Quantifying the economic benefits of personal financial planning

Sherman D. Hanna[a],*, Suzanne Lindamood[b]

[a]*Consumer Sciences Department, Ohio State University, 1787 Neil Avenue, Columbus, OH 43210-1290, USA*
[b]*Research attorney, Columbus, OH 43221-1290, USA*

Abstract

To estimate the monetary value of ideal financial planning advice, we address three types of benefits that planners provide: increasing wealth, preventing loss, and smoothing consumption. We discuss, then reject the possibility of using survey data to obtain valid estimates of the benefit of financial planning advice. We instead use theoretical examples based on comparisons of optimal decisions to naïve alternatives. We find that the value of advice varies with a client's risk aversion and the percentage of wealth that could be gained or lost. In general, the most risk averse households should place the highest value on comprehensive financial planning advice. Financial planners can use our results to better articulate the value of advice. © 2010 Academy of Financial Services. All rights reserved.

1. Introduction

Warschauer (2008) notes:
"For many years planners accepted the idea that properly done financial planning was worth well more than its cost … as an article of faith. . . . It was our intent to appraise the possible value to consumers in purchasing a financial plan … it is time that scholars begin the discussion of the possible value to be gained by an individual or family in retaining a

---

* Corresponding author. Tel.: +1-614-292-4584; fax: +1-614-688-8133.
E-mail address: hanna.1@osu.edu (S.D. Hanna).

professional financial planner and in their efforts to complete and follow a comprehensive personal financial plan."

There is little rigorous research quantifying the benefits of financial planning, although there has been some research on the types of households that use financial planners (Chang, 2005; Elmerick, Montalto, and Fox, 2002), and what consumers look for in financial planners (Bae and Sandager, 1997). Industry surveys (e.g., FPA and Ameriprise Value of Financial Planning Study, 2008; Schulaka, 2009) typically show that those who use financial planners are more confident about the future. However, the surveys do not address the issue of why financial planning clients are in better financial condition. Is it because they use financial planners, they initially have greater resources, or they already have behaviors that lead to greater wealth?

To gain some insight into the potential benefits of using a financial planner, consider the possible benefits of using other professionals, such as a medical professional or an attorney. If a physician provides a diagnosis of a potentially fatal disease and prescribes a remedy that avoids death, the value of the service is extremely high. Most people would, if necessary, pay a substantial part of their wealth for that benefit. A diagnosis that gives a patient comfort in knowing that there are no problems might also be worth a substantial amount, even if measuring that benefit in monetary terms is difficult. Likewise, when an attorney obtains an acquittal on a criminal charge, thus avoiding a prison term, that service obviously is worth a substantial amount of money.

The benefits of using a financial planner potentially include increasing wealth, protecting wealth, and smoothing consumption. Because money is involved, it should be possible to quantify the benefits related to increasing wealth, but it is less clear how to quantify the benefits of protecting wealth or smoothing consumption. Other recommendations are difficult to quantify, such as helping clients feel more organized and aware of their situation. The economics literature offers an established procedure for estimating the value of reducing risk and of smoothing consumption, with a basic approach involving assumptions about the characteristics of an individual's utility function, including the degree of risk aversion. The monetary equivalence of the increase in expected utility is calculated by comparing the Certainty Equivalent Wealth (CEW) of expected utility levels.

In this article, we outline some rigorous methods that could be used to quantify the value of advice and suggest ways for financial planners to articulate the benefits to potential clients.

2. The potential benefits of financial planning advice

Warschauer (2008) lists six areas in which financial planners make recommendations: emergency fund management, debt management, insurable risk reduction, investment risk control, goal assessment, and tax and estate assessment. There are a large number of detailed areas of knowledge for financial planners (Certified Financial Planner Board, 2006) so more detailed categories of advice could be identified. Recommendations that could increase a client's wealth, including reallocating a portfolio to produce a higher return over the long-run, refinancing high interest loans with lower interest and/or tax deductible debt, and increasing the aftertax return on investments based on income tax considerations. Recom-

mendations that could reduce risk include purchasing insurance, decreasing the withdrawal of retirement savings to reduce the chance of outliving funds, or making an investment portfolio less likely to incur substantial losses. Estate planning strategies can increase the amount that intended beneficiaries receive after the client's death and, in some cases such as with charitable remainder trusts, produce benefits to the client before death. In addition to the types of benefits from specific advice, Stango and Zinman (2009) note that households with behavioral limitations such as exponential growth bias can reduce the damage from their biases if they rely on outside financial advice.

Calculating the monetary benefits of financial planning advice may seem obvious when applied to wealth increasing advice, but because some potential wealth increases take place far into the future, discounting the benefit back to the present should be considered in any estimate of value. Investment advice for long-run goals may likely increase wealth, but if there are risks of losses, those should also should be considered in the calculations. Calculating the monetary value of advice requires some assumptions about the household's utility function. It is difficult to estimate a household's risk aversion level for standard utility functions, but there is a substantial literature on this topic (Barsky, Juster, Kimball, and Shapiro, 1997; Hanna and Lindamood, 2004). Advice that helps a household balance consumption over its life cycle can be quantified by assumptions about the intertemporal utility function of the household. Cocco, Gomes, and Maenhout (2005) provide an example of a rigorous approach to estimating the value of optimal portfolio and consumption choices over a lifetime. However, their goal is to compare optimal behavior to typical behavior rather than specifically considering the value of optimal advice.

In this article, we demonstrate why valid empirical estimates of the value of financial planning advice are not practical. We present theoretical analyses using simple expected utility frameworks for examples of the potential benefits of financial planning advice. There are alternatives to using expected utility frameworks, as illustrated by the work of Calvet, Campbell, and Sodini (2007), who assess welfare costs of investment mistakes of Swedish households by comparing Sharpe ratios. However, the expected utility framework has the potential of providing better estimates of the benefits of financial planning advice and allows for diversity of preferences in the estimation of benefits.

Obviously the examples we present in this article are useful only to the extent that a financial planner provides optimal advice to a naïve consumer who follows the advice. Calvet et al. (2007) compare financially unsophisticated consumers to sophisticated consumers. We do not explore this issue in our article. However, we do provide a starting point for rigorous analyses of the benefits of financial planning.

3. Empirical research on use of financial planners

3.1. Survey research

There has been limited research on who uses financial planners, and much of the research has been sponsored by financial planning organizations. Bae and Sandager (1997) discuss some early surveys and present results of their own survey of consumer perceptions of

financial planners. The triennial Survey of Consumer Finances (SCF) is the best U.S. dataset for household financial information (Bucks, Kennickell, Mach, and Moore, 2009; Hanna, Lindamood, and Huston, 2009), so it might seem possible to analyze the benefits of financial planning using an SCF dataset. The SCF has had questions related to use of financial planners since 1998. (In 1995 the financial planner category was combined with the broker category for similar questions.) The SCF questions are not specific in terms of when a financial planner was used, and contain nothing about the training or professional designations of the financial planner. One question is: "Please tell me which sources of information you (and your family) use to make decisions about borrowing or credit. Do you call around, read newspapers, magazines, material you get in the mail, use information from television, radio, the internet or advertisements? Do you get advice from a friend, relative, lawyer, accountant, banker, broker, or financial planner? Or do you do something else? "

Another question starts with "What sources of information do you (and your family) use to make decisions about saving and investments?" The question then continues with the same list of sources as the question about credit. Elmerick et al. (2002) report that in the 1998 SCF, 21% of households chose "financial planner" as a response for one or both of these questions, a finding that was similar to the percentages reported in industry surveys. Our own analyses of more recent SCF datasets found that 20% of households in 2001, 22% in 2004, and 25% in 2007 chose "financial planner" for one or both of these questions. In 2007 only 10% of households in the lowest net worth decile report using a financial planner while 46% of those in the highest decile use a financial planner. The median net worth of those who use a financial planner ($275,700) is over three times as high as the level for those who do not ($87,500).

3.2. Challenges in inferring causality

Of course, correlation does not prove causation. Evaluating the effects of using a financial planner poses challenges similar to those of evaluating teacher performance based on standardized tests. There is a selection effect. For instance, those who use financial planners are likely to be motivated by having higher income and net worth, so not all of the differences in net worth and other indicators should be attributed to the use of a financial planner. A cross-sectional survey such as the SCF or any industry sponsored survey cannot yield any definitive results on the independent benefits of financial planning. Phillips and Calder (1979) discuss the pitfalls of the "after-only" research design, which would be the implicit approach used with any cross-sectional survey with information on use of financial planners.

A panel survey, where households are reinterviewed after several years, could provide more valid insights into the value of financial planning. However, even with a panel survey there might be a selection effect in terms of who is using financial planners. In addition, the element of time is crucial. Only with knowledge of when a household started using a financial planner, along with controls for intervening household and societal events, can there be strong evidence of causation. The ideal research would involve randomly providing a comprehensive financial plan by competent financial planners to some households, and not providing one to a similar group of households. Phillips and Calder (1980) discuss the threats to validity even for research designs with before-after comparisons with randomly selected

Table 1 CEW at retirement for 100% stock portfolio vs. risk-free bond portfolio

Relative risk aversion	CEW for retirement portfolios		Difference in CEW
	100% stocks	100% risk-free	
0	973,100	248,200	724,900
1	831,200	248,200	583,000
2	734,100	248,200	485,900
4	609,800	248,200	361,600

Based on portion of Table 10 of Poterba et al., using historical averages.

control groups, and based on these threats, it seems unlikely that researchers can draw rigorous conclusions about the effects of using a financial planner based on survey data.

4. Standard expected utility analysis approaches to financial decisions

Poterba, Rauh, Venti, and Wise (2003) provide an example of using expected utility analysis to compare the value of alternate investment portfolios for retirement savings. They assume that households have a constant relative risk aversion utility function, that the objective is to maximize the expected utility of total wealth at retirement, and that non-retirement wealth is nonstochastic. Obviously all of these assumptions are subject to debate, but in this article we use a similar approach for an exploratory analysis of the benefits of financial planning advice.

Table 1 presents selected results from the Poterba et al. (2003) paper comparing alternate investment portfolios. In that example a risk neutral college educated household (relative aversion level of 0) would have total wealth at retirement of $973,100 with an all stock retirement portfolio, and $248,200 with a risk-free retirement portfolio, a difference of $724,900. For risk averse households, the advantage of the all stock portfolio has to be evaluated by comparing the Certainty Equivalent Wealth (CEW), the certain wealth that would produce the same expected utility as the expected utility of the risky portfolio. In the example, a household with a relative risk aversion level of 1 (low risk aversion, e.g., a natural log utility function) would have a CEW of $831,200 for the all stock portfolio and $248,200 for the riskfree portfolio, a difference of $583,000. For a household with a moderate relative risk aversion level of 4, however, the advantage of the all stock portfolio would be only $361,600.

Poterba et al. (2003) are interested in public policy implications rather than quantifying the benefits of advice, but we can interpret their analyses in terms of the benefits of financial planning advice if we make some additional assumptions. For instance, if the typical college educated household in the Poterba analysis has a relative risk aversion level of 4 but mistakenly chooses the riskfree retirement portfolio, a planner who persuades the household to choose the all stock portfolio would provide an increase in expected utility that has a monetary value (CEW) of $361,600.

A key question, as Poterba et al. (2003) and Brown and Poterba (2000) note, is estimation of utility function parameters. The key preference parameter for static evaluations of the

expected utility of wealth levels is the household's relative risk aversion level. Barsky et al. (1997) provide some insights into relative risk aversion levels based on analyses of the hypothetical income gamble questions in the Health and Retirement Study. Hanna and Lindamood (2004) give estimates of relative risk aversion levels based on a graphical presentation of hypothetical pension gamble questions. To evaluate intertemporal savings/ consumption decisions, two additional important preference parameters are the elasticity of the utility function and the personal discount rate, the rate at which the utility of future consumption is discounted.

In the next section of the article, we demonstrate expected utility approaches to quantifying the benefits of financial planning advice, with detailed analyses of stylized risk reduction, wealth increasing, and optimal saving pattern prescriptions. We also discuss plausible assumptions about preference parameters.

5. Our estimates of the value of financial planning advice for stylized examples

5.1. Overview

In this section, we first present the simple analytics of expected utility analysis of wealth changes for two states of the world. We apply that analysis to calculate the monetary value of advice to reduce risk and then to calculate the monetary value of advice to increase wealth. We conclude this section with calculations of the monetary value of advice intended to smooth consumption.

5.2. Estimating the monetary value of wealth changes

Assume some utility function U(W). Assume given a particular action (e.g., portfolio choice or purchase of insurance) that two states of the world are possible, one with wealth W_1 and the other with W_2. If the probabilities of the states of the world are p_1 and $1 - p_1$, then the expected utility of the decision is:

$$EU = pU(W_1) + (1 - p)U(W_2) \tag{1}$$

How can we compare the expected utility of one action to the expected utility of alternate actions? The standard approach of economists is to calculate the certain wealth that would produce the same utility as EU, or the CEW. For a utility function with standard mathematical property, it may be possible to take the function inverse. For instance, if the utility function is the natural log of wealth, U = Ln(W), then the function inverse is W = exp(U). Therefore, for Eq. (1), if U(W) = Ln(W), then:

$$CEW = exp(EU). \tag{2}$$

There is a class of constant relative risk aversion utility functions (CRRA) commonly used in expected utility analyses. The natural log utility function has a relative risk aversion level of 1. Hanna and Lindamood (2004) suggest that most people have higher levels of relative

risk aversion, and a majority of adults might have levels higher than 5. One class of CRRA utility functions can be expressed as:

$$U(W) = W^{(1-x)}/(1 - x) \tag{3}$$

Where x is the coefficient of relative risk aversion.

For this type of utility function, the CEW is the function inverse and can be found by simple algebra:

$$W = [(1 - x)U]^{\{1/(1-x)\}} \tag{4}$$

For both risk reduction advice and wealth increasing advice, we can use Eqs. (1) and (4), along with either Eq. (2) or Eq. (3) depending on the assumed level of relative risk aversion, to estimate the monetary value of each action.

5.3. Estimating the monetary value of risk reduction

Assume that two states of the world are possible if you *do not* purchase insurance: loss of an amount L, with probability p that the wealth level is $W_0 - L$; and no loss, with probability $1 - p$ that the wealth level is W_0. The expected utility of the decision not to purchase insurance is:

$$EU_1 = pU(W_0 - L) + (1 - p)U(W_0) \tag{5}$$

Assume that you could purchase insurance against the loss, for a cost of $C = pL (1 + M)$, where M is the load. The expected utility of the decision to purchase insurance is:

$$EU_2 = U(W_0 - C) \tag{6}$$

Is it worthwhile purchasing the insurance? Assuming that it is worthwhile, the next question is: What is the value of knowing that you should purchase the insurance? If $EU_2 > EU_1$ then it is worthwhile to purchase the insurance. However, we have to take an additional step to estimate the value of *knowing* that the insurance should be purchased.

If you purchase the insurance, you have wealth lower than your initial wealth because of the cost of the insurance, so you have $W_0 - C$. If you have a relative risk aversion level of 1 (e.g., utility function is the natural log of wealth), $U = Ln(W)$, then as shown in Eq. (2), the function inverse is $W = exp(U)$. Therefore the CEW of not purchasing insurance is $exp[pLn(W_0 - L) + (1 - p)Ln(W_0)]$ and the CEW of purchasing insurance is $exp[Ln(W_0 - C)] = W_0 - C$. If you have a level of relative risk aversion higher than 1, your utility function can be expressed as shown in Eq. (3), and the CEW can be expressed as shown in Eq. (4).

Consider a simple example of the value of knowing to purchase insurance, Scenario 1. A household has total wealth of $2,500,000. There is one chance in a thousand ($p = 0.001$) of a judgment against the household for damages in the amount of $2,000,000. An insurance company will sell the household a liability policy to cover such the $2,000,000 loss, for the expected value of the loss ($pL = $2,000$) plus a load of 20%, for a premium of $2,400. If the household is even slightly risk averse, for instance, with a relative risk aversion level

Table 2   Value of advice for purchasing insurance for two scenarios

Relative risk aversion	Value of advice to purchase insurance	
	Scenario 1: 0.1% chance of loss of 80% of wealth	Scenario 2: 1% chance of loss of 20% of wealth
0	−400	−4,000
1	1,620	−428
2	7,560	234
3	27,071	1,002
4	93,138	1,893
5	283,009	2,928
6	614,487	4,810
7	932,709	5,539
Premium	$2,400	$6,000

The value of the advice is calculated as the difference between the CEW of insurance and the CEW of no insurance.

Scenarios 1 and 2 each assume the household's initial wealth is $2,500,000 and each insurance policy has a load of 20%.

of 0.5 (square root utility) it will be better to purchase the insurance than to go without insurance. If the household did not know to purchase the insurance, what is the value of advising it to purchase the insurance? The monetary value of the advice can be obtained by comparing the CEW of no insurance to the CEW of insurance. Table 2 shows the results of calculations at different levels of relative risk aversion. A risk neutral household (relative risk aversion of 0) would be $400 worse off in CEW to purchase the insurance, but one with a natural log utility function (relative risk aversion of 1) would have a CEW $1,620 higher if it purchased the insurance than if it did not. Therefore, the value of the advice for a household with relative risk aversion of 1 is $1,620.

With Scenario 1, the higher the relative risk aversion level, the higher the value of the advice to purchase the insurance (Table 2). The average level of relative risk aversion might be over 5 (Hanna and Lindamood, 2004), so the value of the advice to the hypothetical household in Scenario 1 might be over $200,000. Fig. 1 shows the relationship between the value of advice and relative risk aversion for Scenario 1.

Now consider a different example of the value of knowing to purchase insurance, Scenario 2. A household has total wealth of $2,500,000. There is one chance in a hundred ($p = 0.01$) of a judgment against the household for damages in the amount of $500,000. An insurance company will sell the household a liability policy to cover the $500,000 loss, for the expected value of the loss ($pL = \$5,000$) plus a load of 20%, for a premium of $6,000. If the household is somewhat risk averse, for instance, with a relative risk aversion level of 2 or higher it will be better to purchase the insurance than to go without insurance. If the household did not know to purchase the insurance, what is the value of advising it to purchase the insurance? Table 2 shows the results of calculations of the value of advice at different levels of relative risk aversion. A risk neutral household (relative risk aversion of 0) would be $1,000 worse off in CEW to purchase the insurance, and one with a natural log utility function (relative risk aversion of 1) would have a CEW $428 lower if it purchased the insurance than if it did not. However, the higher the relative risk aversion level, the higher
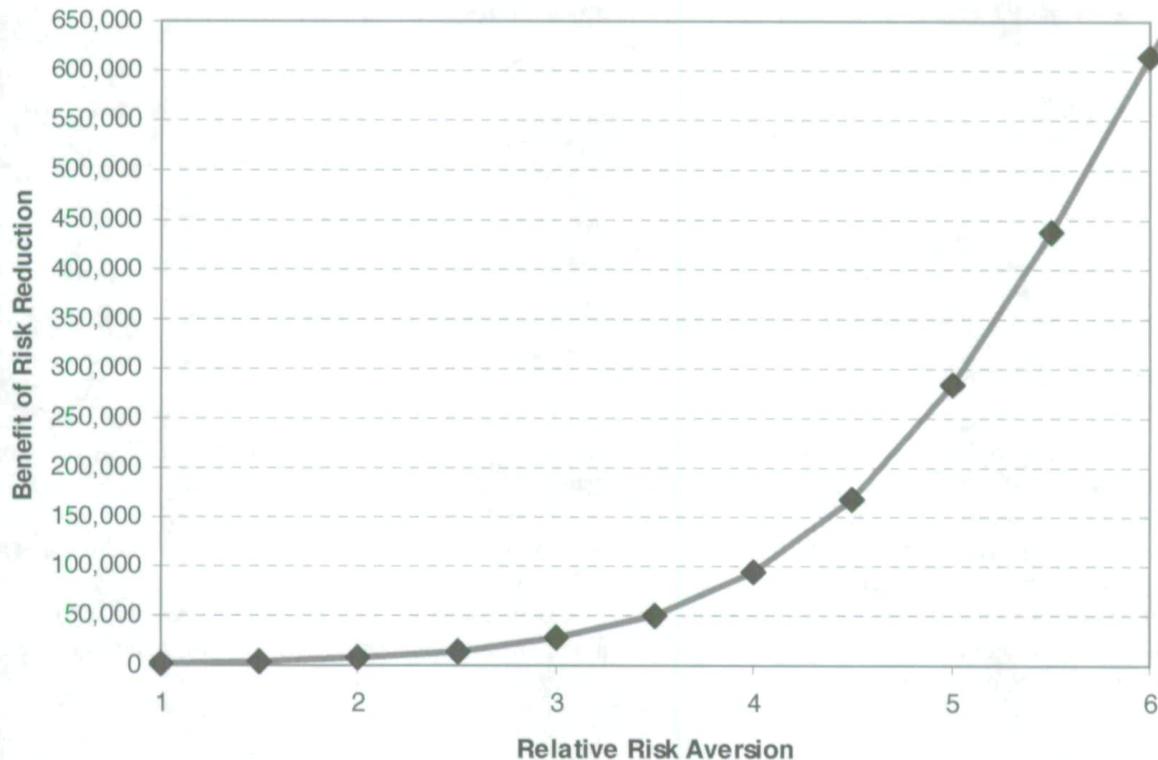
Fig. 1. Monetary benefit of hypothetical personal liability umbrella policy for $2,000,000, if probability of judgment is 0.0001, by relative risk aversion. Based on Scenario 1 in Table 2, assuming that initial total wealth of household is $2,500,000, and insurance has a 20% load. Monetary benefit is the difference between CEW of expected utility of having insurance and the CEW of having no insurance.

the value of the advice to purchase the insurance. The value of the advice for a household with relative risk aversion of 5 is $2,928, and for a level of 6 is $4,810.

Obviously these two scenarios are very simplistic, but they can be generalized to a wide range of risk reduction advice involving not only insurance purchases but portfolio choices and other types of risk reduction strategies. In general, the more risk averse a household, the more valuable is advice that will reduce risk. The higher the percentage of a household's wealth that could be lost, the more valuable the advice. Advice that reduces the risk of very low probability losses can be very valuable if the losses represent high proportions of the household's total wealth.

5.4. Estimating the monetary value of wealth increases

Assume an initial wealth (W_0) and you plan to invest a part of your wealth (I) at a real rate of return (r). Assume that two states of the world are possible if you choose a risky portfolio, a loss of your investment (I), with probability p, and an increase resulting in value $I(1 + r)$, with probability $1 - p$. The expected utility is:

$$EU_1 = pU(W_0 - I) + (1 - p)U(W_0 + rI) \tag{7}$$

Table 3   Value of advice for portfolio strategies for two scenarios

| Relative risk aversion | Value of advice to choose the more aggressive portfolio | |
	Scenario 3: 1% chance of loss of investment (19.7% of wealth at stake)	Scenario 4: 10% chance of loss of investment (2% of wealth at stake)
0	$ 5,000	$5,000
1	4,428	4,943
2	3,766	4,885
3	2,998	4,827
4	2,107	4,768
5	1,072	4,708
6	−134	4,647
7	−1,539	4,586

For each scenario, the value of the advice is calculated as the difference between the CEW of the more aggressive investment and the CEW of the safe investment.

Scenario 3 assumes the household's initial wealth is $2,490,000, of which $490,000 is to be invested for one year, either in a safe investment with a 0% aftertax real rate, or in an investment with a 2.04082% return, but with a 1% chance of being worthless.

Scenario 4 assumes the household's initial wealth is $2,000,000, of which $40,000 is to be invested for one year, either in a safe investment with a 0% aftertax real rate, or in an investment with a 25% return, but with a 10% chance of being worthless.

Assume that you could instead invest I in a safe investment with a zero aftertax real return. The expected utility if you invest in the safe investment is:

$$EU_2 = U(W_0) \tag{8}$$

Is it worthwhile to choose the risky portfolio? Assuming that it is worthwhile, what is the value of knowing that you should choose the risky portfolio?

Consider a simple example of the value of advice to choose the optimal portfolio, Scenario 3. A household has total wealth of $2,490,000, of which $490,000 is to be invested, either in a safe investment with a 0% aftertax real rate, or in an investment with a 2.04082% return, but with a 1% chance of being worthless. The value of the advice is calculated as the difference between the CEW of the household's wealth if with the risky investment and the CEW of wealth if the safe investment is chosen. Table 3 shows the benefit of the advice to choose the risky investment. The risky investment has an expected value $5,000 higher than the safe investment, so $5,000 is the value of the advice for a risk neutral household (relative risk aversion = 0). For higher risk aversion levels, the value of the advice is lower, and for those with relative risk aversion levels of 6 or higher, the value of advice to choose the risky portfolio is negative.

Consider another simple example of the value of advice to choose the optimal portfolio, Scenario 4. Assume the household's initial wealth is $2,000,000, of which $40,000 is to be invested for one year, either in a safe investment with a 0% aftertax real rate, or in an investment with a 25% return, but with a 10% chance of being worthless. Table 3 shows the value of the advice to choose the risky investment. The risky investment has an expected value $5,000 higher than the safe investment, so $5,000 is the value of the advice for a risk neutral household. Because the investment represents only 2% of the household's wealth, the

value of the advice to choose the risky investment does not decrease much with increases in relative risk aversion.

Obviously these scenarios are very simplistic, but they can be generalized to a wide range of wealth increasing advice. In general, the more risk averse a household, the less valuable is advice that might increase wealth. The higher the percentage of a household's wealth that could be gained, the less valuable the advice is relative to the expected gain for risk averse households. Advice that results in relatively small increases in wealth are worth almost the amount of the expected value of the increases, but advice that is likely to result in an increase in wealth that is a high proportion of initial wealth has less value for more risk averse households.

5.5. Overview of evaluation of risk reduction and wealth increasing advice

The analyses presented suggest that risk aversion is important in valuations of the benefits of wealth increase and risk reduction strategies. The Survey of Consumer Finances (SCF) includes a measure of risk tolerance, but it is not directly connected to the economic concept of risk aversion. Barsky et al. (1997) suggest that the income gamble questions in the Heath and Retirement Study provide an estimate of risk aversion that is the inverse of risk tolerance. The Hanna and Lindamood (2004) projection of their income gamble question to the general population implies that the mean level of relative risk aversion is at least 5.5, so that most people would place relatively high values on risk reduction strategies and relatively low values on wealth increasing strategies.

5.6. Estimating the monetary value of consumption smoothing advice

Some financial planning advice can help clients better prepare for the future, for instance, by suggesting an amount to save each year to have a comfortable retirement. Estimating the value of such advice is challenging. Cocco et al. (2005) discuss approaches to estimating the cost of mistakes in consumption smoothing. To illustrate, we present a very simplistic example. The key to estimation is assuming a standard intertemporal additive utility function, and lifetime utility from consumption EU is the sum of the discounted utility over the lifetime.

$$EU = \Sigma U(C_t)/(1 + \rho_t) \tag{9}$$

where ρ_t is the personal discount rate, which could vary by age.

The typical utility function assumed is similar mathematically to the function assumed for the analysis of static risky choices.

$$U(C_t) = C_t^{(1+\varepsilon)}/(1 + \varepsilon) \tag{10}$$

Where ε is the elasticity of marginal utility with respect to consumption (White, 1978). We discuss estimates of this parameter and of the personal discount rate in the Appendix. Eq. (1) shows the conditions for optimal growth in consumption (Freyland, 2004; White, 1978).

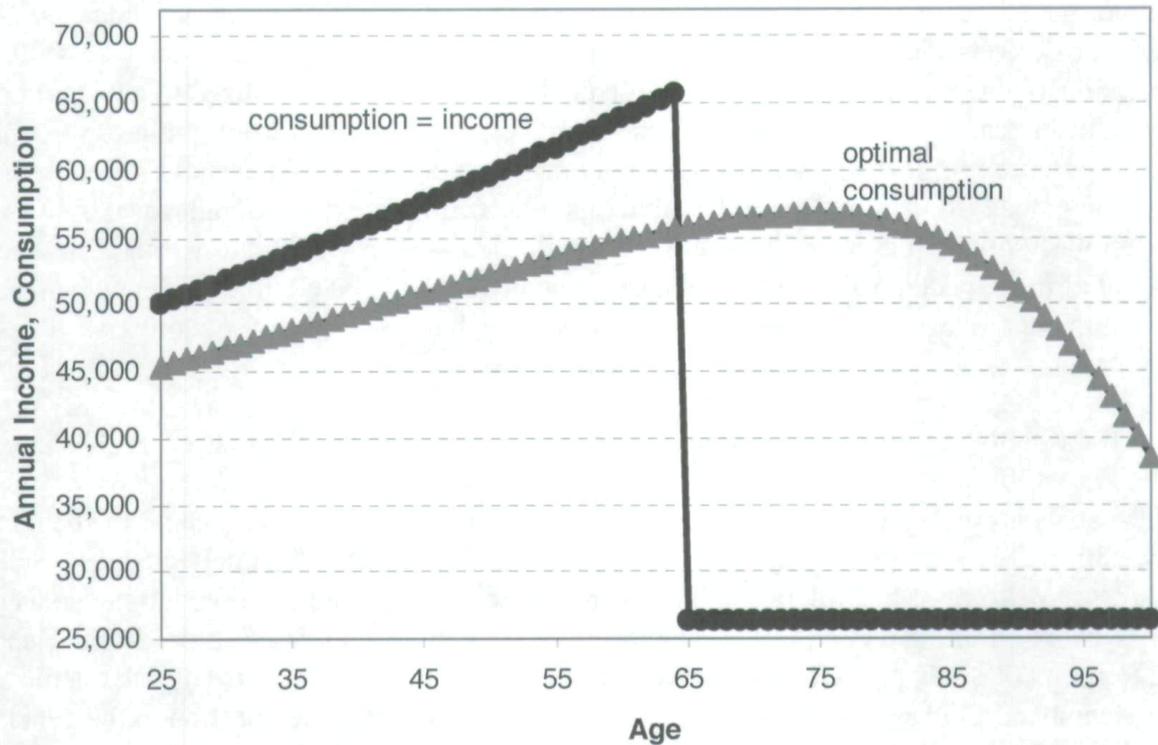$$G_c = [(1 + r)/(1 + \rho_t)]^{(-1/\varepsilon)} - 1 \tag{11}$$

Fig. 2. Two consumption paths: no saving and optimal consumption. Assumptions: Aftertax real income is $50,000 per year at age 25, with 0.7% increases through age 64, then Social Security pension of $26,253 per year through age 100. Investments earn a real rate of return of 3%. The elasticity of marginal utility with respect to consumption = −5. Personal discounting of the utility of future consumption equals the annual risk of death. The optimal consumption line is based on an optimal growth of consumption to maximize lifetime utility.

Fig. 2 shows a simple example of a naïve consumption path (no saving) and an optimal consumption paths for a household with elasticity of −5. We assume that aftertax real income is $50,000 at age 25, and increases 0.7% per year through age 64, then a pension of $26,253 per year is received through age 100. Investments earn a real rate of return of 3%. The personal discounting of the utility of future consumption, ρ_t equals the annual risk of death. The optimal consumption line is based on an optimal growth of consumption to maximize lifetime utility, using Eq. (11).

If the household never saves, each year it will consume its aftertax income, so there will be a big decrease in consumption at age 65. For the optimal consumption path, based on Eq. (11), optimal consumption increases each year, with 9.2% of income saved at age 25 and 15.4% of income saved at age 64.

A simplistic approach to comparing the consumption paths would be to take the total consumption over the lifetime. With no saving, the household could consume $3,243,965, while with the constant consumption pattern, total consumption would be $3,744,746. The optimal consumption plan would produce $4,069,755. Table 4 shows the value of optimal advice on saving and consumption, calculated as the differences of discounted equivalent consumption value for the optimal consumption paths and the naïve consumption (no saving) path. We can estimate the value of the increased utility of choosing a better consumption path

Table 4   Value of advice to follow optimal savings plan

| Elasticity | Discounted total equivalent consumption | | Value of advice to follow optimal savings plan |
	Naïve consumption path (no savings)	Optimal consumption path	
−2	1,713,866	2,156,763	442,897
−5	1,109,454	1,653,056	543,602
−9	942,025	1,575,287	632,262

The value of advice for each level of elasticity is calculated as the difference between the discounted equivalent consumption of the naïve plan (no savings) and the optimal plan.

by using mathematical techniques similar to those discussed for risk reduction advice. The method requires calculating the total lifetime utility of each consumption path using Eqs. (9) and (10), and finding the constant consumption that would produce the same lifetime utility. Then the present value of the equivalent constant consumption levels can be compared. Table 4 shows the total of constant consumption that would produce the same utility of each path (discounted by the probability of being alive at each age) and the advantage of the optimal consumption plan over the naïve path in total discounted constant equivalent consumption terms. The benefits of the optimal consumption plan over the naïve path depend on the elasticity parameter, and are higher for higher absolute values of elasticity, but are substantial.

Obviously these are unrealistic assumptions, but the examples give an estimate of possible benefits of advice on how to reach savings goals. Typical financial planning clients are unlikely to follow the naïve consumption path, but the estimates shown in Table 4 provide some insight into the possible benefits of financial education and other measures that could increase saving among middle income households that might not be currently saving enough.

6. Conclusions

Direct empirical estimates of the value of financial planning advice, based on comparisons of households using financial planners to those that do not, have dubious validity for the reasons we discuss. Therefore, a better approach is to use expected utility analyses to compare optimal decisions to naïve decisions. We present simple analyses, but more complex analyses can provide more realistic conclusions.

Our simple theoretical examples are based on comparisons of optimal decisions to naïve alternatives, so our estimates of the monetary value of utility gains or prevention of utility losses are high compared to the benefit of a good financial planner's advice to a somewhat informed client. However, the following generalizations seem reasonable. The more risk averse a household, the more valuable is advice that will reduce risk. The higher the percentage of a household's wealth that could be lost, the more valuable is the advice. Advice that reduces the risk of very low probability losses can be very valuable if the losses represent high proportions of the household's total wealth. The more risk averse a household, the less valuable is advice that might increase wealth. The higher the percentage of a household's

wealth that could be gained, the less valuable the advice is relative to the expected gain for risk averse households. Advice that results in relatively small increases in wealth are worth almost the amount of the expected value of the increases, but advice that is likely to result in an increase in wealth that is a high proportion of initial wealth has less value for more risk averse households. Advice on saving that prevents substantial decreases in consumption can have a substantial monetary value.

Some of the types of financial planner recommendations noted by Warschauer (2008), such as income tax recommendations and debt management, can be evaluated reasonably well without assumptions about utility functions, as the benefits typically are not a high proportion of total household wealth. If a planner can save a household $5,000 on income taxes or on finance charges, that benefit is obvious and easy to explain to a client. On the other hand, some types of advice are difficult to quantify. The benefit of estate planning advice, for example, is challenging, both because of the uncertainty of timing of many of the potential benefits and because the decision-maker might not be alive at the time of some of the benefits. However, economists have attempted to model estate planning decisions in expected utility frameworks, and that literature provides a starting point for analysis of the benefits of estate planning advice.

High income, high net worth households are more likely to perceive the benefits of financial planning advice, but there could be value of advice even for moderate income households, especially those that are somewhat risk averse. Financial planners could use some of the insights from our analyses to better articulate and market the value of their advice. In general, the most risk averse households are likely to place the highest value on comprehensive financial planning advice. Obtaining aggregate estimates of the value of financial planning in the economy is subject to many difficult challenges in terms of research questions, but attempts to obtain estimates should produce useful insights.

Appendix: plausible intertemporal utility function parameters

Choosing plausible utility functions and plausible parameters of utility functions are crucial parts of rigorous estimation of the monetary benefits of financial planning advice using an expected utility approach. The goal is reasonable normative analysis (Campbell, 2006). There are analyses that investigate risky choices over time, considering consumption consequences of investment and saving choices in a lifecycle investment context, but it is simpler to consider intertemporal consumption choices with certain income and investment return projections.

With the original lifecycle model of savings, the objective is specified as maximizing lifetime utility of consumption in each remaining period, and the typical assumption is that the utility of consumption in each period is additive and independent. The assumption of independence is not as restrictive as one might think, because with typical utility functions, such as the natural log, allowing consumption to drop to zero in one period has a utility of minus infinity. The original lifecycle model and many analyses over the past 50 years have assumed maximization of lifetime utility. Freyland (2004) provides an example of the optimization framework, starting with the lifetime budget constraint:

$$\sum_{t=1}^{T} C_t(1 + r)^{-t} \le A_0 + \sum_{t=1}^{T} Y_t(1 + r)^{-t} \qquad (12)$$

And the maximization problem:

$$\max_{\{C_1,...C_T\}} \sum_{t=1}^{T} (1 + \rho)^{-t} U(C_t) \qquad (13)$$

Freyland expresses the optimal condition for consumption growth rate as

$$\frac{U'(C_{t+1})}{U'(C_t)} = \left(\frac{1 + \rho}{1 + r}\right) \qquad (14)$$

If the intertemporal utility function has constant elasticity, ε, Hanna, Fan, and Chang (1995) show that the optimal growth rate in consumption can be approximated by

$$G_c \approx \frac{r - \rho}{-\varepsilon} \qquad (15)$$

Hanna, Fan, and Chang (1995) review estimates of ε and ρ, with various studies using macroeconomic data, household data, and introspective thinking. Using different hypothetical questions, Barsky et al. (1997) with a sample of adults over 50, and Hanna, Gutter, and Fisher (2003) with a student sample, estimate the mean value of $-\varepsilon$ as roughly 5. The personal discount rate, ρ, is sometimes assumed in economic theory to be equal to the real rate of return (e.g., Findley and Caliendo, 2008), but that assumption originates from models of the economy based on a representative household. Other studies attempt to infer personal discount rates from consumer choices, for instance, for models of household appliances with different levels of energy efficiency. However, for normative purposes, these studies may not be very appropriate, given the likelihood of consumer ignorance, lack of computational ability, and various household budget constraints that are difficult to assess.

An introspective approach can help illustrate the issue of estimating plausible values of ρ for normative applications. Imagine a world with a zero real interest rate. What value would you place on the utility of consumption next year compared to the utility of consumption this year? If your household and health situation will be the same, and you can imagine the consumption, it seems plausible that you should value the utility of consumption next year the same as this year. On the other hand, if you are comparing the value for this year compared to the value of the utility of consumption 50 years from now, you might place a lower value on the future consumption because of the probability that you would be dead then. For normative purposes Hanna et al. (1995) assume that ρ should be based on the annual risk of death, so it would have a value of roughly 0.001 for somebody age 20, and the cumulative effect would be substantial in terms of decades of compounding the effects. They also assume that ρ is related to planned changes in household size, so that a couple planning to have two children would value the utility of consumption this year less than they value the utility of consumption when both children have been born.

If we accept the Hanna et al. (1995) assumptions, then most households under the age of 75 who do not plan to have a larger household size in the future should plan to have positive consumption growth. They will attempt to smooth consumption but with an upward pattern as long as the real rate of return r is higher than ρ.

Acknowledgment

References

Bae, S. C., & Sandager, J. P. (1997). What consumers look for in financial planners. *Financial Counseling and Planning, 8,* 9–16.

Barsky, R. B., Juster, F. T., Kimball, M. S., & Shapiro, M. D. (1997). Preference parameters and behavioral heterogeneity: An experimental approach in the Health and Retirement Study, *Quarterly Journal of Economics, 112,* 537–579.

Brown, J. R., & Poterba, J. M. (2000). Joint life annuities and annuity demand by married couples. *The Journal of Risk and Insurance, 67,* 527–554.

Bucks, B. K., Kennickell, A. B., Mach, T. L., & Moore, K. B. (2009). Changes in U.S. family finances from 2004 to 2007: Evidence from the Survey of Consumer Finances. *Federal Reserve Bulletin, 95,* A1–A55.

Calvet, L. E., Campbell, J. Y., & Sodini, P. (2007). Down or out: Assessing the welfare costs of household investment mistakes. *Journal of Political Economy, 115,* 707–747.

Campbell, J. Y. (2006). Household finance. *Journal of Finance, 61,* 1553–1604.

Certified Financial Planner Board. (2006). *Topic list for CFP® Certification Examination* (available at www.cfp.net/downloads/Financial Planning Topics 2006.pdf).

Chang, M. L. (2005). With a little help from my friends (and my financial planner). *Social Forces, 83,* 1469–1498.

Cocco, J. F., Gomes, F. J., & Maenhout, P. J. (2005). Consumption and portfolio choice over the life cycle. *Review of Financial Studies, 18,* 491–533.

Elmerick, S. A., Montalto, C. P., & Fox, J. J. (2002). Use of financial planners by U.S. households. *Financial Services Review, 11,* 217–223.

FPA and Ameriprise Value of Financial Planning Study. (2008). FPA Press (available at www.fpaforfinancialplanning.org/WhatisFinancialPlanning/FinancialPlanningWeek).

Findley, T. S., & Caliendo, F. (2008). Does it pay to be SMarT? *Journal of Pension Economics and Finance, First View Article,* 1–24.

Freyland, F. (2004). Household composition and savings: An overview. *Sonder Forschungs Bereich, 504,* WP No. 04-69.

Hanna, S., Fan, X. J., & Chang, Y. R. (1995). Optimal life cycle savings. *Financial Counseling and Planning, 6,* 1–15.

Hanna, S. D., Gutter, M. S., & Fisher, P. J. (2003). Risk aversion and the elasticity of marginal utility with respect to consumption. *Consumer Interests Annual, 49.*

Hanna, S. D., & Lindamood, S. (2004). An improved measure of risk aversion. *Financial Counseling and Planning, 15,* 27–38.

Hanna, S. D., Lindamood, S., & Huston, S. J. (2009). National household datasets for financial research: Survey of Consumer Finances. *Proceedings of the Academy of Financial Services* (available from www.academyfinancial.org/09Conference/09Proceedings/(2E) Hanna, Lindamood, Huston.pdf).

Phillips, L. W., & Calder, B. J. (1979). Evaluating consumer protection programs: Part I. Weak but commonly used research designs. *Journal of Consumer Affairs, 13,* 157–185.

Phillips, L. W., & Calder, B. J. (1980). Evaluating consumer protection programs: Part II. Promising methods. *Journal of Consumer Affairs, 14,* 9–36.

Poterba, J, Rauh, J., Venti, S., & Wise, D. (2003). *Utility Valuation of Risk in Retirement Saving Accounts.* NBER Working Paper 9892.

Schulaka, C. (2009). What is the value of financial planning? *Journal of Financial Planning, 22,* 14.

Stango, V., & Zinman, J. (2009). Exponential growth bias and household finance. *Journal of Finance, 64,* 2807–2849.

Warschauer, T. (2008). The economic benefits of personal financial planning. *Proceedings of the 2008 Academy of Financial Services Annual Conference,* unpaginated, distributed on a CD.

White, B. B. (1978). Empirical tests of the life cycle hypothesis. *American Economic Review, 68,* 547–561.