

New Evidence on the Demand for Advice within Retirement Plans

Abstract

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We study demand for advice by retirement plan participants using administrative records from defined contribution retirement plans offered by 23 institutions where TIAA is the sole recordkeeper. We distinguish advice on asset allocation from advice on retirement income levels, and between participants who are and are not eligible for TIAA's wealth management services. We find that advice seeking increases with age, account balance and annual contribution level, and is highest among those eligible for wealth management services. However, we also find persistent differences in participant engagement. Participants with web access to their account are approximately twice as likely to seek advice as those without web access. This remains true even when we instrument a new participant's choice of web access this year with the fraction of new participants at the same institution who enabled web access last year, suggesting that providing web access by default may increase advice seeking. On the other hand, participants who invest solely through target-date funds—the dominant default investment option—are significantly less likely to seek any form of advice, even when they are approaching retirement age. Consequently, in the absence of proactive measures that cause defaulted participants to engage with their retirement plans, plan sponsors may need to develop retirement income defaults. We find that advice seeking increases around changes in marital status, but only limited evidence that it increases around investment menu changes.

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1. Introduction

The level of defined contribution (DC) retirement assets that participants can expect at retirement depends crucially on how they manage their retirement portfolios. Yet, many participants lack the financial knowledge required to effectively manage these portfolios on their own.¹ There are two channels through which plan sponsors and policymakers can potentially improve the quality of retirement savings decisions: a passive channel and an engagement channel. The passive channel relies on the extensive use of standardized default provisions—including a default investment option—to make choices for participants. By contrast, the engagement channel relies on a suite of education, guidance and advice services that help participants make their own customized portfolio choices.² The literatures on defaults and financial education are large and established.³ In contrast, the literature on “advice” (by which we mean guidance and advice) is nascent and largely focused on the quality of advice given to households outside of their retirement plans.⁴ The greater the heterogeneity in household preferences, savings needs and budget constraints (as highlighted by Samwick (2006)), the greater the potential benefit of engagement.

In this paper, we use participant-level data from 23 institutions served by TIAA between 2009 and 2014 to analyze demand for advice within retirement plans. We distinguish advice on asset allocation from advice on retirement income levels, and between participants who are and are not eligible for TIAA’s wealth management services. Our general prediction is that participants will seek advice when the expected benefit of doing so exceeds the expected cost. For example, we expect advice seeking to increase with the level of retirement

account balances (which increases the expected benefit of advice) and with the introduction of online tools (which reduce the cost of seeking advice). To the extent that investor heterogeneity increases over time, we also expect demand for financial advice to increase with age. Consistent with these cross-sectional predictions, we find that advice seeking increases with age, account balance, and annual contribution level, is highest among those eligible for wealth management services, and increases four-fold once the online tools are available.

However, we also find persistent differences in participants’ level of engagement with their retirement accounts. Univariate comparisons reveal that participants who sought advice on asset allocations or retirement income levels during the last calendar year are several times more likely to seek the same form of advice this calendar year. Controlling for age and contribution level, we find that participants who invest through multiple retirement plans exhibit higher levels of advice seeking than participants who invest through a single plan (either the primary plan or a supplemental plan).⁵ On the other hand, we find that the likelihood of seeking advice is significantly lower if the participant invests solely in target-date funds (TDFs), the dominant default investment option within our sample—and within the population of DC retirement plans. In other words, while TDFs provide the representative participant with an auto-diversified long-term investment option, reliance on TDFs appears to reduce retirement plan engagement, which may result in the participant receiving less advice on how to customize her portfolio, ensure savings adequacy and, ultimately, draw down plan assets in retirement in response to her particular financial situation.

Another strong predictor of participant engagement is whether the participant has web access to her retirement

¹ See Lusardi and Mitchell (2014) and the articles cited therein.

² We discuss the distinction between guidance and advice in Section 2.

³ The literature on the effect of defaults began with Madrian and Shea (2001) and continues through Mitchell and Utkus (2012) and Balduzzi and Reuter (2015). The literature on the effect of financial education is summarized in Fernandes, Lynch, and Netemeyer’s (2014) recent meta study.

⁴ See Bergstresser, Chalmers, Tufano (2009), Hackethal, Inderst, Meyer (2012), Mullainathan, Nöth, and Schoar (2012), Christoffersen, Evans, Musto (2013), and Del Guercio and Reuter (2014). The exception is Chalmers and Reuter (2015), which our project helps to extend.

⁵ Most participants have access to both a primary and a supplemental DC plan. We describe this type of plan design structure in Section 3.

account. To better identify the impact of web access on advice seeking, we instrument the web access of a new participant at institution j in year t with the fraction of new participants at institution j that signed up for web access in year $t-1$. The identifying assumption is that the different web access rates of new participants across institutions reflect differences in institutional outreach to new participants, rather than unobserved differences in participant preferences. In our instrumental variable specifications, we continue to find an economically strong positive effect of web access on advice seeking, suggesting that providing web access to new participants by default may increase the fraction of participants who seek advice.

To measure the effects of market returns and market volatility on advice seeking by those invested solely in TDFs, we exploit the fact that different institutions offer TDFs managed by different firms (TIAA, T. Rowe Price, Vanguard, and Wells Fargo), with different risk exposures. When we limit the sample of participants who invest only in a single TDF and we include target-date-by-calendar year fixed effects, we find little evidence that advice seeking responds to the level or volatility of market returns. This finding raises further questions about when (or if) participants defaulted into TDFs will actively engage with their retirement plan.

Finally, we find only limited evidence that advice seeking increases around investment menu changes. In our baseline specifications, which exploit both cross-sectional and time-series variation, we find that participants are more likely to seek advice on asset allocation and retirement income levels when the investment menu in the institution's primary plan is larger. However, when we limit ourselves to time-series variation in menu size (by including institution-fixed effects), we no longer find that larger menus are associated with higher levels of advice on asset allocation.

Our research question is closest to Chalmers and Reuter (2015), who study demand for investment recommendations within a single defined contribution retirement plan. In their context, participants must choose whether to invest through a broker or invest on

their own. They find that demand for brokers is declining in age, income and educational attainment, and they conclude that brokers appeal most strongly to investors with lower levels of financial confidence. When brokers are no longer available to new participants, they find that those participants with the highest predicted demand for brokers have the highest observed demand for TDFs. In other words, they find that TDFs substitute for in-person advice. In our setting, everyone has access to both advice and default investment options, allowing us to provide more direct evidence that reliance on defaults reduces demand for customized advice.

In Section 2, we discuss our empirical predictions. In Section 3, we describe our empirical setting. In Section 4, we report plan-level and participant-level characteristics. In Section 5, we describe how demand for different types of advice varies across calendar years and how it varies across different participant characteristics, such as age and annual contribution level. In Section 6, we compare monthly demand for advice within the full sample of participants to that within the subsample of participants invested solely in TDFs. In Section 7, we measure the persistence of advice seeking from one calendar year to the next. In Section 8, we estimate a series of OLS regressions to isolate the effect of participant characteristics and plan menu size on advice seeking. In Section 9, we summarize our main findings, discuss the potential welfare consequences of participant disengagement, and outline directions for future research.

2. Empirical predictions

Retirement plan participants should seek advice on asset allocation or retirement income levels when the expected benefit of receiving this advice exceeds the expected cost of seeking it. Of course, the perceived benefits and costs of advice will vary across participants and over time. Our initial set of predictions focuses on heterogeneity in participant account balances, contribution levels and age. First, because the (dollar) cost of financial mistakes is likely to increase with the level of assets, we predict that demand for advice will increase with retirement account balance. Second, because participants with

higher salaries are likely to receive lower replacement rates from Social Security, their retirement account balances will need to cover a larger fraction of their retirement expenses. Consequently, we predict that demand for advice will increase with the level of the annual retirement contribution, which should be strongly, positively correlated with the level of the participant's (unobservable-to-us) salary. Third, because we expect investor heterogeneity to increase with age, we predict that demand for advice will increase with age. To the extent that we are able to observe changes in family structure (e.g., marital status), we predict that demand for advice will increase in the year of these changes. Fourth, we predict that demand for advice on retirement income levels will increase as participants approach (or pass) their Social Security normal retirement age.

Our second set of predictions focuses on participant engagement. In particular, we predict that participants who perceive less benefit to receiving customized advice—perhaps because they are less confident in their ability to implement it—will be less likely to seek it out and more likely to rely on default savings rates and default investment options. We further predict that contributors will be more engaged than non-contributors, participants with access to advice in all of their accounts will be more engaged than participants with access to a mixture of advice and guidance, and that participants with web access will be more engaged than participants without web access (even after we attempt to address the endogeneity of web access).

Our final set of predictions focus on changes in plan architecture. To the extent that participants find it less costly to use online tools than to seek in-person advice, we predict that demand for advice will increase with the introduction of online tools—at least among those participants with web access to their account. In addition, when institutions make significant changes to their investment menus, we predict that demand for

advice on asset allocation will increase—at least among those participants not invested in the default investment option.

3. Empirical setting

The data analyzed in our paper come from TIAA administrative records. The sample consists of participants covered by retirement plans sponsored by 23 institutional clients for which TIAA is the sole recordkeeper. We observe data on both plans and participants between January 2009 and December 2014.⁶ At the plan level, we observe the number of participants in each plan, which plans have a default investment option, the type of default investment option, and how the structure of investment menus changes over time. At the participant level, we observe demographics (gender, age and marital status), contribution levels (for those who contribute), account balances, investment portfolio allocations, each participant's portfolio rate of return (calculated each quarter and year), and whether the participant is fully invested in the default investment option. Finally, we observe participant-level demand for advice each quarter.⁷

Participants have access to three tools for “advice.” The first tool is based on a “Human Capital” (HC) model that provides advice on how to allocate retirement holdings across investments, how much life insurance to hold, and how much to contribute to retirement plans. The second tool is a retirement Income Planner (IP) that uses a participant's existing retirement account balances and target retirement age to forecast the annuity equivalent level of income available throughout retirement. The third tool is a traditional asset allocation Risk Tolerance (RT) model that is utilized by TIAA's wealth management advice services. This tool provides a full set of recommendations including asset allocation (both within and outside of retirement plans), debt management and

⁶ Most nonprofit employers offer a primary retirement plan and at least one supplemental retirement plan. Within our sample, some workers participate in multiple plans, some in a primary plan only, and some in a supplemental plan only.

⁷ All participant-level data were analyzed by employees of TIAA Institute. Professor Reuter helped direct the statistical analysis, but was not given access to any of the confidential participant-level data.

estate planning. Because the RT tool is limited to wealth management clients, the majority of the participants in our sample lack access to it. For this reason, we tend to focus on demand for advice through the HC and IP tools.

Participants can receive advice through two channels: in-person or online. The in-person channel includes field consulting services at a participant's place of employment, a phone center that participants can contact for advice, and meetings with wealth management advisers. The online channel was introduced towards the end of 2011 and requires that the participant enroll for access to the TIAA website. The HC and IP tools can be utilized through either channel. The RT tool is only available through the in-person channel.

The last institutional detail to highlight is the distinction between financial advice, which is specific, and financial guidance, which is general. For example, the recommendation to invest 60% of your retirement assets in the CREF Equity Index Account constitutes financial advice because it references a specific investment option whereas the recommendation to invest 60% in a large-cap equity index fund constitutes financial guidance. The reason this distinction matters is that some participants have access to advice in all of their TIAA retirement accounts while others have access to a mixture of advice and guidance. Consequently, some participants seeking asset allocation advice will receive specific investment recommendations, which can be immediately implemented, and others will receive more general recommendations, which require additional decisions on the part of the participant to implement. We observe which participants have access to advice versus guidance, but only between 2012 and 2014.

4. Summary statistics

a. Plan-level summary statistics

Our sample consists of participants working for an employer that used TIAA as its retirement plan sole recordkeeper for each year from 2009 to 2014. Focusing on employers using a sole recordkeeper guarantees

that we observe participation within both primary and supplemental plans, and it maximizes the likelihood that we observe demand for plan-offered advice by plan participants. The 23 institutions are all large employers, both in terms of the number of workers and retirement plan assets. Throughout our sample, the median number of retirement plans offered at an institution is three. The most common plan type is a 403(b), which accounts for 50.4% of our plan-year observations. Every institution offers at least one 403(b) retirement plan, and the median institution offers two plans—a primary plan in which all covered workers must participate and a supplemental plan that covered workers may choose to participate in voluntarily. The next most common plan types are non-qualified deferred compensation plans (e.g., 457(b) and 457(f)), followed by 401(a) plans, a small number of 401(k) plans, and one retirement healthcare savings plan. The number of plans increases from 82 in 2009 to 90 in 2014, largely because the number of non-qualified deferred compensation plans increases from 27 to 34. No plans were discontinued in our sample period. We report selected plan-level summary statistics in Appendix Table 1.

Investment menus vary across institutions and plans. The standard default investment option is a target-date fund (TDF). The number of plans offering TDFs grows from 73 in 2009 (89.0% of the plans in our sample) to 85 in 2014 (94.4%). TDFs are missing from 6.4% of the 403(b) plan-years and from 17.3% of the non-qualified deferred compensation plans, but are offered in all primary plans throughout our sample period and in all other supplemental plans. The number of investment options varies across plans. While the average number rises over our sample period from 21.1 to 24.2, the maximum number declines from 63 to 42.⁸ These patterns are similar regardless of whether we focus on the investment menus of primary or supplemental plans. The fact that some institutions offer larger investment menus than other institutions allows us to explore how menu size impacts demand for advice by plan participants.

⁸ The increase in menu size is not driven by the addition of TDFs. As we note, 89.0% of plans offered TDFs at the beginning of our sample. Moreover, when performing these calculations, we count all of the TDFs on an investment menu as a single option.

An interesting trend to notice over the sample period is the changing fraction of investment options managed by firms other than TIAA. There are several ways to measure this trend. First, the number of institutions only offering TIAA investment products falls from 18 in 2009 to 7 in 2014. Second, the average fraction of investment products offered by TIAA declines from 94.2% in 2009 to 76.0% in 2014. Third, the average number of mutual fund families offering investment products on each investment menu rises from 1.7 to 5.2. Across the 90 retirement plans, we observe investment products from TIAA and 45 other firms. Finally, whereas 100% of the TDFs offered within our sample in 2009 were managed by TIAA, there are four providers in 2014: TIAA has 75.3% of the market within our sample of plans, T. Rowe Price has 14.1%, Vanguard has 8.2%, and Wells Fargo has 2.4%. The fact that different participants are being defaulted in TDFs from different firms allows us to more cleanly estimate the effect of TDF returns on demand for advice.

By way of comparison, Pool, Sialm, and Stefanescu (2016) report summary statistics in 2009 (the end of their sample period) for 979 retirement plans offered by 849 401(k) plan sponsors. Because their data come from Form 11-K, they are focused on the DC retirement plans of a selected sample of publicly traded firms subject to ERISA regulations. The average number of options is 17.8 in 2009 (up from 7.0 in 1998) and the average number of mutual fund families offering investment products is 7.4 (up from 3.0). Within their sample, mutual fund trustees offer more than a third of the investment options (6.4) and manage 27.1%. In other words, while we observe the same basic trend towards less concentrated investment menus, our sample remains more concentrated in 2014 than the Pool et al. sample was in 2009.

b. Participant-level summary statistics

Across the 23 institutions, we observe data on 134,273 participants in 2009 and 159,522 participants in 2014. We report information on sample sizes in Table 1. While the fraction of participants contributing to their retirement accounts declines slightly over our sample period (from 55.0% to 52.4%), there is also an influx of new participants. For example, 13.4% of contributors in

2014 began contributing to one of the retirement plans in our sample during that calendar year. The fraction of participants who allocate all of their retirement account assets to TDFs is higher for contributors than non-contributors (27.9% versus 9.0%), but growing over time for both groups of participants.

We report additional summary statistics in Table 2. Demographic characteristics are comparable to those observed in other retirement plans administered by TIAA. Within our full sample of participant-year observations in 2009-2014, 45.9% of participants are male, and 53.1% are married at the end of the calendar year. By comparing marital status at the end of each calendar year, we estimate that 2.8% of participants get married and another 2.8% become single. The average age is 49.9 (standard deviation of 12.9), the average account balance is \$104,593 (standard deviation of \$227,529), and the average end-of-year personal rate of return is 10.3% (standard deviation of 8.7%). Among contributors, the average annual contribution is \$10,903 (standard deviation of \$25,334). The majority of participants (57.5%) hold all of their assets in their institution's primary plan, while a small proportion (7.9%) hold all of their assets in one of the institution's supplemental plans. Personal rates of return (PRR) average 10.3% per year within the full sample of participants and calendar years. The standard deviation of quarterly personal rates of returns during a calendar year is higher for new contributors (5.3%) and contributors (4.5%) than for the full sample (4.1%) because contributors tend to have portfolios with higher average allocations to equity.

Between 2012 and 2014, we observe which participants have web access to TIAA account information. We find that 68.4% of participant-years have access to online advice, implying that the other 31.6% of participant-years have not established online access. Another way to cut the sample is based on whether participants are limited to financial guidance (versus financial advice) in one or more of their TIAA retirement accounts. Between 2012 and 2014, when we observe this variable, 22.5% of the full sample and 21.5% of contributors are limited to financial guidance in at least one of their plans. New contributors are less likely to have web access (57.9%

versus 70.1% for the full sample of contributors) and more likely to be limited to guidance (28.8% versus 21.5%).

All but one of the primary retirement plans in our sample offers TDFs as the default investment option.⁹ For this reason, we refer to participants who hold 100% of their retirement assets in TDFs as “Defaulters.” Among the full sample of contributors, 27.9% are Defaulters. (Table 1 reveals a strong positive time trend; the fraction was 21.5% in 2009-2011 and 33.8% in 2012-2014.) Among the sample of new participants who began contributing in each calendar year, the fraction of Defaulters jumps to 72.9%.

Table 3 reports the fraction of participants with web access for each year between 2012 and 2014, separately for contributors and non-contributors. The fraction has increased over time for both groups, but has remained slightly larger for contributors. Table 3 also reports the fraction of participants who are limited to financial guidance in at least one of their retirement plans each year between 2012 and 2014. This fraction is slightly higher at the end of the sample than in 2012 for both groups of participants, but always below 25.0%.

5. Broad patterns in the demand for advice

We begin by documenting the fraction of participants who seek different types of advice each year between 2009 and 2014. We compare contributors to non-contributors, older participants to younger participants, and participants with larger account balances to those with smaller account balances. As we describe below, these univariate comparisons reveal interesting—and economically significant—differences in the level of advice seeking across different groups of participants.¹⁰

Table 4 reports the fraction of retirement plan participants that seek advice at least once in each calendar year. For example, 4.89% (7,795) of the 159,522 participants sought advice on asset allocation at least once in 2014; 5.01% (7,994) sought advice on retirement income streams at least once in 2014; and 1.75% (2,785) sought advice through TIAA’s wealth management services at least once in 2014.¹¹

Table 4 reveals three interesting facts. First, demand for advice (outside of wealth management) was much higher between 2012 and 2014 than it was between 2009 and 2011. This structural break partly reflects the introduction of online tools, which are less costly for participants to access (and less costly for TIAA to provide) than in-person advice. Second, now that the online tools are available, approximately 10% of plan participants are receiving some form of advice from TIAA each year. While this may or may not be the optimal level of advice, it is a four-fold increase relative to the earlier period. Third, the fact that 9.71% (15,484) of the 159,522 participants sought at least one type of advice in 2014 implies there is relatively low overlap between those seeking advice on asset allocation (7,795) and those seeking advice on retirement income streams (7,994).¹² Finally, we report the fraction of participants that seek advice at least once each year through the in-person or online channels. Because wealth management advice (the RT tool) is always delivered in person, we focus only on the HC and IP tools. The online HC tool and both versions of the IP tool were introduced in late 2011. We find significant demand for advice through the online tools. However, we also find a significant jump in demand for in-person advice between 2011 and 2012, suggesting that online and in-person advice are complements.

⁹ Mitchell and Utkus (2012) and Chalmers and Reuter (2015) both document significant demand for target-date funds, especially when they are the default investment option.

¹⁰ Because our data on advice seeking begin in January 2009, we are unable to observe advice seeking before or during the significant equity market decline in 2008. Consequently, we are unable to measure advice seeking over the recent financial crisis.

¹¹ In Table 4, when we calculate that 1.75% of participants that demand wealth management advice in 2014, we are dividing the number of participants that seek advice through the RT tool by the total number of participants. In Table 9, we estimate demand for advice separately for those who are and are not eligible for TIAA’s wealth management services.

¹² For example, if we assume that none of the 2,785 participants who receive advice through wealth management services separately receive advice on asset allocation or the level of retirement income, then the 7,795 participants seeking advice on asset allocation (the HC tool) and the 7,994 participants seeking advice on retirement income (the IP tool) must come from a pool of 12,699 distinct participants.

In Tables 5 through 7, we explore how advice seeking varies with age, account balance and contribution level. All three tables focus on the period 2012-2014, when participants have access to both in-person and online advice. Table 5 places participants into age groups based on their age at the end of each calendar year. It reveals that demand for advice increases sharply with age. While the increase is largest for the IP tool (13.21% for contributors age 60+ versus 3.80% for those age 20-29), it is also economically significant for the HC tool (10.21% versus 6.62%). Whether there are participants who only begin seeking advice on asset allocation in their 60s—when the advice may be of more limited use—is unclear. The fact that demand for the RT tool increases with age is likely to reflect, at least in part, the fact that account balances (and hence eligibility for wealth management services) increase with age.

Because we expect contributors will be more likely to seek advice through TIAA than non-contributors, we distinguish between contributors and non-contributors. Indeed, we find significantly lower demand for advice from the sample of non-contributors, especially with respect to advice on asset allocation, which it decreases from 8.83% to 2.75% within the full samples, and by similar magnitudes within each of the age groups.

The bottom panel has the same structure, except that it compares contributors who do and do not have all of their retirement assets invested in TDFs at the end of the calendar year. This comparison reveals that Defaulters have systematically lower demand for any type of advice than peers in the same age range. This finding is similar in spirit to Chalmers and Reuter's (2015) finding that demand for TDFs increase when access to in-person financial advice is reduced. Most provocatively, although 14.71% of those aged 60+ seek advice on retirement income levels in the full sample, only 4.52% of Defaulters do so, raising questions about the level of engagement of Defaulters as they head into retirement.

Table 6, which has the same structure as Table 5, places participants into three groups based on their

retirement account balances at the end of each calendar year. The first group consists of participants whose account balances fall into deciles 1-5; the second group consists of participants whose account balances fall into deciles 6-9; and the third group consists of participants whose account balances fall into the top decile. Not surprisingly, given that eligibility is tied to a participant's account balance, we find that demand for the RT tool is concentrated among participants with the largest account balances. However, we also find that demand for the HC and IP tools increases significantly with account balance.¹³ For example, demand for the HC tool in the top decile is approximately three times higher than in the bottom 5 deciles (14.63% versus 5.68% for contributors and 6.21% versus 1.61% for non-contributors). Within account balance groups, demand for advice by contributors is significantly higher for non-contributors, suggesting uniformly higher levels of engagement by contributors. Finally, we continue to find that Defaulters have significantly lower levels of demand for advice than contributors who do not invest solely in TDFs, although the differences for the HC and IP tools are not statistically significant for participants whose account balances are in the top decile.

Table 7 focuses on demand for advice by different subsamples of contributors. The top panel compares new participants (i.e., those contributing during their first calendar year) to existing participants (i.e., those who already contributed during at least one calendar year). The bottom panel compares Defaulters to all other contributors. The first group consists of participants whose (non-negative) annualized contributions fall into deciles 1-5; the second group consists of participants whose contributions fall into deciles 6-9; and the third group consists of participants whose contributions fall into the top decile. While we find that new contributors have lower average demand for advice than existing contributors, this does not reflect uniformly lower levels of demand within contribution ranges so much as a sample that is skewed toward the lowest contribution range. In fact, new contributors tend to have higher

¹³ Table 6 is restricted to the set of contributors with positive account balances, resulting in a slightly smaller sample size. The small difference in sample sizes between Tables 5 and 6 explains the small differences in the "All" demand by contributors.

The full set of independent variables includes dummy variables indicating whether participant i is male; newly single in calendar year t ; newly married in calendar year t ; continuously married between calendar years $t-1$ and t ; joined the plan in calendar year t ; invests only in the institution's primary plan; invests only in one of the institution's supplemental plans; holds only TDFs in her retirement account(s); is limited to financial guidance (instead of financial advice) in one or more of her retirement plans; and has web access by the end of calendar year t . We also include five continuous variables: participant i 's personal rate of return during calendar year t (measured in excess of the return on the S&P 500 index), the standard deviation of participant i 's quarterly personal rates of return during calendar year t , the interaction of each return measure with the dummy variable measuring whether participant i holds only TDFs, and the number of investment options available in the institution's primary plan. Finally, we include a separate fixed effect for each of the age groups (20-29, 30-39, 40-49, 50-59, 60+), and a separate fixed effect for each of the three contribution level groups (deciles 1-5, deciles 6-9 and decile 10).

We restrict our sample to those participants who are currently contributing to one or more of the retirement plans in our sample. When modeling demand for the RT tool, we restrict our sample to the 7.5% of contributors who are eligible to receive advice through TIAA's wealth management services. When modeling demand for "Asset Allocation" (the HC tool) and "Income Planner" (the IP tool), we estimate one set of specifications on the 92.5% of participants who are not eligible to receive advice through TIAA's wealth management services, and another set of specifications on the 7.5% of participants who are eligible for TIAA's wealth management services but may prefer to access advice online or use other in-person channels.

As discussed in Section 2, we expect new participants are more likely to seek advice than existing participants, that participants contributing to a single plan are less likely to seek advice than participants contributing to multiple plans, and that participants who rely entirely on TDFs are less likely to seek advice than participants

who chose different investment options. To the extent that we are able to accurately observe changes in marital status, we expect more advice seeking when participants are newly single or newly married. Because participants who lack web access are unable to access online advice tools, we expect web access to be associated with greater demand for asset allocation (HC) and income planner (IP) advice, especially outside of wealth management services (the RT tool). We also expect participants are more likely to seek advice when their portfolio returns are below those earned in equity markets—under the assumption that participants focus more on the raw returns reported in their statements than on the risk-adjusted returns that they would need to calculate for themselves—or when their quarterly personal returns of return have been more volatile. To the extent that participants passively invest only through TDFs are less likely to seek advice overall, they may also be less likely to seek advice in response to portfolio returns. Participants who are limited to financial guidance may be less likely to seek advice, if they anticipate that the advice will be more difficult to implement. Finally, participants may be more likely to seek advice when their institution offers more options in the primary plan (or more likely to rely on the default investment option).

When interpreting the estimated coefficients on the dummy variables, it is helpful to compare them to the mean of the dependent variable during our sample period, which we report near the bottom of each table. In Table 9, which contains our first set of regressions, the fraction seeking advice in year t ranges from a low of 6.3% for income planner (IP) among those not eligible for wealth management services to a high of 18.2% for wealth management services (RT) among those who are eligible.

When we focus on demand for advice by participants who are not eligible for wealth management services in Table 9, the patterns are broadly consistent with our expectations. New participants are 1.2 percentage points more likely to seek advice on retirement income levels (the IP tool), but no more likely to seek advice on asset allocation (the HC tool). Changes in marital status also predict increases in advice seeking, especially for

those classified as newly single. In contrast, participants contributing to a single plan are between 4.0 and 6.5 percentage points less likely to seek advice, while those investing only in TDFs are between 4.5 and 4.7 percentage points less likely to do so. All of these differences are economically significant relative to the sample means of 8.9% for asset allocation and 6.3% for income planner. Our interpretation is that those investing in a single plan, or fully invested in the default investment option are *less engaged* than the average participant. Participants limited to guidance in some or all of their retirement plans are also between 0.8 and 1.4 percentage points less likely to seek advice. In contrast, the 68.4% of participants with web access are between 5.7 and 7.3 percentage points more likely to seek advice. Because web access reflects a separate participant choice, these marginal effects potentially overstate the casual effect of web access on advice seeking. (We explore this issue in Table 11.) Regardless, these results highlight the important role that online tools have come to play in the provision of and demand for financial advice.

The cross-sectional correlation between personal rates of return and advice seeking is positive for asset allocation (HC tool) and negative for income planner (IP tool), but neither effect is economically large. A one-standard deviation increase in PRR (8.4% for this sample of participants) increases the likelihood of seeking advice by 0.5 percentage points for the HC tool and decreases it by 0.1 percentage points for the IP tool. The negative interaction term implies that participants who invest solely in TDFs are even less likely to seek asset allocation advice following positive abnormal returns, resulting in an overall correlation that is quite close to zero.¹⁵ When we focus on the volatility of quarterly portfolio returns, we find that a one-standard deviation increase in the volatility of quarterly portfolio returns (2.0 percentage points) is associated with slightly higher demand for the HC tool (0.3 percentage points) and slightly lower demand for the IP tool among participants not invested solely in TDFs (0.4 percentage points). The

positive interaction term in the second column implies that more volatile portfolio returns are associated with higher demand for the IP tool among participants invested solely in TDFs (a finding which we revisit in Table 12).

With respect to menu design, we find that larger menus are associated with greater demand for advice. In 2014, the smallest number of options is 16 and the largest number of options is 42, a difference of 26 options (Appendix Table 1). Increasing the number of options by 26 is associated with a 6.0 percentage point increase in demand for asset allocation advice (the HC tool) and a 6.5 percentage point increase in demand for the income planner (IP) tool. Finally, we find that males are slightly more likely to seek investment advice than females (1.2 percentage points more likely for the HC tool and 1.9 percentage points more likely for the IP tool).

In the remaining three columns, we focus on advice seeking by participants who are eligible to use TIAA's wealth management services, but also free to seek advice through the other two channels. Average demand for advice is uniformly higher within this sample of participants, ranging from 11.9% for the HC tool to 18.2% for the RT tool. However, fewer of estimated coefficients on participant characteristics are statistically significant. The most robust findings are that demand for advice is lower when the participant invests only through the primary plan (decreases between 1.3 and 4.2 percentage points), higher when the participant has web access (increases between 6.6 and 12.0 percentage points), and higher when the number of investment options in the primary plan is higher (increases between 3.1 and 7.8 percentage points when the number of options increases by 26). While two of the three estimated coefficients on the TDF-only dummy variable are large and negative, neither is statistically significant within this sample. The largest difference between demand for wealth management services and the other tools is the increased sensitivity of advice seeking to portfolio returns; within this sample, a one-standard deviation increase in PRR (7.5% for this sample)

¹⁵ $0.0448 + -0.0546 = -0.0098$

reduces the likelihood of seeking advice through wealth management by 1.2 percentage points. With respect to gender, we find that males are more likely to use the HC and IP tools, and less likely to use the wealth management services.

Table 10 extends the specifications in Table 9 by including a separate fixed effect for each of the 23 institutions, thereby controlling for time-invariant differences in advice seeking across institutions. Among participants who are not eligible for wealth management services, the significance levels are broadly similar to those reported in Table 9. However, the estimated coefficients on the primary plan only, supplemental plan only, and limited to guidance-dummy variables are uniformly lower than in Table 9, and the number of options in the primary plan (which is now being estimated using within-plan time-series variation in menu size) is no longer positively correlated with demand for the asset allocation tool. The patterns are similar when we focus on demand for these same tools among participants who are eligible for wealth management services. Namely, being limited to guidance no longer reduces demand for the income planner (IP) tool and within-institution time-series changes in the number of investment options in the primary plan are no longer positively correlated with demand for the asset allocation tool. In other words, while plans with larger investment menus have higher average levels of demand for advice on asset allocation between 2012 and 2014, demand does not rise or fall within institution as the number of investment options rises or falls.¹⁶ Including the institution-fixed effects has the least impact on demand for TIAA's wealth management services; the estimated coefficients and significance levels are similar to those reported in Table 9.

b. Advice seeking by new contributors

Table 11 studies demand for financial advice by new contributors. Because relatively few new contributors are

eligible for TIAA's wealth management services, we focus on the sample of participants who are not eligible for these services. In addition, because our personal rate-of-return measures are only defined for new contributors who began contributing during the first quarter of the calendar year, we exclude these measures (thereby increasing our sample size from 8,302 to 28,254).¹⁷ We estimate both OLS and IV specifications. While the patterns in the OLS regressions are qualitatively similar to those for the full sample of contributors in Table 9, economic significance increases. Participants contributing to a single plan are now between 6.9 and 9.3 percentage points less likely to seek advice, while those investing only in TDFs are now between 5.2 and 7.4 percentage points less likely to do so. At the same time, average demand for advice through the HC and IP tools in each calendar year is lower within this sample than within the full sample (6.2% versus 8.9% for the HC tool and 3.8% versus 6.3% for the IP tool).¹⁸

The IV specifications are intended to measure the causal impact of web access on advice seeking *within the sample of new participants*. Our instrument for web access by participant i at institution j in year t is the fraction of new participants at institution j in year $t-1$ that had web access. The identifying assumption is that these across-institution differences reflect idiosyncratic differences in the promotion of web access by human resources at the time of employment or institutional outreach during the next few months of employment, rather than underlying differences in participant preferences for advice or financial sophistication. The IV estimates for web access are large, positive and statistically significant at the 1% level for both types of advice. These findings suggest that web access has a causal impact on advice seeking.

¹⁶ Because plan sponsors can change the composition of an investment menu without changing the number of funds on offer, we also estimate (unreported) versions of the specifications in Table 11 that include measures of menu turnover between year $t-1$ and year t . Doing so reveals no consistent link between the level of menu turnover and demand for advice.

¹⁷ Including the change in marital status dummy variables would have reduced the sample size further.

¹⁸ These differences are to be expected because the demand for advice for the majority of new contributors is based on demand during a period that is shorter than twelve months.

The OLS and IV estimates are similar when (in unreported regressions) we limit our dependent variables to online advice seeking in year t . On the one hand, participants with web access are the only ones who can utilize TIAA's online tools. On the other hand, participants who begin by seeking advice online may later seek in-person advice. Indeed, we find that participants who seek online and in-person advice within the same calendar year are significantly more likely to begin with online advice. Between 2012 and 2014, the fraction seeking online advice first was 72.0% for asset allocation and 74.1% for retirement income levels. Interestingly, these fractions are uniformly higher in 2014 (79.7% and 79.7%) than in 2012 (65.9% and 69.4%), suggesting that participants are increasingly likely to use online tools before seeking in-person advice.

The fact that TIAA's asset allocation advice model (HC tool) constructs recommended portfolios using the non-TDF investment options available to plan participants raises the possibility that the negative coefficients on TDF Only in Tables 9 through 11 reflect reverse causation (i.e., participants who seek advice are less likely to invest in TDFs rather than participants who invest in TDFs being less likely to seek advice). To address this concern, we limit our sample to 23,603 new participants who do not seek advice during their first quarter in the plan. We then re-estimate quarterly versions of the OLS specifications in Table 13 that use portfolio characteristics during their first quarter in the plan to predict demand for advice during their second quarter. While the (unreported) coefficients on TDF Only are approximately half as large as those reported in Table 11, they remain statistically significant at the 1% level, reinforcing our conclusion that participants invested in TDFs are less likely to seek advice in the future.

c. Advice seeking by TDF investors

Although we find that participants investing only in TDFs have lower average demand for advice, we would like to know whether they are less likely to seek advice based

on portfolio returns. Some of the interactions terms on the return measures in the earlier regressions were of the opposite sign of the direct terms on these measures, suggesting less sensitivity, while others were of the same sign, suggesting more sensitivity. The empirical challenge is that Chalmers and Reuter (2015) find that participants invested in TDFs hold portfolios with more equity risk relative to participants investing in their own customized portfolio. Therefore, to isolate the impact of TDF returns on advice seeking, we exploit the fact that participants in our sample can be invested in TDFs managed by TIAA (75.3% of participants), T. Rowe Price (14.1%), Vanguard (8.2%), or Wells Fargo (2.4%). The idea is that two participants invested in TDFs with a target retirement date of 2050 may be exposed to different annual returns and quarterly return volatilities due entirely to differences in how these different firms manage their TDFs—a possibility highlighted by Balduzzi and Reuter (2017).¹⁹

Table 12 includes a separate fixed effect for each target-date and calendar-year combination. For example, one of the fixed effects identifies all participants investing in a TDF with a target date of 2050 during calendar year 2013, allowing us to estimate the coefficients on PRR minus the S&P 500 and the standard deviation of quarterly PRRs using cross-sectional variation in the returns earned by the 2050 TDFs offered by different firms in 2013. The point estimates are both close to zero and statistically insignificant. These findings reinforce our earlier findings that Defaulters are significantly less likely to engage with their retirement plans.

9. Summary and directions for future research

Our study of demand for financial advice by retirement plan participants across 23 institutions yields a number of interesting findings. First, demand for advice on asset allocation and income planning jumps four-fold with the introduction of online advice tools, suggesting that there was significant, previously unmet demand for advice. The

¹⁹ There is less cross-sectional variation within our sample of TDF providers than within the broader sample studied by Balduzzi and Reuter (2017). The adjusted R-squared from a regression of the account-level annual returns in Table 14 on target-date-by-calendar-year fixed effects is 0.879, while the adjusted R-squared from a regression of the standard deviation of quarterly returns on target-date-by-calendar-year fixed effects is 0.763.

simplest interpretation is that online tools significantly lower the relative price of advice because many participants find it more convenient to use online tools than to schedule in-person meetings with advisors. But there may also be psychological factors, such as greater anonymity, that lead to an overall increase in demand for advice.

Second, as we predicted, participants are more likely to seek out advice when they have more assets to manage or are getting closer to the Social Security full retirement age. To the extent that investor heterogeneity increases with age (e.g., Samwick (2006)), it is not surprising that demand for advice within DC retirement plans also increases with age. However, the longer participants wait to seek out financial advice, the less valuable they may find advice on savings rates and asset allocation.

Third, there is a strong positive correlation between proxies for retirement plan engagement and the level of advice seeking. Demand is significantly higher among contributors than non-contributors, among contributors whose marital status has changed, among participants who sought advice in the prior calendar year, and among contributors with web access. The fact that we continue to find an economically significant association between web access and advice seeking in our IV specifications suggests that one potential, low-cost “intervention” is to provide web access to all participants by default. At the same time, demand is significantly lower amongst participants that contribute to a single retirement plan or that invest entirely through TDFs, the dominant default investment option.

Fourth, exploiting the fact that different plans offer TDFs managed by different firms, we find little evidence that advice seeking by those invested in TDFs responds to market returns or volatility. Therefore, it remains to be seen when participants invested in TDFs begin to engage with their retirement plan.

Finally, within the sample of participants who are eligible for wealth management services (due to their higher account balances), demand for other forms of advice is significantly higher than within the broader sample of participants, but our ability to explain variation in demand for advice across these participants is somewhat muted.

Whether the lack of engagement by participants invested in TDFs has implications for participant welfare depends on the extent to which the one-size-fits-all approach to advice inherent in default savings rates and TDF glidepaths is a good fit for the sample of participants who invest only in TDFs over time. Participants who rely on default choices and choose not to engage with their retirement plan are likely better off investing in TDFs than money market funds, the dominant default investment options before the Pension Protection Act of 2006. However, they may still benefit from advice on retirement plan savings rates and asset allocation during work life, especially as their family structure and financial circumstances change, and on strategies on how to draw down assets in retirement.

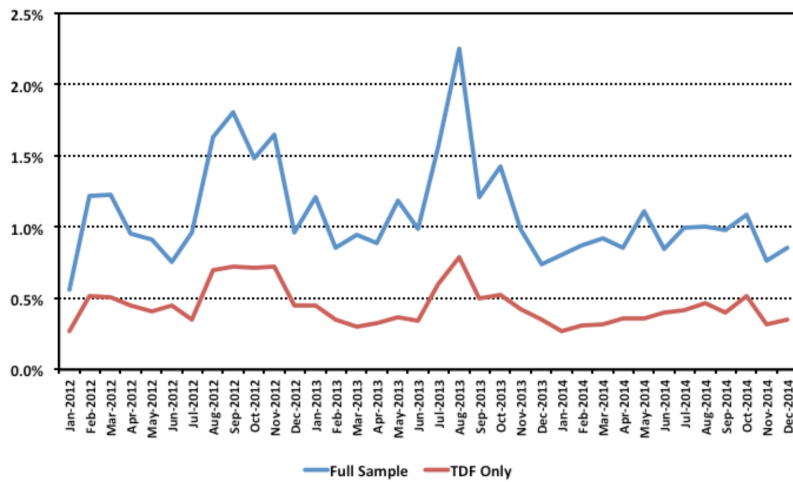
References

- Balduzzi, Pierluigi, and Jonathan Reuter, 2017, “Heterogeneity in Target-Date Funds: Strategic Risk-Taking or Risk Matching?” *NBER #17886*.
- Bergstresser, Daniel, John Chalmers, and Peter Tufano, 2009, “Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry,” *Review of Financial Studies* 22, 4129–4156.
- Chalmers, John, and Jonathan Reuter, 2015, “What is the Impact of Financial Advisors on Retirement Portfolio Choices and Outcomes?” *NBER #18158*.
- Christoffersen, Susan, Richard Evans, and David Musto, 2013, “What do consumers’ fund flows maximize? Evidence from their brokers’ incentives,” *Journal of Finance* 68, 201–235.
- Del Guercio, Diane, and Jonathan Reuter, 2014, “Mutual Fund Performance and the Incentive to Generate Alpha,” *Journal of Finance* 69(4): 1673–1704.
- Fernandes, D., J. Lynch Jr., and R. Netemeyer, 2014, “Financial Literacy, Financial Education and Downstream Financial Behaviors,” *Management Science* 60(8), 1861–1883.
- Lusardi, Annamaria, and Olivia Mitchell, 2014, “The Economic Importance of Financial Literacy: Theory and Evidence,” *Journal of Economic Literature* 52(1): 5–44.
- Hackethal A., R. Inderst, and S. Meyer, 2012, “Trading on Advice,” SSRN #1701777.
- Madrian, B., and D. Shea, 2001, “The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior,” *Quarterly Journal of Economics* 116(4), 1149–1187.
- Mitchell, O., and S. Utkus, 2012, “Target-Date Funds in 401(k) Retirement Plans,” *NBER #17911*.
- Mullainathan, Sendhil, Markus Nöth, and Antoinette Schoar, 2012, “The market for financial advice: An audit study,” *NBER #17929*.
- Pool, Veronika, Clemens Sialm, and Irina Stefanescu, 2016, “It Pays to Set the Menu: Mutual Fund Investment Options in 401(k) Plans,” *Journal of Finance* 71(4): 1779–1812.
- Reuter, Jonathan, and David P. Richardson, 2017. “New Evidence on the Demand for Advice in Retirement Plans,” TIAA Institute *Trends and Issues*.
- Samwick, Andrew, “Saving for Retirement: Understanding the Importance of Heterogeneity,” *Business Economics* 41 (January 2006), 21-27.

Figure 1: Monthly demand for advice by plan participants

We plot the fraction of contributors who seek advice on asset allocation (HC Tool) and retirement income (IP Tool) each month between January 2012 and December 2014 for the full sample of participants who are ineligible for wealth management services and for the subsample of these participants who invest entirely in TDFs.

Monthly Demand for Advice on Asset Allocation



Monthly Demand for Advice on Retirement Income

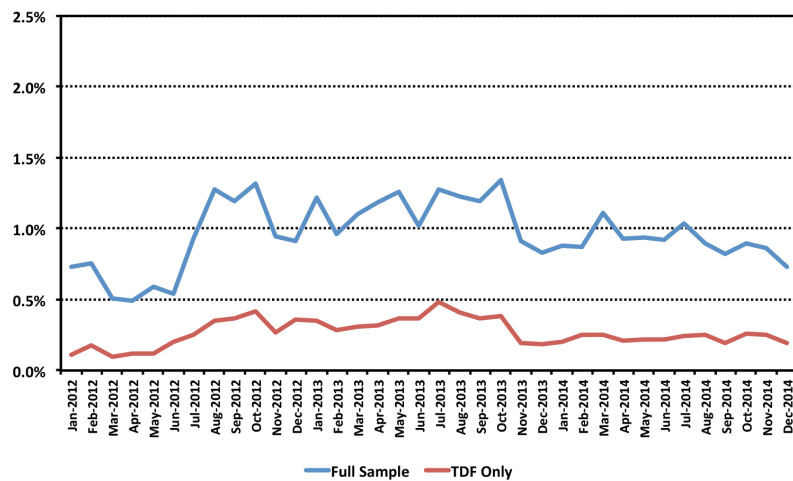


Table 1. Sample sizes, 2009-2014

Year	Full Sample		Contributors		Non-Contributors	
	N	N	New?	TDF Only?	N	TDF Only?
2009	134,273	73,890	9.6%	16.5%	60,383	2.4%
2010	136,950	74,893	10.6%	21.7%	62,057	4.1%
2011	140,538	76,909	12.0%	26.1%	63,629	7.9%
2012	148,226	77,823	9.4%	29.5%	70,403	10.0%
2013	153,710	80,957	12.9%	33.9%	72,753	12.3%
2014	159,522	83,649	13.4%	37.6%	75,873	15.1%
2009-2011	411,761	225,692	10.8%	21.5%	186,069	4.9%
2012-2014	461,458	242,429	12.0%	33.8%	219,029	12.5%
2009-2014	873,219	468,121	11.4%	27.9%	405,098	9.0%

We report the number of participant-year observations for three sample of participants: contributors and non-contributors, contributors only, and non-contributors only. “New?” equals one for contributors who begin contributing to a primary or supplemental retirement plan during the calendar year. “TDF Only?” equals one if all of a participant’s retirement assets are invested in TDFs at the end of the calendar year.

Table 2. Selected summary statistics

	Full Sample			Contributors			Non-Contributors		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.
2009-2014									
Contributor?	873,219	53.6%	49.9%	468,121	100.0%	0.0%	53,265	100.0%	0.0%
New Contributor?	873,219	6.1%	23.9%	468,121	11.4%	31.8%	53,265	100.0%	0.0%
Male?	873,219	45.9%	49.8%	468,121	46.2%	49.9%	53,265	44.5%	49.7%
Married?	873,219	53.1%	49.9%	468,121	54.2%	49.8%	53,265	45.0%	49.7%
Age (in years)	873,219	49.9	12.9	468,121	47.1	12.0	53,265	40.3	12.2
Primary Only?	873,219	57.5%	49.4%	468,121	56.7%	49.5%	53,265	67.0%	47.0%
Supplemental Only?	873,219	7.9%	26.9%	468,121	7.3%	25.9%	53,265	12.6%	33.2%
TDF Only?	873,219	19.1%	39.3%	468,121	27.9%	44.8%	53,265	72.9%	44.5%
Account Balance	868,051	104,593	227,529	462,953	128,694	255,282	51,880	18,861	90,150
Annual Contribution	873,219	5,845	19,330	468,121	10,903	25,334	53,265	3,898	6,642
End-Of-Year PRR	798,169	10.3%	8.7%	401,766	10.8%	8.8%	12,654	10.9%	7.7%
Std Dev Quarterly PPR	834,939	4.1%	3.3%	433,543	4.5%	3.3%	26,247	5.3%	4.6%
2012-2014									
Newly Single?	427,827	2.8%	16.4%	213,915	2.8%	16.5%	7,784	2.6%	16.0%
Newly Married?	427,827	2.8%	16.4%	213,915	2.9%	16.7%	7,784	3.0%	17.0%
Remain Married?	427,827	50.9%	50.0%	213,915	52.6%	49.9%	7,784	47.6%	49.9%
Web Access?	461,431	68.4%	46.5%	242,407	70.1%	45.8%	28,968	57.9%	49.4%
Limited to Guidance?	461,431	22.5%	41.7%	242,407	21.5%	41.1%	28,968	28.8%	45.3%

We report selected summary statistics for three samples of participants: contributors and non-contributors, contributors only, and new contributors only. “Primary Only?” equals ones if the participant only has assets in the primary plan; “Supplement Only?” equals one if the participant only has assets in a supplemental plan; “TDF Only?” equals one if all retirement assets are invested in TDFs at the end of the calendar year; “End-of-Year PRR” is the personal rate of return earned by the participant during the calendar year; “Std Dev Quarterly PPR” is the standard deviation of the participant’s quarterly PRRs during the calendar year; “Newly Single?” equals one if the participant is married at end of year $t-1$ but not at end of year t ; “Newly Married?” equals one if the participant is married at end of year t but not at end of year $t-1$; “Remain Married?” equals one if the participant is married at end of year $t-1$ and at end of year t ; “Web Access?” equals one if the participant has web access by the end of 2014; and “Limited to Guidance?” equals one if the participant is ineligible to receive financial advice in at least one retirement plan. We are only observing “Web Access?” and “Limited to Guidance?” between 2012 and 2014.

Table 3. Web access and guidance, 2012-2014

Year	Web Access?		Limited to Guidance?	
	Contributors	Non-Contributors	Contributors	Non-Contributors
2012	66.32%	63.91%	20.97%	23.36%
2013	70.10%	66.57%	20.40%	23.38%
2014	73.62%	68.93%	22.98%	24.03%
2012-2014	70.10%	66.53%	21.47%	23.60%

This table reports the fraction of participants that have web access each year between 2012 and 2014, separately for contributors and non-contributors. It also reports the fraction of participants who are limited to financial guidance in at least one of their retirement plans each year between 2012 and 2014, separately for contributors and non-contributors. We do not observe either variable before 2012.

Table 4. Advice seeking by year and channel, 2009-2014

	Asset Allocation (HC Tool)			Income Planner (IP Tool)			Wealth Mgmt.	Any Advice
	Any	In Person	Online	Any	In Person	Online	(RT Tool)	(Any Tool)
2009	1.43%	1.43%					0.99%	2.42%
2010	1.30%	1.30%					0.86%	2.16%
2011	1.72%	1.65%	0.11%	0.26%	0.12%	0.20%	0.99%	2.69%
2012	6.58%	4.28%	3.62%	4.42%	2.84%	3.20%	1.06%	9.99%
2013	6.43%	3.11%	5.33%	5.97%	4.40%	4.35%	1.30%	11.07%
2014	4.89%	2.55%	3.37%	5.01%	3.09%	3.56%	1.75%	9.71%
2009-2011	1.49%	1.46%	0.11%	0.09%	0.12%	0.20%	0.95%	2.42%
2012-2014	5.95%	3.29%	4.10%	5.14%	3.44%	3.71%	1.38%	10.25%

This table reports the fraction of participants that seek advice at least once through TIAA’s wealth management advisers (RT tool), or that seek advice at least once outside of wealth management on asset allocation (HC tool) or retirement income (IP tool). We calculate each fraction as the number of participants that seek advice in year t divided by the total number of participants at the end of year t . We also distinguish advice received in person from advice received online for the HC and IP tools; the RT tool is always delivered in person. Because some participants seek advice through both channels in the same year, the fractions under In Person and Online sum to more than the fraction under Any. The low Online demand for the HC Tool in 2011 reflects the launch of the online tool in late 2011. The low demand for the IP Tool in 2011, reflects the launch of this tool in late 2011.

Table 5. Advice seeking by age, 2012-2014

	Asset Allocation (HC tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)	Any Advice (Any Tool)
Contributors				
20-29	6.62%	3.80%	0.00%	8.07%
30-39	7.51%	4.01%	0.07%	9.40%
40-49	8.83%	4.72%	0.39%	11.51%
50-59	9.84%	7.17%	1.40%	14.87%
60+	10.21%	13.21%	4.60%	22.44%
All	8.83%	6.54%	1.25%	13.44%
Non-Contributors				
20-29	1.09%***	0.51%***	0.00%	1.46%***
30-39	1.73%***	0.64%***	0.01%***	2.22%***
40-49	2.20%***	1.38%***	0.12%***	3.37%***
50-59	3.01%***	3.32%***	0.71%***	6.00%***
60+	3.53%***	6.92%***	3.89%***	12.05%***
All	2.75%***	3.60%***	1.52%***	6.73%***
Contributors & Not TDF Only				
20-29	16.54%	11.15%	0.00%	20.04%
30-39	11.53%	6.73%	0.13%	14.58%
40-49	10.97%	6.04%	0.53%	14.37%
50-59	11.30%	8.32%	1.67%	17.13%
60+	11.32%	14.71%	5.25%	24.96%
All	11.42%	8.90%	1.82%	17.73%
Contributors & TDF Only				
20-29	3.39%***	1.40%***	0.00%	4.17%***
30-39	3.55%***	1.32%***	0.02%***	4.30%***
40-49	3.90%***	1.69%***	0.08%***	4.94%***
50-59	4.34%***	2.88%***	0.36%***	6.42%***
60+	3.79%***	4.52%***	0.83%***	7.86%***
All	3.75%***	1.91%***	0.15%***	5.03%***

This table is similar to Table 4, except that we group participants into five age ranges and limit the sample period to 2012-2014. In the top half of the table, we report statistics separately for contributors and non-contributors. In the bottom half, we focus on contributors and report statistics separately for those who do and do not have all of their retirement assets invested in TDFs at the end of the calendar year. In each panel, we report significance levels from two-sided tests of whether the subsamples seek advice at the same rate. Standard errors are clustered on participant. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***.

Table 6. Advice seeking by account balance, 2012-2014

	Asset Allocation (HC tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)	Any Advice (Any Tool)
Contributors				
Deciles 1-5	5.68%	3.57%	0.15%	7.62%
Deciles 6-9	11.42%	7.89%	0.76%	16.46%
Decile 10	14.63%	15.40%	8.86%	30.22%
All	8.87%	6.48%	1.26%	13.42%
Non-Contributors				
Deciles 1-5	1.61%***	1.58%***	0.58%***	3.31%***
Deciles 6-9	3.32%***	4.52%***	1.41%***	7.97%***
Decile 10	6.21%***	9.99%***	6.65%***	18.82%***
All	2.75%***	3.60%***	1.52%***	6.73%***
Contributors & Not TDF Only				
Deciles 1-5	9.14%	6.57%	0.23%	12.49%
Deciles 6-9	12.04%	8.35%	0.80%	17.34%
Decile 10	14.66%	15.42%	8.94%	30.32%
All	11.53%	8.85%	1.84%	17.77%
Contributors & TDF Only				
Deciles 1-5	3.27%***	1.48%***	0.08%***	4.24%***
Deciles 6-9	6.58%***	4.33%***	0.45%***	9.59%***
Decile 10	12.57%	14.04%	2.92%***	23.68%**
All	3.75%***	1.91%***	0.15%***	5.03%***

This table is similar to Table 5, except that we now group participants into three groups based on the relative size of their account balance at the end of each calendar year. In the top half of the table, we report statistics separately for contributors and non-contributors. In the bottom half, we focus on contributors and report statistics separately for those who do and do not have all of their retirement assets invested in TDFs at the end of the calendar year. In each panel, we report significance levels from two-sided tests of whether the subsamples seek advice at the same rate. Standard errors are clustered on participant. Statistical significance at the 10% 5% and 1% levels are denoted by *, ** and ***.

Table 7. Advice seeking by contribution level, 2012-2014

	Asset Allocation (HC tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)	Any Advice (Any Tool)
Existing Contributors				
Deciles 1-5	4.76%	3.38%	0.23%	7.15%
Deciles 6-9	11.99%	8.92%	1.11%	17.68%
Decile 10	15.82%	13.16%	6.91%	27.94%
All	9.15%	6.89%	1.36%	14.07%
New Contributors				
Deciles 1-5	4.87%	3.09%**	0.17%*	6.63%***
Deciles 6-9	15.75%***	9.34%	1.84%***	21.06%***
Decile 10	16.96%	9.36%***	6.43%	27.68%
All	6.46%***	3.99%***	0.49%***	8.83%***
Contributors & Not TDF Only				
Deciles 1-5	6.79%	5.31%	0.36%	10.40%
Deciles 6-9	13.75%	10.41%	1.39%	20.35%
Decile 10	16.71%	14.08%	7.68%	29.92%
All	11.42%	8.90%	1.82%	17.73%
Contributors & TDF Only				
Deciles 1-5	2.63%***	1.18%***	0.06%***	3.43%***
Deciles 6-9	6.06%***	3.38%***	0.19%***	8.26%***
Decile 10	9.71%***	6.06%***	1.42%***	13.98%***
All	3.75%***	1.91%***	0.15%***	5.03%***

This table is similar to Table 6, except that we focus on different subsamples of contributors and group participants into three groups based on the size of their annual contributions. It is limited to contributors because, by definition, non-contributors have annual contributions of \$0. In the top half of the table, we report statistics separately for existing contributors and new contributors. In the bottom half, we report statistics separately for contributors who do and do not have all of their retirement assets invested in TDFs at the end of the calendar year. In each panel, we report significance levels from two-sided tests of whether the subsamples seek advice at the same rate. Standard errors are clustered on participant. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***.

Table 8. Persistence in advice seeking, 2012-2014

	Asset Allocation (HC tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)
Advice Year t = 1	5.41%	4.88%	
Advice Year t = 1 Advice Year t-1 = 1	29.75%	37.54%	
Eligible for RT Tool Year t?	No	No	
Advice Year t = 1	4.33%	2.59%	
Advice Year t = 1 Advice Year t-1 = 1	22.93%	30.36%	
Eligible for RT Tool Year t?	No	No	
New Participant Year t-1?	Yes	Yes	
Advice Year t = 1	7.78%	13.28%	17.66%
Advice Year t = 1 Advice Year t-1 = 1	24.57%	43.04%	32.40%
Eligible for RT Tool Year t?	Yes	Yes	Yes

This table measures demand for the HC, IP and RT tools separately for contributors who are and are not eligible for TIAA wealth management services (RT tool). It also measures demand for each tool in year *t* (2013 or 2014) conditional on the contributor having used the tool in year *t-1* (2012 or 2013). The middle panel is restricted to participants who were “new contributors” in year *t-1*.

Table 9. OLS regressions predicting advice seeking, 2012-2014

Participant Characteristics	Asset Allocation (HC tool)	Income Planner (IP Tool)	Asset Allocation (HC tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)
Male?	0.0118*** (0.0015)	0.0188*** (0.0014)	0.0162*** (0.0061)	0.0236*** (0.0071)	-0.0413*** (0.0075)
Newly Single?	0.0329*** (0.0045)	0.0071** (0.0036)	0.0051 (0.0187)	-0.0111 (0.0194)	0.0083 (0.0212)
Newly Married?	0.0187*** (0.0042)	0.0055 (0.0035)	0.0207 (0.0191)	0.0023 (0.0196)	0.0854*** (0.0234)
Remain Married?	-0.0019 (0.0015)	-0.0002 (0.0014)	-0.0096 (0.0065)	-0.0052 (0.0077)	0.0150* (0.0078)
New Contributor?	0.0048 (0.0034)	0.0119*** (0.0029)	0.0232 (0.0180)	-0.0056 (0.0169)	0.0213 (0.0202)
Primary Only?	-0.0652*** (0.0019)	-0.0582*** (0.0017)	-0.0125* (0.0067)	-0.0353*** (0.0079)	-0.0423*** (0.0078)
Supplemental Only?	-0.0401*** (0.0031)	-0.0512*** (0.0027)	0.0263 (0.0210)	-0.0813*** (0.0180)	0.0007 (0.0254)
TDF Only?	-0.0466*** (0.0039)	-0.0454*** (0.0039)	0.0173 (0.0368)	-0.0272 (0.0379)	-0.0481 (0.0389)
Limited to Guidance?	-0.0081*** (0.0016)	-0.0135*** (0.0012)	-0.0039 (0.0085)	-0.0324*** (0.0097)	-0.0101 (0.0106)
Web Access?	0.0734*** (0.0012)	0.0565*** (0.0010)	0.0922*** (0.0053)	0.1204*** (0.0063)	0.0662*** (0.0088)
PRR Minus S&P 500	0.0474** (0.0186)	-0.0096 (0.0169)	-0.0693 (0.0719)	0.1073 (0.0773)	-0.1690** (0.0788)
PRR Minus S&P 500 * TDF Only?	-0.0648** (0.0271)	-0.0093 (0.0264)	0.1364 (0.2548)	-0.1228 (0.2107)	0.2260 (0.2828)
Std. Dev. PRR	0.1205* (0.0708)	-0.2092*** (0.0611)	0.0893 (0.2628)	-1.3673*** (0.2766)	0.0106 (0.2775)
Std. Dev. PRR * TDF Only?	0.1835 (0.1259)	0.4928*** (0.1251)	-1.4308 (1.2097)	-0.0223 (1.1983)	-0.4017 (1.3071)
Number of Options in Primary Plan	0.0023*** (0.0001)	0.0025*** (0.0001)	0.0025*** (0.0005)	0.0031*** (0.0006)	0.0012** (0.0006)
Mean LHS variable	0.0890	0.0631	0.1189	0.1505	0.1820
Eligible for RT Tool?	No	No	Yes	Yes	Yes
Sample size	189,637	189,637	15,342	15,342	15,342

This table reports coefficients from linear probability models estimated using OLS regressions. The unit of observation is participant i in calendar year t . We limit the sample to participants who contributed to one or more retirement plans during 2012-2014. The three right columns are limited to the 7.5% of participants who are eligible to receive advice through wealth management (the RT tool), but also have access to the HC and IP tools. The two left columns are limited to the 92.5% of participants who are not eligible to receive advice through wealth management, but have access to the HC and IP tools. We include, but do not report, marginal effects for age group fixed effects (20-29, 30-39, 40-49, 50-59, 60+) and contribution group fixed effects (deciles 1-5, deciles 6-9 and decile 10). Standard errors are clustered on participant. Statistical significance at the 10%, 5% and 1% levels are denoted by *, ** and ***.

Table 10. OLS regressions with institution fixed effects, 2012-2014

Participant Characteristics	Asset Allocation (HC tool)	Income Planner (IP Tool)	Asset Allocation (HC tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)
Male?	0.0068*** (0.0016)	0.0144*** (0.0014)	0.0160*** (0.0062)	0.0232*** (0.0072)	-0.0413*** (0.0076)
Newly Single?	0.0300*** (0.0045)	0.0036 (0.0035)	0.0048 (0.0187)	-0.0113 (0.0192)	0.0068 (0.0213)
Newly Married?	0.0160*** (0.0042)	0.0023 (0.0034)	0.0173 (0.0191)	-0.0046 (0.0192)	0.0825*** (0.0234)
Remain Married?	-0.0042*** (0.0016)	-0.0031** (0.0014)	-0.0141** (0.0065)	-0.0116 (0.0076)	0.0080 (0.0078)
New Contributor?	0.0014 (0.0035)	0.0072** (0.0029)	0.0175 (0.0178)	-0.0102 (0.0169)	0.0176 (0.0202)
Primary Only?	-0.0437*** (0.0021)	-0.0216*** (0.0018)	-0.0037 (0.0077)	-0.0198** (0.0092)	-0.0617*** (0.0092)
Supplemental Only?	-0.0144*** (0.0032)	-0.0137*** (0.0027)	-0.0002 (0.0218)	-0.0973*** (0.0203)	-0.0163 (0.0268)
TDF Only?	-0.0441*** (0.0039)	-0.0414*** (0.0039)	0.0114 (0.0366)	-0.0363 (0.0369)	-0.0454 (0.0386)
Limited to Guidance?	-0.0074 (0.0063)	-0.0057 (0.0046)	0.0187 (0.0189)	-0.0142 (0.0235)	-0.0532 (0.0336)
Web Access?	0.0667*** (0.0012)	0.0459*** (0.0010)	0.0861*** (0.0053)	0.1108*** (0.0063)	0.0604*** (0.0089)
PRR Minus S&P 500	0.0452** (0.0185)	-0.0133 (0.0166)	-0.1126 (0.0720)	0.0501 (0.0771)	-0.1867** (0.0791)
PRR Minus S&P 500 * TDF Only?	-0.0699*** (0.0271)	-0.0064 (0.0263)	0.1389 (0.2549)	-0.1007 (0.2096)	0.2553 (0.2828)
Std. Dev. PRR	0.1221* (0.0709)	-0.2256*** (0.0601)	0.0184 (0.2621)	-1.4369*** (0.2741)	-0.0220 (0.2786)
Std. Dev. PRR * TDF Only?	0.2127* (0.1262)	0.5545*** (0.1245)	-1.3763 (1.2106)	-0.0908 (1.1658)	-0.4627 (1.3085)
Number of Options in Primary Plan	0.0001 (0.0005)	0.0033*** (0.0004)	-0.0029 (0.0022)	0.0059*** (0.0022)	0.0008 (0.0026)
Mean LHS variable	0.0890	0.0631	0.1189	0.1505	0.1820
Eligible for RT Tool?	No	No	Yes	Yes	Yes
Sample size	189,637	189,637	15,342	15,342	15,342

This table is identical to Table 9 except that the OLS regressions include a separate fixed effect for each of the 23 institutions.

Table 11. OLS and IV regressions predicting advice seeking by new contributors, 2012-2014

Estimation Participant Characteristics	OLS Asset Allocation (HC tool)	IV Asset Allocation (HC tool)	OLS Income Planner (IP Tool)	IV Income Planner (IP Tool)
Male?	0.0046*	0.0052*	0.0177***	0.0193***
	(0.0028)	(0.0028)	(0.0022)	(0.0023)
Married?	-0.0072**	-0.0077***	-0.0006	-0.0021
	(0.0029)	(0.0029)	(0.0023)	(0.0024)
New Contributor?				
Primary Only?	-0.0934***	-0.0886***	-0.0775***	-0.0635***
	(0.0047)	(0.0050)	(0.0040)	(0.0040)
Supplemental Only?	-0.0691***	-0.0621***	-0.0703***	-0.0495***
	(0.0058)	(0.0064)	(0.0045)	(0.0048)
TDF Only?	-0.0735***	-0.0619***	-0.0517***	-0.0179***
	(0.0044)	(0.0062)	(0.0033)	(0.0046)
Limited to Guidance?	0.0000	0.0003	0.0034*	0.0045**
	(0.0026)	(0.0026)	(0.0018)	(0.0019)
Web Access?	0.0550***	0.0890***	0.0301***	0.1294***
	(0.0024)	(0.0135)	(0.0017)	(0.0105)
Number of Options in Primary Plan	0.0019***	0.0020***	0.0017***	0.0022***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Mean LHS variable	0.0624	0.0624	0.0379	0.0379
Eligible for RTTool?	No	No	No	No
Sample size	28,254	28,254	28,254	28,254

This table is similar to Table 9 except that the sample is limited to participants who were new contributors in years 2012, 2013 or 2014. Each participant appears once. Because we only observe changes in marital status and annual return measures for around 25% of new contributors, we exclude these variables and include a dummy variable that equals one if the participant is married at the end of the calendar year. OLS regressions are otherwise similar to those reported in earlier tables. IV regressions use the fraction of new participants in institution j 's primary plan in year $t-1$ as an instrument for web access of new participant i in institution j in year t .

Table 12. OLS regressions with target-date-year fixed effects, 2012-2014

Participant Characteristics	Asset Allocation (HC tool)	Income Planner (IP Tool)
Male?	-0.0002 (0.0017)	0.0036*** (0.0013)
Newly Single?	0.0130** (0.0058)	0.0025 (0.0039)
Newly Married?	0.0107** (0.0054)	0.0045 (0.0039)
Remain Married?	-0.0019 (0.0018)	-0.0003 (0.0013)
New Contributor?	-0.0058 (0.0038)	0.0009 (0.0024)
Primary Only?	-0.0275*** (0.0030)	-0.0180*** (0.0023)
Supplemental Only?	-0.0136*** (0.0046)	-0.0142*** (0.0031)
TDF Only?		
Limited to Guidance?	-0.0028 (0.0018)	-0.0035*** (0.0012)
Web Access?	0.0426*** (0.0016)	0.0242*** (0.0012)
PRR Minus S&P 500	0.0227 (0.0410)	-0.0136 (0.0514)
Std. Dev. PRR	-0.1712 (0.1459)	0.0796 (0.1780)
Number of Options in Primary Plan	0.0004*** (0.0001)	0.0005*** (0.0001)
Mean LHS variable	0.0318	0.0161
Eligible for RT Tool?	No	No
Sample size	46794	46794

This table is similar to Table 9 except that sample is limited to participants whose portfolio consists of a single target-date fund (which is why the return measures are no longer interacted with TDF Only?), and the OLS regressions include a separate fixed effect for each target-date-year combination (e.g., 2040 funds in 2013).

Appendix Table 1. Plan-level summary statistics

	Number of Plans	Number of Options			% Offering TDFs	% Options from TIAA	Average # Firms
		Min	Mean	Max			
2009							
Primary	28	16.0	21.6	63.0	100.0%	93.7%	1.7
Supplemental	54	2.0	20.8	63.0	83.3%	94.5%	1.7
All Plans	82	2.0	21.1	63.0	89.0%	94.2%	1.7
2014							
Primary	29	16.0	24.1	42.0	100.0%	72.0%	6.2
Supplemental	61	9.0	24.3	42.0	91.8%	77.9%	4.7
All Plans	90	9.0	24.2	42.0	94.4%	76.0%	5.2

This table reports summary statistics for the retirement plans within our sample. In addition to reporting the number of primary and secondary plans, we summarize the number of investment options within each type of plan (e.g., no primary plan in 2009 had fewer than 16 options or more than 63 options), the fraction of plans that offer TDFs, the fraction of investment options that are managed by TIAA, and the average number of firms that offer funds within each plan (including TIAA).

About the Authors

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Reuter's research examines the behavior of individual investors and financial institutions and has been published in leading academic journals, including the *Journal of Finance* and *Quarterly Journal of Economics*, as well as cited in major media outlets, including *The New York Times* and *The Wall Street Journal*. He shared the 2013 TIAA-CREF Paul A. Samuelson Award for Outstanding Scholarly Writing on Lifelong Financial Security with John Chalmers, for their research on the demand for life annuities by public employees and became a TIAA Institute Fellow in 2014. He received a Ph.D. in economics from the Massachusetts Institute of Technology in 2002 and a B.A. in economics from Johns Hopkins University in 1995.

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