Description of document:	5 (five) studies/reports provided to the Employee Benefits Security Administration (EBSA) by the Advanced Analytical Consulting Group under contract #DOLOPS14D0021, 2015-2016
Requested date:	2019
Release date:	01-October-2019
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Source of document:	U.S. Department of Labor Employee Benefits Security Administration Public Disclosure Room 200 Constitution Avenue, NW, Suite N-1515 Washington, DC 20210 Email: foiarequests@dol.gov

U.S. Department of Labor

Employee Benefits Security Administration
Washington, D.C. 20210

OCT - 1 2019

This letter is in response to your Freedom of Information Act request number ***F2019-882722*** addressed to the U.S. Department of Labor (DOL). Your request was assigned to the Employee Benefits Security Administration (EBSA) for response. You requested copies of studies or reports provided to EBSA by the Advanced Analytical Consulting Group since January 1, 2015.

The EBSA has searched its files in the National Office and has located approximately 343 records/pages responsive to your request. Enclosed are the discloseable studies/reports associated with contract #DOLOPS14D0021; approximately 220 pages.

- DOLOPS15T00175 – Innovations and Trends in Annuities: Qualifying Longevity Annuity Contracts

- DOLOPS15T00186 – Review of Selected Studies and Comments in Response to the Department of Labor's Conflict of Interest 2015 Proposed Rule and Exemptions; Rates of Return of Broker-Sold and Direct-Sold Mutual Funds

- DOLOPS15T00168 – Financial Risks due to Long-term Care

- DOLOPS15T00059 – Comments on a Review of a White House Report on Conflicted Investment Advice;
  Target Populations of State-Level Automatic IRA Initiatives

- DOLOPS14T00093 – Implications of Expanded Annuitization for Old-Age Well-Being

However, Exemption 5 (5 U.S.C. § 552(b)(5)) of the FOIA has been applied to the studies/reports relating to Delivery Order numbers 1605DC17T00036, DOLOPS16T00141 and DOLOPS15T00158. Under Exemption 5, staff opinions, conclusions, recommendations, and mental impressions contained in the internal documents, which reflect the deliberative process preceding the issuance of a final agency determination, may be withheld. With respect to the specific portions of the records being withheld, it has been determined that the release of such records would cause foreseeable harm to the deliberative process by having a chilling effect on pre-decisional staff communications which require total candor and confidentiality.

Also, under FOIA Exemption 7(E) the study/report relating to Delivery Order number DOLOPS16T00140 is being withheld in its entirety. FOIA Exemption 7(E) (5 U.S.C.

552(b)(7)(E)) permits the withholding of "records or information compiled for law enforcement purposes… [which] would disclose techniques and procedures for law enforcement investigations or prosecutions." Exemption 7(E) specifically protects techniques or procedures used for law enforcement investigations or prosecutions if disclosure could reasonably be expected to risk circumvention of the law. We believe that release of these records could reveal investigative techniques and could result in circumvention of the law.

If you would like to discuss any aspect of your request please do not hesitate to contact the EBSA's FOIA Coordinator, Kathy Hoover at *hoover.kathy@dol.gov* or the DOL FOIA Public Liaison, Thomas Hicks, by email at *hicks.thomas@dol.gov*. Alternatively, you may contact the Office of Government Information Services (OGIS) within the National Archives and Records Administration (NARA) to inquire about the mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road, College Park, MD 20740-6001. You can also reach that office by e-mail at *ogis@nara.gov*, by phone at 202-741-5770, by fax at 202-741-5769, or by calling toll-free at 1-877-684-6448.

You may administratively appeal by writing to the Solicitor of Labor within 90 days from the date of this letter if you are not satisfied with the response to this request. The appeal must state in writing the grounds for the appeal, and it may include any supporting statements or arguments, but such statements are not required. In order to facilitate processing of the appeal, please include your mailing address and daytime telephone number, as well as a copy of the initial request and copy of this letter. The envelope and letter of the appeal should be clearly marked "Freedom of Information Act Appeal." Any amendment to the appeal must be made in writing and received prior to a decision. The appeal should be addressed to the Solicitor of Labor, Division of Management and Administrative Legal Services, U.S. Department of Labor, 200 Constitution Avenue, NW, Room N2420, Washington, DC 20210. Appeals may also be submitted by email to *foiaappeal@dol.gov*. Appeals submitted to any other email address will not be accepted.

Sincerely,

Mark B. Connor
Director, Office of Outreach, Education and Assistance

Enclosures

ADVANCED ANALYTICAL
CONSULTING GROUP

Deloitte.

Innovations and Trends in Annuities: Qualifying Longevity Annuity Contracts (QLACs)

October 24, 2016

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SUMMARY

The recent shift from defined benefit (DB) to defined contribution (DC) pensions reduced lifelong guaranteed income for many American workers. Qualifying Longevity Annuity Contracts (QLACs) offer a potential way to secure income for older ages while limiting retirees' exposure to investment risks. QLACs are deferred longevity annuities, i.e., contracts between individuals and insurance companies in which the insurance company promises lifelong monthly benefits starting at a future date in exchange for a lump sum premium payment. The Internal Revenue Service (IRS) defined QLACs and made them eligible for certain fiscal benefits in 2014. The market for QLACs is therefore still in its infancy.

This document first explains QLACs and similar financial products. To qualify as a QLAC, the interest rate must be fixed for the entire accumulation period, benefit payments must start at or before age 85, the premium must be paid from an Individual Retirement Account (IRA) or defined contribution (DC) plan, and the premium must not exceed the lesser of $125,000 or 25% of the source balance. An advantage of QLACs over other longevity annuities is that the premium is disregarded for the purpose of required minimum distribution (RMD) rules, which stipulate that individuals must start withdrawing at least certain minimum amounts starting at age 70½.

We document sales of various types of annuities since 2001 as a baseline to gauge future adoption of QLACs and similar products. We also present QLAC prices for a number of scenarios. Separately, we point out that household surveys collect only limited information on annuity holdings and suggest survey questions to learn about the adoption of QLACs.

CONTENTS

1. INTRODUCTION

Annuities have been, and continue to be, an important part of the economic well-being of retired workers. In 2014, the Internal Revenue Service (IRS) and the Department of Treasury finalized rules that facilitated the use of certain types of annuities in 401(k) and other employer-sponsored retirement plans (IRS 2014). Of particular interest for this report is the use of longevity annuities such as Qualifying Longevity Annuity Contracts (QLACs). The Department of Treasury notes that these products "provide a cost-effective solution for retirees willing to use part of their savings to protect against outliving the rest of their assets, and can also help them avoid overcompensating by unnecessarily limiting their spending in retirement."[1] The primary goal of this study is to create a detailed overview of QLACs and other deferred annuities. The first QLAC products have recently been introduced to the market and it is hoped that this study will establish a baseline against which future developments around deferred annuities can be measured.

The remainder of this report is organized as follows. Section 2 explains the features of the various types of annuities, the differences among them, and commonly purchased optional features. Section 3 quantifies the size of the market for annuity products over the past several decades, including on number of policies, annual contributions, and annual pay-outs. Section 4 lists QLAC price quotes for various scenarios of policyholder age and sex, and for several features of QLAC products. Section 5 reviews information on annuities as collected in household surveys. Section 6 concludes and offers language for consideration by household surveys to collect information on QLACs.

2. BACKGROUND ON INDIVIDUAL ANNUITIES

The defining feature of all annuities is that they provide payments to the policyholder for a period of time, often the life of the policyholder (NAIC 2013). Beyond this commonality, the term annuity describes a variety of financial products, each with its own set of investment and insurance features. Generally, annuities may be viewed as investment vehicles with embedded insurance against both investment and longevity risks.

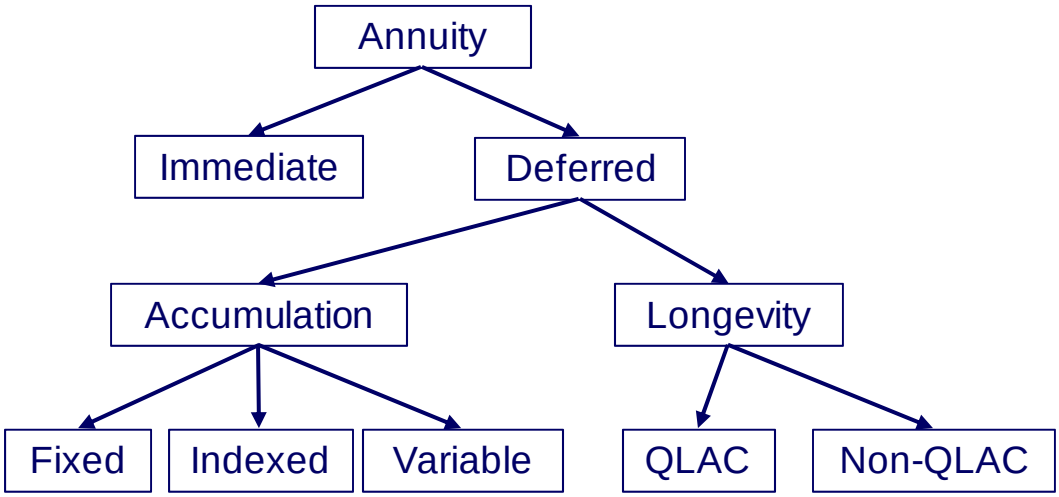
For the purpose of this discussion, we distinguish the following types of annuities:

- Immediate annuity: regular payments begin shortly after the purchase;
- Deferred annuity: payments begin at a future date (or the account is cashed out prior to the start of payments);
- Longevity annuity and QLAC: payments begin at a future date and the account may not be cashed out. A QLAC is a longevity annuity that meets certain requirements of the IRS.

Figure 1 shows the main types of annuities and how they are related to each other. We now discuss each category in turn.

[1] https://www.treasury.gov/press-center/press-releases/Pages/jl2448.aspx.

Figure 1. Taxonomy of Annuities



Immediate Annuity

The first main division of annuities is between immediate and deferred. When a policyholder buys an immediate annuity, he or she pays a lump sum to the insurance company in exchange for monthly payments that begin soon after the premium is paid. The payments are typically fixed in nominal terms, but may be adjusted for inflation. These payments can last for the life of the annuitant, the longer of the life of the annuitant and that of his or her spouse, or the longer of a fixed number of payments or the life of the annuitant or spouse (Poterba 1997).[2] For example, payments may continue for 5 years or the life of the annuitant, whichever is longer.

Contracts for immediate annuities are generally relatively easy to understand and compare with one another, because both the premium and the payments by the insurance company are clearly specified. This type of annuity is usually most attractive to those who are already retired and want to ensure a certain amount of lifetime income (Lankford 2010).

Deferred Annuity

In contrast to immediate annuities, when a policyholder buys a deferred annuity, he or she makes one or more premium payments and, in exchange, the insurance company agrees to make a stream of payments that commences at some future date. The period before payments are made to the annuitant is called the "accumulation phase" and the subsequent period is referred to as the "pay-out

[2] As described, this is a "life annuity." In contrast, an "annuity certain" (also known as a "structured settlement") provides periodic payments for a fixed number of years. For example, a lottery may enter into a structured settlement for the benefit of winners who take their prize in a fixed number of annual payments, or a life insurance benefit may be paid out in a fixed number of installments. This document focuses primarily on life annuities.

phase." During the accumulation phase, the premium payment(s) are invested on behalf of the policyholder. At the end of the accumulation phase, the account balance is converted into a benefit flow and the pay-out phase starts. During the pay-out phase, a deferred annuity is similar to an immediate annuity. Some deferred annuities offer a return-of-premium feature which guarantees that the annuity payments will at least be equal to premium payments.

Deferred annuities are distinguished in (deferred) accumulation and (deferred) income annuities. They serve different investment objectives and differ in their pooling of mortality risks.

Accumulation Annuity

Deferred annuities may offer certain tax benefits (discussed below) and protection against market risks. Some investors purchase a deferred annuity for those benefits without necessarily the intent to hold the annuity beyond the accumulation phase. Deferred accumulation annuities may be suitable for such investors, since they can be cashed out during the accumulation phase.

There are three major types of deferred accumulation annuities—fixed, indexed, and variable. The type of annuity determines how the annuity account balance changes value (NAIC 2013).

In a *fixed deferred annuity*, the account balance earns interest at a fixed rate. This rate is set by the insurance company, generally every year, and can increase or decrease from year to year. Typically, these contracts are guaranteed to not decline in value, i.e., they specify a minimum guaranteed interest rate of at least 0% (NAIC 2013).

The account balance in an *indexed annuity* (also known as an equity-indexed or fixed indexed annuity) changes based on the value of a market index, such as the S&P 500. Like a fixed annuity, the indexed annuity usually offers a guaranteed minimum interest rate of at least 0%. The formulas used to determine the credit to the annuity account balance can be complicated. The insurance company generally credits only a portion of the gain in the index to the annuity account, in part to cover its costs to provide a minimum guaranteed credit. It may limit the credit in several ways. First, the credit is based on an index, but need not be equal to the change of an index. For example, the credit may be the average monthly value of the S&P 500 compared to its value as of January 1. If the index were rising linearly, the average monthly value is approximately equal to the index value on July 1 and the credit would be about one-half of the gain of the index. Second, the insurance company may calculate a partial credit using a "participation rate." For instance, if the participation rate were 75%, then only 75% of the index gains would be credited to the account. Third, the insurance company may use a "spread rate" (also known as a "margin" or "asset fees") which is a percentage deducted from the index gain before the annuity account is credited. For example, if the spread rate is 2% and the index gain is 5%, then the gain credited to the account would be 3% (5% minus 2%). Finally, indexed annuities may also have an "interest rate cap," or an upper limit on possible returns regardless of the performance of the index (FINRA 2012, NAIC 2013).

A *variable annuity* offers the annuitant the ability to allocate his or her account balance to a number of investment options known as "subaccounts" during the

accumulation phase (NAIC 2013). These investment options are typically mutual funds. Additionally, many variable annuities allow the annuitant to allocate a portion of his or her account balance to a fixed account which earns a fixed interest rate. The value of a variable annuity changes based on the performance of the underlying investments and can go up or down (SEC 2011). Unlike other types of deferred annuities, variable annuities are securities registered with the Securities and Exchange Commission (FINRA 2012).

Regardless of the type, deferred annuities have several common features. One of these is the ability to withdraw some or all of the account balance during the accumulation phase. The contract typically stipulates a penalty for withdrawals before a certain period has passed. This "surrender charge" or "withdrawal charge" usually starts at around 7% of the value of the withdrawal (but can reach as high as 20%) and declines yearly until it reaches zero, typically around seven or eight years after the date of purchase. However, many annuities allow the owner to annually withdraw a small amount, typically up to 10%, without penalty (CNN Money 2016).

Another common feature is that deferred annuities offer a guaranteed death benefit. That is, if the annuitant dies during the accumulation phase his or her survivors receive some or all of the value of the annuity (NAIC 2013).

Many deferred annuities offer optional features or guarantees ("riders") at an extra cost. We already mentioned the return-of-premium feature, which guarantees that (the estate of the annuitant) receives at least the premium payments. Separately, some riders allow the annuity owner to access some or all of the annuity's value without penalties in the event of a terminal illness, nursing home entry, or long-term unemployment or disability (Townsend 2012). Others guarantee a certain level of income for life, regardless of the value of the underlying annuity account (NAIC 2013). Others provide for benefit payments that are adjusted for inflation. Insurance companies charge a fee for each rider.

Similar to immediate annuities, deferred annuities offer a number of choices when the owner decides to "annuitize" or begin receiving payments. These choices include receiving payments for the annuitant's life, the longer of the annuitant's or spouse's life, a set time period, or the longer of a set time period or the annuitant's lifetime.

Longevity Annuity

As noted above, deferred annuities may be attractive for their tax benefits and protection against market risks, even without the intent to hold the annuity beyond the accumulation phase. If the objective is to secure an income flow later in life, a (deferred) longevity annuity may be well suited.

A longevity annuity (also known as an income annuity) is very similar to an accumulation annuity—in exchange for one or more premium payments, the insurance company promises to pay out an income flow after a certain period. The pay-out phase typically starts at age 80 or 85. An important differentiating feature is that no withdrawals are permitted during the accumulation phase and that the contract has no value if the annuitant dies (CNN Money 2006).[3] As a result, mortality

[3] An exception exists for contracts with a return-of-premium feature.

risks are pooled across policy holders and the pay-out is typically greater than the pay-out on an accumulation annuity. For a typical retiree, allocating 10–15 percent of wealth to a longevity annuity creates spending benefits comparable to an allocation to an immediate annuity of 60 percent of wealth or more (Scott 2008).

A QLAC is a longevity annuity that meets certain IRS requirements that were published in 2014 (IRS 2014). The interest rate must be fixed for the entire accumulation period and the pay-out phase must begin at or before age 85 (adjustable for mortality changes). Premiums must be paid from a DC plan or IRA and must not exceed 25% of the source of funds. The total premium for an individual must not exceed $125,000 (adjustable for inflation).[4] The annuity may be payable for the life of the policy holder, a surviving spouse, or other designated beneficiary. The annuity may be fixed in nominal terms or adjusted for inflation. Optionally, a QLAC may offer a return-of-premium feature in the form of a single-sum death benefit paid to a beneficiary in an amount equal to the excess of the premium payments made with respect to the QLAC over the benefit payments made under the QLAC.

DC plan sponsors that include a QLAC option in their plan are subject to a fiduciary duty with respect to the choice of QLAC provider. In July 2015, the DOL clarified safe-harbor provisions related to the QLAC vendor selection process (DOL 2015).

IRAs and DC plan balances are tax-qualified, i.e., contributions were made from pre-tax income and investment returns have not yet been taxed. Normally, when an account holder or plan participant wishes to make a purchase with IRA or DC funds, the withdrawal is taxed. However, in the case of a QLAC purchase, the funds remain tax-qualified and taxes continue to be deferred.

QLACs offer several potential benefits over other longevity annuities. First and foremost, QLAC premium amounts are disregarded for the purpose of required minimum distribution (RMD) rules, which stipulate that individuals must start withdrawing at least certain minimum amounts starting at age 70½.[5] The implication is that a QLAC extends tax deferrals beyond the time that withdrawals would be required under RMD rules in the absence of a QLAC.[6] Second, the IRS (2014) regulation states that having a limited set of easy-to-understand QLAC options available for purchase enhances the ability of employees to compare the products of multiple providers. Third, since QLACs may be purchased with DC plan assets, they are expected to be marketed through employer pension plans, which may reduce adverse selection of policy holders and lower the price of QLACs.

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[4] Depending on the insurance company, policyholders may add premium to an existing QLAC, subject to the cap on total premium.

[5] Industry experts indicated to us that many retail policies are sold to people who are nearing age 70½, shortly before the RMD rules apply. In the group market, purchases are expected to be made at a slightly younger age, because policies may be purchased only at distributable events such as retirement or job separation.

[6] For example, suppose the balance of an IRA is $500,000. Without a QLAC, the basis for calculating the RMD is $500,000. If the IRA owner uses $100,000 to purchase a QLAC, the IRA balance drops to $400,000. As a result, the basis for calculating the RMD becomes $400,000 and the RMD is lower than if the basis were $500,000.

VanDerhei (2015) found that QLACs can provide a significant increase in retirement readiness for the longest-lived quartile, compared with only a small reduction for the general population.

Tax Treatment

Investment gains of deferred annuities and longevity annuities are tax-deferred until withdrawals or regular payments are made. DC plans and IRAs also operate under a tax-deferral principle, so an annuity that was purchased with DC plan or IRA assets ("qualified annuity") generally does not confer additional tax benefits with respect to investment gains. However, if the RMD is binding, a QLAC postpones the time at which taxes will be due.[7]

Consider the after-tax market. Tax benefits apply to annuities purchased with after-tax assets ("non-qualified annuity"), because investment returns are tax-deferred until the time benefits are paid. That said, when money is withdrawn from a non-qualified annuity the gains are taxed at the owner's normal income tax rate, not the capital gains rate. Furthermore, withdrawals are subject to a 10% federal tax penalty if money is withdrawn before the annuitant has reached age 59½. A potential advantage of a non-qualified annuity is that unlike in a qualified retirement plan, minimum distributions are not required once the owner reaches age 70½ (IRI 2013).

Credit Risk

Annuity payments should be made for the life of the beneficiary, but could be terminated in case the insurance company becomes insolvent. The risk of bankruptcy of the insurance company is a form of credit risk. It is particularly relevant for annuity products, which can be in force for several decades.

All 50 states and the District of Columbia operate guaranty funds to help pay the claims of financially impaired insurance companies. State laws specify the lines of insurance covered by these funds and the dollar limits payable. At this time, the maximum liability for the present value of annuity contracts ranges from $100,000 to $500,000, and the most common limit (in 31 states) is $250,000.[8]

3. THE MARKET FOR ANNUITIES

Annuities became widely available in the United States in the 1930s and remain widespread today (Poterba 1997, ACLI 2015). This section presents estimates of the aggregate market for annuities in the United States. Some figures are not directly

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[7] As discussed above, the premium of a QLAC is disregarded for RMD calculations. The same generally holds for a qualified immediate annuity (IRS 2004). However, an immediate annuity starts paying benefits shortly after the purchase, and those benefits are therefore immediately taxable. In contrast, a QLAC starts paying benefits after a certain period, and taxes are deferred until benefits are paid. The account value of a qualified deferred accumulation annuity is included in the basis for RMD calculations.

[8] For details see http://www.annuityadvantage.com/stateguarantee.htm and http://www.nolhga.com/factsandfigures/main.cfm/location/lawdetail/docid/8.

comparable because of different sources or different treatment of certain types of annuities.

Table 1 shows total annual premiums (or "considerations"), benefit payments, withdrawals and surrenders, and policy reserves for the past 30 years, converted into 2015 dollars. The table relates to immediate, deferred, and longevity annuities, but excludes annuities certain. In 2014, premiums on new or existing policies amounted to $362 billion; $74 billion was paid in benefits, $257 billion was withdrawn during deferred annuities' accumulation phase, and total policy reserves were $3.3 trillion. In recent history, sales of annuities generally increased through 2000, reached a recent low in 2009, and rebounded in more recent years.

Table 1. Annuity Premiums, Payments, Withdrawals, and Policy Reserves (billions of 2015 dollars)

		Payments		Reserves		
Year	Premiums	Benefits	Withdrawals	Individual	Group	Total
1985	118.7	46.8	NA	213.6	667.5	881.1
1986	181.0	49.0	NA	262.0	769.3	1,031.3
1987	185.0	50.7	NA	325.8	819.0	1,144.8
1988	206.9	51.4	NA	388.3	869.3	1,257.6
1989	219.8	56.2	NA	458.0	905.9	1,363.9
1990	234.1	59.1	NA	511.6	935.4	1,447.0
1991	215.1	63.7	NA	571.4	954.0	1,525.3
1992	224.1	63.4	NA	643.1	945.7	1,588.8
1993	256.6	66.1	NA	720.7	987.2	1,707.9
1994	244.7	64.6	148.4	771.1	979.4	1,750.5
1995	246.3	75.4	164.0	924.0	962.2	1,886.2
1996	269.5	77.1	174.9	939.6	1,043.1	1,982.7
1997	291.7	81.3	208.0	1,023.4	1,125.2	2,148.6
1998	333.7	87.8	224.6	1,110.0	1,228.9	2,338.9
1999	384.4	88.9	282.1	1,242.7	1,290.6	2,533.4
2000	422.1	94.5	294.5	1,212.4	1,321.5	2,534.0
2001	336.3	73.9	202.5	1,264.7	764.8	2,029.4
2002	354.8	72.4	188.3	1,291.2	750.8	2,042.0
2003	345.9	73.6	180.7	1,510.5	853.4	2,363.9
2004	347.2	76.7	204.4	1,645.6	893.5	2,539.2
2005	336.3	77.6	231.0	1,717.4	920.5	2,637.9
2006	355.9	83.6	279.6	1,788.3	948.7	2,737.0
2007	359.2	82.7	299.9	1,846.5	963.8	2,810.3
2008	361.2	76.7	260.5	1,565.0	787.8	2,352.7
2009	255.8	74.1	201.8	1,793.9	881.6	2,675.5
2010	319.2	76.2	200.1	1,934.7	938.2	2,872.9
2011	352.9	78.5	217.2	1,939.0	917.9	2,856.9
2012	359.3	76.4	223.9	2,005.3	989.1	2,994.4
2013	292.7	80.1	226.7	2,174.6	1,046.7	3,221.3
2014	362.0	73.9	257.0	2,230.5	1,051.1	3,281.6

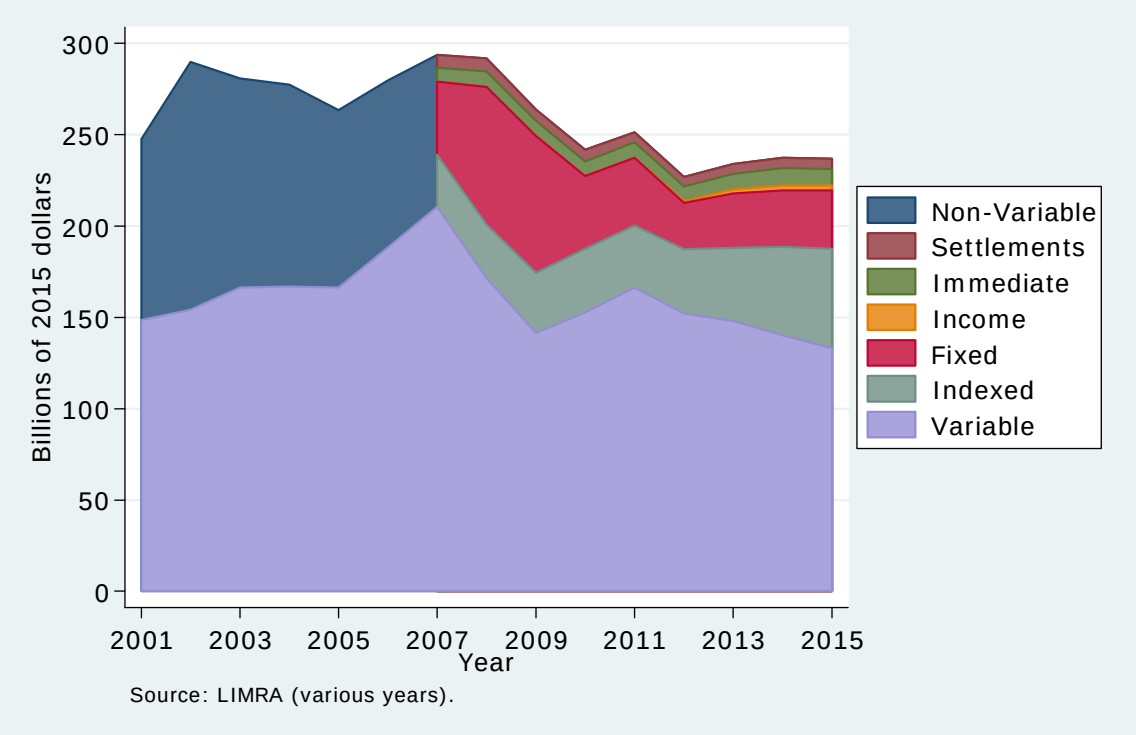
Source: ACLI (2015).

In 2014, far more deferred annuities were outstanding than immediate annuities. According to data from the National Association of Insurance Commissioners, the individual market included 2.7 million active immediate annuities and 50.3 million

deferred annuities. The group market included an additional 21.7 million annuities (NAIC 2015).[9]

Figure 2 shows annual sales of annuities, by detailed type and year. (Table 2 contains the underlying figures.) This figure is based on LIMRA Secure Retirement Institute's U.S. Individual Annuities Sales Surveys, which cover 94%-97% of the market (LIMRA, various years).[10] It captures the individual market only, i.e., it excludes the group market. All sales are converted into billions of 2015 dollars. LIMRA published details on non-variable annuities starting in 2007.

Figure 2. Individual Annuity Sales Estimates, by Type and Year



Source: LIMRA (various years).

According to LIMRA (various years), the sale of variable deferred annuities in the individual market peaked at $210 billion in 2007 and has since declined to $133 billion in 2015. In contrast, indexed annuities grew over this period, from $29 billion in 2007 to $55 billion in 2015. Fixed deferred annuities sold strongly in 2008 and 2009, shortly after the equity market downturn, and accounted for $32 billion in 2015. Deferred income annuities (longevity annuities) are relatively new and accounted for less than $3 billion in 2015. Sales of immediate annuities and structured settlements summed to $9 billion and $6 billion, respectively.[11]

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[9] In the group market, a contract may cover multiple “certificates,” which we label “annuities” here.

[10] The LIMRA website provides more detail about 2007 and later than for earlier years.

[11] A structured settlement is an agreement allowing a person who is responsible for making payments to a claimant to assign to a third party the obligation of making those payments (ACLI 2015). An annuity contract is often used to make structured

Table 2. Individual Annuity Sales Estimates, by Type and Year (billions of 2015 dollars)

	Deferred					Structured	Total non-	
Year	Variable	Fixed	Indexed	Income	Immediate	settlements	variable	Total
2001	149						99	248
2002	154						136	290
2003	166						115	281
2004	167						110	277
2005	166						97	263
2006	188						92	280
2007	210.3	40.1	28.6		7.4	7.1	83.2	293.6
2008	171.4	75.2	29.4		8.7	7.0	120.3	291.7
2009	141.4	74.7	33.0		8.3	6.2	122.2	263.6
2010	152.7	39.6	34.9		8.3	6.3	89.0	241.7
2011	166.4	37.0	33.9		8.5	5.4	84.8	251.2
2012	152.2	25.5	35.0	1.0	7.9	5.2	74.6	226.8
2013	147.9	29.8	40.0	2.2	8.4	5.4	85.9	233.8
2014	140.3	30.8	48.3	2.7	9.7	5.4	96.9	237.2
2015	133.0	31.9	54.5	2.7	9.1	5.5	103.7	236.7

Source: LIMRA (various years). Details on the components of non-variable annuities (fixed, indexed, income, immediate, and structured settlements) were not available prior to 2007, but the "total non-variable" sales are comparable before and after 2007.

As is evident from Figure 2 and Table 2, sales of longevity (income) annuities are small compared to those of other annuities, making up about 1% of the market for individual annuities. QLACs are a subset of longevity annuities, and they are still in their infancy. As of December 2015, 11 insurance companies offered QLACs to individual IRA investors and only one offered QLACs to DC plans (Iacurci 2015). Of particular interest in future years will be the sales trend in QLACs.

4. ILLUSTRATIVE QLAC PRICES

The IRS (2014) regulation that sets out QLAC requirements argued in favor of only a limited set of easy-to-understand QLAC options, so that the products of multiple providers can be readily compared. Table 3 shows monthly benefit quotes for several policyholder scenarios and QLAC options. We retrieved these quotes from www.immediateannuities.com. The base scenario, listed first, is for a 65-year-old male resident of California who contracts to receive monthly benefits upon reaching age 85. The benefits would continue for the life of the policyholder, be fixed in nominal terms, and there would be no pay-out if the policyholder dies before reaching age 85.[12] The quotes are for a one-time premium of $125,000 in the retail

settlement payments. For example, a lottery may enter into a structured settlement for the benefit of winners who take their prize in a fixed number of annual payments.

[12] To be precise, the policyholder's date of birth is 8/18/1951 and benefits will commence on 8/18/2036. The quotes were retrieved on 8/19/2016.

market.[13] The median quote for this baseline scenario is a benefit of $4,253 per month (about $51,000 per year).

Table 3. Monthly Benefit Quotes for Illustrative $125,000 Retail QLAC Policies

Scenario	Monthly benefit			Difference at median from first scenario
	Median	Minimum	Maximum	
Baseline: 65-year-old male, benefits start at age 85, no COLA, Life Only, California	$4,253	$3,450	$5,614	-
Baseline scenario, except:				
Female	$3,449	$2,908	$4,399	-18.9%
55-year-old male	$5,624	$4,762	$7,757	32.2%
60-year-old male	$4,996	$4,159	$6,914	17.5%
70-year-old male	$3,473	$2,674	$4,007	-18.3%
Benefits start at age 80	$2,265	$1,906	$2,673	-46.7%
Resident of Texas	$4,274	$3,474	$5,614	0.5%
Joint annuity (wife also age 65)	$2,467	$2,162	$2,645	-42.0%
Benefit to increase 2% annually	$3,930	$3,784	$4,060	-7.6%
Return of Premium	$2,931	$2,446	$3,862	-31.1%

Source: www.immediateannuities.com (retrieved on 8/19/2016).

The second and subsequent rows of Table 3 show quotes for other scenarios. Unless noted below, each scenario generated quotes from eight insurance companies. Each row changes one aspect relative to the baseline scenario:

- The median quote for a 65-year-old woman (otherwise similarly situated as the baseline man) is $3,449 per month. As shown in the final column, this benefit is 19% lower than that for a 65-year-old man, reflecting a longer life expectancy for women than for men.[14]
- Holding the commencement of benefits constant, the younger the policyholder upon purchase, the longer the accumulation period and the greater the monthly benefits. The median quote for a 55-year-old is 32% higher than for a 65-year-old. At age 60 the quoted benefit is 17% higher and at age 70 it is 18% lower than at age 65.
- Quoted benefits that start five years earlier, at age 80, are 47% lower than at age 85. The difference reflects a shorter accumulation period, a longer pay-out period, and substantial mortality risks between age 80 and 85.
- Quotes differ slightly by state of residence. We compared California and Texas only; the median quoted benefit was 0.5% higher in Texas than in California.

[13] The retail (or individual) market contrasts with the group market. As noted earlier, only one insurance company currently offers a group QLAC, i.e., a QLAC as part of a defined contribution retirement plan. Group prices may vary depending on the expected mortality experiences of the group among other factors.

[14] Following legal precedent and EEOC (2010), QLAC prices do not differ by sex in the group market. While unisex pricing could diminish demand from men, industry experts pointed out to us that group plans face lower marketing and administrative costs, so that unisex prices can be competitive with retail prices for men. Also, group prices may be affected by the group's life expectancy.

- Assuming both husband and wife are age 65, joint-life (100% survivor) benefits are 42% lower than single-life benefits for a man. Benefits for this scenario are based on seven quotes.
- Benefits may be fixed in nominal terms or they may increase annually. For example, the median quoted benefit that is scheduled to increase by 2% annually is 8% lower than a fixed benefit. Benefits for this scenario are based on four quotes; only one quote was available (and not shown here) for benefits that increase in tandem with the Consumer Price Index (CPI).
- Finally, the median quote for contracts with a Return-of-Premium feature is 31% lower than Life-Only contracts. As explained above, a Return-of-Premium feature promises benefit payments that are at least equal to the premium amount.[15]

In addition to median quotes, Table 3 shows minimum and maximum monthly benefit quotes. The range of quotes appears quite large—the maximum quote can be more than 50% higher than the minimum quote. In part, the differences appear to relate to credit ratings of the insurance companies. Companies with higher credit ratings tend to promise lower monthly benefits, and vice versa. We found a similar pattern in the market for immediate annuities; see Brien and Panis (2011). However, credit ratings alone do not explain all quote differences. It is possible that insurance companies differ markedly in their long-term assumptions over rates of return, mortality trends, or other factors. Industry experts suggested to us that they expect it can take more than five years for the market to settle down on appropriate prices.

5. EVIDENCE FROM SURVEY DATA

Several household surveys ask about income from annuities, but very little information is available about annuities in the accumulation stage. Among the exceptions are the following.

The *Panel Study of Income Dynamics* (PSID) asks about the disposition of DC pension rights if the respondent left a job. The balance may have transferred to a new employer, rolled over into an IRA, left to accumulate, or converted into an annuity. If the respondent reported converting the balance into an annuity, a follow-up question asks about the age at which benefits began or the age at which benefits will begin. We did not locate any questions about deferred annuity purchases that were not tied to a job separation.

The *Survey of Consumer Finances* (SCF) asks separately about IRAs and after-tax investments. For IRAs, the respondent is asked how the assets are invested, with an emphasis on uncovering the fraction that is invested in stocks or stock mutual funds. If the respondent indicates that the IRA is invested in "Annuities," no follow-up questions are asked. For after-tax investments, the SCF asks whether the respondent owns an annuity, whether the annuity can be cashed out, how much the cash value would be, and how the annuities are invested (stocks or bonds).

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[15] As explained by www.immediateannuities.com: "If you die prior to the start date your beneficiaries receive a refund of the premium. If you die after payments have begun, your beneficiaries receive a cash refund of the remaining unpaid premium amount."

The *Health and Retirement Study* (HRS) asks disposition questions about DC pension rights upon job separation that are similar to those in the PSID. In its section on IRAs, the HRS asks about the fraction invested in stocks or stock mutual funds but not whether any was invested in an annuity product. If a withdrawal was reported, the HRS asks whether any was used to purchase an annuity and how much the benefit payments are. Deferred annuities may be identified by zero benefit payments. The HRS thus asks about annuity purchases from IRA assets during the past two years, not about annuity contract holdings or cumulative purchases. Finally, it asks about ownership of other assets, which may include annuities, but without detail on the type of those other assets.

Unrelated to annuities, the HRS poses the following question to respondents who reported having made a withdrawal from an IRA:

> "Did you […] take out only the 'minimum withdrawal option', that is, the amount required to avoid a tax penalty?"

This question was asked up to three times, corresponding to up to three IRAs from which the respondent reported withdrawals. (The question was not asked for withdrawals from DC plans.) Table 4 tabulates the fraction of respondents who reported taking only the required minimum distribution in any of their IRAs, by respondent age.[16] The table excludes respondents under age 72, i.e., IRS regulations with respect to required minimum distributions may be expected to apply to all respondents in the table.[17]

[16] Questions on IRAs owned by household members are answered by the so-called financial respondent. For each IRA, the financial respondent indicated whether the IRA was owned by the financial respondent or his/her spouse, if any. We attributed each IRA to an individual and used that individual's age and sampling weight to construct Table 4. The universe consists of respondents who reported taking a withdrawal from one or more of their IRAs. If a respondent reported owning multiple IRAs, his or her responses were consolidated. Surprisingly, 18% of IRA-owning respondents aged 72 or older reported making no withdrawals (not shown in the table), i.e., these are excluded from Table 4.

[17] To explore whether respondents understood the question on minimum withdrawals, we also tabulated responses for respondents under age 70 and for whom RMD rules were irrelevant. Approximately 24% of such respondents reported taking minimum withdrawals—not zero, but well below the 82% reported by older respondents.

Table 4. Fraction of IRA-Owning Respondents for Whom the Required Minimum Distribution Was Binding

Age	Number of individuals who made an IRA withdrawal	Number who took only the minimum required	Weighted percent
72-74	3,641	2,862	79.2%
75-79	4,678	3,826	81.9%
80-84	2,614	2,204	84.4%
85-89	948	803	84.7%
90+	201	161	83.1%
Total	12,082	9,856	81.9%

Source: 1998-2014 HRS.
Note: Individual counts are raw; percentages are weighted by respondent sampling weights.

Table 4 shows that as much as 82% of respondents who withdrew funds from their IRA took only the minimum required. This suggests that the required minimum distribution rules are often binding and that exemption of QLAC premiums for the purpose of calculating minimum distributions can be an attractive feature to many IRA owners.

Very little external evidence is available about whether the required minimum distribution rules are binding. Insofar we are aware, the only other evidence is from Brown, Poterba, and Richardson (2014), who found that 60% of retirees who were drawing down a DC balance from a single financial services provider elected minimum distributions in 2008.

Finally, the Gallup Organization ("Gallup") periodically surveys owners of non-qualified annuity contracts for the Committee of Annuity Insurers. A total of 11 surveys were conducted between 1993 and 2013. As noted in Gallup (2013), the principal purpose of the survey was to obtain a profile of the demographic characteristics of owners of individual annuity contracts and to gain insight into their attitudes toward a variety of issues relating to retirement savings and security, including how they save for retirement, what they think about saving for retirement generally, what sources of funds they used to purchase their annuity contracts, the reasons they bought them, and how they plan to use them. Among others, Gallup (2013) found the following.

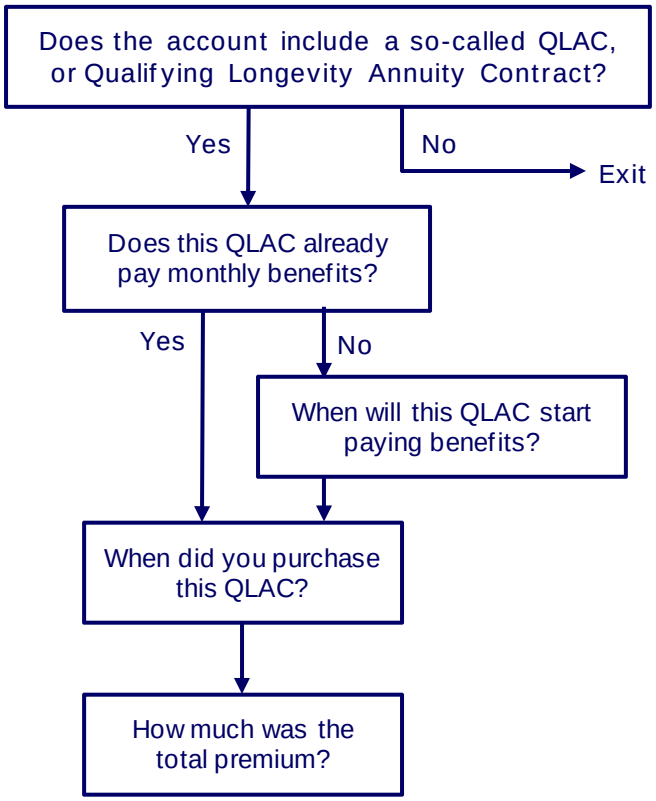
- The majority of individual annuity owners purchased their first annuity before age 65 (86%), including 47% who were between the ages of 50 and 64 years old.
- The majority (65%) of individual annuity owners are retired.
- The median annual household income of individual annuity owners is $64,000 and 80% have total annual household incomes under $100,000.
- The most common stated reason for purchasing an individual annuity is that it is perceived as a "safe purchase" (90% indicating this was very or somewhat important in their decision).
- Almost nine in 10 (86%) cite the tax treatment of individual annuities as important to their savings decision.
- Nearly nine in ten (87%) agree that insurance and investment guarantees are an important aspect of individual annuities.

- Variable annuities are more widely held than fixed annuities (75% vs. 25%). The mix has fluctuated over time. In 1995, 33% were variable and 67% fixed.
- When asked how they expect to withdraw most of their money from their annuities, almost half of annuity owners (49%) intend to receive most of their annuity contract values in some form of periodic payment. In particular, one-quarter intend to commence a series of payments guaranteed to last the longer of their lifetime or some stated period of years, while nearly a quarter (24%) plan to withdraw funds through periodic payments for a set number of years. Four in ten assert they do not anticipate taking money out except in case of emergency.

To our knowledge, the microdata of the Gallup annuity surveys are not publicly available.

6. CONCLUSION

At present, household surveys collect only limited or no information on deferred annuities in the accumulation stage. Given the potential for QLACs to play a significant role in meeting demand for retirement security in old age, it may be meaningful for such surveys as the PSID, SCF, and HRS to incorporate questions on QLACS. We suggest testing a few questions around IRAs. (It may be too early to include questions on QLACs in surveys' DC pension plans sections because only a single insurance company currently markets QLACs to such plans.) For example, several surveys ask about IRA balances and the percentage that is invested in stocks or mutual funds. The following could be worthwhile subsequent questions:



The market for annuities has played an important role in retirement planning for many years, with different products created to serve varying investment planning purposes. The market for QLACs is in its earliest years of development, but it has the potential to grow in light of the decline of DB pensions, uncertainty over the Social Security program, a nod of approval from the IRS, and QLACs' tax deferral benefits. Industry experts also expect a boost in demand once lifetime income disclosures become widely available to DC plan participants. Finally, since QLACs and other annuities pool mortality risks and use premiums from policyholders who die relatively young to support the oldest-old, their expected benefits exceed the amounts that retirees could prudently withdraw from savings. Put differently, QLACs and other annuities reduce leakage of assets from the retirement system. The coming years will tell whether QLACs gain meaningful traction and enhance American workers' retirement security.

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ADVANCED ANALYTICAL
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Rates of Return of Broker-Sold and Direct-Sold Mutual Funds

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ABSTRACT

The U.S. Department of Labor (DOL) is analyzing historical mutual fund returns to measure the performance of funds sold directly to investors compared to funds sold via a broker-dealer. Using data from Morningstar, a widely used source of research on mutual funds, the DOL is measuring yearly performance from 1980 to 2015 for two asset types – domestic equities and international equities.

Advanced Analytical Consulting Group (AACG) has independently replicated the results obtained by the DOL. In this report we discuss the effort, the data acquisition, analysis, results and potential data issues that may affect the findings.

CONTENTS

1. INTRODUCTION

The U.S. Department of Labor (DOL) is performing analysis on Morningstar data to measure relative performance between two groups of mutual funds. Advanced Analytical Consulting Group (AACG) provided assistance by independently replicating the results obtained by DOL and highlighting potential data issues that influence the results. This document discusses AACG's work on this task.

2. DESCRIPTION

The DOL is measuring the yearly performance from 1980 to 2015 of mutual funds sold by broker-dealers relative to mutual funds that are directly sold, for two asset types—domestic equities (including sector funds) and international equities. DOL obtained Morningstar data for this effort through the Morningstar Direct product offering. Morningstar is one of the best known sources for research on mutual funds.

3. DATA ANALYSIS

Data Acquisition

The data used by AACG were retrieved using the Morningstar Direct product offering. Morningstar Direct allows a user to retrieve specific data elements for a group of mutual funds and export the results to Microsoft Excel.

The following search criteria were used to retrieve data for the two asset types. The checkbox for "Only Surviving Investment" was left unchecked to include data for funds that are no longer active.

Figure 1. Domestic Equity Open-End Funds (1 of 3)

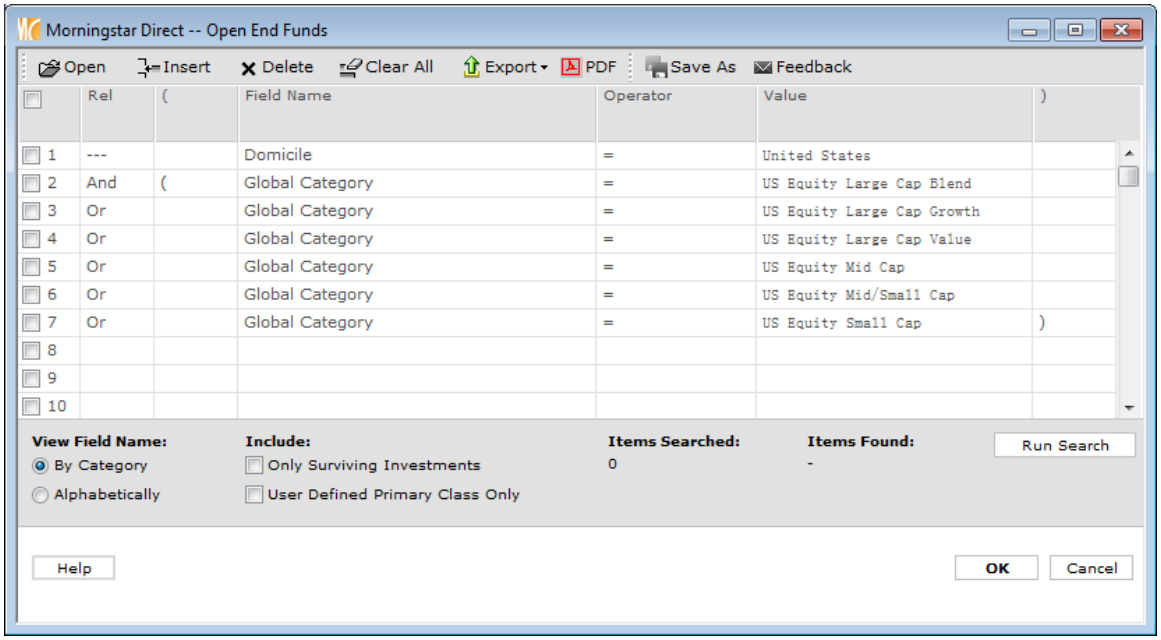


Figure 2. Domestic Equity Open-End Funds (2 of 3)

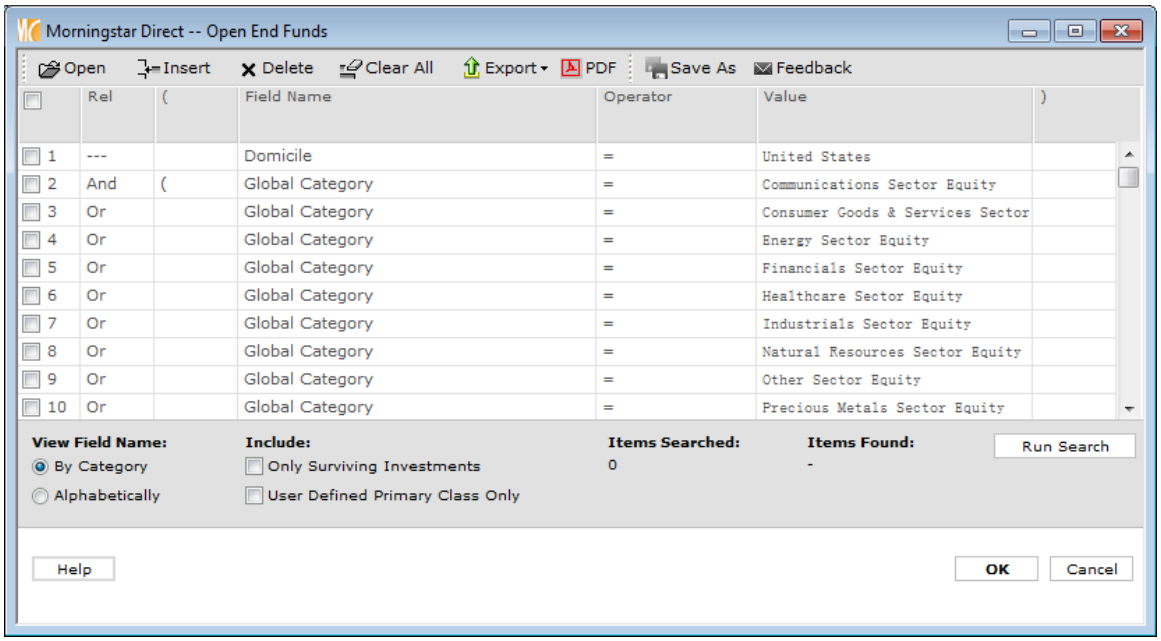


Figure 3. Domestic Equity Open-End Funds (3 of 3)

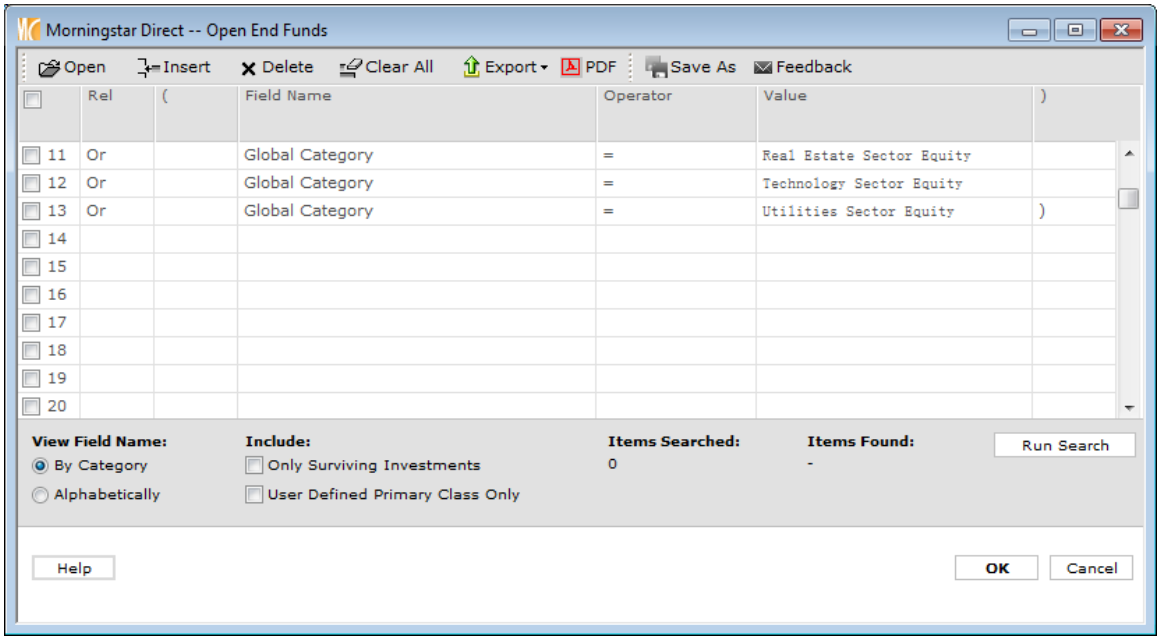
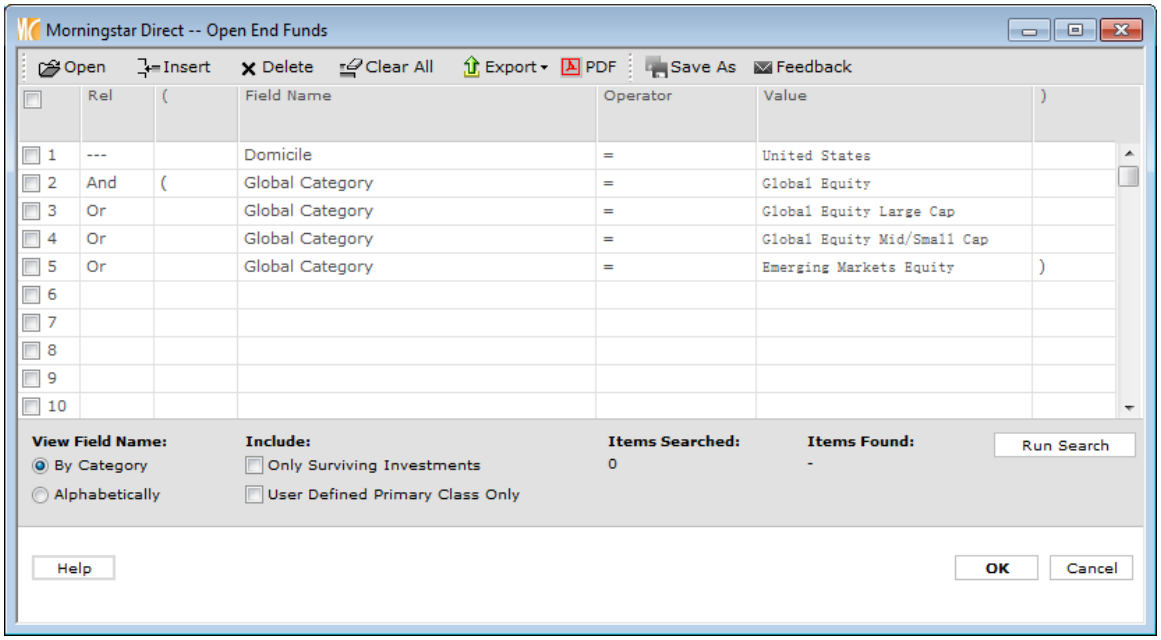


Figure 4. International Equity Open-End Funds



The following 16 data fields were retrieved from each search query.

Field Name	Morningstar Description and Calculation Method
Name	The name of the investment.
Ticker	The identifier under which a security trades on an exchange.

Field Name	Morningstar Description and Calculation Method
Morningstar Category	In an effort to distinguish funds by what they own, as well as by their prospectus objectives and styles, Morningstar developed the Morningstar Categories. While the prospectus objective identifies a fund's investment goals based on the wording in the fund prospectus, the Morningstar Category identifies funds based on their actual investment styles as measured by their underlying portfolio holdings (portfolio and other statistics over the past three years). See specific category name for further details (e.g., "Category - Large Value").
Inception Date	Date on which the security is first offered.
Net Assets Date	The as of date for the fund share class' net assets.
Net Assets – Share Class	The net assets of the mutual fund, recorded in unit of base currency. Net-asset figures are useful in gauging a fund's size, agility, and popularity. They help determine whether a small company fund, for example, can remain in its investment-objective category if its asset base reaches an ungainly size.
Fund Size Date	The as of date of fund size (asset under management) of a fund.
Fund Size	The total amount of money managed as a standalone portfolio across share classes/subaccounts. Fund Size is useful in gauging a product's size, agility, and popularity. This can be greater than or equal to the share class/subaccount net assets. (They will be equal if only one share class is offered or the fund only appears in one policy).
Annual Report Net Expense Ratio	The percentage of fund assets used to pay for operating expenses and management fees, including 12b-1 fees, administrative fees, and all other asset-based costs incurred by the fund, except brokerage costs. Fund expenses are reflected in the fund's NAV. Sales charges are not included in the expense ratio. The expense ratio for fund of funds only includes the wrap or sponsor fees, and does not include the underlying fund fees.
Annual Report Gross Expense Ratio	The Gross Expense Ratio represents the total gross expenses (net expenses with waivers added back in) divided by the fund's average net assets. If it is not equal to the net expense ratio, the gross expense ratio portrays the fund's expenses had the fund not waived a portion, or all, of its fees. Thus, to some degree, it is an indication of fee contracts. Some fee waivers have an expiration date; other waivers are in place indefinitely.
12b-1 Fee	The maximum annual charge deducted from fund assets to pay for distribution and marketing costs. Although usually set on a percentage basis, this amount will occasionally be a flat figure. Only active 12b-1 plans are represented here. This information is

Field Name	Morningstar Description and Calculation Method
	taken directly from the fund's prospectus. (Morningstar lists the maximum amount.)
Share Class Type	Indicates the share class for open-end funds. Shares of the same fund that offer different shareholder rights and obligations, such as different fee and load charges. Common share classes are A (front-end load), B (deferred fees), C (no sales charge and a relatively high annual 12b-1 fee, such as 1.00%). Multi-class funds hold the same investment portfolio for all classes, and differ only in their surrounding fee structure.
Return by Month (1980 to 2015) Return by Year (1980 to 2015)	Expressed in percentage terms, Morningstar's calculation of total return is determined each month by taking the change in monthly net asset value, reinvesting all income and capital-gains distributions during that month, and dividing by the starting NAV. Reinvestments are made using the actual reinvestment NAV, and daily payoffs are reinvested monthly. Unless otherwise noted, Morningstar does not adjust total returns for sales charges (such as front-end loads, deferred loads and redemption fees), preferring to give a clearer picture of a fund's performance. The total returns do account for management, administrative, 12b-1 fees and other costs taken out of fund assets. Total returns for periods longer than one year are expressed in terms of compounded average annual returns (also known as geometric total returns), affording a more meaningful picture of fund performance than non-annualized figures.
Net Assets – Share Class by Month (1980-01 to 2015-12)	Monthly share-class level total net assets.
Alpha by Year (1980 to 2015)	A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta. A positive Alpha figure indicates the portfolio has performed better than its beta would predict. In contrast, a negative Alpha indicates the portfolio has underperformed, given the expectations established by beta. Alpha is calculated by taking the excess average monthly return of the investment over the risk free rate and subtracting beta times the excess average monthly return of the benchmark over the risk free rate. The equation is as follows: $$\alpha_M = \overline{R}^e - \beta \overline{B}^e$$ where α_M = Monthly measure of alpha $\overline{R}^e$ = Average monthly excess return of the investment

Field Name	Morningstar Description and Calculation Method
	$\overline{B^e}$ = Average monthly excess return of the benchmark β = Beta The resulting alpha is in monthly terms, because the average returns for the portfolio and benchmark were monthly averages. Morningstar then multiplies it by 12 to put it in annual terms. $\alpha_A = 12\,\alpha_M$ The same method applies for alpha (non-excess return) except that the raw return is used instead of the excess return.

By executing the search queries described above, AACG obtained records for the following numbers of funds.[1]

	Domestic Equity Funds	*International Equity Funds*
Date extracted	Feb 5, 2016	Feb 5, 2016
Number of funds retrieved	22,316	7,160

In addition to the alpha performance metric computed and published by Morningstar, we calculated two additional performance metrics – the one-factor alpha and the three-factor alpha for each fund and each calendar year with complete data (12 monthly returns). Like the Morningstar alpha, both metrics measure the difference between the fund's return and its expected performance given its level of risk.

We estimated one-factor alphas through a regression analysis of excess market returns on excess fund returns. Similarly, we estimated three-factor alphas through a regression analysis of three independent variables—the excess market returns, the Small minus Big (SMB) factor and the High minus Low (HML) factor. We used market returns, risk-free rates, SMB factors, and HML factors developed by Eugene Fama and Kenneth French.[2] The SMB factor is the return of a portfolio of small stocks in excess of the return of a portfolio of large stocks. The HML factor is the return of a portfolio of stocks with high ratios of book value to market value in excess of the return on a portfolio of stocks with low book-to-market ratios.[3]

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[1] Domestic equity funds as extracted from Morningstar Direct included approximately 10 funds with "EAA" investment categories, which suggested their investment focus and portfolio holdings are concentrated in Europe, Asia and Africa. We reclassified these funds as International.

[2] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. Factors for Domestic Equity funds were obtained from "U.S. Research Returns Data" and Factors for International Equity Funds were obtained from "Developed Market Factors and Returns: Fama/French Global ex US Factors."

[3] Zvi Bodie, Alex Kane, and Alan J. Marcus. 2001. *Investments*. 5th edition, McGraw-Hill Education.

The resulting estimate of alpha is in monthly terms, because the returns for the fund and benchmark were monthly returns. An annual alpha was calculated using the following equation.[4]

$$\alpha_A = (1 + r_m)^{12} - (1 + r_m - \alpha_m)^{12}$$

where

r_m = Average monthly fund return

α_m = Monthly measure of alpha

[4] For intuition: α_m is the average monthly amount by which a fund's risk-adjusted return exceeds the benchmark return, and $r_m - \alpha_m$ may thus be interpreted as the benchmark average monthly return. Both the fund's average monthly return and the benchmark average monthly return are compounded into annual values; their difference represents a fund's annual alpha.

Data Analysis

For each asset type and year, we aggregated estimated alphas by distribution channel, weighted by fund assets.

i. For each fund, an average asset size for each year was determined by calculating a simple average of 12 monthly values of "Net Assets – Share Class by Month".[5]

ii. Using the "Share Class Type" field and convention described below, each fund was classified as sold by a broker-dealer, directly, or neither. ("Neither" is not used in subsequent analysis.)

Share Class Type	Classification
A Adv B C D T	Broker-Dealer Sold
Inv No Load S	Direct-Sold
(BLANK) Inst Load Waived M N Other Retirement	Neither

For a detailed description of the share class type, see the Appendix.

iii. For pooled broker-dealer funds and pooled direct-sold funds, a weighted average annual return and weighted-average alpha was calculated by calendar year. The weighting used the average asset size described above.

iv. A small number of funds did not have asset size data for some or all years. An average asset size for the year could not be calculated. These funds were removed from the weighted average calculations. (Also see below.)

v. Some funds did not have return and/or alpha information for some or all years. In such cases, these funds were not included in the calculation of the weighted average returns and alphas respectively.

[5] At the beginning and end of a fund's life cycle, fewer than 12 monthly asset values were typically available. For such partial years, the Morningstar data did not contain information on alpha. We similarly excluded partial years from our analysis.

Table 1 shows the number of funds that were used to calculate average returns and average alphas.

Table 1. Number of Funds Used in the Analysis

	Domestic		International	
	Raw	Used	Raw	Used
Broker-sold	8,597	7,150	2,661	2,189
Direct-sold	1,880	1,710	456	409
Neither	11,839		4,043	
Total	22,316	8,860	7,160	2,598

Results

Tables 2, 3, and 4 show average returns and average risk-adjusted returns for domestic funds, international funds, and pooled domestic/international funds.

For each measure of rates of (risk-adjusted) returns, the tables list asset-weighted average returns for broker-sold funds, for direct-sold funds, and their difference ("overperformance"). This difference captures the extent to which broker-sold funds outperformed direct-sold funds. Negative numbers indicate underperformance of broker-sold funds.

Table 2. Average Rates of Return and Alphas of Domestic Equity Open-End Funds

	Raw Returns			Morningstar's Alpha			One-Factor Alpha			Three-Factor Alpha		
Year	Broker-sold	Direct-sold	Overperformance	Broker-sold	Direct-sold	Overperformance	Broker-sold	Direct-sold	Overperformance	Broker-sold	Direct-sold	Overperformance
1980	33.75%	33.93%	-0.18%	-0.31%	-0.62%	0.32%	1.54%	1.11%	0.42%	-0.30%	-0.48%	0.18%
1981	-3.24%	-2.30%	-0.94%	3.17%	5.02%	-1.85%	-0.21%	1.57%	-1.78%	0.31%	1.08%	-0.77%
1982	27.01%	21.45%	5.56%	4.67%	0.12%	4.55%	5.93%	0.94%	4.99%	5.01%	0.29%	4.72%
1983	20.07%	24.65%	-4.58%	-0.29%	1.59%	-1.87%	-1.40%	1.40%	-2.80%	-0.16%	1.88%	-2.05%
1984	-0.94%	-0.58%	-0.36%	-6.48%	-5.77%	-0.70%	-4.06%	-3.25%	-0.81%	-1.90%	-1.95%	0.05%
1985	27.44%	29.08%	-1.64%	-3.75%	-1.35%	-2.41%	-3.85%	-1.87%	-1.99%	-2.65%	-1.35%	-1.29%
1986	17.11%	17.16%	-0.05%	-0.63%	-0.03%	-0.61%	2.11%	2.08%	0.03%	1.36%	2.56%	-1.20%
1987	3.57%	3.31%	0.26%	-2.66%	-2.30%	-0.36%	1.81%	1.99%	-0.18%	2.76%	3.59%	-0.83%
1988	14.04%	18.18%	-4.14%	-0.65%	2.75%	-3.41%	-2.16%	1.08%	-3.25%	0.25%	1.12%	-0.87%
1989	27.30%	26.65%	0.65%	-1.37%	-1.72%	0.35%	0.27%	-0.85%	1.12%	0.62%	0.22%	0.40%
1990	-4.85%	-6.72%	1.86%	-2.01%	-3.84%	1.83%	-0.03%	-0.95%	0.92%	0.89%	1.30%	-0.41%
1991	31.92%	38.27%	-6.35%	2.35%	4.83%	-2.48%	-0.39%	2.15%	-2.55%	-0.57%	-0.89%	0.31%
1992	7.51%	8.65%	-1.14%	0.69%	1.77%	-1.09%	-1.74%	-0.73%	-1.01%	-1.95%	-2.38%	0.44%
1993	13.94%	17.65%	-3.71%	3.45%	6.38%	-2.93%	3.54%	6.81%	-3.27%	2.25%	4.14%	-1.89%
1994	-1.46%	-0.32%	-1.13%	-2.66%	-1.69%	-0.97%	-1.20%	0.06%	-1.26%	-1.04%	0.36%	-1.40%
1995	32.78%	33.48%	-0.69%	-1.97%	-1.78%	-0.18%	-4.76%	-7.63%	2.87%	-0.63%	0.99%	-1.61%
1996	18.05%	19.04%	-0.98%	-2.55%	-1.77%	-0.77%	-2.30%	-0.57%	-1.73%	-1.39%	-1.06%	-0.33%
1997	25.37%	26.17%	-0.80%	-3.12%	-2.31%	-0.80%	-4.00%	-3.34%	-0.66%	-5.66%	-5.38%	-0.28%
1998	20.65%	21.86%	-1.21%	-7.27%	-6.33%	-0.94%	-2.80%	-1.57%	-1.23%	-1.61%	-2.67%	1.06%
1999	29.68%	24.90%	4.78%	4.75%	1.96%	2.80%	5.44%	1.94%	3.50%	1.81%	1.30%	0.51%
2000	-7.14%	-4.59%	-2.55%	3.26%	6.18%	-2.92%	6.46%	7.67%	-1.21%	5.60%	7.11%	-1.50%
2001	-14.32%	-10.62%	-3.71%	-0.32%	2.89%	-3.21%	-1.81%	0.88%	-2.69%	-3.04%	-0.82%	-2.22%
2002	-22.30%	-20.10%	-2.20%	-2.95%	-0.03%	-2.91%	-2.06%	0.22%	-2.28%	-2.68%	-0.37%	-2.31%
2003	30.80%	31.44%	-0.64%	1.65%	2.54%	-0.88%	-0.62%	0.64%	-1.25%	-2.81%	-1.43%	-1.38%
2004	11.73%	12.74%	-1.01%	-0.83%	0.09%	-0.92%	-0.67%	0.38%	-1.06%	-0.22%	0.88%	-1.09%
2005	7.94%	8.18%	-0.24%	2.42%	2.46%	-0.04%	1.90%	2.10%	-0.20%	1.20%	1.35%	-0.15%
2006	13.67%	14.08%	-0.41%	-4.07%	-4.24%	0.17%	-2.75%	-2.88%	0.13%	-4.32%	-3.79%	-0.54%
2007	7.62%	8.13%	-0.51%	1.38%	1.70%	-0.33%	1.97%	2.46%	-0.50%	1.45%	1.88%	-0.43%
2008	-38.88%	-39.35%	0.47%	1.99%	4.15%	-2.16%	-0.14%	1.14%	-1.28%	0.32%	0.98%	-0.67%
2009	32.60%	34.22%	-1.62%	5.81%	5.89%	-0.07%	6.00%	6.01%	-0.01%	4.81%	5.26%	-0.45%
2010	16.20%	18.33%	-2.13%	1.24%	2.75%	-1.51%	-0.67%	0.88%	-1.55%	-0.73%	-0.49%	-0.24%
2011	-2.88%	-1.77%	-1.11%	-4.17%	-3.05%	-1.13%	-3.08%	-1.96%	-1.11%	-3.42%	-2.34%	-1.07%
2012	14.99%	16.13%	-1.13%	-0.95%	-0.47%	-0.47%	-1.30%	-0.84%	-0.46%	-1.50%	-0.66%	-0.84%
2013	32.11%	33.89%	-1.78%	1.72%	2.35%	-0.63%	-0.28%	0.03%	-0.31%	-3.36%	-2.39%	-0.98%
2014	9.75%	10.72%	-0.97%	-3.23%	-2.31%	-0.92%	-1.64%	-0.76%	-0.88%	-1.06%	0.45%	-1.51%
2015	-0.54%	0.59%	-1.13%	-1.64%	-0.43%	-1.21%	-0.49%	0.65%	-1.15%	-1.33%	-0.58%	-0.75%

Source: AACG calculations based on Morningstar data.

Table 3. Average Rates of Return and Alphas of International Equity Open-End Funds

	Raw Returns			Morningstar's Alpha			One-Factor Alpha			Three-Factor Alpha		
Year	Broker-sold	Direct-sold	Overper-formance	Broker-sold	Direct-sold	Overper-formance	Broker-sold	Direct-sold	Overper-formance	Broker-sold	Direct-sold	Overper-formance
1980	28.75%	23.72%	5.03%									
1981	1.16%	-3.10%	4.26%									
1982	18.08%	8.29%	9.78%									
1983	31.94%	31.64%	0.30%									
1984	0.78%	-0.66%	1.44%	The international benchmark returns from Fama-French start in July 1990								
1985	30.30%	44.36%	-14.07%									
1986	22.74%	59.25%	-36.51%									
1987	5.11%	11.59%	-6.49%									
1988	19.09%	14.19%	4.91%									
1989	23.12%	23.44%	-0.32%									
1990	-9.88%	-8.90%	-0.98%									
1991	26.96%	11.94%	15.02%	13.13%			18.15%	3.21%	14.93%	17.01%	2.77%	14.24%
1992	3.03%	-3.49%	6.51%	3.66%			3.80%	2.03%	1.77%	6.39%	4.94%	1.46%
1993	30.41%	38.97%	-8.56%	10.64%			18.54%	21.68%	-3.14%	18.36%	16.86%	1.50%
1994	-1.06%	-1.79%	0.73%	-5.10%			-7.97%	-9.18%	1.21%	0.24%	-0.40%	0.64%
1995	17.08%	11.71%	5.37%	3.18%			9.79%	3.89%	5.89%	9.54%	3.90%	5.64%
1996	17.75%	16.56%	1.19%	5.92%			11.56%	10.26%	1.31%	9.98%	8.23%	1.74%
1997	11.57%	7.96%	3.61%	-0.42%			10.89%	8.31%	2.59%	6.04%	0.69%	5.36%
1998	8.53%	15.62%	-7.09%	-14.64%			-7.28%	-0.93%	-6.35%	-3.93%	0.73%	-4.66%
1999	39.74%	47.12%	-7.39%	7.19%	8.92%	-1.73%	-2.95%	-0.65%	-2.29%	-11.32%	-7.96%	-3.35%
2000	-9.72%	-14.47%	4.76%	5.13%	4.17%	0.96%	7.36%	6.29%	1.07%	9.39%	12.67%	-3.28%
2001	-11.84%	-19.42%	7.57%	8.38%	2.07%	6.31%	8.45%	3.23%	5.22%	9.54%	4.88%	4.66%
2002	-14.54%	-17.60%	3.06%	-0.22%	-3.74%	3.52%	-2.46%	-5.09%	2.63%	6.20%	1.70%	4.49%
2003	35.72%	36.39%	-0.67%	-1.88%	-4.09%	2.21%	-7.89%	-11.01%	3.12%	-13.03%	-13.43%	0.40%
2004	17.92%	18.09%	-0.18%	-1.66%	-2.64%	0.98%	-3.60%	-5.11%	1.51%	-4.88%	-6.83%	1.95%
2005	14.43%	17.14%	-2.70%	0.42%	1.05%	-0.63%	-0.96%	-0.35%	-0.61%	0.61%	0.63%	-0.02%
2006	22.41%	25.40%	-2.99%	-2.03%	-1.91%	-0.12%	-2.02%	-2.74%	0.72%	-5.69%	-5.37%	-0.32%
2007	14.65%	15.76%	-1.11%	-0.17%	-0.70%	0.53%	2.17%	2.69%	-0.52%	0.30%	2.16%	-1.86%
2008	-41.97%	-45.76%	3.79%	-1.51%	-0.62%	-0.90%	-2.48%	-1.74%	-0.74%	-3.25%	-2.30%	-0.95%
2009	38.93%	40.63%	-1.69%	2.79%	-1.74%	4.53%	9.99%	6.27%	3.72%	15.16%	10.44%	4.73%
2010	12.57%	12.98%	-0.41%	1.66%	1.35%	0.30%	1.83%	1.29%	0.54%	2.45%	2.91%	-0.46%
2011	-10.84%	-14.25%	3.41%	1.16%	-0.40%	1.56%	1.35%	-0.76%	2.11%	-2.66%	-4.34%	1.68%
2012	18.12%	19.84%	-1.72%	3.55%	3.33%	0.22%	3.28%	2.76%	0.53%	4.02%	3.17%	0.84%
2013	22.18%	20.66%	1.52%	7.02%	5.44%	1.58%	4.05%	-0.27%	4.32%	5.55%	1.06%	4.49%
2014	-0.07%	-2.13%	2.05%	2.10%	1.65%	0.44%	4.46%	2.82%	1.63%	2.73%	1.50%	1.23%
2015	-2.08%	-4.05%	1.97%	2.17%	1.09%	1.08%	-1.31%	-3.15%	1.84%	-3.42%	-3.64%	0.22%

Source: AACG calculations based on Morningstar data.

Table 4. Average Rates of Return and Alphas of Domestic and International Equity Open-End Funds

	Raw Returns			Morningstar's Alpha			One-Factor Alpha			Three-Factor Alpha		
Year	Broker-sold	Direct-sold	Overperformance	Broker-sold	Direct-sold	Overperformance	Broker-sold	Direct-sold	Overperformance	Broker-sold	Direct-sold	Overperformance
1980	33.14%	33.85%	-0.71%	-0.35%	-0.62%	0.27%	1.54%	1.11%	0.42%	-0.30%	-0.48%	0.18%
1981	-2.67%	-2.32%	-0.35%	3.05%	5.02%	-1.97%	-0.21%	1.57%	-1.78%	0.31%	1.08%	-0.77%
1982	25.68%	21.18%	4.50%	4.77%	0.12%	4.65%	5.93%	0.94%	4.99%	5.01%	0.29%	4.72%
1983	21.92%	24.78%	-2.86%	0.32%	1.59%	-1.26%	-1.40%	1.40%	-2.80%	-0.16%	1.88%	-2.05%
1984	-0.65%	-0.58%	-0.07%	-6.15%	-5.77%	-0.38%	-4.06%	-3.25%	-0.81%	-1.90%	-1.95%	0.05%
1985	27.97%	29.78%	-1.81%	-4.42%	-1.35%	-3.08%	-3.85%	-1.87%	-1.99%	-2.65%	-1.35%	-1.29%
1986	18.12%	21.08%	-2.96%	-1.05%	-0.03%	-1.02%	2.11%	2.08%	0.03%	1.36%	2.56%	-1.20%
1987	3.85%	4.09%	-0.25%	-3.47%	-2.30%	-1.17%	1.81%	1.99%	-0.18%	2.76%	3.59%	-0.83%
1988	15.02%	17.94%	-2.92%	-0.03%	2.75%	-2.79%	-2.16%	1.08%	-3.25%	0.25%	1.12%	-0.87%
1989	26.41%	26.48%	-0.06%	-0.64%	-1.72%	1.08%	0.27%	-0.85%	1.12%	0.62%	0.22%	0.40%
1990	-5.95%	-6.86%	0.91%	-2.10%	-3.84%	1.73%	-0.03%	-0.95%	0.92%	0.89%	1.30%	-0.41%
1991	30.86%	36.72%	-5.85%	3.23%	4.83%	-1.60%	3.56%	2.21%	1.35%	3.18%	-0.67%	3.85%
1992	6.61%	8.02%	-1.41%	0.90%	1.77%	-0.88%	-0.63%	-0.59%	-0.04%	-0.27%	-2.00%	1.73%
1993	17.23%	19.08%	-1.85%	3.90%	6.38%	-2.48%	6.53%	7.81%	-1.28%	5.47%	5.00%	0.47%
1994	-1.36%	-0.48%	-0.88%	-2.83%	-1.69%	-1.14%	-2.89%	-0.92%	-1.96%	-0.72%	0.28%	-1.00%
1995	28.95%	31.61%	-2.66%	-1.58%	-1.78%	0.21%	-1.21%	-6.65%	5.43%	1.85%	1.24%	0.62%
1996	17.98%	18.83%	-0.85%	-1.97%	-1.77%	-0.20%	1.01%	0.34%	0.67%	1.33%	-0.28%	1.60%
1997	22.10%	24.57%	-2.47%	-2.94%	-2.31%	-0.63%	-0.48%	-2.32%	1.84%	-2.89%	-4.85%	1.96%
1998	17.96%	21.34%	-3.38%	-7.66%	-6.33%	-1.33%	-3.79%	-1.51%	-2.28%	-2.12%	-2.39%	0.27%
1999	31.61%	26.69%	4.92%	5.22%	2.52%	2.70%	3.83%	1.73%	2.10%	-0.71%	0.55%	-1.27%
2000	-7.62%	-5.54%	-2.08%	3.61%	5.99%	-2.38%	6.63%	7.54%	-0.91%	6.31%	7.64%	-1.33%
2001	-13.87%	-11.39%	-2.47%	1.28%	2.82%	-1.54%	0.08%	1.09%	-1.01%	-0.73%	-0.32%	-0.41%
2002	-20.85%	-19.88%	-0.96%	-2.44%	-0.35%	-2.08%	-2.13%	-0.24%	-1.89%	-1.02%	-0.19%	-0.83%
2003	31.75%	31.87%	-0.12%	0.97%	1.96%	-0.99%	-2.03%	-0.38%	-1.65%	-4.80%	-2.48%	-2.32%
2004	13.04%	13.25%	-0.21%	-1.00%	-0.17%	-0.83%	-1.29%	-0.14%	-1.15%	-1.20%	0.14%	-1.35%
2005	9.49%	9.22%	0.27%	1.94%	2.30%	-0.35%	1.21%	1.81%	-0.60%	1.06%	1.26%	-0.20%
2006	16.06%	15.84%	0.22%	-3.51%	-3.88%	0.37%	-2.55%	-2.86%	0.31%	-4.70%	-4.03%	-0.67%
2007	9.73%	9.58%	0.15%	0.91%	1.24%	-0.33%	2.03%	2.51%	-0.48%	1.10%	1.94%	-0.83%
2008	-39.83%	-40.64%	0.81%	0.91%	3.18%	-2.27%	-0.86%	0.56%	-1.42%	-0.78%	0.32%	-1.10%
2009	34.50%	35.48%	-0.97%	4.90%	4.39%	0.51%	7.20%	6.06%	1.14%	7.92%	6.27%	1.65%
2010	15.09%	17.26%	-2.17%	1.37%	2.47%	-1.10%	0.09%	0.96%	-0.87%	0.24%	0.20%	0.04%
2011	-5.27%	-4.27%	-1.00%	-2.57%	-2.51%	-0.05%	-1.75%	-1.72%	-0.02%	-3.19%	-2.74%	-0.45%
2012	15.88%	16.83%	-0.95%	0.33%	0.25%	0.08%	0.01%	-0.15%	0.16%	0.07%	0.07%	0.00%
2013	29.32%	31.21%	-1.89%	3.21%	2.97%	0.23%	0.93%	-0.03%	0.97%	-0.86%	-1.69%	0.83%
2014	7.07%	8.01%	-0.94%	-1.78%	-1.48%	-0.31%	0.02%	-0.01%	0.03%	-0.03%	0.67%	-0.70%
2015	-0.95%	-0.41%	-0.54%	-0.63%	-0.10%	-0.52%	-0.71%	-0.16%	-0.55%	-1.89%	-1.24%	-0.65%

Source: AACG calculations based on Morningstar data.

4. POTENTIAL DATA ISSUES

There are some data-related observations that may affect the results shown above.

Incomplete Data in Morningstar

Some funds in the Morningstar data appear to be missing asset size or returns/alphas and were hence excluded from the analysis.

Alphas appear to be available only for full calendar years from January to December. Funds that started during 2014 or 2015 or that dissolved before a full calendar year elapsed are therefore missing data. But we have identified a number of funds that lacked data despite existing for at least one calendar year.

In order to gain a complete picture of relative performance of broker-dealer sold funds, it is important to access and analyze data for mutual funds that are no longer active. If the missing data are concentrated among obsolete funds and/or among one classification of funds (broker-sold or direct-sold), this can affect the results shown above and the conclusions derived from them.

The impact of these missing data cannot be measured until the net asset size of the missing funds and their performance can be established.

Using Share Class Type to Determine Sales Channel

In order to measure relative performance of broker-dealer sold funds to direct-sold funds, this analysis uses the share class type field to classify and analyze the data. The analysis assumes that share classes A, B, C, D, T and Adv use the broker-dealer sales channel.

Many load funds may waive load fees in order to gain access to investors served in a fiduciary setting such as Defined Benefit plan or fee-based advisory account. Some of the assets, returns and alpha for a fund with share class type A currently classified as a broker-dealer sold should therefore be instead classified as direct-sold or neither direct nor broker-sold.[6]

[6] A recent filing by UBS Financial Services Inc., an investment advisory firm subject to a fiduciary standard, shows that some of its clients were invested in load-funds such a class type A funds. (Form ADV Disclosure Brochure, UBS Financial Services Inc. March 31, 2015 available at http://www.adviserinfo.sec.gov/Iapd/Content/Common/crd_iapd_Brochure.aspx?BRCHR_VRSN_ID=308745.)

APPENDIX. SHARE CLASS TYPE DESCRIPTIONS

This appendix is based on Morningstar Direct.

Shares of a fund may be offered in different classes, corresponding to different shareholder rights and obligations, such as different fee and load charges. Common share classes are A (front-end load), B (deferred fees), C (no sales charge and a relatively high annual 12b-1 fee, such as 1.00%). Multi-class funds hold the same investment portfolio for all classes, and differ only in their surrounding fee structure.

Share Classes Associated with Broker-Sold Funds

Share Class – A

Funds that have lower investment minimums and carry a front-load to pay the advisors' sales commission. Front-load discounts are usually available if the investor meets a higher minimum initial purchase. Also known as 1, I or One. Typically, the maximum front load is between 4% and 5.75%, the maximum deferred load is zero, the maximum 12b-1 fee is between 0 and 50 bps and the investment minimum is $2,500 or less.

Share Class – Adv

Funds typically purchased through advisors, but generally requiring a higher minimum investment. Also know as Adv or Advisor. Typically, the maximum front load is 0%, the maximum deferred load is 0%, the maximum 12b-1 fee is between 0 and 50 bps, and the investment minimum is $2,500 or less.

Share Class – B

Funds that have lower investment minimums and carry a deferred-load sales charge, also called a surrender charge. The sales charge is imposed if shares are redeemed before specified time periods, typically within five years. The sales charge decreases with the time invested such that the surrender charge is higher in year one than it is in year five. Also know as 2, II, or Two. Typically, the maximum front load is 0%, the maximum deferred load is between 4% and 5%, the maximum 12b-1fee is between 75 and 100 bps, and the investment minimum is $2,500 or less.

Share Class – C

Funds that have lower investment minimums and carry a level-load structure. This sales charge is typically a recurring fee of 1% that is used on an annual basis to compensate advisors. Investment minimums for C- shares tend to be lower than for D-shares. Also know as 3, III, or Three. Typically, the maximum front load is 0% and occasionally 1%, the maximum deferred load is 1% and occasionally 0%, the maximum 12b-1 fees is between 75 and 100 bps, and the investment minimum is $2,500 or less.

Share Class – D

Funds that have lower investment minimums and carry a level-load structure. This sales charge is typically a recurring fee of 1% that is used on an annual

basis to compensate advisors. Investment minimums for C- shares tend to be lower than for D-shares. Typically, the maximum front load is 0%, the maximum deferred load is 0% and occasionally 1%, the maximum 12b-1 fee is 0% and occasionally between 1 and 50 bps, and the investment minimum is $2,000 or more.

Share Class – T

Typically, T shares carry lower front-end loads than A shares and are available to investors with larger initial investments. Typically, the maximum front load is 0% and sometimes between 3% and 4.75%, the maximum deferred load is 0%, the maximum 12b-1 fee is sometimes 0% and sometimes between 25 bps and 50 bps, and the investment minimum is $2,000 or more.

Share Classes Associated with Direct-Sold Funds

Share Class – Inv

Investor share classes can be purchased by individual investors, so there is usually no front or deferred load charged. However, investment minimums may be slightly higher. Also know as Investor or Investment. Typically, the maximum front load is 0%, the maximum deferred load is 0%, the maximum 12b-1 fee is sometimes 0% and sometimes between 1bp and 25 bps, and the investment minimum is $10,000 or less.

Share Class – No Load

Funds without front- or back-end sales charges. Purchased directly by investors or through advisors. Typically, the maximum front load is 0%, the maximum deferred load is 0%, the maximum 12b-1 fee is between 0 and 100 bps, and the investment minimum is $2,500 or less.

Share Class – S

S share classes are similar to no-load funds in that there is usually no front or deferred load charged. However, investment minimums may be slightly higher. Typically, the maximum front load is 0%, the maximum deferred load is 0%, the maximum 12b-1 fee is 0%, and the investment minimum is $2,000 or more.

Share Classes Associated with Neither Broker- Nor Direct-Sold Funds

Share Class – Inst.

Funds typically purchased by large institutional buyers, such as pension plans. Also known as Y, I, Z, X, Inst, Instl. Typically, the maximum front load is 0%, the maximum deferred load is 0%, the maximum 12b-1 fee is 0%, and the investment minimum is $25,000 or more.

Share Class – Load Waived

Load Waived share classes don't require its investors to pay loads (but 12b-1 fee may still be required). In most cases, mutual fund companies will limit the number of load-waived funds available to only certain investors.

Share Class – M

Typically, M shares carry lower front-end loads than A shares and are available to investors with larger initial investments. Typically, the maximum front load is sometimes 0% and sometimes between 1% and 3.5%, the maximum deferred load is 0%, the maximum 12b-1fee is sometimes 0% and sometimes between 25 bps and 100 bps, and the investment minimum is $50,000 or more.

Share Class – N

Typically, N shares are available to investors with larger initial investments. Many also charge a 12b-1 fee. Typically, the maximum front load is 0%, the maximum deferred load is 0%, the maximum 12b-1 fee is between 25 and 50 bps, and the investment minimum is $50,000 or more.

Share Class – Other

Funds not elsewhere classified. This category contains fewer than 5% of all funds. Also know as most other share class letters. The maximum front load varies, the maximum deferred load varies, the maximum 12b-1 fee varies, and the investment minimum varies.

Share Class – Retirement

Funds available through retirement plans. Purchased by retirement plan participants, usually without any sales loads. Also known as Ret, R, K, and J. Typically, the maximum front load is 0%, the maximum deferred load is 0%, the maximum 12-b1 fee is between 25 and 50 bps, and the investment minimum varies.

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CONSULTING GROUP

Review of Selected Studies and Comments in Response to the Department of Labor's Conflict of Interest 2015 Proposed Rule and Exemptions

March 4, 2016

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ABSTRACT

In April 2015, the U.S. Department of Labor (DOL) published a Conflict of Interest Proposed Rule.[1] The DOL received numerous comments. This document reviews six studies that were submitted among the comments by NERA Economic Consulting, Oliver Wyman, the Investment Company Institute, Compass Lexecon, Robert Litan and Hal Singer of Economists Inc., and Quantria Strategies.

We first discuss a number of common themes that were raised in the studies and then separately address each of the six studies with a summary of our opinions, a synopsis of the study, and a discussion of the pertinent arguments. We generally find the studies lacking in rigor, failing to recognize emerging alternatives to traditional offerings of investment advice, incorrectly equating the benefits of conflicted advice to those of non-conflicted advice, or suffering from logical fallacies. None of the studies offer compelling arguments against implementation of the DOL's Conflict of Interest Proposed Rule.

[1] See Federal Register, Volume 80, p. 21928, available at http://webapps.dol.gov/FederalRegister/PdfDisplay.aspx?DocId=28201.

CONTENTS

ABBREVIATIONS

bps	Basis points (1 bps = 0.01%)
DB	Defined benefit
DC	Defined contribution
DOL	U.S. Department of Labor
ERISA	Employee Retirement Income Security Act
EBRI	Employee Benefit Research Institute
GAO	General Accounting Office
ICI	Investment Company Institute
IRA	Individual Retirement Account (or Individual Retirement Arrangement)
RIA	Regulatory impact analysis
S&P	Standard & Poors
SCF	Survey of Consumer Finances
SEC	Securities and Exchange Commission
SIFMA	Securities Industry and Financial Markets Association

1. INTRODUCTION

In April 2015, the DOL published a Conflict of Interest Proposed Rule ("Proposed Rule")[2] along with a Regulatory Impact Analysis (DOL 2015).[3] This document contains reviews of six studies and supplemental materials that were submitted among the many comments that the DOL received.

- *NERA Economic Consulting*: SIFMA submitted comments, which included a comment by NERA Economic Consulting (NERA 2015a).[4] In response to questions from the DOL, NERA provided additional details in a memorandum (NERA 2015b).[5] No individual authors are listed on NERA (2015a). The author of NERA (2015b) is Patrick Conroy.

- *Oliver Wyman*: Several financial services firms jointly commented based on a study by Oliver Wyman Inc. titled "The role of financial advisors in the US retirement market" (Oliver Wyman 2015).[6] No individual authors are listed.

- *Investment Company Institute*: Brian Reid and David W. Blass of ICI filed a July 21, 2015 letter "re: RIN 1210-AB32: Regulatory Impact Analysis, Definition of the Term "Fiduciary"; Conflict of Interest Rule—Retirement Advice" (ICI 2015a).[7] In response to questions from the DOL, Reid and Blass provided additional details in two letters of September 24, 2015 (ICI 2015b)[8] and December 1, 2015 (ICI 2015c).

- *Compass Lexecon*: Counsel for Primerica, Inc. submitted a study by Compass Lexecon titled "Tax Consequences to Investors Resulting from Proposed Rules Relating to Financial Representative Fiduciary Status" (Compass Lexecon 2015).[9] No individual authors are listed.

- *Litan and Singer*: The Capital Group submitted a study by Robert Litan and Hal Singer of Economists Inc. on "Good Intentions Gone Wrong: The Yet-To-Be Recognized Costs of the Department of Labor's Proposed Fiduciary Rule" (Litan and Singer 2015a).[10] In response to questions from the DOL, Litan and Singer provided additional details in a letter of September 21, 2015 (Litan and Singer 2015b).[11]

- *Quantria Strategies*: On behalf of a group of clients, Davis & Harman LLP submitted a study by Quantria Strategies LLC titled "Unintended Consequences: Potential of the DOL Regulations to Reduce Financial Advice

[2] See Federal Register, Volume 80, p. 21928, available at http://webapps.dol.gov/FederalRegister/PdfDisplay.aspx?DocId=28201.
[3] Available at http://www.dol.gov/ebsa/pdf/conflictsofinterestria.pdf.
[4] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-00506.pdf.
[5] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-03079.pdf.
[6] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-00515.pdf.
[7] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-00749.pdf.
[8] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-03056.pdf.
[9] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-00615.pdf.
[10] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-00517.pdf.
[11] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-02967.pdf.

and Erode Retirement Readiness" (Quantria 2015).[12] No individual authors are listed.

Several studies made the same or similar assertions or arguments. We address some of these common themes in Section 2. Sections 3 through 8 review the six studies, each with a summary of our opinions, a synopsis of the study, and a detailed discussion.

[12] Available at http://www.dol.gov/ebsa/pdf/1210-AB32-2-00746.pdf.

2. COMMON THEMES

Several studies reviewed in this document made similar assertions or arguments. This section discusses such common themes. They include:

1. The Proposed Rule would force IRA investors with higher balances to migrate to higher-cost fee-based accounts;
2. The Proposed Rule would force IRA investors with low balances to lose access to advice;
3. Lack of advice prompted by the Proposed Rule would cause investors to make mistakes and save less; and
4. The Regulatory Impact Analysis (RIA) misapplies the academic literature.

We discuss these themes in turn, but first define typical IRA account types. IRAs may be held in arrangements through which the account holder has access to financial advice, such as a brokerage account or an advisory account. A brokerage account charges commissions, which may include a fixed amount per trade, a front-end or back-end load charge, annual 12b-1 fees, et cetera. These amounts (and the shares that are paid to the broker) may differ across financial products, which may give rise to conflicts of interest for brokers. In contrast, an advisory account typically charges a percentage of assets under management irrespective of the financial products in which the account balance is invested. This annual fee is also known as a wrap fee. IRAs may also be held in arrangements without professional advice, such as in a discount brokerage account. Consistent with most commentators, we use the term "brokerage account" for accounts that include access to advice and "discount brokerage account" for accounts without access to advice.

Common Theme 1: Investors with Higher Balances Will Migrate to Higher-Cost Fee-Based Accounts

The first and second common themes follow from the premise that the Proposed Rule would make current commission-based brokerage accounts unworkable, forcing the closure of such accounts. To preserve access to advice, some IRAs would migrate to fee-based advisory accounts. According to the first common theme, since a financial institution's main source of revenue from advisory accounts is an annual percentage of assets, migration would be profitable for larger accounts only. Conversely, the second common theme posits that smaller accounts would migrate to a discount brokerage account and lose access to advice.

Several studies argue that the move to advisory accounts would imply higher costs for the IRA account holder. Examples include the following: "This suggests that investors would pay more if moved to fee-based accounts" (NERA 2015a, p. 6); "Almost all retail investors would face increased costs (73% to 196% on average) from providers shifting clients to a fee-based advisory model" (Oliver Wyman 2015, p. 38); "if the account is large enough, move to an advisory relationship, which may increase fees, especially for buy and hold investors" (Quantria 2015, p. 7).

These claims are not based on empirical evidence of investor responses to fee changes. Further, they do not accurately reflect the empirical evidence about the full cost to investors of brokerage accounts. Instead, incorrect cost estimates and a

flawed assumption of static prices and service levels result in biased cost comparisons. First, the difference in fees charged to investors in advisory accounts versus brokerage accounts is smaller than the studies purport to document. Second, brokerage account holders have opted for a lower average service level than holders of advisory accounts and may continue to be served at a lower level (and at a lower cost) after migration.

Oliver Wyman (2015), Litan and Singer (2015a), and Quantria (2015) cite a 2011 study by Oliver Wyman which tabulated higher fees for advisory than for brokerage accounts. However, that comparison accounted for direct expenses only. It ignored expenses that the account holder paid to a third party which shared the proceeds with the broker. In the words of Oliver Wyman (2011, p. 22), the comparison "[e]xcludes marketing and distribution, shareholder services, and other fees not directly paid by investors." The excluded cost components are predominantly relevant for brokerage accounts, i.e., the comparison is biased to make brokerage accounts look less expensive. The excluded cost components can be substantial. For example, 12b-1 fees and shareholder service fees can run as high as 100 bps (SEC 2015).

NERA (2015a) analyzed a proprietary data set of about 63,000 IRAs in brokerage and advisory accounts. It, too, compared expenses of advisory accounts to those of brokerage accounts and concluded that advisory accounts were more expensive. And like Oliver Wyman (2011), NERA (2015a, p. 4) biased the comparison by considering only direct fees: "Fees exclude revenue that the firm may receive indirectly from the account-holder, such as markup/markdown revenue or 12b-1 fees." These and other indirect revenue components vary across products, tend to constitute conflicted compensation, and their exclusion therefore makes brokerage accounts appear less expensive than they really are. In a follow-up memorandum prompted by questions from the DOL, NERA (2015b) defended the exclusion of indirect fees with the assertion that its data set did not contain information related to such fees. However, the detailed, account-level data that NERA compiled presumably included information on fund positions, and 12b-1 fees for individual funds are readily available from Morningstar and other sources. In other words, NERA's fee comparison is biased, making brokerage investments appear to have lower costs than they actually do. NERA acknowledged the bias and did not do anything to mitigate it even though doing so would have been relatively straightforward with publicly available information.

While Oliver Wyman's and NERA's expense comparisons bias brokerage expenses downward, even if average expenses for advisory accounts were higher than for brokerage accounts, a simple comparison of average expenses in brokerage and advisory accounts would not support a conclusion on whether expenses in brokerage accounts would rise or fall when migrated to advisory accounts. The level of activity in brokerage accounts tends to be much lower than that in advisory accounts, and the level of service required to maintain those accounts is correspondingly lower. For example, NERA (2015a) reported that the median brokerage account in its data file traded 6 times in 2014, compared with 57 times for the median advisory account. Advisory accounts tend to have higher balances, which explains some of the difference, but NERA (2015a) found trading frequencies among brokerage accounts to be much lower than among advisory accounts at all reported balance ranges. NERA (2015a, p. 7) presented its results in terms of self-selection of investors: "Thus, the data are consistent with the idea that investors who expect to trade often rationally choose fee-based accounts whereas those that do not trade often are likely to choose commission-based accounts." None of the studies we reviewed suggested

that trading patterns would change if, as asserted, brokerage accounts are converted into advisory accounts. In other words, financial institutions may be expected to continue to provide the same, relatively low level of service after conversion as they currently provide to brokerage accounts.

In a competitive market, a lower level of service should of course be provided at a lower cost. Indeed, as observed by Council of Economic Advisers (2015, p. 21):

> The cost of advice depends primarily on the resources necessary to provide it—the adviser's time, IT infrastructure, and other inputs—rather than the form of the adviser's compensation. Thus, an adviser receiving payment through non-conflicted structures should be able to provide advice at the same cost as an adviser receiving conflicted payments, as long as the inputs in time and infrastructure are equal.

The studies reviewed in this document failed to recognize that services currently provided to brokerage accounts should cost roughly the same in advisory accounts. For example, ICI (2015a, p. A-1) assumed—without motivation—that current pricing models will carry over: "The difference in the fees [between advisory and brokerage accounts] is roughly 60 basis points […], which is the additional amount that each investor moving to a fee-based account would pay." Instead of retaining their current pricing structures, financial institutions may be expected to offer modified account types that avoid fees on services that newly migrated investors do not demand.

Common Theme 2: Investors with Low Balances Will Lose Access to Advice

As noted above, several studies adopted the premise that the Proposed Rule would make current commission-based brokerage accounts unworkable and that it would force the closure of such accounts. The studies argued that larger IRAs would migrate to fee-based advisory accounts, but that such accounts would not be profitable for smaller accounts. Instead, they argue, smaller accounts would migrate to an account type without access to advice. Examples include the following: "If the DOL proposal were to make commission-based accounts unworkable for broker-dealers, these accounts [with balances under $25,000] could no longer be maintained" (NERA 2015a, p. 12); "Millions of existing small balance IRA owners are likely to lose access to the financial advisor of their choice or any financial advisor at all" (Oliver Wyman 2015, p. 3); "it is very likely that under the current proposal investors with less than $100,000 in IRA balances would not be able to get access to fee-based accounts" (ICI 2015a, p. A-1); and "Faced with this new [fiduciary] duty for brokerage accounts, many brokerage firms would likely react either by exiting the segment of the IRA market represented by individuals with modestly sized portfolios […] or by switching to a fee-based advisory model for these investors" (Litan and Singer 2015a, p. 12). The studies vary in their assessment of a balance threshold below which advisory accounts would be unprofitable. ICI (2015a) assumes that the minimum balance for an advisory account is $100,000; others contend the minimum balance may be as low as $25,000.

Many factors cast doubt on the studies' premise that IRA account holders with low balances will lose access to advice.

First, smaller investors already have advisory accounts despite assertions that low-balance advisory accounts are not profitable. The data described by NERA (2015a,

2015b) show that approximately 8% of IRAs with balances under $25,000 are advisory accounts, and 20% of IRAs under $100,000 are advisory accounts (compared with 29% across all account sizes).[13] Evidence from overseas similarly suggests that low-balance accounts can be serviced profitably in the absence of conflicts of interest. For example, among Dutch accounts whose advisers "are paid fixed wages only," Kramer (2012) found that the 5th percentile of account balances was just €600.

Second, the Proposed Rule contains carve-outs and exemptions that seek to preserve current business models. Citing unspecified sources or no sources at all, several studies argue that the exemptions are unworkable. However, it is ultimately an empirical question to what extent financial institutions will take advantage of available exemptions.

Third, in addition to the two points above which are enough to demonstrate that smaller investors can and do have advisory accounts, financial institutions may develop new account types, or adjust current-style brokerage and advisory accounts. The perspective that current-style brokerage and advisory accounts, with current-style pricing structures, will be the only options available to IRA investors after conflict-of-interest regulations go into effect is too static. The declining cost of providing advice and related services has already created opportunities for new account types. The marketplace for new advisory options is rapidly changing with the arrival of automated or 'robo' investment advice. The minimum balance requirement for many of these robo-advisers is low enough to cater to IRA accounts with assets under $25,000. For example, Tergesen (2015) documented that many robo-advisory firms, including such well-known investment advisory firms as Wealthfront Inc. and Betterment LLC have minimum balance requirements ranging from $500 to as low as $0. By definition, lower-balance accounts have fewer assets to invest and likely require fewer services than larger accounts. This characteristic can make them particularly suitable for automated advice. Also, target date funds rebalance automatically and adjust their exposure to risk automatically, thereby reducing the effort required to maintain an account.

In addition to the existing options, new options are appearing in the marketplace. For example, investors who strongly prefer human-based investment advice may have alternative options. Innovation in the marketplace for investment advice includes the advent of a hybrid model that combines automated and human-based investment advice methods. FutureAdvisor and SigFig, two hybrid online investment management advisers, offer access to an investment adviser to accounts with a minimum balance of $10,000 (FutureAdvisor 2015, SigFig 2016). Another hybrid investment adviser, Personal Capital, recently lowered its minimum required to open an account from $100,000 to $25,000 and is part of an industry trend towards lower minimum balance requirements.

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[13] NERA (2015b, p. 4) shows that about 9% of fee-based accounts and 41% of commission-based accounts had balances under $25,000. NERA (2015a, p. 4) states that 29.36% of accounts were fee-based, i.e., 9% x 29.36% = 2.6% of accounts were fee-based with a balance under $25,000 and 41% x (1-29.36%) = 29.0% were commission-based with a balance under $25,000. Fee-based accounts thus make up about 2.6%/(2.6% + 29.0%) = 8% of all accounts with balances under $25,000. Analogous logic shows that about 20% of accounts with balances under $100,000 were fee-based. Also see Table 4 on page 40 of this document.

Major brokerage houses that currently offer commission-based IRA accounts are entering the automated advice market and making automated advice a viable alternative to traditional investment advice models. A recent study forecasts that robo-advisory services will manage more than $2 trillion in assets in just four years from now (AT Kearney 2015).

Fourth, additional evidence from overseas suggests that concerns over the loss of advice failed to materialize because investors who stopped being served found a replacement adviser. In a preliminary evaluation of changes to the financial system in the United Kingdom, which recently banned payments to financial advisers that depend on the advice given, Europe Economics (2014, p. 63) found:

> Some advisers have sought to terminate unprofitable client relationships. Data from NMG Consulting, for example, imply that in the year to Q1 2014 about 310,000 clients stopped being served for this reason. On the other hand 820,000 clients were gained in the same period. The same survey indicates that advisers refused to serve about 60,000 (potential new) clients in the same period. If we assume that many of those clients with relationships terminated on the grounds of inadequate profitability sought out another adviser, the positive net increase in customers served suggests that such looking around for a replacement was largely successful. We cannot rule out the existence of a residual group of consumers denied service in this way. However these data do not speak to a significant issue here.

Fifth, the argument that an investor can be served profitably in a brokerage account but not in an advisory account raises the uncomfortable question of how advisers are able to serve small brokerage accounts under the current regime. The cost of providing advice depends not on the adviser's compensation structure but on the adviser's time, IT infrastructure, and other inputs. Suppose an adviser requires, say, $500 annually to serve a $20,000 account. If conflicted payments were banned, she could charge an asset-based fee of 2.5% (or a flat $500) and continue providing financial advice. The account holder may object to such charges as too high and decide to forego the advice. This scenario is consistent with the argument that advisers would be unable to charge fees sufficient to cover their costs. At issue is why the account holder and the adviser have a relationship under the current regime. A plausible explanation is that the account holder does not realize how much he is paying for advice; once confronted with the full cost, he is not willing to buy it anymore. This implies a market failure: brokerage account holders may currently purchase too much conflicted advice. Basic economics suggest that a reduction of advice, resulting from greater transparency of costs and fees, will benefit the account holder.

In short, the financial industry, renowned for its ability to innovate and evolve, is likely to adapt to new regulation. Some providers may adjust their processes and recordkeeping to take advantage of carve-outs and exemptions. Perhaps more importantly, new technology and such products as target date funds are driving down the cost of serving small accounts and allow for modified account types or price structures. That trend is already well on its way.

Common Theme 3: Lack of Advice Will Cause Investors to Make Mistakes and Save Less

The third common theme is the argument that reduced professional advice will cause IRA investors to make more investment mistakes and save less. The argument tends to be based on research that purports to show benefits of financial advice. For example, ICI (2015a, p. 8): "Research shows that investors with access to advice have more diversified portfolios and take on more appropriate levels of risk than those who do not receive advice or information"; Litan and Singer (2015a, pp. 10-11): "brokers encourage their clients to save [… and] brokers help reduce investors' tendency to under-diversify in local stocks by overcoming the home-bias effect"; Quantria (2015, p. 12): "Access to financial advice counters the effects of a lack of financial literacy."

We agree that many investors benefit from professional advice, such as through increased saving or reduced investment mistakes. However, the benefits likely depend on the type of advice that is given. The studies under review are concerned that investors with small balances in brokerage accounts will lose access to advice. Such advice is subject to conflicts of interest and it is given to investors with relatively few assets. Under those conditions, much of the evidence put forth by the studies under review dissipates.

First, the studies tend to confuse the benefits of conflicted and non-conflicted advice. The studies that are cited as evidence of the benefits of professional advice tend to focus on non-conflicted advice. Each study cites its own body of literature and we will address specific citations in the individual reviews below, but our overall finding is that no study identified benefits of conflicted advice. (This does not imply that conflicted advice yields no benefits; we find only that none of the studies helped identify or quantify such benefits.)

Second, the studies tend to confuse causality with correlation. For example, Oliver Wyman (2015, p. 2) finds that "advised individuals aged 35-54 years making less than $100K per year had 51% more assets than similar non-advised investors." It is doubtful that advisers deserve all the credit for the observed difference: did advisers prod their clients to save more, or are individuals who are serious about retirement saving more likely to seek professional advice? The causality may well run both ways. Oliver Wyman (2015) even designed and fielded its own survey but did not document the timing of financial advisers' involvement or any other questions that could have demarcated their role. Similarly, the literature cited in other studies under review did not distinguish causality from correlation.[14]

Third, the studies focus on gross benefits only, without taking costs into consideration. For example, some studies tout that advised households rebalance their portfolio more often than non-advised households. While that may seem laudable, rebalancing involves selling and buying securities and thus transaction

[14] That said, two academic articles (both cited by NERA 2015a) presented evidence indicating that at least some of the increased saving occurred after an adviser was retained. Both related to overseas households and at least one to non-conflicted advice. Also see Section 3.

costs. Without information on brokerage commissions and front-end load fees, the net benefits of frequent rebalancing are questionable.[15]

Fourth, several studies reference DOL's (2011) analysis of expanded investment advice for evidence that advice results in investors' avoiding investment mistakes that would cost them roughly $7bn-$18bn. The focus of DOL (2011) is on *non-conflicted* advice. Also, the benefits estimated in that analysis relate to all IRA and DC balances. In contrast, the advice at issue here relates to only IRA balances that are too small to be served in an advisory account. While many IRA accounts are small, most of the dollars (and potential dollars of investment mistakes) are in larger accounts. Households with IRA assets under $25,000 jointly own only 2% of total IRA assets (Panis and Brien, 2016).

In short, the studies under review cite numerous articles to demonstrate the benefits of advice, but none applies to the conflicted advice that is the focus of the Proposed Rule. We find it plausible that conflicted advice generates certain benefits, but their nature and magnitude remain in question.

Common Theme 4: The Academic Literature Is Misapplied

The fourth common theme is the argument that the RIA misapplies or misinterprets various academic studies upon which it relies. Examples include the following: "The academic research cited in the RIA is misapplied" (NERA 2015a, p. ii); "The academic studies the RIA cites do not support its sweeping claims" (ICI 2015a, p. 8); and "The RIA misuses these studies, however, and in the process, substantially overstates any benefits claimed from them" (Litan Singer 2015a, p. 22).

We carefully evaluated the commentators' arguments and found them to be lacking. This section discusses some recurring criticisms.

First, several studies argue that the academic studies are inapplicable because they are based on obsolete data. Christoffersen et al. (2013) used data from 1993 to 2009, Bergstresser et al. (2009) is based on data from 1996 to 2004, Del Guercio and Reuter (2014) covered 1992 through 2004, et cetera. The general argument is that load charges on mutual funds have diminished since the early 2000s, that conflicts of interest have faded correspondingly, and the underperformance of broker-sold funds found in the academic literature should no longer be of much concern.

The comments do not consider the fact that econometric relationships can be robust to changes in the levels of explanatory variables. For example, Christoffersen et al. (2013) estimated the relationship between broker payments and rates of return. Diminishing average loads and average broker payments do not affect the estimated relationship; a decline in broker payments would imply only that the underperformance became smaller. Indeed, ICI (2015c, p. 9) replicate Christoffersen et al.'s (2013) calculations with more recent data and find very similar (and even somewhat stronger) results. The average broker payment in the data of Christoffersen et al. (2013) was 2.3%, but the RIA adopted 1.41% for 2015 and assumed that it would continue to decline to 0.78% by 2036 (DOL 2015, p. 113).

[15] Vanguard (2014, p. 15) made a similar observation.

Separately, the reduction in loads has not been so precipitous as some suggest. ICI (2015a, p. 9) argued that "in 2000 only about half of the funds with a front-end load share class also had no-load share classes […]. By 2010, however, 90 percent of funds with a front-end load share class also offered a no-load share class." However, as also pointed out by Christoffersen and Evans (2015), more important than a simple count of funds with no-load share classes are the dollars in those funds. Load funds accounted for 36% of retail assets in 2014, down from 49% in 2005 (ICI 2015d, Figure 5.10)—a smaller but far from negligible fraction, and still accounting for $2.6 trillion dollars. Similarly, NERA (2015a, p. 31) claims that "[o]ver the period 1990-2013, front-end sales loads have declined by nearly 75 percent for equity funds and hybrid funds, and even more than that for bond funds." As noted by ICI (2015d) and cited by NERA (2015a), part of this decline is due to load waivers for DC plan purchases, which are not at issue here. Indeed, DC assets rose nine-fold from 0.7 trillion in 1990 to 6.3 trillion in 2013 (ICI 2006, 2015d), thereby bringing down average load charges. In other words, the NERA claim exaggerates the decline in average load charges among mutual funds in IRAs.

Second, some studies objected to the fact that various academic analyses were not weighted by assets or by sales (except for Bergstresser et al., 2009). Indeed, for some purposes, weighting can be important. The average load charge across all load funds, for example, may be more meaningful when a weighted average is calculated. In econometric models, weights may affect the standard errors (the precision of the estimates). However, if the model is correctly specified, and especially if it controls for fund sales or assets, omitting weights does not introduce any bias in the parameter estimates.

Third, some studies interpreted the findings of Christoffersen et al. (2013) as evidence that funds with above-average broker payments underperformed direct-sold funds, and objected to an extrapolation to all funds with any broker payments. However, this objection rests on a logical error. Christoffersen and co-authors were correct to apply their results to all funds with broker payments, as was the DOL in its RIA. The authors estimated the relationship between broker payments (relative to an average) and rate of return. They found that performance decreases as broker payments increase; above-average broker payments suffer from above-average underperformance, and below-average broker payments suffer from below-average underperformance. Their measurement of broker payments relative to an average has no bearing on the estimated relationship for funds with below-average broker payments. Their estimates implied that funds with below-average broker payments had below-average underperformance, not that they had zero underperformance.

Another way to approach the argument is as follows. Christoffersen et al. (2013) found that funds' rates of return decrease by 0.4972 percentage points for every percentage point increase in broker payments. Logically, funds with zero broker payments are free from a conflict of interest and their underperformance is zero. At a broker payment of 1%, estimated underperformance is 0.4972 x 1% = 0.50%, at 2% it is 0.4972 x 2% = 0.99%, etc. Christoffersen at al. (2013) reported average broker payments of 2.3%, where the estimated underperformance is 0.4972 x 2.3% = 1.14% (reflects rounding error; the authors reported 1.13%). Funds with broker payments in excess of 2.3% underperform by more than 1.13% and funds with broker payments under 2.3% underperform by less than 1.13%; on average, load funds underperform by 1.13%.

Fourth, at least one study argues that the cited literature focuses on mutual funds, yet the DOL applies the results more widely. Indeed, the Proposed Rule applies to, for example, variable annuities that are purchased with IRA assets. Variable annuities offer sizeable sales commissions to brokers and thus present conflicts of interest. If anything, the conflicts of interest presented by annuities appear to be sharper than those of mutual funds. According to an industry expert cited in Scism (2012), commissions on indexed annuities average 6.3% of the principal payment, much higher than even the maximum front end load on most mutual funds.[16]

Fifth, some studies under review assert that the academic literature cited in the RIA is not applicable because it does not compare the costs and benefits of fiduciary accounts with those of brokerage accounts. This perspective is overly narrow and misses the point. The cited literature compares outcomes related to conflicted and non-conflicted compensation. Indeed, this distinction tends to correspond to the distinction between brokerage and fiduciary accounts. However, at issue is the conflicted compensation, not the name or structure of the account.

[16] Also see AXA Equitable Life Insurance Company (2013), Jackson National Life Insurance Company (2013), and UBS (2015).

3. NERA ECONOMIC CONSULTING

Summary

In response to DOL's Proposed Rule, SIFMA submitted comments including "Comment on the Department of Labor Proposal and Regulatory Impact Analysis" by NERA Economic Consulting (NERA 2015a). In response to questions from the DOL, NERA provided additional details in a memorandum (NERA 2015b). This section contains a review of the NERA comment and the subsequent memorandum.

The basic premise of the NERA comment is that the Proposed Rule will force brokerage accounts to close, with two consequences: accounts with sufficiently high balances will be moved to a fee-based model, and account holders with small balances will lose access to advice. For the first group, NERA addresses costs of impeding the commission-based investment model. For the second group, it addresses costs of losing access to advice. Finally, NERA challenges the DOL's estimates of the costs of conflicted investment advice.

NERA's analysis of the costs of impeding the commission-based investment model is based on a confidential data set of IRAs which is not publicly available. Hence it is not possible to critically assess some important dimensions of NERA's calculations.

NERA argues that commission-based accounts incur lower fees than fee-based accounts. However, its comparison excludes important fee components. NERA acknowledged the bias but did not do anything to mitigate it even though that would have been relatively straightforward with publicly available information. Separately, and contrary to NERA's claims, NERA's own data suggest that commission-based accounts may have underperformed fee-based accounts on a risk-adjusted basis. In particular, rather than earning virtually the same median return as fee-based accounts, because brokerage accounts in NERA's database may have been riskier, they could have earned *higher* returns, reflecting the risk premium that should have been earned by riskier assets during the period of a strongly appreciating overall market between mid-2012 and early 2015. A particularly troublesome aspect of NERA's analyses is the lack of detail about its data source. NERA (2015a) only presents findings for median accounts. Concerns over conflicted advice are likely to manifest themselves away from the median: commissions may be excessive for a minority of accounts, excessive trading may be found in a minority of accounts, underperformance may be serious for a minority of accounts, etc. Median statistics cannot show any such pattern. In addition, even after being asked directly and given the opportunity to investigate, NERA (2015b) could not provide assurances that the data were representative of financial institutions or IRA accounts in the United States.

NERA next sets out to show that loss of professional advice would be detrimental to investors. We find it plausible that many advisers help reduce investment errors, but the evidence put forth by NERA is not convincing—the mostly foreign studies reviewed may not be applicable to the U.S. context, the studies are selectively quoted or even misquoted, NERA highlights only benefits of advice without weighing those against their costs, and some studies confuse correlation with causality. That said, two studies provided compelling evidence of value added by advisers. One of those articles related to advisers who were relatively free from conflicts of interest,

confirming the value of fiduciary advice but not helping the case for conflicted advice. Separately, NERA misquotes DOL's own analysis of losses due to investment errors. DOL's figures applied to fiduciary advice for all DC plan participants and IRA holders, whereas NERA is concerned with non-fiduciary advice for IRAs with small balances—NERA's assumption that the value of non-fiduciary advice is the same as that of fiduciary advice ignores the very impetus of the Proposed Rule, and even if the two types of advice were equally effective at avoiding investment mistakes, NERA should have reduced the purported benefits by at least 98% to account for the much smaller asset base.

Finally, the NERA comment challenges DOL's calculations of the cost of conflicted advice, asserting that the DOL misapplied or misinterpreted academic studies. Each of its lines of attack however, falls flat due to NERA's own misunderstanding of the literature and of DOL's approach and due to NERA's deficient and narrow interpretation of the applicability of academic studies.

Synopsis

The basic premise of the NERA comment is that the Proposed Rule will force brokerage accounts to close, with two consequences: accounts with sufficiently high balances will be moved to a fee-based model, and account holders with small balances will lose access to advice. For the first group, NERA addresses costs of impeding the commission-based investment model (Section 1). For the second group, it addresses costs of losing access to advice (Section 2). Finally, NERA challenges the DOL's estimates of the costs of conflicted investment advice (Section 3).

To analyze costs of impeding the commission-based investment model, NERA collected account-level data on over 63,000 fee-based and commission-based IRAs. The authors found that median fees on fee-based accounts were 57-101 bps higher than on commission-based accounts, depending on account balance. They also found that, at the median, fee-based accounts traded more frequently than commission-based accounts. Based on median quarterly rates of return, the authors found that commission-based accounts did not underperform fee-based accounts between mid-2012 and early 2015.

About 40% of commission-based IRA balances were below $25,000, characterized as the "conservative minimum account balance" (NERA 2015a, p. 9) required to open a fee-based account. NERA assumes that the Proposed Rule will trigger a loss of access to financial advice for these account holders. NERA asserts that loss of professional advice would cost more than the current cost of conflicted advice because individual investors benefit from financial advisers through better diversified portfolios, fewer investment mistakes, tax minimization, increased savings, and lower cost of information. NERA then reviews a 2011 analysis by the SEC into potential consequences of imposing fiduciary duty on brokers and a 2011 analysis by the DOL, which estimated that more advice to DC plan participants and IRA holders could prevent mistakes that would cost investors $7 billion to $18 billion annually.

The third section concerns the cost of conflicted investment advice. Referring to estimates of the cost of conflicted advice in the Proposed Rule's RIA, NERA concludes that the "range of numbers is so wide as to provide no scientific confidence in the DOL's own methodology" (NERA 2015a, p. 30). It then argues that the RIA misapplied findings of the academic literature on the cost of conflicted advice: the

literature focuses on mutual funds, but the RIA applies it also to variable annuities and other products; the RIA takes results associated with higher-than-average load funds and misapplies them to all funds; and the literature does not compare the costs and benefits of fiduciary accounts with those of brokerage accounts.

Discussion

Overview

Throughout its comment, NERA discusses and compares fee-based account and commission-based accounts. “Fee-based accounts are charged a fixed fee as a percentage of assets whereas commission-based accounts are charged fees based on trading and other activity” (NERA 2015a, p. 3). In related literature, fee-based and commission-based accounts are also referred to as advisory and brokerage accounts, respectively. Advisers to fee-based advisory accounts are generally held to a fiduciary standard of conduct, whereas advisers to commission-based brokerage accounts are held to a lower suitability standard. The Proposed Rule is concerned that advisers to commission-based accounts face conflicts of interest.

The remainder of this section follows the organization of the NERA comment. We first discuss NERA’s Section I on the costs of impeding the commission-based investment model, then Section II on costs of losing access to advice, and finally Section III on the costs of conflicted advice.

I. Costs of Impeding the Commission-Based Investment Model

As summarized above, this section compares commission-based and fee-based IRA accounts with respect to fees and rates of return. NERA’s analysis is primarily based on a confidential dataset of over 63,000 IRA accounts with data ranging from 2012 through the first quarter of 2015.

The NERA comment purports to show that fee-based accounts are more expensive than commission-based accounts. The magnitude of the difference ranges from “about 57 basis points (bps) for relatively small accounts (those with balances below $25,000) up to about 1 percent for accounts with balances from $100,000 to $250,000” (NERA 2015a, p. 6). But fees in this comparison “exclude revenue that the firm may receive indirectly from the account-holder, such as markup/markdown revenue or 12b-1 fees” (NERA 2015a, p. 4). These and other indirect revenue components vary across products, tend to constitute conflicted compensation, and their exclusion therefore makes brokerage accounts appear less expensive than they really are. In the absence of these fees, it cannot be determined whether fee-based accounts are more or less expensive than commission-based accounts. For example, 12b-1 fees and shareholder service fees can run as high as 100 bps (SEC 2015); at that level, fee-based accounts would incur lower fees than commission-based accounts.

The NERA comment recognizes this deficiency in a footnote and seeks to address it in its comparison of rates of return, but not in its fee comparison.

The NERA memorandum defended the exclusion of indirect fees with the assertion that its data set did not contain information related to such fees. However, the detailed, account-level data that NERA compiled presumably included information on portfolio compositions, and 12b-1 fees for individual funds are readily available from

Morningstar and other sources. In other words, NERA's fee comparison is biased; NERA acknowledged the bias and did not do anything to mitigate it even though doing so would have been relatively straightforward with publicly available information.

NERA's Section 1 continues with the argument that individuals self-select into the account type that favors their behavior, based on more frequent trades in fee-based accounts than in commission-based accounts. But the comment fails to qualify what kind of trade transactions have been included and excluded from this comparison. For example, it is not clear whether fee payments for account maintenance and advisory services are included. For fee-based accounts, these fees are expected to be small and periodic and could skew the results. By contrast, commission-based accounts which have few direct fees assessed may not have such trades. Also, many trades may be related to purchases, (mandatory) distributions and dividend reinvestments.[17] The NERA comment does not specify either whether these trades are removed from this analysis.

More generally, NERA provided very little explanation of its data source, which raises questions about the completeness and robustness of its findings. The analysis purports to compare commission-based and fee-based accounts, but the age distribution (Exhibit 1) and the account balance distribution (Table 1) are reported across all account holders. Further, the comparisons of account fees and trading frequency are carried out entirely on the basis of median values, which may not reflect relevant information on 63,000 IRAs. For example, NERA notes that "it is worth noting that the data does not seem to show `churning,' the needless buying and selling of securities. We see the median commission-based account had traded 6 times in 2014. Such trading is more consistent with a buy-and-hold strategy than churning" (NERA 2015a, p. 8). We agree that the median number of trades does not reflect churning. However, the presented figures are also consistent with abundant churning among 49% of commission-based accounts. Insofar we are aware, nobody is alleging that conflicts of interest cause advisers to churn almost one-half of commission-based accounts, but the DOL would presumably be concerned if it occurred in 5% of the accounts. To that end, the 95th percentile of number of trades would be informative. Based solely on the median, NERA's conclusion that churning is not an issue is unconvincing.

NERA presented even fewer relevant details in its comparisons of rates of return for fee-based and commission-based accounts. This part of the analysis is highly relevant, because much of the concern over conflicts of interest is driven by underperformance of funds sold in commission-based accounts. This underperformance has been documented based on publicly available data in peer-reviewed academic articles (e.g., Bergstresser et al., 2009; Christoffersen et al., 2013; Del Guercio and Reuter, 2014). NERA claims to have found that rates of return in commission-based accounts are in fact about equal to those in fee-based accounts. For this claim—based on confidential data and without peer review—to be credible, the analysis needs to be extensively documented and stress-tested. Instead, NERA devotes merely one page to the analysis description and presents

[17] The NERA memorandum showed that individuals age 60 and older are more prevalent among fee-based account holders than among commission-based account holders. These individuals may take regular distributions to fund their retirement, and may even be forced to take distributions because of minimum distribution requirements that apply above age 70½.

quarterly differences in median returns only (NERA 2015a, Table 4, p. 10), with no controls for such factors as the riskiness of investments that are prominent in the academic literature. Even the quarterly returns remain unreported; only the differences in median returns between fee-based and commission-based accounts are provided.

In response to questions from the DOL, the NERA memorandum provides some more, though still inadequate, details.

The analysis of rates of return falls short in several aspects.

First, the comment fails to adjust for differences in riskiness (volatility) of account portfolios. This is important if assets in fee-based and commission-based accounts differ in the average level of risks. For example, a portfolio invested only in stocks that make up the S&P 500 index would have realized compound annual growth rate of approximately 19% over the period of the study, much higher than the historical average rate of return on stocks (finance.yahoo.com, SP500TR). But of course investing in stocks only will not be suitable for all investors, particularly not for those nearing retirement. The NERA memorandum (NERA 2015b, p. 4) shows that account holders of fee-based accounts tend to be older than commission-based account holders. Roughly 58% of fee-based account holders are age 60 or older, compared with roughly 48% of commission-based account holders. Based on their higher ages, fee-based account holders probably invest in less risky assets than commission-based account holders.

The NERA memorandum suggests that commission-based accounts are invested in riskier assets than fee-based accounts. Table 1 below transcribes the 25th and 75th percentiles of quarterly rates of return for fee-based and commission-based accounts in the NERA sample, as provided in the NERA memorandum (NERA 2015b, p. 3). We calculated the interquartile range—the difference between the 75th and 25th percentiles—for each quarter. The interquartile range is a measure of the dispersion of rates of return, which may be related to the riskiness of invested assets in the individual accounts. In 10 of the 11 quarters of data, the interquartile range for commission-based accounts exceeded that of assets in fee-based accounts.

Table 1. Percentiles and Interquartile Range of Quarterly Rates of Return of Fee-Based and Commission-Based Accounts in the NERA Sample

	Fee-based accounts			Commission-based accounts		
Quarter	25th percentile	75th percentile	Interquartile range	25th percentil	75th percentil	Interquartile range
Jun-12-Sep-12	3.16%	5.45%	2.29%	2.58%	5.76%	3.18%
Sep-12-Dec-12	-1.16%	1.79%	2.95%	-0.93%	1.58%	2.51%
Dec-12-Mar-13	3.27%	7.81%	4.54%	3.44%	9.71%	6.27%
Mar-13-Jun-13	-1.76%	0.95%	2.71%	-0.90%	2.27%	3.17%
Jun-13-Sep-13	3.29%	6.44%	3.15%	1.45%	6.41%	4.96%
Sep-13-Dec-13	3.81%	7.14%	3.33%	2.51%	8.24%	5.73%
Dec-13-Mar-14	0.41%	1.77%	1.36%	0.26%	2.55%	2.29%
Mar-14-Jun-14	2.58%	4.17%	1.59%	2.01%	4.66%	2.65%
Jun-14-Sep-14	-2.52%	-0.80%	1.72%	-1.85%	0.18%	2.03%
Sep-14-Dec-14	0.19%	2.54%	2.35%	-0.11%	3.17%	3.28%
Dec-14-Mar-15	0.74%	2.53%	1.79%	0.00%	2.69%	2.69%

Source: NERA (2015b), p. 3.

In a bull market (such as the period studied by NERA), the rates of return on riskier assets may be expected to be higher, suggesting that commission-based accounts should have returned a premium over less risky assets in fee-based accounts. NERA (2015a) did not control for volatility or find such a premium. The limited information that NERA made available does not permit quantifying the risk premium that commission-based accounts should have earned, but it may explain why NERA did not find underperformance. Without exploring the issue, NERA (2015a, p. 11) had insufficient basis to conclude that "there is no support in this data for the contention that commission-based accounts underperform."

Second, the NERA comment based its underperformance analysis entirely on median quarterly rates of return. At best, such data support a conclusion about underperformance at the median; they do not support any conclusion about accounts above or below the median. For example, the median would be the same if 49% of commission-based accounts performed extremely poorly. Again, insofar we are aware, nobody is alleging that conflicts of interest cause advisers to place almost one-half of commission-based accounts in grossly underperforming funds, but the DOL would presumably be concerned if it occurred in 5% of the accounts. To that end, the 5th percentile of rates of return would be informative. Based solely on the median, NERA's conclusion that underperformance is not an issue is unconvincing.

The NERA sample raises many more questions. For example, some IRAs presumably included variable annuities; how were those treated in the analysis? Separately, there is no discussion of sampling weights or of any attempt to ensure representativeness of the sample. NERA's response to DOL questions about representativeness of the sample and generalizability of the analysis findings was only that the "the sample accounts contained a wide variety of balances, transaction activity levels, and customer ages" (NERA 2015b, p. 1) and that the authors had "confidence that our data included a diverse selection of accounts, with no evidence of any bias in the data" (NERA, 2015b, p. 2). Of course it is impossible to detect a bias without conducting a comparative analysis of the IRA population.[18] The validity of using a particular sample to reflect the characteristics of a population can be determined by describing the sampling process exactly and in some cases by assessing the characteristics of the sample compared to the population of interest. NERA provided none of this standard information. NERA did not even describe the firms at which the accounts were held, other than that they are SIFMA members.

Finally, NERA's Section 1 was motivated by the assertion—without evidence or even arguments—that the Proposed Rule and associated RIA "have led many to conclude that the proposal would effectively make the commission-based brokerage model

[18] For example, NERA (2015a, p. 5) reported an average IRA balance in its sample of $174,034. In contrast, Panis and Brien (2016, p. 39) documented an average balance of $100,998 in the nationally representative Survey of Consumer Finances (assets of $6.676 trillion divided by 66.1 million accounts). Similarly, Copeland (2015, p. 7) documented an average IRA account balance of $95,363 for 2013. The latter sources include small accounts, whereas NERA (2015a) reportedly excluded accounts under $1,000. However, for the NERA average to be consistent with the national average, at least 42% of accounts must have been under $1,000. According to ICI, only 22% of traditional IRAs (ICI 2015e) and 24% of Roth IRAs (ICI 2015f) had balances under $5,000 in 2013. In other words, NERA's sample is biased toward larger accounts.

unworkable for investment accounts covered by ERISA and similar sections of the IRS code" (NERA 2015a, p. 2). NERA proceeds to assert that commission-based "investors will have to move to fee-based accounts or lose access to professional investment advice entirely" (NERA 2015a, p. 9). As discussed in Section 2 (Common Themes), the comment ignores the possibility that financial institutions will modify their commission-based account types or introduce types other than current-style commission-based or fee-based accounts.

II. Cost of Losing Access to Advice

The second section of the NERA comment focuses on the cost of losing advice. This issue may become relevant if future regulation prompts financial institutions to discontinue certain IRAs. NERA asserts—without evidence—that IRAs with a balance of less than $25,000 may no longer receive advice. Based on its proprietary dataset of IRA accounts, NERA (2015a) projects that 40% of commission-based accounts will lose access to a financial adviser. NERA's database is reportedly drawn from SIFMA members, which include discount brokerages. To the extent the IRA accounts include discount brokerage accounts, the fraction of accounts that will lose access to advice is in fact lower.

The assertion that the commission-based brokerage model will become unworkable is questionable and has been addressed in the Section 2 of this report (Common Theme 2).

We first narrow down the area of interest. The Proposed Rule aims to mitigate conflicted advice. For the purpose of quantifying the cost of losing access to advice due to the Proposed Rule, the focus should therefore be on benefits of conflicted advice only. It is not relevant or logical to discuss the benefits of fiduciary advice, because it will not be reduced or restricted by the Proposed Rule.

NERA's comment references a 2011 DOL analysis of losses due to investment errors to suggest that DOL itself attributed huge value to professional advice.[19] NERA states that "the DOL estimated that participant-directed retirement savings account holders make investment mistakes *in the absence of professional advice* valued at an aggregate of `more than $114 billion in 2010'" (NERA 2015a, pp. 11-12; emphasis added). However, NERA misinterprets and misapplies DOL's earlier analysis. The wording suggests that professional advice could prevent $114 billion in losses, but the DOL in fact estimated that increased access to advice would reduce these losses by $7 billion to $18 billion. Further, those estimates related to assets in all DC plans and IRAs, rather than just IRAs with balances under $25,000, which account for less than 2% of total DC plan and IRA assets (Panis and Brien 2016). Finally, the estimated reduction of investment errors would be the result of increased access to fiduciary advice, not conflicted advice.

NERA cites a number of studies that found that many individual investors make suboptimal investment decisions: they may be more inclined to lock in gains than to cut losses, and they may trade too often and incur excess transaction costs. The authors then discuss a number of articles that they claim demonstrate that financial advisers help reduce investment errors. While we find it plausible that many advisers help reduce investment errors, the evidence put forth by NERA is not convincing—the mostly foreign studies may not be applicable to the U.S. context, the studies are

[19] See Federal Register, Volume 76, pages 66136-66167 for the 2011 DOL analysis.

selectively quoted or even misquoted, NERA highlights only benefits of advice without weighing those against their costs, and some studies confuse correlation with causality.

First, consider applicability of the cited studies. The NERA comment's section on "Benefits of Financial Advisors" (NERA 2015a, pp. 17-22) discusses 17 papers. Eleven papers are based on foreign data (Germany, Canada, Netherlands, United Kingdom, Israel, and Australia), two were theoretical exercises without empirical data, and only four were based on U.S. data. Legal and regulatory regimes vary by country; therefore, the foreign studies are relevant only to the extent that foreign advisers are subject to conflicts of interest. For example, Bluethgen, Gintschel, Hackethal and Mueller (2008) state that "If retail financial advisory services differ across countries in terms of cost and quality then their effects on household portfolios might also be very different" and go on to suggest that "Regulation aiming to enhance investor protection should then not only focus on capital markets themselves but also set and enforce minimum quality standards for financial advisory services," something the DOL proposal seeks to achieve. However, NERA offers no discussion of foreign advisers' conflicts of interest, if any, and it offers no discussion of the standards—fiduciary, suitable, or otherwise—to which foreign advisers are held. Even for the U.S.-based studies, it is unclear whether the advice under analysis was conflicted.

Second, NERA selectively quotes from the papers it reviews and omits essential findings that counterbalance claims of adviser value. For example, NERA (2015a, p. 17) quotes Gerhardt and Hackethal (2009) as finding "that there are clearly positive effects to working with an advisor." However, the primary conclusion of Gerhardt and Hackethal (2009, p. 22) was that "major aspects of the (positive) effects that have been attributed to the influence of professional investment advisors is in fact due to differences in investors' behavior. The actual effect of investment advisors is – while clearly existing – much smaller than assumed by previous studies." In another example, based on Montmarquette and Viennot-Briot (2012), The Investment Funds Institute of Canada (2012) is quoted as noting "that research proves that advice has a positive and significant impact on wealth accumulation" (NERA 2015a, p. 18). However, the paper does not compare rates of return earned by advised and non-advised investors. The only "highly plausible explanation" offered for observed differences in wealth is that advised households save more than non-advised households, and advisers may not deserve full credit for that relationship (see below).[20] In a third example, Kramer (2012) is summarized as finding that "advised portfolios are more diversified and perform better than self-directed portfolios" (NERA 2015a, p. 18). However, Kramer (2012, p. 395) in fact found "no evidence of differences in risk-adjusted performance." In a fourth example, "Kinniry, Jaconetti, DiJoseph and Zilbering (2014), argue that […] advisors can potentially add about 3 percent in net returns to investors" (NERA 2015a, p. 18). The key term here is "potentially": this paper, which NERA characterizes as "widely-cited," is marketing and training material for advisory services of a large financial service provider. It describes "best practices" (which almost by definition not all conflicted advisors employ) and offers primarily examples, rather than empirical evidence for its estimates of behavioral biases.

[20] NERA does cite that finding on page 20, but incorrectly added that Montmarquette and Viennot-Briot also pointed at improved asset selection as a highly plausible explanation. In fact, Montmarquette and Viennot-Briot attributed only increased savings to the presence of advice.

Third, with worthy exceptions noted below, most of the studies reviewed by NERA fail to weigh the benefits of advice against their costs or gloss over causality issues. For example, several studies found that advised portfolios were better diversified than non-advised ones. We agree that, all else equal, a well-diversified portfolio is generally preferable over a highly concentrated portfolio. However, the advice and the diversification are not free of charge, and a central issue is whether the diversification as advised by financial advisers generated long-term benefits. Despite NERA's repeated claims that advisers help investors make better investment decisions, there is no evidence that advised portfolios outperform non-advised portfolios. Separately, several studies showed that advised households save more than non-advised households. However, it is doubtful that advisers deserve all the credit for observed differences: did advisers prod their clients to save more, or are individuals who are serious about retirement saving more likely to seek professional advice? The causality may well run both ways.

There are two noteworthy exceptions to the causality defects of many studies that purport to measure the value of advisers. The first is Montmarquette and Viennot-Briot (2012), also published as Montmarquette and Viennot-Briot (2015). The authors used Canadian data with information on whether respondents used a financial adviser and the "tenure" of advice, i.e., how long they had been consulting an adviser. The information on adviser tenure reduces some causality issues. For example, while many studies have documented that advised households tend to be wealthier than non-advised households, the authors found that the wealth disparity increased with the duration over which they had been advised. It is still possible that people who are serious about preparing for retirement are more likely to consult an adviser, but Montmarquette and Viennot-Briot (2015) provide convincing evidence that advisers add value by helping people save more.

The other exception is Kramer (2012), who used Dutch data with information both before and after investors started consulting an adviser. He found that portfolios became better diversified after "advisory intervention." Despite better investment behavior, he did not find statistically significant differences in rates of return between advised and non-advised accounts. The financial advisers in his "sample are paid fixed wages only, so they have no direct personal financial incentive to generate commissions, but career and prestige considerations are likely to play a role," suggesting that the value they added was in an environment that was relatively free of conflicts of interest. He also noted that the 5th percentile of the advised portfolio value distribution was €600, suggesting that relatively conflict-free advice can be available even at low account balances.

III. The Cost of Conflicted Investment Advice

The last section of the NERA comment focuses on estimates of harm caused by conflicted advice put forth in the DOL's RIA.

The NERA authors take issue with the fact that the RIA presents many different estimates. However, they fail to recognize that the RIA, given the uncertainty embedded within many of the assumptions, has adopted a scenario-based analysis to present both conservative and likely estimates of the harm caused by conflicted advice. This is considered a best practice when uncertainty in assumptions is involved and is widely used when forecasting into the future (e.g., International Actuarial Association, 2013; Maack 2001). Also in light of its sensitivity analyses and

its extensive discussion of uncertainty, the 243-page RIA demonstrates a thoroughness that is commendable.

The NERA comment also asserts that the RIA misapplies the academic literature. These assertions have been addressed in Section 2. In particular, the NERA review finds that "The academic literature cited in the RIA does not compare the costs and benefits of fiduciary accounts with those of brokerage accounts" (NERA 2015a, p. 33). Indeed, such data have not been available, at least not to date and not publicly. NERA appears to have access to IRA data that permit a comparison of fiduciary and brokerage accounts. Our reading of very crude summary statistics of those data indicate that brokerage accounts likely underperformed fiduciary accounts on a risk-adjusted basis—see the discussion above. That aside, the academic literature has centered on underperformance due to conflicts of interest, which is precisely the target of DOL's Conflict of Interest Proposed Rule. Finally, NERA incorrectly states that DOL has misapplied Christoffersen et al.'s results:

> In particular, their study finds evidence that a subset of funds, those whose front-end loads are higher than other funds with similar characteristics, underperformed the average return of their fund category during the next year. In formulating much of their "cost of conflicted advice" aggregate figures, the DOL then assumes that *all* IRAs invested in front-end load funds suffer the same underperformance, thereby mistakenly applying a result from a subset of load funds to all load funds.
>
> The extrapolation the DOL made is analogous to the following: Suppose we conduct medical research and find that people who consume more salt than average have a lower life expectancy by five years, and we then conclude that eating no salt will increase the life expectancy of everyone by five years. This is a logical fallacy. We have no evidence that people who eat a "normal" amount of salt would benefit from reduced salt intake, and so extrapolating to them is an error in logic. (NERA 2015a, pp. 32-33.)

NERA's analogy does not describe how DOL has applied Christoffersen et al.'s relationship, which indicates that a reduction in front-end loads increases returns, regardless of whether the load is above or below average. In the terms of NERA's analogy, people who eat a "normal" (or even less than normal) amount of salt would in fact benefit from reduced salt intake.

4. OLIVER WYMAN

Summary

In response to DOL's Proposed Rule, several financial firms submitted a report titled "The role of financial advisors in the U.S. retirement market" (Oliver Wyman, 2015). This section contains a review of the Oliver Wyman study.

The Oliver Wyman study establishes that financial advisers tend to be involved when events occur or circumstances exist that are good for retirement security: small businesses sponsor employee retirement plans, individual investors are wealthier, individual investors' portfolios are more diversified, et cetera. In a major shortcoming, the study credits financial advisers for progress toward retirement security in which they were not involved. Attributing all observed differences between advised and non-advised businesses or individuals to financial advisers is clearly an overstatement; small businesses may have retained an adviser after deciding to set up a retirement plan, investors may have retained an adviser after accumulating substantial assets, et cetera. Quite plausibly, causality runs in both directions: some advisers foster retirement security, and some advisers get involved with businesses or individuals who have already made progress toward retirement security. The latter advisers may still add value, but did not play a role in what occurred before their involvement.

Oliver Wyman designed its own surveys of small businesses and individual investors, but missed an opportunity to document the contributions of financial advisers as opposed to progress toward retirement security without the involvement of advisers. The study does not report on the timing of financial advisers' involvement or any other questions that could have demarcated their role. Further, the study does not distinguish between broker-provided and fee-based advice, instead treating them the same and failing to acknowledge that the Proposed Rule targets conflicted advice only.

In another major shortcoming, the study does not address the costs of financial advice to small businesses or individual investors. For example, the study shows that advised individuals rebalance their portfolios more often than non-advised individuals. While that may seem laudable, rebalancing involves selling and buying securities and thus transaction costs. Without information on brokerage commissions and front-end load fees, the *net* benefits of frequent rebalancing—precisely the type of issue that the Proposed Rule aims to address—cannot be determined.

Based on unspecified other sources, the Oliver Wyman study contends that the Proposed Rule will likely limit the ability of financial advisers to offer services to small businesses and individual investors, and raise the cost of such services. The study fails to establish to what extent financial advisers deserve credit for favorable outcomes, fails to examine whether costs outweigh purported benefits of financial advice, and fails to consider whether alternative advisory mechanisms could emerge to serve affected investors.

Synopsis

The Oliver Wyman study evaluates the role of financial advisers in two areas: advising companies on how to set up DC plans and advising individuals on retirement saving. The first part is based on a survey, conducted by Oliver Wyman, of about 1,200 small businesses. The second part is based on another survey, also conducted by Oliver Wyman, of about 4,400 retail investors and also on data from a third party, IXI Services, on consumer investments. We understand those investments data to be aggregated, i.e., without account-level details.

The first part of the study found that financial advisers assist business owners with setting up a DC plan for their employees. "Specifically, businesses with 1–9 employees with a financial advisor are almost twice as likely to set up a retirement plan as are businesses without financial advisors (51% vs. 26%). Businesses with 10–49 employees with a financial advisor are 48% more likely (77% vs. 52%) and businesses between 50 and 100 employees are 19% more likely (89% vs. 75%) to set up a plan" (Oliver Wyman 2015, p. 14). The study asserts that the Proposed Rule would force financial advisers to stop providing retirement plan services to small businesses; "many small businesses are likely to close or not open plans due to the additional administrative burden as a result" (Oliver Wyman 2015, p. 38).

The second part of the Oliver Wyman study found that investors with a financial adviser had more financial assets and exhibited better investment behavior along several dimensions than investors without a financial adviser. The study asserts that the Proposed Rule would reduce access to financial advisers by retail investors, who would face higher expenses to maintain access to advisers or, deprived of advice, would save less for retirement and would invest less wisely.

In summary, the Oliver Wyman study concludes that the DOL's Proposed Rule would likely reduce retirement savings.

Discussion

Overview

The Oliver Wyman study attempts to relate the message that financial advisers make good things happen: small businesses set up DC plans, and individual investors accumulate retirement assets and invest wisely. But the study's approach and its findings do not support that message. The study demonstrates a correlation between the involvement of advisers and favorable retirement security outcomes, but it does not demonstrate a causal link. Did small businesses set up DC plans because financial advisers convinced them to do so, or did small businesses decide to set up a DC plan before retaining a financial adviser? Did investors accumulate substantial wealth because financial advisers prodded them to save more and invest wisely, or did investors decide to seek professional advice after accumulating substantial wealth? In addition, the study does not discuss how advisers are compensated, i.e., does not identify the contributions of conflicted advice. The study is based on Oliver Wyman's own surveys of small businesses and retail investors. Either Oliver Wyman missed an opportunity to directly ask about compensation, causality, and timing, or the surveys—which to our knowledge are not publicly released—yielded relevant insights which the study's authors did not describe.

In its discussion of the report's implications, the authors assert that the Proposed Rule would likely reduce access to financial advisers by small businesses and retirement investors.[21] The authors argue that as a result, "The benefits financial advisors provide are now at risk" (Oliver Wyman 2015, p. 37). However, since the study did not establish to what extent financial adviser involvement *causes* favorable outcomes or to what extent the purported benefits related to conflicted advice, it is not clear what those benefits are.

A second issue relates to costs. Suppose the Proposed Rule would limit access to financial advisers, as the Oliver Wyman study asserts. While the Oliver Wyman study did not distinguish correlation from causality, it seems entirely plausible that the services of financial advisers bring certain benefits. Directly or indirectly, today's advisee pays for the services of financial advisers. Fewer services thus imply both a loss of benefits and a reduction of costs. The Oliver Wyman study highlights the loss of benefits, but does not discuss costs. In a complete evaluation, the loss of benefits would be weighed against lower costs for advisees.

A third issue concerns the static view of the world that the Oliver Wyman study adopts. Suppose, as asserted, that financial advisers would cease to advise certain clients. In the Oliver Wyman view, these clients would face undesirable consequences: "many small businesses are likely to close or not open plans" (Oliver Wyman 2015, p. 38), "Individuals are less likely to open an IRA, leading to lower savings rates and increased cash-outs when changing jobs" (Oliver Wyman 2015, p. 39), and "Unadvised individuals are likely to carry excess portfolio risk due to less diversification and less frequent re-balancing compared with advised individuals" (Oliver Wyman 2015, p. 39). The study ignores the possibility that the abandoned clients would find another financial adviser. For example, in a preliminary evaluation of changes to the financial system in the United Kingdom, which recently banned payments to financial advisers that depend on the advice given, Europe Economics (2014, p. 63) found:

> Some advisers have sought to terminate unprofitable client relationships. Data from NMG Consulting, for example, imply that in the year to Q1 2014 about 310,000 clients stopped being served for this reason. On the other hand 820,000 clients were gained in the same period. The same survey indicates that advisers refused to serve about 60,000 (potential new) clients in the same period. If we assume that many of those clients with relationships terminated on the grounds of inadequate profitability sought out another adviser, the positive net increase in customers served suggests that such

[21] The study itself does not provide evidence that access to financial advisers would be reduced. Instead, the study relies on unspecified other sources. For example (Oliver Wyman 2015, pp. 2-3):

> "Many stakeholders are now analyzing the technical details of the newly proposed rule, and there is growing concern that the proposal would again result in unintended consequences, including limiting the ability of financial services firms and individual financial advisors to offer services to individual IRA holders and small businesses, as well as increasing investor costs due to new expenses associated with implementing the rule and transitioning many clients to a higher cost advisory model."

> looking around for a replacement was largely successful. We cannot rule out the existence of a residual group of consumers denied service in this way. However these data do not speak to a significant issue here.

In other words, the industry adjusted to the payments ban and some adviser-client relationships were reshuffled. The initial U.K. experiences suggest that the Proposed Rule would not deprive many retail investors of financial advice.

Similarly, the Oliver Wyman study argues that the Proposed Rule would make it difficult for financial services firms to offer brokerage accounts and would migrate accounts to more expensive advisory accounts. "Almost all retail investors would face increased costs (73% to 196% on average) from providers shifting clients to a fee-based advisory model"[22] (Oliver Wyman 2015, pp. 7 and 38). Again, this view is overly static, apparently grounded in the premise that all accounts, after regulatory changes, will continue to be either traditional brokerage accounts or traditional advisory accounts, with traditional fee structures and traditional product offerings. The fee comparison fails to capture all differences between brokerage accounts and advisory accounts, as demonstrated by the fact that some investors opt for an advisory account today, with its reportedly higher fees. The financial services industry may well adapt and make changes to brokerage accounts or develop an alternative account type. The account fees will presumably be more transparent than they are in today's brokerage accounts and some clients may be unpleasantly surprised at the expense, but they will be no worse off than in their current brokerage account. If anything, retirement investors will be in a better position to manage their expenses.

Please refer to Section 2 for additional discussion of common themes that apply to the Oliver Wyman study.

The remainder of this section discusses Parts I and II of the Oliver Wyman study, related to small businesses and retail investors, respectively, followed by a discussion of issues with the data sources of the study.

I. Role of Financial Advisors in the Defined Contribution Plan Market

Part I of the Oliver Wyman study starts with statistics on the large and increasing role of DC plans for retirement financing and demonstrates that smaller firms are less likely to sponsor a pension plan than larger firms. These patterns are widely known and not controversial.

The study continues with results from the Oliver Wyman Small Business Survey 2014, a survey of owners and human resources (HR) decision makers at payroll-

[22] The increased costs figures are based on Oliver Wyman (2011). They reportedly exclude "marketing and distribution, shareholder services, and other fees not directly paid by investors" (Oliver Wyman 2011, p. 22). The exclusion of marketing and distribution fees is puzzling and skews the results. For example, front-end load fees are disproportionately present in brokerage accounts. Indeed, Oliver Wyman's increased cost figures seem counter intuitive as they suggest that the largest accounts would incur the greatest cost increases—both in dollars and percentage terms.

based businesses with between 1 and 100 employees. As noted in the study, the survey had a sample size of 1,216 valid complete responses.

A key finding of the Oliver Wyman study comes from a comparison of retirement plan sponsorship among small businesses that did or did not consult with a financial adviser: "We found that 41% of small businesses with 100 or fewer employees work with a financial advisor, and that these firms are significantly more likely to set up a retirement plan. Specifically, businesses with 1–9 employees with a financial advisor are almost twice as likely to set up a retirement plan as are businesses without financial advisors (51% vs. 26%). Businesses with 10–49 employees with a financial advisor are 48% more likely (77% vs. 52%) and businesses between 50 and 100 employees are 19% more likely (89% vs. 75%) to set up a plan" (Oliver Wyman 2015, p. 14).

Oliver Wyman's key finding may be misleading for several reasons. First, the study speaks of advised small businesses being more likely to "set up" a retirement plan and shows "plan formation rates" (Oliver Wyman 2015, p. 14). This phrasing suggests starting or initializing a plan once an adviser becomes involved. However, the survey appears to record whether businesses *sponsor* a plan, without regard of how long the plan has been in place. Indeed, nothing is reported on the age of the plan or whether an adviser was involved when the plan was set up.

Second, the survey asked respondents "to select all of the advisors that they consult in the management of their business" (Oliver Wyman 2015, p. 12). Given the focus of the study, of course advisers are relevant only if they were involved with the company's retirement plan. However, the study did not restrict advisers to those who provided assistance with a retirement plan. For example, a firm may have hired a financial adviser solely to assist with succession issues or asset management, but the study would credit this adviser with setting up the firm's retirement plan.

Third, consider two phases of retirement plan formation: the decision to set up a plan and the process of setting it up. Financial advisers may or may not play a role in either phase. In some cases, financial advisers may have convinced small businesses to set up a retirement plan; in other cases, the small business may have decided to set up a retirement plan and consulted a financial adviser to guide it through the process. Given the study's focus on the role of investment advisers, it would make sense to include detailed questions in the survey about that role and about the timing of the adviser's involvement.[23] Unfortunately, Oliver Wyman's own survey did not include such questions (or the authors chose to not discuss them).

The description of the survey method states that the survey had a stratified design, and "[t]his design allowed us to isolate the impact that financial advisors have upon small businesses" (Oliver Wyman 2015, p. 40). This statement is incorrect; insofar as reported, the survey does not permit any conclusions about the causal effects of advisers on retirement plan sponsorship, and it is especially lacking with respect to the role of advisers who assisted with setting up retirement plans and who were compensated in a conflicted manner.

The Oliver Wyman study also fails to consider that the involvement of a financial adviser may be correlated with other factors that affect the rate of plan formation

[23] Insofar we are aware, neither the questionnaire nor the survey's microdata have been made available.

among small businesses. For example, Brady and Bogdan (2014) found that workforce composition appears to be a primary cause for the lower rate at which small employers sponsor retirement plans. Employees who work for firms that do not sponsor retirement plans are more likely to be younger, have lower earnings, and have less attachment to the workforce—all characteristics associated with being less focused on saving for retirement. By the same token, companies with such employees may be less likely to spend money on financial advisers than, say, high-tech start-ups with a highly educated workforce.

The Oliver Wyman study does not provide clear indications of the extent to which financial advisers deserve credit for companies' decisions to form a plan or the extent to which financial advisers helped guide small businesses through the formation process, especially since a non-trivial fraction of small businesses sponsor a plan without involvement of a financial adviser (46%; see Oliver Wyman 2015, p. 14). It appears plausible that financial advisers played a role in the formation of a number of retirement plans, but the Oliver Wyman study does not support any quantification.

II. Role of Financial Advisors in Helping Individuals Save for Retirement

The second part of the Oliver Wyman study focuses on the role of financial advisers in helping individual investors. Some of it applies to DC plan investments, some to IRA investments, and some to after-tax accounts. The analysis is based on the Oliver Wyman Retail Investor Retirement Survey 2014, a survey of non-retired individuals with investments or retirement accounts. The study notes there were 4,393 valid complete responses. The analysis also draws on data from IXI Services, reportedly representing approximately 20% of U.S. consumer invested assets on a household level and approximately 30% of U.S. consumer invested assets on an account level.

Part II starts out by demonstrating that advised individuals had more financial assets than non-advised individuals. This pattern was borne out in data from both Oliver Wyman's own investor survey and from IXI Services. The Oliver Wyman study does not discuss causality, leaving open the possibilities that advisers enrich their clients or that wealthier investors are more likely to seek advice than their less wealthy counterparts. The study merely establishes a correlation, does not discuss the direction of causality, and does not recognize that financial advisers cannot claim full credit for the greater wealth of advised individuals.

Part II continues with arguments that individuals with a financial adviser are better investors along several dimensions:

A. *Developing and maintaining a personalized financial plan.* This section (Oliver Wyman 2015, pp. 18-23) mostly draws on external research into why households save, what they value in advisers, how commonly they use plan advice offered through their DC plan, how much they contribute to their DC plan, why they roll over DC assets into an IRA, and how common DC plans and IRAs are. None of this demonstrates (or even suggests) that advised individuals are more likely to develop and maintain a personalized financial plan than non-advised individuals. More generally, none of it compares individuals with and without a financial adviser, with a partial exception in the finding that DC plan participants who used "at least one type of support contributed an average of 2.0 percentage points more of their salary to a DC plan (6.7% vs. 4.7%)" (Oliver Wyman 2015, p. 20). The support types alluded to here included educational materials, tools, and advice options, i.e.,

more types than just financial advisers. The study does not discuss causality, and indeed causality may go both ways: educational materials and other support types may prompt some DC plan participants to increase their contributions, and people with sizable DC plan balances may be more likely to seek support because they have more at stake than people with small balances.

B. *Commitment to regular saving and investment*. This section shows that households with a financial adviser are more likely to own an IRA and that their average IRA balance is higher than that of non-advised households. External data show similar patterns for DC plans. Again, the study does not discuss causality, and indeed causality may go both ways: financial advisers may nudge people to save more in IRAs or DC plans, and people with large IRA or DC plan balances may decide to seek professional advice because they have more at stake than people with small balances.

C. *Constructing and maintaining a well-diversified portfolio of appropriate investment products.* This section shows that advised households own more diversified portfolios than non-advised households. We agree that, all else equal, a well-diversified portfolio is generally preferable over a highly concentrated portfolio. However, the advice and the diversification are not free of charge, and a central issue is whether the diversification as advised by financial advisers generated long-term benefits. The Oliver Wyman study is silent on issues of cost and rates of return, but several academic studies suggest that the net contribution of certain financial advisers on portfolio performance is negative.[24] Indeed, several portions of the Oliver Wyman study are suggestive of expenses incurred with diversification. For example, "Non-advised individuals hold 70% more of their equities exposure in individual securities compared to advised individuals" (Oliver Wyman 2015, p. 28). Accepting for now that individual securities are indicative of a lack of diversification, investors incur expenses in the leading alternative—mutual funds—in the form of front-end sales loads and expense ratios. Also, Figures 20 and 21 show that advised individuals hold far more of their portfolios in variable annuities than non-advised individuals. Variable annuities are widely known to be subject to high fees.[25]

D. *Staying invested in the market.* This section shows that advised individuals hold less cash, as a fraction of their portfolio or IRA, than non-advised individuals. It further asserts that "Financial advisors help individuals avoid premature IRA distributions — 76% of heads of households that made traditional IRA withdrawals in 2013 were retired" (Oliver Wyman 2015, p. 34). The assertion appears to be based on a finding that most (88%) IRAs are held in a brokerage model, where the account holder has access to a financial adviser. However, the Oliver Wyman study does not present statistics about withdrawals by non-advised individuals and its evidence does not support the conclusion that financial advisers help avoid premature IRA distributions.

E. *Periodically re-balancing investment holdings to restore desired asset allocation and risk levels*. This section shows that advised individual rebalance certain portions of their portfolio more frequently than non-advised

[24] See, for example, the studies reviewed in Council of Economic Advisers (2015).
[25] See, for example, Kaplan (2012) and Scism (2012).

> individuals. Similar to the above discussion related to portfolio diversification, we agree that, all else equal, rebalancing is generally desirable. However, there may again be costs associated with selling assets and buying other assets, and front-end load fees in particular can erase any benefits of rebalancing. The Oliver Wyman study is silent on such costs.

The arguments that individuals with a financial adviser are better investors apparently are intended to convince the reader of the value of financial advice. However, the Proposed Rule is concerned with conflicted advice only, not with financial advice in general. The Oliver Wyman Retail Investor Retirement Survey 2014 does not define what it means with "financial adviser," how it asked the respondents whether they consulted a financial adviser, or how the adviser was compensated. Given the focus of the study and the fact that Oliver Wyman designed its own survey, it is puzzling why Oliver Wyman did not distinguish conflicted and non-conflicted advice. It appears Oliver Wyman assumed that conflicted advice is as valuable as non-conflicted advice. Also see our discussion of common themes in Section 2.

The study also does not consider whether non-advised individuals participate in other retirement vehicles such as DC plans. These individuals may place a higher emphasis on their DC assets which could explain some of the differences in account characteristics such as average IRA balance and diversification of their portfolios. For example, in a study on mutual fund ownership through investment professionals, Schrass (2013, p.8) finds that "mutual fund–owning households without advisory relationships were more likely to hold mutual funds only through employer-sponsored retirement plans".

In short, Part II of the Oliver Wyman study shows that financial advisers tend to be involved with relatively successful individual investors, but it does not address to what extent financial advisers deserve credit for that success, it does not address whether the price individual investors pay for financial advice exceeds the benefits, and it fails to single out conflicted advice.

Data Issues

As noted earlier, much of the analysis in the Oliver Wyman study is based on a survey of small businesses, a survey of individual investors, and data from IXI Services. We now discuss each data source in turn.

Oliver Wyman Small Business Survey 2014

According to the "Survey methodology" section (Oliver Wyman 2015, p. 40), the Oliver Wyman Small Business Survey 2014 is a survey of owners and HR decision makers of payroll-based businesses with between 1 and 100 employees. Among others, it formed the basis of the claim that small businesses with a financial adviser are more likely to set up a retirement plan than businesses without a financial adviser. See the study's Figure 7, transcribed here in Table 2.[26]

[26] As discussed above, Oliver Wyman's use of the term "plan formation rates" is misleading; the rates refer to plan sponsorship. Also see the labeling of the study's Figure 7 ("Percent of businesses offering retirement plan").

Table 2. Plan Sponsorship Rates by Size of Firm and Adviser Status

	Number of employees			
	1-9	10-49	50-100	Overall
With a financial adviser	51%	77%	89%	69%
Without a financial adviser	26%	52%	75%	46%
Overall	36%	63%	80%	56%

Source: Oliver Wyman Small Business Retirement Survey 2014.

The plan sponsorship rates in Table 2 are substantially higher than nationwide sponsorship rates among small businesses reported elsewhere. For example, according to the Bureau of Labor Statistics (2014), 45% of establishments with 1-99 employees sponsored a retirement plan in 2014.[27] In contrast, the Oliver Wyman survey reported a rate of 56%. Also, according to tabulations by Brady and Bogdan (2014) and Copeland (2014), 17% of employees at firms with 1-9 employees had access to a retirement plan at work, whereas the Oliver Wyman survey suggested as many as 36% of firms with 1-9 employees sponsored a plan.[28] There are differences between Oliver Wyman's survey results and external sources within the report itself. For example, Figure 4, which is based on a Social Security Administration study (Dushi et al., 2011, Table 2), shows that 70% of employees at firms with 50-99 employees had access to a retirement plan, whereas Figure 7 reports that 80% of firms with 50-100 employees sponsor a retirement plan.[29] Such differences in a key metric call into question the validity of the Oliver Wyman Small Business Retirement Survey 2014. More generally, the Oliver Wyman study provides few details about the small business survey's design, sampling frame, questionnaire, response rate, or implementation.

Oliver Wyman Retail Investor Retirement Survey 2014

The "Survey methodology" section (Oliver Wyman 2015, p. 40) explains that the Oliver Wyman Retail Investor Retirement Survey 2014 was stratified by age, income, and the presence of a financial adviser. It does not state from what sampling frame the sample was drawn. Even though income was used for stratification, sampling weights were based on assets not income (Oliver Wyman 2015, p. 40.) The authors defend their unusual approach as follows: "Although we sampled based upon age, income and the presence of a financial advisor, we scale our sample to the population using age, assets, and the presence of a financial advisor, as the distribution of household assets is better documented in secondary sources than the distribution of personal income" (Oliver Wyman 2015, p. 40). They subsequently state that they used the Survey of Consumer Finances (SCF) to calculate sampling weights. However, the SCF contains detailed questions about individual and

[27] Some of these establishments belonged to a larger firm with multiple establishments. Since plan sponsorship tends to increase with firm size, the Bureau of Labor Statistics figures imply that sponsorship among firms with 1-99 employees was less than 45% in 2014.

[28] The unit of observation of Brady and Bogdan (2014) and Copeland (2014) was an employee and that of the Oliver Wyman survey, a firm. Since sponsorship rates tend to increase with firm size and larger firms employ more people, the employee-weighted rate is higher than the firm-weighted rate. The actual discrepancy is thus even larger than the difference between 17% and 36%.

[29] The actual discrepancy is again larger because Figure 4 is employee-weighted and Figure 7 is firm-weighted; see footnote 28.

household income, raising questions why Oliver Wyman chose assets instead of income to calculate sample weights.

Another issue relates to the definition of a "financial adviser." The study does not define the term for its stratification purposes or for its weighting purposes. It states only that weighting was based on the 2013 SCF. However, the SCF did not ask about "financial advisers." It did ask about sources of information used to make decisions about saving and investments. The SCF respondent could choose from a number of options, including lawyer, accountant, banker, broker, and financial planner, but "financial adviser" was not among the options. It thus remains unclear how to interpret the study's use of the term "financial adviser." The study does not even report what fraction of households in its survey consulted a financial adviser, other than "By one measure, 58% of households with under $100,000 in investable assets, and 75% of non-retired households with over $100,000 in investable assets, solicit professional financial advice" (Oliver Wyman 2015, p. 19 and attributed to the SCF). In our own analysis of the SCF we were unable to replicate these rates, but roughly approached them by including bankers, brokers, financial planners, dealers, and insurance agents. Perhaps these categories jointly formed the basis of the statement about advice rates, but we cannot think of a data source that could serve as the sampling frame for the survey's stratification by presence of a financial adviser in any of those categories. The Oliver Wyman Retail Investor Retirement Survey 2014 likely used another definition. However, the Oliver Wyman study provides few details about the investor survey's design, sampling frame, questionnaire, response rate, or implementation. Lack of public access to the survey and the discrepancies noted above do not enhance the credibility of the Oliver Wyman study.

IXI Services

In addition to its proprietary investor survey, Part II of the Oliver Wyman study relied on data from IXI Services. Even though it repeatedly refers to these data as household-level or account-level data (e.g., footnotes 25, 36, 40, 42, 43, 44, 47, 48, and 49), it is our understanding that Oliver Wyman did in fact not analyze account-level or household-level data from IXI Services. Instead, the data appear to have been aggregated to segment-level information: "Our analysis leveraged IXI Services data containing segment-level detail on U.S. consumer invested assets. Segments were defined by specific age tiers (five), income tiers (eleven), wealth tiers (seven), advisor relationship type (Full Service Brokerage vs. Discount Brokerage) and year" (Oliver Wyman 2015, p. 41). The same page explains that IXI data contain information on total segment assets, total segment number of households, et cetera.

Indeed, results from IXI Services data tend to be phrased in awkward and potentially misleading terms. For example, "94% of households examined belonged to an age / income / wealth segment in which advised households held ≥25% more IRA assets compared to nonadvised households" (Oliver Wyman 2015, p. 23). Or, "72% of households belong to a segment in which advised households hold more than 20% less of their assets in equities" (Oliver Wyman 2015, p. 27). Such segment-level statements can be misleading, in part because either all or none of the households in a segment support the statement without regard to differences within segments.

5. INVESTMENT COMPANY INSTITUTE

Summary

In response to DOL's Proposed Rule, Brian Reid and David W. Blass of ICI filed a comment letter in July 2015 (ICI 2015a) and follow-up letters in September 2015 (ICI 2015b) and December 2015 (ICI 2015c). This section contains a review of ICI's comments.

ICI's comments criticize certain academic studies upon which DOL relied in estimating the impacts of the Proposed Rule. Separately, ICI presents alternative estimates of the performance of funds with front-end loads, with the primary conclusion that no-load funds outperform funds with front-end loads by an annual average of only 7 bps. Further, ICI asserts that the Proposed Rule would effectively eliminate accounts with front-end loads, resulting in increased annual costs for investors with assets over $100,000, which in turn would reduce annual returns by 61 bps as these investors migrated to fee-based arrangements. Finally, ICI asserts that the Proposed Rule will eliminate advice for investors with accounts under $100,000, resulting in a 300 bps reduction in annual returns for those investors. ICI's assumptions and calculations produce an estimate of increased costs to investors of $18.8 billion in the 10th year.

Our primary conclusions are that (1) ICI's criticisms of the academic literature and front-end load performance results do not undermine DOL's estimates of the benefits from reducing conflicted advice and (2) ICI's estimates of the costs to investors of having to pay more for and/or losing financial advice are based on unsupported assumptions that are contradicted by information provided by other commenters. In particular, not only do ICI's criticisms of the academic literature fail to undermine DOL's interpretation of those studies, ICI's finding that the average annual returns for no-load funds exceed the annual returns for front-end load funds by 43 bps—the result that most closely aligns with the academic study DOL used in the RIA—is reasonably close to the estimated benefit from less conflicted advice described in the RIA.

With regard to ICI's estimates of the cost of the Proposed Rule, ICI offers no support for its assumptions that investors currently selecting front-end load funds would either have to pay as much as more active incumbent fee-based investors or lose access to advice. The first assumption ignores the likely emergence of new fee structures or products to continue to service investors that ICI characterizes as placing less demand on financial advisers. ICI's companion assumption that investors with balances under $100,000 would no longer receive financial advice is inconsistent with the fact that a large proportion of investors with accounts at or below this level have the fee-based accounts that ICI presumes are too costly to provide.

Synopsis

ICI's comments criticize certain academic studies upon which DOL relied in estimating the impacts of the Proposed Rule. Separately, ICI presents alternative estimates of the performance of funds with front-end loads, with the primary

conclusion that no-load funds outperform funds with front-end loads by an annual average of 7 bps. Further, ICI asserts that the Proposed Rule would effectively eliminate accounts with front-end loads, resulting in increased annual costs for investors with assets over $100,000, which in turn would reduce annual returns by 61 bps as these investors migrate to fee-based arrangements. Finally, ICI asserts that the Proposed Rule will eliminate advice for investors with accounts under $100,000, resulting in a 300 bps reduction in annual returns for those investors. ICI's assumptions and calculations produce an estimate of increased costs to investors of $18.8 billion in the 10th year.

Discussion

ICI's Criticisms of Academic Literature

Because DOL's quantitative estimates of the impact of the Proposed Rule rely heavily on the results presented in Christoffersen et al. (2013), ICI focuses the majority of its criticisms on this article.[30] These criticisms, which generally overlap with those of other commenters, include[31] (1) the study does not measure the effect of the difference between fiduciary and broker advice,[32] (2) the age of data used in the study,[33] (3) the application of the relationship between *excess* load (broker compensation in excess of the expected level) and fund performance to changes in the *average* load, and (4) the fact that Christoffersen et al.'s analysis was not weighted by assets or sales.[34]

In Section 2 (Common Themes) we address each of these criticisms. With regard to the need for a direct measure of the effect of the difference between fiduciary and broker advice, while we are not aware of publicly available studies that explicitly compare the effects of fiduciary and broker advice, the academic literature upon which DOL relies addresses underperformance due to conflicts of interest. This focus is consistent with the target of DOL's Conflict of Interest Proposed Rule.

Because DOL applies a *relationship* between broker compensation and fund performance to compensation levels expected to occur under the Proposed Rule, ICI's concern about the age of the data is misplaced. ICI replicates Christoffersen et al.'s (2013) regression model with data from 2010 to 2014, which demonstrates the robustness of the relationship DOL applied in its impact analysis (ICI 2015c, p. 9):

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[30] The authors' letter responding to ICI's criticisms concluded that none of them are valid; see Christoffersen and Evans (2015).
[31] ICI also criticizes Christoffersen et al.'s relationship between fund inflows and broker compensation. Since DOL's calculations did not rely on this relationship, we do not address this criticism.
[32] "Christoffersen et al. do not measure or test whether these returns were lower than what investors would have received had they used a fiduciary adviser" (ICI 2015a, p. 13).
[33] "The sample period in the paper extends from 1993 to 2009, relying largely on fund performance that is 10 to 20 years old" (ICI 2015a, p. 13).
[34] "Nor does the paper provide asset-weighted or sales-weighted returns to demonstrate how investors who use broker-sold funds perform as a group relative to those using similar funds in their Morningstar category" (ICI 2015a, p. 13).

> The results in the second-stage regression are also in all their important elements very similar to those reported by CEM [Christoffersen et al. 2013] […] We find a coefficient estimate on the residual load fee paid to unaffiliated brokers of -0.64 percent, which implies *an even larger effect than the -0.4972 coefficient reported in CEM*. (Emphasis added)

While the data used in academic studies may be dated, findings on incentive effects remain valid; see Section 2.

Contrary to ICI's claims (and those of others), DOL applied the relationship between fund performance and excess load properly. In particular, as explained in Section 2, Christoffersen et al. use their relationship the same way as DOL has to explain how performance improves when front-end loads are reduced. Whether some funds are above average and others are below average is irrelevant; the model is applicable to all funds when loads change.

ICI's specific criticism is that while Christoffersen et al.'s relationship between front-end load paid to brokers and performance is the result of a regression model that explains the annual returns of a fund in excess of its Morningstar category average by the *excess* front load payments,[35] Christoffersen et al. and the RIA apply the results to the total load paid to brokers, not the excess load. In particular, ICI (2015a, p. 15, emphasis in original) states:

> When they attempt to measure the economic significance for the investor, they incorrectly multiply the coefficient of the "excess load" variable by the *average load paid*, and argue that the typical fund underperforms by 1.13 percent annually. But the regression relating fund performance and loads was not run using actual load, but using "excess load." The residuals from their first regression measuring the "excess load" should have a mean of *zero*. Taking the results from their analysis literally, they should conclude that the average broker-dealer funds neither underperform nor outperform their Morningstar category average.

DOL's application of the relationship between excess loads and fund performance is valid because a reduction in load would improve a fund's performance regardless of whether the fund in question paid brokers an above-average amount (in which case excess load would be positive) or a below-average amount (in which case excess load would be negative). Accordingly, ICI's (and NERA's) criticism is invalid. While it is true that residuals have a zero mean,[36] Christoffersen et al. and the RIA are not using the model to explain the average effect over all funds used to estimate the model, but rather the effect of an overall *change* in excess load.[37]

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[35] The excess load variable is calculated as the actual payment to brokers minus payment predicted by a regression model that explains payments to brokers as a function of fund characteristics and whether the broker is captive or unaffiliated.
[36] Because the number of observations (163,347) in the regression model that produced the residuals (Christoffersen et al. 2013, p. 217) is somewhat larger than the number of observations (113,153) in the regression model explaining performance (Christoffersen et al. 2013, p. 226), the average of the residual used as an independent variable in the latter would not necessarily be zero.
[37] ICI reiterates its criticism in its December 2015 letter to DOL:

Finally, while weighting often makes sense when calculating averages, Christoffersen et al. did not calculate such an average, but instead developed the relationship between excess load and fund performance. As we discussed earlier, there is no requirement in econometric theory or practice for the observations used to establish such a relationship be weighted when they differ in size by some measure.[38] In fact, in its latest comment (ICI 2015c, p. 3) now agrees that there is no problem with the Christoffersen et al. relationship:

> The Department needed to weight the research findings taken from the CEM study by assets or sales of fund shares. This problem remains *even though* the CEM study properly adjusted for the levels of funds' assets in its regressions. The CEM study, like most of the other academic studies the RIA cites, conducts its analysis at the fund level. The RIA seeks to convert this fund-level analysis into aggregate dollar effects on the total IRA assets invested through broker-sold funds. To translate fund-level findings into *market-level* dollar effects, the Department would need to weight the fund-by-fund effects predicted by the CEM regression by the asset levels or sales of those funds. The RIA did not do that.

ICI's claim is incorrect. Because DOL applied the relationship to the *change* in excess load expected from the Proposed Rule and that change is asset-weighted, DOL's calculation is a proper application of Christoffersen et al.'s regression relationship.[39]

> The Department did in fact misapply a regression coefficient taken from the CEM study. To be clear, this has very little to do with the results in the CEM study, which stand on their own merits […] The Department erred by applying the CEM coefficient to the front-load paid to brokers rather than to the residual load paid to brokers, inflating the Department's estimate of the benefit of its proposed regulation. (ICI 2015c, p. 3.)

As a preliminary matter, DOL applies Christoffersen et al.'s results the same way the authors themselves apply the relationship between excess load and performance (Christoffersen et al., 2013, p. 228). More fundamentally, the regression relationship is properly applied to the *change* in the variable affected by the policy and not the current level of the variable as ICI suggests. ICI's misguided approach is analogous to a study which first centered the data, estimated a relationship between a key independent variable and the dependent variable, and then insisted that the coefficient be used with the mean of the key variable (which would be zero by construction) and from this exercise concluding that there was no effect.

[38] Christoffersen and Evans (2015, p. 2) provide an explanation why their econometric approach did not require asset weighting.

[39] To see why, note that the relationship is being applied to the change in excess load. Therefore, at the individual fund level, the model would produce the following: $\Delta\text{return}_i = \beta\,\Delta\text{load}_i$, where β is the regression coefficient, Δreturn_i is the predicted change in return for fund i, and Δload_i is the change in excess load for fund i expected from the Proposed Rule. The overall change in return is obtained by weighting the predictions for each fund, and then summing them.

$$\Delta\text{return} = \sum w_i\,\Delta\text{return}_i = \sum w_i(\beta\,\Delta\text{load}_i) = \beta \sum w_i\,\Delta\text{load}_i = \beta\,\Delta\text{load}.$$

ICI's Analysis of Front-End Load Fund Performance

ICI reports average returns of front-end mutual funds in a number of ways. The results, which are based on Morningstar data, include returns for domestic equity, international equity, taxable bond, and balanced funds. ICI does not provide the specific data used to produce the results (to the extent those data differ from data readily available to other users), nor does it provide details often available in academic articles, such as the definitions of the fund categories and the number of observations used to calculate average returns.

ICI's calculations start with annual returns, net of expenses, for 2008-2014. ICI describes the calculation as follows (ICI 2015a, p. 16):

> To measure the experience in broker-sold share classes, we use gross sales and assets of front-end load share classes from 2007 through 2013 and measure the performance of these share classes or their funds in subsequent years to capture what investors would have experienced if they stayed in their funds. The reason for focusing on the more recent time period is that the mutual fund market has changed significantly in the past twenty years, as we discussed in Section II. We then calculate fund returns, net of fund fees, based on Morningstar data.
>
> As a baseline, we take one-year net returns of share classes with front-end loads from 2008 through 2014 and subtract each share class's Morningstar category return from the same year to create a relative return.[40] To measure how investors as a group using front-end share classes perform, we then weight each fund's relative performance in the subsequent one-year period by sales or assets from the reference year. Similar measures are used for retail no-load funds to provide a basis for comparison.

Table 3 lists ICI's return results.

Table 3. Front-End and No-Load Fund Returns Calculated by ICI (Annual Percent Relative to Morningstar Category Average)

Measure	Front-End Load	No Load	Difference	Source
Simple Average	0.13	NA	NA	Figure 2
Sales Weighted	0.27	0.70	0.43	Figure 4
Average of yearly returns_sales weighted	0.16	NA	NA	Figure 3
Average of yearly returns_asset weighted	0.15	NA	NA	Figure 3
Average of yearly 3-year returns_sales weighted	0.17	0.44	0.27	Figure 5
Average of yearly 3-year returns_asset weighted	0.37	0.65	0.28	Figure 5

Table 3 demonstrates the following.

- ICI observed that the average net return, relative to Morningstar categories, was 27 bps with a sales-weighted average and 13 bps with a simple

[40] ICI (ICI 2015b, p. 3) characterized its approach as being the same as that used by Christoffersen et al. (2013) and other academic studies.

average.[41] ICI (2015a, p. 17) credits brokers for this outcome: "The fact that the sales-weighted average exceeds the simple average suggests that brokers tended to guide their clients to funds that subsequently slightly outperformed, not underperformed."[42]

- The approach that most closely aligns with DOL's use in the RIA of Christoffersen et al.'s (2013) findings is the sales-weighted approach shown in the highlighted, second row. ICI finds that load funds underperform no-load funds by 43 bps. To put this difference into perspective, the RIA (DOL 2015, p. 115) estimates that reducing conflicted advice would increase annual returns by about 50 bps in the latter years of the 2017-2026 period (first scenario).

- ICI reports averages of one-year returns for 2007 through 2013 on sales-weighted and asset weighted bases. These averages are lower than the overall average reported in the second row (0.16 percent or 0.15 percent versus 0.27 percent), with only a minimal difference between the sales-weighed and asset-weighted results.

- ICI also reports the averages of three-year returns for the period 2007-2011.[43] The superior performance of the no-load funds is 27 or 28 bps for these comparisons. In contrast to the minimal difference in one-year returns listed in the third and fourth rows, ICI's asset-weighted three-year returns are curiously about 20 bps higher than the corresponding sales-weighted returns.

In addition to reducing the performance gap between no-load and front-end load funds by introducing three-year returns, ICI (2015a, p. 21) adds back 12b-1 fees, which reduces the performance gap by an additional 20 bps. Christoffersen et al. (2013) did *not* make this adjustment. ICI then uses the resulting gap of 7 bps to quantify the net costs it attributes to the Proposed Rule, which we discuss in the following sections.

The appropriateness of adding 12b-1 fees to investment returns is debatable. Presumably, the argument is that they serve to compensate brokers for their services, just like fees do in fee-based accounts. In a recent paper that was also cited by ICI (2015c), Reuter (2015, p. 6) observes that adding back 12b-1 fees "is reasonable except to the extent that conflicts of interest lead brokers to recommend funds that charge higher 12b-1 fees in order to pay higher commissions." Also, one could argue that the broker was already compensated through a share of the front-end load at the time of purchase; it is unclear whether investors are aware that they continue to pay the broker for as long as they own the fund and whether they would consider the 12b-1 fees as part of their rate of return.

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[41] The average for sales-weighted front-end load funds listed in the second row differs from the corresponding average in the third row because the former is a single average for the entire period, while the latter is the average of the annual averages.

[42] Whether brokers encouraged investors to select better-performing front-end load funds is a different issue from whether brokers advised investors to select front-end load funds that underperformed alternative funds, such as no-load funds.

[43] The end of the three year period for calculating a three-year return for funds sold in 2011 is 2014—the last year of the data used by ICI.

In summary, rather than demonstrating errors in Christoffersen et al. that cause the results in the RIA to "collapse" (ICI 2015a, p. 5), ICI's result that most closely aligns with Christoffersen et al.'s approach—the 43 bps superior performance of no-load funds as measured by one-year net returns—is quite similar to the approximately 50 bps impact in the RIA's first scenario.[44] The narrower gap claimed by ICI required changes—the use of three-year returns and the adding back 12b-1 fees—from the measurements used in the Christoffersen et al. study.[45]

ICI's Claims about Increased Costs for Larger Investors

ICI (2015a, p. 25) also claims that the Proposed Rule will result in fewer investors being able to select commission-based funds:

> [T]he BIC exemption is unworkable; even if could work, it would impose prohibitive costs on brokers. Brokers subject to the Exemption's many limitations, burdens, and costs, as well as its increased exposure to liability, are likely to seek to move many of their clients to fee-based accounts. Such accounts, however, require a much greater level of time and engagement through frequent rebalancing of investors' accounts a level of service that is unnecessary for an investors with a modest balance who is typically better off as a buy-and-hold investor. This additional ongoing engagement results in higher and ongoing expense to the investor.

As explained in more detail below, ICI assumes that the shift from commission-based to fee-based accounts would eventually reduce annual returns to investors by 61 bps, which would exceed the 7 bps gain from reduced conflicted advice by 54 bps. As described in the next section, ICI also assumes that investors with balances under $100,000, which according to ICI account for 19 percent of current front-load IRA funds, would no longer receive any financial advice; therefore, ICI assumes that investors accounting for 81 percent of assets in traditional IRAs would be shifted to fee-based accounts. By the tenth year, by which time ICI's calculations assume that account balances that existed before the rule would have fully turned over,[46] ICI

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[44] ICI's result is also very similar to Reuter's (2015, p. 13) conclusion:

> Within the broader sample of actively managed funds […] the difference is 0.47% if I focus on category-adjusted after-fee returns and 0.20% […] if I add back 12b-1 fees. To the extent that conflicts of interest lead brokers to recommend funds with higher-than-average 12b-1 fees (as performance differences between active and passive broker-sold funds suggest), the actual performance difference within the broader sample of actively managed funds is likely to fall between 0.47% and 0.20%.

[45] There are additional methodological differences that would need to be considered in order to explore fully the differences between ICI's and Christoffersen et al.'s results. For example, Christoffersen et al. (2013, page 226) controlled for a number of factors, such as fund size, inflows, and redemptions, while ICI's analysis reports no such controls. Not accounting for such factors could cause results such as averages or weighted averages to be biased.

[46] ICI uses the asset turnover distribution from the RIA (DOL 2015, p. 114, Table 3.4.1-2), which posits that 16.8 percent of assets turn over in the first year, with declining percentages in subsequent years so that all assets have turned over by the 10th year.

estimates that the net cost to investors who were shifted to fee-based accounts would be $8.2 billion.[47]

ICI provides no analysis or quantitative estimates of how many accounts would be moved from commission-based to fee-based and the level of assets associated with such moves. Instead, ICI simply assumes that *all* investors in commission-based accounts would either be moved to fee-based accounts and pay more in fees as a result or have balances not sufficient for advisers being willing to service the accounts. As discussed in Section 2, this presumption is contradicted by evidence from other countries.

ICI's (2015a) calculations ignore that a portion of IRAs is held in discount brokerage accounts. These account holders do not receive advice, and their accounts are not affected by the Proposed Rule. ICI's (2015a) calculations of the share of accounts and assets that will migrate or lose access to advice are thus overstated.

For those investors whom ICI assumes will be shifted to fee based accounts, ICI assumes that costs would increase by the *average* difference of 61 bps between expenses for fee-based (average of 111 bps) and commission-based (average of 50 bps) accounts. In other words, rather than account for the lower demands incumbent commission-based investors impose by introducing new fee structures or new products, ICI casually assumes that advisers will charge them fees based on services that they do not demand, such as frequent rebalancing. ICI did not discuss the possibility that because of their lower trading volumes and account turnover, current commission-based investors who had to migrate to fee-based accounts (or perhaps some other mechanism) would probably not be as costly to serve as incumbent fee-based investors.

ICI's Claims about Loss of Advice for Smaller Investors

ICI (2015a, p. 27) further assumes that investors with smaller account balances would completely lose financial advice:

> [F]ee-based accounts may not be available to low- and middle-income IRA investors who cannot meet minimum account balance requirements. Currently, fee-based advisers often require minimum account balances of $100,000 […]

ICI (2015a, pp. A-1 to A-2) further assumes that investors losing advice will eventually experience annual returns that are 3% lower than the returns they earned in front-end load accounts:

> We assume that these assets underperform by 3 percent a year compared to their performance with a broker […] The 3 percent underperformance reflects lower allocation to stocks and higher allocation to cash, early withdrawals and elimination of tax deferral, and poor market timing decisions.

ICI's calculates the impact of lost advice by combining the two assumptions—investors holding 19% of assets experience a 3% loss in annual return. By the tenth year, ICI estimates that the net cost to investors who lost investment advice would

[47] ICI (page A-3) adopts DOL's projection of $1.868 trillion in assets by the 10th year. Therefore, ICI's estimate of $8.2 billion = 1,868 x 0.0054 x 0.81.

be $10.6 billion.[48] Combined with the loss from investors with accounts in excess of $100,000 discussed in the previous section, ICI (2015a, p. 30) reports a total loss of $18.8 billion by the tenth year.[49]

ICI provides no support for either of its assumptions, both of which are inconsistent with information provided by other commenters. With regard to the loss of advice, the results of NERA's database of over 63,000 accounts show many fee-based accounts with balances well under $100,000 (NERA 2015a and 2015b). Table 4, constructed from NERA's results, displays this information.

Table 4. Fee-based and Commission-based Accounts by Account Size

Balance	Fraction of fee-based accounts	Fraction of commission-based accounts	Percentage of accounts that are fee-based
$1K-$10K	2%	23%	3.5%
$1K-$25K	9%	41%	8.4%
$1K-$50K	22%	57%	13.8%
$1K-$100K	42%	72%	19.5%
$1K-$250K	72%	87%	25.6%
$1K-$1M	97%	98%	29.1%
$1K+	100%	100%	29.4%

Source: NERA (2015a, 2015b).

The first two columns display the cumulative distributions of fee-based and commission-based accounts by account size. For example, 2% of fee-based accounts have balances from $1,000 to $10,000 and 42% have balances of $100,000 or less. ICI's assumption that accounts with balances less than $100,000 would be too costly to serve cannot be reconciled with the fact that a large proportion of fee-based accounts have balances below $100,000. The last column of the table shows the proportion of accounts that are fee-based. In particular, 19.5 percent of accounts in NERA's database with balances of $100,000 or less are fee-based accounts.

Since ICI does not indicate how it determined that lost advice would reduce annual returns by 3%, it is not possible to evaluate how ICI reached this conclusion. For example, unlike Litan and Singer (2015a), and the Vanguard (2014a) document upon which they rely, ICI provides no detail on factors such as the specific losses that stem from lost advice (e.g., better rebalancing increases returns by x percent) or on the proportions of investors currently relying on such advice (but presumably no longer would be able to do so). Further, ICI's estimate of a 3% loss far exceeds the flawed and inflated 44.5 bps loss Litan and Singer (2015a) attribute to lost advice; see Section 7. Finally, experiences from other countries suggest that banning conflicted advice may in fact not reduce access to advice (Europe Economics, 2014).

[48] ICI (2015a, page A-3) adopts DOL's projection of $1.868 trillion in assets by the 10th year. Therefore, ICI's estimate of $10.6 billion = 1,868 x 0.03 x 0.19.
[49] ICI's estimate excludes the benefit from less conflicted advice for investors with accounts under $100,000.

6. COMPASS LEXECON

Summary

In response to DOL's Proposed Rule, Compass Lexecon wrote a comment titled "Tax Consequences to Investors Resulting from Proposed Rules Relating to Financial Representative Fiduciary Status" (Compass Lexecon 2015). This section contains a review of the Compass Lexecon comment.

The Compass Lexecon comment states that as a result of the Proposed Rule, commission-based IRA accounts with balances under $25,000 will lose access to advice. If, in order to preserve access to investment advice, investors opt to use a taxable savings account instead, these investors may experience a reduction in retirement savings. The comment focuses on quantifying the effect of this hypothetical migration to taxable savings accounts. We agree that *if* investors use taxable savings accounts instead of IRAs to fund their retirement, then they may experience reduced savings. However, we disagree with Compass Lexecon on the extent to which retirement investors will forego tax-sheltered accounts.

Among the households that Compass Lexecon identifies as at-risk, some households are presumably already in a commission-based advice relationship and some are not. Among investors already in a commission-based relationship, there may a small subset of investors who want to preserve their *existing* relationship with their adviser and the advisory firm at all costs. That is a theoretical possibility and it can be accomplished using the Proposed Rule's carve-outs and exemptions. But given the presence of numerous comparable alternatives, we estimate this subset to be overstated in the Compass Lexecon comment. Among new investors who do not have an existing relationship, the desire to create a new relationship with an adviser using a taxable savings mechanism is expected to be even smaller.

The Compass Lexecon comment provides little to no analysis of the likelihood of investors switching to taxable savings accounts. Instead, in quantifying potential losses from investors using taxable, rather than tax-deferred accounts, it simply assumes that the bottom half of investors using brokerage accounts would use taxable accounts instead.[50] Given the current options available to investors as well as alternatives that are being introduced in the fast evolving market for investment advice, we do not foresee a consequential number of investors making this switch to taxable accounts. Current and future investors with small asset balances who seek access to investment advice already have many options to choose from. Industry trends suggest even more options may become available to them.

Also, Compass Lexecon erroneously assumes that IRAs that start small (under $25,000) will grow to be average at the time of retirement. Instead, IRAs that start relatively small are likely to remain relatively small.

[50] Compass Lexecon (2015, pp. 19-20). More precisely, Compass Lexecon assumes that one-half of IRAs in brokerage accounts would not have had $25,000 when the accounts were opened.

In short, while we agree that tax-sheltering can be beneficial to IRA investors, the Compass Lexecon comment relies on unsupported or incorrect assumptions on investor behavior to make overly dire predictions on eroded retirement savings.

Synopsis

The basic premise of the Compass Lexecon comment is that the Proposed Rule may cause an investor who would have opened an IRA to instead open a taxable savings account in order to preserve access to a commission-based account and the assistance that comes with it. Specifically, it expects firms currently offering commission-based IRAs will no longer find it cost-effective to offer IRAs to small account holders, such as those with a balance below $25,000. However, firms could still offer brokerage-based taxable accounts. If investors opt for a taxable account in order to gain or retain access to advice, they will lose tax deferral benefits and end up with fewer retirement savings that will not fund their retirement for as long as investors utilizing an IRA can expect.

Section I of the comment provides background and summarizes the rationale, approach and findings of the analysis conducted. In Section II, the comment describes the model used to analyze the reduction in retirement savings, the assumptions made and other parameters used to develop the model. Section III describes how the model operates, compares different investment mechanisms (taxable savings account versus a traditional IRA and a Roth IRA), and explains the simulation techniques used to evaluate the uncertainty embedded in the assumptions. Section IV presents the results and potential impact on investors at various age and income levels, the implications for retirement security and an estimate of total potential investor losses due the Proposed Rule.

The Compass Lexecon comment finds that an investor who uses a taxable account to generate retirement savings can pay a median effective average tax rate of 30.0%-43.3% (Exhibits A and B, Median Values) compared to 17.1%-25.0% and 15.0%-25.0% for investors using Roth IRA and Traditional IRAs respectively. The ranges in these estimates are driven by uncertainty in the assumptions made—the investor's age, income, tax rates, asset allocation, returns, size and frequency of contributions, and age at retirement. The Compass Lexecon comment concludes that about 7.0 million household accounts could be affected and estimates the potential investor losses at between $147 billion and $372 billion over what we understand to be a period of roughly 30 years.

Discussion

Overview

Compass Lexecon uses a model to show that IRA investors can suffer a reduction in retirement savings as a result of the Proposed Rule. This effort hinges on the following line of thinking. The DOL's Proposed Rule will cause investors who use a commission-based IRA account to move to a fee-based account. But "participants in this rulemaking have stated that, if subjected to the changes in fiduciary status imposed by the proposed amendments, firms currently offering commission-based IRAs will no longer find it cost-effective to offer IRAs to small account holders, such as those with a balance below $25,000" (Compass Lexecon 2015, p. 1). However, taxable savings plans, which are not affected by the Proposed Rule, will be available

to these investors as an alternative mechanism to fund their retirement. If an investor, unable to gain access to a commission-based IRA account and the assistance that comes with one, instead chooses to start a taxable savings account, he or she stands to lose a large portion of retirement savings to taxes every year.

Compass Lexecon attempts to quantify the impact on retirement savings, *if* investors use taxable savings accounts instead of IRA accounts. Little to no attention is devoted to how likely investors are to use taxable accounts to fund retirement. Whether the severity of the problem that Compass Lexecon seeks to highlight equates to a mountain or a molehill depends heavily on the propensity of investors to start using taxable accounts to fund retirement savings.

The remainder of this section focuses on the likelihood of investors, who by assumption cannot avail themselves of a commission-based IRA account, would instead choose to open a taxable savings account.

Likelihood of Investors Using Taxable Savings Accounts to Save for Retirement

The Compass Lexecon comment operates under the premise that some brokerage investors may consider using a taxable savings account to fund their retirement: "the proposed amendments have the potential to affect all households that (absent the amendments) would have started brokerage IRAs either from a contribution or a rollover of less than $25,000" (Compass Lexecon 2015, p. 19.).

But the comment does not consider current and future options available to IRA investors who want to gain or preserve access to an adviser account arrangement. We have discussed multiple options available to IRA investors seeking to preserve access to financial advice such as 'robo' advice, target-date mutual funds and hybrid investment advice that combines automated and human-based investment advice. These options are discussed in detail in Section 2.

The presence of existing options for investment advice as well as the possibility of new options suggest that new and existing IRA investors are not likely to sacrifice valuable tax benefits to preserve access to human-based investment advice.

Benefits of Tax Sheltering

To demonstrate and measure the effect of tax sheltering, Compass Lexecon developed a model that used multiple inputs and made numerous assumptions to conclude that investors in taxable savings accounts would experience lower savings at retirement. To address uncertainty in the assumptions, Compass Lexecon evaluated multiple scenarios to estimate that "at the time of retirement, taxable saving accounts have a value that is between 11.1 percent and 21.9 percent lower than Roth IRAs, and between 18.2 percent and 28.1 percent lower than traditional IRAs" (Compass Lexecon 2015, pp. 19-20). This reduction was applied to an estimated $1,323 billion in IRA savings to arrive at potential investor losses ranging from $147 billion to $372 billion by the time investors reach age 65.

We agree that investors in taxable savings accounts will experience reduced rates of savings. However, the estimated $1,323 billion in IRA savings at retirement is inflated.

To arrive at this estimate, Compass Lexecon assumes that half of the estimated 14.0 million IRAs currently in a brokerage setting would not have $25,000 when opening an IRA, but would open a taxable account instead. These accounts are then assumed to grow and reach the overall IRA average at age 65 of $188,976 (in 2013 dollars). But because these affected accounts had low assets (less than $25,000) when they were assumed to start, they are unlikely to reach the IRA average at retirement. The assumption that accounts with low balances will somehow reach average account balances at retirement is unreasonable and inflates the measure of potential effect on savings. Moreover, the total potential investor losses that Compass Lexecon calculates are accrued over 30 to 40 years of investment and have to be divided appropriately to arrive at an annual measure.

The reduced savings between IRAs and taxable accounts is also driven by the tax rates paid by investors during retirement. Tax rates are applied on anticipated retirement income. Compass Lexecon assumes that investors will experience a reduction in income of 40% upon retirement. This assumption is based on findings from a 1997 working paper and a 2008 publication from the Social Security Administration (Biggs and Springstead 2008). Using the latter source, Compass Lexecon states that the replacement rate, expressed as retirement income as a percentage of preretirement earnings, is 69% and 52% for median households in the 3rd and 4th highest lifetime earnings quintiles respectively. However, these statistics measure the replacement rate from income from shared Social Security benefits only, rather than from total household retirement income from all sources. If these additional sources of income are accounted for, it will increase Compass Lexecon's income and tax rate assumptions for IRA investors and thus reduce the benefits of tax sheltering.

7. LITAN AND SINGER

Summary

In response to DOL's Proposed Rule, the Capital Group submitted a report by Robert Litan and Hal Singer of Economists, Inc. titled "Good Intentions Gone Wrong: The Yet-To-Be Recognized Costs of the Department of Labor's Proposed Fiduciary Rule" (Litan and Singer, 2015a). In response to questions from the DOL, Litan and Singer provided additional details in a letter (Litan and Singer, 2015b). This section contains a review of the Litan and Singer study and letter.

Litan and Singer assert that DOL's Proposed Rule would result in a reduction in financial advisory services, particularly for individuals with modest investment portfolios, and in cost increases for other investors who migrate from brokerage to advisory accounts. They further assert that the requirements of the Best Interest Contract Exemption are so onerous that "it is unlikely that many brokers will seek an exemption." Consequently, the study claims that some investors would be left without financial advice, which would result in poorer financial decisions.

Litan and Singer do not provide, or cite, empirical analysis supporting their premises. The financial industry, renowned for its ability to innovate and evolve, is likely to adapt to new regulation through modified account types. Low-cost "robo" advice options, which are especially suitable for small accounts that do not need much advice, are already increasingly available, including for very small accounts. Also, investors may turn elsewhere for advice. Even apart from corrections discussed below, Litan and Singer's study could be viewed as a "what-if" exercise based on unsupported assumptions.

The study faults DOL for not including the impacts of reduced financial advice and proceeds to estimate that the loss of financial advice would reduce the annual returns of investors with modest portfolios by 44.5 bps and increase the costs of investors migrating to advisory accounts by 31 bps. These estimates of the "yet-to-be recognized costs" exceed Litan and Singer's 25 bps restatement of DOL's estimate of the Proposed Rule's benefits of reducing conflicted advice. The study also claims that (1) DOL's application of results from academic studies in estimating the gains from less conflicted advice substantially overstates the gains, (2) a simple disclosure statement would be a more cost-effective alternative for reducing conflicted advice, and (3) DOL has not produced real-world empirical support for its rejection of greater disclosure requirements.

DOL's Regulatory Impact Analysis (RIA) predicts that the Proposed Rule can generate approximately $40 billion over 10 years in additional investment returns. Litan and Singer restate this amount as what they claim to be an equivalent annual return increase of 25 bps. In performing this translation, Litan and Singer incorrectly divide the *discounted* 10-year benefit by an *undiscounted* asset base, which has the effect of understating the benefit. Correcting this error lifts the equivalent annual return boost from reduced conflicts of interest estimated in the RIA from 25 bps to 36 bps.

Litan and Singer heavily rely on what appears to be a Vanguard training or marketing document to estimate the 44.5 bps loss in annual return they attribute to reduced financial advice. The validity of this estimate depends on (1) whether

Vanguard's results—which are based on non-conflicted advice—apply to conflicted advice, (2) whether there are costs associated with financial advice that are not accounted for in Vanguard's results, (3) whether there is double-counting among separate components of purported negative impacts, and (4) small investors' proportion of the asset base of IRA investments in funds with front-end loads (upon which the RIA's estimated impacts are based). Even if the Vanguard results are accepted as valid and applicable, correcting double-counting and other errors and weighting by the proportion of assets held by investors with modest portfolios would reduce the estimated benefit of financial advice from 44.5 bps to 2 to 3 bps. Even that effect assumes that the value that Vanguard attributes to its non-conflicted advice applies equally to conflicted advice. Similarly, Litan and Singer's estimate of a 31 bps cost for investors migrating to advisory accounts is overstated, as it relies on the flawed Oliver Wyman (2011) study that excluded costs and did not account for the fact that current brokerage investors tend to be less costly to serve. Also see Section 2. Table 5 summarizes Litan and Singer's estimates of gains and losses from the Proposed Rule and their corrected values. Instead of a net loss of 8 bps as projected by Litan and Singer, our corrections suggest a net gain of 33 bps.

Table 5. Summary of Litan and Singer Estimates and Their Corrected Values

	Litan and Singer		Corrected	
	Estimate (bps)	Asset-weighted* (bps)	Estimate (bps)	Asset-weighted* (bps)
Benefit from reduced conflicts of interest (all IRAs)	25	25	36	36
Loss from increased market timing and less portfolio rebalancing (modest IRAs)	-44.5	-6.675	-17.5	-2.625
Higher fees in advisory accounts (high-balance IRAs)	-31	-26.35	0	0
Net gain from Proposed Rule		-8.025		33.375

*Assumes that 10%-20% of assets are in IRAs with modest balances and the remainder in high-balance IRAs; see the text. This table applies a weight of 15% for modest- and 85% for high-balance IRAs.

Litan and Singer also challenge DOL's calculations of the cost of conflicted advice, asserting that the DOL misapplied or misinterpreted academic studies. Litan and Singer offer no empirical support for the validity or magnitude of their specific criticisms, which are generally undermined by a careful reading of the academic literature upon which DOL relied.

Finally, Litan and Singer attempt to support their alternative disclosure proposal with an academic article that deals with factors that mitigate, but not necessarily eliminate, the harmful effects of conflicted advice. Based upon a review of that article, we conclude that it does not support that Litan and Singer's proposed alternative would eliminate the effects of conflicted advice. In fact, the authors of that article explicitly argue for decreasing conflicts of interest rather than disclosing them.

Synopsis

Litan and Singer assert that (1) DOL's Proposed Rule would result in a reduction in financial advisory services for individuals with modest investment portfolios and cost increases for investors migrating from brokerage to advisory accounts and (2) the requirements of the Best Interest Contract Exemptions are so onerous that "it is unlikely that many brokers will seek an exemption." Consequently, the study claims that many investors would be left without financial advice, which would result in poorer financial decisions. The study faults the DOL for not including the impacts of reduced financial advice and proceeds with its own quantitative estimates of the monetary impact of a loss of financial advice. The study claims that these "yet-to-be recognized costs" exceed the benefits from reducing conflicted advice estimated by DOL.

Litan and Singer's quantitative estimates include the following:

- Based on the premise that many investors would lose access to advice and on Vanguard (2014a), Litan and Singer produce estimates of the loss in benefits from financial advice. The study calculated an impact of 27 bps for advising investors to avoid market timing and 17.5 bps for more portfolio rebalancing, for a total impact of 44.5 bps.
- Based on a single, hypothetical example presented by Oliver Wyman (2011, p. 23), Litan and Singer apply an annual estimate of a 31 bps increased cost to all investors who would migrate to advisory accounts.
- Scenario 1 of DOL's RIA predicts that the Proposed Rule will generate approximately $40 billion over 10 years in additional investment returns. Litan and Singer convert this benefit into an annual percentage by subtracting $240 million in annual compliance costs and dividing over the average investment base of $1.487 trillion that the study calculates from data presented in the RIA.
- Because the resulting gain of about 25 bps from reduced conflicted advice is less than the 44.5 bps lost from reduced financial advice and the 31 bps increase in costs from migrating to advisory accounts, the study concludes that the costs of the Proposed Rule exceed the benefits.

The study also claims that (1) DOL's application of results from academic studies in estimating the gains from less conflicted advice substantially overstates the gains, (2) a simple disclosure statement would be a more cost-effective alternative for reducing conflicted advice, and (3) DOL has not produced real world empirical support for its rejection of greater disclosure requirements.

Discussion

Litan and Singer's Primary Estimates

Litan and Singer argue that the Proposed Rule would cause financial advisers to provide less advice, particularly to investors with smaller balances. A major focus of their study is a comparison of the magnitude of the benefits from reducing conflicted advice presented in DOL's RIA with the benefits that according to Litan and Singer would be foregone due to reduced advice. Litan and Singer followed these steps in carrying out the comparison: (1) translate the 10-year gains from DOL's first scenario ($39.8 billion; RIA, Table 3.3.1-1) into an average increase in annual return

on investment and (2) use estimates from what appears to be a Vanguard training or marketing document (Vanguard 2014a) to produce estimates of what Litan and Singer offer as the loss in annual return from investors receiving less advice with regard to market timing and portfolio rebalancing. The study estimates that loss of advice would result in a reduction in annual returns that exceeds the gain that the Litan and Singer's translation of DOL's first scenario's benefits produced.

Translating DOL's 10-Year Gains into an Increase in Average Annual Return

Litan and Singer's calculation (1) starts with DOL's 10-year gain of $39.8 billion; (2) divides this amount by 10 to produce an average annual gain that the study rounds to $4 billion; (3) reduces this amount by DOL's estimated annual implementation costs of $0.24 billion, producing annual net benefits of $3.76 billion; and (4) divides the average annual net benefits by the study's estimate of $1,487 billion for the average 10-year investment base, resulting in a gain of 25 bps.[51]

Because the numerator of their calculation starts with *discounted* 10-year benefits,[52] but the denominator—average asset base—is stated in nominal dollars, Litan and Singer's translation of DOL's 10-year impact into a basis-point equivalent understates the effect on average annual return. One way to correct the study's improper mixing of real dollars in the numerator with nominal dollars in the denominator is the following calculation: (1) for each of the 10 years in DOL's 10-year scenario, calculate an annual increase in return as the change in asset differential (row F) less implementation cost of $0.24 billion divided by the average of the beginning and ending assets (rows C and E) and (2) calculate the 10-year average of these increases. The result of this calculation is a gain of 36 bps.[53]

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[51] (4.00-0.24)/1,487 = 0.25%. The study, which does not provide details on how the 10-year average investment base was calculated, appears to have used data in Table 3.4.2-1 of the RIA. We calculated an average investment base of 1,496 billion, using rows (B) and (D)—beginning- and end-of-year baseline front-end load mutual fund assets. Adding to this uncertainty, the study estimates the investment base to be $1.478 trillion on page 1 and $1.487 trillion elsewhere.

[52] The RIA describes the calculation of a discounted (or real) 10-year gain as follows (DOL 2015a, p. 117):

> The asset differential at the end of the 10-year period (2025, Row H) together with the portion of the asset differential withdrawn in each year (Row G) makes up the 10-year quantified subset of IRA investors' expected gains under alternative scenarios 1. However, before those numbers are summed, they are each discounted by the appropriate number of years at a rate of 5.3 percent (Rows I and J) so that the 10-year front-load-mutual-fund-gain-to-investors is expressed in January 1, 2016 dollars.

[53] The annual returns we calculate appear to match those described by Litan and Singer (p. 7): "Table 3.4.1-1 of the RIA suggests that its calculated improved performance differential, which starts out at 10 basis points, eventually will grow to 51 basis points in 10 years, as currently held IRA and defined contribution funds move to better performing funds." Litan and Singer are most likely describing Table 3.4.2-1, not Table 3.4.1-1. We matched the beginning and ending values of 10 and 51 bps. Unlike Litan and Singer's calculation of a 25 bps effect, these annual returns (as well as the average of the annual returns) do not suffer from the bias due to mixing real and nominal dollars.

Losses Due to Reduced Financial Advice

Litan and Singer's estimate that the loss of financial advice would result in a 44.5 bps reduction in annual return consists of two components: a 27 bps loss due to market timing and a 17.5 bps loss due to portfolio rebalancing. Both components are back-of-the-envelope estimates, as described next.

For the market timing estimate, Litan and Singer rely on a Vanguard comparison of the performance of self-directed investors (for which Vanguard and Litan and Singer assumed there was no advice with regard to market timing) with performance of Vanguard's Target Retirement Funds over the five years ending on December 31, 2012. Litan and Singer (2015a, p. 17) report that Vanguard's comparison indicated that 27% of self-directed investors made at least one exchange of money between funds or into other funds and had returns averaging 150 bps lower than those of Target Retirement Funds. In contrast, Litan and Singer indicate the 73% of self-directed investors who did not exchange money (and who by definition did not attempt to time the market) underperformed Target Retirement Funds by 19 bps.[54] Litan and Singer (1) calculate the weighted average of the underperformance of these two groups relative to Target Retirement Funds (0.27 x 150 + 0.73 x 19 = 54 bps); (2) assume that the maximum effect of advice that results in avoidance of market timing was this weighed average, while the minimum effect was zero; and (3) pick the mid-point of this assumed range—27 bps—to represent the estimated impact of lost financial advice.

Litan and Singer's use of this estimate as the impact of reduced financial advice is consistent with the *assumptions* that (1) investors currently receiving advice realize returns that approximate the performance of the Vanguard target date funds, i.e., among other things, they do not engage in market timing; (2) reduced financial advice would result in investors who own 27%/2 = 13.5% of the assets of investors no longer receiving advice making poor timing decisions; and (3) for those investors who previously did not need advice to avoid market timing, reduced financial advice on avoiding market timing would result in investors holding 73%/2 = 36.5% of assets somehow earning a slightly lower return than they formerly did.

For the portfolio rebalancing estimate, Litan and Singer base their estimates on Vanguard's comparison of the average annual return of a portfolio with 60% stocks and 40% bonds that was not rebalanced over the 53-year period from 1960 to 2013 with the return of a rebalanced portfolio with 80% stocks and 20% bonds. The latter portfolio had about the same risk as the former portfolio, but an average annual return that was 35 bps higher. Litan and Singer's estimate of the effect of reduced advice (1) at least implicitly assumes that Vanguard's comparison of two stylized portfolios is representative of the effect of rebalancing, independent of portfolios that investors actually hold; (2) assumes that the maximum effect of advice that results in better balanced portfolios was the 35 bps spread in the Vanguard comparison, while the minimum effect was zero; and (3) picked the mid-point of this assumed range—17.5 bps—to represent the estimated impact of lost financial advice. Litan and Singer's use of that estimate as the impact of reduced financial advice is consistent with the *assumptions* that (1) investors currently receiving advice realized

[54] We were unable to find the specific percentages in Vanguard (2014, p. 16). In particular, Vanguard's document indicates that "a majority of investor returns trailed their target-date fund benchmark slightly." While the majority Vanguard describes could be 73%, that specific percentage does not appear in Vanguard (2014).

returns that approximated the performance of Vanguard's balanced portfolio and (2) lost financial advice would result in investors owning 50% of the assets of investors who would lose advice no longer optimally rebalancing.

Losses from Migrating to Advisory Accounts

Litan and Singer assume that some investors will suffer a 31 bps cost increase associated with migrating from brokerage to advisor accounts. This estimate is based on converting Oliver Wyman's (2011, p. 23) single, tersely explained hypothetical example into a number that presumably applies across-the-board to all investors assumed to migrate. In particular, with a minimal amount of detail, Oliver Wyman calculate that a hypothetical 40-year old saver who invested $25,000 up-front and $4,000 annually would have 8 percent more savings at age 65 in a brokerage account. That difference, in turn, is equivalent to an annual 31 bps difference.[55] Therefore, Litan and Singer's *assumption* is that Oliver Wyman's hypothetical example, complete with the excluded costs we described in Section 2 and its static view of the financial industry, provides a reliable estimate of cost increases certain investors could experience.

Evaluation of Litan and Singer's Primary Results

There are several considerations in evaluating the validity of Litan and Singer's primary conclusion—that the 44.5 bps reduction in returns it claims would result from less financial advice and the 31 bps cost from migrating to advisory accounts exceed the 25 basis point gain from less conflicted advice they calculate from DOL's first scenario. These include: (1) the applicable asset base for increases or decreases in annual returns posited by DOL and Litan and Singer; (2) the plausibility of the assumptions Litan and Singer used in applying Vanguard's estimates; (3) whether there are any costs to provide financial advice that are not reflected in Vanguard's examples; and (4) whether Litan and Singer's separately estimated items—market timing and portfolio rebalancing—overlap, i.e., whether the sum of estimates double count some benefits. We discuss these four issues in turn.

With regard to asset base, in order to be informative, Litan and Singer's comparison of their translation of DOL's investor gains and their estimate of annual returns losses from reduced advice would have to address the same asset base. In particular, DOL's analysis related to front-end mutual fund assets, which in principle could include the accounts of investors of various sizes from small investors to much larger investors. In contrast, Litan and Singer appear to limit the potential harms from less financial advice to investors of modest means, e.g., "savers with modest portfolios" (Litan and Singer 2015a, p. 12) and/or "middle-income savers" (Litan and Singer 2015a, p. 16). Litan and Singer provide no information on the asset base of those investors who they believe would lose investment advice if the proposed rule were implemented. While such investors may account for a substantial share of the *accounts*, they account for a much smaller proportion of total assets in front-end load mutual funds. For example, data provided in NERA (2015a, 2015b) suggest that accounts with balances of $100,000 or less—a threshold that is even higher than the level at which some commenters speculate that investors will lose financial advice—

[55] 31 bps $= \sqrt[25]{1 + 0.08} - 1.$

hold about 12% of assets.[56] In other words, the presumed 44.5 bps impact applies to just 12% of assets. Conversely, the asset base that would apply to the smaller of Litan and Singer's assumed impacts—increased costs from migrating to advisory accounts—would be to the remainder of current brokerage account investors, i.e., on the order of 80% to 90%.[57]

Turning to Litan and Singer's assumptions, for both components they assume (at least implicitly) that (1) the Vanguard examples—Target Retirement Funds in the case of market timing and a stylized balanced portfolio in the case of rebalancing—are representative of the results currently obtained by investors receiving advice and (2) the reduction of advice would result in investors who account for half the asset base making less favorable investment decisions. Litan and Singer do not provide empirical support for either of these assumptions. In addition, because Vanguard (2014a) describes its results as "Vanguard quantifies the value-added of *best practices* in wealth management", even if the Vanguard estimates were representative of the gains from good financial advice, they would be valid only to the extent that all advisers whose services were potentially lost as a result of the Proposed Rule were performing at a best-practices level.[58] Specifically, Vanguard's advisory services render non-conflicted advice. Litan and Singer attribute the benefits that Vanguard claims for non-conflicted advice to conflicted advice and simply assume away the difference that is the motivation for the proposed regulation.

Further, even if these assumptions were reasonable, the impact for market timing would be overstated because Litan and Singer included the 19 bps difference of self-directed investors who did *not* engage in any market transactions, and by definition could not have been talked out of inadvisable investment, as part of the overall effect. Indeed, Vanguard (2014a) did not appear to view the 19 bps differential as being associated with advice: "The result was that a majority of investor returns trailed their target-date funds slightly, which might be expected based on the funds' expense ratios alone." Seen in this light, rather than being a gain from financial advice, the difference between the 150 bps differential for the investors with transactions and the 19 bps differential for those without transactions, or 131 bps, is the best measure of the impact of market timing implied by Vanguard's results. Correcting Litan and Singer's calculations would (1) reduce the upper bound from 54 bps to 35 bps (0.27 x 131) and (2) reduce the mid-point of the range from 27 bps to 17.5 bps.

With regard to possible excluded costs associated with financial advice, in describing the benefits from rebalancing Vanguard (2014a, p. 15) notes:

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[56] Similarly, Panis and Brien (2016) show that about 10% of IRA assets are owned by households with IRA assets under $100,000. ICI (2015a, p. 28) reports a higher percentage—approximately 19%.

[57] Litan and Singer (2015, pp. 2-4) present a range that is equivalent to a maximum impact of 44.5 bps (everyone losing advice) to a minimum of 31 bps (everyone migrating to brokerage accounts).

[58] Vanguard's description is consistent with this interpretation: "This paper takes the Advisor's Alpha Framework further by attempting to quantify the benefits that advisors can add *relative to others who are not using such strategies*" (Vanguard 2014, p. 1, emphasis added).

> Keep in mind, too, that rebalancing is not necessarily free: There are costs associated with any rebalancing strategy, including taxes and transaction costs, as well as time and labor on the part of advisors. These costs could all potentially reduce your client's return.

Litan and Singer's use of Vanguard's example, without accounting for the additional costs that Vanguard noted, results in an overstatement of possible benefits associated with rebalancing. Further, Vanguard's observation appears to be especially germane to front-end load mutual funds, for which rebalancing would impose relatively high transaction costs.[59]

Finally, with regard to double-counting, the fact that rebalancing is a feature of the Target Retirement Funds Vanguard used to measure the impact of market timing implies that the differential in returns between the target date funds and self-directed investors would capture the effects of both rebalancing and market timing.[60] Accordingly, as described earlier, to the extent that Vanguard's comparisons are representative of the value of financial advice, the difference between the 150 bps differential between self-directed investors who had market transactions and target retirement funds and the corresponding 19 bps differential for those who had no transactions, or 131 bps, would remove the double-counting with rebalancing. Further, the fact that, as Vanguard explained, the 19 bps differential for the latter group may be explained by expense ratios alone suggests that the benefits from rebalancing may be very small.

In summary, Litan and Singer's bottom line conclusion that the Proposed Rule will lead to a reduction of financial advice that in turn will cost investors more than the benefits DOL estimates would be realized from less conflicted advice is incorrect because (1) Litan and Singer's translation of DOL's investor gains into a basis-point equivalent is incorrectly too low because the estimate improperly mixes real

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[59] Litan and Singer (2015a, p. 17) claim that brokers have an opposite incentive to keep investors in the market so that growing portfolios will produce greater 12b-1 fees. They do not analyze whether the incentive they posit is sufficiently strong to dissuade brokers from advising trades that would produce front-end load shares.

[60] In their letter to DOL, Litan and Singer (2015b, p. 3) attempt to explain away the double-counting issue as follows:

> Mr. Piacentini's fourth criticism is that Vanguard's estimate of the value of portfolio rebalancing reflects some "double-counting" because such rebalancing is already reflected in the performance of the target date funds. In fact, Vanguard's 2014 study makes very clear that its market timing and portfolio rebalancing estimates are different, and the methods used to derive those estimates are also very different.

The fact that Vanguard discussed what it labeled as "best practices" as separate modules and/or used different methods to derive its results says nothing about whether the separate estimates double-count the effects of advice on performance. Litan and Singer's explanation is analogous to a situation in which both rebalancing advice and market timing advice affect returns linearly and a study presents separate simple regression models for each effect. Since some advisors are likely to provide both kinds of advice, the regression coefficient in each model would include the combined effect of both.

estimated gains with a nominal asset base; (2) the asset base to which estimated losses from less financial advice should be applied is a small percentage of the assets held by current brokerage account investors; (3) Litan and Singer incorrectly applied Vanguard's estimates of the value of advice, which related to non-conflicted advice, to conflicted advice; and (4) even if Vanguard's examples of the benefits from financial advice were representative, Litan and Singer's calculations contain errors such as including the differential returns of investors who did not engage in market timing in the estimated effects of market timing and double-counting the effects of market timing and portfolio rebalancing. If Vanguard's examples are informative, the effect of correcting Litan and Singer's errors would be (1) an increase in the gains from DOL's first scenario from 25 bps to 36 bps, (2) elimination of the separate 17.5 bps loss associated with less rebalancing advice, (3) reduction in the loss associated with less advice on avoiding market timing from 27 bps to 17.5 bps, and (4) application of that impact to an asset base no more than 10% to 20% of what DOL calculated, which (5) would result in an impact of about 2 to 3 bps.

Finally, Oliver Wyman's flawed hypothetical example provides no basis for any additional impact associated with putatively higher costs for the remaining investors assumed to migrate to advisory accounts. Also see our discussion of cost differences between brokerage and advisory accounts in Section 2.

Benefits of the Proposed Rule

Litan and Singer briefly criticize DOL's estimate of the benefits from ameliorating conflicted advice, which they routinely characterize as a 25 bps impact. Perhaps as a tacit recognition that their criticisms are rather perfunctory, the authors conclude (Litan and Singer 2015a, p. 23):

> [T]he purported 25 basis point gain from the rule claimed by DOL is overstated, most likely by a significant degree. Because the estimated costs of the rule are significantly larger than the purported benefits, there is no need for us to discount the DOL's benefits […]"

As we now explain, Litan and Singer's criticisms do not undermine the validity of DOL's estimated benefits.

Litan and Singer's criticisms that take issue with DOL's interpretation of such academic studies as Christoffersen et al. (2013) and Bergstresser et al. (2009) overlap those of other parties. For example, NERA (2015a) and ICI (2015a) claim that the age of the data in the academic studies undermines their usefulness, and Berkowitz et al. (2015) claim that the results of Christoffersen et al. (2013) are questionable because their models have low R-squares. The first criticism is misguided, among others because the estimated incentive effects of conflicted compensation are not affected by (declining) average load payments; also see the discussion in Section 2. If anything, ICI (2015c) find that the incentives were sharper in more recent data. The second criticism is similarly misguided, in part because predictors of rates of return are generally elusive and it is therefore noteworthy that conflicted payments had a statistically significant effect on rates of return; see Panis (2015).

Litan and Singer offer three additional criticisms: (1) Christoffersen et al. (2013) suffers from the "fundamental oversight" of estimating underperformance only for the year in which a fund is purchased and of not estimating underperformance "during all the years for which the fund is held," (2) the DOL's overall conclusion on

the negative effects of conflicted advice drawn from Bergstresser et al. (2009) is not consistent with the study's finding that foreign equity funds sold by brokers outperformed foreign equity funds sold through direct channels, and (3) that the "RIA also errs by focusing on the average performance of *funds* rather than of *investors in funds*." None of these criticisms have merit.

First, Litan and Singer's assertion that Christoffersen et al.'s measurement of performance as the forward-looking return for the year following the month in which payments to brokers are observed "does not permit reliable conclusions […] about any annualized under-performance of funds associated with conflicted advice over the long-run" is at best unhelpful because the authors do not provide an alternative approach that would ameliorate possible problems with Christoffersen et al.'s approach. Absent a well articulated alternative approach, Litan and Singer do not provide the information to determine whether this vague concern has any theoretical, let alone practical, merit. More fundamentally, their concern about long-run performance is misplaced, because the forward-looking return measured at any particular point in time pertains to assets invested not only in the month in question, but also to assets bought (and held) earlier.[61] That is, the return measured by Christoffersen et al. *does* reflect the long-run performance of these earlier-purchased assets.

Second, Litan and Singer's implication that Bergstresser et al.'s finding on the performance of foreign equity funds sold by brokers somehow invalidates DOL's conclusions about conflicted advice overlooks both Bergstresser et al.'s observation that the foreign equity result was hardly typical of their overall findings—"The contrary results in the foreign equity funds are attributable to a single fund complex"—and the authors' subsequent conclusion that "summing up across broad equity, bond, and *foreign equity* investment categories leads us to estimate the annual underperformance of the broker-sold funds at $4.6 billion in 2004" (Bergstresser et al., 2009, p. 4141, emphasis added).[62]

Third, while Litan and Singer suggest that a study of investors, rather than funds, could produce results that differ from conclusions drawn from academic studies of fund performance, they provide no empirical evidence to determine whether their concern is of any practical (as opposed to theoretical) importance, or whether the results would become stronger or weaker. In fact, our analysis of information from NERA's investor-level data presented in Section 3 indicates that consistent with the academic studies, the risk-adjusted returns to investors in commission-based accounts lag behind the returns to investors in fee-based accounts.

Litan and Singer's Alternative Disclosure Proposal

Litan and Singer recommend that disclosing the details of how brokers are compensated with a share of a front-end load and ongoing 12b-1 distribution charges is "a more direct and far less costly alternative" to the Proposed Rule. Litan and Singer fault the DOL for relying on a single article by Loewenstein, Cain, and Sah (2011) to conclude that disclosure alone would be insufficient to remedy the harms from conflicted advice. Apparently, they considered that level of support not strong enough to rule out the efficacy of disclosure. Nonetheless, Litan and Singer cite a

[61] The RIA discusses this phenomenon.
[62] Broker sold funds had a 2004 asset base of $2.6 trillion, implying a reduction in annual return of 179 basis points (Bergstresser et al., 2009, p. 4136, Table 2).

later article by the same authors (Sah, Loewenstein, and Cain, 2013) as support for the efficacy of their recommended disclosure statement (Litan and Singer 2015a, pp. 26-27):

> Yet in subsequent research the very same authors identify conditions under which the burden of disclosure is ameliorated: […] Three out of four of these conditions would seem to apply to the disclosure remedy proposed above: The disclosure would come from an external source (the Department); the advisee would presumably have the opportunity to change her mind (reinvest her assets) at any point in time; and, the advisee would presumably be able to make the decision in private. Therefore, the disclosure requirements suggested above are consistent with recommendations of the very researchers on which the Department relies.

The factors listed by Sah et al. (2013) appear to *lessen*, but not eliminate, the "burden of disclosure." The burden of disclosure arises when the knowledge that an option that is generally understood to be inferior benefits the adviser at the expense of the advisee actually results in advisees selecting the inferior option more frequently than do advisees who are also advised to select the inferior option, but do not know that the adviser benefits from that choice. For example, while a smaller percentage of advisees selected the inferior alternative recommended by a conflicted adviser when their decision was private, that percentage was still substantially larger than the corresponding advisees to whom the conflict in interest was not disclosed. Further, Sah et al.'s study provides information on both the superior alternative and the inferior alternative that benefits the conflicted adviser; in contrast, Litan and Singer's recommended disclosure statement would describe only the alternative that advantages the conflicted financial adviser. Finally, after reviewing the results of their study as well as related research, Sah et al. (2013, p. 302) conclude:

> [T]he optimal solution to COIs [conflicts of interest] is to eliminate them wherever possible, or at least to increase the availability of unbiased advice […]. The limits of disclosure revealed by these studies and others suggest that policy makers should focus less on disclosing COIs and more on decreasing them.

8. QUANTRIA STRATEGIES

Summary

In response to DOL's Proposed Rule and on behalf of a group of clients, Davis & Harman LLP submitted comments including a study by Quantria Strategies LLC titled "Unintended Consequences: Potential of the DOL Regulations to Reduce Financial Advice and Erode Retirement Readiness" (Quantria 2015). This section contains a review of the Quantria study.

Quantria makes dire predictions about the effects of the Proposed Rule on aggregate retirement outcomes, small businesses, IRA owners, and retirement plan participants. It makes strong assumptions about industry responses. For example, it assumes that financial advisers cannot accept the risk of fiduciary liability and will instead cease to provide advice. The Quantria prediction seems to conflict with the fact that many advisers currently already operate under a fiduciary duty, oftentimes in combination with a lighter standard for some of their other activities.

Quantria assumes that, deprived of financial advice, small businesses will reduce sponsorship of retirement plans and that individuals will increase pension cash-outs, reduce retirement contributions, and commit more investment errors. The benefits that Quantria ascribes to financial advice are based on its persistent confusion of conflicted and non-conflicted advice. While we agree that conflicted advice can confer benefits, overwhelming evidence indicates that they are much smaller than the benefits of non-conflicted advice. Separately, Quantria ignores the possibility that non-conflicted advice could reduce unscrupulous sales practices and root out excessively expensive products. Quantria does not provide any evidence to contradict the possibility that as a result of less conflicted advice, some small business—that currently do not sponsor a retirement plan because of concerns over ulterior motives of their adviser—may start sponsoring a plan.

In short, Quantria relies on unsupported assertions and flawed studies for many of its predictions. Its assumptions about responses by the financial services industry, small businesses, and individuals are unrealistic. As a result, its aggregate estimates of the effects of the Proposed Rule are also unrealistic.

Synopsis

The Quantria study consists of two main parts. The first part discusses unintended effects that Quantria anticipates if the Proposed Rule were implemented as proposed. Quantria argues that the regulation would reduce financial assistance to DC plan participants, owners of small IRAs, and small businesses that may wish to sponsor a retirement plan. Quantria also anticipates a reduction in retirement readiness, i.e., a reduction in such metrics as the fraction of people with sufficient retirement income to cover average expenses and uninsured health care costs (including long-term care costs) at age 65 or older throughout retirement. The authors explain that individuals with lower financial literacy tend to be less prepared for retirement, and that financial advice can help compensate for lack of financial literacy.

The second part discusses anticipated effects of the regulation on retirement savings in more detail for three distinct groups. First, Quantria expects owners of IRAs with low account balances to lose access to financial advice. It also expects fewer IRAs to open as a result of reduced assistance rolling over DC plan balances into an IRA. Second, it expects retirement sponsorship rates among small businesses to fall because of restrictions on marketing activities and because new plans generally carry low balances and may be considered unprofitable to serve. Third, it expects lower DC plan savings because plan participants would have less access to educational materials, would make more investment errors, would take less advantage of employer matching, and would cash-out their DC account upon job separation more often. All combined, Quantria expects losses of retirement savings of $68 billion to $80 billion per year. Translated into retirement readiness, “The re-proposed regulations would jeopardize retirement readiness for 11.9 million IRA and retirement participants. This 11.9 million figure consists of individuals who either are unlikely to be retirement ready (6.1 million) or are at risk of failing to be retirement ready (an additional 5.8 million)” (Quantria 2015, p. 32).

Discussion

Overview

The general applicability of the Quantria study hinges on several premises that Quantria adopts. Among these are the following (Quantria 2015, p. 2):

> The re-proposed regulations […] have a general rule that causes many activities of financial advisers to create potential fiduciary liability and they do not provide workable safe harbors in the prohibited transaction exemptions.

And (Quantria 2015, p. 6):

> Most importantly, initial indications suggest that very few, if any, financial institutions could satisfy the best interest contract exemption, thereby practically eliminating this exemption.

Quantria offers little or no empirical justification for these assertions. Ultimately, it is an empirical question whether financial institutions will be able to take advantage of prohibited transaction exemptions.

Quantria further asserts the following (Quantria 2015, p. 4):

> As a practical matter, financial advisers cannot risk the sanctions imposed if they violate the fiduciary standards, especially the prohibited transaction rules.

Again, Quantria offers little or no empirical justification for this assertion. Many advisers currently operate under a fiduciary standard. In fact, about two-out-of-three advisers already wear two hats, providing financial-planning or portfolio-management services under a fiduciary standard and serving as salespeople of securities, insurance or other products under a lighter duty (Rieker 2015). The assertion is therefore empirically unsupported and inconsistent with current practices.

While the above assertions raise questions, Quantria adopts them as cornerstones of its report. If in fact the forthcoming regulation does provide workable safe harbors in its prohibited transaction exemptions, and if financial advisers in fact are willing to accept fiduciary responsibility, the Quantria study is merely an exercise in hypotheticals.

The remainder of this section parallels the organization of the Quantria study. We first discuss the unintended effects that Quantria anticipates if the Proposed Rule were implemented as proposed (Quantria's Section II). Next we review Quantria's anticipated effects of the regulation on retirement savings (Quantria's Section III).

Unintended Effects of the DOL Regulations

Quantria starts with presenting an overview of the Proposed Rule. With little or no empirical justification, it asserts that the proposed regulations "do not provide workable safe harbors in the prohibited transaction exemptions" (Quantria 2015, p. 2), that "financial advisers cannot risk the sanctions imposed if they violate the fiduciary standards, especially the prohibited transaction rules" (Quantria 2015, p. 4), that "Companies are likely to find that the costs of providing the required information to qualify for the prohibited transaction exemption would exceed the value of getting or retaining a small account" (Quantria 2015, p. 5), and that "initial indications suggest that very few, if any, financial institutions could satisfy the best interest contract exemption" (Quantria 2015, p. 6). Quantria does not specify what these initial indications are or, more generally, what the basis is for its sweeping assertions. At this time, the regulations are not yet in force and it is impossible to tell whether prohibited transaction exemptions will be workable, or whether some advisers will accept fiduciary liability. However, the remainder of Quantria's study hinges on the validity of the above-cited assertions.

Quantria next discusses unintended effects of the Proposed Rule for small businesses, IRA holders, and retirement plan participants.

Small Businesses

Quantria argues that the "DOL regulations likely would reduce the availability of financial assistance for the owners of small account IRAs and small business retirement plans" (Quantria 2015, p. 6). It explains that "financial institutions typically earn different amounts on the different options that a small business can choose to offer its employees. As a result, financial advisers would not be able to provide services to these types of customers" (Quantria 2015, p. 7). In other words, Quantria laments the reduction of conflicted advice. Indeed, that is precisely the purpose of the Proposed Rule. Quantria builds on its premise that financial advisers will not accept fiduciary liability. However, many financial advisers currently operate under a fiduciary standard, and indeed many who avoid fiduciary duty for some of their work accept it for other work (Rieker 2015).

Financial institutions likely have at least two options. They can stop selling retirement plans or they can adapt the compensation of their sales force or intermediaries. Providers who currently rely on front-end load sharing and opaque pricing to sell expensive products may find that they can no longer compete under the new regime. The remaining plan products will likely be less expensive. Under a non-conflicted compensation model, sales people or intermediaries can continue to provide their advisory services. In fact, they would no longer have an incentive to push expensive products, making it easier for them to earn the trust of small

businesses and other clients. A potential outcome of that development is that small businesses—that no longer need to be watchful for unscrupulous sales practices—become more likely to start a retirement plan.

IRA Owners

With respect to existing IRAs, Quantria states (Quantria 2015, p. 7):

> Under the regulation, IRA owners would have the following options: (1) if the account is large enough, move to an advisory relationship, which may increase fees, especially for buy and hold investors, (2) if the account is not large enough for an advisory relationship, leave the money in the account, but lose access to an adviser, (3) cash out the savings from the IRA and either spend the money or add the assets to an account that is not tax favored, or (4) roll the IRA assets over to another tax-favored retirement savings account, such as an employer plan, if available.

We discuss these options in turn. First, larger accounts may move to an advisory account. Quantria provides no explanation for its assertion that such accounts may involve higher fees. However, it extensively cites from Oliver Wyman (2011), which tabulated higher fees for fee-based than for commission-based accounts. That comparison accounted for direct costs only and excluded marketing and distribution, shareholder services, and other fees not directly paid by investors. In other words, it excluded load sharing and other indirect payments that are made to commission-based advisers and not to fee-based advisers. Second, Quantria argues that smaller accounts would lose access to an adviser. We discussed and cast serious doubt about this scenario in Section 2. Third, IRA owners could cash out their account, presumably to preserve access to advice. This option is inferior to the other options—particularly in light of recent innovations in the delivery of advice and in such products as target date funds (see Section 2). Fourth, IRA assets may be rolled over into another retirement savings account. The consolidation of assets may indeed be beneficial, as the account holder may be offered lower fees.

In support of its arguments, Quantria cites Garber et al. (2015), which was commissioned by the DOL. For example, “This study, released in February 2015, acknowledges that the regulations could have an adverse effect on some portion of IRA investors and that, as a result, some IRA owners would be worse off under the regulations.” Garber at al. (2015) was indeed released in February 2015, before the Proposed Rule of April 2015. At the time Garber and co-authors wrote their report, the provisions of the Proposed Rule were unknown. Their conclusions stem from general thought experiments of potential effects, not from an analysis of the actual Proposed Rule.

Retirement Plan Participants

Turning to retirement plan participants, Quantria argues that the Proposed Rule would reduce the availability of educational materials for retirement plan participants. It claims that educators would not be allowed to give examples of funds that fit within recommended asset classes. It is our understanding that the Proposed Rule includes a carve-out for educational activities.

Quantria is also concerned that the Proposed Rule would prompt additional cash-outs of DC plans when plan participants terminate their employment. It predicts that their plan’s financial services adviser would stop contacting departing employees because

they would not be allowed to promote their own IRA products. This may not be a bad development, since leaving the assets in the previous employer's plan may be a good option. Current rules require retirement plans to allow terminating employees with balances greater than $5,000 to stay in the plan (GAO 2014). These employees can continue to enjoy the plan's fiduciary safeguards and access to low-costs funds.

Quantria refers to its 2014 study (Quantria 2014) in which it predicted large increases in cash-outs and large reductions in the lifetime retirement savings as a result of increased cash-outs. Panis (2014) reviewed that study and found it deeply flawed. Among others, Quantria relied on a correlation between financial advice and retirement assets to assert causality, where the causality may in fact go in the reverse direction, and it confused lump sum distributions with cash-outs.

Retirement Readiness

Having discussed unintended consequences for small businesses, IRA holders, and retirement plan participants, Quantria presents the basis for its empirical analysis of unintended effects of the Proposed Rule for retirement outcomes. It offers several definitions of retirement outcomes and adopts the "retirement readiness" measure defined in VanDerHei (2014): "having adequate retirement income to cover average expenses and uninsured health care costs (including long-term care costs) at age 65 or older throughout retirement" (Quantria 2015, p. 9).

Quantria reviews literature on financial literacy and reports that "individuals who lack financial literacy are less likely to plan for retirement and less likely to demonstrate retirement readiness" (p. 11) and that "African-Americans and Hispanics generally have low levels of financial literacy" (Quantria 2015, p. 11).

Quantria argues that low financial literacy can be countered by financial advice. We agree that this is likely the case, but are not convinced by Quantria's arguments. For example:

- Quantria cites Garber et al. (2015) as stating that unsophisticated investors benefit from time savings by using a financial adviser and also from help in choosing investment products. However, Garber et al. (2015) refer to benefits from non-conflicted advisers.
- Quantria also cites Financial Engines/Aon Hewitt (2014), who document that plan participants who benefit from investing in target-date funds, managed accounts and online advice. Again, these are examples of non-conflicted advice.

In other words, Quantria confuses the benefits of non-conflicted advice with those of conflicted advice.

Effects of the Regulations on Overall Retirement Savings

The next part of the Quantria study attempts to quantify the effects of the Proposed Rule on retirement readiness. As before, the authors separately discuss IRA owners, small businesses, and retirement plan participants. In the final stage, Quantria presents aggregate estimates of the Proposed Rule's anticipated effects on retirement readiness.

IRA Owners

Quantria presents general statistics on IRA assets and contributions, distinguishing Traditional, SEP, SIMPLE, and Roth IRAs. The authors point out that "individual or small business investors often open multiple IRA accounts over their retirement savings horizon, creating multiple small accounts" (Quantria 2015, p. 17) that they typically do not consolidate. This suggests that some IRA owners with small balances who may lose access to an adviser will be able to avoid this by consolidating their accounts.

Based on several sources, Quantria estimates such inputs to its model as the fraction of IRAs with small balances and the magnitude of inflows from direct contributions and from rollovers.

Along the way, the authors seek to demonstrate that financial advisers or call centers do not play a major role in encouraging departing employees to roll over their retirement plan assets: "The data on the large number of rollovers exceeds the assistance provided to terminating employees" (sic, Quantria 2015, p. 19). This nonsensical statement appears to be based on rollover activity by 4.1 million taxpayers in 2012 and an unspecified (but presumably smaller) number of contacts with terminating employees.

Quantria relies on Oliver Wyman (2011) for estimates on the number of IRA owners who would lose access to financial advice and the reduction in overall IRA savings. A review by Garber et al. (2015) of the Oliver Wyman study demonstrated that its estimates of account costs (also see above) and industry responses are unreliable. We also reject the predictions of Oliver Wyman (2011) as a reliable basis for any estimates of the consequences of the Proposed Rule.

Quantria also cites Garber et al. (2015) to claim that availability of investment advisers serving the IRA market may well decline after the Proposed Rule takes effect. Indeed, Garber et al. raised that theoretical possibility, but also stated that "[e]ven major reductions in numbers of financial advisors serving the IRA market would not necessarily be economically undesirable, however, because the numbers of professional advisors serving the IRA market currently may be too high from an economic efficiency perspective. Much of the current demand for financial services may be attributable to many retail IRA investors overvaluing these services because these investors do not understand the fees they are paying (directly or indirectly) or the associated costs of advisor self-dealing" (Garber et al., 2015, p. 18). Their argument is similar to the one we made above.

Small Businesses

Quantria presents general statistics on the number of small businesses, the number of people they employ, retirement plan sponsor rates. It relies on a survey by Greenwald and Associates (2014) for estimates of the fraction of small businesses that would stop sponsoring their retirement plan or would reduce employer matches if the Proposed Rule were implemented. The survey describes the Proposed Rule to its respondents in the following language (Greenwald and Associates, 2014, p. 23):

> "The Department of Labor is considering prohibiting both retirement plan providers and the advisors who sell retirement plans to employers from assisting the employers in the selection and monitoring of the funds in the retirement plan. Under possible new rules, the employer would have two

> options: (a) find an independent expert on investments to provide, for an additional fee, guidance on the selection and monitoring of investment options, or (b) do the selection and monitoring themselves, subject to fiduciary liability if this selection is not done in a prudent manner by someone with sufficient expertise. If "a" is chosen, the plan sponsor would be subject to fiduciary liability if the expert is not chosen in a prudent manner."

This language is patently false and incendiary. The objective of the Proposed Rule is to improve advice, not to reduce it. The Quantria study provides no reliable empirical evidence to the contrary. A potential outcome of non-conflicted advice is that small businesses—that no longer need to be watchful for unscrupulous sales practices—become more likely to sponsor a retirement plan. Although a survey was performed by Greenwald and Associates on this topic, the survey educated respondents in a biased manner. The Greenwald and Associates survey results, therefore, were biased. We reject the survey as a reliable basis for any estimates of the consequences of the Proposed Rule.

Retirement Plan Participants

For current plan participants, Quantria states that about 53% of "[r]etirement plans make available educational information to improve financial literacy as well as investment advice to improve the performance of their employees' retirement plans" (Quantria 2015, p. 25). We agree that such educational information can be beneficial to plan participants. Such assistance is non-conflicted and it is our understanding that the Proposed Rule contains an education carve-out for this purpose.

Quantria also cites Financial Engines/AON Hewitt (2014) and Vanguard (2014b) to argue "that people using managed accounts and online advice have higher average contribution levels than other participants" (Quantria 2015, p. 25). Leaving aside the very likely possibility of reverse causality (people who are serious about retirement are more likely to seek assistance; see Section 2), both studies focus on assistance in the context of DC plans, i.e., this relates to non-conflicted advice. It further cites Financial Engines (2015) as evidence that "participants that use financial advisory services (including both active users of online advice and professional management services) were more likely to maximize their matching contributions" (Quantria 2015, p. 26). Again, this relates to non-conflicted advice. Finally, it argues that DOL (2011) states that "quality advice will address over concentration in employer stock and other failures to properly diversify" (Quantria 2015, p. 27). Again, the DOL (2011) analysis related to (an expansion of) non-conflicted advice.

In short, Quantria repeatedly confuses non-conflicted with conflicted advice. It attributes the benefits of non-conflicted advice to conflicted advice and uses them to estimate the effects of the Proposed Rule. We reject such benefits as a reliable basis for any estimates of the consequences of the Proposed Rule.

For terminating employees, Quantria expects the Proposed Rule to increase retirement plan cash-outs. It confuses gross distributions with cash-outs, as it also did in its earlier study on the subject (Quantria 2014). It states that "42 percent of employees take a cash distribution of their retirement savings at job termination" (Quantria 2015, p. 28) and omits to mention that these cash-outs are overwhelmingly small, accounting for just 7% of dollars (Aon Hewitt 2011). Quantria relies on its 2014 study of cash-outs for estimates of increased cash-outs. As noted above, Panis (2014) reviewed that study and found it deeply flawed. We reject

Quantria (2014) as a reliable basis for any estimates of the consequences of the Proposed Rule.

Retirement Readiness

Based on various assumptions discussed (and rejected) above, Quantria produces projections of the effects of the Proposed Rule on retirement outcomes: "the regulations could be expected to result in losses of retirement savings of $68-$80 billion each year" (Quantria 2015, p. 29) and the "regulations would jeopardize retirement readiness for 11.9 million IRA and retirement participants" (Quantria 2015, p. 32). Of these, roughly one-half are labeled "unlikely" to be retirement ready and the other half "at risk of failing" to be retirement ready.

Quantria provided very little detail that would permit an evaluation of its assumptions and calculations. As discussed in detail above, Quantria's assumptions on responses by the financial services industry, small businesses, and individuals are unrealistic. As a result, its aggregate estimates of the effects of the Proposed Rule are also unrealistic.

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FINANCIAL RISKS DUE TO LONG-TERM CARE

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SUMMARY

This report characterizes the current landscape and outlook of long-term care utilization, its costs, and its financing through out-of-pocket payments, private insurance, and public insurance. We draw on academic and trade literature and present new statistics based on primary research. In particular, we analyze cost reports of skilled nursing facilities (SNFs), *Form 5500 Annual Return/Report of Employee Benefit Plan* ("Form 5500") filings, and the Health and Retirement Study (HRS).

Approximately one-half of Baby Boomers are projected to require paid, formal long-term care in the home, an adult day care center, an assisted living facility, or a nursing home. Paying for care out of pocket will rapidly exhaust retirement savings of many Americans, forcing them to eventually rely on Medicaid. Indeed, more than one-half of nursing home patients who have been resident for five years or longer are Medicaid beneficiaries. The size of the Baby Boom generation is expected to drive up demand for and prices of long-term care, creating a troublesome outlook for the elderly's personal finances and the Medicaid program.

In light of the strained finances of Medicaid and other public payors, potential solutions will likely involve expanded private insurance. At present, only about 7 million Americans are covered by long-term care insurance. We discuss several options for reducing risks for insurers and consumers alike, public-private partnerships which incentivize private insurance, and policy options to promote long-term care insurance benefits in the workplace. However, fundamental economic interactions between private insurance and the Medicaid program pose a challenge to simultaneously preserving a safety net for low-income Americans and ensuring fiscal sustainability of the Medicaid program.

CONTENTS

ABBREVIATIONS

AALTCI	American Association for Long-Term Care Insurance
ADL	Activity of Daily Living
BLS	Bureau of Labor Statistics
CBO	Congressional Budget Office
CMS	Centers for Medicare and Medicaid Services
HIPAA	Health Insurance Portability and Accountability Act of 1996
HCRIS	Healthcare Cost Report Information System
HRS	Health and Retirement Study
IADL	Instrumental Activity of Daily Living
LTC	Long-term care
LTCI	Long-term care insurance
LTSS	Long-term services and support
NAIC	National Association of Insurance Commissioners
NCHS	National Center for Health Statistics
SNF	Skilled Nursing Facility

1. INTRODUCTION

Caring for the elderly and the disabled in the United States is posing increasingly large financial risks for patients, their family, and the Medicaid and Medicare programs. Medical costs have outpaced general inflation over the past four decades (BLS 2016) and retiring Baby Boomers are expected to increase demand for long-term care (LTC) services.

This report documents long-term care utilization, costs, and financing mechanisms, and reviews policy options for addressing long-term care's financial risks. We draw on a variety of sources including external literature and primary analyses of the cost reports of skilled nursing facilities (SNFs), Form 5500 Annual Return/Report of Employee Benefit Plan ("Form 5500") filings, and the Health and Retirement Study (HRS).

Mirroring the gradual increase in need for assistance as the body ages, long-term care encompasses a range of services. Much of it is non-medical in nature, such as assistance with cleaning, shopping, bathing, dressing, or eating. Services may be provided in the home by relatives or friends, homemakers, or home health aides; at adult day care centers; at assisted living facilities; at hospices, or at nursing homes.[1] Given the wide range of services, some authors refer to long-term care as long-term services and support (LTSS). This document uses the two terms interchangeably.

The remainder of this report is organized as follows. Section 2 summarizes academic and trade literature and provides external national statistics on long-term care utilization and costs. Section 3 adds to these statistics from our own analysis of annual cost reports that skilled nursing facilities (SNFs) submit to the Medicare program of the Centers for Medicare and Medicaid Services (CMS). Section 4 discusses trends in long-term care insurance (LTCI) and its typical features. It also includes our analysis of Form 5500 filings to shed a light on employer-sponsored long-term care insurance. Section 5 presents our analysis of HRS data with respect to long-term care utilization and its financial consequences. Section 6 concludes with a discussion of policy implications.

2. LITERATURE AND EXTERNAL STATISTICS ON UTILIZATION AND COSTS

In the United States, long-term care services are provided informally, by family and friends, and formally, by about 12,200 home health agencies, 4,800 adult day services centers, 22,200 assisted living and similar residential care communities, 15,700 nursing homes, and 3,700 hospices (NCHS 2013). On a typical day in 2011 or 2012 (NCHS 2013), approximately:

[1] This document uses the terms Skilled Nursing Facility and nursing home interchangeably. Some authors make a distinction, where SNFs are certified and covered by Medicare and offer skilled medical and rehabilitative services, whereas nursing homes offer custodial care. Typically, facilities offer both types of services.

- 4.7 million patients received services from home health agencies,
- 273,000 participants were enrolled in adult day services centers,
- 713,000 residents were living in residential care communities,
- 1.4 million residents were living in nursing homes, and
- 1.2 million patients received services from hospices.

Demand for LTC services in the United States is expected to grow substantially in the coming decades, largely due to the aging of the population and increased prevalence of disability among middle-aged populations. These factors increase the share of the population that has functional limitations and may require assistance performing everyday activities. The baby-boom generation, a cohort of 75 million individuals, was born between 1946 and 1964. In 2016 the oldest baby-boomers are turning 70 years old, and by 2031, they will turn 85 years old. The aging of this generation is causing significant shifts in the age distribution of the population (CBO 2013). In 2000, the share of the U.S. population that was 65 or older was 12%, but by 2050 that share is expected to exceed 20%. Over the same time period, the share of the population age 85 or older is expected to grow from 1.5% to 4.1%. Functional limitations and disability tend to increase with age. For example, from 2000 to 2010, 18% of 65-74 year olds living in the community reported difficulty performing Activities of Daily Living (ADLs) or Instrumental Activities of Daily Living (IADLs), while 54% of those aged 85 or older reported difficulties performing at least one of these (CBO 2013).[2] Similarly, the Census Bureau (2012) found that, excluding those in nursing homes, the fraction of people reporting needing assistance with activities of daily living increased with age from 7% among 65-69 year-olds to 30% among people age 80 or older (Table 1). As noted in their report, the magnitude of disability estimates would likely be higher if the nursing home population were included.

Table 1. Disability Prevalence and the Need for Assistance among the Non-Institutionalized Population by Age, 2010

Age	Any disability	Severe disability	Needs assistance
Under 15	8.4%	4.2%	0.5%
15 to 24	10.2%	5.3%	1.4%
25 to 44	11.0%	7.3%	2.0%
45 to 54	19.7%	13.8%	3.6%
55 to 64	28.7%	20.4%	6.0%
65 to 69	35.0%	24.7%	6.9%
70 to 74	42.6%	29.6%	10.8%
75 to 79	53.6%	37.5%	15.4%
80 and over	70.5%	55.8%	30.2%

Source: Census Bureau (2012). "Any disability" indicates difficulty to perform ADLs/IADLs or similar activities, and "severe disability" indicates inability to perform such activities. For details see Figure 1 in Census Bureau (2012).

[2] ADLs include bathing, dressing, eating, walking, transferring out of a bed or a chair, and using the toilet; IADLs include preparing meals, shopping, using the telephone, managing money, and taking medications.

While a general consensus has formed that the health of the elderly improved on several measures throughout the 1980s and 1990s, there has been a surge in disability among younger generations, in particular those under 50 years old (Lakdawalla et al., 2003). While the root causes have not been fully investigated, there is some evidence that obesity and such chronic illnesses as asthma and diabetes may be part of the problem.[3] This will likely contribute to an even greater increase in disability rates and institutionalization in a SNF in the coming decades than as suggested by projected aging of the population. When analyzing cohorts aged 65 and older in the late 1990s, Lakdawalla et al. (2004) forecast that the younger cohorts will likely have a higher rate of disability at older ages than the older cohorts did. This evidence aligns with increasing levels of disability among 50- to 59-year olds between 1984 and 1996.[4]

The aging of the population and the growth in disability among the middle-aged is likely to lead to increased future demand for both informal and formal LTC services. The Congressional Budget Office (CBO 2013) estimated that in 2011 the economic value of informal and formal LTC services for elderly people in the United States was $426 billion, of which $234 billion (55%) was in the form of informal care.[5] The remaining $192 billion was spent on institutional care (31% of total) and community-based care (14% of total).[6] While 31% of the total economic value was in institutional care, it related to only 18% of elderly people who were receiving LTC services in 2010. This reflects the high cost of institutional nursing care relative to community-based care; see Table 4 below. Four-out-of-five (80%) of elderly people who received LTC services lived in private homes, receiving informal care or community-based care in the form of home health aides, visits to adult day care facilities, and other non-institutional care.

Based on a microsimulation of people from around age 65 in 2015 to the end of their lives, Favreault and Dey (2016) forecast the ADL limitations of future elderly and their need for long-term care services. The goal of this exercise was to better understand the near-term future trends in this area and to forecast the average level of spending required. Specifically, the authors focused on the need for long-term services and support because of a disability that meets the criteria set in the 1996

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[3] Other explanations include changes in disability insurance laws (greater incentives to report disabilities that otherwise went unreported) and technological advances in medicine (new treatments can delay death for those who are chronically frail and otherwise would have died at a younger age).

[4] The forecasts of Lakdawalla et al. (2003) are not without some controversy. Manton (2003) argued that the use of certain data and assumptions in Lakdawalla et al. (2003) resulted in an incorrect conclusion. He expected nursing home use will continue to decline.

[5] The CBO calculated this figure by multiplying the average wage earned by a home health aide ($21 per hour) by the 11.2 billion hours of donated care extrapolated from responses to the HRS. It did not account for forgone earnings of the caregiver in excess of $21 per hour.

[6] The CBO defines the economic value of institutional care as the cost of stays, including room and board as well as assistive services, in skilled nursing facilities, nursing homes, and nursing facilities housed inside continuing care retirement communities. It defines the economic value of community-based care as the cost of assistive services provided in all other settings, including private homes, adult day care facilities, and facilities that are not nursing homes.

Health Insurance Portability and Accountability Act (HIPAA), namely a need for assistance with at least two ADLs that is expected to last at least 90 days or a need for substantial supervision for health and safety threats due to severe cognitive impairment. The study found that 52% of people who turn 65 years old in 2015-2019 will at some time in their lives need (informal or formal) long-term services and support because of such a disability. Excluding informal care by relatives or friends, 47% will need formal long-term services and support, including 23% who will need it for less than one year and 6% who will need it for five years or more (see Table 2). Including elderly who will not need any formal care, this cohort will need formal assistance for one year on average. Women are more likely to need assistance than men (52% versus 42%), people with lower incomes are somewhat more likely to need assistance than those with higher incomes, and the need for assistance is, as expected, greater for those in poor health than those in good health at age 65.

Table 2. Projected Use of Paid LTSS for Persons Turning 65 in 2015-2019, by Gender, Income Quintile and Self-Reported Health Status at Age 65

	Average years of formal LTSS use	Percent with any formal LTSS use	Distribution for all				
			None	<1 year	1.00-1.99 years	2.00-4.99 years	>5 years
Gender							
Men	0.7	42.0	58.0	22.2	8.5	8.0	3.4
Women	1.3	52.1	47.9	23.1	9.5	11.2	8.3
Income Quintile at Age 65							
Lowest	1.2	49.0	51.0	20.7	9.1	11.2	8.1
Second	1.2	48.1	52.0	21.1	8.7	11.0	7.3
Middle	1.1	48.7	51.3	22.5	9.7	9.6	6.8
Fourth	0.9	45.2	54.8	22.7	8.4	8.7	5.4
Highest	0.8	46.3	53.7	24.9	9.2	8.8	3.5
Health Status at Age 65							
Excellent	1.0	46.8	53.2	24.0	7.6	9.9	5.4
Very good	0.9	46.1	53.9	23.1	8.7	9.5	4.8
Good	1.1	47.1	52.9	22.1	8.4	10.0	6.6
Fair/poor	1.1	49.0	51.0	22.0	10.8	9.4	6.7
Marital Status at Age 65							
Married	0.9	45.8	54.2	23.2	8.6	8.9	5.1
Unmarried	1.2	50.0	50.0	21.5	9.9	11.2	7.5
Total	1.0	47.2	52.8	22.7	9.0	9.7	5.9

Source: Favreault and Dey (2016).

Favreault and Dey (2016) further projected that formal long-term services and support will cost an average of $138,100 per person turning 65 in 2015-2019, expressed in 2015 dollars. This average translates into $266,000 per user of formal care. Of this amount, community-based care will cost 53% and care at nursing facilities 47%. Assuming current finance mechanisms, the majority (52%) of formal long-term services and support is expected to be paid out of pocket. The authors expect Medicare to pay 10%, Medicaid 34%, and private insurance 3%.

While different sources suggest different payor mixes, financing long-term care at nursing homes is largely through government-funded Medicaid and Medicare programs.[7] According to a study by The Kaiser Family Foundation, Medicaid was the primary payor for 63% of nursing facility residents in 2011, 14% were primarily covered by Medicare, and 22% were private payors (Kaiser Family Foundation 2013). The Kaiser study was based on the Online Survey, Certification, and Reporting (OSCAR) system, a database that contains detailed information on Medicaid and Medicare certified nursing facilities. Our own analysis of a different but related data source, SNF cost reports, suggests that Medicaid was the primary payor for 53% of resident-days in 2014, Medicare for 13%, and private payors for 34% (see Section 3), with only minor changes in this distribution since 2011.

The daily reimbursement of SNFs by Medicare tends to be higher than that by Medicaid. Mostly depending on a patient's care needs, Medicare payments range from approximately $195 to $803 per day in 2016 (CMS 2015). Medicaid payments vary by state and are typically a flat rate per day, irrespective of care needs, with limited adjustments for cost differences across geographies. For example, in Florida in 2015, the 10th and 90th percentiles of daily reimbursements were approximately $203 and $257, respectively (authors' calculations based on Florida AHCA 2015).

For formal care as a whole, CBO (2013) found that out of the $192 billion in payments for formal care in 2011, $68 billion was paid through Medicare, $60 billion through Medicaid, $39 billion was paid out of pocket (including beneficiaries' cost sharing for Medicare and Medicaid), and $12 billion was covered through private insurance. The remaining $12 billion were from such other sources as the Department of Defense, the Department of Veterans Affairs, and charitable donations. See Table 3, which also shows the expenditures for community-based and institutional settings (defined in footnote 6).

Table 3. Expenditures for Long-Term Care Services for Elderly People (2011)

Source of payment	Community-Based ($ bn)	Institutional ($ bn)	Total Care ($bn)
Medicare	31	37	68
Medicaid	20	40	60
Out of Pocket	3	36	39
Private Insurance	2	10	12
Other	1	11	12
Total	58	134	192

Source: CBO (2013).

Payors differ in their length of coverage. For example, Medicare and private health insurance offer short-term coverage for post-acute care rehabilitative services in the form of nursing home stays and home health visits (about three months coverage or less). Medicaid and private LTC insurance offer much longer coverage periods (three-

[7] Medicare offers limited coverage for skilled nursing care in a SNF. Among other restrictions, the stay must be preceded by an acute-care hospital stay. If eligibility conditions are met, Medicare generally pays the full cost for up to 20 days and requires co-insurance payments of $161 per day (in 2016) for days 21-100. It does not cover stays beyond 100 days.

to five-year terms) and will cover without a previous acute health episode. According to the CBO (2013), the distribution of LTC insurance and Medicaid coverage for the elderly population living in the community varies by level of disability. Those with three or more functional limitations are five times more likely to be covered by Medicaid (24%, on average, from 2000 to 2010) than those with no functional limitations (5%). While only 5% of those with no functional limitations were Medicaid beneficiaries, 15% were covered by LTC insurance.

As shown in Table 4, the costs of long-term care can be substantial. The nationwide median cost of in-home assistance by a homemaker or home health aide was $20 per hour in 2015 (Genworth 2015). Assuming four hours of assistance per day, five days a week, this amounts to $20,800 annually.[8] The median rate for adult day care was $69 per day ($17,940 per year at five days per week). An intermediate level of personal care and health services, less extensive than in a nursing home, is offered by assisted living facilities, which charge a median of $3,600 per month ($43,200 per year). Finally, the median cost of nursing homes was $220 per day ($80,300 per year) for a semi-private room and $250 per day ($91,250 per year) for a private room. These rates reflect prices that are payable out of pocket or with private insurance and may differ from those reimbursed by public programs.

Table 4. Nationwide Median Prices of Long-Term Care Services (2015)

	Rate	Annual
Nursing home, private room	$250 per day	$91,250
Nursing home, semi-private room	$220 per day	$80,300
Assisted living facility	$3,600 per month	$43,200
Adult day care	$69 per day	$17,940
Home health aid care	$20 per hour	$20,800

Source: Genworth (2015).
Annual rates for home care are based on 4 hours per day, 5 days per week; annual rates for adult day services are based on 5 days per week.

According to Genworth (2015), the costs for institutionalized long-term care have outpaced those for in-home care. From 2010 to 2015, nursing home costs increased by 3.5%-4.0% annually, compared with 1.0%-1.6% annually for homemakers and home health aides. Similarly, CBO (2013) reported annual nursing home cost increases of 4.0%-4.5% between 2002 and 2012, compared with 1.6% annually for home health aides.

Table 4 displays national median costs, but LTC costs vary widely across states. Alaska tends to have the highest costs, with the statewide median cost of a private room in a nursing home exceeding the national median by 208%. Other states with very high costs include Connecticut (+74%), Massachusetts (+53%), New York (+50%), and Hawaii (+48%), while relatively low-cost states include Oklahoma (-34%), Missouri (-33%), Louisiana (-32%), Kansas (-28%), and Arkansas (-28%). See Appendix A for a list of median LTC prices by state.

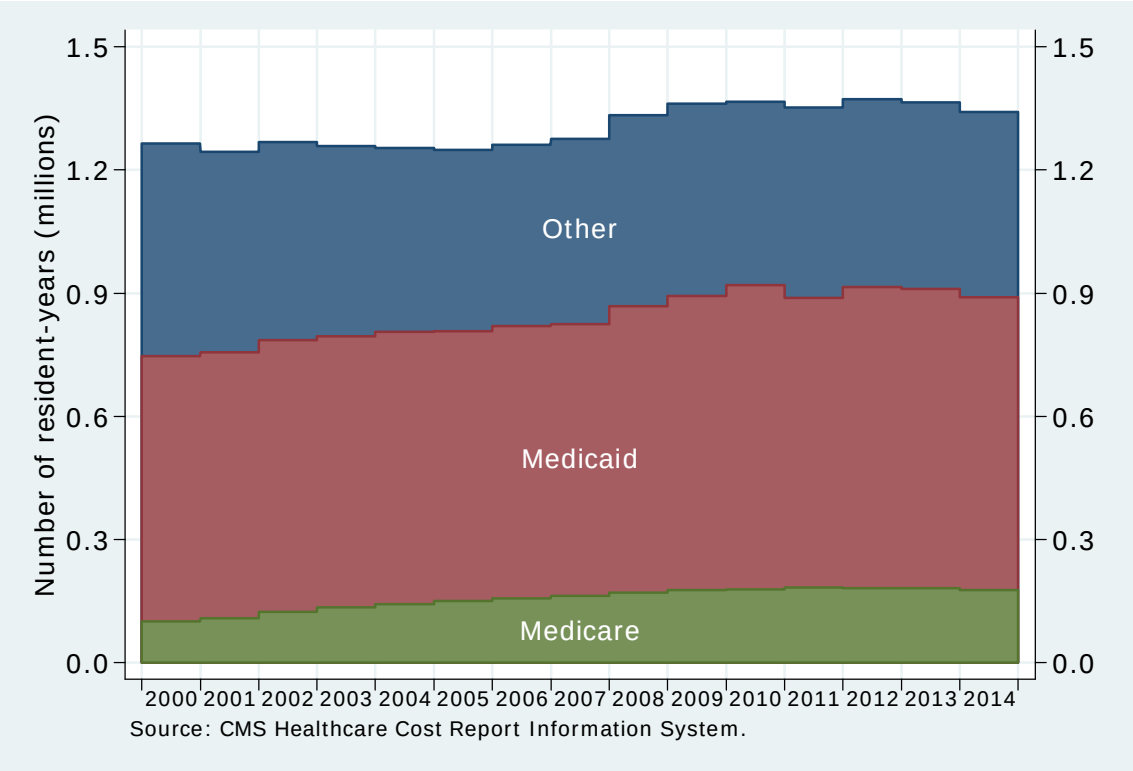
[8] Home health care is typically provided on a part-time basis. MetLife (2012), which compiled similar price data as Genworth (2015), assumed four hours per day, five days per week, 52 weeks per year to annualize its figures.

3. COST REPORTS OF SKILLED NURSING FACILITIES

SNFs that participate in the Medicare program are required to annually submit a cost report to CMS. Among many other items, these cost reports list the number of resident-days primarily paid for by Medicare, Medicaid, and all other payors combined (mostly LTC insurance and self-payments). Hospital-based SNFs report on the cost report of the hospital; freestanding SNFs report on a separate report.[9]

Figure 1 shows the number of resident-days reported by all freestanding SNFs in the United States that participate in the Medicare program. The number of resident-days is converted into resident-years to show the average number of people who are resident at SNFs during the year. The number has been fairly stable at approximately 1.35 million from 2008 through 2014.

Figure 1. Number of Resident-Years Reported by Freestanding SNFs, by Primary Payor and Year



The payor mix has also been fairly stable over this period. Approximately 13% of resident-days are primarily paid by Medicare, 53% by Medicaid, and 34% by other payors (Figure 2). These figures relate to resident-days. In terms of dollar expenditures, CBO (2013) found Medicare paid for 28% of institutional care services,

[9] Medicare cost reports are stored in the Healthcare Cost Report Information System (HCRIS), available at https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/Cost-Reports.

Medicaid for 30%, and other sources for 43% (see the second column of Table 3 above).

Figure 2. Distribution of Primary Payor of Resident-Years Reported by Freestanding SNFs, by Year

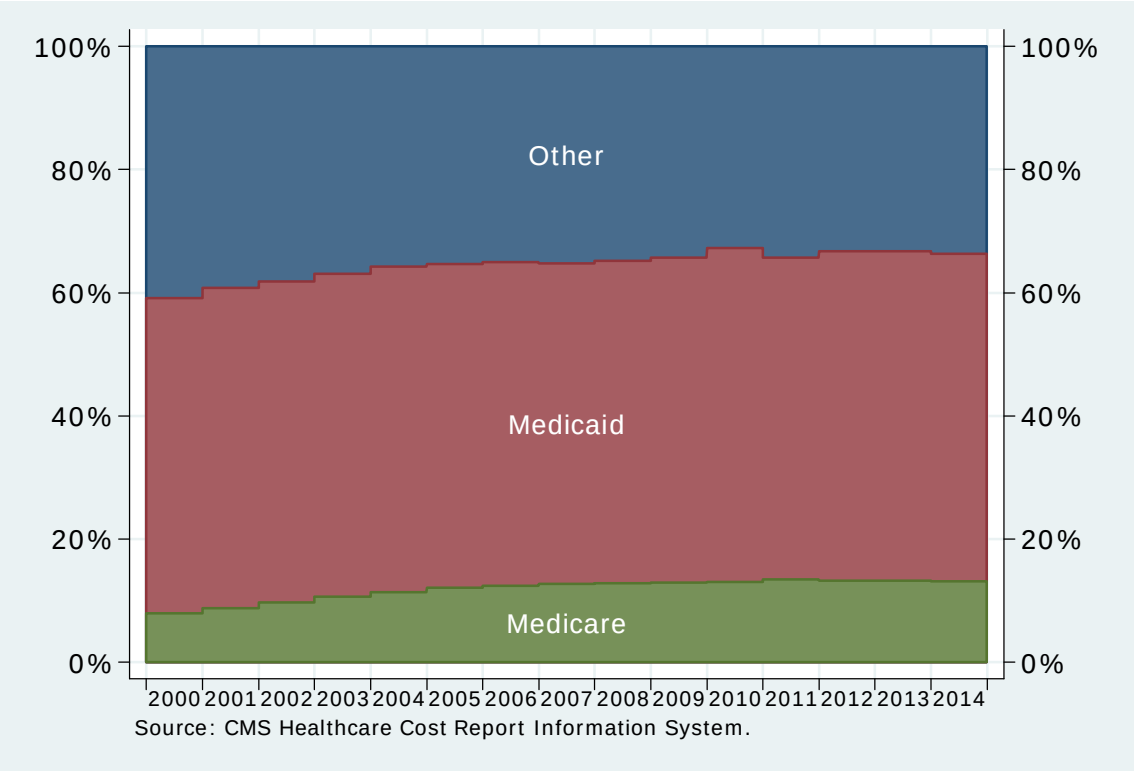
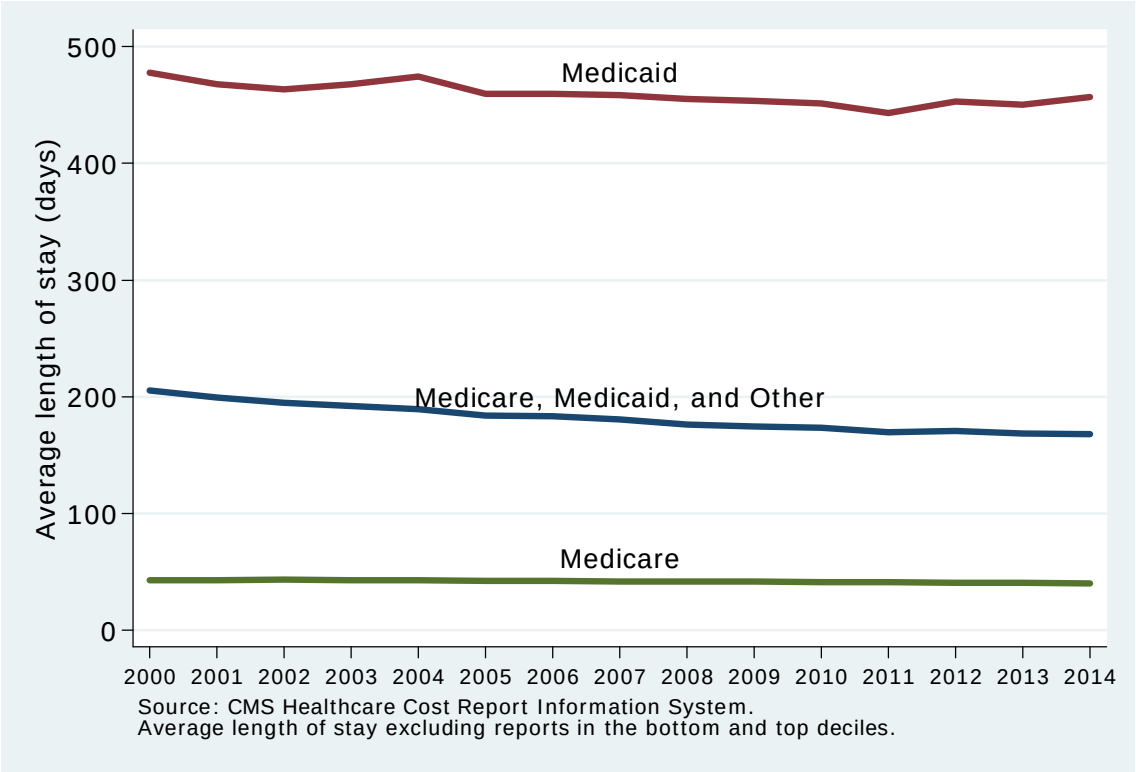


Figure 3 shows the average length of stay as reported by freestanding SNFs on their Medicare cost reports.[10] As expected given Medicare's coverage of at most 100 days, the average length of resident stays that were primarily paid by Medicare was shorter (39 days in 2014) than that of stays primarily paid by Medicaid (460 days in 2014). SNFs are not required to report the average length of stays that were primarily paid for by private payors. Instead, only the average length of stay across all primary payors is reported (165 days in 2014). Figure 3 also shows that average lengths of stay have generally decreased somewhat since 2000.

[10] Some SNFs reported implausibly short or long average lengths of stay. We excluded the bottom and top deciles of average lengths of stay in our calculations. The averages are weighted by reported number of resident-days.

Figure 3. Average Length of Stay Reported by Freestanding SNFs, by Payor and Year



Source: CMS Healthcare Cost Report Information System.
Average length of stay excluding reports in the bottom and top deciles.

4. LONG-TERM CARE INSURANCE

As documented above, the cost of long-term care can be substantial. The average cost for those who are projected to use formal care, $266,000 (Favreault and Dey, 2016), can exhaust the lifetime savings of many retirees. People at the high end of the income or wealth distributions may be able to self-insure against the financial risks of long-term care, whereas those at the low end may expect Medicaid to cover the costs. For Americans in between, private long-term care insurance may provide a solution.

Currently sold LTCI policies typically offer both home care and nursing home benefits, but that was not the case for older policies. For example, 63% of policies sold in 1990 offered nursing home benefits only and 37% offered both home care and nursing home benefits (Cohen 2016). In 2015, 99% of policies sold offered both types of benefits. Coverage limits are often anchored on a daily or monthly maximum for nursing home stays and a lifetime maximum benefit, with maximums for care outside nursing homes expressed as a percentage of the nursing home benefit. Appendix B shows key pages from a sample policy published by Genworth. In that example, the nursing home maximum is $4,000 per month, the residential care facility benefit maximum is 75% or 100% of $4,000 per month,[11] and the home

[11] The policy defines a residential care facility as a state-licensed Residential Care Facility for the Elderly or similar. Such facilities provide 24-hour care to support

and community care benefit maximum is 50% or 100% of $4,000 per month,[12] depending on the generosity of the policy purchased. The total benefit payments are subject to a lifetime cap of $240,000. Benefit maximums may or may not be increased over time to protect against inflation. The sample policy shows benefit increases of 5% per year. Policies are also often subject to an elimination period, also known as a deductible period. For example, an elimination period of 90 days can imply that benefits are paid only after 90 days following a first covered expense while chronically ill.

LTCI policies can be in force for decades. Most policyholders (54%) applied when they were 55-64 years old, well before they expected to need benefits (AALTCI 2015). Policies are typically guaranteed renewable at an annual premium that is designed to be constant for the duration of the policy contract, even with annual benefit increases and even if a claim was made. However, while designed to be constant for the duration of the contract, the premium may be changed for a variety of reasons, including actual or estimated experiences of all holders of a particular policy form. It is our understanding that premium changes require the approval of state insurance regulators.

Premiums on individual policies may change and indeed they have changed. Most insurers' LTCI policies issued before the mid-2000s have seen adverse experience when compared to their original pricing assumptions. Rising claims, low mortality and lower than expected lapses have led to higher prices often unaffordable to a large segment of the affected population (Karapiperis and Nordman, 2016). According to the chief executive of Genworth Financial, which has a long-term care insurance market share of roughly 35%, average premium increases of 50% were needed to break even on policies issued before 2002 (Carrns 2014). State regulators appear to have been generally receptive to proposed rate increases.

The Federal Long Term Care Insurance Program (FLTCIP) offers voluntary private LTCI to Federal employees, who are responsible for the full premiums. It, too, appears to have underestimated the costs of providing benefits. In November 2016, FLTCIP premiums are scheduled to increase by an average of 83% (Davidson 2016).

Cohen (2016) documented that policies sold in 2015 offered an average daily benefit amount for nursing homes of $159 and for home care of $152. The lifetime cap supported, on average 3.8 years of nursing home care. Three-out-of-four policies featured annual benefit increases to protect against inflation. The average deductible period was 93 days. The average annual premium was $2,772. The policies generally appear less generous than those sold during the 1990s. For example, the lifetime cap in 1990 supported on average 5.6 years of nursing home care, the average deductible period was 20 days, and the average premium $1,071 (about $1,942 in 2015 dollars).

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needs resulting from impairment in ADLs or in cognitive ability, provide three meals per day, have agreements to ensure that residents receive the medical care services of a physician or nurse in case of emergency, and meet certain other criteria.

[12] Under the sample policy, home and community benefit care benefits include adult day care, nurse and therapist services, home health care, personal care services, and homemaker services.

Table 5 shows average annual premiums for basic LTC insurance, by age of the insured at the time the policy was purchased (NAIC 2013). Premiums increase with age, roughly tripling from $4,349 for people age 50 to $13,500 for those buying at age 75 for inflation-protected policies with a 4-year maximum benefit period.

Table 5. Average Annual Premium for Basic Long-Term Insurance, $200 Daily Benefit (2013)

Age When Buy	With Inflation Protection 5% Compounded Per Year		
	4 Years of Benefits	6 Years of Benefits	Lifetime Benefits
50	$4,349	$5,083	$7,347
60	$5,331	$6,269	$8,927
70	$9,206	$10,549	$15,070
75	$13,500	$15,157	$20,930
	With No Inflation Protection—Benefit Stays at $200 per Day		
	4 Years of Benefits	6 Years of Benefits	Lifetime Benefits
50	$1,294	$1,514	$1,997
60	$2,057	$2,426	$3,307
70	$4,914	$5,834	$7,777
75	$8,146	$8,291	$12,337

Source: NAIC (2013).

Most claimants of LTC benefits are at least in their 80s when they start using covered services. About 2% are under age 60, 9% are in their 60s, 25% in their 70s, and 64% age 80 or older (AALTCI 2015; see Table 6).

Table 6. Age of Claimant for New Claims Opened (2012)

Age	Percent
Under 50	0.3%
50 to 59	1.9%
60 to 69	8.7%
70 to 79	25.4%
80 and over	63.7%

Source: AALTCI (2015).

About one-half of new claimants receive in-home care, one-in-five receive benefits for assisted living, and about 31% moved into a nursing home (AALTCI 2015; see Table 7).

Table 7. Newly Opened Long-Term Care Insurance Claims Paid For

Service	Percent
Home Care	51.0%
Assisted Living	18.5%
Nursing Home	30.5%

Source: AALTCI (2015).

According to the National Association of Insurance Commissioners (NAIC 2015), 7.2 million people were covered by LTC insurance in 2014, and the American Association for Long-Term Care Insurance (AALTCI 2015) estimated that 8.1 million Americans

were insured for long-term care in 2014. About 255,000 policyholders were receiving benefits in 2014 (NAIC 2015).

Perhaps in response to unexpected losses to insurance companies and unexpected rate increases to consumers, the market landscape for long-term care insurance has shifted dramatically over the past decade. There is a trend toward smaller daily benefits, shorter benefit periods (i.e., lower lifetime benefit caps), and less inflation protection. Many smaller carriers have exited the market (Gleckman 2013, 2015) and sales of individual LTCI policies plummeted from a high of 754,000 in 2002 to just 129,000 in 2014 (Cohen 2016). That said, so-called combination or hybrid products have gained popularity. These products combine LTC benefits with either life insurance or an annuity. In combination with life insurance, if LTC is needed, the death benefit is accelerated. In combination with an annuity, if LTC is not needed, there is an annuity payout. Sales of combination products rose from 273,000 in 2009 to 535,000 in 2013 (Cohen 2016).

In a series of essays, Brown and Finkelstein (2007, 2008, 2009, 2011) addressed the relatively small size of the market for private LTCI. They pointed out that 35%-50% of 65 year-olds will use a nursing home at some point in their remaining lives and that, of those who use a nursing home, 10%-20% will live there more than five years. At current median prices, five years of nursing home residency cost in excess of $400,000 (see Table 4 above). Despite a sizable risk of large future expenditures, private LTCI pays for only 6% of LTC expenses, whereas out-of-pocket payments account for 20% (see Table 3 above). Brown and Finkelstein evaluated supply and demand side factors to explain the small role of private LTCI.

Supply side issues are reflected in premiums that far exceed expected benefits and typical benefits that only partially cover costs. On average, the present value of benefits is only one-half of the present value of lifetime premiums (Brown and Finkelstein 2011). Further, while pricing is unisex, men are less likely to incur LTC expenses than women—men receive benefits of only about 34 cents per premium dollar, compared with 64 cents received by women. The authors suggest several supply-side factors that may be responsible for the high premiums and less-than-full coverage. Among these are transaction and administration costs, lack of a competitive market, adverse selection and moral hazard, and contracting issues. Finkelstein and McGarry (2006) found that adverse selection (disproportionate enrollment by high-risk individuals) and moral hazard (disproportionate utilization by insured individuals) are offset by a strong taste for insurance among low-risk individuals. (Our Table 17 below is consistent with that conclusion.) Because of the very long-term nature of LTCI policies, contracting issues may be particularly troublesome. While contractually adjustable, premiums are intended to be fixed in nominal terms for the duration of the policy—typically several decades—even when benefits are inflated annually. The insurance company may go bankrupt, creating a risk for the policyholder that benefits may never materialize. Also, the insurance company may not be able to pool certain risks, such as the risk that prices for long-term care rise faster than expected or that returns on invested premiums are below expectations.

However, even if supply side issues could be resolved and premiums would be actuarially fair, demand side issues likely stand in the way of widespread LTC insurance. Brown and Finkelstein (2009) cite several demand side issues. First, consumers may underestimate the risks and costs of long-term care. Second, they may value consumption when institutionalized less highly than when not, thus

reducing the incentive to smooth out consumption through insurance. Third, they may take into account imperfect but less expensive alternatives to private insurance, such as care provided by a spouse or other family members, financial transfers from adult children, or Medicaid. In particular, two aspects of the structure of Medicaid reduce demand for private LTCI: means-testing and Medicaid being the secondary payer. Means testing implies that every dollar in private benefits postpones Medicaid eligibility, and Medicaid being the secondary payer implies that it is not available to top up private LTCI benefits, which typically cover only part of the costs. Brown and Finkelstein (2008) calculated the "implicit tax" of Medicaid—the part of the LTCI premium that goes to pay for benefits that end up duplicating benefits that Medicaid would have paid for in the absence of a private policy—at 60% for a man at the median of the wealth distribution. In other words, 60 cents out of every dollar of private benefits simply serve to replace benefits that Medicaid would have provided. For women, they estimated the implicit tax rate at 75%.

In short, Brown and Finkelstein argue that supply side issues lift premiums to levels far above expected benefits and that demand side issues sharply reduce the net benefits that private insurance will provide.

State Medicaid Partnership Programs

In recent years many states have implemented so-called Partnership Programs between Medicaid and private insurance companies. These programs are designed to encourage middle-income Americans to purchase long-term care insurance. To qualify for basic Medicaid, one generally needs to spend down assets. However, holders of LTCI policies that meet Partnership criteria may qualify for Medicaid after their long-term care benefits run out while preserving assets. For example, if a policyholder needs long-term care after exhausting his lifetime maximum benefit of, say, $300,000, he may qualify for Medicaid while retaining $300,000 in assets beyond the usual Medicaid criteria. The California Partnership Program describes the asset protection aspect as follows (California DHCS 2010; emphasis in original):

> Medi-Cal [California's Medicaid program] Asset Protection is available in Partnership policies through an alliance between the State of California and select private insurers who agree to market ***high-quality*** long-term care insurance policies. Asset Protection guarantees you get to keep a dollar's worth of assets for each dollar your Partnership insurance policy pays out for long-term care services. If you use up your long-term care insurance coverage and still need long-term care, you may apply for Medi-Cal. When qualifying for Medi-Cal, you are entitled to keep assets Medi-Cal normally allows, plus assets equal to the amount the Partnership policy has paid out in benefits. This means you can purchase a Partnership policy equal to the amount of assets you wish to protect. The State of California will also disregard these protected assets when making a claim through Medi-Cal Estate Recovery.

As of March 2014, 44 states and the District of Columbia had implemented a Partnership Program. State requirements for policies to meet Partnership standards vary, but most require inflation protection through benefits that increase automatically over time. With the exception of California, Partnership states allow reciprocity, i.e., they grant asset exemptions based on Partnership policies that were

purchased under another state's Partnership Program (New York SPLTC 2016, AALTCI 2016a).

By 2015, Partnership policies accounted for slightly more than two-in-five new policies sold (Cohen 2016).

Employer-Provided Long-Term Care Benefits

Long-term care insurance coverage may be obtained through individual policies or through employer-sponsored group policies. NAIC (2015) documented that by the end of 2014, 7.2 million lives were covered by LTCI. Of these, 5.0 million (69%) were individual policies and 2.2 million (31%) were certificates under group plans.[13]

The National Compensation Survey indicates that 18% of civilian workers had access to long-term care insurance through their employer (NCS 2014). In other words, the employers of 18% of civilian workers sponsored a long-term care insurance benefit. Although sponsored by the employer, benefits are typically fully paid for by the employee. From the employee's point of view, the main advantages of an employer-sponsored plan are potential group discounts and, for larger groups, often simplified medical underwriting (such as without a medical examination). After separating from their employer, the policy certificate stays with the employee.

Take-up rates are very low, with different sources reporting estimates from 5%-7% of eligible employees taking up long-term care insurance (CIPR 2016; Pincus et al., 2013).

We conducted an analysis of Form 5500 filings to gain insights into the prevalence of employer-sponsored long-term care coverage. The Employee Retirement Income Security Act (ERISA) requires any administrator or sponsor of an employee benefit plan subject to ERISA to annually report details on such plans unless exempt from filing pursuant to regulations issued by the DOL. Welfare plans with fewer than 100 participants are generally exempt, except if they operate a trust. For the purpose of this report, only plans with 100 or more participants are included. Non-ERISA plans, such as governmental plans and church plans, do not need to file a Form 5500 and are not covered by the analysis in this section.

The Form 5500 does not ask specifically about long-term care benefits. Line 8b on the main Form asks for the plan's benefit types, but there is no code for long-term care benefits. Details about underlying insurance contracts, if any, are reported on Schedules A. Line 8 of the Schedule A asks for the benefit type of the insurance contract, but, again, there is no checkbox for long-term care benefits. However, plans may check "Other" and write in the appropriate benefit type. We searched these free-form text boxes for such phrases as "long-term care" and "LTC". In recent years roughly 2,000 plans annually indicated offering LTC benefits; see Table 8.[14]

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[13] Technically, most employer-sponsored plans are not group plans but multi-life policies, i.e., individual long-term care insurance policies bundled together with a group discount (AALTCI 2016b).

[14] Since these figures originate from Schedules A, they exclude long-term care benefits offered by employers that self-insure those benefits. We are unaware of the prevalence of self-insured long-term care benefits.

Table 8. Employer-Provided Long-Term Care Coverage and Annual Premiums

Year	Number of plans	Number of covered plan participants	Percent of all welfare plan participants	Average annual premium per person covered	Median annual premium per person covered
2000	315	419,843	0.90%	$575	$401
2001	523	466,378	0.72%	$572	$399
2002	634	516,516	0.78%	$726	$405
2003	735	618,056	0.95%	$788	$430
2004	957	692,110	1.02%	$631	$461
2005	1,112	735,044	1.06%	$690	$497
2006	1,286	859,595	1.20%	$769	$521
2007	1,409	863,228	1.18%	$662	$553
2008	1,568	924,364	1.25%	$665	$541
2009	1,693	829,086	1.19%	$838	$597
2010	1,826	922,303	1.30%	$787	$626
2011	1,918	949,141	1.33%	$802	$603
2012	2,019	975,785	1.35%	$858	$632
2013	2,029	982,826	1.36%	$851	$638
2014	2,037	954,836	1.30%	$883	$661

Source: Form 5500 filings for welfare plans with 100 or more participants.

Table 8 suggests that the number of plans that offer LTC benefits has increased over time, but it is unclear to what extent the increase is due to more-complete reporting. The number of "covered persons" under the reported insurance contracts has been between approximately 950,000 and 980,000 in 2011-2014, which corresponds to 1.3%-1.4% of all welfare plan participants.[15] As noted earlier in this section, the number of group LTCI certificates is about 2.2 million (NAIC 2015), suggesting that employer-sponsored long-term care insurance benefits are underreported on Form 5500 filings.

Table 8 also shows the average and median annual premium that the employer reported paying for LTC benefits. The average annual premium in 2014 was $883 and the median was $661. These figures are well below average premiums in the individual market (see Table 5), possibly in part because of the age composition of plan participants, because of coverage limits, or because of discontinuation rates upon job separation.

[15] The number of covered persons is taken from Line 1e of Schedule A and the number of welfare plan participants from Line 6d on the main Form. Some companies file a single Form 5500 for all their welfare benefits, whereas others file multiple Forms 5500. To prevent double counting of welfare plan participants, we included only a single welfare plan filing per employer (as identified by Employer Identification Number, EIN), namely the plan with the greatest number of participants.

5. ANALYSIS OF HEALTH AND RETIREMENT STUDY DATA

For an analysis of the financial consequences of long-term care, we turn to the HRS. The HRS is a longitudinal survey of Americans over the age of 50, and their spouses. It collects information about health, certain types of health care utilization (including home health care and nursing home stays), informal care by relatives, insurance coverage, out-of-pocket medical expenses, assets, and income. The HRS sample is drawn from the non-institutionalized population, but respondents are followed even if they move into a nursing home or other health care facility.[16] Since most respondents enter the survey when they are 51 to 61 years old, the exclusion of institutionalized individuals from its sampling frame is presumably not a major limitation.

The HRS started in 1992 with a sample of individuals aged 51-61, and their spouses. Insofar possible, they have been re-interviewed every other year. In 1993, a cohort of individuals age 70 and older, and their spouses, was added to the HRS. Insofar possible, they were re-interviewed in 1995, 1998, and every other year thereafter. In 1998, 2004, and 2010 new cohorts of individuals aged 51-61, and their spouses, were added. Therefore, the age distribution was unusual in the early years of the HRS, but the sample became more representative of the older population in later years. To mitigate effects of an incomplete age distribution, we present results based on the 1998 and later waves only. Our analysis incorporates HRS waves through 2012. The sample size is approximately 17,000-22,000 respondents (12,000-15,000 households) per wave.

Table 9 shows the distribution of HRS respondents by age and sex, for the eight waves from 1998 to 2012. Approximately 59% of respondents are women. Most respondents are in their 50s or 60s, but 20% are in their 70s, 11% in their 80s, and 2% are age 90 or older.

Table 9. Distribution of Respondents by Age and Sex

	Female		Male		Total	
Age	Freq.	Percent	Freq.	Percent	Freq.	Percent
<50	4,128	0.1%	1,060	0.0%	5,188	0.1%
50-59	23,302	33.8%	16,304	36.8%	39,606	35.1%
60-69	27,409	29.6%	21,353	32.4%	48,762	30.9%
70-79	22,107	21.3%	17,616	20.4%	39,723	20.9%
80-89	12,371	12.6%	7,744	9.1%	20,115	11.0%
90+	2,963	2.7%	1,174	1.3%	4,137	2.1%
Total	92,280	100.0%	65,251	100.0%	157,531	100.0%

Source: 1998-2012 HRS.
Note: Percentages are weighted.

[16] The HRS uses the following definition: “A nursing home or other health facility provides all of the following services for its residents: dispensing of medication, 24-hour nursing assistance and supervision, personal assistance, and room & meals” (see Section A of HRS questionnaires, such as the 2012 version at http://hrsonline.isr.umich.edu/modules/meta/2012/core/qnaire/online/01hr12A.pdf).

Table 10 tabulates utilization of home health care and nursing homes during the two years between survey interviews, by year. In this table and subsequent HRS-based tables, frequency counts reflect the raw number of respondents (possibly in multiple interview waves) and percentages are weighted by respondent weights.[17] Roughly 7%-8% of respondents had utilized home health care and 4% had stayed at least one night in a nursing home. In addition, the last two columns show that roughly 2% of respondents were resident at a nursing home at the time of the survey.

Table 10. Utilization of Home Health Care and Nursing Homes in the Past 2 Years, Nursing Home Residency at the Time of the HRS Interview, by Year

Year	Utilized Home Health Care	Stayed in Nursing Home	Institutionalized at Interview
1998	7.1%	3.0%	1.8%
2000	6.5%	3.7%	2.5%
2002	6.8%	4.4%	2.4%
2004	5.9%	3.4%	1.9%
2006	7.1%	4.0%	1.9%
2008	7.5%	4.0%	1.9%
2010	7.9%	3.7%	1.4%
2012	7.9%	4.2%	1.8%
Total	7.1%	3.8%	1.9%

Source: 1998-2012 HRS.

Similar to Table 10, Table 11 tabulates utilization of home health care and nursing homes during the two years between survey interviews, but by age of the respondent rather than by year. As expected, use of LTC services increased with age.

Table 11. Utilization of Home Health Care and Nursing Homes in the Past 2 Years, Nursing Home Residency at the Time of the HRS Interview, by Age

Age	Utilized Home Health Care	Stayed in Nursing Home	Institutionalized at Interview
<50	1.0%	1.1%	0.0%
50-59	3.2%	0.6%	0.1%
60-69	5.4%	1.6%	0.6%
70-79	9.6%	4.6%	1.9%
80-89	16.6%	13.5%	7.5%
90+	29.3%	31.3%	22.5%
Total	7.1%	3.8%	1.9%

Source: 1998-2012 HRS.

Figure 4 and Table 12 show the prevalence of LTC insurance among HRS respondents aged 51-69. LTC insurance coverage has remained approximately unchanged at about 9%-10% since 2002. A small fraction of policies cover in-home

[17] Regular respondent weights are zero for institutionalized respondents. From 2000-2010, the HRS provided respondent weights for institutionalized respondents. Where available, we used such institutional weights. Where unavailable, we imputed weights based on respondent weights in prior or subsequent interview waves.

care or nursing home care only, but most cover both. This is consistent with Cohen (2016).

Figure 4. Prevalence and Type of Long-Term Care Insurance (Respondents Aged 51-69 in 1998-2012)

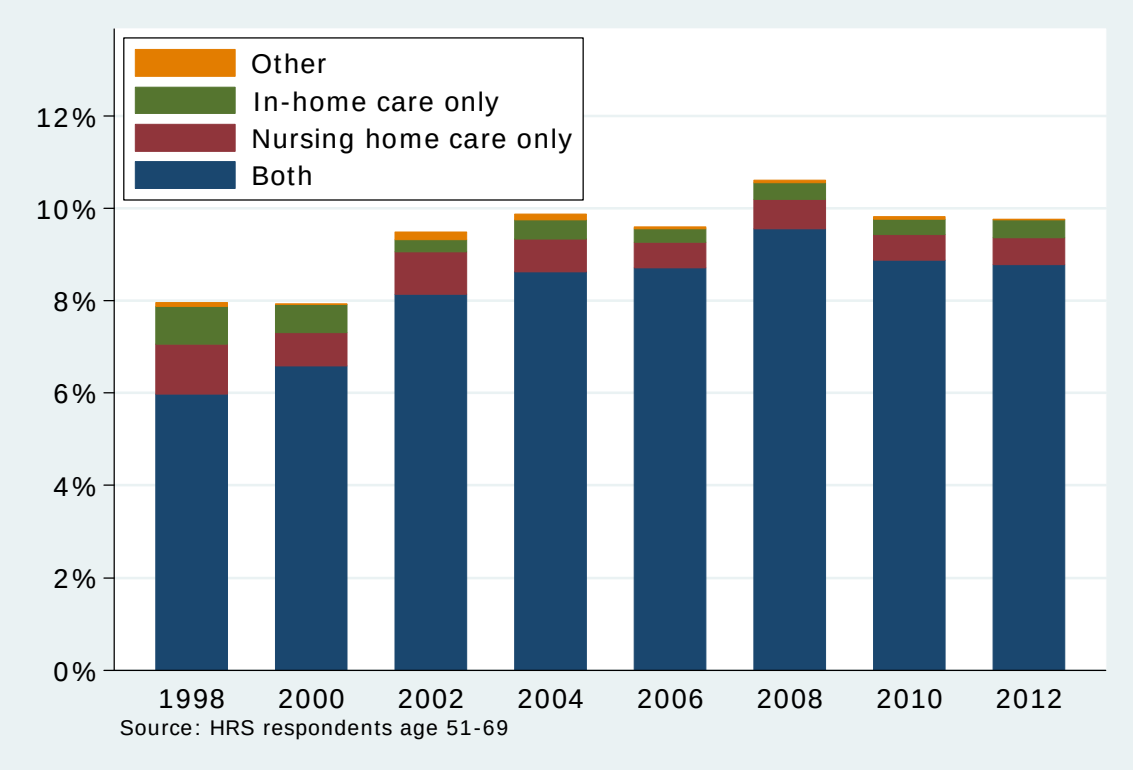

Table 12. Prevalence and Type of Long-Term Care Insurance (Respondents Aged 51-69 in 1998-2012)

Year	Nursing Home and Home Care	Nursing Home Care Only	Home Care Only	Other	Total
1998	6.0%	1.1%	0.8%	0.1%	8.0%
2000	6.6%	0.7%	0.6%	0.0%	7.9%
2002	8.1%	0.9%	0.3%	0.2%	9.5%
2004	8.6%	0.7%	0.4%	0.1%	9.9%
2006	8.7%	0.6%	0.3%	0.0%	9.6%
2008	9.5%	0.7%	0.3%	0.1%	10.6%
2010	8.9%	0.6%	0.3%	0.1%	9.8%
2012	8.8%	0.6%	0.4%	0.0%	9.8%

Source: HRS Respondents aged 51-69.

As documented by Cohen (2016) and discussed on page 11 above, currently sold policies tend to cover both in-home and nursing home care, but older policies were more restrictive. Recognizing that older policies tend to be held by older birth cohorts, Table 13 shows benefit types by age of the HRS respondent. About 87% (9.8%/11.2%) of policies held by 60-69 year-olds covered both in-home and nursing

home care. That fraction decreases with age to 81% among 70-79 year-olds, 69% among 80-89 year-olds, and 57% among respondents age 90 or older.

Table 13. Prevalence and Type of Long-Term Care Insurance, by Age (1998-2012)

Age	Nursing Home and Home Care	Nursing Home Care Only	Home Care Only	Other	Total
<50	2.5%	0.0%	1.0%	0.0%	3.5%
50-59	6.9%	0.5%	0.4%	0.1%	7.9%
60-69	9.8%	1.0%	0.4%	0.0%	11.2%
70-79	10.9%	1.9%	0.5%	0.1%	13.4%
80-89	7.8%	2.6%	0.8%	0.1%	11.3%
90+	4.1%	2.4%	0.5%	0.1%	7.1%

Source: 1998-2012 HRS.

Table 14 and Table 15 show the distribution of cumulative number of days spent in a nursing home, by age of the respondent.[18] The days may have been spent consecutively or over multiple nursing home stays. Table 14 shows the distribution for the individual respondent. Most people never stayed in a nursing home, but the fraction who did increases, as expected, with age. Among respondents who are age 90 or older, 11% had stayed 1-30 days, 6% 31-100 days, 6% 101 days to one year, 5% more than one year but less than two years, 10% two to four years, and 2% five years or longer. Table 15 is similar to Table 14 but accounts for nursing home stays of both the respondent and his or her partner.

Table 14. Cumulative Duration Spent in a Nursing Home, by Age

	Age						
Duration	<50	50-59	60-69	70-79	80-89	90+	All
Zero days	98.9%	99.2%	97.3%	92.8%	80.5%	60.3%	94.4%
1-30 days	0.0%	0.5%	1.5%	3.9%	8.4%	11.0%	2.6%
31-100 days	1.1%	0.1%	0.4%	1.3%	3.4%	5.6%	0.9%
101-364 days	0.0%	0.1%	0.3%	0.7%	2.4%	5.9%	0.7%
1 year	0.0%	0.0%	0.1%	0.5%	2.0%	4.8%	0.5%
2-4 years	0.0%	0.0%	0.2%	0.7%	2.8%	10.2%	0.8%
5+ years	0.0%	0.0%	0.1%	0.1%	0.5%	2.3%	0.2%

Source: 1998-2012 HRS.

[18] Cumulative number of days insofar reported in the HRS. Any stays prior to entering the HRS sample are excluded. However, since most HRS respondents are in their 50s when they enter the HRS, we believe this limitation to be mild. The tables uses eight HRS waves (1998-2012), i.e., individual respondents can contribute multiple times to the tables.

Table 15. Cumulative Duration Spent in a Nursing Home by Self or Partner, by Respondent Age

	Age						
Duration	<50	50-59	60-69	70-79	80-89	90+	All
Zero days	98.3%	98.6%	95.7%	89.0%	74.3%	54.8%	92.1%
1-30 days	0.0%	0.9%	2.4%	5.9%	11.0%	12.6%	3.8%
31-100 days	1.3%	0.2%	0.7%	2.0%	4.7%	6.7%	1.4%
101-364 days	0.4%	0.2%	0.5%	1.2%	3.3%	6.8%	1.0%
1 year	0.0%	0.0%	0.2%	0.6%	2.4%	5.2%	0.6%
2-4 years	0.0%	0.1%	0.4%	1.1%	3.7%	11.3%	1.0%
5+ years	0.0%	0.0%	0.1%	0.2%	0.6%	2.7%	0.2%

Source: 1998-2012 HRS.

Table 16 shows the fraction of individuals who reported Medicaid enrollment, by duration spent in a nursing home. As expected, the longer someone was a resident at a nursing home, the more likely he or she was receiving Medicaid benefits. More than one-half (56%) of respondents who had spent five years or longer in a nursing home reported Medicaid enrollment, compared with only 8% among those who had never stayed in a nursing home. A likely explanation is that private assets and other sources of payment become sufficiently depleted for a respondent to become eligible for Medicaid.

Table 16. Medicaid Enrollment by Cumulative Duration Spent in Nursing Home

Duration	Medicaid Enrollment
Zero days	7.6%
1-30 days	11.7%
31-100 days	14.8%
101-364 days	26.1%
1 year	30.9%
2-4 years	37.4%
5+ years	55.9%
Total	8.7%

Source: 1998-2012 HRS.

Table 17 shows utilization of long-term care by age and by long-term care insurance status. Table 11 above already showed that use of services increases with age; Table 17 documents that utilization among people with insurance is generally lower that among their uninsured counterparts. Theoretically, adverse selection and moral hazard could lead to the opposite pattern: people who expect to need long-term care are more likely to purchase insurance protection, and people with insurance coverage are more likely to use services because the net cost is lower for them. However, for long-term care utilization those forces are outweighed by such other factors as better health among LTCI policyholders. This finding is consistent with Finkelstein and McGarry (2006), who concluded that in the market for long-term care insurance individuals with a strong taste for purchasing insurance tend to be low-risk and outnumber individuals with private information that they are high-risk.

Table 17. Utilization of Long-Term Care, by Age and LTC Insurance Status

	Used Home Health Care in the Past 2 Years		Stayed in Nursing Home in the Past 2 Years		In nursing home at time of interview	
	LTC insurance at interview?		LTC insurance at interview?		LTC insurance at interview?	
Age	No	Yes	No	Yes	No	Yes
<50	1.1%	0.0%	1.1%	0.0%	0.0%	0.0%
50-59	3.1%	4.0%	0.5%	0.6%	0.1%	0.1%
60-69	5.4%	4.8%	1.7%	1.3%	0.6%	0.4%
70-79	10.0%	7.2%	4.8%	3.1%	2.0%	0.9%
80-89	16.8%	14.5%	13.8%	10.1%	7.7%	4.8%
90+	28.9%	31.9%	30.9%	30.7%	22.4%	17.8%
Total	7.1%	6.7%	3.8%	3.1%	2.0%	1.2%

Source: 1998-2012 HRS.

The HRS does not ask about out-of-pocket expenses related to nursing home stays. In an attempt to gauge the financial consequences of nursing home stays, Table 18 captures asset depletion between HRS interviews for households with and without nursing home stays. The unit of analysis is a household interview that was preceded by another interview. The analysis excludes households with any wage earnings. It shows the distribution of financial assets (top panel) and net worth (bottom panel) for households whose members never stayed in a nursing home throughout the time that they were in the HRS and for households who reported at least one overnight stay by either partner.[19] The latter group is further distinguished between households who did or did not report a stay during the past two years. The hypothesis is that the assets of households who reported a stay in the past two years are more likely to deplete than those of other groups. Indeed the mean change in assets is negative, but the magnitude of the average change would typically pay for only a short nursing home stay.

[19] Financial assets include checking accounts, savings accounts, stock holdings, bonds, mutual funds, investment trusts, certificates of deposit, other savings (money owed by others, a valuable collection for investment purposes, an annuity, or rights in a trust or estate), and IRA holdings. Net worth further includes housing and other real estate equity (net of mortgages) and the value of vehicles. Neither metric includes defined contribution pension balances.

Table 18. Distribution of Change in Financial Assets, Total Assets in Past Two Years

	Change in Financial Assets (Incl. IRAs)			
Subsample	25th Percentile	Median	75th Percentile	Mean (excl. top and bottom deciles)
Never in Nursing Home	-26,000	0	41,000	7,045
Ever in Nursing Home	-28,000	0	37,000	5,159
Not in Past Two Years	-21,326	500	45,000	11,302
During Past Two Years	-36,000	-50	29,500	-1,113

	Change in Net Worth			
	25th Percentile	Median	75th Percentile	Mean (excl. top and bottom deciles)
Never in Nursing Home	-52,400	4,682	91,000	18,505
Ever in Nursing Home	-51,100	1,000	68,000	8,421
Not in Past Two Years	-35,800	5,500	84,700	23,265
During Past Two Years	-71,000	-1,000	56,500	-7,186

Source: 1998-2012 HRS.

We turn to a mutivariate analysis of wealth changes between HRS interviews to measure the financial impact of nursing home stays net of public or private insurance coverage. As in the previous table, the analysis excludes households with any wage earnings. It also excludes households with Medicaid beneficiaries, since their out-of-pocket expenses are likely low. We distinguish between short stays (up to 30 days) and long stays (more than 30 days), because short stays are often associated with hospital stays and likely covered by Medicare or private health insurance. Our hypothesis is that long stays pose the greatest financial risks, and that those risks are mitigated if (either partner in) a household has private long-term care insurance. See Table 19.

We are interested in wealth changes. However, wealth levels and their changes vary widely across households, and outliers may drive results. We therefore measure wealth through an inverse hyperbolic sine transformation. The inverse hyperbolic sine is similar to a logarithmic transformation, but allows negative values.[20] Table 19 presents two specifications, for financial assets and net worth.

[20] Formally, $\sinh^{-1} w = log\left(w + \sqrt{w^2 + 1}\right)$. The inverse hyperbolic sine is point-symmetric around the origin: $\sinh^{-1}(-w) = -\sinh^{-1} w$. For positive wealth values w that are not close to zero, $\sinh^{-1} w \approx log(2w)$, and for negative values not close to zero, $\sinh^{-1} w \approx -log(-2w)$. For wealth levels that are both positive or both negative in the current and prior interview, changes in the inverse hyperbolic sine may be interpreted similar to changes in logarithms, i.e., as relative changes.

Table 19. Wealth Change between HRS Surveys as a Function of Nursing Home Stays and Insurance Coverage (Outcome variable: Difference between waves of inverse hyperbolic sine of wealth)

	Change in inverse hyperbolic sine of:	
	Financial Assets	Net Worth
Short stay (<=30 days)	-0.085	-0.085
	(0.231)	(0.142)
Long stay (>30 days)	-0.674 **	-0.491 ***
	(0.293)	(0.180)
LTC insurance coverage	-0.028	-0.048
	(0.103)	(0.064)
Long stay * LTC insurance	1.198 *	0.955 **
	(0.675)	(0.415)
Constant	0.054	0.053 *
	(0.045)	(0.027)
Number of observations	16,485	16,485

Standard errors in parentheses.
Significance: ***=1%, **=5%, *=10%.
Analysis sample excludes households with Medicaid beneficiaries.

Consistent with our hypothesis, short nursing home stays did not have a statistically significant effect on changes in wealth before and after the stay. However, stays in excess of 30 days had a negative effect, except if the household had long-term care insurance coverage. Not shown in the table is that the parameter estimates were sensitive to the model specification, sample selection, and treatment of negative wealth values. In other words, while the results are consistent with expectations, direct measurement of out-of-pocket expenses may be preferable to measurement of wealth changes. Unfortunately, the HRS currently does not offer such direct measurement.

Finally, Table 20 shows probit regression results of the likelihood of Medicaid enrollment. The unit of observation is a household interview and the outcome is an indicator for whether (either partner in) a household reported being covered by Medicaid. As expected, net worth is strongly negatively related to Medicaid enrollment. In contrast to Table 19, nursing home stays are measured cumulatively, with indicators for whether all nursing home stays by either partner prior to the interview summed to 1-30 days or longer. Both short and long stays increased the likelihood of Medicaid enrollment, but the effect of long stays was much greater. Being covered by long-term care insurance reduced the chances of Medicaid enrollment, presumably because of its association with sufficient means to pay for such insurance. Contrary to our expectations, the effect of long stays was not mitigated by long-term care insurance coverage.

Table 20. Household Medicaid Coverage as a Function of Cumulative Nursing Home Stays

	Probit
Net worth	-0.078 ***
(inverse hyperbolic sine)	(0.003)
Short stay(s)	0.164 **
(0<cumulative SNF nights<=30)	(0.066)
Long stay(s)	0.757 ***
(Cumulative SNF nights>30)	(0.057)
LTC insurance coverage	-0.502 ***
	(0.049)
Long stay(s) * LTC insurance	0.027
	(0.147)
Constant	-0.489 ***
	(0.036)
Number of observations	26,797

Standard errors in parentheses.
Significance: ***=1%, **=5%, *=10%.

6. POLICY IMPLICATIONS

Approximately one-half of Baby Boomers are projected to require paid, formal long-term care in the home, an adult day care center, an assisted living facility, or a nursing home (Favreault and Dey, 2016). Paying for care out of pocket could rapidly exhaust retirement savings of many Americans, prompting them to eventually rely on Medicaid. Indeed, Medicaid enrollment is about 8% among HRS respondents who have never stayed in a nursing home and rises to 26% after 101-364 days in a nursing home and 56% after five years in a nursing home (see Table 16 above). The size of the Baby Boom generation is expected to drive up demand for and prices of long-term care, creating a troublesome outlook for the elderly's personal finances and the Medicaid program.

Given the high cost of long-term care, workable solutions could involve risk pooling through public or private insurance. Only about 7 million people are currently covered by private long-term care insurance, which suggests room for growth. However, as argued by Brown and Finkelstein (2007, 2008, 2009, 2011) and summarized above, both insurance companies and consumers face impediments to more widespread adoption of private LTCI. Among these are uncertainty over the adequacy of coverage and uncertainty over future premiums. Indeed, the insurance is designed to be in force for several decades, and past experience shows costs that outpaced general inflation and substantial premium increases on policies that were issued prior to the mid-2000s. The uncertainties affect consumers and insurance companies alike. Some options that may alleviate the uncertainties of both consumers and the industry are:

- Insurance products in which benefits and premiums adjust in tandem with inflation. Inflation tends to affect the cost of care, wages, and nominal investment returns in the same direction, so incorporating a link between benefit levels and premiums should greatly reduce inflation uncertainty. Many current products offer automatic benefit increases of 3% or 5% annually, but

those increases may be too low or too high. Most products are designed to charge the same annual premium for the life of the policy, which makes them relatively expensive early on. Expecting income to keep pace with inflation, prospective policyholders may be receptive to lower initial premiums that escalate over time.
- Products that combine long-term-care insurance with life insurance and/or annuities. Longevity risks affect individual products differently, but a combination product may be easier to price, require less complex underwriting standards, and offer more comprehensive protection against financial risks in old age.
- State-based reinsurance pools designed to alleviate individual insurers' risks and boost consumer confidence that their policies will eventually pay out, if needed.

Consumers may hesitate to purchase private insurance because some of the premiums pay for benefits that Medicaid would provide in the absence of private insurance. Two Medicaid features, in particular, create an implicit tax on private insurance: (1) private benefits postpone the time at which the asset test for Medicaid eligibility is met, and (2) Medicaid is secondary payor, i.e., pays only for services that other insurance do not cover. Public-private partnerships may offer solutions, such as expansion of state Medicaid Partnership Programs (see Section 4 above).

- State Medicaid Partnership Programs make it easier to qualify for Medicaid for people with high-quality long-term care insurance. Should all benefits under private long-term care insurance become exhausted, the policyholder may retain assets equal to benefits paid and still qualify for Medicaid. This modified asset test addresses the first Medicaid feature responsible for an implicit tax on private insurance. Under State Medicaid Partnership Programs, the Medicaid program faces reduced expenditures on long-term care and consumers can maintain a higher consumption level or leave a bequest.
- Similarly, a solution may lie in high-deductible, catastrophic LTCI with private front-end expense coverage for a set period (1-2 years), and public back-end coverage paid for the remainder of the LTC need. This would address the second Medicaid feature responsible for an implicit tax.

While State Medicaid Partnership Programs and high-deductible LTCI policies each address Medicaid features responsible for an implicit tax on private insurance, few if any options appear available that fully eliminate the tax while simultaneously preserving a safety net for low-income Americans and ensuring fiscal sustainability of the Medicaid program.

Finally, incentives to expand private insurance could be introduced in the workplace.

- Allow withdrawals from employer-sponsored retirement plans for LTC expenses or the purchase of LTCI without early-distribution penalties.
- Promote employer-sponsored long-term insurance by allowing plans to be tax-qualified, so that premiums can be paid through pre-tax payroll deductions.
- To alleviate fiduciary liability and other employer concerns, an alternative may be to create a publicly run marketplace in which private insurers offer long-term care insurance that workers may purchase through payroll deductions. Such an initiative could be modeled on recent state initiatives with respect to auto-enrollment IRAs.

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APPENDIX A. MEDIAN PRICES OF LONG-TERM CARE SERVICES, BY STATE (2015)

	Nursing home room		Assisted living facility ($/month)	Adult day care ($/day)	Home health aid care ($/hour)
	private ($/day)	semi-private ($/day)			
Alabama	209	191	3,075	36	17
Alaska	771	771	5,703	122	26
Arizona	233	192	3,418	80	20
Arkansas	180	155	3,063	80	17
California	285	245	3,750	77	23
Colorado	256	230	3,750	65	22
Connecticut	435	400	5,575	78	22
Delaware	323	300	5,745	69	22
District of Columbia	270	270	7,838	99	22
Florida	265	240	3,150	65	19
Georgia	195	183	2,880	60	18
Hawaii	370	342	4,000	66	25
Idaho	243	228	3,240	116	20
Illinois	204	178	4,050	68	22
Indiana	250	215	3,693	80	20
Iowa	187	175	3,500	60	23
Kansas	180	165	4,188	80	20
Kentucky	239	208	3,350	67	19
Louisiana	170	155	3,010	63	16
Maine	295	275	4,800	108	22
Maryland	302	278	3,900	79	20
Massachusetts	382	353	5,300	65	25
Michigan	272	249	3,250	80	21
Minnesota	263	231	3,468	78	25
Mississippi	220	205	3,150	35	17
Missouri	167	153	2,525	80	19
Montana	220	210	3,560	95	23
Nebraska	218	197	3,628	56	23
Nevada	270	236	3,238	70	22
New Hampshire	335	316	5,103	65	24
New Jersey	350	320	5,725	85	21
New Mexico	234	205	3,500	99	20
New York	374	361	4,100	85	23
North Carolina	225	206	3,000	51	18
North Dakota	288	275	3,239	75	27
Ohio	235	210	3,890	55	20
Oklahoma	165	146	3,345	60	20
Oregon	280	263	3,880	89	23

	Nursing home room		Assisted living facility ($/month)	Adult day care ($/day)	Home health aid care ($/hour)
	private ($/day)	semi-private ($/day)			
Pennsylvania	310	289	3,555	60	21
Rhode Island	283	255	5,325	67	25
South Carolina	206	190	3,125	55	19
South Dakota	212	199	3,023	72	23
Tennessee	207	192	3,395	62	18
Texas	188	140	3,545	35	19
Utah	210	175	3,000	89	21
Vermont	288	280	4,020	124	22
Virginia	254	221	3,933	65	19
Washington	289	266	4,625	68	24
West Virginia	295	282	3,500	72	16
Wisconsin	273	247	3,980	65	22
Wyoming	245	220	3,900	50	22
USA	250	220	3,600	69	20

Source: Genworth (2015).

APPENDIX B. SAMPLE LONG-TERM CARE INSURANCE POLICY

This appendix reproduces three key pages of a sample long-term care insurance policy that Genworth publishes for California. The full sample policy document may be found at https://www.genworth.com/dam/Americas/US/PDFs/Consumer/Product/LTC/7052CA_061713_gnw.pdf.

SCHEDULE

Insured	Policy Number	Policy Effective Date
[John Q. Doe] [Apt #1234] [1234 Main Street] [Anytown, CA 99999]	[XXXXXXX]	[7/01/2013]

Issue State
California

COVERAGE FEATURES AND LIMITS

Coverage is provided for Covered Expenses that are incurred after the Elimination Period has been satisfied. Payment is subject to the limits determined below and all other provisions of the Policy. Changes in Your Schedule may be made by Rider.

Elimination Period: [[30][90] days of Covered Care]
[The Elimination Period is satisfied by days You incur a Covered Expense while You are Chronically Ill.]
OR [[30][90] calendar days]
[The Elimination Period is satisfied by days You are Chronically Ill beginning with the first day You incur a Covered Expense.]

[There is no Elimination Period for the Home and Community Care Benefit. In addition, days for which payment is made under that Benefit will count toward satisfying the Elimination Period.]

Coverage Maximum	Nursing Facility Maximum	Benefit Increases
[$240,000**]**	**[**$4,000 per calendar month**]**	**[**5% Compound**]** **[**See below**]**

[The Coverage Maximum and amounts based on the Nursing Facility Maximum are: (a) increased when Benefit Increases apply; and (b) exhausted only when the total of all Benefits paid equals the then applicable maximum amount. Benefit Increases that apply are not affected by any Benefits paid for Covered Expenses incurred prior to the date the applicable maximum is exhausted.]

[5%, 3%] Compound Benefit Increases: On each anniversary of the Policy Effective Date Your then current Nursing Facility Maximum and the current amounts of other dollar maximums will each increase by the selected percentage.
These Benefit Increases will be automatic; will not require proof of good health; and will be made without a corresponding increase in Premium. They will continue without regard to Your age, Claim status or Claim history, or length of time You have been insured under the Policy.
Benefit Increases cease when: (a) the applicable maximum has been exhausted; (b) they are terminated by You; or (c) the Policy ends.]

[5% Simple Benefit Increases: On each anniversary of the Policy Effective Date Your then current Nursing Facility Maximum and the current amounts of other dollar maximums will each increase by 5% of their respective amounts in effect on the Policy Effective Date. Calculation of the increased amounts is not affected by Benefit payments.
These Benefit Increases will be automatic; will not require proof of good health; and will be made without a corresponding increase in Premium. They will continue without regard to Your age, Claim status or Claim history, or length of time You have been insured under the Policy.
Benefit Increases cease when: (a) the applicable maximum has been exhausted; (b) they are terminated by You; or (c) the Policy ends.]

[5% Future Purchase Options: These provide a way to increase Your Benefit maximums on every 3rd anniversary of the Policy Effective Date. Increases will not be available or effective, and may be revoked or rescinded, if You are Chronically Ill or otherwise eligible for Benefits on the date the offer is accepted. You will be given the option to purchase additional coverage equal to 5% compounded annually for the 3 year period (an approximate increase of 15.8%). The increases will apply to Your then current Nursing Facility Maximum and the current amounts of other dollar maximums. The additional Premium for an increase will be based on: (1) the amount of the increase; and (2) Your age and the Premium in effect for the Policy on the date the increase takes effect.
Offers and Benefit Increases cease when: (a) You have refused/declined three consecutive options to increase Benefit maximums; (b) the applicable maximum has been exhausted; (c) they are terminated by You; or (d) the Policy ends.]

SCHEDULE
(Continued)

Benefits and Services Provided	We Pay [the Covered Percentage of] Covered Expenses Up to these Limits (except where otherwise noted)
Privileged Care Coordination Services	Not subject to coverage limits
Nursing Facility Benefit	Nursing Facility Maximum per [day][calendar month]
Residential Care Facility Benefit	[[75%][100%] of the] Nursing Facility Maximum per [day][calendar month]
Bed Reservation Benefit	60 days per calendar year
Home and Community Care Benefit	[[50%][100%] of the] Nursing Facility Maximum per [day] [calendar month]]
Home Assistance Benefit (Equipment, modifications & training)	A Policy total payment maximum equal to [[3 times Monthly][90 times Daily] the Nursing Facility Maximum]
Hospice Care Benefit	Included
Respite Care Benefit	30 days per calendar year
International Coverage Benefit	As stated in the Benefit
Waiver of Premium Benefit	Included
The Waiver of Premium applies only during periods for which Benefits are payable under the: Nursing Facility Benefit; Residential Care Facility Benefit; Bed Reservation Benefit; Home and Community Care Benefit; or Hospice Care Benefit. [This also applies when Your Spouse or Partner for Shared Coverage qualifies for Waiver of Premium under this Policy or his or her Policy.]	
Your Right To Request Payment For Alternative Care	Payment subject to mutual agreement
Contingent Nonforfeiture Benefit	Included

The following Riders are attached to, and included in, the Policy.

[Nonforfeiture Benefit	Included]
[Shared Coverage Benefit	Included with Joint Waiver]
[Restoration Benefit	Included]
[Transition Benefit	A Policy total payment maximum equal to [5 times][20% of] the Nursing Facility Maximum]

The maximum total amount payable for all Covered Expenses incurred [on a day] [in a calendar month] is limited to the Nursing Facility Maximum. This does not apply to the Home Assistance Benefit and Benefits paid for requested alternative care.

SCHEDULE
(Continued)

PREMIUM DATA

	Annual Premium
Basic Policy Coverage	$XXX.XX
[Nonforfeiture Benefit Rider	$XX.XX]
[Shared Coverage Rider	$XX.XX
Spouse or Partner for Shared Coverage Mary Jane Doe]	
[Restoration Benefit Rider	$XX.XX]
[Transition Benefit Rider	$XX.XX]
[Premium Credit for Replacement of Prior Coverage With Us	$XX.XX]
Total Annual Premium	$XXX.XX]

First Premium	**Premium Payment Mode**	**Modal Premium**
[$aaa.aa**]**	**[**Quarterly**]**	**[**$bbb.bb**]**

Premium for Premium Payment Modes other than annual are the following percentage of the Annual Premium:

Semi-Annual = 51%; Quarterly = 26%; Monthly = 9%

The following table shows the Modal Premium and total yearly cost for the available Premium Payment Modes for the Annual Premium that applies on the Policy Effective Date. These costs will change when there is a change in Your Premium. See the Modal Premium Disclosure for additional information.

Total First Year Premium Payment Options (including all optional Coverage)

	Annual	Semi-Annual	Quarterly	Monthly
Modal Premium	$**[**XXX.XX**]**	$**[**XXX.XX**]**	$**[**XXX.XX**]**	$**[**XXX.XX**]**
Total Yearly Cost for First Year Premium	$**[**XXX.XX**]**	$**[**XXX.XX**]**	$**[**XXX.XX**]**	$**[**XXX.XX**]**

Premium Payment Period: Lifetime

Rating: [Standard] [with [Insured] Couples Discount]

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TARGET POPULATIONS OF STATE-LEVEL AUTOMATIC IRA INITIATIVES

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SUMMARY

Recent initiatives by state governments aim to increase the retirement savings of U.S. workers. The purpose of this report is to provide background analysis related to those initiatives. Specifically, this report provides a high-level overview of employer-sponsored pension coverage in the 50 states and the District of Columbia, and a more detailed characterization of workers who are targeted by the California and Illinois initiatives to expand retirement saving.

Among American private sector workers, we find that 72 million workers (53%) did not have access to an employer-sponsored pension plan in 2013. In both California and Illinois, workers targeted by state initiatives had lower incomes, were more likely to work part-time or part-year, were younger, were more likely to have never married, belonged more likely to a minority race or ethnicity, and were less likely to be U.S. citizens than other private sector workers. Despite these patterns, targeted workers are a diverse group. For example, in 2013 about 6%-7% of them lived in households with an income of $200,000 or more.

While targeted workers may benefit from state initiatives to boost retirement savings, they also face weaker incentives to save for retirement because they are farther from retirement and can expect relatively more from Social Security than workers with access to an employer-sponsored pension plan. Given these weaker incentives, some may opt out of enrollment into their state plan. Opt-out rates are, however, outside the scope of this study.

CONTENTS

1. INTRODUCTION

Legislators in several states have recently proposed or passed initiatives to create new options for retirement saving. While their designs vary, the new vehicles typically resemble individual retirement accounts (IRAs) for private sector workers without access to an employer-sponsored pension. Workers will be automatically enrolled, but may opt out.[1]

This document primarily centers on retirement initiatives in California and Illinois:

- California passed Senate Bill 1234 in late 2012 to establish the California Secure Choice Retirement Savings Program; a market feasibility study of the program and approval from the IRS are currently ongoing. Employees of firms with five or more employees who do not offer an employer-sponsored retirement plan or automatic payroll deduction IRA will be automatically enrolled with a 3% default contribution unless they choose to opt out. Employers will not assume any liability for employee plan participation, investments, or any other program design or performances aspects, but employers that do not auto-enroll their employees are subject to a penalty.
- Illinois established the Secure Choice Savings Program in early 2015. Employers that have been in business for two or more years and have 25 or more employees and no qualified retirement plan are required to automatically enroll their employees with a 3% default contribution unless the employee chooses to opt out. The program is scheduled to be implemented by early 2017, provided the Illinois Secure Choice Board demonstrates that the system will be self-sustaining, qualifies for favorable federal tax treatment, and is not considered an employee benefit plan under the Employee Retirement Income Security Act of 1974 (ERISA).

This document characterizes the target populations of retirement initiatives in California and Illinois, i.e., private sector wage and salary workers without access to an employer-sponsored pension plan at firms with five or more workers (California) or firms that have been in business at least two years and have 25 or more workers (Illinois).

Our primary data source is the Annual Socio-Economic Supplement (ASEC) to the Current Population Survey (CPS) that was fielded in March 2014. Sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics, the CPS is a household survey that collects detailed information about Americans' labor force participation and demographic characteristics; the ASEC (formerly known as the March Supplement) collects additional detail. Most of the information summarized here refers to the year before the survey interview, i.e., to 2013.

The remainder of this document is organized as follows. Section 2 provides an overview of access to employer-sponsored pensions in the United States. Section 3 and Section 4 characterize the target populations in California and Illinois, respectively. Section 5 concludes.

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[1] For an overview of state initiatives see, for example, the Georgetown University Center for Retirement Initiatives at http://cri.georgetown.edu/states.

2. POVERTY AND ACCESS TO PENSIONS IN THE UNITED STATES

To set the stage, Table 1 shows the number of people who lived below the poverty line and the poverty rate, both restricted to people age 65 or older in 2013. The poverty rate among the elderly ranged from 4% in Idaho to more than 13% in the District of Columbia, Louisiana, North Carolina, and South Carolina. The rate was 11% in California and 9% in Illinois.

Table 1. Poverty Rate among People Age 65 or Older, by State (2013)

State	People age 65+ below poverty line	Poverty rate	State	People age 65+ below poverty line	Poverty rate
Alabama	71,323	10.0%	Montana	11,225	7.3%
Alaska	4,118	5.7%	Nebraska	28,897	10.6%
Arizona	125,375	12.7%	Nevada	31,897	8.2%
Arkansas	49,978	10.0%	New Hampshire	11,419	5.7%
California	505,955	10.7%	New Jersey	98,057	8.1%
Colorado	51,635	7.9%	New Mexico	45,457	12.7%
Connecticut	34,337	6.9%	New York	319,524	11.1%
Delaware	11,118	7.1%	North Carolina	206,477	14.6%
District of Columbia	12,730	15.9%	North Dakota	6,888	8.2%
Florida	367,272	11.2%	Ohio	141,368	7.5%
Georgia	123,470	9.6%	Oklahoma	33,307	6.3%
Hawaii	15,392	7.2%	Oregon	69,590	10.8%
Idaho	9,045	4.4%	Pennsylvania	162,736	7.8%
Illinois	148,797	9.2%	RhodeIsland	14,481	8.6%
Indiana	58,530	6.3%	South Carolina	109,406	13.8%
Iowa	28,950	6.7%	South Dakota	12,015	9.5%
Kansas	42,874	11.1%	Tennessee	102,054	10.8%
Kentucky	64,549	10.8%	Texas	363,471	12.1%
Louisiana	88,184	13.8%	Utah	28,714	8.9%
Maine	11,709	5.4%	Vermont	6,798	6.0%
Maryland	70,318	8.2%	Virginia	78,414	6.9%
Massachusetts	53,524	6.0%	Washington	61,571	6.1%
Michigan	98,082	6.8%	WestVirginia	28,354	8.9%
Minnesota	49,524	7.0%	Wisconsin	53,005	6.0%
Mississippi	45,175	11.6%	Wyoming	7,447	9.9%
Missouri	56,296	5.6%			
United States	4,230,830	9.5%			

Source: 2014 CPS-ASEC.

Table 2 shows the fraction of private sector workers whose employer offers a pension plan and the fraction who participate in such a plan. Nationwide, the figures include 120.9 million wage and salary workers and 14.5 million self-employed workers (5.2 million who had incorporated their business and 9.3 million who had not). The offer rate ranged from less than 40% in New Mexico, Idaho, and Florida to 55% in Iowa, Pennsylvania, and the District of Columbia. Participation was lowest in New Mexico (26%), Nevada (29%), and Florida (29%). The offer and participation rates in Illinois were 48% and 38%, respectively, both slightly above the national average. The rates in California (40% and 32%, respectively) were lower than the national average.

Table 2. Pension Offer and Participation Rates among Private Sector Workers (2013)

State	Pension offer rate	Participation rate	State	Pension offer rate	Participation rate
Alabama	44.2%	34.7%	Montana	42.6%	29.7%
Alaska	45.3%	34.4%	Nebraska	50.0%	39.2%
Arizona	45.0%	31.6%	Nevada	41.3%	28.9%
Arkansas	42.7%	32.5%	New Hampshire	51.8%	40.8%
California	40.3%	31.6%	New Jersey	45.0%	35.7%
Colorado	45.8%	35.7%	New Mexico	36.5%	25.5%
Connecticut	51.4%	41.2%	New York	47.4%	37.3%
Delaware	51.4%	42.1%	North Carolina	43.6%	33.5%
District of Columbia	55.5%	44.4%	North Dakota	49.5%	37.6%
Florida	38.5%	29.4%	Ohio	51.2%	38.4%
Georgia	42.0%	31.9%	Oklahoma	43.1%	32.1%
Hawaii	47.5%	39.2%	Oregon	49.0%	37.8%
Idaho	38.4%	29.8%	Pennsylvania	55.3%	41.6%
Illinois	48.5%	37.8%	Rhode Island	49.1%	39.8%
Indiana	51.8%	40.4%	South Carolina	45.0%	34.1%
Iowa	54.9%	43.1%	South Dakota	45.7%	32.8%
Kansas	53.7%	39.1%	Tennessee	50.2%	37.9%
Kentucky	46.7%	35.9%	Texas	41.6%	32.4%
Louisiana	44.3%	32.8%	Utah	48.4%	34.6%
Maine	47.6%	35.8%	Vermont	51.2%	36.7%
Maryland	46.5%	35.1%	Virginia	52.6%	41.6%
Massachusetts	46.0%	38.0%	Washington	52.9%	40.8%
Michigan	54.0%	42.2%	West Virginia	46.0%	33.0%
Minnesota	54.4%	43.1%	Wisconsin	53.7%	42.6%
Mississippi	47.3%	37.4%	Wyoming	45.1%	32.7%
Missouri	54.4%	43.4%			
United States	46.5%	35.9%			

Source: 2014 CPS-ASEC.

Table 3 provides the number of private sector workers whose employer did not offer a pension plan in 2013. Nationwide, 72 million workers (53%) did not have access to a pension plan at their workplace. In California, 9.6 million workers did not have access to a pension, of whom 8.8 million were between the ages of 20 and 64. In Illinois, 3.0 million workers did not have access to a pension, of whom 2.6 million were between the ages of 20 and 64.

Table 3. Number of Private Sector Workers Whose Employer Did Not Offer a Pension Plan (2013)

State	Any Age	Age 20-64	State	Any Age	Age 20-64
Alabama	1,059,744	935,015	Montana	253,561	204,647
Alaska	149,097	129,090	Nebraska	471,695	388,708
Arizona	1,488,166	1,308,558	Nevada	662,763	575,212
Arkansas	648,004	566,903	New Hampshire	320,555	266,405
California	9,647,097	8,767,807	New Jersey	2,139,873	1,867,593
Colorado	1,370,111	1,204,868	New Mexico	443,002	341,133
Connecticut	800,028	674,247	New York	4,315,886	3,858,870
Delaware	186,505	162,367	North Carolina	2,219,437	1,964,037
District of Columbia	123,778	112,840	North Dakota	182,831	153,494
Florida	5,102,221	4,532,193	Ohio	2,428,706	2,063,097
Georgia	2,215,098	2,014,211	Oklahoma	829,279	706,086
Hawaii	269,410	236,695	Oregon	873,270	761,854
Idaho	431,534	364,616	Pennsylvania	2,665,313	2,255,188
Illinois	2,981,329	2,621,976	Rhode Island	249,840	212,321
Indiana	1,419,794	1,189,677	South Carolina	1,015,097	872,095
Iowa	691,167	576,171	South Dakota	232,168	189,503
Kansas	587,395	470,710	Tennessee	1,380,596	1,189,626
Kentucky	958,492	853,579	Texas	6,734,250	5,978,788
Louisiana	998,655	907,047	Utah	619,782	540,281
Maine	334,312	277,030	Vermont	147,872	122,256
Maryland	1,296,724	1,143,526	Virginia	1,616,158	1,368,332
Massachusetts	1,667,560	1,368,897	Washington	1,405,271	1,227,949
Michigan	2,031,488	1,689,537	West Virginia	370,309	319,628
Minnesota	1,218,204	995,334	Wisconsin	1,260,596	1,033,997
Mississippi	506,366	450,253	Wyoming	150,124	117,690
Missouri	1,234,141	1,008,314			
United States	72,404,652	63,140,252			

Source: 2014 CPS-ASEC.

3. THE TARGET POPULATION IN CALIFORNIA

We now turn to California workers. Table 4 shows the number of workers by type of employer (private, self-employed, government) and by whether they have access to a pension plan on their job. Excluding the self-employed, 14.1 million people worked in the private sector, of whom 6.3 million (45%) had access to an employer-sponsored pension plan. The offer rate was only 12% among the 2.1 million individuals identified as self-employed (including those with an incorporated business). The offer rate among government workers was 76% for state, 75% for federal, and 81% for local government workers.[2]

Table 4. California: Pension Offers, by Type of Employer (2013)

	Offered a Pension Plan? (Workers)			Offer
	No	Yes	Total	rate
Private	7,788,756	6,264,343	14,053,100	44.6%
Self-employed	1,858,340	249,064	2,107,404	11.8%
Federal Government	112,513	334,189	446,702	74.8%
State Government	180,883	582,932	763,815	76.3%
Local Government	269,548	1,115,114	1,384,662	80.5%
Total	10,210,040	8,545,643	18,755,683	45.6%

Source: 2014 CPS-ASEC.

The remainder of this section focuses on private sector workers, including both wage and salary and self-employed workers.

Table 5 tabulates private sector workers by firm size. Given that the California retirement initiative targets workers at firms with five or more employees, we separately identify firms with 1-4 and 5-9 employees. The CPS does not provide this granularity, so we imputed based on the distribution of employees by state and firm size as published by the U.S. Census Bureau's Business Dynamics Statistics.[3] We assume that the pension offer rate for firms with 1-4 or 5-9 employees was the same.

[2] It is possible that some respondents who worked for a government contractor incorrectly identified themselves as government workers.
[3] http://www.census.gov/ces/dataproducts/bds/data_firm.html.

Table 5. California: Pension Offers to Private Sector Workers, by Firm Size (2013)

	Offered a Pension Plan? (Workers)			Offer
Firm size	No	Yes	Total	rate*
1-4 employees	1,832,763	238,061	2,070,823	11.5%
5-9 employees	1,985,493	257,899	2,243,392	
10-49 employees	2,039,064	716,725	2,755,789	26.0%
50-99 employees	746,686	468,099	1,214,785	38.5%
100-499 employees	876,619	1,091,403	1,968,023	55.5%
500-999 employees	317,346	372,672	690,018	54.0%
1000+ employees	1,849,125	3,368,550	5,217,675	64.6%
Total	9,647,097	6,513,407	16,160,504	40.3%

Source: 2014 CPS-ASEC, Business Dynamics Statistics.
*Offer rate assumed to be equal for firms with 1-4 and 5-9 employees. See text.

The offer rate generally increases with firm size. While 40% on average across firms of all sizes, the offer rate was only 11% at firms with fewer than 10 employees. The California initiative targets 9.6 million private sector employees, excluding 1.8 million who work at a firm with 1-4 employees, for a total of 7.8 million workers in 2013.

To gain a better understanding of the population that may directly benefit from the initiative, the remainder of this section compares targeted private sector workers to their counterparts who did have access to an employer-sponsored pension plan at a firm with five or more employees. Workers at firms with 1-4 employees are excluded from the comparison. The analysis abstracts from both potential opt-out behavior and potential voluntary participation.

Table 6 shows summary statistics of private sector workers' annual earnings. At the median, overall annual earnings $21,000 among targeted workers and $45,000 among the comparison group of private sector workers with access to a pension plan at a firm with five or more employees. Restricting the sample to workers who reported working fulltime for at least 50 weeks during 2013, median annual earnings were $32,000 for targeted workers and $55,000 for the comparison group.

Table 6. California: Earnings Distribution, by Subsets of Private Sector Workers (2013)

	Private sector workers		Full-time, 50+ weeks	
Earnings	Target*	Comparison*	Target*	Comparison*
10th Percentile	3,850	12,000	15,000	23,000
25th Percentile	10,000	25,000	20,800	35,000
50th Percentile	21,000	45,000	32,000	55,000
75th Percentile	40,000	80,000	53,000	90,000
90th Percentile	72,000	130,000	90,000	140,000

Source: 2014 CPS-ASEC.
*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

Table 7 tabulates the annual incomes of the households in which private sector workers lived. Among workers targeted by the California retirement initiative, 37% lived in a household with less than $50,000 income, compared with 17% among the comparison group. More than 525,000 targeted workers (7%) lived in a household with incomes of at least $200,000.

Table 7. California: Household Income Distribution, by Subsets of Private Sector Workers (2013)

	Target*		Comparison*	
Household income	Workers	Percent	Workers	Percent
Under $10,000	147,365	1.9%	24,847	0.4%
10,000-19,999	475,875	6.1%	88,024	1.4%
20,000-49,999	2,239,582	28.7%	946,597	15.1%
50,000-99,999	2,662,217	34.1%	2,010,432	32.0%
100,000-199,999	1,763,849	22.6%	2,252,319	35.9%
200,000+	525,446	6.7%	953,128	15.2%
Total	7,814,334	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

To help gauge implications of the California initiative for federal tax receipts and to help understand tax incentives for targeted workers, Table 8 tabulates the marginal federal tax rate facing workers. Most targeted workers (61%) are in brackets of 0% or 10%, compared with 42% of the comparison group.

Table 8. California Private Sector Workers: Marginal Federal Tax Rate (2013)

Marginal	Target*		Comparison*	
tax rate	Workers	Percent	Workers	Percent
Zero	3,432,456	43.9%	2,043,746	32.6%
10%	1,325,579	17.0%	595,193	9.5%
15%	2,038,224	26.1%	1,730,967	27.6%
25%	737,833	9.4%	1,252,299	20.0%
28%	166,340	2.1%	420,325	6.7%
33%	71,239	0.9%	159,283	2.5%
35%	2,738	0.0%	11,229	0.2%
40%	39,924	0.5%	62,305	1.0%
Total	7,814,333	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

Targeted workers are less likely to work full-time for at least 50 weeks (56%) than comparison workers (76%) and more likely to work part-time or part-year (Table 9).

Table 9. California Private Sector Workers: Part-time and Full-time (2013)

	Target*		Comparison*	
Work status	Workers	Percent	Workers	Percent
Full-time, 50+ weeks	4,395,096	56.2%	4,760,161	75.9%
Full-time, <50 weeks	1,125,410	14.4%	656,535	10.5%
Part-time, 50+ weeks	1,207,461	15.5%	553,264	8.8%
Part-time, <50 weeks	1,086,367	13.9%	305,387	4.9%
Total	7,814,334	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

Targeted workers tend to be younger than their counterparts with access to a pension: 31% are under age 30, compared with 21% of comparison workers (Table 10).

Table 10. California Private Sector Workers: Age Distribution (2013)

	Target*		Comparison*	
Age category	Workers	Percent	Workers	Percent
15-19 years	280,668	3.6%	103,584	1.7%
20-29 years	2,143,734	27.4%	1,226,314	19.5%
30-39 years	1,677,952	21.5%	1,432,889	22.8%
40-49 years	1,548,979	19.8%	1,390,312	22.2%
50-64 years	1,771,652	22.7%	1,758,479	28.0%
65+ years	391,349	5.0%	363,769	5.8%
Total	7,814,334	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

As shown in Table 11 and consistent with the age distribution presented above, targeted workers are less likely married (47%) than comparison workers (57%) and more likely never married (40% compared with 31%). About 842,000 targeted workers were married to a spouse with access to a pension on his or her job. These represent 23% of targeted married workers and 11% of all targeted workers (not shown in the table).

Table 11. California Private Sector Workers: Marital Status (2013)

	Target*		Comparison*	
Marital status	Workers	Percent	Workers	Percent
Married	3,635,960	46.5%	3,578,461	57.0%
Widowed	115,993	1.5%	85,218	1.4%
Divorced	665,060	8.5%	545,877	8.7%
Separated	256,418	3.3%	108,713	1.7%
Never married	3,140,903	40.2%	1,957,078	31.2%
Total	7,814,334	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.
*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

Table 12 indicates that targeted workers are somewhat more likely to be White and less likely to be Asian than comparison workers. The difference in Hispanic origin among targeted and comparison workers is larger: 43% of targeted workers were of Hispanic origin, compared with 30% of comparison workers (Table 13).

Table 12. California Private Sector Workers: Racial Distribution (2013)

	Target*		Comparison*	
Race	Workers	Percent	Workers	Percent
White	6,075,276	77.7%	4,593,169	73.2%
Black	403,670	5.2%	325,305	5.2%
Native American	43,489	0.6%	53,503	0.9%
Asian	1,016,854	13.0%	1,062,028	16.9%
Pacific Islander	77,073	1.0%	97,036	1.5%
Multi-racial	197,972	2.5%	144,306	2.3%
Total	7,814,334	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.
*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

Table 13. California Private Sector Workers: Hispanic Origin (2013)

	Target*		Comparison*	
	Workers	Percent	Workers	Percent
Hispanic	3,371,944	43.2%	1,852,259	29.5%
Non-Hispanic	4,442,390	56.8%	4,423,088	70.5%
Total	7,814,334	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

Finally, Table 14 tabulates U.S. citizenship by country of birth. As many as 37% of targeted private sector workers in California were not a U.S. citizen at birth; almost one-half became a citizen through naturalization and 21% remained citizens of a foreign nation at the time of the survey. Among comparison workers, 11% were foreign nationals.

Table 14. California Private Sector Workers: Citizenship (2013)

	Target*		Comparison*	
Citizenship	Workers	Percent	Workers	Percent
Native:				
—born in the United States	4,801,509	61.4%	4,376,463	69.7%
—born in Puerto Rico or U.S. outlying area	26,763	0.3%	12,113	0.2%
—born abroad of American parent(s)	79,068	1.0%	69,057	1.1%
Foreign born:				
—U.S. citizen by naturalization	1,244,461	15.9%	1,122,506	17.9%
—not a citizen of the United States	1,662,533	21.3%	695,207	11.1%
Total	7,814,334	100.0%	6,275,347	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 5+ employees that did not offer a pension plan (Target) or that did offer a pension plan (Comparison).

4. THE TARGET POPULATION IN ILLINOIS

We now turn to Illinois workers and provide an analysis comparable to the above analysis for California. Table 15 shows the number of workers by type of employer (private, self-employed, government) and by whether they have access to a pension plan on their job. Excluding the self-employed, 5.3 million people worked in the private sector, of whom 2.7 million (52%) had access to an employer-sponsored pension plan. The offer rate was only 12% among 0.5 million self-employed workers (including those with an incorporated business). The offer rate among government workers was 83%-84%.[4]

Table 15. Illinois: Pension Offers, by Type of Employer (2013)

	Offered a Pension Plan? (Workers)			Offer
	No	Yes	Total	rate
Private	2,530,204	2,744,292	5,274,496	52.0%
Self-employed	451,125	61,272	512,397	12.0%
Federal	24,211	120,995	145,207	83.3%
State	31,202	160,515	191,717	83.7%
Local	100,545	494,250	594,795	83.1%
Total	3,137,288	3,581,323	6,718,612	53.3%

Source: 2014 CPS-ASEC.

The remainder of this section focuses on private sector workers, including both wage and salary and self-employed workers.

Table 16 tabulates private sector workers by firm size. Given that the Illinois retirement initiative targets workers at firms with 25 or more employees, we separately identify firms with 10-24 and 25-49 employees. The CPS does not provide this granularity, so we imputed based on the distribution of employees by state, firm size, and firm age as published by the U.S. Census Bureau's Business Dynamics Statistics.[5] We assume that the pension offer rate for firms with 10-24 or 25-49 employees was the same.

[4] It is possible that some respondents who worked for a government contractor incorrectly identified themselves as government workers.
[5] http://www.census.gov/ces/dataproducts/bds/data_firm.html.

Table 16. Illinois: Pension Offers to Private Sector Workers, by Firm Size (2013)

	Offered a Pension Plan? (Workers)			Offer
Firm size	No	Yes	Total	rate*
1-9 employees	986,153	197,867	1,184,020	16.7%
10-24 employees	282,755	165,937	448,693	37.0%
25-49 employees	271,667	159,430	431,097	
50-99 employees	254,913	215,361	470,275	45.8%
100-499 employees	371,571	427,336	798,907	53.5%
500-999 employees	110,538	179,630	290,168	61.9%
1000+ employees	703,731	1,460,002	2,163,733	67.5%
Total	2,981,329	2,805,564	5,786,893	48.5%

Source: 2014 CPS-ASEC, Business Dynamics Statistics.
*Offer rate assumed to be equal for firms with 10-24 and 25-49 employees. See text.

The offer rate generally increases with firm size. While 48% on average across firms of all sizes, the offer rate was only 17% at firms with fewer than 10 employees and 37% at firms with 11-49 employees. The Illinois initiative targets workers at firms with 25 or more employees that have been in business for at least two years. The CPS does not ask for company age, so we again imputed based on company data from the U.S. Census Bureau's Business Dynamics Statistics.[6] Most larger companies have been in business for at least two years; the fraction ranges from 94% among companies with 20-49 workers to 100% (rounded) among companies with 1,000 or more workers. In all, the Illinois retirement initiative targets 1.7 million workers.

To gain a better understanding of the population that may directly benefit from the initiative, the remainder of this section compares targeted private sector workers to those who did have access to an employer-sponsored pension plan at a firm with 25 or more workers that had been in business at least two years. Workers at smaller or newer firms are excluded from the comparison. The analysis abstracts from both potential opt-out behavior and potential voluntary participation.

Table 17 shows summary statistics of private sector workers' annual earnings. At the median, annual earnings among targeted workers were $21,000, compared with $44,000 among the comparison population. Restricting the sample to workers who reported working fulltime for at least 50 weeks during 2013, median annual earnings were $35,000 for targeted workers and $50,000 for the comparison group.

[6] http://www.census.gov/ces/dataproducts/bds/data_firm.html.

Table 17. Illinois: Earnings Distribution, by Subsets of Private Sector Workers (2013)

	Private sector workers		Full-time, 50+ weeks	
Earnings	Target*	Comparison*	Target*	Comparison*
10th Percentile	$2,400	$12,000	$17,000	$23,000
25th Percentile	$9,000	$25,000	$23,000	$35,000
50th Percentile	$21,000	$44,000	$35,000	$50,000
75th Percentile	$40,000	$69,160	$55,000	$75,000
90th Percentile	$72,000	$100,000	$105,000	$110,000

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

Table 18 tabulates the annual incomes of the households in which private sector workers lived. Among workers targeted by the Illinois retirement saving initiative, 35% lived in a household with less than $50,000 income, compared with 18% among the comparison group. More than 108,000 targeted workers (6%) lived in households with incomes of at least $200,000.

Table 18. Illinois: Household Income Distribution, by Subsets of Private Sector Workers (2013)

	Target*		Comparison*	
Household income	Workers	Percent	Workers	Percent
Under $10,000	74,671	4.5%	15,456	0.6%
$10,000-$19,999	112,588	6.7%	38,756	1.6%
$20,000-$49,999	394,968	23.6%	388,841	16.2%
$50,000-$99,999	600,204	35.9%	895,900	37.2%
$100,000-$199,999	381,853	22.8%	778,414	32.3%
$200,000+	108,281	6.5%	289,799	12.0%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

To help gauge implications of the Illinois initiative for federal tax receipts and to help understand tax incentives for targeted workers, Table 19 tabulates the marginal federal tax rate facing workers. More than one-half of targeted workers (59%) were in brackets of 0% or 10%, compared with 40% of targeted workers.

Table 19. Illinois Private Sector Workers: Marginal Federal Tax Rate (2013)

Marginal	Target*		Comparison*	
tax rate	Workers	Percent	Workers	Percent
Zero	750,802	44.9%	801,889	33.3%
10%	242,870	14.5%	168,201	7.0%
15%	448,684	26.8%	756,157	31.4%
25%	177,923	10.6%	534,941	22.2%
28%	19,131	1.1%	98,741	4.1%
33%	20,279	1.2%	37,618	1.6%
35%	2,747	0.2%	4,794	0.2%
40%	10,131	0.6%	4,825	0.2%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

Targeted workers were less likely to work full-time for at least 50 weeks (56%) than comparison workers (76%) and more likely to work part-time or part-year (Table 20).

Table 20. Illinois Private Sector Workers: Part-time and Full-time (2013)

	Target*		Comparison*	
Work status	Workers	Percent	Workers	Percent
Full-time, 50+ weeks	935,710	55.9%	1,819,037	75.6%
Full-time, <50 weeks	221,654	13.3%	264,107	11.0%
Part-time, 50+ weeks	207,444	12.4%	183,778	7.6%
Part-time, <50 weeks	307,758	18.4%	140,244	5.8%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

Targeted workers tend to be younger than other private sector workers: 37% are under age 30, compared with 24% of comparison workers (Table 21).

Table 21. Illinois Private Sector Workers: Age Distribution (2013)

	Target*		Comparison*	
Age category	Workers	Percent	Workers	Percent
15-19 years	113,246	6.8%	66,374	2.8%
20-29 years	508,925	30.4%	503,986	20.9%
30-39 years	289,470	17.3%	443,537	18.4%
40-49 years	310,371	18.6%	527,086	21.9%
50-64 years	376,323	22.5%	768,261	31.9%
65+ years	74,231	4.4%	97,922	4.1%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

As shown in Table 22, targeted workers are less likely married (42%) than comparison workers (56%) and more likely never married (42% compared with 28%). About 187,000 targeted workers were married to a spouse with access to a pension on his or her job. These represent 27% of targeted married workers and 11% of all targeted workers (not shown in the table).

Table 22. Illinois Private Sector Workers: Marital Status (2013)

	Target*		Comparison*	
Marital status	Workers	Percent	Workers	Percent
Married	699,057	41.8%	1,358,238	56.4%
Widowed	25,026	1.5%	34,401	1.4%
Divorced	198,383	11.9%	276,459	11.5%
Separated	39,330	2.4%	69,552	2.9%
Never married	710,771	42.5%	668,516	27.8%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

Table 23 indicates that targeted workers are less likely white than comparison workers (79% compared with 85%) and more likely black (15% compared with 8%). Also, 20% of targeted workers were of Hispanic origin, compared with 11% of comparison workers (Table 24).

Table 23. Illinois Private Sector Workers: Racial Distribution (2013)

	Target*		Comparison*	
Race	Workers	Percent	Workers	Percent
White	1,326,370	79.3%	2,049,394	85.1%
Black	252,071	15.1%	197,920	8.2%
Native American	2,469	0.1%	19,579	0.8%
Asian	70,798	4.2%	122,150	5.1%
Multi-racial	20,860	1.2%	18,123	0.8%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

Table 24. Illinois Private Sector Workers: Hispanic Origin (2013)

	Target*		Comparison*	
	Workers	Percent	Workers	Percent
Hispanic	327,453	19.6%	266,525	11.1%
Non-Hispanic	1,345,113	80.4%	2,140,641	88.9%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

Finally, Table 25 tabulates U.S. citizenship by country of birth. About 19% of targeted workers in Illinois were not a U.S. citizen at birth; many became a citizen through naturalization and 12% remained citizens of a foreign nation at the time of the interview. Among comparison workers, 5% are foreign nationals.

Table 25. Illinois Private Sector Workers: Citizenship (2013)

	Target*		Comparison*	
Citizenship	Workers	Percent	Workers	Percent
Native:				
—born in the United States	1,329,756	79.5%	2,071,164	86.0%
—born in Puerto Rico or U.S. outlying area	2,544	0.2%	3,273	0.1%
—born abroad of American parent(s)	16,733	1.0%	14,243	0.6%
Foreign born:				
—U.S. citizen by naturalization	124,311	7.4%	209,503	8.7%
—not a citizen of the United States	199,222	11.9%	108,983	4.5%
Total	1,672,566	100.0%	2,407,166	100.0%

Source: 2014 CPS-ASEC.

*Populations: Private sector workers at firms with 25+ employees that had been in business 2+ years and did not offer a pension plan (Target) or did offer a pension plan (Comparison).

5. CONCLUSION

This report compares private sector workers without access to an employer-sponsored pension plan and targeted by state initiatives to their counterparts with access to a pension plan. While they reflect a diverse population, targeted workers were younger, had lower incomes, and more likely belonged to a racial or ethnic minority. One way to interpret these patterns is that targeted workers may receive a higher benefit from support to build their retirement nest egg. However, another way to characterize targeted workers is that they face weaker incentives to save for retirement because they are farther from retirement and can expect relatively more from Social Security than those with pension plans. Also, relatively many are foreign nationals and may be less likely to retire in the United States. Both the California and the Illinois initiatives allow targeted workers to opt-out of enrollment, and potential opt-out rates are outside the scope of our study. However, an understanding of opt-out rates may be important to quantify the likely impact of state-level initiatives on retirement savings.

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ADVANCED ANALYTICAL
CONSULTING GROUP

COMMENTS ON A REVIEW OF A WHITE HOUSE REPORT ON CONFLICTED INVESTMENT ADVICE

August 21, 2015

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SUMMARY

In February 2015, the Council of Economic Advisers published a report on "The Effects of Conflicted Investment Advice on Retirement Savings" ("White House Report"). In March 2015, Jeremy Berkowitz, Renzo Comolli, and Patrick Conroy of NERA Economic Consulting posted a review of that report ("NERA Review").[1] This document comments on the NERA Review.

Based on a review of academic studies, the White House Report concludes that conflicts of interest among financial advisers costs affected investors roughly 1 percentage point annually in foregone investment returns. The NERA Review is critical of the White House Report. It challenges the cost estimates and faults the White House Report for not articulating an alternative regime. It puts forward a few valid arguments—in particular that the White House Report undervalues benefits from adviser services—and many unconvincing ones. At no point does it present its own estimates of costs and benefits of conflicted advice. Taken together, the NERA Review fails to detract from the White House Report's conclusion that conflicted investment advice reduces American retirement resources by billions of dollars every year, which compound over time into substantial cuts of individual nest eggs.

[1] "Review of the White House Report Titled `The Effects of Conflicted Investment Advice on Retirement Savings'." NERA Economic Consulting, 15 March 2015. http://www.nera.com/content/dam/nera/publications/2015/PUB_WH_Report_Conflicted_Advice_Retirement_Savings_0315.pdf.

CONTENTS

1. INTRODUCTION

In February 2015, the Council of Economic Advisers published a report on "The Effects of Conflicted Investment Advice on Retirement Savings" ("White House Report"). In March 2015, Jeremy Berkowitz, Renzo Comolli, and Patrick Conroy of NERA Economic Consulting posted a review of that report ("NERA Review").[2] This document comments on the NERA Review.

Retirement in the United States is financed through several mechanisms, including Social Security, employer-sponsored pension plans, and Individual Retirement Accounts (IRAs). The Investment Company Institute reported that total retirement assets, excluding claims on Social Security, amounted to $24.6 trillion at the end of 2014, of which $7.4 trillion (30%) were held in IRAs (ICI 2015). Most IRA savings originated from 401(k) or other defined contribution (DC) accounts that former employees rolled over into an IRA; rollovers accounted for about 96% of IRA inflows in 2010 (Holden and Bass, 2014). Owners of IRAs may generally invest the account balance in any security offered by the institution that holds the IRA—stocks, bonds, mutual funds, cash, annuities, et cetera.

According to a 2014 survey, IRA owners often consult financial advisers in rollover decisions, asset allocation decisions, withdrawal decisions, and retirement strategy planning (Holden and Schrass, 2015). Financial advisers may be compensated in a variety of manners, including through commissions or other payments that depend on the actions taken by the advisee. These payments introduce a potential conflict of interest for the adviser and the White House Report therefore labels them "conflicted payments." Advisers who do not accept conflicted payments may charge an hourly rate, a percentage of assets, or other fees that do not directly depend on the investment decisions made by the client.

Conflicts of interest due to conflicted payments may harm investors. For example, investors may be steered into products with excessive fees or encouraged to trade excessively. They may also be steered into underperforming portfolios. The White House Report surveyed a number of studies that quantified these harms. While estimates varied, the White House Report concluded that savers receiving conflicted advice earn returns roughly 1 percentage point lower each year than savers who did not receive conflicted advice. It attempted to translate that finding into several practical terms.

- First, the White House Report estimated that roughly $1.7 trillion IRA assets were invested based on conflicted advice. An underperformance of 1 percentage point thus implies that conflicted advice costs IRA owners about $17 billion per year.
- Second, the White House Report illustrated the cumulative effects over time. For example, a 45-year-old who rolled over a 401(k) balance into an IRA and earned 5% per year would have 17% less in his IRA account at age 65 than if the rate of return had been 6%. Additional losses accrue during retirement. For example, a retiree who received conflicted advice will lose an estimated 12% of the value of his IRA savings if drawn down over 30 years.

[2] "Review of the White House Report Titled `The Effects of Conflicted Investment Advice on Retirement Savings'." NERA Economic Consulting, 15 March 2015. http://www.nera.com/content/dam/nera/publications/2015/PUB_WH_Report_Conflicted_Advice_Retirement_Savings_0315.pdf.

2. SYNOPSIS OF THE NERA REVIEW

The NERA Review is critical of the White House Report. In its Executive Summary, the authors emphasize two issues. First, they present arguments to cast doubt on the accuracy of the White House Report's estimate of $17 billion annual losses due to conflicted advice. Second, they argue that the White House Report does not permit a cost-benefit analysis of alternative regulation because the Report does not articulate a clear proposal for a future regulatory scheme.

The body of the NERA Review makes six main arguments in six sections, summarized here in part with quotes from the NERA Review:

I. "The Report does not put forward a clear proposal and therefore it cannot perform a proper cost-benefit analysis" (p. 1);
II. "The Report gives short-shrift to the benefits that consumers receive from brokers" (p. 4);
III. "When estimating aggregate costs, the Report does not make any adjustment for the limitations of the academic research it cites" (p. 5);
IV. "The Report claims that the rollovers from 401(k) plans to IRA plans cause loss to consumers, but it overstates the strength of the evidence for the quantification of the costs it provides, and it does not properly consider the benefits" (p. 10);
V. "While the academic study cited in the Report indicates that investors' attempts to time the market reduces returns, it does not show that these attempts are due to brokers" (p. 10); and
VI. The academic studies surveyed by the White House Report were based on historical data that, in some cases, range back to the mid-1990s. However, "[m]utual fund fees have dropped substantially since 2000" (p. 11), suggesting that historical studies may overstate harm caused by current conflicted advice.

3. DISCUSSION

The NERA Review makes several good points, chief among them that the White House Report "gives short-shrift" to the benefits that consumers receive from brokers. Indeed, while the White House Report acknowledges such potential benefits, it does not quantify them and does not account for benefits in its headline results. That said, the NERA Review struggles to undermine the White House Report's central message, namely that conflicted advice causes billions of dollars in losses to IRA investors annually and that those losses compound over time into substantial cuts in retirement nest eggs. The NERA Review presents dozens of arguments that do not convince, instead focusing on peripheral issues, faulting the White House Report for an out-of-scope issue, misleadingly quoting academic studies out of context, and omitting to present its own estimates of costs and benefits.

The discussion below addresses each of the NERA Review's six sections in turn.

I. "The Report does not put forward a clear proposal and therefore it cannot perform a proper cost-benefit analysis"

The NERA Report repeatedly criticizes the White House Report for not proposing an alternative regulatory regime and not performing a cost-benefit analysis of that alternative regime. Indeed, while the White House Report floats some thoughts about alternatives—in text boxes, not in the main text—it does not formulate any alternative proposal or set out to do so. Instead, the White House Report makes it clear that it is concerned with current circumstances:

> "The Effects of Conflicted Investment Advice on Retirement Savings" (Title)
>
> "This report focuses on quantifying the impact of conflicting incentives in the particular case of financial advisers providing conflicted advice to IRA account holders." (p. 10)
>
> "This report examines the evidence on the cost of conflicted investment advice and its effects on Americans' retirement savings, with a focus on IRAs." (p. 26)

Since an alternative proposal was not within the White House Report's scope, the NERA Review's criticism appears misplaced.

The White House Report contains text boxes in which it ponders whether the current system is the only way for Americans with modest savings to obtain advice (p. 21) and whether mandated disclosures provide a solution (p. 24). The NERA Review characterizes those passages as more prescriptive than they appear to be intended. It attacks the White House Report's arguments and makes at least one good observation,[3] but none of it is germane to the White House Report's central message.

The White House Report contains another text box in which it briefly mentions how some foreign countries have attempted to mitigate conflicted advice (p. 25). The NERA Review uses a preliminary evaluation by Europe Economics (2014) of the reforms in the United Kingdom to suggest two potentially unpalatable consequences. First, the NERA Review argues that many low-wealth investors appear to have lost broker advice after the reform: 310,000 clients stopped being served by their brokers because their wealth was too small for the broker to advise profitably, and another 60,000 investors were not accepted as new clients by brokers for the same reason. These numbers are misleading and hide a net increase in clients. In the words of Europe Economics (2014):

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[3] The White House Report argues that advisers can provide the same quality of advice while receiving non-conflict-based payments as they can when receiving a payment of equal amount based in conflict, because their costs do not depend on their compensation structure. The NERA Review points out that this assumes that the amount of work that the brokers need to do would remain constant (p. 1). Relatedly, it expects the cost of brokers' services to increase if the fiduciary standard were imposed on brokers (p. 2). This is a valid point; additional obligations will likely translate into higher compliance costs.

> Some advisers have sought to terminate unprofitable client relationships. Data from NMG Consulting, for example, imply that in the year to Q1 2014 about 310,000 clients stopped being served for this reason. On the other hand 820,000 clients were gained in the same period. The same survey indicates that advisers refused to serve about 60,000 (potential new) clients in the same period. If we assume that many of those clients with relationships terminated on the grounds of inadequate profitability sought out another adviser, the positive net increase in customers served suggests that such looking around for a replacement was largely successful. We cannot rule out the existence of a residual group of consumers denied service in this way. However these data do not speak to a significant issue here.

In other words, Europe Economics (2014) found the opposite of what the NERA Review attempted to make the reader believe. Second, broker fees appear to have gone up in at least some geographies and for at least some consumers. Europe Economics (2014) notes that the underlying data are sparse and that consumer price pressure may push down fees as clarity around firms' disclosure of adviser charging continues to increase over time. Separately, fees may have increased because the U.K. reforms imposed higher education and credentialing standards on advisers.

II. "The Report gives short-shrift to the benefits that consumers receive from brokers"

The NERA Review argues that brokers, compensated with conflicted payments, generate benefits to advisees and that the White House Report understates the importance of these benefits.

Conceptually, the NERA Review's observation has merit: brokers' advice may benefit investors by nudging them to think about their needs in retirement; helping select a portfolio; bringing awareness of investment strategies; raising issues related to taxes, college savings, and estate planning; et cetera.

The White House Report explores whether portfolio underperformance is fair compensation for the benefits that broker advice brings. Pointing out that brokers are already compensated through front-end load fees and citing an experiment that found that investors are unlikely to buy high-fee funds once fees are made transparent,[4] it concludes that the benefits do not outweigh the costs. However, the possibility remains that the benefits may partially justify some underperformance. Unfortunately, the academic literature offers little or no quantitative estimates of the benefits of broker advice.

The NERA Review points at several articles that mention potential benefits, but none of those articles quantifies the benefits. For example, Kihn (1996) shows that funds' sales loads are positively related to the broker having a toll-free telephone number and other indicators of customer service, but do not measure the value of those benefits. Bergstresser et al. (2009) raise the theoretical possibilities that "[b]rokers may help their clients save more than they would otherwise save, they may help clients more efficiently use their scarce time, they may help customize portfolios to

[4] James J. Choi, David Laibson, and Brigitte C. Madrian. 2010. "Why does the law of one price fail? An experiment on index mutual funds." *Review of Financial Studies* 23 (4): 1405-1432.

investors' risk tolerances, and they may increase overall investor comfort with their investment decisions,", but acknowledge that they cannot measure those benefits. They also suggest that brokers help diversify clients' portfolios, noting that "broker-sold funds are more likely to invest in foreign funds, suggesting that the broker channel may somehow combat the home-bias effect, where investors appear to overinvest in local securities." Similarly, Foerster et al. (2014) raise the theoretical possibilities that benefits include advice on saving for college and retirement, tax planning and estate planning.

We echo the conclusion by Foerster et al. (2014) that "[e]xploring the importance of these benefits is an important topic for future work."

III. "When estimating aggregate costs, the Report does not make any adjustment for the limitations of the academic research it cites"

In this section, the NERA Review lists numerous issues that aim to cast doubt on the robustness or generalizability of findings in the academic literature. Most issues are raised as theoretical objections without empirical basis, were addressed in the White House Report, or amount to misleading quotes from external sources. We discuss an illustrative subset here.

The NERA Review criticizes Christoffersen et al. (2013) for analyzing "returns of funds, which is not the same as the performance of an individual investor because investors may trade in and out of the fund (potentially at the suggestion of their broker)" (p.6). The criticism might fit if there were evidence that individual investors are worse at timing the market than brokers. However, Bergstresser et al. (2009) find no superior market-timing advice by brokers, and Foerster et al. (2014) find "little evidence of superior stock-picking or market-timing abilities even in the right tail of the distribution."

The NERA Review also criticizes Christoffersen et al. (2013) for the poor overall explanatory power of its regression models. "[T]he R squares of the regressions in Table V are all under 4%, which means that 96% of the variation in the performance across funds is not explained by the model estimated by Christoffersen et al. (2013)." Rates of return are indeed notoriously difficult to explain or predict so that it is noteworthy when a certain factor exerts a statistically significant effect. In this case, the effect of "excess load paid to broker" is robust to four alternative specifications and statistically significant in all four specifications at significance levels of less than 1%. The NERA Review further notes "This strongly suggests that important drivers of the funds' performances are not accounted for by the model. If indeed factors are omitted and they correlate with brokers' fees, then the estimates in Christoffersen et al. (2013) are biased." This statement exemplifies issues raised by the NERA Review that are theoretical possibilities but lack empirical support.

The NERA Review notes that the findings of Bergstresser et al. (2009) are mixed: "for certain types of funds, funds sold by brokers underperform those sold directly, while for other types, they over-perform." In particular, it stresses "value-weighted foreign equity funds," where broker-sold funds outperformed direct-sold funds (on a pre-distribution fee basis). The White House Report addresses this issue; it is attributable to a small number of large funds sold through a single fund family. Indeed Bergstresser et al. (2009) show that most foreign equity funds sold through

brokers underperform, except for a small number of very large international funds sold through one specific broker-channel fund family. Weighted by assets, those exceptions dominate the results. At best, this example illustrates that not all broker-sold funds universally underperform direct-sold funds.

The NERA Review also criticizes Bergstresser et al. (2009) and Del Guercio and Reuter (2014) for using Financial Research Corporation (FRC) data to identify the primary distribution channel for each fund share class. The data are reportedly noisy in the sense that the distribution channel may not always be accurate. "This calls into question whether, to what extent, and in what direction, the noisy data might be affecting the empirical results and conclusions in these academic studies." (p. 8). Fortunately, the bias is not ambiguous: measurement error will shrink parameters toward zero (e.g., Greene 2000). In other words, the true underperformance of broker-sold funds studied by Bergstresser et al. (2009) and Del Guercio and Reuter (2014) is at least as high as reported by those authors.

The NERA Review faults the White House Report for ignoring "extensive discussion in Del Guercio and Reuter (2014) devoted to explaining why investors often rationally choose to use broker-sold funds even if they have higher fees." It goes on to present quotes from Del Guercio and Reuter (2014) as if they are conclusions reached by that article. However, the quoted passages are in turn quotes from other publications, used by Del Guercio and Reuter (2014) to motivate their starting point, namely that funds sold by brokers underperform those sold directly.

The NERA Review quotes Foerster et al. (2014) out of context, thereby presenting it as supportive of their viewpoint where it is in fact the opposite. "It is worth noting that Foerster et al. (2014) state that they `estimate that households gain 2.4% per year, on average, from using an advisor.'" (p. 9). A closer reading of Foerster et al. (2014) reveals that they find that advisers induce their clients to raise their allocation to risky assets by 40 percentage points. The estimated "gain" of 2.4% is solely due to that increased exposure to risk. In the words of Foerster et al. (2014):

> "Including all management fees and loads paid to advisors and mutual funds, we find that the average client pays at least 2.5% per year. Since advisors do not add value through superior investment recommendations (there is no evidence of skill in the distribution of gross alphas) investors' net underperformance equals the fees they pay. Accounting for an equity premium of, say, 6% per year and our earlier finding that advisors raise their clients' allocation to risky assets by 40 percentage points, we estimate that households gain 2.4% per year, on average, from using an advisor."

On a risk-adjusted basis, Foerster et al. (2014) find that there is no gain and that advisers cost their clients at least 2.5% per year.

IV. "The Report fails to quantify the extent to which rollovers from 401(k) to IRA are driven by deliberate consumer choice"

The title of this section seems disconnected from its contents. Here the NERA Review discusses rollovers of funds from 401(k) plans to IRAs. Its first criticism concerns the way in which the White House Report presents cost estimates from a study by the Government Accountability Office (GAO). The White House Report wrote:

> "According to a recent GAO report, certain advisers could earn $6,000 to $9,000 if a plan participant were to purchase an IRA." (p. 15)

The NERA Review points out that these earnings figures are based on an interview with a single industry professional. We agree; the figures are more likely to represent an outlier than the average. That said, the issue does not weaken the White House Report's observation that conflicted payments are particularly relevant when individuals roll over their 401(k) balance into an IRA.

Separately, the NERA Review argues that the White House Report does not properly account for benefits of rolling 401(k) balances over into an IRA, such as access to a larger number of financial instruments (and therefore a greater opportunity to diversify), and the reduction in the burden to some consumers to keep track of small amounts of money in many separate 401(k) plans. Those benefits may indeed exist, but not because of the involvement of an adviser.

V. "While the academic study cited in the Report indicates that investors' attempts to time the market reduces returns, it does not show that these attempts are due to brokers"

The White House Report argued in one paragraph that conflicted payments can exacerbate underperformance due to poor timing in investment decisions. Among others, it cited Friesen and Sapp (2007) who showed that equity fund investor timing decisions reduce fund investor average returns by 1.56% annually. The NERA Review argued that there is no evidence that poor market timing is caused by brokers. However, this is beside the point. The point is that losses were found to be larger among load funds which, in the words of Friesen and Sapp (2007) "are typically purchased with the help of a broker or investment advisor, and our evidence suggests that those investors who are most likely relying on advice from a broker perform especially poorly from a timing standpoint."

The NERA Review further presents a misleading argument: "[…] these results do not prove that the mis-timing is *due* to brokers. Indeed, since the results hold for both index funds and actively managed funds, for high load funds and low load funds, it suggests that the opposite is true." (p.11). The NERA Review omits to mention that mis-timing losses were lowest for no-load funds and increased with fund load.

VI. "Mutual fund fees have dropped substantially since 2000, a fact omitted by the Report"

The academic studies surveyed by the White House Report were based on historical data that, in some cases, range back to the mid-1990s. The final and lengthiest section of the NERA Review documents that mutual fund fees have dropped substantially since 2000, presumably to suggest that excessive fees probably dropped as well. It asserts repeatedly that the decline in fees was overlooked by the White House Report. For example, "The Report fails to mention that mutual fund fees have declined substantially in recent years." (p. 16). This is false. The White House Report explicitly addressed this trend:

> "Christoffersen et al. (2013) conclude that the magnitude of losses from conflict corresponding to the fund with the average load-sharing payment is

> 113 basis points, which is in line with our estimate. However, whether this estimate is a good indicator of conflict-driven underperformance today depends on the relative magnitudes of at least three adjustments that may either push the estimate higher or lower. *First, average loads may be somewhat lower today than the average during the period studied in the paper (1993 to 2009), which would lead us to adjust the underperformance estimate down*. Second, this estimate does not factor in the direct impact of the additional load payment the investor incurs as a result of the recommendation to invest in funds with higher loads, which would lead to an upward adjustment. Third, the authors estimate underperformance for the first year in which the funds are purchased rather than underperformance for every year that the saver holds the fund. […] Taking all three of these adjustments into consideration leads us to conclude that 100 basis points is a plausible estimate around which to center the magnitude of underperformance." (pp. 15-16; emphasis added.)

In sum, the White House Report's headline estimate of 1 percentage point underperformance includes a downward adjustment for lower fund fees.

The White House Report and the NERA Review differ in their characterization of lower fees. The former employs weaker language ("average loads may be somewhat lower today") than the latter ("mutual fund fees have declined substantially in recent years"). The difference may be grounded in emphases on funds favored by brokers (White House Report) and all funds (NERA Review). For example, Table 2 of the NERA Review shows that the average expense ratio of actively managed equity funds declined from 106 basis points in 2000 to 89 basis points in 2013, compared with a decline from 27 to 12 basis points for index equity funds over the same period. The NERA Review highlights that the (absolute) declines were similar for the two groups, but the relative decline for actively managed equity funds (16%) was much more muted than for index equity funds (56%).

4. CONCLUSION

The White House Report reviews academic literature on underperformance of investments due to the involvement of financial advisers with conflicts of interest. The NERA Review criticizes that Report with dozens of arguments, but most fail to convince because they lack relevance, are unfounded, are misleading, or are already addressed in the White House Report. Indeed there is little controversy in the academic literature that conflicts of interest cause harm to investors. The NERA Review may cast doubt in some minds over the precise magnitude of the harm, but it struggles to detract from the White House Report's central message.

The White House Report places some emphasis on its estimate that investor losses amount to roughly $17 billion per year. That is a large sum, but so are aggregate retirement savings in the United States. As illustrated by the White House Report, 1 percentage point lower returns translate into about 17% lower balances after 20 years of accumulation, and another 12% lower balances after 30 years of decumulation. That translation from an annual flow into stock losses after many years of compounding perhaps places the effects from conflicts of interest in perspective.

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IMPLICATIONS OF EXPANDED ANNUITIZATION FOR OLD-AGE WELL-BEING

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SUMMARY

This document presents a framework for evaluating the effects of more widespread annuitization of wealth in retirement. We attempt to quantify the implications for old-age consumption of the annuitization of defined contribution (DC) plan balances and individual retirement account (IRA) assets. Following a model developed and estimated by Michael Hurd in his 1989 *Econometrica* article on "Mortality Risk and Bequests," we solve for optimal consumption paths of unmarried retirees. Next, we counterfactually assume that DC/IRA balances are annuitized. We then re-optimize consumption paths and compare the resulting patterns to the baseline. Data for this exercise come from the 1992-2010 Health and Retirement Study (HRS).

Annuitization removes liquid wealth and replaces it with lifelong-guaranteed income. We therefore hypothesize that annuitization can raise consumption in old age and can reduce old-age poverty. Our results are consistent with that hypothesis and are generally plausible and intuitive. We consider both nominal and real annuities and found larger reductions in old-age poverty from real annuities. Annuitization is predicted to also enhance general satisfaction with retirement and boost lifetime utility. While these results hold for the vast majority of sample members, a small number of individuals who wish to leave a bequest became worse off under full annuitization. Even they, though, could benefit from partial annuitization.

The analysis is based on a theoretical model with fairly restrictive assumptions and that is applicable to unmarried people only. Given this narrow focus, we do not intend for our results to be extrapolated to the U.S. population of retirees. That said, the analysis plausibly demonstrates that certain retirees can benefit from increased annuitization. The current trend away from defined benefit (DB) to DC pensions implies a de-annuitization of retirement resources, which risks additional old-age poverty in the future. Increased annuitization of DC and IRA balances appears to have the potential to mitigate those risks.

CONTENTS

1. INTRODUCTION

The transition from defined benefit (DB) to defined contribution (DC) pension plans has enabled employers to better manage benefit costs and expanded the portability of benefits to workers who change jobs. However, the transition from DB to DC plans has also introduced challenges for workers/retirees and for policymakers.

DB and DC plans offer different types of protection against poverty in old age. DB pensions pay a lifelong annuity to the retired worker and typically also to his or her surviving widow(er). DC plans that are annuitized offer very similar protection. However, most DC balances are not annuitized. The beneficiary typically draws down the balance to cover living expenses. If he or she lives to an advanced age, the funds may be exhausted.[1] For married couples, this longevity risk falls predominantly on the longest-living spouse, assuming that the balance is bequeathed to the surviving spouse upon the death of the beneficiary. By definition, widows have outlived their spouses and are older, on average, than married individuals. Widows are thus particularly vulnerable to exhausting their DC balance and other savings. In other words, the longevity risks that DC plans impose on workers are most likely to manifest itself in increased widowhood poverty.

Longevity risks apply when DC plan participants live longer than they expected, but the opposite scenario also raises issues. Should they (and their spouse) die sooner than expected, the remaining DC account balance is generally bequeathed and not used for consumption during retirement. In other words, retirees who die at a relatively young age under-consumed. Also, from a public policy perspective, retirement resources leak from the system, i.e., no benefits accrued from a portion of the tax subsidies granted to generate retirement savings.

Annuitization of DC balances may be viewed as a longevity insurance mechanism that captures surpluses arising from early mortality and applies them to deficits associated with late mortality. Separately, it shifts post-retirement investment risks from retirees to the insurance companies that provide annuities. The insurance companies may be better equipped to manage investment and longevity risks and enjoy economies of scale that individual retirees/investors do not.

Despite the apparent benefits of annuitization, most retirees do not currently annuitize their DC plan balance (e.g., Brien and Panis, 2011). The literature offers a number of explanations—high prices due to adverse selection, existing annuitization through Social Security, a desire to meet future medical or other large expenses, a desire to leave a bequest, the risk of outliving the insurance company, et cetera (e.g., Brown 2008). Several recent papers have attempted to design approaches to make annuitization more palatable to retirees (e.g., Beshears et al., 2014). The current document does not address annuity market issues, instead focusing on only the potential benefits of increased annuitization.

[1] Unexpectedly low rates of return can have similar effects, but this report does not focus on investment risks.

Based on a model in which utility during retirement is derived from consumption and from leaving a bequest, we use data from the Health and Retirement Study (HRS) to simulate the baseline optimal consumption and asset decumulation paths of recent retirees. Those paths depend on DC plan balances, other sources of initial wealth, lifelong-guaranteed income from Social Security and private DB pensions, and other factors. We then counterfactually assume that retirees annuitize the balances of their DC plans and individual retirement accounts (IRAs)—thus lowering their bequeathable wealth and increasing their annuity income—and re-simulate consumption and wealth paths. Finally, we compute old-age poverty, retirement satisfaction, and other aggregate metrics, and compare those outcomes for the baseline and annuitization scenarios to demonstrate the likely effects of increased annuitization.

Even though our analysis is grounded in empirical data, its findings are not readily extrapolated to the entire U.S. population. The economic model applies to unmarried retirees only, so that most of the analysis excludes married couples and delays inclusion of HRS respondents until they become widowed.[2] The analysis sample therefore represents only a subset of retirees and the counterfactual annuitization of DC and IRA balances of married couples is assumed to take place when one spouse becomes deceased, rather than around the time of retirement. Instead, our objective is to illustrate and demonstrate the benefits that retirees may experience from greater annuitization. Also, we abstract from re-marriage, re-entering the workforce, moving in with adult children, and other behaviors that may relate to the economic well-being of retirees.

The remainder of this report is organized as follows. Section 2 summarizes related prior literature. Section 3 discusses our utility model and estimates. Section 4 presents the empirical data. Section 5 discusses results from the simulations, considers an alternative annuitization, and explores sensitivity issues. Section 6 concludes.

[2] Few authors have attempted to empirically model annuitization by couples. Among the exceptions is Brown and Poterba (2000).

2. LITERATURE

Theoretical Considerations of Annuitization

In his seminal paper, Yaari (1965) demonstrated that under a certain set of stylized conditions, an individual seeking to maximize utility in retirement would allocate 100% of his or her assets into annuities. Paraphrasing Davidoff, Brown, and Diamond (2005), a comparison of two securities can provide intuition: Consider a one-year bank certificate of deposit paying a certain interest rate and a security that—like an annuity—pays a higher interest rate at the end of the year conditional on living and nothing if you die before year-end. If you attach no value to wealth after death, then the second alternative is a dominant asset.

The assumptions used in Yaari (1965) were relaxed in subsequent papers, including Bernheim (1987) and Davidoff, Brown, and Diamond (2005). Despite these findings, most retirees do not currently annuitize their DC plan balance. A large portion of the annuities literature following Yaari (1965) have attempted to offer explanations, including high prices due to adverse selection, existing annuitization through Social Security, a desire to meet future medical or other large expenses, a desire to leave a bequest, the risk of outliving the insurance company, et cetera (e.g., Brown 2008). The current paper does not attempt to contribute to the conversation of why individuals are not annuitizing their wealth. Instead, it attempts to add to the discussion on how a policy of promoting annuitization would affect individual retirement outcomes.

Conversion of Lump Sums to Annuities

In order to simulate retirement outcomes under increased annuitization, it is necessary to make certain assumptions about how DC balances would translate to annuity payments. These assumptions are similar to ones that have been made with respect to valuing single-premium life annuities at retirement. Perhaps the most frequently encountered framework for doing so is the Expected Present Discounted Value (EPDV) framework, otherwise known as the “actuarially fair” price of an annuity. This framework is used in the “money’s worth” ratio popularized in Mitchell et al. (1999) and other subsequent papers in the literature. The EPDV valuation framework depends on assumptions regarding the payout amounts available in the private market, mortality rates, and interest rates. A discussion regarding the prevalence of these assumptions in the annuities literature follows.

With respect to interest rate assumptions, the primary distinction lies in the choice of a flat term structure reflecting a steady-state interest rate, versus a time-varying term structure based on publicly-available yield curves. Among papers that have made the assumption of a flat term structure, there are differences with respect to the assumed interest rate. Brown (2003) assumes a 3% real interest rate with a 3 percent inflation rate. Love et al. (2007) assume an interest rate of 2.5% with a 2% inflation rate. Based on the Social Security Administration’s estimate of the steady state interest rate in 2004, Gustman and Steinmeier (2009) use a real interest rate of 3% and a 2.8% inflation rate. On the other hand, papers beginning from Warshawksy (1988) and Mitchell et al. (1999) have calculated the EPDV framework

by testing results against yield curves ranging from Treasury risk-free bonds to corporate bonds at the low end of investment grade.

Mortality assumptions also vary in the annuity valuation literature. The first and most important distinction is the difference between the mortality of the general population and the mortality of annuity purchasers. Because annuity purchasers on average have lower mortality rates (Brown 2008), there will be systematic differences between the two mortality tables. For the purposes of this study, which focuses on individuals who have not annuitized their DC balances, the general population mortality tables may be more appropriate. Another assumption with regards to the selection of mortality tables is the differentiation between period and cohort tables. While the former presents mortality probabilities in a given year in time, the latter constructs mortality probabilities for population cohorts by birth year. The latter is also more appropriate for valuing annuities, given the fact that cohort tables are able to account for improvements in mortality rates over time (Brown et al., 2001). The Social Security Administration (SSA) provides recent sets of mortality period and cohort tables, which were published in 2012. However, these tables do not provide mortality probabilities by demographic group, a potentially important source of variation which is addressed by Brown, Liebman and Pollet (2002) and Brown (2003), who create their own mortality tables based on the National Longitudinal Mortality Study (NLMS). Relatedly, Gong and Webb (2008) found that a significant minority would perceive themselves as suffering a net loss from mandatory annuitization because they expected to die sooner than lifetables suggested.

Annuities can similarly be valued using an expected utility framework, as seen in Mitchell et al. (1999), Brown (2003), and others. Under this framework, uncertainty and risk aversion is incorporated into the calculation; a dollar under risk-free conditions is worth more to an individual than an expected dollar with any level of uncertainty. Given an assumption about the nature of the risk aversion, several authors have computed an “Annuity Equivalent Wealth”, a measure of the amount that an individual would have to be compensated if access to annuity markets were closed.

In actuality, individuals are seldom able to purchase actuarially fair annuities in the annuities market given the implicit tradeoff of longevity risk insurance, the heterogeneous nature of the population, and the administrative costs associated with annuitization. Brown, Mitchell, and Poterba (2002) use data from historical *A.M. Best* publications and data published in *Annuity Shopper* to calculate the money’s worth ratio, a ratio of the actuarially fair price of annuities to the empirical market premium. They find that the money’s worth ratio lies between 80 and 90 cents per premium dollar for randomly selected individuals in the US population, and between 90 and 100 cents for the average annuitant. The results found in more up-to-date *Annuity Shopper* data used in Poterba et al (2011) and Brien and Panis (2011) roughly corroborate these findings.

Retirement Outcomes of DC vs. DB plans

While the immediate goal of this study is to simulate the consequences of annuitizing DC and IRA balances, the broader context is an inquiry into retirement outcome differences between DC and DB retirement plans. One of the primary differences between the two plan types is the discretionary nature of the decumulation process of DC plans, as opposed to the annuity-style payouts of DB plans. Some DB plans

also offer the option of a lump sum distribution. Hurd and Panis (2006) find that in such plans, the rate of cash-outs is highest among individuals with low-value plans and low-wealth holdings.

Using the HRS, Panis (2004) demonstrates that retirees with lifelong-guaranteed income (from a DB plan or privately-purchased annuities, but not Social Security) generally experienced higher satisfaction than their counterparts who did not have such income. The disparity in satisfaction increases over the duration of retirement, suggesting that the anxiety over longevity risk becomes more relevant to a retiree during the later years of retirement.

In terms of plan generosity, Poterba et al. (2007) found that private sector DB plans tend to yield lower average retirement wealth accumulation than private DC plans, although they are less likely to generate very low retirement wealth outcomes. The results additionally suggest that although private DC plans also tend to generate higher retirement wealth outcomes than public sector DB plans, the outcomes are relatively volatile with respect to historical equity returns, which may make the DB plan the preferred choice for risk-averse individuals. In a similar vein, Butrica et al. (2009) use a microsimulation model to estimate how freezing DB pension plans and replacing them with DC plans would affect retirement outcomes. They determine that of the individuals who had their DB plans replaced by a DC plan, 26% of the population analyzed (last-wave baby boomers) would have lower incomes at age 67, compared with 11% ending up with higher incomes.

3. MODEL AND ESTIMATES

Theory

Following Hurd (1989), we assume that retirees maximize their lifetime utility Ω:

$$\Omega = \int \mathrm{U}(c_t)e^{-\rho t}a_t dt + \int \mathrm{V}(w_t)\mathrm{e}^{-\rho \mathrm{t}}m_t dt,$$

where the first term represents utility from consumption and the second term utility from the knowledge of leaving a bequest. Utility from consumption at time t is $\mathrm{U}(c_t)$, discounted by $e^{-\rho t}$ for time preference ρ, discounted by the probability of surviving to time t, a_t, and summed over time from the current time (t=0) through the highest possible age (t=N). Utility from the knowledge of leaving a bequest at time t is $\mathrm{V}(w_t)$, discounted by $e^{-\rho t}$ for time preference ρ, weighted by the probability of dying at time t, m_t, and summed over time from the current time (t=0) through the highest possible age (t=N).

Retirees maximize this lifetime utility subject to the budget constraint that wealth cannot become negative:

$$w_t = w_0 e^{rt} + \int_{s=0}^{t}(A_s - c_s)e^{(t-s)r}ds \geq 0,$$

where w_0 is initial wealth at t=0, A_s is lifelong-guaranteed income at time s, and r is the expected real interest rate.

The model applies to only unmarried retirees, not to couples and not to working individuals. The only source of uncertainty is the date of death. The probability of mortality is assumed to be exogenous and varies by only age and sex. The maximum age to which people can live is known and fixed. Lifelong-guaranteed income may stem from Social Security, DB pensions, or privately purchased annuities. Future values of lifelong-guaranteed income flows are equal to their initial values, adjusted for expected inflation. Retirees maximize their remaining lifetime utility Ω by optimizing over their consumption path $\{c_t\}$. Given that consumption path, their wealth path $\{w_t\}$ is known.

Utility from consumption is assumed to exhibit constant relative risk aversion. In part to aid in the identification of the bequest motive, we assume that individuals without living children do not have a bequest motive ($V(w_t) = 0$); others enjoy utility from bequests that is linear in wealth at the time of dying. For retirees with children, lifetime utility is therefore:

$$\Omega = \int \frac{c_t^{1-\gamma}}{1-\gamma} e^{-\rho t}a_t dt + \int \alpha w_t e^{-\rho t}m_t dt,$$

where γ and α represents relative risk aversion and strength of the bequest motive, respectively. For our purposes and throughout this document, it makes no difference whether the person has one or more living children; any non-zero number of children imply a bequest motive. Key behavioral model parameters are time preference (ρ), risk aversion (γ), and bequest motive (α).

Hurd (1989) derived the solution to the utility maximization problem. Without a bequest motive, individuals will choose their consumption path such that they fully exhaust their wealth at the end of possible life. With a bequest motive, they may consume less and derive utility from the knowledge of leaving a bequest. Their consumption path will be flatter and it will take longer to exhaust their wealth than without a bequest motive. Depending on the initial conditions, wealth may increase during the early retirement years. Given sufficiently high initial wealth, the bequest motive may inhibit consumption to the point where wealth will never be exhausted. Under that scenario, the budget constraint is never binding and at any time t the marginal utility from consuming an extra dollar ($\partial U(c_t)/c_t = c_t^{-\gamma}$) is equal to the marginal utility from saving that dollar and eventually bequeathing it:

$$c_t^{-\gamma} a_t = \alpha \int_t^N e^{(r-\rho)(s-t)} m_s ds$$

This relationship readily solves for consumption path $\{c_t\}$ and thus wealth path $\{w_t\}$. If initial wealth is so high that terminal wealth w_N is positive, the individual is a "high-wealth" individual. However, most individuals, even those with substantial financial resources, will at some time exhaust their wealth if they remain alive to the highest possible age N. Denote the time at which their wealth reaches zero by T. After time T, wealth is zero and consumption is equal to annuity income, $c_t = A_t$. Before time T, the budget constraint is binding and the first order conditions imply:

$$c_t^{-\gamma} a_t = c_{t+h}^{-\gamma} a_{t+h} e^{h(r-\rho)} + \alpha \int_t^{t+h} e^{(s-t)(r-\rho)} m_s ds,$$

where h denotes any time interval such that wealth is not exhausted at time $t+h$. This relationship pins down the intertemporal pattern of consumption. The combination of this intertemporal pattern and the fact that consumption drops to annuity income when wealth is depleted, $c_T = A_T$, identifies the entire consumption path. We find T numerically such that the optimal consumption path implies a wealth path that is exhausted precisely at time T (which need not be integer-valued).[3] Survey respondents whose consumption path resolves this way are "low-wealth" cases.

Some individuals are neither high-wealth nor low-wealth. Their initial wealth does not support the high-wealth consumption pattern, while their wealth is not exhausted for any $T<N$. The consumption path of these "medium-wealth" individuals is found numerically by choosing initial consumption such that the path, dictated by the intertemporal pattern specific above, implies wealth depletion at time T.

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[3] In practice, we set the highest possible age at 110 years. Suppose a female retiree becomes widowed and enters our model at age 74, so that the optimization period spans 36 years (N=36). We numerically find the time at which wealth is exhausted, T, by looping over integers from 0 to 36, each time finding the optimal consumption path and the resulting wealth path and checking whether wealth at time T is exhausted. If it was not exhausted at, say, T=16, but exhausted at T=17, we numerically search between 16 and 17 to determine T and the consumption path that exhausts wealth at precisely T.

In sum, individuals with children may be low-wealth, medium-wealth, or high-wealth. Individual without children will aim to consume their entire wealth and may be low-wealth or medium-wealth only. Their consumption path must satisfy the intertemporal pattern shown above, but without the term that involves α.

Illustrative Consumption Paths

We now illustrate some typical consumption paths. Figure 1 shows a low-wealth case of someone with $12,000 in annual Social Security benefits and $10,000 in DB pension benefits. This retiree has children and thus a bequest motive. Throughout, we assume that Social Security income is adjusted for inflation and that pension income is constant in nominal dollars.[4] The top line assumes initial wealth of $120,000. At first the initial wealth permits the retiree to consume more than her Social Security and pension income. Consumption increases until age 79 and then decreases. This hump-shaped pattern is the result of a trade-off between the interest rate (net of time preference) and mortality risks: so long as the interest rate exceeds time preference by more than the mortality hazard (risk of dying conditional on being alive), consumption increases.[5] Since mortality rates increase with age, eventually $r - \rho < m_t/a_t$, and thus eventually consumption will decline. Wealth is exhausted by age 92, after which consumption equals inflation-adjusted income.

The bottom line in Figure 1 represents the same scenario, but without any initial wealth. In our stylized model, the fact that this retiree allowed her wealth to be depleted implies that her bequest motive is too weak to save out of Social Security and pension income. Consumption is therefore equal to income once wealth is exhausted. It decreases over time because inflation erodes the person's pension income.

[4] All figures and tables in this document express monetary values in 2010 dollars. Following Hurd (1989) and Hurd and Panis (2004) we adopt an expected interest rate of 3% and expected inflation of 3.8%.

[5] If the rate of time preference is greater than the interest rate, as is often assumed, consumption will monotonically decrease with age. Most simulations in this report are based on a near-zero time preference from non-linear two-stage least squares estimates of Hurd (1989)—see Table 1 below. While that magnitude may seem implausible, only the difference between interest rate and time preference is identified in the model. Key for the hump-shaped consumption pattern in Figure 1 is that the rate of time preference is estimated to be smaller than the interest rate, and that their difference exceeds the conditional mortality risk at some ages.

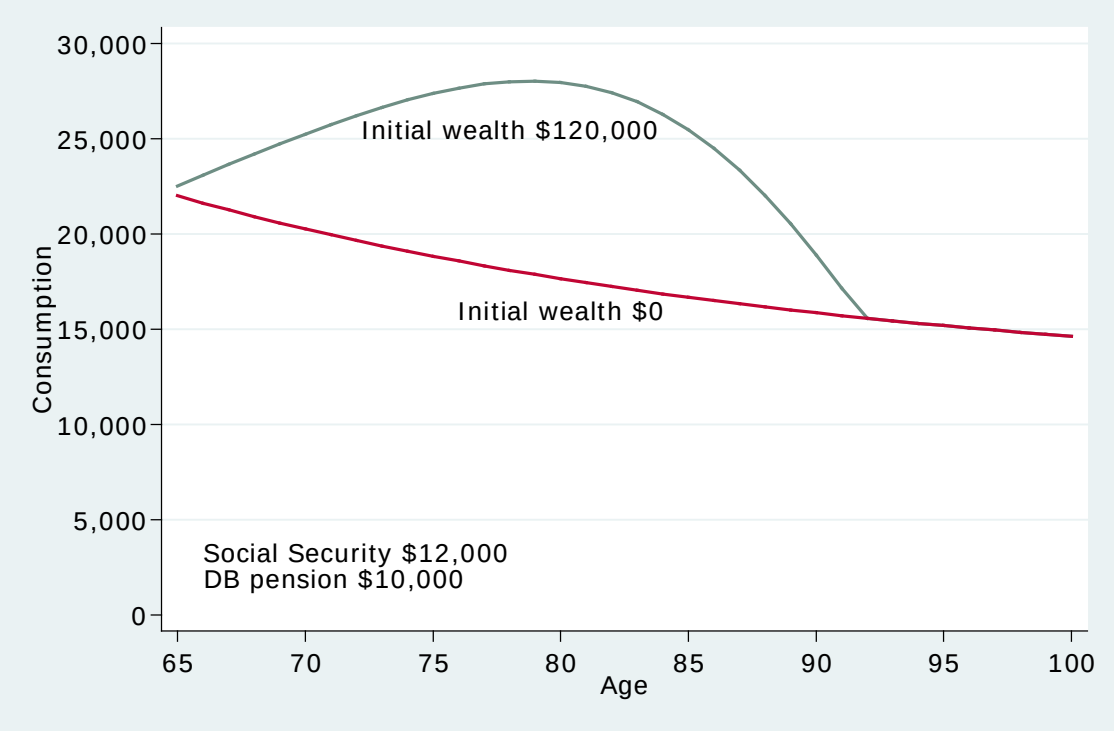

Figure 1. Illustrative Consumption Paths for Low-Wealth Individuals with and without Initial Wealth

Figure 1 and similar figures below depict consumption streams through age 100 to illustrate the level of consumption for someone who lives through that age. For clarity, there is no assumption that people live through age 100, or 110, or any other age; instead, sample members are assumed to be subject to prevailing mortality rates.

Figure 2 also shows two low-wealth scenarios, differing by whether the retiree had living children and thus a bequest motive. As discussed at Table 1 below, the bequest motive in our model is estimated to be weak. In order to visually show the effects of a bequest motive, we therefore select an individual with substantial wealth and income. (The scenarios are “low-wealth” only in the technical sense that wealth will be exhausted prior to age 110.) This individual has initial wealth of $700,000, Social Security (or other inflation-protected) income of $36,000, and DB pension income of $360,000. The consumption path with children starts lower and is flatter than that without children, signaling a desire to leave a bequest. By age 90, his wealth is depleted and consumption at higher ages becomes equal to income from Social Security and DB pensions. Without children, wealth depletes about three years earlier. It may seem counter-intuitive that a person with children would ever consume more than the same person without children, but the consumption trajectories necessarily cross as the person with children attempts to postpone the moment at which savings are exhausted.

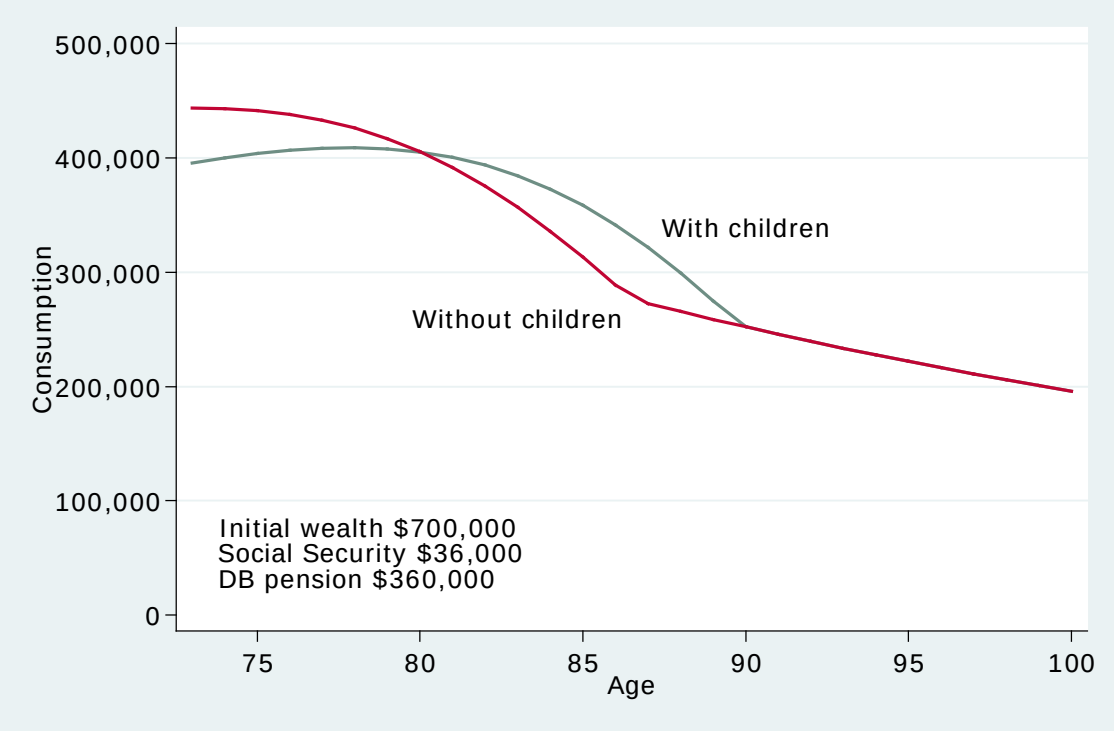

Figure 2. Illustrative Consumption Path for Low-Wealth Individuals with and without Children

The curve labeled “With children” in Figure 3 shows the consumption path of a high-wealth retired widow with children. Her initial wealth is $4 million, her Social Security benefits $30,000, and her DB pension benefits $100,000 per year. This person is “high-wealth” because her wealth will never become depleted. The consumption profile is dictated by the trade-off between utility from consumption and from leaving a bequest. So long as initial wealth is sufficiently high, the consumption path is not affected by initial wealth. For example, if initial wealth were higher than $4 million, the consumption path would not change; any additional wealth would be bequeathed. However, if this person did not have a bequest motive, she would attempt to spend down her wealth. Consumption would initially be substantially higher than with children. Wealth would be exhausted by age 98 and consumption after that age would be equal to Social Security and DB pension income. Since wealth becomes depleted at some time, this person is now considered a “low-wealth” case, even though initial wealth and income are the same as for the high-wealth case with children. The distinction between low-wealth and high-wealth is thus based on the algorithm that solves for optimal consumption path, not on any threshold values of wealth or income.

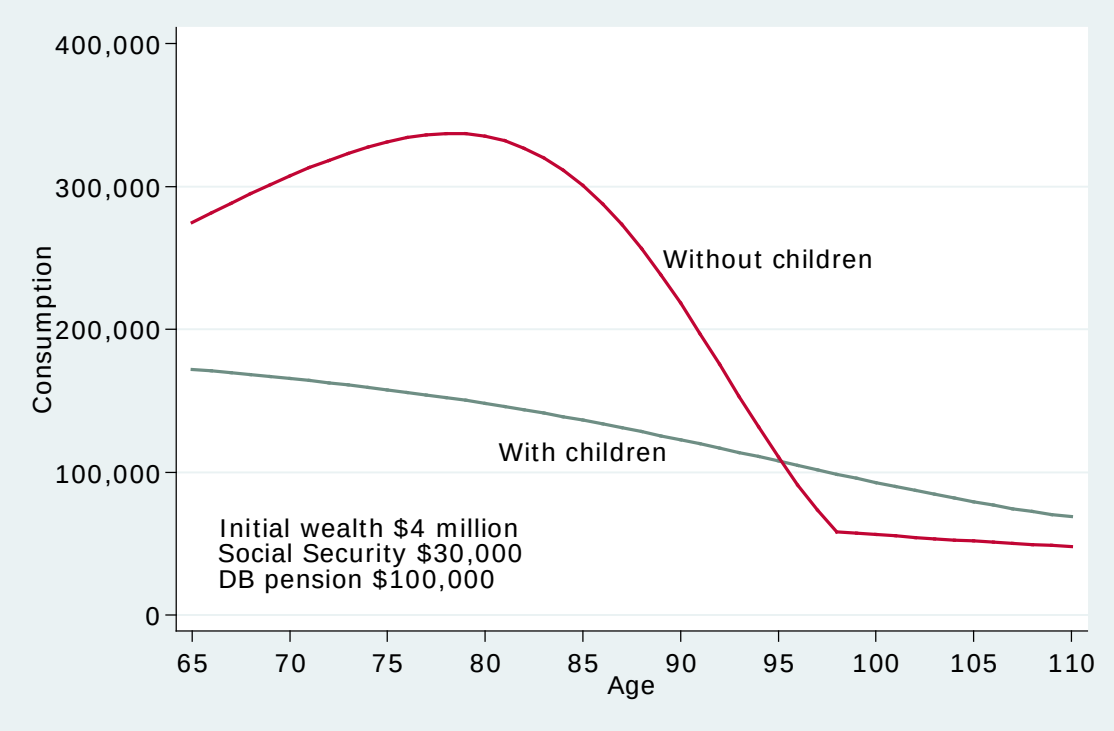

Figure 3. Illustrative Consumption Path for High-Wealth Individual with Children and Low-Wealth Individual without Children

Model Estimates

The model discussed above was developed by Hurd (1989) and also used by Hurd and Panis (2004). Instead of estimating the model parameters, we adopt prior estimates. Hurd (1989) produced non-linear least squares (NLLS) and non-linear two-stage least squares (NL2SLS) estimates based on the 1969-1979 Retirement History Survey (RHS); Hurd and Panis (2004) applied NL2SLS to the 1992-2000 Health and Retirement Study (HRS).

Table 1 presents prior model parameter estimates. The risk aversion and time preference parameters estimated by Hurd (1989) are strongly significant, but the bequest motive parameter is not. Hurd (1989) argued that the bequest motive estimate implies that the desire to leave bequests is also economically weak. Indeed, simulations of optimal consumption paths with and without children show only small adjustments to children, except for wealthy individuals (such as those depicted in Figure 2 and Figure 3). For our main analysis, we adopted the NL2SLS estimates of Hurd (1989), and separately explore the sensitivity of our results to the model parameter estimates.

Table 1. Parameter Estimates

	Hurd (1989)		Hurd and Panis (2004)
	NLLS	NL2SLS	NL2SLS*
Risk aversion γ	0.729	1.12	1.4614
	(0.091)	(0.074)	
Time preference ρ	0.0501	-0.011	-0.006298
	(0.004)	(0.002)	
Bequest motive α	5.0×10^{-7}	6.0×10^{-7}	1.7253×10^{-7}
	(1×10^{-4})	(32×10^{-7})	

Standard errors in parentheses.

* Hurd and Panis (2004) did not estimate standard errors.

As indicated above, the model does not support independent estimates of the interest rate and the time rate of preference; only their difference is identified. The estimates in Table 1 assumed an interest rate of 3% and two out of three optimization algorithms found a slightly negative time preference. Our belief is that the time rate of preference is generally positive, which would be consistent with a higher interest rate. In the context of this model, the interest rate is an expected rate of return; it is possible that survey respondents expected a much higher rate of return than 3%.

4. DATA

We simulate optimal consumption paths for respondents in the 1992-2010 HRS.[6] The HRS is a biennial survey of Americans over the age of 50, and their spouses. It collects extensive information about financial resources, health, and other topics.

Given the focus of the theoretical model on unmarried retired individuals, we identify HRS respondents when they (1) are unmarried, (2) report being completely retired, (3) receive Old-Age, Survivors, or Disability Insurance (OASDI) benefits, and (4) are at least 60 years old. We include them in the analysis sample as of the first HRS wave in which they meet the above criteria. However, (5) if in a future wave they report receiving benefits from a DB pension or a privately purchased annuity, we include them as of the first wave in which they receive such benefits. Finally, given our focus on the effects of annuitizing a DC plan or IRA balance, (6) we restrict the sample to individuals with a DC plan or IRA.

While the HRS is a longitudinal survey, our analysis sample includes only a single wave for each respondent. That wave provides the initial conditions from which future consumption paths are simulated. The sample includes individuals with a range of ages. For example, if someone becomes widowed at age 78, he or she is included as of the first HRS wave after becoming widowed and the simulations of optimal consumption paths run from that age to age 110. This has implications for the interpretation of our results, as discussed in the next section.

The total sample consists of 1,912 individuals; 1,358 women (71%) and 554 men (29%). The skewed sex ratio mostly reflects the fact that wives tend to live longer than husbands; the sample included 1,006 widows and only 333 widowers. Most (88%) had one or more living children and are thus assumed to derive utility from leaving bequests.

Table 2 shows the age distribution of respondents in our analysis sample. Approximately one-half of respondents enter the sample between age 65 and 74; some enter at a younger age, and as much as 6% did not become eligible until age 85 or older.

[6] We thank Alan Gustman, Thomas Steinmeier, and Nahid Tabatabai (2014) for making cleaned pension variables available and Sandy Chien, Nancy Campbell, Orla Hayden, Michael Hurd, Regan Main, Josh Mallett, Craig Martin, Erik Meijer,Michael Moldoff, Susann Rohwedder, and Patricia St.Clair (2014) for preparing the RAND HRS file.

Table 2. Age Distribution of the Analysis Sample

Age	Freq.	Percent
60-64	354	18.5%
65-69	469	24.5%
70-74	497	26.0%
75-79	268	14.0%
80-84	213	11.1%
85+	111	5.8%
Total	1,912	100.0%

Source: HRS analysis sample.

Table 3 presents summary statistics of initial wealth and income from Social Security and DB pensions, converted into 2010 dollars. By design, all sample members own a DC plan or IRA and all are receiving Social Security benefits. The median DC/IRA balance is $46,873 and the median value of other wealth is $249,073.[7] These figures imply that our sample is relatively wealthy. For example, the median wealth (DC/IRA balances plus other wealth) is roughly seven times as high as the median wealth of individuals without a DC plan or IRA balance who meet all other criteria for inclusion.

Table 3. Summary Statistics of Initial Wealth and Income

	Min	Median	Mean	Std. dev.	Max
DC/IRA balances	24	46,873	116,135	243,872	4,950,661
Other wealth	0	249,073	474,785	965,200	23,257,143
OASDI benefits	12	13,660	13,556	5,694	48,000
DB pensions, annuities	0	5,091	16,377	132,430	5,401,560

Source: HRS analysis sample. All figures converted to 2010 dollars.

Most respondents in the analysis sample (69%) are receiving benefits from a DB pension or private annuity. The median benefit is $5,091 per year over the entire sample and $10,947 for those with a DB plan or private annuity (not shown).

[7] Other wealth includes the value of financial assets, real estate, businesses, and vehicles, net of mortgages and other debt.

5. ANALYSIS AND DISCUSSION

This section discusses the results of simulating optimal consumption paths based on actual ("baseline") wealth and income and on an alternative scenario in which all DC and IRA balances are annuitized when the respondent enters the analysis sample. The annuitization is conducted with actuarially fair, sex-specific annuity prices, and the annuity is assumed to be constant in nominal dollars, unless specified otherwise.

Conversion of DC/IRA Balances into Nominal Annuities

In the baseline scenario, DC/IRA balances are combined with other forms of wealth and treated interchangeably.[8] Figure 4 illustrates typical consumption paths under the baseline and annuitization scenarios. This retiree is female, is 65 years old, and has children. She starts with a DC/IRA balance of $250,000, other wealth of $50,000, Social Security benefits of $9,000 per year, and no DB pension. Without annuitization, her consumption rises until age 78 and then drops off; after her wealth is exhausted at age 95, her consumption equals her Social Security benefits. See the curve labeled "No annuitization" in Figure 4.

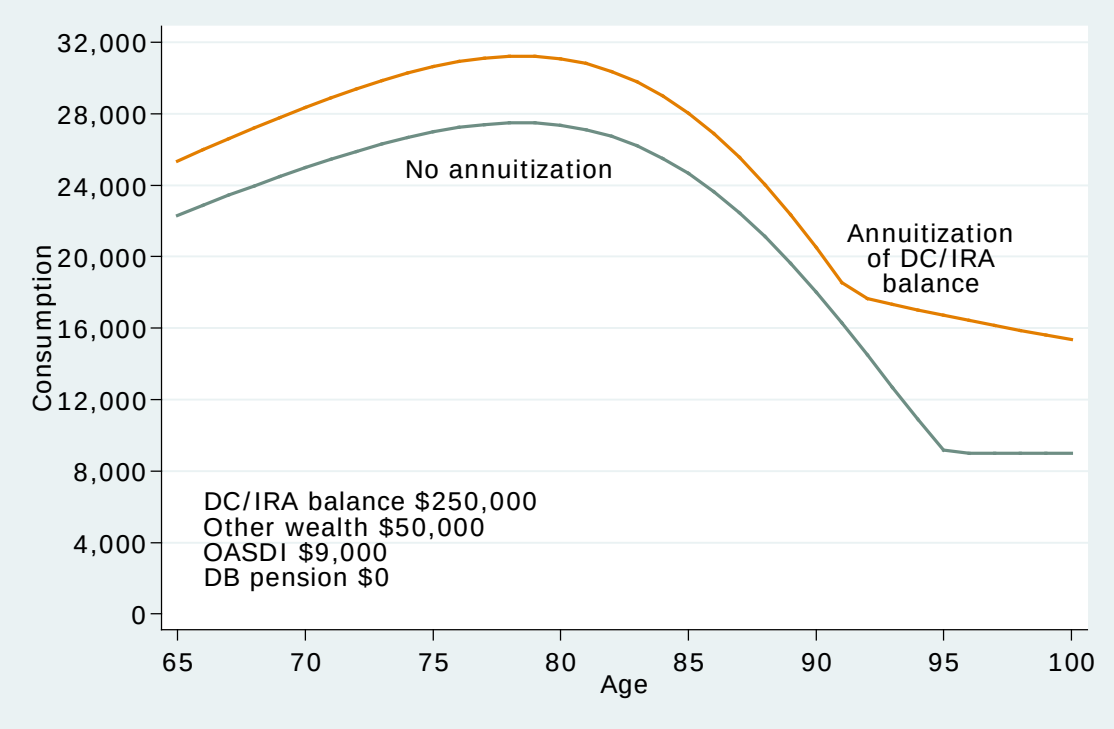

Figure 4. Illustrative Consumption Paths with and without Annuitization of DC/IRA Balances

[8] We ignore taxation of DC/IRA withdrawals. This simplification may not be realistic for retirees with substantial financial resources, but the practical implications for retirees at risk for old-age poverty are likely minor. The practical implications are even smaller when comparing consumption with and without annuitization, since we also ignore taxation of annuity income generated by converted DC/IRA balances.

At actuarially fair prices, sex-specific mortality rates, and a nominal interest rate of 6.8% (real interest plus inflation) the retiree can convert her DC/IRA balance of $250,000 into a nominal annuity of about $24,100, giving her a total income of $33,100 at age 65 (and less in future years because of inflation). The model predicts that she will initially save some of that income. Even so, the annuitization sustains a consumption that is higher at all ages than without annuitization. Her wealth is exhausted at age 92, after which her consumption equals the sum of Social Security benefits and the inflation-adjusted annuity. Bequeathable wealth is lower and depletes sooner with annuitization than without, but her subsequent income from Social Security plus annuitized DC/IRA balances is substantially higher than consumption without annuitization. Whether her higher consumption translates into higher utility depends on the strength of her bequest motive.

Figure 5 shows another illustration of consumption paths without and with annuitization. This retiree is again female, is 65 years old, and has children. She has a DC/IRA balance of $100,000, has no other wealth, annually receives $10,000 from Social Security, and has a nominal $4,000 annual DB pension. Without annuitization, her consumption rises through age 78 and subsequently falls until her wealth is depleted at age 92. With annuitization of her DC/IRA balance (i.e., of her entire wealth holdings), wealth is immediately exhausted and consumption is always equal to her combined income from Social Security, DB pension, and annuitized DC plan or IRA. That income supports consumption that is at first higher, then lower, and after age 88 higher again than under the baseline scenario.

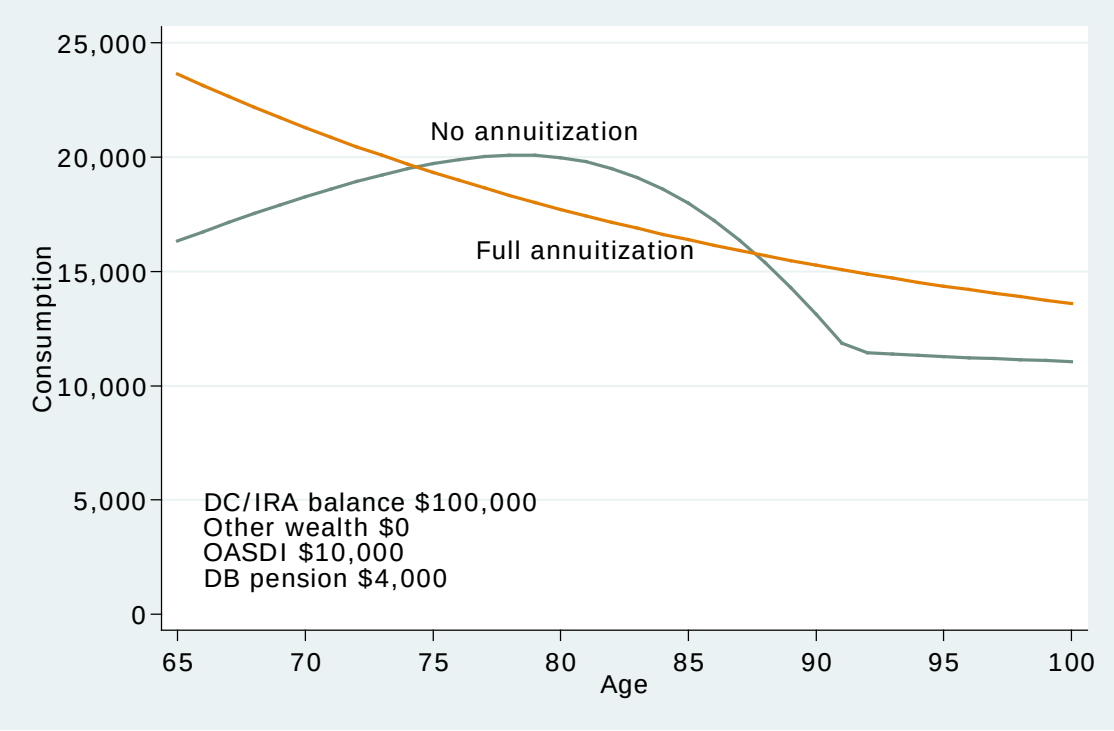

Figure 5. Illustrative Consumption Paths with and without Full Annuitization

Implications of Annuitization for Old-Age Poverty

In our context the purpose of purchasing an annuity is to be assured of higher income in old age. We now turn to the implications for old-age poverty. According to the Census Bureau, the poverty threshold for a single individual age 65 or older was $10,458 in 2010.[9]

Consider for example the retiree depicted in Figure 4. Her baseline consumption exceeds the poverty threshold until age 94, after which she is projected to live in poverty. In contrast, her consumption after annuitization is always above the poverty line. We determine poverty status for all sample members and all ages, and summarize by age. Figure 6 shows the resulting age-specific poverty rates among women in our analysis sample. Until approximately age 90, poverty rates with and without annuitization are very close. However, they diverge after age 90, when bequeathable wealth is increasingly depleted and annuity income may lift retirees above the poverty line. As expected, poverty rates among the oldest-old are projected to be lower when DC/IRA balances are annuitized. Figure 7 confirms this pattern for males in the sample. (Men's poverty rates tend to be lower than women's because of greater retirement resources. For example, upon entry into the sample, their average DC/IRA balance was 54% higher than for women, other wealth was 14% higher, Social Security benefits were 11% higher, and DB pension income was 16% higher than for women.)

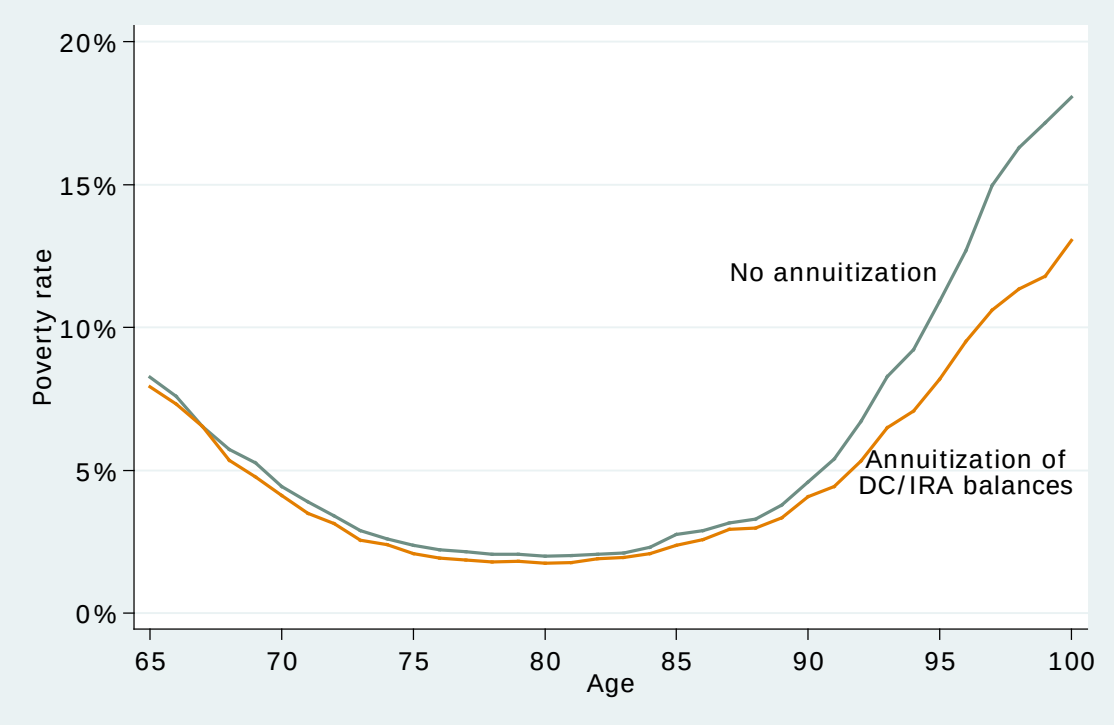

Figure 6. Projected Poverty Rates among Women in the Analysis Sample, by Age

[9] http://www.census.gov/hhes/www/poverty/data/threshld/index.html.

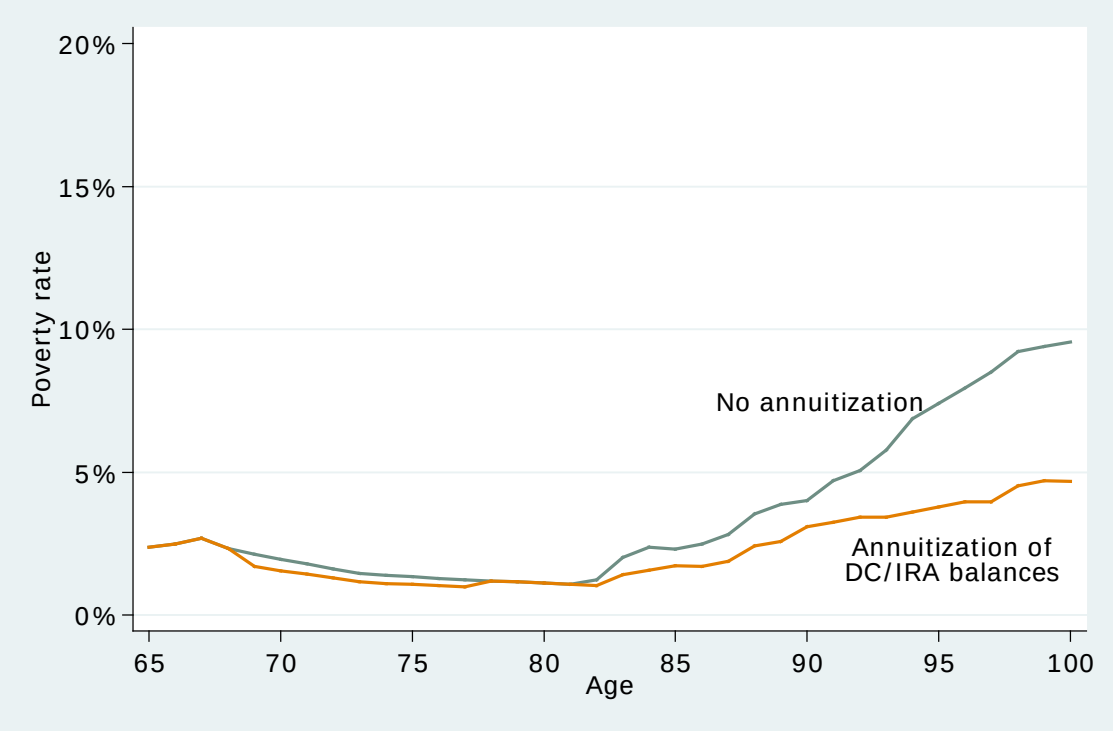

Figure 7. Projected Poverty Rates among Men in the Analysis Sample, by Age

As expected, Figure 6 and Figure 7 show that poverty rates rise after about age 80. However, they also show elevated poverty levels among younger retirees. This is in part a consequence of the unusual sample selection, which excludes married couples. Among sample members who entered before age 70, 39% were separated or divorced, compared with 9% among those who were at least age 70 at the time of sample entry. Separated and divorced individuals tend to have lower retirement resources than widowed or never married individuals. We will return to this issue below with an additional explanation.

Age at Which Savings Are Depleted

Next we consider the age at which bequeathable wealth is exhausted (Figure 8). Without annuitization, initial bequeathable wealth is higher than with annuitization and wealth exhaustion occurs later. On average, wealth is depleted 1.6 years sooner when DC/IRA balances are annuitized.

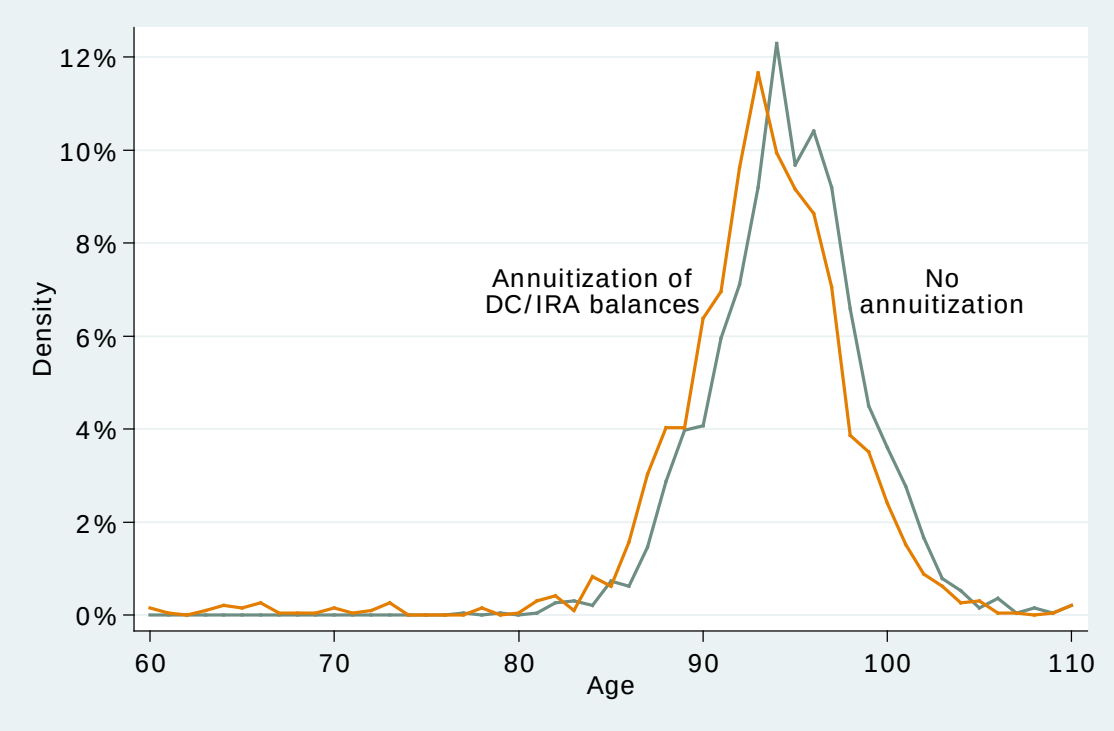

Figure 8. Age at Which Wealth Is Projected to Be Exhausted under Baseline and Annuitization Scenarios

It is, of course, not surprising that wealth is exhausted sooner under annuitization, since some of it was used to purchase an annuity. In exchange, income at advanced ages is higher than without annuitization.

Retirement Satisfaction

The third outcome measure that we consider is retirement satisfaction. The HRS poses a direct question to retired respondents: "All in all, would you say that your retirement has turned out to be very satisfying, moderately satisfying, or not at all satisfying?" Panis (2004) found that the greater the share of one's retirement resources from lifelong-guaranteed income (such as pensions and annuities, but not Social Security), the more satisfied a respondent tended to be. He also found that retirees without lifelong-guaranteed income became less satisfied over time, possibly because they saw their savings dwindle. In contrast, those with a pension or annuity maintained their satisfaction over the duration of their retirement.

Based on the 1992-2010 HRS, we estimated a model to explain retirement satisfaction, applied the coefficient estimates to project satisfaction in our simulated population, and compared projected satisfaction levels with and without annuitization.

The Appendix shows the results of estimation. The model is an ordered probit, estimated on completely retired HRS respondents who are not married. Overall, 9% responded being not at all satisfied, 41% moderately satisfied, and 50% very satisfied. Retirement satisfaction generally increases with both income (from Social Security, DB pensions, and annuities) and wealth (including DC/IRA balances, if

any). Annuitization increases one's income flow but decreases wealth and, a priori, the net effect is ambiguous. However, annuitization also boosts the share of retirement resources in the form of annuities, which itself tends to enhance satisfaction. Finally, annuitization may help satisfaction over time: while respondents without income from pensions or annuities generally reported a decline in satisfaction over time, those with pension of annuity income experienced improving satisfaction with retirement duration.

Figure 9 depicts the predicted distribution of retirement satisfaction in the analysis sample, by age from age 65 to 100. The left and right panels refer to predicted satisfaction under the baseline and annuitization scenarios, respectively. The panels differ in that satisfaction under annuitization tends to be somewhat greater. Consider the fraction predicted to be very satisfied relative to the dashed line: unlike under the baseline scenario, more than 60% of respondents are predicted to be very satisfied under annuitization when they are octogenarians.

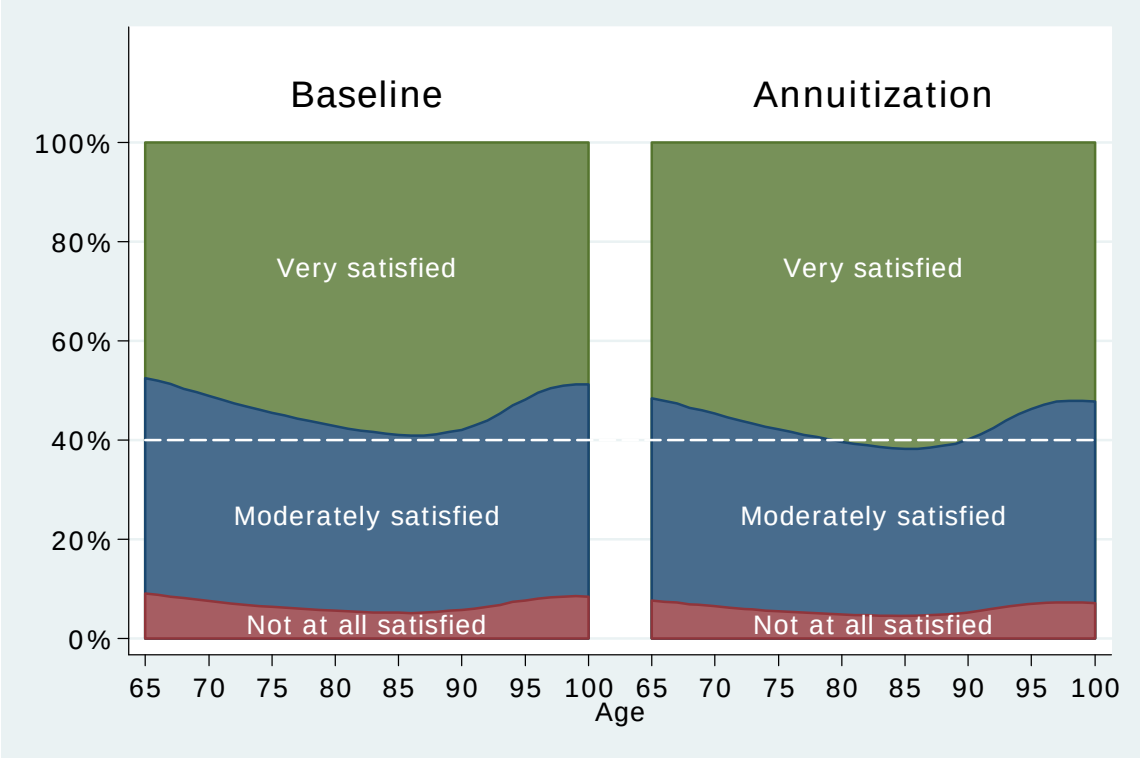

Figure 9. Predicted Distributions of Retirement Satisfaction, by Age

Overall, annuitization is predicted to enhance retirement satisfaction for 95% and reduce it for 5% of respondent-years. The changes are generally modest, as is evident from the similarity of the panels in Figure 9.

Lifetime Utility

The fourth and final outcome measure under consideration is lifetime utility as defined on page 6. The simulations maximize lifetime utility; at issue is whether respondents are better off in terms of lifetime utility with or without annuitization.

Table 4 compares lifetime utility for individual respondents under the Baseline and Annuitization scenarios. Overall, 6 out of 1,912 respondents (0.4%) attained a higher lifetime utility without annuitization, whereas 99.6% of respondents were better off with annuitization.[10] All respondents without children and thus without a bequest motive were better off annuitizing, which is consistent with Yaari (1965) and other authors. However, annuitization can be suboptimal for individuals who value wealth holdings, be it to leave a bequest, to have a cushion against unexpected expenses, or other reasons. In our findings, annuitization was almost always better, even for people with children.

Table 4. Comparison of Lifetime Utility under the Baseline and Annuitization Scenarios, by Bequest Motive

	Respondents without children	Respondents with children	Total
Better off under Baseline	0	6	6
Better off with Annuitization	221	1,685	1,906
Total	221	1,691	1,912

Under a scenario in which all respondents annuitized 50% of their DC/IRA balances (instead of 100%), only one respondent was worse off.

Real versus Nominal Annuities

The discussion has so far centered on nominal annuities, i.e., annuities that are fixed in nominal terms and are eroded by inflation over time. We now turn to real annuities that are annually adjusted for inflation.

Consider the hypothetical person whose optimal consumption profiles are depicted in Figure 4. She could convert her $250,000 DC/IRA balance into a nominal annuity of about $24,100. This annuity was priced actuarially fairly with a nominal interest rate of 6.8%. Alternatively, at a real interest rate of 3% she could purchase a real annuity of about $17,500. Figure 10 shows optimal consumption paths under these scenarios. Her bequeathable wealth would be exhausted even earlier than under nominal annuitization (age 87 versus 92), but her income is higher at all ages. After her wealth is exhausted, her consumption is equal to the sum of her Social security benefits ($9,000) and real annuity (about $17,500).

While a real annuity supports higher consumption at all ages than a nominal annuity in Figure 10, this is not always the case. Consider the hypothetical person of Figure 5 with a DC/IRA balance of $100,000, no other wealth, Social Security benefits of $10,000, and a nominal pension of $4,000. With her DC/IRA balance she can purchase a nominal annuity of about $9,600 or a real annuity of about $7,000. Figure 11 illustrates her optimal consumption paths. At some ages, her consumption is highest without annuitization, at others nominal or real annuitization result in higher consumption. Her lifetime utility is highest under real annuitization (not shown in graph).

[10] Five of the six individuals who became worse off by annuitizing had no wealth other than their DC/IRA balances; one had exceptionally high DB pension income.

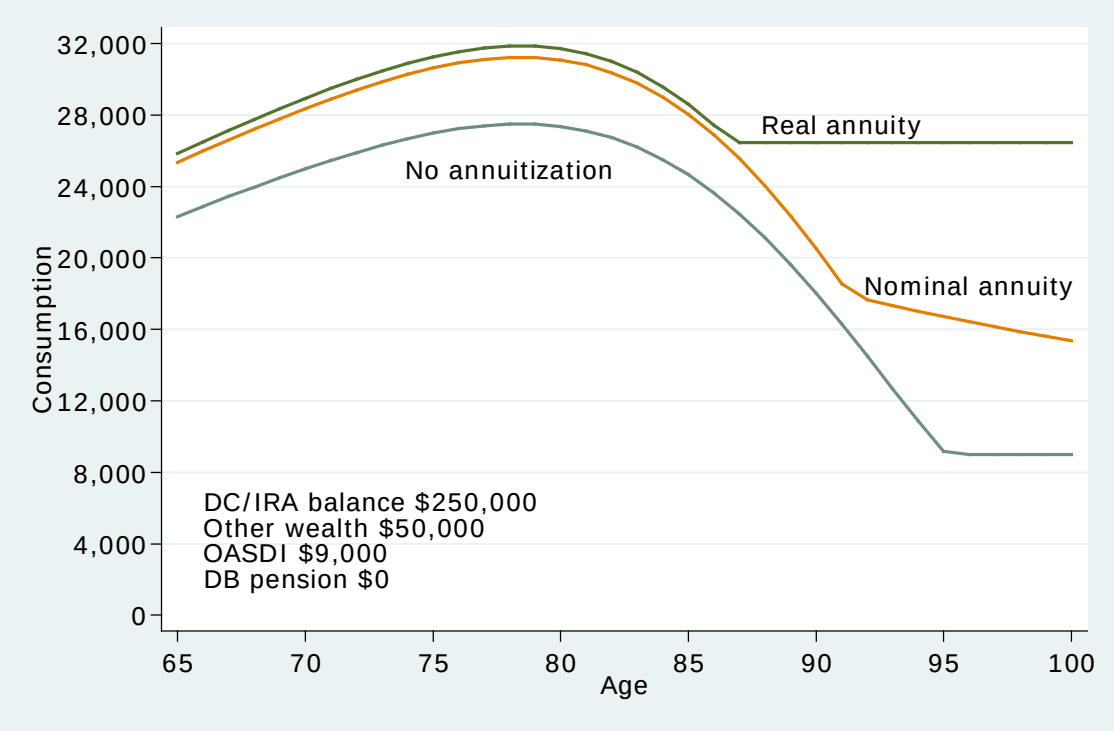

Figure 10. Illustrative Optimal Consumption Paths with Real, with Nominal, and without Annuitization of DC/IRA Balances

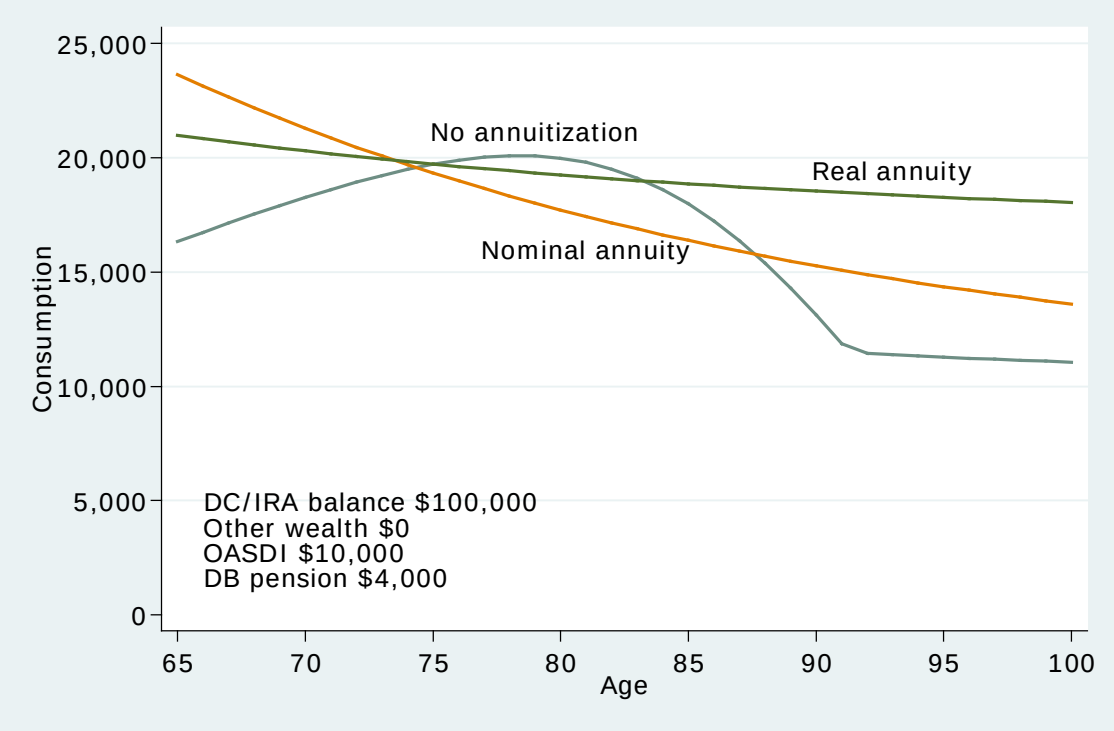

Figure 11. Illustrative Optimal Consumption Paths with Real, with Nominal, and without Annuitization of DC/IRA Balances

We projected age-specific poverty rates under real annuitization, similar to those shown in Figure 6 and Figure 7. Conversion of DC/IRA balances into real annuities appears to reduce old-age poverty even more than conversion into nominal annuities. The reduction is roughly twice as large for women and roughly 25% greater for men.

Theoretically, real annuities are not always better than nominal annuities. Increasing mortality risks imply that optimal consumption will eventually decrease with age, and real annuities force a flatter consumption pattern than nominal annuities in an inflationary environment. However, real annuities generated uniformly higher lifetime utility than nominal annuities in our application.

An Imperfect Attempt to Include Married and Younger Retirees

As discussed earlier, the analysis sample excludes married individuals. Only when a married person becomes widowed is he or she included in the analysis sample. As a result, the sample is not representative of the U.S. population of retirees.

This section expands the analysis sample to married individuals, increasing the sample size from 1,912 to 6,904 and lifting the sex ratio from 29% to 49% males. Unfortunately, the utility maximization model is not readily adapted to couples' preferences. We therefore—imperfectly—maintain utility maximization at the individual level and also split couples' retirement resources equally. Specifically, we allocate each spouse 50% of their combined DC/IRA balances, after-tax wealth, Social Security benefits, and pension/annuity income.

The exercise essentially converts married couples into egocentric individuals with only half the financial resources that they enjoy together. Perhaps not surprisingly, the results reflect a low standard of living. Projected age- and sex-specific poverty rates are similar in shape to those shown in Figure 6 and Figure 7, but about twice as high for women and four times as high for men. Key for our purposes, though, is that annuitization is projected to substantially reduce poverty, especially among men.

Projected poverty rates exhibit a U-shaped pattern with higher rates at relatively young and oldest-old ages. We found the same for the unmarried population in Figure 6 and Figure 7 and explained that elevated poverty among relatively young ages that was the result of disproportionately many separated and divorced respondents among the early entrants into the analysis sample. That is no longer the case in the expanded sample, but it remains the case that younger entrants have lower average Social Security benefits than later entrants, which may play a pivotal role to lift people out of poverty. The next section sheds additional light on this issue.

Sensitivity to Model Estimates

All simulations above were carried out using NL2SLS estimates of Hurd (1989)—see the second column of Table 1. To shed light on the sensitivity of the model and its implications to parameter estimates, we repeated the analysis based on NLLS estimates in the first column of Table 1.

Consider first a simulation of optimal consumption paths with and without annuitization for the hypothetical person of Figure 4. She is 65 years old, has a DC/IRA balance of $250,000, other wealth of $50,000, receives $9,000 annually in

Social Security benefits, and does not have pension income. Figure 12 shows her optimal consumption paths with and without annuitization. They differ markedly from the hump-shaped patterns in Figure 4. Instead of increasing consumption during early retirement, the pattern is downward from the start. The change in shape is mostly caused by the rate of time preference, which was near-zero in NL2SLS estimates and about 5% in NLLS estimates. This rate of time preference exceeds the interest rate, so that mortality risks dictate a downward sloping consumption path at all ages.

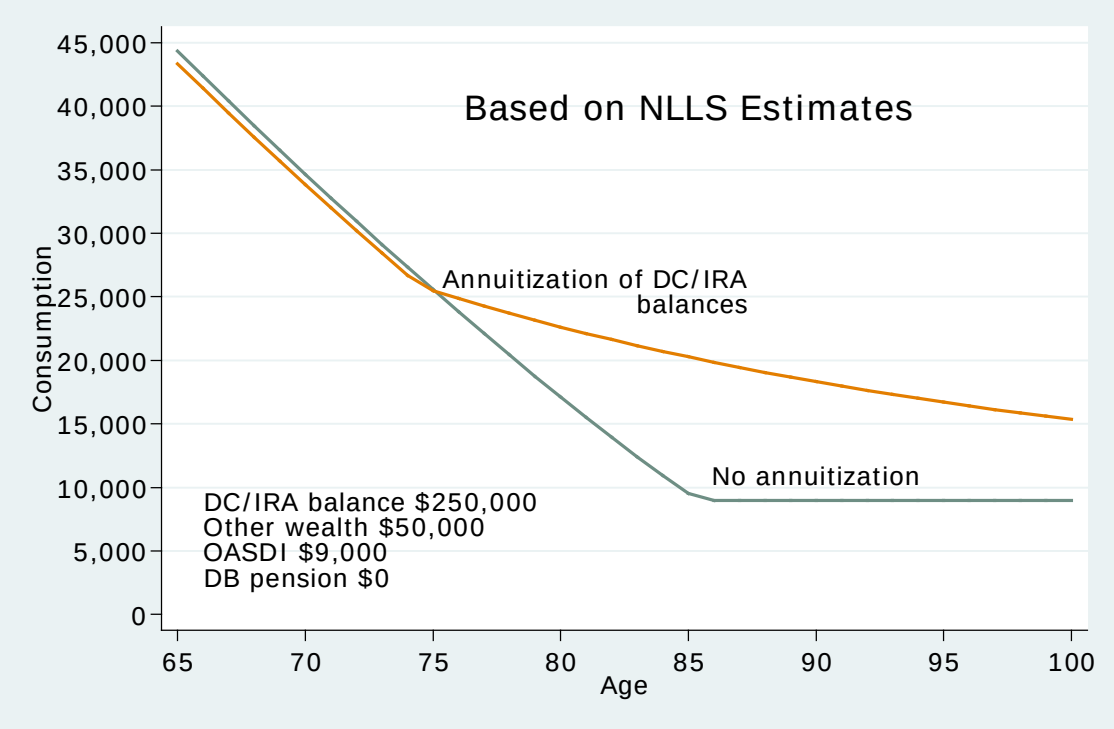

Figure 12. Illustrative Consumption Paths with and without Annuitization of DC/IRA Balances (Based on NLLS Estimates)

While consumption profiles differ from those generated by NL2SLS estimates, the implications of annuitization for old-age poverty appear to be more robust to parameter estimates. Figure 13 shows projected age-specific poverty rates among women. As before, poverty is projected to increase with age and reduce substantially in case of annuitization. The magnitude of the reduction appears to be greater than that based on NL2SLS estimates; see Figure 6. Figure 14 shows projected age-specific poverty rates for men based on NLLS estimates, and similar comments apply to men as to women.

The projected age-specific poverty rates based on NL2SLS estimates (Figure 6 and Figure 7) are U-shaped, implying that poverty rates among relatively young retirees are higher than among octogenarians. In contrast, NLLS estimates project roughly constant poverty rates or even slightly increasing until age 80 (Figure 13, Figure 14). Earlier we pointed at lower financial resources among respondents who entered our analysis sample earlier as part of the explanation. Another part of the explanation appears to lie in hump-shaped consumption patterns that are optimal under NL2SLS estimates but not under NLLS estimates. Under downward-sloping consumption patterns, fewer retirees fall below the poverty line at relatively young ages.

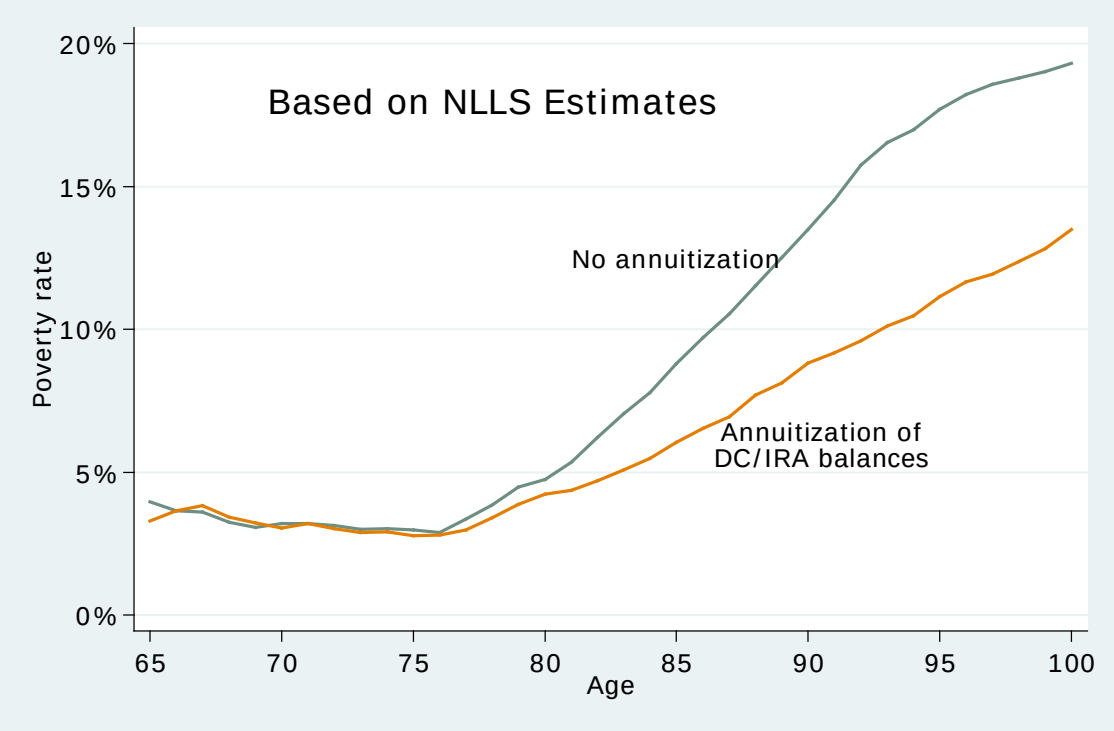

Figure 13. Projected Poverty Rates among Women in the Analysis Sample, by Age (Based on NLLS Estimates)

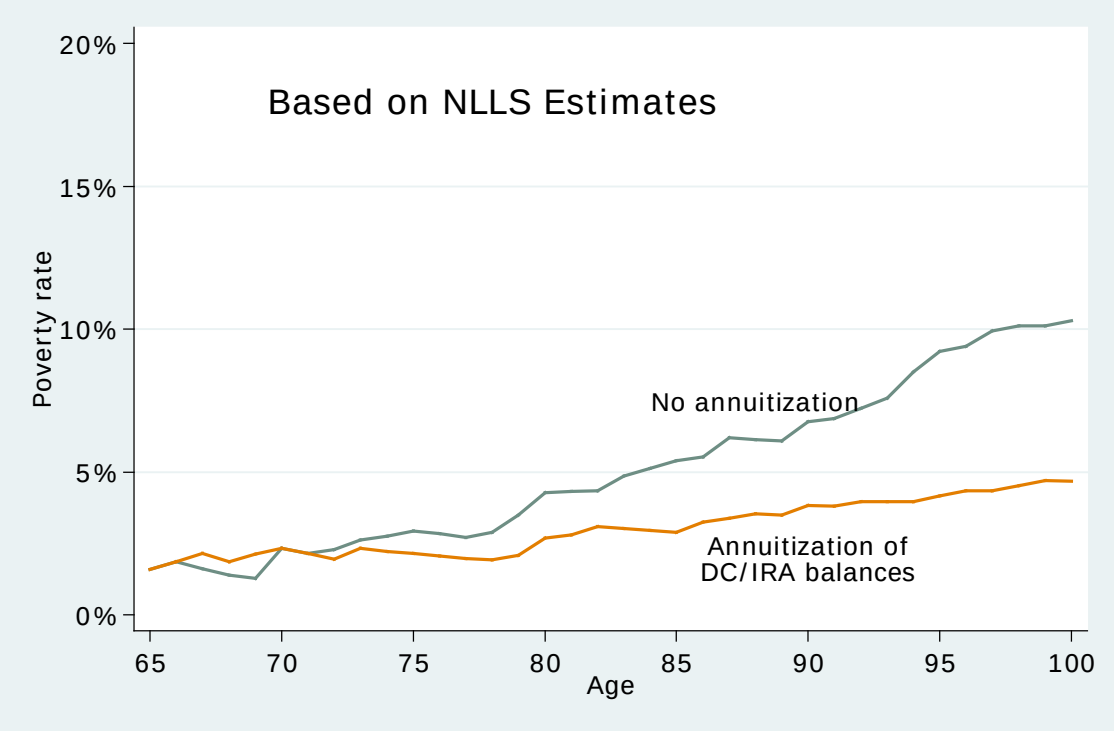

Figure 14. Projected Poverty Rates among Men in the Analysis Sample, by Age (Based on NLLS Estimates)

6. CONCLUSION

This report develops a framework for evaluating the effects of more widespread annuitization of DC or IRA balances. The results are generally plausible and in the expected direction, namely that more annuitization is likely to reduce old-age poverty and increase retirement satisfaction. Put differently, old-age poverty may be expected to rise and retirement satisfaction to deteriorate because of large-scale de-annuitization implied by the trend from traditional DB pensions to DC plans in the United States. Wider adoption of annuitization may offer a way to counter those adverse consequences while preserving employers' ability to manage pension benefit costs.

Employers that sponsor a traditional DB plan bear investment and longevity risks. In part because of a desire to better control pension benefit costs, many employers are foregoing DB plans in favor of DC plans, in which workers shoulder the investment and longevity risks. Annuitization shifts those risks onward to insurance companies. Indeed, insurance companies may be better equipped to manage risks than both employers and workers. Of course even within DB plans, investment and longevity risks may be transferred to an insurance company. Insurance companies can offer longevity re-insurance (absorbing longevity risks but not investment risks), "buy in" to the plan (pay monthly annuities to the plan, which continues to pay benefits to participants) or partially "buy out" the plan (take over certain liabilities).[11]

Our analysis is mostly concerned with unmarried individuals who are completely retired. It omits married couples and delays inclusion into the analysis sample until one spouse becomes deceased. As a result, the analysis sample is not representative of the U.S. population of retirees. Also, the financial resources of HRS respondents may not reflect those of future retirees. For example, 69% of our sample members have some income from a DB pension. Future retirees will likely have less of their retirement resources in the form of lifelong-guaranteed income, suggesting even greater benefits from annuitization than we demonstrated for current retirees.

[11] E.g., McDonald and Gaul (2015).

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APPENDIX: RETIREMENT SATISFACTION

This appendix provides details of the model of retirement satisfaction that is used in the main text (page 19 and further) to simulate retirement satisfaction of analysis sample members under the Baseline and Annuitization scenarios.

Table 5 shows the results of estimation. The model is an ordered probit, estimated on completely retired HRS respondents who are not married, receive Social Security benefits, and are at least 60 years old. The table shows ordered probit coefficients, standard errors in parentheses, and asterisks to denote statistical significance from zero: *** for 1% significance level, ** for 5%, and * for 10%. The outcome is an ordered categorical variable that is equal to 0 (not at all satisfied), 1 (moderately satisfied), or 2 (very satisfied). Overall, 9% responded being not at all satisfied, 41% moderately satisfied, and 50% very satisfied.

Table 5. Ordered Probit Estimates of Retirement Satisfaction among Unmarried HRS Respondents (Coefficient estimates and standard errors)

	Ordered probit
Share of retirement resources from pensions, annuities	0.5017 ***
	(0.0758)
Share of retirement resources from Social Security	0.0018
	(0.0020)
Log(income)	0.1516 ***
	(0.0189)
Log(wealth)	0.0496 ***
	(0.0025)
Separated/Divorced	-0.0873 ***
	(0.0235)
Never married	0.1046 ***
	(0.0352)
Male	-0.0314
	(0.0208)
Age	0.0165 ***
	(0.0013)
Log(years since retiring)	-0.0262 **
	(0.0133)
Pension*Log(years since retiring)	0.0678 ***
	(0.0100)
Missing retirement duration	-0.1178 ***
	(0.0417)
Threshold 1	1.8299
	(0.1932)
Threshold 2	3.2809
	(0.1940)
Number of observations	16,910

Source: 1992-2010 HRS.
Note: Standard errors in parentheses.
Significance: ***=1%, **=5%, *=10%.

The results are generally intuitive. The greater one's share of retirement resources in the form of lifelong-guaranteed income from pensions or annuities, the greater one's satisfaction in retirement. That share is defined as the present value of income from pensions and annuities divided by total retirement resources, in turn defined as bequeathable wealth (including DC/IRA balances, if any) plus the present value of pensions, annuities, and Social Security benefits. The share from Social Security did not have such an effect, presumably because reliance on Social Security signals limited financial resources. The logarithms of income (from Social Security, pensions, and annuities) and bequeathable wealth (including DC/IRA balances) are positively related to satisfaction. Relative to widow(er)s, separated or divorced respondents were less satisfied, whereas never married respondents tended to be more satisfied. All else equal, men and women expressed about equal satisfaction. Satisfaction increases with age. It decreases with duration since retirement, but the interaction of duration with an indicator of receipt of any DB pension benefits or annuities shows that retirement satisfaction in fact increases over time for those with pension or annuity income.

The model we estimated is similar to that in Panis (2004), but adjusted to support our current simulation purposes: only covariates that are available in the simulations can enter the model. For example, we do not control for health status, even though it is highly predictive of retirement satisfaction, because future health status is not available in the simulations. We do control for marital status and assume that unmarried retirees will not marry or re-marry.

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