NBER WORKING PAPER SERIES

NEW EVIDENCE ON THE DEMAND FOR ADVICE WITHIN RETIREMENT PLANS

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Working Paper 30261
http://www.nber.org/papers/w30261

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 2022

This research was made possible by a research grant to Professor Reuter from TIAA Institute, which provided him with access to administrative records and research support. Professor Reuter did not receive any compensation from TIAA or TIAA Institute. The authors thank Quentin Graham and Tai Kam for excellent research assistance, and Benjamin Bissette for many helpful conversations. We thank Brigitte Madrian, Olivia Mitchell, and participants at the 2016 TIAA Institute Fellows Symposium on Enhancing Retirement Security: Ideas and Initiatives to Improve Participant Outcomes and 2017 Cherry Blossom Financial Education Institute for helpful comments and suggestions. Earlier versions of our paper were distributed as TIAA Institute Research Dialog #139 (December 2017) and TIAA Institute Trends and Issues (April 2017). The views expressed herein do not necessarily reflect the views of TIAA, TIAA Institute, or the National Bureau of Economic Research.

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NBER Working Paper No. 30261
July 2022
JEL No. G11,G51

ABSTRACT

We study demand for advice within defined contribution retirement plans offered by 23 institutions where TIAA is sole recordkeeper. Advice seeking increases with age, account balance, annual contribution level, web access, and changes in marital status. More provocatively, participants who invest solely through target date funds—the dominant default investment option—are significantly less likely to seek any form of advice throughout the age distribution, raising the possibility that reliance upon defaults crowds out advice seeking. Advice seeking increases significantly following the introduction of online tools, but is only weakly correlated with market returns and investment menu changes.

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1. Introduction

The level of defined contribution (DC) plan 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 (see, for example, the literature review in Lusardi and Mitchell (2014)). 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 to make their own customized portfolio choices.[1] The literatures on defaults and financial education are large and established.[2] In contrast, the literature on "advice" (by which we mean guidance and advice) is much smaller and largely focused on quantifying conflicts of interest that can arise outside of retirement plans.[3] However, the greater the heterogeneity in household preferences, savings needs, and budget constraints (as, for example, highlighted by Samwick (2006)), the greater the potential benefit of engagement relative to a one-size-fits-all default investment option.[4]

In this paper, we use participant-level data from 23 institutions served by TIAA between

[1] We discuss the distinction between guidance and advice in Section 2.
[2] The literature on the effect of defaults began with Madrian and Shea (2001) and continues through Balduzzi and Reuter (2019) and Mitchell and Utkus (2022). The literature on the effect of financial education is summarized in Fernandes, Lynch, and Netemeyer's (2014) meta study.
[3] See Bergstresser, Chalmers, Tufano (2009), Hackethal, Inderst, Meyer (2012), Mullainathan, Nöth, and Schoar (2012), Christoffersen, Evans, Musto (2013), and Del Guercio and Reuter (2014). One notable exception is Chalmers and Reuter (2021), which this paper seeks to extend.
[4] Carroll, Choi, Laibson, Madrian, and Metrick (2009) conclude that retirement plan participants are likely to benefit from "active decisions" with respect to savings rates whenever "savings preferences are highly heterogeneous." At the same time, they argue against active choices with respect to asset allocation.

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 starting point is the basic prediction 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 receiving advice) and with the introduction of online tools (which reduce the time required to seek advice). To the extent that investor heterogeneity increases with age, 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, and is highest among those eligible for wealth management services. Demand for advice also increases around changes in marital status (when the benefits of updated advice are likely to be high), and it increases following the introduction of online tools.

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 at a given institution exhibit higher levels of advice seeking than participants who invest through a single plan (either the primary plan or a supplemental plan).[5] Another strong predictor of participant engagement is whether the participant has web access to her retirement account. To plausibly 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

[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.

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 significant 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.

More provocatively, we find that the likelihood of seeking advice is significantly lower if the participant invests solely in target date funds (TDFs). TDFs provide each participant with an auto-diversified, long-term investment option that reflect their expected retirement date. Because TDFs are the default investment option within all but one of the primary plans in our sample (and are the dominate default option within the broader universe of DC retirement plans), we lack meaningful exogenous variation in access to TDFs. However, the reduction in advice seeking among TDF investors remains economically significant after controlling for a large number of participants characteristics, and extends to advice on both asset allocations and retirement income levels. To the extent that reliance upon defaults crowds out advice seeking among younger participants, these participants will be less likely to customize their portfolio (e.g., by choosing an earlier target date if the participant is more risk averse than the typical participant of the same age) or adjust their savings rate during the accumulation phase. To the extent that engagement remains low into older ages, participants will be less likely to receive advice on how to draw down plan assets in retirement in response to their particular financial situations.

Within the full sample of participants, the correlation between the level of advice seeking in month t and lagged market returns in month t-1 varies between 0.08 and 0.10. To measure the effect 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 (Balduzzi and Reuter (2019)). 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 by TDF investors responds to the level or volatility of market returns.[6] While it would be problematic if TDF investors switched into safer investments at the first sign of volatility, this finding does beg the question of when (or if) participants defaulted into TDFs will actively engage with their retirement plans.

Finally, we find only limited evidence that advice seeking increases around investment menu changes. In our baseline specifications, which exploit pooled cross-sectional and time-series variation, 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 within each plan, we no longer find that larger menus are associated with higher levels of advice on asset allocation.

Our findings contribute to the growing literature on demand for financial advice. Our research question is closest to Chalmers and Reuter (2020), 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 sophistication. When brokers are no longer available to new participants, they find that those participants with the highest predicted

[6] Similarly, Blanchett, Finke, and Reuter (2020) find that the likelihood of actively changing equity exposure during the first quarter of 2020, when COVID first hit U.S. financial markets, was an order of magnitude lower for participants invested in TDFs and managed accounts than for those investing on their own.

demand for brokers have the highest observed demand for TDFs. They conclude 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 is associated with reduced demand for customized advice.

We discuss our empirical predictions in Section 2. We describe our empirical setting in Section 3 and report plan-level and participant-level characteristics in Section 4. In Section 5, we describe how demand for different types of advice varies across calendar years and how it varies with participant characteristics, such as age and annual contribution level. In Section 6, we compare monthly demand for advice among participants who are and are not invested solely in TDFs. In Section 7, we measure the persistence of advice seeking across calendar years. In Section 8, we estimate a series of regressions to isolate the effect of participant characteristics and plan menu size on advice seeking. We summarize our findings and discuss the potential welfare consequences of participant dis-engagement in Section 9.

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 re-

tirement expenses (e.g., Biggs (2019)). Consequently, we predict that demand for advice will increase with the level of the annual retirement contribution, which should be highly correlated with the level of the participant's (unobservable-to-us) salary. The countervailing prediction is that, because salary is positively correlated with financial literacy (e.g., Campbell (2006)), the correlation between salary and advice seeking will be negative (as it is in Chalmers and Reuter (2020)). Third, because we expect investor heterogeneity to increase over time, 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) the age at which they are eligible to claim Social Security.

Our second set of predictions focus on participant engagement, while holding age, account balances, and contribution level constant. 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.[7] TDFs are the dominate default investment option in our setting. Consequently, we predict that participants investing in a single TDF will be less likely to seek advice on asset allocation and, perhaps, retirement income levels. We further predict contributors will be more engaged than non-contributors (some of whom are former employees), 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 (which, by definition, is not customized for the participant), and participants with web access will be more engaged than participants without web access

[7] Studying a 401(k) plan in which the default investment option was a money market fund, Madrian and Shea (2001) find that automatic enrollment significantly reduces dispersion in both savings rates and asset allocation, suggesting that automatic enrollment is associated with reduced engagement.

(even after we focus on plausibly exogenous variation in web access).

Our final set of predictions focus on changes in plan design. 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. 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 record keeper. We observe data on both plans and participants between January 2009 and December 2014.[8,9] 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 month.[10]

Participants have access to three advice tools. The first tool is based on a "Human Capital"

[8] Most non-profit 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.

[9] The advice data that we analyze includes comes from a software system that TIAA replaced during 2017. While we still have access to our original sample, we have been unable to obtain data for 2015, 2016, or 2017.

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

(HC) model that provides advice on how to allocate retirement holdings across investments, how much life insurance to hold, and how much to save for retirement.[11] 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 (within and outside of retirement plans), debt management, and 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 primarily focus on demand for advice through the asset allocation (HC) and income planner (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 fact that we observe demand for advice before and after the launch of online tools allows us to measure their impact. The HC and IP tools can be utilized through either channel. The wealth management 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 fund constitutes financial advice because it references a specific investment option whereas the recommendation to invest 60% in a large-

[11] We observe contribution levels but neither savings rates nor life insurance holdings.

cap equity index fund constitutes financial guidance. The reason that this distinction potentially 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 (may) 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 record keeper for each year from 2009 to 2014. Focusing on employers using a sole record keeper 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 in our sample are all large employers, both in terms of the number of workers and the level of 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 total 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 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.[12] These patterns are similar regardless of whether we focus on the investment menus of primary or supplemental plans. We use the fact that some institutions offer larger investment menus than other institutions to explore how menu size impacts demand for advice by plan participants.

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 percent 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

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

8.2%, and Wells Fargo has 2.4%. The fact that different participants are being defaulted into TDFs from different firms allows us to more 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 defined contribution retirement plans offered by 849 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% of plan assets. 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.[13]

[13] The overall fraction of participants in our sample who invest in a single TDF in 2014 is 26.9%. The comparable fraction for Vanguard in 2014 in 39% (Figure 73 in Vanguard's "How America Saves 2019").

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 within our sample is 49.9 (standard deviation of 12.9), and the average account balance is $104,593 ($227,529). Among contributors, the average annual contribution is $10,903 ($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 (standard deviation of 8.7%). The standard deviation is slightly higher for new contributors (10.9%) and contributors (10.8%) than for the full sample (10.3%) because contributors tend to have portfolios with higher average allocations to equity.

Between 2012 and 2014, we find that 68.4% of participant-years have access to online advice tools (because they have web access to TIAA account information); the other 31.6% of participant-years have not established online access. Another way to split the sample is based on whether participants are limited to financial guidance (versus financial advice) in one or more of their TIAA retirement accounts. During the three the years 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.[14] New contributors are less likely to have web access (57.9% versus 70.1% for all

[14] Appendix Table 2 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. Appendix Table 2 also reports the fraction of participants who are limited to financial guidance in at least one retirement plan each year between 2012 and 2014. This fraction is slightly higher at the end of the sample for both groups of participants, but always below 25.0%.

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.[15] For this reason, we refer to participants who hold 100% of their retirement assets in TDFs as "TDF Only." Among the full sample of contributors, 27.9% are TDF Only. (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, for whom the default investment option is almost always a TDF, the fraction of TDF Only jumps to 72.9%.

5. Broad Patterns in the Demand for Advice

We begin by documenting the fraction of participants who seek advice from TIAA each year between 2009 and 2014.[16] We compare older participants to younger participants, participants with larger account balances to those with smaller account balances, and contributors to non-contributors. These univariate comparisons reveal interesting—and economically significant—differences in the level of advice seeking across different groups of participants.[17]

Table 3 reports the fraction of retirement plan participants who seek advice at least once in each calendar year. For example, 4.9% (7,795) of the 159,522 participants sought advice on asset allocation at least once in 2014; 5.0% (7,994) sought advice on retirement income streams; and 1.8% (2,785) sought advice through TIAA's wealth management services.[18]

[15] Chalmers and Reuter (2020) and Mitchell and Utkus (2022) document significant demand for TDFs, especially when they are available as the default investment option.

[16] By focusing on institutions for which TIAA is sole recordkeeper, we should observe all formal demand for advice within these plans. Of course, we cannot observe informal demand for advice from friends or colleagues, or from any financial advisors that participants work with outside of their retirement plans.

[17] 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 previous financial crisis.

[18] In Table 3, 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

Table 3 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. It also reflects the introduction of the IP tool and expanded access to in-person advice. If we focus on the asset allocation tool, we see that overall demand for advice on asset allocation increased from 1.5% to 6.0%, and that approximately half of this increase was due to the availability of online 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 reflects a four-fold increase relative to the earlier period. Third, the fact that 9.7% (15,484) of the 159,522 participants sought at least one form of advice in 2014 implies that there is relatively low overlap between those seeking advice on asset allocation (7,795) and those seeking advice on retirement income streams (7,994).

In the next three tables, 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 4 places participants into age groups based on their age at the end of each calendar year. It reveals that demand for advice tends to increase with age. While the increase is largest for the income planner tool (13.2% for contributors age 60+ versus 3.8% for those age 20-29), it is also economically significant for the asset allocation tool (10.2% versus 6.6%). Because we do not observe advice seeking before 2009, it is unclear whether there are participants who only begin seeking advice on asset allocation in their 60s—when the

participants, regardless of eligibility. In Table 8, we estimate demand for advice separately for those who are and are not eligible for TIAA's wealth management services.

advice may be of less value. The fact that demand for wealth management increases with age reflects the fact that account balances (and hence eligibility for wealth management services) tend to 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 decreases from 8.8% to 2.8% within the full sample, and by similar magnitudes within each of the age groups. All of the differences between contributors and non-contributors (except for those related to demand for the wealth management tool among the youngest participants) are statistically significant at the 1-percent level.

The bottom panel compares contributors who do and do not have all of their retirement assets invested in TDFs at the end of the calendar year. The age gradient among contributors with respect to demand for advice on asset allocation is being driven by a reduction in the fraction of TDF Only participants at older ages. The comparison also reveals that TDF Only 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 (2020) finding that demand for TDFs increase when access to in-person financial advice is reduced. Most provocatively, although 14.7% of those aged 60+ seek advice on retirement income levels in the full sample, only 4.5% of TDF Only do so, raising questions about the level of engagement of participants relying on TDFs as they approach retirement.

Table 5, which has the same structure as Table 4, 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.[19] Not surprisingly, given that eligibility is tied to a participant's account balance, we find that demand for the wealth management tool is concentrated among participants with the largest account balances. However, we also find that demand for the asset allocation and income planner tools increases significantly with account balance.[20] For example, demand for the HC tool in the top decile is approximately three-times higher than in the bottom 5 deciles (14.6% versus 5.7% for contributors and 6.2% versus 1.6% for non-contributors).[21] Within account balance groups, demand for advice by contributors is significantly higher than for non-contributors, suggesting uniformly higher levels of engagement by contributors. Finally, we continue to find evidence that TDF Only participants have significantly lower levels of demand for advice than contributors who do not invest solely in TDFs. The one exception is that differences for the HC and IP tools are not statistically significant for participants whose account balances are in the top decile, which suggests that participants with the highest account balances are the least likely to disengage when invested in TDFs.

Table 6 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 TDF Only contributors to all other contributors. The first group consists of participants whose (non-negative) annualized contributions fall into deciles 1-5; the second group con-

[19] Appendix Tables 3 and 4 replicate the top and bottom panels of Table 5 without aggregating the account balance deciles into three categories.
[20] Table 5 is restricted to contributors with positive account balances, resulting in a slightly smaller sample size. Difference in sample sizes between Tables 4 and 5 explains the differences in "All" demand.
[21] In Appendix Table 3, demand for both the HC and IP tool increase monotonically across account balance deciles for both contributors and non-contributors. For example, for the HC tool, it ranges from 3.1% to 14.6% for contributors and from 1.0% to 6.2% for non-contributors.

sists of participants whose contributions fall into deciles 6-9; and the third group consists of participants whose contributions fall into the top decile. (We report demand for advice for each decile of contribution amount in Appendix Tables 5 and 6.) 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 levels of demand in contribution deciles 6-9, suggesting that participants with higher salaries and savings rates are more likely to demand advice when enrolling in the plan. However, for TDF Only, demand for advice is lower overall and within each contribution range, resulting in much lower levels of demand for each type of advice (as observed in Table 5). In other words, the reduced demand for advice by TDF Only does not simply reflect systematic differences in age, account balance, or contribution rate.

6. Monthly Demand for Advice

To determine how much demand for financial advice varies over the course of a year, we plot the fraction of contributors that seek advice on asset allocation (Figure 1 Panel A) or retirement income levels (Panel B), each *month* between January 2012 and December 2014. (We focus on participants who are not eligible for the wealth management tool.) Of interest is whether the demand for advice is correlated with receiving a quarterly statement, asset market events, or broader macroeconomic shocks. Both panels reveal modest time-series variation in the level of demand within the sample of non-TDF Only participants, and even less variation within the sample of contributors who invest entirely in TDFs. The spike in demand for advice on asset allocation in August 2013 came one month after the largest one-month market return during this three-year period. More generally, the correlation between the demand for advice in month *t* and the return

on the S&P 500 Total Return index in month t-1 is close to zero, both economically and statistically. It is 0.080 (p-value of 0.644) for the asset allocation tool and 0.104 (p-value of 0.546) for the retirement income level tool. Both correlations are slightly larger for non-TDF Only (0.095 and 0.124, respectively), but remain statistically insignificant at conventional levels. When we estimate (unreported) time-series regressions of monthly demand on current returns, lagged returns, and a dummy variable indicating whether the participant is likely to have received a quarterly statement (January, April, July, and October), none of the estimated coefficients is statistically distinguishable from zero. In other words, within our sample period, there is no obvious link between broad equity market returns and advice seeking. Moreover, to the extent that participants are reviewing quarterly statements in January, April, July, and October, these reviews are not associated with greater short-term demand for advice.

7. Persistence in Demand for Advice

In Table 8, we measure demand for each type of advice separately for contributors who are and are not eligible for wealth management services. Because we are interested in measuring persistence in advice seeking, and because we observe a discrete change in the level of demand for advice between 2011 and 2012, we focus on demand for advice in 2013 and 2014 and lagged demand for advice in 2012 and 2013. Among contributors who are not eligible for wealth management services, approximately 5.4% seek advice on asset allocation (HC tool) each year while approximately 4.9% seek advice on retirement income levels (IP tool). When we further restrict the sample to participants who were new contributors in year *t-1*, the fractions fall to 4.3% and 2.6%, respectively. Among contributors who are eligible for wealth management services, approximately 17.7% seek advice through this channel during the calendar year. In addition, approximately 8.8% use the HC tool and 13.3% use the IP tool. The fact that demand for advice is higher

among these contributors likely reflects the fact that the subsample of contributors who are eligible for wealth management services skews towards those who are older, making larger contributions, and holding larger account balances. Consequently, they have a shorter time-horizon and greater interest in knowing whether their plan assets are adequate to finance retirement consumption.

Looking across the three panels, we observe only modest differences in the level of persistence. The likelihood of using the asset allocation tool this year conditional on having used it last year ranges between 22.9% and 29.8%, while the likelihood of using the income planner tool this year conditional on having used it last year ranges between 30.4% and 43.0%. In other words, approximately one-third of participants seek a given form of advice two years in a row. Interestingly, while demand for wealth management services is relatively high, it is not significantly more persistent across years than demand for other types of advice.

8. Multivariate Analysis of the Demand for Advice

a. Advice Seeking by Contributors

While the patterns described above capture important differences between participants, there are numerous other characteristics that are plausibly correlated with the demand for advice. To identify additional determinants of advice seeking, we estimate a series of linear probability models.[22] The dependent variable is a dummy variable indicating whether participant *i* sought advice of type *j* during calendar year *t*, where *j* equals the HC, IP, or RT tool, and *t* equals 2012, 2013, or 2014. 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

[22] We obtain qualitatively similar results when we estimate logistic regressions. See Table 6 in Reuter and Richardson (2017) for logistic regressions estimated using participant data for 2014.

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 calendar year (2012, 2013, and 2014), for each age groups (20-29, 30-39, 40-49, 50-59, and 60+), and for each of the ten contribution level deciles.

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" (HC tool) and "Income Planner" (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 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 and retirement income advice, especially outside of wealth management services. 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 asset allocation advice when their institution offers more options in the primary plan (or they may be more likely to rely on the default investment option, as in Morrin, Inman, Broniarczyk, Nenkov, and Reuter (2012)).

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 at the bottom of each table. In Table 8, which contains our first set of regressions, the fraction seeking any 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, the patterns are broadly consistent with our expectations. New participants are 1.4 percentage points more likely to seek advice on retirement income levels (the IP tool), and 1.0

percentage points more likely to seek advice on asset allocation (the HC tool). Changes in marital status are also associated with increases in advice seeking, especially for those classified as newly single. Participants contributing to a single plan are between 3.3 and 6.1 percentage points less likely to seek advice, while those investing only in TDFs are 4.5 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 1.3 percentage points less likely to seek advice. In contrast, the 68.4% of participants with web access are between 5.6 and 7.1 percentage points more likely to seek advice. Because web access reflects a separate participant choice, these marginal effects potentially overstate the causal effect of web access on advice seeking (an issue that we explore 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 percent for this sample of participants) increases the likelihood of seeking advice by 0.3 percentage points for the asset allocation tool and decreases it by 0.1 percentage points for the income planner 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 negative. 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 percent) is associated with

slightly higher demand for the HC tool (0.08 percentage points) and slightly lower demand for the IP tool among participants not invested solely in TDFs (0.02 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 that we revisit in Table 11).

With respect to menu design, we find that larger menus are associated with greater demand for advice. However, the majority of the variation in menu size arises from differences in across plans. In 2014, the smallest number of options is 16 and the largest number of options is 42 (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 and a 6.5 percentage point increase in demand for the income planner tool. Finally, everything else equal, we find that males are slightly more likely to seek investment advice than females. The difference is 1.2 percentage points for asset allocation and 1.9 percentage points for income planning. Given prior evidence that males are more likely to trade than females (e.g., Barber and Odean (2001)), we might have expected the opposite.

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 percent for the asset allocation tool to 18.2 percent for the wealth management 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 1.1 and 4.4 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 8.0 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 percent) 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 9 extends each of the specifications in Table 8 by including a separate fixed effect for each of the 23 institutions, thereby controlling for time-invariant differences in demand for advice across institutions. Among participants who are not eligible for wealth management services, the significance levels are broadly similar to those reported in Table 8. 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.[23] 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

In Table 10, we study 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).[24] 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 8, the magnitudes increase slightly. Participants contributing to a single plan are now between 5.8 and 8.9 percentage points less likely to seek advice, while those investing only in TDFs are now between 5.3 and 6.6 percentage points less likely to do so. At the same time, average demand for advice is lower within this sample than within the full sample (6.2 percent versus 8.9 percent for the asset allocation tool and 3.8 percent versus 6.3 percent for the income planner tool).[25]

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

[23] Because plan sponsors can change the composition of an investment menu without changing the number of funds on offer, Appendix Table 7 estimates versions of the specifications in Table 9 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.

[24] We also exclude the change in marital status dummy variables.

[25] 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.

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 in web access reflect idiosyncratic differences in the promotion of web access by human resource departments 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-percent level for both types of advice. These findings suggest that web access has a causal impact on advice seeking. They are similar in spirit to Choi, Laibson, and Metrick (2002)'s finding that the introduction on online trading tools within two 401(k) plans increased trading frequency relative to 401(k) plans that did not introduce these tools.

The OLS and IV estimates are similar in Appendix Table 8, when 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 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 8 through 10 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, in Appendix Table 9, 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 that use portfolio characteristics during their first quarter in the plan to predict demand for advice during their second quarter. While the estimated coefficients on TDF Only are approximately half as large as those reported in Table 10 for the asset allocation tool (-3.8 percentage points versus -6.6 percentage points), the horizon for advice seeking is only one-quarter as long. Moreover, they remain statistically significant at the 1-percent 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 interaction terms on the return measures in the earlier regressions were of the opposite sign of the direct effects, suggesting less sensitivity, while others were of the same sign, suggesting more sensitivity. The empirical challenge is that Chalmers and Reuter (2020), McDonald, Richardson, and Rietz (2021), and Mitchell and Utkus (2022) all find that participants invested in TDFs hold portfolios with more equity risk relative to participants investing in their own customized portfolios. 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 (2019).[26]

Table 11 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 PPRs using cross-sectional variation in the returns earned by the 2050 TDFs offered by different asset management firms in 2013. The point estimates are both close to zero and statistically insignificant, reinforcing our earlier findings that TDF Only participants are significantly less likely to engage with their retirement plans.

9. Conclusion

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 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. There may also be psychological factors, such as greater anonymity, that drive the overall increase in advice seeking.

Second, 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 that participants wait to

[26] There is less cross-sectional variation within our sample of TDF providers than within the broader sample studied by Balduzzi and Reuter (2019). 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.

seek out financial advice, the less value they are likely to derive from advice on savings rates and asset allocation.

Third, there is a strong positive correlation between the level of advice seeking and other proxies for retirement plan engagement. 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 invest entirely through TDFs. While young participants investing through a product that bundles asset allocation and fund selection might perceive limited value from seeking advice on asset allocation, the gap applies to advice on retirement income levels (and savings rates) and persists for participants in their 60s.

Finally, 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 whether or when participants invested in TDFs will begin to engage with their retirement plan.

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 glide paths 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 how best to draw down assets in retirement. The implications of defaults versus engagement for welfare also depend on the extent to which advice seekers act upon the advice that they receive. While this is an important research question, answering it will require data on both the nature of the advice that participants receive (e.g., to increase portfolio risk or savings rates) and the subsequent actions that they take.

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Figure 1. Monthly Demand for Advice by Participants Contributing to Plan

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 participants who are ineligible for wealth management services. In each panel, we compare TDF Only participants to all other participants.

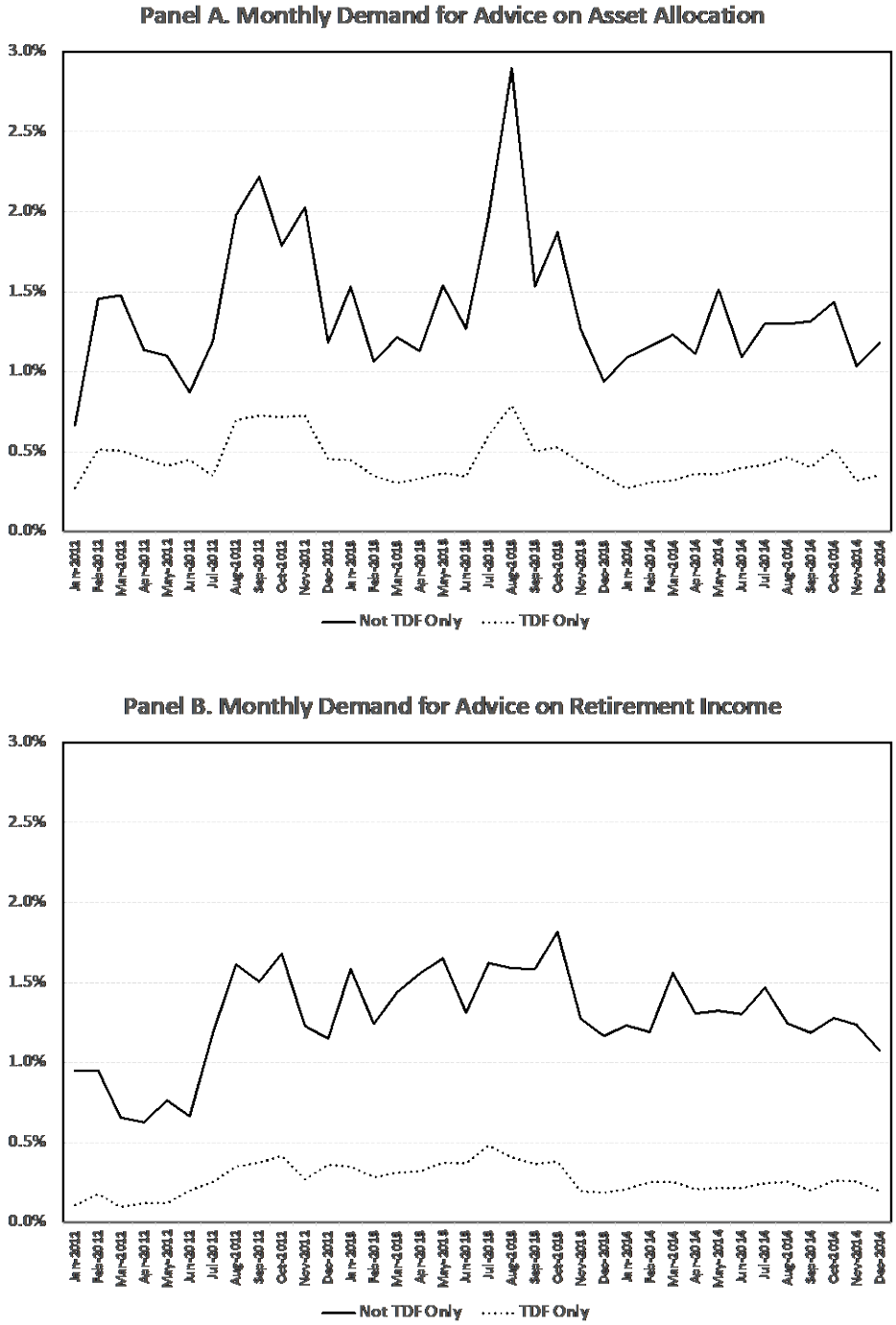


Table 1. Sample Sizes, 2009-2014

	Full Sample	Contributors			Non-Contributors	
Year	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 the full sample of participants, and separately for contributors and non-contributors. “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			New 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%
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 summary statistics for the full sample of participants, contributors, and new contributors. “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; “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 only observe “Web Access?” and “Limited to Guidance” between 2012 and 2014.

Table 3. 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%	0.26%	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 (contributors plus non-contributors) 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 planner (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 demand for the Online HC Tool in 2011 reflects the launch of the online tool in late 2011. Similarly, the low demand for the In-Person and Online IP Tool in 2011 reflects the launch of this tool in late 2011.

Table 4. 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 3, 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-percent, 5-percent, and 1-percent levels are denoted by *, **, and ***.

Table 5. 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 4, 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-percent, 5-percent, and 1-percent levels are denoted by *, **, and ***.

Table 6. 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	4.78%	3.32%	0.22%	7.04%
Deciles 6-9	12.13%	8.93%	1.14%	17.81%
Decile 10	15.84%	13.08%	6.90%	27.94%
All	8.83%	6.54%	1.25%	13.44%
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 4, 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-percent, 5-percent, and 1-percent levels are denoted by *, **, and ***.

Table 7. 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 8. 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 Management (RT Tool)
Male?	0.0111 ***	0.0188 ***	0.0159 ***	0.0234 ***	-0.0406 ***
	(0.0015)	(0.0014)	(0.0061)	(0.0072)	(0.0075)
Newly Single?	0.0328 ***	0.0070 *	0.0051	-0.0110	0.0081
	(0.0045)	(0.0036)	(0.0187)	(0.0194)	(0.0212)
Newly Married?	0.0186 ***	0.0054	0.0202	0.0019	0.0849 ***
	(0.0042)	(0.0035)	(0.0191)	(0.0196)	(0.0234)
Remain Married?	-0.0024	-0.0003	-0.0095	-0.0051	0.0148 *
	(0.0015)	(0.0014)	(0.0065)	(0.0077)	(0.0078)
New Contributor?	0.0098 ***	0.0135 ***	0.0267	-0.0048	0.0193
	(0.0035)	(0.0030)	(0.0180)	(0.0172)	(0.0204)
Primary Only?	-0.0613 ***	-0.0576 ***	-0.0114 *	-0.0350 ***	-0.0438 ***
	(0.0019)	(0.0017)	(0.0068)	(0.0080)	(0.0079)
Supplemental Only?	-0.0333 ***	-0.0496 ***	0.0301	-0.0801 ***	-0.0011
	(0.0032)	(0.0028)	(0.0212)	(0.0182)	(0.0256)
TDF Only?	-0.0454 ***	-0.0453 ***	0.0182	-0.0281	-0.0483
	(0.0039)	(0.0039)	(0.0370)	(0.0380)	(0.0390)
Limited to Guidance?	-0.0075 ***	-0.0133 ***	-0.0036	-0.0322 ***	-0.0100
	(0.0016)	(0.0012)	(0.0085)	(0.0098)	(0.0107)
Web Access?	0.0713 ***	0.0558 ***	0.0923 ***	0.1202 ***	0.0664 ***
	(0.0012)	(0.0010)	(0.0053)	(0.0063)	(0.0088)
PRR Minus S&P 500	0.0410 **	-0.0114	-0.0672	0.1096	-0.1697 **
	(0.0186)	(0.0169)	(0.0720)	(0.0774)	(0.0788)
PRR Minus S&P 500	-0.0635 **	-0.0094	0.1368	-0.1268	0.2273
* TDF Only?	(0.0270)	(0.0264)	(0.2552)	(0.2117)	(0.2827)
Std. Dev. PRR	0.1079	-0.2101 ***	0.0749	-1.3776 ***	0.0174
	(0.0707)	(0.0611)	(0.2632)	(0.2766)	(0.2779)
Std. Dev. PRR	0.1730	0.4936 ***	-1.4303	0.0095	-0.3996
* TDF Only?	(0.1254)	(0.1250)	(1.2125)	(1.2028)	(1.3114)
Number of Options	0.0023 ***	0.0025 ***	0.0025 ***	0.0031 ***	0.0012 **
in Primary Plan	(0.0001)	(0.0001)	(0.0005)	(0.0006)	(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 plan 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. In these and all other regressions, we include, but do not report, marginal effects for age group fixed effects (20-29, 30-39, 40-49, 50-59, 60+), contribution decile fixed effects, and calendar year fixed effects. Standard errors are clustered on participant. Statistical significance at the 10-percent, 5-percent, and 1-percent levels are denoted by *, **, and ***.

Table 9. 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 Management (RT Tool)
Male?	0.0061 ***	0.0146 ***	0.0157 **	0.0229 ***	-0.0403 ***
	(0.0016)	(0.0014)	(0.0062)	(0.0073)	(0.0076)
Newly Single?	0.0300 ***	0.0035	0.0048	-0.0112	0.0064
	(0.0045)	(0.0035)	(0.0187)	(0.0192)	(0.0213)
Newly Married?	0.0160 ***	0.0023	0.0168	-0.0049	0.0819 ***
	(0.0042)	(0.0034)	(0.0191)	(0.0193)	(0.0234)
Remain Married?	-0.0044 ***	-0.0031 **	-0.0139 **	-0.0114	0.0077
	(0.0016)	(0.0014)	(0.0065)	(0.0076)	(0.0078)
New Contributor?	0.0064 *	0.0093 ***	0.0216	-0.0081	0.0144
	(0.0035)	(0.0030)	(0.0178)	(0.0172)	(0.0204)
Primary Only?	-0.0394 ***	-0.0217 ***	-0.0017	-0.0187 **	-0.0649 ***
	(0.0021)	(0.0018)	(0.0079)	(0.0093)	(0.0093)
Supplemental Only?	-0.0088 ***	-0.0130 ***	0.0042	-0.0951 ***	-0.0191
	(0.0032)	(0.0028)	(0.0220)	(0.0205)	(0.0269)
TDF Only?	-0.0432 ***	-0.0414 ***	0.0125	-0.0367	-0.0455
	(0.0039)	(0.0039)	(0.0366)	(0.0370)	(0.0387)
Limited to Guidance?	-0.0077	-0.0059	0.0164	-0.0158	-0.0531
	(0.0063)	(0.0046)	(0.0190)	(0.0236)	(0.0335)
Web Access?	0.0654 ***	0.0456 ***	0.0862 ***	0.1106 ***	0.0606 ***
	(0.0012)	(0.0010)	(0.0053)	(0.0063)	(0.0089)
PRR Minus S&P 500	0.0395 **	-0.0146	-0.1107	0.0522	-0.1866 **
	(0.0185)	(0.0166)	(0.0721)	(0.0771)	(0.0791)
PRR Minus S&P 500	-0.0702 ***	-0.0080	0.1411	-0.1025	0.2564
* TDF Only?	(0.0271)	(0.0263)	(0.2549)	(0.2103)	(0.2827)
Std. Dev. PRR	0.1122	-0.2209 ***	0.0020	-1.4510 ***	-0.0114
	(0.0709)	(0.0601)	(0.2624)	(0.2740)	(0.2791)
Std. Dev. PRR	0.2125 *	0.5631 ***	-1.3868	-0.0707	-0.4598
* TDF Only?	(0.1259)	(0.1246)	(1.2113)	(1.1693)	(1.3129)
Number of Options	0.0001	0.0033 ***	-0.0029	0.0060 ***	0.0008
in Primary Plan	(0.0005)	(0.0004)	(0.0022)	(0.0022)	(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 8 except that the OLS regressions also include a separate fixed effect for each of the 23 institutions.

Table 10. OLS and IV Regressions Predicting Advice Seeking By New Contributors, 2012-2014

Estimation	OLS	IV	OLS	IV
Participant Characteristics	Asset Allocation (HC Tool)	Asset Allocation (HC Tool)	Income Planner (IP Tool)	Income Planner (IP Tool)
Male?	0.0039	0.0048 *	0.0172 ***	0.0192 ***
	(0.0028)	(0.0029)	(0.0022)	(0.0024)
Married?	-0.0072 **	-0.0077 ***	-0.0007	-0.0021
	(0.0029)	(0.0029)	(0.0023)	(0.0024)
New Contributor?				
Primary Only?	-0.0887 ***	-0.0837 ***	-0.0732 ***	-0.0609 ***
	(0.0047)	(0.0049)	(0.0040)	(0.0041)
Supplemental Only?	-0.0577 ***	-0.0521 ***	-0.0622 ***	-0.0486 ***
	(0.0059)	(0.0062)	(0.0045)	(0.0047)
TDF Only?	-0.0656 ***	-0.0527 ***	-0.0515 ***	-0.0201 ***
	(0.0039)	(0.0060)	(0.0031)	(0.0045)
Limited to Guidance?	0.0037	0.0027	0.0063 ***	0.0040 **
	(0.0026)	(0.0027)	(0.0018)	(0.0020)
Web Access?	0.0524 ***	0.0949 ***	0.0270 ***	0.1306 ***
	(0.0024)	(0.0155)	(0.0017)	(0.0119)
Number of Options in Primary Plan	0.0016 ***	0.0019 ***	0.0016 ***	0.0022 ***
	(0.0002)	(0.0003)	(0.0002)	(0.0002)
Mean LHS variable	0.0624	0.0624	0.0379	0.0379
Eligible for RT Tool?	No	No	No	No
Sample size	28,254	28,254	28,254	28,254

This table is similar to Table 8 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 with web access as an instrument for web access of new participant *i* in institution *j* in year *t*.

Table 11. OLS Regressions With Target-Date-Year Fixed Effects, 2012-2014

Participant Characteristics	Asset Allocation (HC Tool)	Income Planner (IP Tool)
Male?	-0.0004	0.0036 ***
	(0.0017)	(0.0013)
Newly Single?	0.0128 **	0.0025
	(0.0058)	(0.0039)
Newly Married?	0.0105 *	0.0046
	(0.0054)	(0.0039)
Remain Married?	-0.0023	-0.0003
	(0.0017)	(0.0013)
New Contributor?	-0.0013	0.0024
	(0.0038)	(0.0025)
Primary Only?	-0.0253 ***	-0.0179 ***
	(0.0030)	(0.0024)
Supplemental Only?	-0.0075	-0.0125 ***
	(0.0048)	(0.0032)
TDF Only?		
Limited to Guidance?	-0.0015	-0.0030 **
	(0.0019)	(0.0012)
Web Access?	0.0410 ***	0.0238 ***
	(0.0016)	(0.0012)
PRR Minus S&P 500	0.0072	-0.0192
	(0.0411)	(0.0516)
Std. Dev. PRR	-0.1504	0.0919
	(0.1457)	(0.1778)
Number of Options in Primary Plan	0.0003 ***	0.0005 ***
	(0.0001)	(0.0001)
Mean LHS variable	0.0318	0.0161
Eligible for RT Tool?	No	No
Sample size	46,794	46,794

This table is similar to Table 8 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).

Online Appendix for

New Evidence on the Demand for Advice within Retirement Plans

- Appendix Table 1 contains plan-level summary statistics
- Appendix Table 2 describes time-trends in the fraction of participants with web access and the fraction of participants who are limited to financial guidance in at least one plan.
- Appendix Tables 3 and 4 report demand for advice separately by account balance decile (rather than deciles 1-5, 6-9, and 10). Appendix Table 3 corresponds to the top panel of Table 5 and Appendix Table 4 corresponds to the bottom panel of Table 5.
- Appendix Tables 5 and 6 report demand for advice separately by contribution amount decile (rather than deciles 1-5, 6-9, and 10). Appendix Table 5 corresponds to the top panel of Table 6 and Appendix Table 5 corresponds to the bottom panel of Table 6.
- Appendix Table 7 estimates the specifications in Table 8 using a different measure of menu size (summed across all plans) and controlling for the fraction of menu options that changed between year *t* and year *t*-1.
- Appendix Table 8 estimates the OLS and IV specifications in Table 10 using a dependent variable that captures online advice seeking.
- Appendix Table 9 estimates the OLS specifications in Table 10. The sample is limited to new contributors who did not seek any form of advice in quarter one. The dependent variable measures whether these new contributors sought advice during quarter two.

Appendix Table 1. Plan-level Summary Statistics

	Number of Plans	Number of Options			% Offering TDFs	% Options from TIAA	Average # Firms
		Minimum	Mean	Maximum			
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 option 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).

Appendix Table 2. Web Access and Guidance, 2012-2014

	Web Access?			Limited to Guidance?		
	Full Sample	Contributors	Non-Contributors	Full Sample	Contributors	Non-Contributors
2012	65.17%	66.32%	63.91%	22.10%	20.97%	23.36%
2013	68.43%	70.10%	66.57%	21.81%	20.40%	23.38%
2014	71.39%	73.62%	68.93%	23.48%	22.98%	24.03%
2012-2014	68.41%	70.10%	66.53%	22.48%	21.47%	23.60%

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

Appendix Table 3. Advice Seeking By Account Balance, 2012-2014

	Asset Allocation (HC Tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)	Any Advice (Any Tool)
Contributors				
Decile 1	3.14%	1.75%	0.09%	4.26%
Decile 2	5.03%	2.90%	0.09%	6.36%
Decile 3	6.19%	3.94%	0.15%	7.99%
Decile 4	6.52%	4.46%	0.18%	9.07%
Decile 5	7.52%	4.77%	0.21%	10.43%
Decile 6	8.96%	5.80%	0.30%	12.49%
Decile 7	10.43%	7.03%	0.43%	14.83%
Decile 8	11.74%	8.02%	0.73%	16.83%
Decile 9	14.56%	10.72%	1.59%	21.70%
Decile 10	14.63%	15.40%	8.86%	30.22%
All	8.87%	6.48%	1.26%	13.42%
Non-Contributors				
Decile 1	0.97%	1.04%	0.45%	2.16%
Decile 2	1.52%	1.39%	0.50%	2.94%
Decile 3	1.56%	1.45%	0.58%	3.17%
Decile 4	1.85%	1.75%	0.60%	3.74%
Decile 5	2.12%	2.26%	0.76%	4.55%
Decile 6	2.55%	3.06%	1.01%	5.87%
Decile 7	2.88%	3.55%	0.92%	6.44%
Decile 8	3.50%	4.85%	1.31%	8.29%
Decile 9	4.35%	6.62%	2.39%	11.29%
Decile 10	6.21%	9.99%	6.65%	18.82%
All	2.75%	3.60%	1.52%	6.73%

This table reports demand for advice by account balance decile, separately for contributors and non-contributors. It is a disaggregated version of the top panel of Table 5.

Appendix Table 4. Advice Seeking By Account Balance, 2012-2014

	Asset Allocation (HC Tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)	Any Advice (Any Tool)
Contributors & Not TDF Only				
Decile 1	9.53%	7.23%	0.33%	13.80%
Decile 2	9.82%	6.64%	0.18%	12.45%
Decile 3	9.24%	7.04%	0.16%	12.09%
Decile 4	8.97%	6.63%	0.25%	12.53%
Decile 5	8.86%	6.06%	0.26%	12.46%
Decile 6	9.87%	6.40%	0.34%	13.67%
Decile 7	10.94%	7.42%	0.43%	15.58%
Decile 8	12.08%	8.22%	0.71%	17.26%
Decile 9	14.75%	10.89%	1.60%	21.98%
Decile 10	14.66%	15.42%	8.94%	30.32%
All	11.53%	8.85%	1.84%	17.77%
Contributors & TDF Only				
Decile 1	2.10%	0.86%	0.05%	2.71%
Decile 2	3.16%	1.44%	0.06%	4.00%
Decile 3	4.00%	1.74%	0.14%	5.07%
Decile 4	3.58%	1.87%	0.10%	4.94%
Decile 5	4.81%	2.16%	0.11%	6.31%
Decile 6	5.69%	3.66%	0.13%	8.27%
Decile 7	6.87%	4.34%	0.43%	9.67%
Decile 8	7.21%	5.36%	1.01%	11.14%
Decile 9	9.75%	6.31%	1.38%	14.22%
Decile 10	12.57%	14.04%	2.92%	23.68%
All	3.75%	1.91%	0.15%	5.03%

This table reports demand for advice by account balance decile by contributors. We distinguish between participants who do and do not invest solely in TDFs. It is a disaggregated version of the bottom panel of Table 5.

Appendix Table 5. 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				
Decile 1	2.37%	1.39%	0.24%	3.66%
Decile 2	3.35%	2.43%	0.21%	5.30%
Decile 3	4.49%	2.89%	0.15%	6.42%
Decile 4	5.81%	4.16%	0.20%	8.54%
Decile 5	7.91%	5.72%	0.29%	11.29%
Decile 6	9.98%	7.75%	0.43%	14.50%
Decile 7	10.70%	7.77%	0.73%	15.62%
Decile 8	12.73%	9.26%	1.21%	18.68%
Decile 9	15.13%	10.94%	2.19%	22.44%
Decile 10	15.84%	13.08%	6.90%	27.94%
All	8.83%	6.54%	1.25%	13.44%
New Contributors				
Decile 1	2.30%	1.02%	0.15%	3.18%
Decile 2	3.72%	2.58%	0.12%	5.62%
Decile 3	7.59%	4.19%	0.11%	9.24%
Decile 4	10.37%	7.55%	0.29%	13.86%
Decile 5	12.25%	9.62%	0.56%	16.78%
Decile 6	15.98%	10.54%	1.14%	21.33%
Decile 7	14.24%	7.46%	1.58%	19.32%
Decile 8	16.73%	9.91%	1.61%	21.69%
Decile 9	16.16%	9.03%	3.44%	22.01%
Decile 10	16.96%	9.36%	6.43%	27.68%
All	6.46%	3.99%	0.49%	8.83%

This table reports demand for advice by contribution amount decile, separately for new contributors and existing contributors. It is a disaggregated version of the top panel of Table 6.

Appendix Table 6. Advice Seeking By Contribution Level, 2012-2014

	Asset Allocation (HC Tool)	Income Planner (IP Tool)	Wealth Mgmt. (RT Tool)	Any Advice (Any Tool)
Contributors & Not TDF Only				
Decile 1	3.86%	3.01%	0.53%	6.71%
Decile 2	4.74%	4.26%	0.42%	8.28%
Decile 3	5.92%	4.23%	0.26%	8.84%
Decile 4	7.30%	5.70%	0.25%	10.99%
Decile 5	10.01%	7.78%	0.40%	14.58%
Decile 6	11.96%	9.73%	0.57%	17.62%
Decile 7	12.20%	9.14%	0.90%	17.91%
Decile 8	13.94%	10.29%	1.41%	20.53%
Decile 9	16.53%	12.30%	2.54%	24.79%
Decile 10	16.71%	14.08%	7.68%	29.92%
All	11.42%	8.90%	1.82%	17.73%
Contributors & TDF Only				
Decile 1	1.54%	0.49%	0.07%	1.97%
Decile 2	2.28%	1.03%	0.04%	3.02%
Decile 3	2.88%	1.38%	0.03%	3.69%
Decile 4	3.36%	1.64%	0.11%	4.51%
Decile 5	4.06%	1.93%	0.08%	5.26%
Decile 6	5.07%	2.86%	0.10%	6.77%
Decile 7	5.42%	2.97%	0.13%	7.61%
Decile 8	6.62%	4.01%	0.20%	9.27%
Decile 9	8.09%	4.18%	0.42%	10.69%
Decile 10	9.71%	6.06%	1.42%	13.98%
All	3.75%	1.91%	0.15%	5.03%

This table reports demand for advice by contribution amount decile by contributors. We distinguish between participants who do and do not invest solely in TDFs. It is a disaggregated version of the bottom panel of Table 6.

Appendix Table 7. OLS Regressions Predicting Advice Seeking Around Menu Changes, 2012-2014

Participant Characteristics	Asset Allocation (HC Tool)	Income Planner (IP Tool)	Asset Allocation (HC Tool)	Income Planner (IP Tool)	Wealth Management (RT Tool)
Male?	0.0109 ***	0.0188 ***	0.0161 ***	0.0236 ***	-0.0405 ***
	(0.0015)	(0.0014)	(0.0061)	(0.0071)	(0.0075)
Newly Divorced?	0.0330 ***	0.0072 **	0.0047	-0.0110	0.0081
	(0.0045)	(0.0036)	(0.0187)	(0.0194)	(0.0212)
Newly Married?	0.0187 ***	0.0056	0.0200	0.0011	0.0850 ***
	(0.0042)	(0.0035)	(0.0191)	(0.0196)	(0.0234)
Remain Married?	-0.0021	0.0000	-0.0096	-0.0055	0.0151 *
	(0.0015)	(0.0014)	(0.0065)	(0.0077)	(0.0078)
New Contributor?	0.0098 ***	0.0135 ***	0.0259	-0.0064	0.0196
	(0.0035)	(0.0030)	(0.0180)	(0.0172)	(0.0204)
Primary Only?	-0.0600 ***	-0.0566 ***	-0.0105	-0.0334 ***	-0.0436 ***
	(0.0019)	(0.0017)	(0.0068)	(0.0080)	(0.0079)
Supplemental Only?	-0.0340 ***	-0.0501 ***	0.0292	-0.0833 ***	-0.0007
	(0.0032)	(0.0028)	(0.0212)	(0.0182)	(0.0256)
TDF Only?	-0.0458 ***	-0.0457 ***	0.0177	-0.0295	-0.0481
	(0.0039)	(0.0039)	(0.0369)	(0.0381)	(0.0390)
Limited to Guidance?	-0.0071 ***	-0.0128 ***	-0.0053	-0.0348 ***	-0.0100
	(0.0016)	(0.0013)	(0.0085)	(0.0097)	(0.0107)
Web Access?	0.0717 ***	0.0561 ***	0.0915 ***	0.1191 ***	0.0669 ***
	(0.0012)	(0.0010)	(0.0053)	(0.0063)	(0.0089)
PRR Minus S&P 500	0.0397 **	-0.0119	-0.0710	0.0991	-0.1684 **
	(0.0186)	(0.0169)	(0.0720)	(0.0773)	(0.0789)
PRR Minus S&P 500	-0.0646 **	-0.0088	0.1369	-0.1266	0.2243
* TDF Only?	(0.0270)	(0.0264)	(0.2552)	(0.2121)	(0.2825)
Std. Dev. PRR	0.1027	-0.2173 ***	0.0710	-1.3694 ***	0.0151
	(0.0707)	(0.0611)	(0.2634)	(0.2766)	(0.2781)
Std. Dev. PRR	0.1748	0.4904 ***	-1.4359	0.0233	-0.3996
* TDF Only?	(0.1253)	(0.1250)	(1.2122)	(1.2036)	(1.3109)
Total Number	0.0021 ***	0.0023 ***	0.0027 ***	0.0031 ***	0.0009
of Options	(0.0001)	(0.0001)	(0.0005)	(0.0005)	(0.0006)
Fraction of Options	-0.0021	0.0024 *	-0.0030	-0.0163 **	0.0065
that Change	(0.0016)	(0.0013)	(0.0068)	(0.0070)	(0.0079)
Mean LHS variable	0.0890	0.0890	0.0890	0.0890	0.0890
Eligible for RT Tool?	No	No	No	No	No
Sample size	189,637	189,637	15,342	15,342	15,342

This table replicates the analysis in Table 8 except that instead of controlling for the total number of options in the primary plan, we control for the total number of options across all plans. To help capture fund substitutions, we also include the fraction of options that change.

Appendix Table 8. OLS and IV Regressions Predicting Advice Online Seeking By New Contributors, 2012-2014

Estimation	OLS	IV	OLS	IV
Participant Characteristics	Asset Allocation (HC Tool)	Asset Allocation (HC Tool)	Income Planner (IP Tool)	Income Planner (IP Tool)
Male?	0.0124 ***	0.0140 ***	0.0190 ***	0.0210 ***
	(0.0023)	(0.0024)	(0.0020)	(0.0021)
Married?	-0.0014	-0.0024	-0.0014	-0.0026
	(0.0024)	(0.0024)	(0.0021)	(0.0021)
New Contributor?				
Primary Only?	-0.0701 ***	-0.0617 ***	-0.0666 ***	-0.0565 ***
	(0.0040)	(0.0039)	(0.0036)	(0.0035)
Supplemental Only?	-0.0527 ***	-0.0428 ***	-0.0590 ***	-0.0471 ***
	(0.0047)	(0.0048)	(0.0039)	(0.0039)
TDF Only?	-0.0536 ***	-0.0285 ***	-0.0427 ***	-0.0126 ***
	(0.0037)	(0.0050)	(0.0031)	(0.0040)
Limited to Guidance?	0.0034 *	0.0017	0.0039 ***	0.0018
	(0.0020)	(0.0021)	(0.0014)	(0.0016)
Web Access?	0.0412 ***	0.1178 ***	0.0247 ***	0.1167 ***
	(0.0018)	(0.0109)	(0.0014)	(0.0091)
Number of Options in Primary Plan	0.0015 ***	0.0019 ***	0.0013 ***	0.0019 ***
	(0.0002)	(0.0002)	(0.0001)	(0.0002)
Mean LHS variable	0.0411	0.0411	0.0297	0.0297
Eligible for RT Tool?	No	No	No	No
Sample size	28,254	28,254	28,254	28,254

This table replicates the OLS and IV regressions in Table 10. However, the dependent variable switches from any advice seeking by new contributors to any advice seeking by new contributors using online tools.

Appendix Table 9. OLS Regressions Predicting Advice Seeking By New Contributors in Quarter Two, 2012-2014

Estimation	OLS	OLS
Participant	Asset Allocation	Income Planner
Characteristics	(HC Tool)	(IP Tool)
Male?	0.0090 ***	0.0116 ***
	(0.0022)	(0.0017)
Married?	-0.0012	0.0011
	(0.0023)	(0.0017)
New Contributor?		
Primary Only?	-0.0882 ***	-0.0667 ***
	(0.0049)	(0.0041)
Supplemental Only?	-0.0756 ***	-0.0635 ***
	(0.0054)	(0.0041)
TDF Only?	-0.0381 ***	-0.0253 ***
	(0.0035)	(0.0026)
Limited to Guidance?	-0.0009	0.0000
	(0.0018)	(0.0011)
Web Access?	0.0277 ***	0.0160 ***
	(0.0019)	(0.0013)
Number of Options	0.0015 ***	0.0011 ***
in Primary Plan	(0.0002)	(0.0001)
Mean LHS variable	0.0309	0.0166
Eligible for RT Tool?	No	No
Sample size	23,603	23,603

This table replicates the OLS regressions in Table 10 focuses on advice seeking by new contributors. However, this table restricts the sample to new contributors who did not seek advice during quarter one and predicts advice seeking during quarter two.