not advise it, which contributes to other reasons why people do not annuitize. Many programs ignore longevity risk. Those which do deal with longevity risk tend to handle it by simply setting a high age for the end of the planning period—95 or older. Phased withdrawals planned to an advanced age are an inefficient way of dealing with longevity risk.

## **Why Don't People Annuitize? The Role of Advice Provided by Retirement Planning Software**

John A. Turner

With increased reliance on 401(k) plans, many retirees face the risk of outliving their assets. Annuities are one way to manage this risk. Annuities are financial instruments that pay a stream of benefits over time. A basic life annuity pays fixed nominal benefits periodically until death. Annuities can have many different features. Horneff et al. (2009) suggest that a desirable feature would be to encourage phased annuitization of an account, allowing workers to annuitize their account balance in stages over time after they have retired, rather than having workers fully annuitize an account at one time.

The concept of *annuity equivalent wealth* provides a measure of the value of the insurance that an annuity provides against outliving ones assets. It measures the amount of wealth a person would need to be as well off without an annuity as with one. This amount depends on the extent to which the person is risk averse, being larger for more risk averse people. For example, under certain assumptions, a married couple age 60 that is fairly risk averse (a risk aversion coefficient of 5) would be indifferent between \$100,000 in annuitized wealth (with the insurance protection it provides) and \$129,100 in cash (Webb et al. 2007). However, an important aspect of the assumptions underlying this calculation is that the annuity is priced so that it is actuarially fair for a person with average life expectancy. Generally this is not the case, so that annuities are priced assuming that the purchaser has longer than average life expectancy (particularly for voluntarily purchased individual annuities). Studies have shown that adverse selection can increase the price of annuity products by as much as 10 percent when they are priced on a gender basis and sold in voluntary markets (Friedman and Warshawsky 1990,

Mitchell et al.1999). Taking this into account, the annuity equivalent wealth for someone with average life expectancy is only slightly more than \$100,000 (Webb et al. 2007).

In making retirement financing decisions such as whether to purchase an annuity, most people do not hire a financial planner. Nevertheless people increasingly have access to free financial planning software online. For example, AARP provides such software.<sup>1</sup> In addition, the Choose to Save campaign has heavily advertised its software for determining retirement readiness.<sup>2</sup> Motley Fool and other well-known websites offer such software.<sup>3</sup> Some mutual fund companies and life insurance companies also provide such software on their websites.<sup>4</sup>

This study investigates whether people using retirement planning software are provided advice or information concerning the advantages of annuitization. Because of the insurance provided by payout annuities against outliving one's resources, economic theory suggests that many people would be better off annuitizing at least part of their retirement resources, rather than relying on phased withdrawals.<sup>5</sup>

To better understand which types of people would be most likely to benefit from annuitizing at least a portion of their retirement assets, this study first explores some of the reasons that people may not annuitize. Second, we survey previous research on the advice provided by retirement planning software relating to annuities. Third, we outline our method of

---

<sup>1</sup> See AARP Retirement Planning Calculator [http://sites.stockpoint.com/aarp\\_rc/wm/Retirement/Retirement.asp?act=LOGIN](http://sites.stockpoint.com/aarp_rc/wm/Retirement/Retirement.asp?act=LOGIN) and AARP Retirement Nest Egg Calculator

[http://www.aarp.org/money/toolkit/articles/retirement\\_nest\\_egg\\_calculator.html](http://www.aarp.org/money/toolkit/articles/retirement_nest_egg_calculator.html)

<sup>2</sup> See Choose to Save Ballpark Calculator <http://www.choosetosave.org/ballpark/>

<sup>3</sup> Motley Fool Retirement Calculator <http://www.fool.com/calcs/calculators.htm>

<sup>4</sup> See, for example, the Vanguard Retirement Income Calculator

<https://retirementplans.vanguard.com/VGApp/pe/pubeducation/calculators/RetirementIncomeCalc.jsf>

<sup>5</sup> Horneff et al. (2009)

analyzing online advice offered, regarding annuities. Fourth, we discuss our results from a review of recommendations generated by 25 programs. A final section concludes.

### **Why Don't People Annuitize?**

A puzzle in retirement planning is why many retirees fail to convert a portion (or all) of their retirement assets into a lifetime payout annuity. In fact, the evidence suggests that few annuitize their 401(k) plans or otherwise purchase annuities.<sup>6</sup> While defined benefit plans traditionally provided benefits as annuities, most 401(k) plans do not provide that option and have not done so for at least 20 years. For example, in 1985, only 29 percent of full-time participants in retirement savings and thrift plans had annuities as a payout option (Mitchell 1991). Survey data indicate that people are more likely to buy annuities the more averse they are to risk and the longer they expect to live.<sup>7</sup> Nonetheless, only seven percent of people participating only in a defined contribution plan indicated that they planned to receive an annuity (Watson Wyatt 2008). While economists and others suggest that the growth of 401(k) plans will lead to increased use of payout annuities (Brown et al. 2007), only 10 percent of individuals with defined contribution plans annuitized their account balances when terminating employment at ages 60-64 and 65-69 (Gale and Dworksy, 2006).

One explanation for why people do not annuitize is that many plans do not offer annuities. While 401(k) plans are legally permitted to make a joint and survivor benefit the normal form of benefit payment, relatively few do in practice. In 2000, 33 percent of defined contribution plans offered annuities (Blostin, 2003). Nevertheless, the low prevalence of annuities arguably is the result, not the cause, of a low demand for annuities. Money purchase plans are required to

---

<sup>6</sup> See Gale and Dworksy (2006)

<sup>7</sup> Watson Wyatt (2008)

provide the option of a joint and survivors annuity, but few participants choose this option (Kimpel, 2005).

As defined benefit plans decrease in importance for future retirees, the future extent of automatic annuitization from pensions may fall. Of course, as many recognize, current retirees may believe they are sufficiently annuitized through Social Security and defined benefit pensions (e.g. Dushi and Webb, 2004). Indeed for persons in the bottom third of the wealth distribution, Butrica and Mermin (2006) report that over two-thirds of wealth was annuitized, compared to 41 percent for older persons in the top third. For a typical older married adult, 55 percent of wealth was annuitized. In other words, arguably many middle and lower income people would not have a need for additional annuitized income, given their total resources. Nevertheless, a sizable percentage of the older population has no annuitized pension wealth other than Social Security: 40 percent of married couples and 54 percent of unmarried persons, so low levels of annuitization for at least this group remain a puzzle.

### **Previous Research on Retirement Planning Software and Annuitization**

Some prior work has investigated retirement planning software (Turner and Witte 2009, Sondergeld et al., 2003) which shows that readily accessible programs generally do not consider annuitization. Of the five consumer programs investigated by Turner and Witte (2009), only one suggests purchasing an annuity. None of the consumer software examined considers the option of purchasing an inflation-indexed investment product (e.g. an inflation-indexed annuity) as a low-risk investment and as a way of dealing with inflation risk. One of the professional programs – available to financial professionals advising clients – provides detailed information on Social Security claiming age strategies in a separate document, including the option of purchasing a

five-year fixed term annuity as a bridge from 62 to 67 in order to postpone receipt of Social Security benefits.<sup>8</sup> One professional program helps users make decisions that could potentially raise their consumption, for example by purchasing an annuity.<sup>9</sup> That program provides advice to smooth, maximize, and protect consumption through insurance, and it also casts consumption as well as work decisions in terms of the sacrifices that must be made or benefits gained.

In sum, research to date has found that available programs tend to recommend what turns out to be ‘self-insurance.’ In other words, they assume that the retiree’s problem is to finance retirement through phased withdrawals over a period of fixed length, rather than protecting against longevity risk.

### **Our Approach**

This study evaluates 25 internet-based programs identified via an internet search. In our judgment, the list appears to include most of the major retirement planning programs. We examine advice provided as a result of the information provided by the user; we also examine supplementary advice provided as background information or further information to see if annuities are advised for a user who looks more diligently for advice.

We analyze these 25 programs using two scenarios: a first is constructed to tilt results in favor of annuitization or partial annuitization, and a second is constructed so that purchasing an annuity would probably not be advisable.

**Scenario One.** The individual is a single woman age 58 with no children or other dependents, so there is no consideration of bequests to immediate family members. She plans to retire relatively early, at age 60. The individual indicates she has a relatively long life expectancy (age 98, which

---

<sup>8</sup> See Turner and Witte (2009), and Sondergeld et al. (2003).

<sup>9</sup> See Turner and Witte (2009).

is the age she enters for life expectancy in the retirement planning programs, representing a probability of .5 that she will live that long) so because of a long retirement period and a high life expectancy, an annuity would be particularly favorable. As a rule, an annuity provided through her 401(k) plan would be relatively appealing since by law, these must be unisex annuities. The individual is assumed to have no defined benefit plan or any other form of annuitized income or quasi-annuitized income (e.g. rental income). We further posit that she has conservative/very conservative risk preferences, so she systematically selects the most conservative investment options offered by the retirement planning program. (A person with conservative risk tolerance presumably would value more highly the insurance aspect of an annuity than a person with more risk tolerance.) She is also assumed to expect a rate of return of four percent. She is assumed to have \$800,000 in savings in a 401(k) plan, no other saving, and annual earnings of \$120,000, so that Social Security will provide a relatively low replacement rate.

**Scenario Two.** Here the hypothetical individual is a married man age 58 with a wife age 58 and three children. The husband works outside of the household, has annual earnings of \$60,000, and plans to retire at age 65; his wife has no labor earnings. His 401(k) plan offers an annuity on a unisex basis. The husband expects to receive a defined benefit pension providing a replacement rate of 20 percent of current salary for retirement at age 62. He has an account balance of \$60,000 in his 401(k) plan, with an expected rate of return of 8 percent. The man and woman respectively have life expectancies of 80 and 85.

**The Retirement Planning Software.** In each case we analyze these two hypothetical cases using the retirement planning programs listed in the Appendix. We evaluate whether the option of purchasing an annuity is considered when analyzing retirement preparedness; if it is suggested, we investigate details of the advice provided. Some of the programs examined are

quite simple, asking only a dozen or fewer questions, while others are fairly complex. While we would not anticipate that these programs would recommend very sophisticated strategies (e.g. indexed or bridge annuities), it is clear that the inputs provided could reasonably lead one to recommend annuitization. Some of the more complex websites offer calculators to use for different purposes.

**Results.** Results are summarized in Table 1. Our first finding is that most programs examined are generally designed to determine whether the user has sufficient assets and retirement income to provide a desired level of income for a fixed number of years. They do not consider longevity risk and thus the value of annuitization. Some programs cope with longevity risk by setting the fixed planning period as late as age 95 (or, for one program, age 100). For people with long life expectancy, an annuity may well be a more efficient way of dealing with life expectancy risk.

*Table 1 here*

The next conclusion is that only one of the programs analyzed suggests that annuitization would be sensible, even when it would be clearly reasonable to recommend it as in the case of Scenario One. Nearly all the studies present results as phased withdrawals needed to cover a fixed life span. Two programs do mention annuitization, but the mention is not tied to the information provided in the scenarios but instead is a recommendation provided automatically. An additional three programs suggest annuitization in supplementary materials for users diligent enough to read the supplementary materials. The remaining programs generally do not mention the issue of longevity risk, or instead they simply suggest longer retirement planning periods. A more complete approach would have presented the annuity benefit that could have been received, given the person's retirement age and accumulated assets. Alternatively, a program could present both a phased withdrawal solution and a partial annuitization solution, and compare the two.

A couple of the programs request information on whether the individual seeks to leave a bequest, but only one asks whether the individual has child dependents. Information on child dependents would be useful not only for assessing whether bequests might be an issue, but also in determining a target replacement rate. The few programs that mention annuitization do not take into account whether the person wishes to leave a bequest. Perhaps most surprising is that some of the companies which are in the business of selling annuities do not recommend them to users of their retirement planning calculators. This may be because the calculators are prepared by other companies and so they tend not to be integrated into the business of the provider.

Simple changes could be made in most programs that would enable them to identify situations where annuitization could be appropriate. For example, it might be recommended for people with no defined benefit plan and with a large 401(k) balance. It might be recommended for single women with high annual income and a 401(k) plan, and it might be valuable recommended for people who indicate a low risk tolerance or conservative investments.

Another interesting feature of these plans is that the 'default' assumption regarding life expectancy varies dramatically. Some programs assume life expectancy is age 85; this would result in insufficient saving for our Scenario One since this individual assumes she will live to age 98. In some instances, the calculators deal with life expectancy risk by setting the end of the planning age (or the default) at age 95 or even 100 (this is true for 11 of the 25 programs studied). Others allow the user to set the maximum age with no default provided, and still others set an age but do not disclose what it is. Generally when the age is set by the program as a default, users can override the assumption. Nevertheless, in general the programs tend not to explain that setting a high planning age is one way of dealing with life expectancy risk. Indeed, annuitization could be a valuable way to avoid outliving one's assets compared to following a

phased withdrawal process to an advanced age. In fact the theoretical economics literature suggests that peoples' wellbeing could be enhanced by as much as 50 percent by adopting an optimal annuitization strategy rather than relying entirely on phased withdrawals (Horneff et al. 2009). In other words, most online retirement planning software which assumes phased withdrawal is likely to produce suboptimal outcomes for many retirees seeking help in managing their old-age decumulation.

## **Conclusions**

Retirement planning software is provided by a number of websites at no cost to users. This software can serve as a source of information and advice for people seeking assistance with their retirement planning. We investigate a number of the programs found through an internet search for retirement planning calculators, and find that most are limited in the way they handle longevity risk. We arrive at this conclusion based on two hypothetical retiree scenarios, in one of which annuitization would be a very reasonable recommendation. Nevertheless, only one program recommends annuitization based on the facts given. A few others automatically recommend annuitization to all, and several others suggest thinking about annuitization in supplementary material for users diligent enough to locate and read this material. Several simply assume the user withdraws assets from a 401(k) account using phased withdrawals.

In sum, we believe that one of the reasons why few people annuitize is that they are generally not advised to do so in online retirement planning calculators. Programs mentioning life expectancy risk may simply set the end of the planning age at 95 or 100. Yet for many people, annuitization would probably be a more efficient strategy. In this way, many of the

existing retirement planning programs available online seem to direct retirees toward phased withdrawal, which could well expose many people needlessly to longevity risk.

## References

- Blostin, Allan (2003). "Distribution of Retirement Income Benefits." *Monthly Labor Review*, April.
- Brown, Jeffrey R., Marcus, D. Casey and Olivia S. Mitchell (2007). "Who Values the Social Security Annuity: New Evidence on the Annuity Puzzle." December. <http://www.nber.org/programs/ag/rrc/NB07-02%20Brown,Casey,Mitchell%20FINAL.pdf>
- Butrica, Barbara A. and Gordon B.T. Mermin (2006). "Annuitized Wealth and Consumption at Older Ages." CRR WP 2006-26, Center for Retirement Research at Boston College.
- Dushi, Irena and Anthony Webb (2004). "Annuitization: Keeping Your Options Open." CRR WP 2004-04, Center for Retirement Research at Boston College.
- Friedman, Benjamin and Warshawsky, Mark J. "The Cost of Annuities: Implications for Saving Behavior and Bequests." *Quarterly Journal of Economics*, February 1990, pp. 135-154.
- Gale, William G. and Michael Dworksy (2006). "Effects of Public Policies on the Disposition of Lump-Sum Distributions: Rational and Behavioral Influences." Center for Retirement Research Boston College, CRR WP 2006-15, August. [http://www.bc.edu/centers/crr/papers/wp\\_2006-15.pdf](http://www.bc.edu/centers/crr/papers/wp_2006-15.pdf).
- Horneff, Wilfram. Raimond Maurer, Olivia S. Mitchell and Michael Z. Stamos (2009). "Asset Allocation and Location Over the Life-Cycle with Investment-Linked Survival Contingent Payouts." *Journal of Banking & Finance* 33: 1688–1699
- Kimpel, John (2005). "Testimony before the ERISA Advisory Council." Report of the Working Group on Retirement Distributions and Options. November. [http://www.dol.gov/ebsa/publications/AC\\_1105A\\_report.html](http://www.dol.gov/ebsa/publications/AC_1105A_report.html)

- Mitchell, Olivia S. (1991). "Trends in Pension Benefit Formulas and Retirement Provisions." In John A. Turner and Daniel J. Beller, *Trends in Pensions 1991*. Washington, DC: U.S. Government Printing Office.
- Mitchell, Olivia S., James M. Poterba, Mark J. Warshawsky and Jeffrey R. Brown (1999). "New Evidence on the Money's Worth of Individual Annuities." *American Economic Review* 80 (December): 1299-1318.
- Sondergeld, Eric T., Robert S. Chamerda, Mathew Drinkwatter, and Daniel G. Landsberg (2003). "Retirement Planning Software." LIMRA International, Inc. and the Society of Actuaries, in collaboration with the International Foundation for Retirement Education.
- Turner, John A. and Hazel A. Witte (2009). "Financial Planning Software and Post-Retirement Risks." Report prepared for the Society of Actuaries and the Actuarial Foundation. <http://www.soa.org/research/pension/retire-planning-software-post-retire-risk.aspx>
- Watson Wyatt Insider (2008). "Who Prefers Annuities? Observations About Retirement Decisions." April. <http://www.watsonwyatt.com:80/us/pubs/insider/showarticle.asp?ArticleID=19021>
- Webb, Anthony; Guan Gong, and Wei Sun (2007). "An Annuity People Might Actually Buy." Center for Retirement Research at Boston College, Issue in Brief no. 7-10, July. [http://crr.bc.edu/images/stories/Briefs/ib\\_7-10.pdf](http://crr.bc.edu/images/stories/Briefs/ib_7-10.pdf)

**Table 1. Retirement Planning Programs and Recommendations Regarding Annuitization**

---

Program characteristic	Number of Programs
Programs evaluated	25
Programs that always recommend annuitization	2
Programs that recommend annuitization based on an evaluation of input	1
Programs that recommend annuitization in supplementary material	3

---

Source: Author's calculations.

## Appendix: Online Retirement Planning Programs Analyzed

This study examines the following programs:

1. Choose to Save Ballpark Calculator <http://www.choosetosave.org/ballpark/>
2. Motley Fool Retirement Calculator <http://www.fool.com/calcs/calculators.htm>
3. inCharge Education Foundation Retirement Income Calculator  
<http://www.mindyourfinances.com/calculators/retirement-income>
4. AOL Retirement Planning Calculator <http://www.walletpop.com/calculators/retirement>
5. AARP Retirement Planning Calculator  
[http://sites.stockpoint.com/aarp\\_rc/wm/Retirement/Retirement.asp?act=LOGIN](http://sites.stockpoint.com/aarp_rc/wm/Retirement/Retirement.asp?act=LOGIN)
6. AARP Retirement Nest Egg Calculator  
[http://www.aarp.org/money/toolkit/articles/retirement\\_nest\\_egg\\_calculator.html](http://www.aarp.org/money/toolkit/articles/retirement_nest_egg_calculator.html)
7. T. Rowe Price Retirement Income Calculator  
<http://www3.troweprice.com/ric/ric/public/ric.do>
8. Vanguard Retirement Income Calculator  
<https://retirementplans.vanguard.com/VGApp/pe/pubeducation/calculators/RetirementIncomeCalc.jsf>
9. MetLife Retirement Income Snapshot <http://www.metlife.com/individual/financial-tools/>
10. Fidelity Retirement Quick Check  
[http://personal.fidelity.com/retirement/retirement\\_frame.shtml.cvsr](http://personal.fidelity.com/retirement/retirement_frame.shtml.cvsr) ignores
11. TIAA-CREF Retirement Goal Evaluator <http://www.tiaa-cref.org/support/tools/index.html>
12. EBSA, Taking the Mystery Out of Retirement Planning  
<http://askebsa.dol.gov/retirementcalculator/UI/general.aspx>
13. Nationwide Retireability Check  
[http://www.nationwide.com/campaign/rcheck\\_landing.htm?WT.srch=1&WT.mc\\_id=bgr00385&002=2074663&004=530874068&005=22245163&006=2965195988&007=Search&008=](http://www.nationwide.com/campaign/rcheck_landing.htm?WT.srch=1&WT.mc_id=bgr00385&002=2074663&004=530874068&005=22245163&006=2965195988&007=Search&008=)
14. Mass Mutual Retirement Income Calculator  
[http://www.massmutual.com/planningtools/calculators?WT.campaign=1868&adgroup=Retirement\\_Calculator&keyword=retirement+calculators&WT.medium=cpc&WT.term=retirement+calculators&source=google&WT.content=607424027&WT.source=google&cshift\\_ck=1601599720cs607424027&WT.srch=1](http://www.massmutual.com/planningtools/calculators?WT.campaign=1868&adgroup=Retirement_Calculator&keyword=retirement+calculators&WT.medium=cpc&WT.term=retirement+calculators&source=google&WT.content=607424027&WT.source=google&cshift_ck=1601599720cs607424027&WT.srch=1)
15. SunTrust Retirement Planner <https://www.suntrust.com/microsites/retirement/retired.shtml>
16. Ameriprise Retirement Planner <http://budgeting-investing.ameriprise.com/budgeting-and-forecasting/retirement-planning-calculator.asp>
17. John Hancock Retirement Planning Calculator  
<http://www.jhfunds.com/Calculators.aspx?CalculatorID=%7b22E35DC9-F670-488D-AC70-8B0E0D7A183A%7d>
18. CNNMoney.com <http://cgi.money.cnn.com/tools/retirementplanner/retirementplanner.jsp>
19. MSN Money Retirement Planner <http://moneycentral.msn.com/retire/planner.aspx>
20. Bloomberg.com Retirement Planner  
<http://www.bloomberg.com/invest/calculators/retire.html>
21. FINRA (Financial Industry Regulatory Authority) Retirement Calculator  
[http://apps.finra.org/investor\\_Information/Calculators/1/RetirementCalc.aspx](http://apps.finra.org/investor_Information/Calculators/1/RetirementCalc.aspx)
22. Kiplinger Retirement Savings Calculator <http://www.kiplinger.com/tools/retirement-savings-calculator.html>

23. Wells Fargo Retirement Planning Calculator <https://www.wellsfargoadvisors.com/market-economy/online-financial-calculators/retirement-planning-calculator.htm>

24. ESPlanner Basic <https://basic.esplanner.com/ESPlannerBasic/about/ESPlannerBasic>

25. Prudential Retirement Calculator

<http://www3.prudential.com/SmartMoney/retirement/intro.html>