

# Illustrating Retirement Income for Defined Contribution Plan Participants

A Critical Analysis of the  
Department of Labor Proposal

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## **Abstract**

The design solution for retirement income strategies from individual accounts is the next major challenge to the evolving retirement system in the United States. In response, the Department of Labor has put forward a proposal to require sponsors of defined contribution plans to provide their participants with an illustration of the retirement income that might be expected from the assets held in their individual accounts through the use of an immediate fixed life annuity at retirement. Using an empirical analysis based on historical simulations, I show how the Department of Labor illustration, as currently proposed and with various improvements I recommend, will operate under realistic market conditions. I find that the proposal is a good start, but it can be improved by—among other changes—making the income flows gender-distinct and reflecting an inflation-indexed life annuity (with a load) rather than a nominal fixed annuity.

*JEL* codes: G23, G28, J32

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## **Illustrating Retirement Income for Defined Contribution Plan Participants**

### **A Critical Analysis of the Department of Labor Proposal**

Mark J. Warshawsky

Over the last 15 years, there has been a sea change in the way employers, particularly in the private sector, provide retirement benefits to workers. In the past, many retired workers got automatic lifetime retirement-income benefits from their employer's pension plan, in addition to Social Security. Now, most private-sector workers with retirement benefits have individual accounts from which they will have to manage the distribution of retirement assets. Individuals must manage these assets to support their spending for the rest of an uncertain length of life while also facing inflation, investment uncertainty, health spending, and other risks. This is a daunting task even for experts in finance, insurance, and macroeconomics. But the challenge to society goes beyond workers' lack of expertise or tools for solving a new problem. Because most retiring workers are not even aware that there is a problem facing them, they will discover it too late, when they live a long life and run out of assets, experience high inflation, get bad investment results, or have expensive adverse health events.

The knowledge and implementation of good retirement-income strategies for individual accounts is the next major challenge to the evolving retirement system in the United States, and indeed in many other countries. The federal government, through the Department of Labor (DOL), is stepping up with a proposal to require sponsors of defined contribution plans to give participants an illustration of the retirement income they might expect from using their individual account assets to purchase of an immediate fixed life annuity at retirement (that is, an insurance product that distributes fixed, guaranteed, periodic payments starting soon after

its purchase and lasting for the lifetime of the insured or insureds, in return for a lump-sum or series of premiums charged). This is a “light touch” regulation that relies on information provision to allow individuals to continue to make their own decisions regarding how to manage their retirement savings. The financial and insurance industries and researchers are exploring the products and strategies that can be designed and marketed to help retired plan participants manage their accounts in retirement responsibly and efficiently to support their lifetime spending needs and other goals. Since 1988, another federal government agency, the Social Security Administration, has been providing workers with personalized information about projected annual Social Security retirement benefits that they can expect at various claiming ages, and payroll taxes paid on earnings to date. This statement, automatically mailed to all covered workers and now available online, is used as part of the broader retirement-income planning process.

These major initiatives from the government and from private industry are interrelated. The federal government’s requirement for retirement plan sponsors may produce the demand for, and set the benchmark for judging, the industry’s solutions. Hence, it is essential to get the details of the required retirement-income illustration correct at the start. It is helpful to consider how the illustration will compare with the annual Social Security statement already given to workers. More importantly, it is essential to see how the DOL illustration will operate in realistic market conditions, as currently proposed and with various improvements, in order to critically assess its expected results.

Those, indeed, are the goals of this paper: to review developments in the professional literature about retirement-income strategies, to review in detail the DOL retirement-income illustration proposal, to discuss the Social Security statement, to give suggestions for conceptual

improvements in the DOL proposal, and to test the proposal and my suggestions using an empirical analysis based on historical simulations.

### **Relevant Developments in the Professional Literature**

The “annuity puzzle” is the appellation economists have given to the following conundrum: despite the strong indication of economic theory and simulations that risk-averse retired households facing an uncertain lifespan should use most or all of their retirement assets to purchase immediate life annuities as insurance against outliving the household’s wealth, relatively few households do so, on a voluntary basis, at least in the United States. In this framework, anyone planning for retirement confronts two risks: the risk of overspending and running out of money and the risk of underspending and living too frugally. The more one tries to avoid running out of resources, the lower the standard of living and the more likely an unintended or too large a bequest will be left upon death. If one ignores the possibility of long life and spends at a rate intended to be sustainable through or even a bit beyond life expectancy, then there is a substantial risk of running out of funds and having to reduce spending quickly to the level of Social Security benefits. The purchase of a life annuity avoids these situations and boosts spending in the first case because of the existence of a mortality credit: the redistribution of premiums (that is, principal) and the investment earnings thereon through the insurance company or pension fund from those with short lifespans to those who live a long time.

Unless life annuities are substantially more costly to own for institutional or regulatory reasons than a portfolio of bonds, the rate of return on a life annuity—conditional on the annuitant’s survival—has to exceed that of conventional fixed-income instruments. This is because the life annuity returns the principal from those who die to those who survive, in

addition to investment returns. Indeed, in an important early empirical contribution to this literature, Friedman and Warshawsky (1990) found that, in most historical conditions, immediate life annuities did provide a higher return during the insured's lifetime than bonds could have.

A large literature has explained away the annuity puzzle in various ways (see, for example, Brown and Warshawsky (2004) and Dushi and Webb (2004)). Among them are adverse selection (the people who buy annuities live longer than the general population), making life annuities seem expensive to those with average or high mortality expectations; the coverage is already provided by the inflation-indexed retirement life annuity that Social Security gives, as well as by traditional defined-benefit pension plans; the desire to leave a bequest; the need for liquidity in the absence of complete insurance for other risks in late life, such as expensive long-term care or family emergencies; and certain regulatory and administrative impediments that discourage defined contribution plan sponsors from offering annuities and that force plan participants into an unfamiliar commercial marketplace. Another concern among investors that lowers demand for annuities might be the fear that the issuer will not be solvent at some point in the potentially decades-long horizon for the contract.

Still, these reasons seem to fall short because they leave a large demand for life annuities, at least among key segments of the population. For example, well-insured healthy retirees whose Social Security benefits are relatively small compared to their consumption plans and significant wealth holdings and who have no bequest motive would rationally demand life annuities to safely maximize their lifetime consumption during retirement. Therefore, some analysts, such as Jeffrey Brown et al. (2008), have turned to behavioral explanations to solve the annuity puzzle. These explanations, in turn, have led to proposals by the federal government that providing better

information and removing regulatory impediments will encourage retiring plan participants to purchase annuities.

To justify its retirement-income illustration proposal, the DOL particularly relies on the study by Brown et al. (2008) that posits that rational models of risk-averse consumers have difficulty explaining limited annuity demand. That study finds that people evaluate annuity products using a narrow “investment frame” that focuses on risk and return, rather than a “consumption frame” that considers the consequences for lifelong consumption. In an investment frame, annuities are unattractive to most retirees, exhibiting high risk (e.g., the individual being hit by a bus early in retirement and their survivors losing principal) without high returns (in contrast to the stock market, for example). Survey evidence in the Brown et al. study supports this hypothesis: whereas 72 percent of respondents prefer a life annuity over a fixed-income instrument such as a savings account when the choice is framed in terms of consumption needs during retirement, only 21 percent of respondents prefer it when the choice is framed in terms of investment features.

### **The DOL Proposal**

In 2010, the Departments of the Treasury and Labor published a request for information (RFI) regarding lifetime income options for participants and beneficiaries in private-sector retirement plans. The departments, posing 39 questions, were interested in how they could enhance the retirement security of plan participants by facilitating access to, and use of, lifetime income annuities or other arrangements to provide a lifetime stream of income after retirement. As an indication of the degree of interest in this policy issue, the departments received almost 800 responses from plan sponsor organizations, insurers, financial service companies, trade groups,

academics, benefits consultants, pension attorneys, and the general public.<sup>1</sup> They also held a two-day hearing where 40 witnesses testified. The DOL in particular posed several questions about a personalized illustration for participants of the estimated income stream that an account balance can provide.

In early May 2013, in part based on answers to the RFI, the DOL's Employee Benefits Security Administration issued an advance notice of proposed rulemaking (ANPRM) (RIN 1210-AB20) indicating that it was developing proposed regulations regarding the periodic (mostly quarterly) benefit statements required of most defined-contribution plans. The notice said that, first, the DOL was considering a rule that would require a participant's accrued benefits to be expressed on a benefit statement as an estimated lifetime stream of payments, in addition to being presented as an account balance. Second, the DOL also was considering a rule requiring a participant's accrued benefits to be projected to retirement and then converted to and expressed as an estimated lifetime stream of payments.

### ***Policy Motivation***

The DOL states that its policy motivation is to help workers manage the greater responsibility they have with defined-contribution plans than with defined benefit plans, "both while employed and *during their retirement years*" (emphasis added). In particular, the DOL says that "managing finances in order to provide income for life for oneself and one's spouse is a tremendously difficult but important task. The rule under consideration by the Department would provide participants with information that the Department believes will ease the burden

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<sup>1</sup> See U.S. Department of Labor, Lifetime Income Options for Participants and Beneficiaries in Retirement Plans: Request For Information Comments, 2010, <http://www.dol.gov/ebsa/regs/cmt-1210-AB33.html#2>.



of this task.” It goes on to state that “participants may have difficulty envisioning the lifetime monthly income that can be generated from an account balance.”

### ***Details of the Proposal***

The DOL proposed that the current retirement account balance be converted to an estimated lifetime income stream by assuming that the participant or beneficiary had reached normal retirement age as defined by the plan sponsor,<sup>2</sup> even if he or she is younger. If, however, the participant is older than the plan’s normal retirement age, the illustration would use the participant’s actual age. Income illustrations would be based on level monthly payments in nominal terms for the life of the participant from a nominal fixed immediate life annuity. If the participant is married, a second illustration would be required showing a level payment based on the joint lives of the participant and spouse, with a 50 percent survivor’s benefit to the surviving spouse. For this purpose, the plan may assume the spouse is the same age as the participant.

In pension circles, the type of joint annuity indicated by the DOL proposal is called a joint and contingent annuity. If the main insured survives his or her spouse, income payments continue at the initial level, whereas if the spouse survives, income payments are cut, perhaps by 50 percent. By contrast, with a joint and survivor annuity, the type insurance companies typically sell to individuals, income payments are cut upon the death of either spouse. In fact, ignoring gender differences and assuming the same ages, a single life annuity should be priced identically to a joint-and-50 percent-to-survivor annuity, because it is equivalent to two 50 percent single life annuities. Stated another way, a joint and contingent annuity is more expensive, or for the

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<sup>2</sup> The normal retirement age in most private plans is 65, but sometimes it is 55, 62, or 67.

equivalent premium, pays out less, than an otherwise identical joint and survivor annuity paying less than 100 percent.

The DOL observed that there are two main alternative methods to convert an account balance to a stream of income in retirement. The first is a “draw-down” or “systematic withdrawal” approach whereby a fixed dollar amount or fixed percentage (or some combination) of the account is distributed until the account is used up. This is the approach usually discussed by financial planners and investment managers. The second is the annuitization approach, similar to the method insurance companies or traditional pension plans use to determine payment amounts, where the account balance is converted to an immediate life annuity. The DOL chose the second method because of its concern that plan participants be informed of their financial readiness for the entirety of their retired lives, not just, possibly, a portion of it, depending on the outcomes of length of life and asset-return contingencies in the draw-down approach.

The two assumptions in any calculation of annuity cost or value are the interest rate and mortality probabilities. In the somewhat atypical circumstance that the defined contribution plan offered a life annuity as a form of distribution, the proposed rule says that the lifetime income illustration should use the annuity rate or the interest rate and mortality assumptions of that plan option. Otherwise, the DOL indicated that it would demand the following specific assumption to be used as its safe harbor for the interest rate: the 10-year constant maturity Treasury securities rate for the first business day of the last month of the period the statement covers. The DOL chose this rate based on comments from RFI respondents that insurance companies base their life annuity pricing on it. This assumed interest rate will be particularly appropriate and helpful for those participants who are close to retirement and might soon be in the commercial market for an annuity.

The DOL's proposed safe harbor mortality table would be one put out by the IRS and currently used for other pension regulatory purposes. It is based on an even and fixed mix of male and female pensioner mortality, with some projection for longevity improvement experienced since the table's publication and projected for 10 years beyond the annuitization date. The DOL indicated that it was uncertain whether an additional "insurance load" for any more product expenses and adverse selection of mortality risks should be added to the calculation.

For participants who have not yet reached normal retirement age, the pension benefit statement would also show the projected account balance, as well as the lifetime income stream generated by it, assuming retirement occurred at the retirement plan's normal retirement age. A participant's current account balance would be projected to normal retirement age, based on assumed future contribution amounts and investment returns. In a proposed safe harbor, the DOL puts forward a specific set of assumptions for contributions, returns, and inflation. It says that contributions should be assumed to increase from the current annual dollar amount by 3 percent per year, that investments returns are expected to be 7 percent per year, and that a discount rate of 3 percent per year (that is, an assumed inflation rate) should be used to establish the value of the projected account balance in today's dollars. The DOL does not address explicitly what to do with the account of a vested deferred participant—that is, an individual who is no longer working for the plan sponsor but has kept his or her 401(k) account with the sponsor. Presumably, there would be no projection of future contributions in this instance, but lifetime income illustrations would still be calculated on the basis of current and projected account balances.

Table 1 is reproduced from appendix A of the ANPRM. It shows how illustrations would look in a particular individual case, for a participant age 45 in 2012, who is married to someone also age 45, has an account balance of \$125,000, and whose (employer and employee) plan

contributions of \$9,709 were made on the first day of 2012. The normal retirement age for the plan is 65, and contributions are assumed to be made on January 1 each year. The worker is assumed to retire on June 30, 2012. The interest rate for calculating the annuity factor (implicit price) on December 3, 2012, was 1.63 percent, the 10-year constant maturity Treasury rate at that time; the mortality table used was the unisex mortality table published in IRS Notice 2008-85. The resulting single annuity factor is \$5 per \$1,000 account balance. Although the example calls the joint annuity a joint-and-50-percent survivor form, it is actually a joint-and-50-percent contingent form, as explained earlier, which gives a lower annuity factor: \$4.51 per \$1,000 of account balance.

**Table 1. Account Balance on Last Day of Statement Period (December 31, 2012)**

|            |           | Single life form   | Joint-and-50% survivor form     |   |
|------------|-----------|--|---------------------------------|---|
|            |           | Monthly payment during P's life with no survivor benefit | Monthly payment during P's life | Monthly payment to surviving spouse after P's death |
| Current:   | \$125,000 | \$625  | \$564                           | \$282   |
| Projected: | \$557,534 | \$2,788  | \$2,514                         | \$1,257   |

Source: Department of Labor, Employee Benefits Security Administration, 29 CFR Part 2520, RIN 1210-AB20, "Pension Benefit Statements," appendix A (2013).

### ***Public Comments***

The DOL invited comments on its proposal through midsummer 2013 and received more than 120 from individuals, trade groups, investment managers, consultants, insurers, academics, and account administrators.<sup>3</sup> Some comments voiced full-throated support for the proposal, including its technical details. Other comments supported the proposal's basic structure, but suggested improvements at the technical level and responded to the DOL's requests for advice and

<sup>3</sup> See U.S. Department of Labor, Advance Notice of Proposed Rulemaking: Pension Benefit Statements, public comments, <http://www.dol.gov/ebsa/regs/cmt-1210-AB20.html>.

suggestions in specific areas. Still others noted practical issues, such as ease of participants' understanding and ease of plan sponsors' administration. One commenter questioned whether a quarterly or even annual illustration makes sense for participants younger than 55, given the likelihood of projection errors over decades of working lives still to come. And some opposed the requirement that if the plan actually offers an annuity, the illustration should reflect its terms. They argued that many participants can and will choose to go outside the plan for an annuity, or will move from plan to plan over their careers and could become confused by the different bases of illustrations.

Several commenters questioned the appropriateness of the annuity approach, given that so few retired participants actually annuitize. Still other commenters opposed the illustrations' mandatory nature; several asserted that it would stifle innovation and creativity because all plan sponsors would conform to the proposal's narrow safe harbor to avoid fiduciary liability if they were to use alternative approaches. Some even challenged the DOL on the legal basis it claimed for its authority to issue the regulation.

Several commenters saw an inconsistency between projecting account balances through the participant's working years in today's dollars, and also then using a nominal life annuity, rather than an inflation-indexed life annuity, as the basis of illustrations for the retirement period. Some also thought that the assumed 7 percent investment return in this day and age, with very low interest rates, was too rich and too risky and would unduly inflate expected incomes. They suggested instead using a risk-neutral return, such as the current yield on a long-term Treasury bond.

Many objections (as well as agreements) can be understood as self-serving to the commenter's business model or industry. None seemed to be "knockout" objections, and given

the strength of the DOL's assertions and the careful and methodical nature of its deliberations, there seems to be little doubt that the DOL will proceed according to the basic nature of its stated plan. In its 2014 activity plan, the DOL indicated that it expected to issue the next version of its proposal in early 2015.

### **The Social Security Statement**

Since 1988, the Social Security Administration (SSA) has provided workers with personalized and detailed statements of their earnings and estimated benefits. As a result of legislation (P.L. 101-239, the Omnibus Budget Reconciliation Act of 1989), SSA began phasing in the mailing of statements to all workers age 25 and older in February 1995. By October 1, 1999, every worker 25 and older not receiving benefits was getting an annual statement that included an estimated projection of future monthly Social Security retirement, disability, and survivor benefits; the actual amount of the worker's covered wages or self-employment income; and a fairly precise calculation of the worker's aggregate taxes paid toward Social Security and Medicare. Since 2011, however, SSA has suspended all scheduled mailings of the statements, citing budget constraints, and indeed will no longer provide a paper copy upon request. Instead, the statement is now available online through "My Social Security Account." Because of congressional pressure, however, SSA resumed mailing statements in late 2014 to those ages 25, 30, 35, 40, 45, 50, 55, and 60. Those who have signed up for an online account, however, will not get a paper copy.<sup>4</sup>

The statement projects what a worker's retirement benefits will be if the worker chooses to start receiving those benefits at age 62, at the full retirement age (depending on birth cohort,

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<sup>4</sup> See Social Security Administration, "Agency Resumes Mailing Social Security Statements, Encourages People to Create a Secure My Social Security Account to Obtain Their Statement Online, Anytime," press release, September 16, 2014, <http://www.socialsecurity.gov/news/press/releases.html#!/post/9-2014-1>.

now 66 or 67), or at age 70. It does not show spousal benefits because SSA does not know a worker's marital status until benefits are claimed; the spousal benefit is 50 percent of the worker's benefit unless the spouse accrued higher benefits through his or her own account. These projections are based on scheduled benefits, and not the cut in benefits that will occur when the Trust Fund is exhausted in about 20 years. Underlying the projection, SSA assumes no growth in future wages; that is, it assumes that until the benefit start age, the worker will have the same level of earnings in real wage terms as in the more recent of the last two years of earnings before the statement date. If the worker had no earnings in both of the previous two years, SSA assumes no further earnings. SSA further assumes that the current thresholds in the benefit formula known as "bend points" remain constant into the future.

This set of assumptions is conservative. Alternative assumptions used in past statements or in the annual Trustees' Report include an assumed increase in real wages of 1 percent each year, or that wages follow an age-graded trajectory observed in historical data of individual earnings records. Nonetheless, according to an empirical analysis using detailed historical data on thousands of individual records conducted by the Social Security Advisory Board (2009), SSA's projected method and assumptions for estimating retirement benefits produced estimates for workers older than 45 that were close to actual benefits accrued through age 62. For median workers of various ages, actual benefits were only significantly below projected benefits for workers younger than 30. The projections are less accurate for women and for low-income workers, especially those with at least two recent years of zero earnings. (Women and low-income workers commonly have more variable participation in the labor force and it is therefore harder to project their benefits.)

The Social Security Advisory Board, in its 2009 report and reconfirmed in a 2013 position paper (Social Security Advisory Board (2013)), has recommended several improvements and additions to the statement. Among them are that an estimate be added to the statement of the accrued retirement benefit for all workers, but especially for younger workers, on the presumption that they may stop working. This estimate with the current projected benefit may be thought to provide workers with a full range of possible retirement-income benefit outcomes from Social Security. The board also recommended that older workers receive statements more frequently than every five years; it suggested that the statement be mailed every five years to workers ages 25 to 44, every three years to those ages 45 to 54, and every two years to those ages 55 to 59. Finally, the board suggested that older workers be shown a matrix of projected retirement benefits for various combinations of retirement (cessation of work) and claiming ages. The board did not believe it was necessary to show younger workers the projected benefits at three different retirement ages, given the great uncertainties involved at longer horizons.

To summarize the relevant points of comparison to the DOL's proposed rule, SSA

1. shows projected monthly retirement benefits at three different claiming ages;
2. makes generally conservative assumptions about future wages, but does assume that the worker will continue to have earnings at the current level until retirement—that is, the calculations do not represent accrued benefits but projected benefits, including those already accrued and those expected to be accrued;
3. estimates benefits just for the worker, and does not include spousal benefits or projected benefits earned and to be earned by a spouse;
4. shows projected retirement benefits in real dollars; and



5. provides the estimates every five years, according to reported agency plans, just before quinquennial birthdays.

### **Conceptual Suggestions for Improvements in the DOL Proposal**

The following are my suggestions for improving the DOL proposal to be more consistent with the Social Security statement and current market practices, to improve public policy results, to heighten clarity and usability, and to reduce the burden on plan sponsors.

It is true that the market for inflation-indexed life annuities in the United States is small and likely more expensive in terms of a loading factor than the market for nominal annuities (see Finkelstein and Poterba (2004)), probably mainly because adverse selection is more severe with inflation-indexed annuities whose benefits increase with age. (A loading factor refers to the extra amount that an insurance company may charge for a product given extra expenses and costs beyond the basic charges.) Nevertheless, the conceptually correct approach for the DOL rule is to show current and projected income from an inflation-indexed immediate life annuity. This approach is consistent with how the Social Security statement presents retirement benefits. Moreover, according to survey evidence collected by Beshears et al. (2014), retirees prefer inflation indexing or even real increases in their annuity benefits to flat nominal payments. More importantly, this approach is internally consistent with the DOL rule in the accumulation phase, where balances are discounted for inflation. The retiree and the retiree's household should be concerned with what the account balance will produce to support spending (adjusted for cost of living) during a perhaps long-horizon retirement, which is best understood for planning purposes in current dollars.

It is easy for the DOL to change the safe harbor rule from using the 10-year Treasury rate to the 10-year Treasury Inflation-Protected Securities (TIPS) rate. TIPS trade in a liquid market, and therefore their rate accurately represents current market conditions and future inflation expectations.<sup>5</sup>

Whether a load should be added to the calculation is a good question with countervailing considerations. On the one hand, an accurate representation of the actual expectations for the particular product being modeled is appropriate. On the other hand, few retirees will actually use an inflation-indexed life annuity. Rather, the DOL illustration is a logical framework for evaluating all sorts of retirement-income products and strategies, and while the inflation-indexed life annuity is the correct frame of reference to use, a load may not be necessary. I favor the use of a loading factor for an inflation-indexed life annuity, based on the first consideration.

As the next section shows, there is no doubt that an inflation-indexed annuity produces less initial income than a nominal annuity. Some might make the condescending argument that this apparent reduction will scare and disappoint workers who might, as a result, give up their contributions to the retirement account in despondency of ever achieving retirement security. But most workers would likely prefer to be knowledgeable and informed accurately than be fools in retirement paradise.

Some plan sponsors, but not all, will know whether their employees are married. According to general data from the Census Bureau, most workers are or will be married. Hence, it is appropriate to show both single life and joint annuity income rates, but not just for married workers. Rather, this standard should apply to all workers.

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<sup>5</sup> Because TIPS indexing is based on the consumer price index (CPI) and some people question whether the CPI accurately represents changes in the cost of living over time, whether too high or too low, this recommendation might be somewhat controversial. The DOL regulation, however, is the not place to solve this question, and certainly measurements using the CPI are subject to intense government effort and external scrutiny.

As explained earlier, the joint annuity used by the DOL is a joint-and-50-percent contingent annuity. This type of annuity is not available in the commercial insurance market. Nor is it clear that it is the right illustration for public policy purposes: Why should the worker be assumed to have higher spending needs than a surviving spouse? Rather, the DOL should use a joint-and-67-percent-to-survivor life annuity. This type is available in the market (as indicated by the annuity data shown in table 4) and is consistent with the spousal benefit rules of Social Security and with general notions of scale economies in consumption for couples in contrast to singles. It also gives equal weight to both spouses' retirement spending needs.

In contrast to marital status, most employers do know their workers' gender. In the commercial annuity market, with the exception of Montana, life annuities are priced on a gender-distinct basis. In contrast, life annuities that are part of the investment menu or benefit provisions of the retirement plan are, by law, "priced" on a gender-neutral basis.<sup>6</sup> The DOL rule requires that the illustration use the plan's annuity rates if annuities are available, and therefore these rates will be gender neutral. But if there is no annuity in the plan, market reality would suggest that the DOL illustration be done on a gender-distinct basis, and not, as the proposal has it, on a gender-neutral basis. A gender-distinct illustration presumably would assume that the worker's survivor would be of the opposite gender, even though that is not universally true. Political and cultural sensitivities may account for the DOL's stance, but market and demographic realities should trump, so a gender-distinct basis should be used and opposite-gender couples assumed.

That being said, it probably is reasonable for the DOL to assume in its illustration that each spouse is the same age, despite the experience that the husband is, on average, three years

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<sup>6</sup> Arizona Governing Comm. v. Norris, 463 U.S. 1073 (1983).

older than his wife. Average experience covers up a wide range of situations; it is unreasonable for the DOL standard to reflect the range of experience fully in a simple illustration.

The DOL proposal, the Social Security statement, and most annuity quotes in the commercial market give monthly income. Yet it is rare for workers to have their earnings denominated in monthly terms; rather, most workers negotiate for and think of their compensation in terms of an annual salary or hourly wage. Similarly, income taxes are trued up on an annual basis, as are bonuses and commissions. Even the Social Security statement reports earnings on an annual basis. It is also consistent with the results for systematic withdrawal rules, a common method used by financial advisors to distribute retirees' assets, which are generally calculated on an annual basis. Therefore, I recommend that the DOL change its income illustration to be on an annual basis.

Finally, the DOL proposes that the income illustration be done with the same frequency as the statement of account balances, usually quarterly and sometimes monthly. One must ask whether this is too frequent for the statement's education purpose, particularly for younger workers. An annual illustration should be more than sufficient, even for older workers, and would not be subject to the sometimes frequent changes in illustrated annuity income resulting from the natural, but somewhat misleading and confusing, volatility of interest rates and annuity prices over shorter time periods. This annual frequency is also broadly consistent with the Social Security Advisory Board's 2009 recommendation to provide annual statements to workers older than 55 and less frequent statements to younger workers. This view assumes that the illustrations will be distributed directly to employees on a periodic basis in a formal way, by mail or email, and not just made passively available. Nothing should prevent the plan sponsor from making

available to participants a secure website that would show, on a personalized basis, more frequent updates of the income illustrations.

The DOL proposal to show both accrued and projected retirement benefits is also consistent with the Social Security Advisory Board's 2009 suggestions, if not with the current Social Security statement, and is reasonable. That being said, the 7 percent assumed investment return to project the account balance seems too high, as it assumes too much risk taken and is inconsistent with the investment profile underlying annuity pricing, which is less risky. Illustrating several retirement ages, while consistent with the Social Security statement, would probably burden the worker reading the retirement plan statement. Therefore, the DOL's proposal to use just the plan's normal retirement age is also reasonable in the interest of simplicity, especially for younger workers. The DOL might consider an allowance in its regulation for different illustration regimes by age of worker, whereby a more finely articulated, accurate, and specific model would be used for workers close to or past normal retirement age in order to accommodate specific planning for retirement income and evaluation of various income products and strategies.

Finally, many plan participants eventually aggregate their qualified retirement plan assets accumulated among several employers and roll them over into individual retirement accounts (IRAs), where DOL rules, which govern only plan sponsors, do not apply. Because these rollovers often occur at the point of retirement, it is a reasonable view that retirement-income illustrations should also be required of IRA record keepers, such as banks and mutual fund companies. The concept of the plan's normal retirement age would not apply to IRAs and therefore should be a universal age, such as the normal Social Security retirement age.

## **Empirical Analysis**

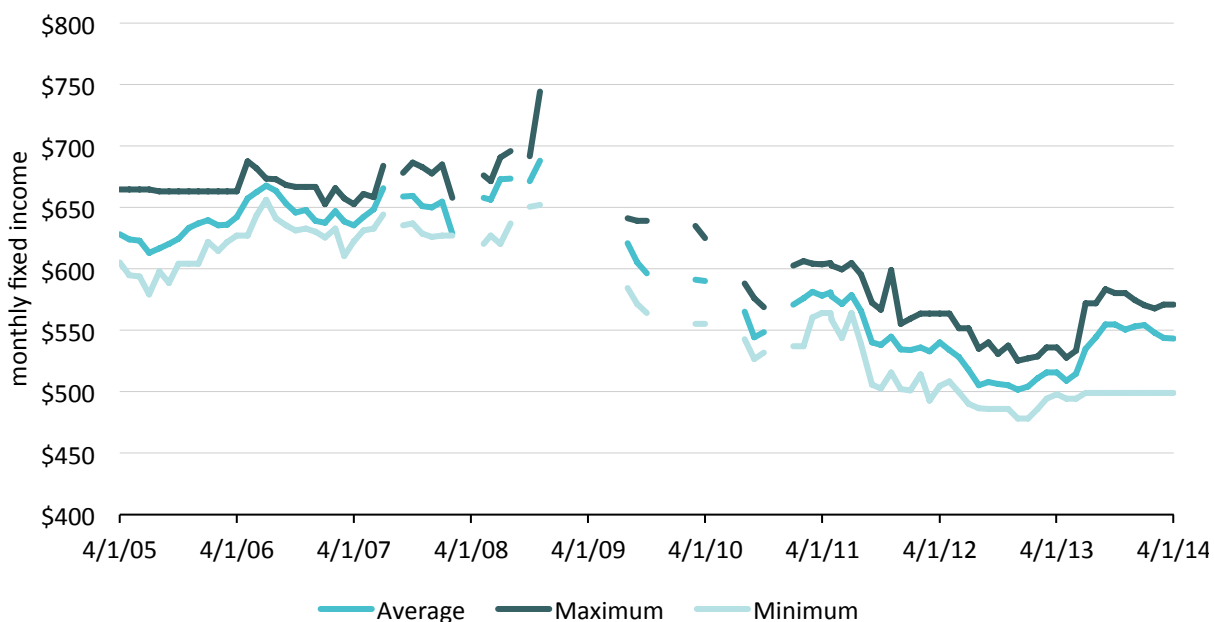
This section will first answer the DOL's question of whether a load is needed in its calculation of the nominal life annuity. Then it will examine the DOL illustration's behavior in a range of historical annual market conditions, to indicate the levels and variability of initial annual income to be expected. Then I will evaluate, feature by feature, the enhancements suggested earlier to improve the income illustration's relevance. I will focus on the implications of a change to an annuity factor using the inflation-indexed life annuity as the base, including whether a load is needed in that calculation.

I will first look at the monthly market data on lifetime guaranteed income from joint-and-50-percent-to-survivor fixed life annuities sold for \$100,000 to 65-year-old couples in Alabama from May 2005 through April 2014. The data source, CANNEX, an electronic insurance broker, gives fixed monthly incomes for life annuities sold by 9 to 19 large insurance companies in the United States. Figure 1 shows the average, maximum, and minimum fixed nominal monthly benefits from life annuities sold at the beginning of the month by these companies.

Before the financial crisis in 2008, monthly fixed income on newly issued \$100,000 immediate life annuities was about \$625–\$650 on average across companies. Although data availability then becomes somewhat sporadic for a couple of years (owing to programming problems at the vendor), indications are that income increased at the beginning of the crisis in late 2008, perhaps as insurance companies wanted to attract anxious investors and capture market share. Fixed lifetime incomes then began falling as long-term interest rates kept declining. By late fall 2012, average fixed lifetime monthly income was around \$500; more recently it has recovered to around \$550. The lowest and highest incomes quoted by insurance companies reported in the dataset generally follow the averages, albeit with some noise and

occasional lags. Over the time period, the highest-income annuity gives 4.6 percent more than the average income annuity. This advantage may reflect the benefit of shopping around, other marketing considerations, or perhaps that a smaller or higher-risk issuer is trying to attract customers.

**Figure 1. Monthly Fixed Income from Life Annuities Issued to 65-Year-Old Alabama Couples, Commercial Market, 2005–2014**



Source: Author’s calculations based on CANNEX monthly data for a joint-and-50-percent-to-survivor life annuity for 65-year-old couple.

I next summarize the average company monthly fixed nominal lifetime income on various immediate annuities issued monthly, averaged over the 2005–2014 period. As table 2 shows, women get about 93 percent of the income men get, for the same premium payment and beginning age, because women live significantly longer than men. Income from a joint-and-50-percent-to-survivor annuity is about midway between the male and female income levels—about equivalent to a gender-neutral pricing basis. Those who retire early at age 60 get about 90

percent of the fixed level of income received by those who begin payouts at age 65, again because of the longer expected payout period. Those who start at age 70 get about 114 percent of the fixed income that those who start at 65 receive.

**Table 2. Average Issuer Company Monthly Fixed Nominal Lifetime Income from Various Single-Premium Immediate Annuities, Monthly Issues Averaged over 2005–2014**

| Beginning age    | Single life |          | Joint & 50% to survivor | Joint & 100% to survivor |
|------------------|-------------|----------|-------------------------|--------------------------|
|                  | Male        | Female   |                         |                          |
| 65               | \$615.87    | \$573.81 | \$581.22                | \$502.32                 |
| 60               | 542.17      | 512.07   | 524.02                  |                          |
| 70               | 691.54      | 636.61   | 661.54                  |                          |
| 65, \$250,000 SP | 1,509.00    | 1,408.28 | 1,453.68                |                          |

Source: Author’s calculations based on CANNEX monthly data. Unless otherwise stated, the single premium is \$100,000 and the life annuity is straight. SP means single premium.

There are no apparent amount (volume) discounts in annuity purchases because the income per dollar premium paid is almost identical for \$100,000 and \$250,000 single-premium life annuities. Finally, getting a joint-and-100-percent-to-survivor annuity significantly reduces the fixed nominal lifetime income received for the same beginning age owing to the longer expected payout period for two lives at the same income level. These results are expected to hold universally across time and across issuers owing to the actuarial mathematics of the pricing problem. Because there are usually economies of scale in living expenses (housing, for example), it may not be necessary for the couple to reduce their income by buying such an expensive life annuity.

Now I will compare the results from the model of annuity income, consistent with the safe harbor DOL methodology using mandated mortality tables and interest rates, with market quotes. I convert the market quotes from monthly to annual income to be consistent with my earlier recommendation that an annual reporting basis is best. The conversion is done by a standard actuarial formula. Because joint and contingent annuities are not available in the commercial market, I use the general DOL approach to price the joint and survivor annuity on a



gender-neutral basis. The DOL-consistent model for annuity income is run based on experience and conditions through the beginning of the year, generally around January 15, so for the annuity incomes, I compare February 1 market quotes, as table 3 shows.

**Table 3. Comparing Department of Labor–Consistent Model and Actual Market Annuity Pricing for \$100,000 Purchases in 2005–2013 of a Joint-and-50-Percent-to-Survivor Life Annuity for a Couple Age 65**

| February 1, year  | Annual life annuity benefit (nominal) |                               | Market-to-model ratio |
|-------------------|---------------------------------------|-------------------------------|-----------------------|
|                   | Model <sup>(a)</sup>                  | Market average <sup>(b)</sup> |                       |
| 2005              | \$7,435                               | \$7,240                       | 0.97                  |
| 2006              | 7,566                                 | 7,318                         | 0.97                  |
| 2007              | 7,788                                 | 7,450                         | 0.96                  |
| 2008              | 7,126                                 | 7,251                         | 1.02                  |
| 2009              | 6,355                                 | 7,484                         | 1.18                  |
| 2010              | 7,119                                 | 6,830                         | 0.96                  |
| 2011              | 6,902                                 | 6,663                         | 0.97                  |
| 2012              | 6,017                                 | 6,215                         | 1.03                  |
| 2013              | 5,980                                 | 5,935                         | 0.99                  |
| 2005–2013 average |                                       |                               | 1.01                  |

Sources: DOL-consistent model, author’s calculations; market model, adjusted CANNEX monthly data.

(a) Based on 2013 IRS projected annuitant mortality table and historical yields on 10-year Treasury bonds (constant maturity).

(b) 2005 observation is for April 1. Market average is based on contemporaneous quotes of 9 to 19 large US insurance companies. Monthly benefits quoted are converted to annual by actuarial formula:  $A = (12 \times M) / (1 + ((6.5 \times M) / 100000))$ .

In general, the DOL-consistent model estimate and market average fixed lifetime incomes are quite close, with the average market quote just above, or, more often, just below the model. During the unsettled conditions of the financial crisis, however, the market was more substantially above the model results. Over the entire 2005–2013 period, the market adjustment factor is 1.01. This is close enough to 1.00, and the DOL-consistent annuity model seems to work fairly well in most market conditions, so I can confidently advise the DOL that it does not need to add a load in its nominal annuity income calculations.

Now I will examine the DOL illustration using historical annual data from 1919 through 2013. I model a joint-and-50-percent contingent annuity, exactly as proposed by the DOL, as well as a joint-and-67-percent contingent and a joint-and-100-percent contingent annuity. Using percentiles, I show the range of fixed nominal annual incomes for three different normal retirement ages—65, 62, and 67—that will be illustrated based on the historical changes in the rates on 10-year constant maturity Treasury bonds. Mortality expectations are fixed at current rates and are based on the current mortality table contained in the DOL proposal (see table 4).

As the top panel shows, a \$100,000 account balance will be expected to generate, on average, about \$6,900 in annual income for a 65-year-old gender-neutral retiree. A joint-and-50-percent contingent annuity will be illustrated to produce about \$6,400 in annual income for a 65-year-old couple. The range of historical experience (that is, from the 10th percentile to the 90th) is from about \$6,000 to \$8,000 in annual income for a single life annuity given to the 65-year-old. This range does not seem too volatile, and therefore the DOL can feel confident that the illustrations, at least if done annually, will be fairly stable.

The next two panels in table 4 show two other retirement ages: 62, a sometimes-used normal retirement age for plans given to professionals, and 67, the soon-to-be normal retirement age for Social Security. Although it probably is best to use the plan's own normal retirement age, which is, after all, the employer's design and expectation for its workers, a decent case could be made that retirement-income illustrations should be uniformly consistent with the national retirement program, Social Security, and use age 67. Looking just at the means of historical experience for the annual fixed income produced by a single life annuity, according the DOL standard, a retirement age of 67 shows an average of about \$7,300 annual income, \$400 more

than income with retirement at age 65, whereas a younger retirement age of 62 illustrates a lower average retirement income, \$6,400, or \$500 less than at age 65.

**Table 4. DOL Immediate Life Annuity, Summary Statistics for Fixed Annual Income, Based on Range of Annual Historical Experience, 1919–2013, Single Life and Joint-and-Contingent, Gender-Neutral Basis**

| Percentile      | Normal retirement at age 65                   |         |            |          |
|-----------------|---|---------|------------|----------|
|                 | S/L   | 50% J&C | 66.67% J&C | 100% J&C |
| Mean            | \$6,935                                       | \$6,372 | \$6,204    | \$5,894  |
| 10th percentile | 6,094   | 5,547   | 5,386      | 5,089    |
| 25th percentile | 6,368   | 5,800   | 5,632      | 5,325    |
| Median          | 6,944   | 6,365   | 6,193      | 5,876    |
| 75th percentile | 7,377   | 6,796   | 6,626      | 6,309    |
| 90th percentile | 8,101   | 7,527   | 7,353      | 7,029    |
|                 | Retirement at age 62 (early Social Security)  |         |            |          |
|                 | S/L   | 50% J&C | 66.67% J&C | 100% J&C |
| Mean            | \$6,407                                       | \$5,937 | \$5,795    | \$5,531  |
| 10th percentile | 5,562   | 5,102   | 4,965      | 4,713    |
| 25th percentile | 5,817   | 5,341   | 5,199      | 4,937    |
| Median          | 6,398   | 5,913   | 5,767      | 5,497    |
| 75th percentile | 6,843   | 6,368   | 6,224      | 5,956    |
| 90th percentile | 7,591   | 7,114   | 6,969      | 6,694    |
|                 | Retirement at age 67 (normal Social Security) |         |            |          |
|                 | S/L   | 50% J&C | 66.67% J&C | 100% J&C |
| Mean            | \$7,346                                       | \$6,712 | \$6,524    | \$6,179  |
| 10th percentile | 6,505   | 5,892   | 5,713      | 5,383    |
| 25th percentile | 6,795   | 6,157   | 5,970      | 5,628    |
| Median          | 7,366   | 6,718   | 6,526      | 6,172    |
| 75th percentile | 7,803   | 7,140   | 6,943      | 6,588    |
| 90th percentile | 8,498   | 7,851   | 7,657      | 7,295    |

Source: Author's calculations.

Table 5 shows the annual fixed nominal income from joint and survivor (rather than joint and contingent) life annuities issued to 65-year-olds, with various percentages paid to the survivor, still on a gender-neutral basis.

**Table 5. DOL Immediate Life Annuity, Normal Retirement at Age 65, Single Life and Joint-and-Survivor, Gender-Neutral Basis**

| Percentile      | S/L     | 50% J&S | 66.67% J&S | 100% J&S |
|-----------------|---------|---------|------------|----------|
| Mean            | \$6,935 | \$6,935 | \$6,549    | \$5,894  |
| 10th percentile | 6,094   | 6,094   | 5,719      | 5,089    |
| 25th percentile | 6,368   | 6,368   | 5,978      | 5,325    |
| Median          | 6,944   | 6,944   | 6,547      | 5,876    |
| 75th percentile | 7,377   | 7,377   | 6,976      | 6,309    |
| 90th percentile | 8,101   | 8,101   | 7,709      | 7,029    |

Source: Author's calculations.

On a gender-neutral basis, a single life annuity and joint-and-50-percent-to-survivor life annuity provide the same annual income. This result is logical because this type of joint annuity is equivalent to two half-value single life annuities. But a 50-percent-to-survivor life annuity, for most individuals, would represent too severe a cut in income upon the death of a spouse, even considering economies of scale in consumption. Rather, a joint-and-67-percent-to-survivor life annuity is a more reasonable approach, and indeed, the annual income it produces when both spouses are alive is roughly equivalent to, but consistently higher across experience outcomes than, the joint-and-50-percent contingent life annuity proposed by the DOL. The joint-and-100-percent contingent annuity and the joint-and-100-percent-to-survivor annuity provide the same income for the same premium, as expected, as shown respectively in the last columns of tables 4 (top panel) and 5.

When calculated on a gender-distinct basis, as available in the market and therefore appropriate for the DOL standard, the annual income to male retired workers will be higher than

the annual income on a gender-neutral basis, and certainly than the annual income to female workers, because of men’s lower life expectancy. This is evident in the table 6, where the upper panel shows a male retired worker and the lower panel shows a female retired worker, each with surviving spouses of the opposite gender and identical age at retirement. At the mean, a single man gets about \$400 more in annual income than a single woman. As is logical, the joint and survivor annuities give nearly identical annual incomes, whether on a gender-neutral or gender-distinct basis (compare the last column in tables 5 and 6).

**Table 6. DOL Immediate Life Annuities**

| Percentile      | Normal retirement at age 65<br>male worker, opposite-gender spouse   |         |            |          |
|-----------------|--|---------|------------|----------|
|                 | S/L  | 50% J&S | 66.67% J&S | 100% J&S |
| Mean            | \$7,115  | \$6,919 | \$6,530    | \$5,871  |
| 10th percentile | 6,281  | 6,076   | 5,697      | 5,064    |
| 25th percentile | 6,562  | 6,349   | 5,956      | 5,299    |
| Median          | 7,132  | 6,928   | 6,527      | 5,851    |
| 75th percentile | 7,563  | 7,361   | 6,959      | 6,287    |
| 90th percentile | 8,266  | 8,088   | 7,694      | 7,010    |
| Percentile      | Normal retirement at age 65<br>female worker, opposite-gender spouse |         |            |          |
|                 | S/L  | 50% J&S | 66.67% J&S | 100% J&S |
| Mean            | \$6,734  | \$6,919 | \$6,530    | \$5,871  |
| 10th percentile | 5,884  | 6,076   | 5,697      | 5,064    |
| 25th percentile | 6,150  | 6,349   | 5,956      | 5,299    |
| Median          | 6,734  | 6,928   | 6,527      | 5,851    |
| 75th percentile | 7,171  | 7,361   | 6,959      | 6,287    |
| 90th percentile | 7,917  | 8,088   | 7,694      | 7,010    |

Source: Author’s calculations.

I next examine the most important suggested change to the DOL illustration: moving from a nominal fixed life annuity to an inflation-indexed life annuity. For now, I will set the insurance load to zero; I investigate later whether, and if so how large, a load will be needed by comparing DOL-consistent model results and market prices. Because inflation-indexed bond

interest rates were not available until the advent of consistent issuance of TIPS in the mid-2000s, I estimate the relationship between daily yields on nominal 10-year Treasury and TIPS bonds for nearly the last 10 years (using a simple regression from January 3, 2005, through June 9, 2014) and apply that relationship to the historical Treasury yield record to approximate what yields on TIPS bonds would have been from 1919 forward. The regression is as follows:

$$\text{TIPS yield} = -1.8 + 0.88 \times \text{nominal Treasury yield},$$

with the coefficients highly significant.

A simple interpretation of the regression is that the expected inflation rate for this period was 1.8 percent, and that there was a bit more stability in the TIPS yield than in the Treasury yield. The *R*-squared for this regression is 0.84, a good result indicating a tight fit, and the difference between actual and regressed is generally small, except during the depth of the global financial crisis in late 2008. At that time, the yield on TIPS was unusually high, in relative terms, or the yield on the nominal Treasury bond was unusually low. As mentioned earlier, it is necessary to estimate the TIPS yields in order to do long-range historical simulations of the inflation-indexed annuity prices. Admittedly, this procedure is not as “tight” as the earlier simulations, but it should give an unbiased estimate.

Using the resulting estimates of historical TIPS yields, I calculate the historical range of annual incomes produced by an inflation-indexed life annuity, on a gender-distinct basis, as table 7 shows. The initial level of income is about 20 percent lower for the inflation-indexed annuity than for the nominal fixed annuity, but the income from the inflation-indexed annuity will increase at the same rate as general price inflation. Moreover, as already inferred, the volatility of outcomes, even initially, is somewhat lower with the inflation-indexed annuity, at a range of about \$1,500 from the 10th to 90th percentiles, compared with about \$2,000 for the nominal annuity.

**Table 7. DOL Immediate Inflation-Indexed Life Annuity, Normal Retirement at Age 65, Male Worker, Opposite-Gender Spouse**

| Percentile      | S/L     | 50% J&S | 66.67% J&S | 100% J&S |
|-----------------|---------|---------|------------|----------|
| Mean            | \$5,872 | \$5,656 | \$5,281    | \$4,662  |
| 10th percentile | 5,205   | 4,983   | 4,620      | 4,033    |
| 25th percentile | 5,319   | 5,099   | 4,733      | 4,140    |
| Median          | 5,715   | 5,497   | 5,123      | 4,509    |
| 75th percentile | 6,189   | 5,977   | 5,593      | 4,957    |
| 90th percentile | 6,788   | 6,583   | 6,190      | 5,531    |

Source: Author's calculations.

Finally, I evaluate whether an insurance load is needed in the DOL-mandated assumptions for an improved DOL illustration of the inflation-indexed life annuity annual income flow. I have bimonthly data from CANNEX on the market prices of inflation-indexed joint-and-50-percent-to-survivor life annuities issued to 65-year-old couples from 2013 through mid-2014. I also estimate the DOL-consistent model using actual yields on 10-year TIPS. One might expect that the load on an inflation-indexed product would be larger than on a nominal product because the underlying investments are much more varied and sophisticated with a nominal product whereas the TIPS bond is essentially the only investment available for the inflation-indexed product. Moreover, because there are so few issuers of inflation-indexed annuities in the United States, competitive forces are weaker. As mentioned earlier, adverse selection of mortality risks, whereby people with impaired longevity avoid annuities, is likely to be more severe with inflation-indexed annuities because of the back-loaded nature of payments. The expectation of this adverse selection raises the price charged. Indeed, as table 8 shows for mid-month observations, the load is much higher, at about 12 percent. (Also note that current rates are low, according to the model, in the historical 10th percentile or less.)

**Table 8. Comparing DOL-Consistent Model and Actual Market Annuity Pricing, \$100,000 Purchases in 2013 through Mid-2014 of a Joint-and-50-Percent-to-Survivor Life Annuity for a Couple Age 65**

| Mid-month                | Annual life annuity benefit (inflation-indexed) |                               |                       |
|--------------------------|---|-------------------------------|-----------------------|
|                          | Model <sup>(a)</sup>                            | Market average <sup>(b)</sup> | Market-to-model ratio |
| February 2013            | \$4,565   | \$4,038                       | 0.88                  |
| March 2013               | 4,554   | 4,056                         | 0.89                  |
| April 2013               | 4,483   | 3,990                         | 0.89                  |
| May 2013                 | 4,609   | 4,042                         | 0.88                  |
| June 2013                | 4,876   | 4,249                         | 0.87                  |
| July 2013                | 5,024   | 4,535                         | 0.90                  |
| August 2013              | 5,248   | 4,498                         | 0.86                  |
| September 2013           | 5,318   | 4,663                         | 0.88                  |
| October 2013             | 5,144   | 4,565                         | 0.89                  |
| November 2013            | 5,196   | 4,524                         | 0.87                  |
| December 2013            | 5,277   | 4,584                         | 0.87                  |
| January 2014             | 5,190   | 4,562                         | 0.88                  |
| February 2014            | 5,196   | 4,512                         | 0.87                  |
| March 2014               | 5,132   | 4,575                         | 0.89                  |
| April 2014               | 5,144   | 4,537                         | 0.88                  |
| May 2014                 | 5,109   | 4,484                         | 0.88                  |
| June 2014                | 5,087   | 4,378                         | 0.86                  |
| 2013 to mid-2014 average |   |                               | 0.88                  |

Sources: DOL-consistent model, author's calculations; market model, adjusted CANNEX monthly data.

(a) Based on 2013 IRS projected annuitant mortality table and historical yields on 10-year TIPS (constant maturity).

(b) Market average is based on contemporaneous quotes of two or three US insurance companies. Monthly benefits quoted are converted to annual by actuarial formula:  $A = (12 \times M) / (1 + ((6.5 \times M) / 100000))$ .

With such a large load, I reestimate the DOL-consistent model to produce the suggested illustration of inflation-indexed life annuity annual income, on a gender-distinct basis, using gender-distinct survivor annuities, as table 9 shows. The results indicate the expected level and variation of the retirement-income illustrations of an amended and improved DOL rule, according to my recommendations.



**Table 9. DOL Immediate Inflation-Indexed Life Annuity, with Load, Normal Retirement at Age 65, Male Worker, Opposite-Gender Spouse**

| Percentile      | S/L     | 50% J&S | 66.67% J&S | 100% J&S |
|-----------------|---------|---------|------------|----------|
| Mean            | \$5,242 | \$5,050 | \$4,715    | \$4,162  |
| 10th percentile | 4,647   | 4,449   | 4,125      | 3,601    |
| 25th percentile | 4,749   | 4,552   | 4,226      | 3,696    |
| Median          | 5,102   | 4,908   | 4,574      | 4,026    |
| 75th percentile | 5,526   | 5,337   | 4,994      | 4,426    |
| 90th percentile | 6,061   | 5,877   | 5,527      | 4,938    |

Source: Author's calculations.

## Conclusions

The DOL is to be commended for proposing an illustration of the retirement income producible from the assets in a personal retirement account through an immediate life annuity. Its proposal, however, can be improved in the following ways:

- It should show income on an annual rather than a monthly basis.
- It should show individual and joint-and-67-percent-to-survivor life annuity rates at the normal retirement age to all workers, rather than individual and joint-and-50-percent contingent rates just to married workers.
- It should use a gender-distinct rather than a gender-neutral basis (unless the plan offers a gender-neutral annuity).
- The illustration need not be provided more frequently than annually.
- Most importantly, it should reflect an inflation-indexed life annuity (with a load) rather than a nominal fixed annuity (for which a load is not needed).

These improvements would be more consistent with important policy goals, the annual Social Security statement, good economic logic, empirical evidence, and greater public understanding.

## References

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