The demand for advice in defined contribution pension plans: age, gender, and the size-of-bet effect

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Abstract. Defined contribution (DC) or money purchase pension saving schemes place the onus on participants to make decisions on asset allocation, the choice of investment vehicles, and the extent to which changes in individual circumstances and macroeconomic conditions should affect investment strategy. Many people are ill-equipped to make these types of decisions. The role of third-party advisers is quite problematic, particularly when their incentives are inconsistent with the interests of those that seek advice. In this paper, we report the results of a comprehensive study of the advice sought by Australian DC participants from their plan sponsors (agent) over time, explaining observed patterns by reference to participants' age and gender, the salience of the issue, and the size-of-bet effect. The mode of inquiry, the frequency and volume of contact by plan participants, and the sensitivity of participants to announced changes in the national pension regime and macroeconomic events are also considered. Whereas research on this topic has focused upon fee-for-service advisers, we focus upon the advice provided by the agent of DC plan sponsors that has no direct interest in the outcome of calls or web-based inquiries. Analysis takes in approximately 430,000 Australians over the period 2004 to 2013.

Keywords. Advice, information, decision-making, gender, defined contribution pensions

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1 Introduction

In many OECD countries, money purchase or defined contribution (DC) pension schemes have come to dominate the provision of supplementary pension benefits. The uncertainties involved in funding defined benefits (DB) have become so significant that, wherever possible, private sector employers have retreated from sponsorship of these schemes (Clark and Monk 2007). In some countries, participation in supplementary pension saving schemes is entirely a matter between the employer (plan sponsor) and the employee (plan participant). In other countries, government requires employers to automatically enroll their employees into a pension saving scheme which meets a minimum set of standards; see the UK and the role of the National Employee Savings Trust (a government-sponsored DC scheme). In some countries, participation in a pension saving scheme is mandatory along with a minimum contribution rate of annual gross salary (as in Australia).

Whereas the uncertainties associated with DB schemes were the responsibility of employers, employees carry the risks associated with DC schemes. Prompted by the behavioural revolution led by Kahneman and Tversky (1979) and the application of their analytical framework and findings to the issue of individual savings behaviour (see Benartzi and Thaler 2005; Thaler and Sunstein 2008), it is widely believed that the average DC pension plan participant is ill-equipped to make financial decisions consistent with realising their best interests over the long-term. More generally, the research programme on financial literacy initiated by Lusardi and Mitchell (2007) has demonstrated that many people simply do not have the requisite financial knowledge and understanding to make informed saving decisions, and often fall short of the domain-specific skills and expertise needed to function effectively in the context of market risk and uncertainty.

One response to acknowledged shortfalls in financial acumen has been to encourage individuals to be better informed about the issues relevant to their long-term welfare. In the UK, current and previous governments have promoted public awareness programs designed to facilitate informed financial decision-making. This approach supposes that one important barrier to adequately longterm saving is a lack of information about how to save and how much to save at different stages of the life-cycle. This policy programme also seeks to redress widespread distrust of the advice proffered by commercial advisers and vendors. If people seek advice, they tend to trust friends and relatives as opposed to commercial agencies— but friends and relations can be poorly-placed to provide adequate assistance (see Clark et al 2012). Not surprisingly, some governments have simply bypassed the issue in favour of requiring the provision of pension products designed to be consistent with the long-term interests of the average pension plan participant (see the Australian Government's Cooper Review, which recommended the provision of a generic pension product).

Government-led information services have done little to improve the lot of the average DC plan participant. As a result, governments have encouraged pension schemes (DB and DC) to take a more active role in providing information and, at the limit, advice relevant to their plan participants. Even here, possible conflicts of interest have been identified, especially when DC plan sponsors' interests in concluding mutually beneficial contracts with service providers trump their responsibilities to plan participants (Clark and Urwin 2011). At the same time, plan sponsors and service providers have been wary of providing advice, recognising that giving advice may entail long-term responsibility. In any event, the average DC plan participant may have little interest in expending the time and effort necessary to seek advice from informed third parties because it is difficult to demonstrate cause-and-effect (that is, the benefits of a change in behaviour prompted by seeking advice). Little is known about who would seek advice; about what issues, when, and in what contexts; and to what effect *if* the advisor or advisors were genuinely disinterested in the outcome.

In this paper, we provide an account of who seeks advice, the medium through which they seek advice, and the context in which advice is sought.[1] Our analysis is based on the Australian superannuation system over the years 2004–2013, in circumstances where seeking advice was initiated by the plan participant and where the agent of a group of plan sponsors had an interest in helping the plan participant rather than deflecting their enquiry and/or selling a related product or service. Crucially, the agent of this group of plan sponsors competes with other large Australian plan sponsors for a share of the growing market for DC pension services. The agent has an interest in enhancing its reputation for being timely in response to an enquiry, for giving advice consistent with the interests of individual plan participants, and for being perceived to be a trustworthy provider of services. When seeking advice from the agent, plan participants are not required to pay directly for this service. Details on the call facility are provided in the Appendix to this paper.

We begin with the temporal pattern of advice-seeking, demonstrating that the year-by-year increasing volume of advice seeking can be disaggregated into components including a daily effect (within a week) and a seasonal effect (including an end-of-tax-year effect and a summer vacation effect). We show that there is a singular episode that stands out in the volume of advice seeking across the entire time period: prior to the peak in the financial bubble, a major change in federal legislation concerning superannuation benefits and entitlements was announced a year before it came into force on July 1, 2007. Of concern, in this respect, is the timing of advice-seeking on this issue by pension plan participants prior to, and immediately after, the implementation of the legislation. Notwithstanding the lead-time between the announcement and its implementation, we show that advice-seeking on this issue was concentrated in a few weeks prior to its implementation and, to a limited extent, immediately after its implementation.

In order to understand who seeks advice, a multinomial logistic model is used to predict advice-seeking on the basis of participants' socio-demographic characteristics: their age, gender, economic well-being measured in terms of their salary and account balance, and whether participants utilised other services provided by the sub-plan sponsor and/or agent including salary sacrifice. We test whether the life-cycle model is a good predictor of advice-seeking, given recent research that suggests that the age (older rather than younger) and the gender of a participant (female rather than male) are key drivers of the salience of retirement planning (Clark et al 2012). We also test whether the size-of-bet is important in prompting advice-seeking; that is, whether a large nominal account balance and/or salary are good predictors of advice-seeking. This effect is implied by experimental results (see Clark et al 2009), but would be disputed by those who argue participants can see through money illusion (contra Shafir et al. 1997). Finally, we test whether predictors of advice-seeking are more or less significant over the entire period compared to the singular episode.

Overall, it is shown that the age of a participant (being older rather than younger), their gender (being female rather than male), and the value or size of a person's account balance (larger rather than smaller) are statistically significant predictors of advice-seeking. These findings come with three implications. First, those predisposed to plan for the future by virtue of age benefit most from advice-seeking, while those not so predisposed tend not to seek advice. Second, since the demand for advice is driven by women more than men, the design and management of the provision of advice would seem to be significant issues. Third, notwithstanding the long lead-time of the announced change in federal legislation affecting the tax treatment of superannuation benefits, advice-seeking was concentrated immediately before the implementation of these changes. The timing of the release of information (public and private) relevant to participants' pension decision-making deserves greater attention.

[1]/. By 'advice' we use a common-sense understanding of the term, signifying a broad range of participants' concerns rather than the particular legal meaning of the term associated with fiduciary duty.

2 Information and Financial Behaviour

To set the issue in context, in this section a model of information and individual behaviour is presented. The model is schematic, emphasising key elements rather than the specifics of a certain time and place. In the following section, a bridge is made between the model and the specific institutional context in which pension plan participants make decisions and seek advice. Whereas the model could be conceived in universal terms without reference to financial issues, it is arguable that these types of issues are distinctive when compared to the many other issues that people must face on an everyday basis (see Lusardi and Mitchell 2011 on financial literacy).

2.1 Basic assumptions

For simplicity, assume that individuals are intendedly rational (Doherty 2003). Given their goals and objectives (ends), individuals choose what they perceive to be the most effective instruments (means) available to realise those goals and objectives. Intention is emphasized rather than results, matching Simon's (1956) argument to the effect that realising goals and objectives can be quite problematic due to cognitive constraints and the circumstances in which people find themselves (often termed the 'environment'). It is assumed that making plans depends upon searching for, and sorting amongst, the available information concerning options and changing circumstances (Sharpe 2007). Finally, it is assumed that searching for, and sorting amongst, the available information incurs costs. With limited cognitive and material resources, individuals tend to economise on searching for, and sorting amongst, the available information (Gabaix et al. 2006).

2.2 Decision framework

Assume individuals face two types of financial decisions. One type of financial decision can be termed 'episodic' in that individuals treat it as a one-off decision. This may be because this type of decision is rare, or rarely repeated, or if repeated the gap (in time and space) between similar decisions is such that individuals go back to basics each time such a decision is encountered. An obvious example is buying a house, a decision which many people encounter only once or twice in a lifetime. Perhaps more obvious, each time an individual seeks to re-mortgage their house, the required actions and decisions are different due to changes in the mortgage market, interest rates and expectations, and regulatory requirements. These factors make the effective carryover between related decisions slight, and this fact does not escape the notice of those involved.

Another type of financial decision can be termed 'continuous' in the sense that individuals treat it as an instance in a string of related decisions. In this case, the gap (in time and space) between similar decisions is slight; individuals' carry over knowledge and information gleaned from previous decisions to current decisions. Where the expected costs of making a second-best decision are modest and where its expected effects are distributed into the future, individuals may be tempted to carryover past decision-rules or heuristics, albeit slightly modified to take account of recognisable shifts in the environment (Gigerenzer et al. 1999). A more sophisticated decision maker may consciously or otherwise adopt a Bayesian decision framework such that as they encounter repeated instances of much the same problem, they revise their expectations taking into account the most recent information in relation to the underlying pattern of related events (Bermúdez 2009).

This issue can be complicated by distinguishing between two types of information. One type of information can be termed 'discrete' in the sense that it is to be found at a specific time and place, subject to the costs involved in searching for information. This may be because others recognise that this type of financial information is valuable and, as a consequence, it tends to be hoarded. The other type of information can be termed 'ubiquitous' in the sense that it is widely available, perhaps on the Internet and through more conventional media outlets. Here, the issue is less about searching for information than sorting between the available information in terms of its integrity and relevance. There is a close relationship between searching for, and sorting amongst, information (Spence 1976). If the search costs involved in finding information are significant, individuals tend to narrow the scope

of information sought so as to economise (time and effort) on the search process. If information is ubiquitous, it is assumed that individuals emphasise sorting over searching according to what they perceive is needed in terms of making an effective financial decision.

2.3 Four cases

Presented below are the rudiments for an analytical framework of the relationship between the nature of financial decision-making and the type of information available when making such decisions (Pliske and Klein 2003). As indicated above, this framework is deliberately schematic and highly stylised. Nonetheless, it provides a way of representing the key issues before we undertake the substantive analysis of advice-seeking by Australian defined contribution pension plan participants. Figure 1, below, presents in summary form the analytical framework.

[Insert Figure 1 About Here]

Case A: episodic decision, discrete information. In this instance, individuals search for information relevant to the specific decision which they plan to take or must take as part of their lives. As noted above, searching rather than sorting information dominates the proceedings, given that a small volume of quite specific information could make a significant difference to the effectiveness of decision-making. There can be three steps in the search process: first, a preliminary scan of what is immediately available; second, a cost-benefit analysis of an in-depth search for information against the likely payoff of expending time and effort; and, third, the implementation of a search whose scope in time and space is commensurate with the perceived significance of the issue.

Case B: continuous decision, discrete information. In this instance, individuals face a sequence of related decisions spread over time, with all the advantages and disadvantages that attend the accumulation of information relevant to this type of decision. Formally, this information could be stored in a data warehouse (such as a computer). It could also be stored in a person's memory. The retrieval and application of stored information is the essence of the problem. If information is stored and retrieved time and again as related decisions are presented, the key issue is whether the storage process takes account of new information such that it remains relevant as circumstances change. More problematic, and widely recognised as such in the literature, is when people retrieve information from memory; in these situations, people tend to select information which confirms their predilections (Rook 2014).

Case C: episodic decision, ubiquitous information. In this instance, the search for information is less important than sorting or screening the available information in accordance with the specific decision that must be taken. In this situation, information is best understood as a flow rather than a stock. In Case B, storing information makes sense given its limited supply. In Case C, the issue becomes how best to manage the flow of information. One strategy may be to continuously sample information, testing its relevance and veracity, and repeating the process until the individual concerned has confidence in making a decision (Schacter and Addis 2007). There is, of course, a limit to the sampling process–a stopping rule is required.[2] Alternatively, given the costs involved, individuals may seek advice from a third party that is better-placed to sort through the flow of information in ways consistent with the decision that an individual faces.

Case D: continuous decision, ubiquitous information. In this instance, once again the search for information is less important than sorting or screening the available information. But, in this case,

[2]/. There is an extensive literature on the costs and benefits of sampling, including recognition of the consequences of sampling for decision-making (Friedler 2000) and the problems that arise when sampling excludes (deliberately or otherwise) 'extreme' events. See Taleb (2007).

because this type of decision is taken time and again, the individuals concerned may learn to cope with the flow of information, developing formal or informal algorithms through which to process information (taking into account the results of past decisions). Here, however, are two obvious caveats. First, whether or not an individual persists in sampling and sorting information -- and revising the algorithms they use to process information -- would depend, it appears, on whether they are successful in the first phases of this process. Evidence from behavioural psychology suggests that individuals retreat from this process if, in the early stages of the process, their efforts are unsuccessful (Kahneman 2011). Second, in any event, individuals may implement an automatic decision-rule which is applied time and again until it fails. In this situation, individuals may be more concerned about instances of failure than instances of near and not-so-near approximations to desired outcomes (another version of loss aversion; see Tversky and Kahneman 1992).

Research in the cognitive sciences suggests that the average person has a limited capacity to absorb, synthesise, and value large volumes of information. With a never-ending flow of information, which adds to ambiguity over the proper course of action rather than resolving ambiguity, many people tend to delay taking a decision until they must make a decision (Ju and Miao 2012; O'Donoghue and Rabin 1999). In these circumstances, events that stand-out from the ongoing flow of information can receive more attention than they deserve (Barberis 2013; Tversky and Koehler 1994). In responding to such an event or series of events, people may select information that attributes a level of 'meaning' which is not warranted by a comprehensive understanding of the significance of an event or series of events in the larger context. Similarly placed individuals, sharing similar goals and objectives, may separately come to over-state the significance of such an event or series of events such that we may observe convergence in behaviour (Eyster and Rabin 2010; Sharpe 2007).

3 Logic of Decision-Making

As intimated above, decision-making can be characterised according to the nature of the decision or decisions taken as well as the frequency of decision-making given a specific topic or issue. While retirement planning and saving for the future have long-term consequences, this does not necessarily mean that decisions once taken are maintained over the long-term.[3] Having made a commitment to a long-term saving strategy may entail a string of subsequent decisions responding and adapting to changing circumstances between the initial commitment and actual retirement (Lo 2012). While status quo bias is typical of DC plan participants (Samuelson and Zeckhauser 1988), this is not a satisfactory representation of the range of behaviour evident in DC pension plans, nor is it necessarily a desirable course of action (Clark et al. 2012).

3.1 Learning and retirement planning

Research on retirement planning has shown that it is an issue fraught with many uncertainties. While a 50-year-old has good information about his or her human capital and earning potential, it is difficult to predict one's retirement date because there are at least three intervening variables: his or her future health; the preferences of his or her employer; and his or her family circumstances and commitments. Notice, with each year beyond the age of 50, individuals are better able to predict their retirement date and well-being at retirement. By contrast, a 30-year-old has relatively poor information about his or her human capital and earning potential and may not be able to identify and/or give credence to intervening variables that could affect their future retirement date. Not

[3]/. Being able to link cause and effect is an essential ingredient in calibrating decision-making such that it better approximates intended goals and objectives (Pearl 2000). If individuals are unable to link cause and effect because of the long gestation period in realising the results of a decision, retirement decision-making could be treated as a discrete event rather than as a series of decisions whose effects are integrated into a long-term planning process.

surprisingly, in these circumstances, younger people tend to heavily discount the future and may simply ignore the issue (saving for the future) (see Ainslie 2001).

Planning for the future depends upon individual and collective capabilities and resources (see Clark et al 2012 on the household as a planning unit). Assuming a predisposition in favour of saving for the future, the effectiveness of such a commitment depends upon three factors: (1) knowledge and understanding the issues, (2) relevant skills and expertise, and (3) the resources (money, networks, and advisory services) required to make informed decisions. As noted above, the program on financial literacy led by Lusardi and Mitchell (2007) emphasises the significance of factors one and two, and has significant insights as to the possible relevance of factor three in compensating for shortcomings in the first two factors. Their research also suggests that financial decision-making in general and retirement planning in particular are decisions that demand domain-specific skills and expertise (see generally Wagner 2002). To the extent individuals recognise their shortcomings in this regard, this may dampen their confidence in retirement planning -- or they may seek advice.

It is hypothesised that seeking advice is age-related in that there are fewer uncertainties about the issue at an older than a younger age, and the consequences of making related decisions are more transparent. Holding age constant, it is also hypothesized that in seeking advice individuals may (in effect) aim to compensate for apparent shortcomings in terms of preparedness.

3.2 Gender and financial decision-making

Whereas retirement planning can be thought of as a time-dependent sequence of decisions, in the DC environment it is also a series of financial decisions in the context of risk and uncertainty. Research in behavioural psychology suggests that many people are risk averse (Baron 2008), while Kahneman and Tversky (1979) argued that many people are actually loss averse rather than risk averse. If people are simply risk averse, this would suggest that many people simply avoid taking decisions that have an element of risk whereas, in Kahneman and Tversky's world people tend to contain the downside risk of a decision or set of decisions before entertaining the possibility of gaining benefit on the upside of risk. It has also been shown that risk tolerance is a male attribute while risk aversion is a female attribute (Lauriola and Levin 2001). These differences are most obvious when considering financial decision-making, but may be less obvious for other non-financial issues (Charness and Gneezy 2012).[4]

One response to the apparent risks involved in making financial decisions may be to exercise caution, delay making a decision, collect more information, and seek advice. Here, though, the evidence seems to suggest that men tend to back their judgment whereas women tend to prevaricate (Levin et al 1988). One study that considered gender differences in the use of third-party advisers in financial decision-making showed that those women that use these services tend to feel less in control over money, more anxious about the risks involved, and not able to access the appropriate information (Stinerock et al. 1991). Importantly, it has been shown that evoking a sense of security whether through physical contact or (by implication) through listening to a 'real' person, preferably female, can prompt a willingness amongst women to engage in risky financial decisions (Levav and Argo 2010). By contrast, men tend to trust the web more than women for finding relevant information and informing decision-making (Riedl et al. 2010).

[4]/. See Powell and Ansic (1997, 622) who concluded that women "have (a) lower preference for risk". Their findings do not "support the view that gender differences in risk preferences are context related". The issue of context-dependence appears and reappears in the literature. Lindquist and Säve-Söderbergh (2011) argue women are more risk tolerant in women-only environments compared to mixed-gender environments.

In summary terms, we expect that women more than men seek advice when making financial decisions, tend to trust advisers they can see and/or hear, and tend to be relatively slow to make a decision, valuing more information over their immediate or visceral judgement (compared to men; see Barber and Odean 2001). Of course, care must be taken not to essentialize these differences between men and women considering the relevance of other observed variables such as age, income, and wealth and unobserved variables such as experience and household status (see Tversky and Kahneman 1992 on the ways in which domain-specific experience and expertise mitigate loss aversion).

3.3 Institutional setting

The Australian federal government requires all workers to participate in (at least) a defined contribution pension plan and contribute a set proportion of gross salary to the chosen scheme. In terms of participants' risk and return objectives, neither the government nor plan sponsors offer guaranteed returns. Over the period 2002 – 2013 many DC plan participants were automatically enrolled into the default fund provided by the plan sponsor and/or its agent. In these circumstances, participants' risk and return objectives were set by the plan sponsor. In the Australian case, the standard default fund has had significant exposure to Australian equities. In most other countries, this type of exposure over the same period would have seen significant market gains and losses as the global financial crisis profoundly disrupted global equity markets. Here, the global financial crisis had modest real effects although the local media reported on the significance of the crisis around the world.

Whereas many DC participants lack the information and skills to make effective long-term investment decisions, it is apparent that Australian participants are located in a remarkably rich information environment. The print media, the visual and spoken media, and electronic networks are awash with information about the superannuation industry, the market performance of equities, bonds, and other asset classes, the relative short-term performance of superannuation funds, the costs of funds management, and much else besides. This information is uneven in terms of its quality. But, it is both ubiquitous and effectively cost-free. Furthermore, on a subscription basis, there are numerous commercial providers of information tailored to topics such as investment strategy, investment options, and the likely effects of near-term and long-term economic and financial events. The flow of information is situated in the market for information and, as a consequence, is not always trusted because of the (often shrouded) interests of commercial providers (Gabaix and Laibson 2006, Malkiel 2013).

In these circumstances, pension plan participants may seek advice from 'safe havens' unsullied by the market for information, and with no apparent commercial interest in priming and prompting action. We expect that there are peaks and troughs in advice-seeking, along with a growing volume of advice-seeking which reflects (in part) the cacophony of noise evident in the market for information on pension saving and the superannuation industry and the responses of similarly situated individuals to this environment.

4 Data Overview – Overall Patterns of Advice Seeking

Data on advice-seeking comes from Mercer (Australia) and their Super Trust, Corporate Division. The Super Trust (ST) is the agent for more than 180 private sector employers, providing both DC and DB pension benefits (overwhelmingly focused upon DC benefits). Some ST employers are very small with just a handful of employees, but some are very large, including a number of Australia's largest private employers. Included in the database are 567,491 individuals across the period 2002 – 2013. It is a remarkable database because it has a wide range of individuals, including those that earn little over the course of the year through to those that earn very high salaries. It represents a significant slice of the Australian economy and society. For each individual, we have their gender, postcode of

residence, date of birth, the date he or she joined (or left) the company, their salary, account balance, employer contributions, whether they participate in salary sacrifice arrangements, and whether they have supplementary insurance and savings products (Feng and Gerrans 2014).

Mercer's ST provides a range of services from a common platform. With respect to advice-seeking, Mercer has two ways of obtaining advice: through a telephone call centre (introduced midyear 2004) and a web-based enquiry facility (introduced in early 2008) which is dealt with by call centre staff. The telephone helpline is common to all participating employers and their pension plan participants. It is a centralised facility, located in Melbourne. It is open weekdays between the hours of 8 AM and 7 PM. As each call is received, the Mercer adviser records the topic or topics raised during the call. Over the period 2004 – 2013 approximately 70 categories were used to code the topics. Of the more than 1.5 million topics raised by callers over the entire period, 40 of the topic categories received less than 1000 statements of interest. In general, three groups of categories can be identified (in descending order of significance): administrative matters, investment matters, and retirement planning.[5]

In Figure 2, the frequency of calls is displayed over the period 2004 – 2013. From the introduction of the call facility in mid-2004, the growth in volume of calls lagged the growth in members and it took approximately 2 years for participant activity to reach maturity or a "steady-state", with a peak in the volume of calls mid-year 2007 followed by a slight upward shift in calls in 2012 and 2013. In the penultimate section of the paper, we look more closely at the circumstances prompting the spike in calls. We identified certain regularities in calling frequency. With the closure of the call facility on Saturdays and Sundays, call volume tends to be low on Mondays, peaks on Tuesdays, declines Wednesdays and Thursdays, and dies out on Fridays. In terms of monthly frequencies, call volume is highest in June (the Australian tax year concludes June 30th of each year), is lowest in December (including the Christmas and New Year holiday period), gathers momentum in March and May of each year, and then tails- off once the tax year has passed.

[Figure 2 About Here]

The upward trend in the volume of calls on a monthly basis was rather slight, biased by the initial two years in which participants became aware of the facility and began to use it and the last two years where the volume of calls began to increase. It was found that the variance in call volume was dominated by the day-of-the-week (81% of the total variance) and the seasonal (18.50%) effects. The monthly effect contributed 0.40%, and the week-of-the-year effect contributed just 0.12%.

With the introduction of the web enquiry facility mid-2008, there was an immediate surge in participant web requests. Thereafter, the average volume declined and in 2013 was at about 60% of the initial surge in interest. Notice, the web facility is accessible every day of the week, peaking on Sundays. Nonetheless, enquires are dealt with during week day office hours. During the course of the year, web enquiries peak midyear and are lowest over the December and January holiday period. For a number of participants, the web facility is the only means by which advice is sought.[6]

[5]/. When seeking advice, callers (and web-users) often touch upon a range of issues, some administrative and some more substantial in terms of investment decision-making. Hard-and-fast distinctions between categories as implied by legal definitions of advice do not do justice to the complex interaction between the various concerns that may prompt a call.

[6]/. Once the web facility was introduced younger men more than younger women took-up this option (as expected). We have no information on whether the benefits of the call option are framed by the agent and/or the participating sub-plans in ways that 'induce' more women than men to take advantage of the facility (see Agnew et al 2007).

By the end of the period, those that previously used the call facility tended to also use the web facility. At the end of the period, those that only used the web were, on average, younger than those that used the web and the call facility (36 versus 42 years), had lower salaries ($65,000 versus $80,000 per year), and had much lower account balances ($25,000 versus $60,000). On each of these measures, those that used only the web facility were more similar to one another than those that used the web and the call facility.

The period 2002 – 2013 was one of the most significant episodes of economic and financial turmoil experienced by OECD countries over the past 100 years. In the aftermath of the TMT bubble and the 9/11 terrorist attacks in New York and Washington, a financial bubble developed. The bubble's development was facilitated by monetary policies and financial leverage that was focused upon the US housing market which peaked in 2007 (Blinder 2014). It was followed by a deep recession in many OECD countries, and was amplified in continental Europe by the Euro crisis. In many countries, the loss of GDP growth, higher levels of unemployment and underemployment, and adverse effects on health and welfare were significant (Chang et al. 2013). Leading policymakers and politicians made concerted efforts to avoid a repeat of the great depression of the 1930s (Geithner 2014). It is reasonable to hypothesise that over the period 2004 – 2013 the volume of calls and web enquiries were statistically related to the path of the Australian economy and its stock market.

A test of the relationship between changing use of the call facility and the web enquiry facility in relation to changing macroeconomic and financial indicators was conducted. No such statistical relationship was found.[7] In this respect, our findings are consistent with related findings of academics, the Reserve Bank of Australia, and business commentators to the effect that for all the local media attention devoted to the global financial crisis, there was no appreciable shift in the pattern of call inquiries to Mercer's Super Trust advisory facility.

5 Data Analysis - Predictors of Call Enquiries

To assess the importance of various predictors of the decision not to call, to call once, to call at about average frequency, and to call frequently, a multinomial logistic model was used. In order to focus on the behaviour of members within their plan, the sample excludes members of the personal division of the trust. Members are transferred to the personal division from their employer sub-plan when their employment ceases.

5.1 Descriptive Statistics

In the complete dataset (n=567,451) 55.8% of members made no calls. Of the 44.2% that made a call, 39.1% made one call, 52.0% made between two and seven calls (classified as the "average" caller group), and 8.9% made more than seven calls and were classified as the "frequent" caller group. On average, there was no obvious gender difference between those who called and those who did not call at least once. Notice, the analysis reported here and subsequently refers to a set of variables other than gender that change in value over this period. There is, moreover, the issue of how to represent age: in this paper we refer to the age of the participant when they entered the relevant sub-plan.

[7]/. Using an OLS regression model, the quarterly change in the volume of calls across the entire period was regressed against the change in GDP, change in the unemployment rate, and change in the Australian stock exchange index. No parameters were found significant, and the R-squared was found to be 0.08. The full specification and results are available from the authors.

A preliminary analysis (see Table 1) of the differences between these three types of callers showed that those who called between two and seven times compared to those who called just once were on average slightly older, had more years of membership in the sub-plan, and had significantly larger account balances and higher incomes. Those participants who called frequently (more than seven times) as opposed to those that called just once were significantly older, had much higher incomes and had, on average, account balances that were three times the value of the account balances of those that called just once. Likewise, in terms of salary sacrifice, frequent callers compared to those that called just once had made significant commitments to salary sacrifice.

[Insert Table 1 About Here]

5.2 Multivariate Analysis of Calling Behaviour

A multinomial logistic model was estimated combining information on those that called with those that did not call, distinguishing between those that had not called (Not Called), those that called once (Called Once), those that called between two and seven times (Called Average), and those that called more than seven times (Called Frequently). Member gender (Male), age (Age), average account balance over the period of membership (Account Balance), average annual salary over the period of membership (Salary), and number of years in the fund (Membership) were included as explanatory variables.

To capture the opportunity to access and use of the fund's web portal two dummy variables were included. The first reflects whether the member had no web access available through their membership period (No Web Access) and the second reflects whether they had web access and used it (Access, Web User). The omitted category consists of those who had access but had not used the web. Additionally, fixed effects were included for state of residence of the participant, though results are not tabulated here. To explore moderation of effects, Age, Gender and Account Balance were interacted with each other in the estimation. Finally, residuals were allowed to cluster by sub-plan membership.

5.2.1 Marginal effects - direction of influence

Table 2 presents a summary of marginal effects of variables calculated at mean values of remaining variables. It is helpful when considering the relative size of these marginal effects to compare the baseline predicted probabilities of being in each group. These predicted probabilities are reported in Table 2 in the first row of each predicted outcome. The most likely group for a member, conditioned on the mean value of all variables, is the Not Called group at 50 percent. The Called Once and Called Average have similar probabilities at 22 percent and 25 percent respectively. The Called Frequently group has the lowest probability at 2 percent. Notice, of the independent variables, all were significant at the 0.05 level except for being Male in the case of the Called Frequently group.

[Insert Table 2 About Here]

A gender effect was observable for three of the four calling groups. Males were approximately 4.7 percentage points more likely to be in the Not Calling group and less likely to be in the Called Once (1.5 percentage points) and Called Average (3.0 percentage points). However, no gender difference was observed for being in the Called Frequently group. The marginal effect of length of membership (Membership) had expected signs consistent with its inclusion as an "exposure" control. That is, those who have been in the fund longest were more likely to be in the Called Average and Called Frequently groups and less likely to be in the Not Called group. Member age was positively (negatively) associated with being in the Called Average or Called Frequently (Not Called or Called Once) groups. However the magnitude of this effect is small with a one-year increase in member age increasing the likelihood of being in the Called Average and Called Frequently groups by 0.2 and 0.1 of a percentage point respectively.

Member salary and balance both had a positive association with being in all three calling groups and a negative association for the Not Called group. The magnitudes are however small. For example, a one unit change in the natural log of salary increases being a one-time caller by 1.0 percentage point, an average caller by 3.0 percentage points and a frequent caller by 0.5 percentage points. The increase in salary reduces the probability of not calling by 4.4 percentage points. A similar change in average account balance reduces the probability of not calling by 6.6 percentage points, and increases the probability of calling an average number of times by 5.4 percentage points. The probability of being in the Called Once group increases with member balance but the effect is small in magnitude. Considering the overall prediction of being a frequent caller (2.0 percent), the marginal effect of 0.7 percentage points was relatively large.

The availability of and access to the web portal was a significant explanatory variable of calling behaviour. Not having access to the web portal reduced the likelihood of not calling, relative to those that had web access and did not use it. Accessing the fund web portal reduced the probability of not calling by 30 percentage points, but increased the probability of calling once (4.5 percentage points), calling an average number of times (22.4 percentage points) and 3.8 percentage points for calling frequently.

5.2.2 Interaction of gender, balance and age on calling behaviour

The estimation allows investigation of how the marginal effects on the probability of a member being in a calling group interact by gender, age and average balance. These are best considered graphically as presented in Figure 3 to Figure 5. Figure 3 highlights that the increased likelihood of males not calling was constant by age for those with the smallest balance. The gender effect was less evident for younger members with larger balances and the gender difference is more homogenous across balances for older members. A significant negative marginal effect for males being in the Calling Once category was isolated to those with the lowest balance, consistent for all but the oldest members. In contrast, the negative male marginal effect for the Called Average group was more homogenous across the other balance levels and age levels. The marginal effect of males on being in the Called Frequently group was not evident for any age for the lowest balance level. A negative marginal effect emerges for older members and in turn larger for larger balances.

Figure 4 shows that the marginal effect of age on the probability of being in either calling group was not moderated by gender with the exception of the Called Frequently. Here, the age effect was lower for males with the largest balance. Overall, the impact of age was significantly moderated by member balance. The marginal effect of age on probability of not calling was significantly lower for those with the lowest balance. It is only those with lower balances that the negative marginal effect of age was significant for the Not Called group. The marginal effect of age on being in the Called Once group was negative for all balance levels, but largest (i.e., most negative) for those with higher balances. The positive marginal effect for age for being in the Called Average group was positive for the two lowest balance levels only.

The Called Frequently group is notably different in the role of age and size of balance. The marginal effect of age, shown in increases with member balance and along with evidence of variation by gender, was only significant for the larger balances. Figure 5 confirms this by presenting the marginal effect of balance as larger for older members, moderated by gender for those with the largest balance. A final comment on the Called Frequently group was the marginal effect of being a user of the fund web portal. The marginal effect was positive but not as strong as for those in the Called Average group which suggests differing roles or motivations. It may be that those in the Called Frequently group were seeking not just information but the personal link of the phone call.

5.2.3 Economic magnitude of effects on calling behaviour

Predicted probabilities were estimated for various combinations of gender, age, and balance with all else held at mean values. In terms of being in the Not Called group, a 51 percent probability is estimated for a 33 year old female member, with a balance of approximately $13,000. By contrast, consider a 50 year old female member with a $100,000 balance: for her, the probability is 31 percent of not having called. The equivalent male has an increased likelihood of one to three percentage points in both cases. The same 33 year old, female member with a $13,000 balance is estimated to have equal probability of calling once or call an average number of times at 24 percent. The older and larger balance colleague is distinctly different with a 19 percent chance they would call once against a 42 percent chance they would have called an average number of times. In both classifications, the equivalent male is generally three percentage points less likely. Finally, the young, low balance female member has only a one percent probability of being a frequent caller against her older and larger balance colleague, who has a relatively much larger probability of seven percent. The male counterpart is similar in each.

5.3 Multivariate Analysis of Calling and Web Access Combined

The multinomial logistic formulation was also used to examine the combination of using the call centre and using the fund web portal. Four categories are identified: those that make no use of either (Not Called, No Web); those who used the call centre but not the web (Call, No Web); those who used the web but did not call (Web, Not Called); and those who used both the call centre and the web (Call and Web).

As noted above, the web facility was introduced in 2008 four years after the introduction of the call facility. As such, the empirical analysis was set beginning 2008 through to 2013. Those with a membership preceding the introduction of the web portal are not included. The same set of explanatory variables were included as in the previous analysis with the exception of membership length, which was broken down into a measure of membership that preceded the introduction of the web enquiry portal (Pre-Membership), the length of membership after the introduction of the web enquiry portal (Post-Membership), and a dummy variable to capture those who were only members since the web portal was introduced.[8]

5.3.1 Marginal effects - direction of influence

Estimated marginal effects for each category are presented in Table 3. Consistent with the previous analysis of caller behaviour, males were more likely to be in the Not Called, No Web and less likely to be in the Called, No Web groups. However, the marginal effect of males was positive for Web only, or Web and Called groups. Though these effects were small, the overall predicted probabilities of being in the Web-only group (3.28%) and Called and Web group (11.96%) should be considered. Taken together the results suggest a greater preference for the call centre by female members and greater preference for the web enquiry portal by male members.

The marginal effect of balance and salary are larger for the likelihood of not using either (Not Called and No Web) when compared with the Not Called category of the previous estimation. Those with larger balances and higher salaries are less likely not to make use of both the call centre and the web portal. The reverse is true for likelihood of using the call centre and the web portal together (Called, Web). Member balance and salary significantly increases the likelihood of using both. Account Balance is also positively associated with being in the Called, No Web group and the Web, Not Called. The more resources, the more likely the member to use the advice facility. Member balance, however, has a relatively larger impact for using the call centre than using the web portal.

[8] /. The dummy was included to account for the fact that those who joined a sub-plan after the introduction of the web portal would have censored observations (i.e., zero years) for Pre-Membership length.

[Insert Table 3 About Here]

5.3.2 Economic magnitude of effects on calling behaviour and web portal use

To provide a better sense of the magnitude combinations of gender, balance and age were considered, as in the previous analysis. A younger (33 year old), female member with a small ($13,000) balance has a 44% probability of not using either the call centre or web portal. If the balance was instead $100,000 the probability drops to 23 percent. For males, the same comparison yields 47 percent and 24 percent respectively. Looking to predict those who use both the call centre and the web, the younger, female member with a small balance has a 10 percent probability compared with 20 percent probability for the equivalent member with a large balance. For males, this relative difference is the same at 12 and 26 percent respectively. Size, balance, matters to whether a member uses the call centre and web portal.

Finally, age appears to have a differential role. For example, a young (33 year old), low balance, female member has a 43 percent probability of being in the Called, No Web group. The equivalent 50 year old member has a 48 percent probability. The same comparison for the Web, Not Called group yields 2.9% for the younger member and 2.6%, for the 50 year old member. Older members have a greater likelihood of using the resource but more so for the call centre.

6 Reform of the Policy Framework

The compulsory Australian superannuation system was introduced in the mid-1980s as part of macroeconomic stabilisation package aimed at dampening wage inflation and promoting saving by working men and women (Clark 2012). So significant was this initiative that, by the end of 2014, the accumulated pool of pension saving has become one of the most important markets for financial services in the world. On occasion, however, the government of the day has sought to 'reform' the system including the tax treatment of superannuation contributions and benefits. In the 2006/2007 budget, the federal government announced its intention to "simplify and streamline superannuation" releasing a consultation document on the topic in May 2006. By December 2006, the government had introduced legislation in federal parliament which received Royal Assent on 15th March 2007—it came into effect on July 1st, 2007.[9]

Of the various provisions included in the Act, aged-based provisions regarding the tax treatment of superannuation savings and benefits were modified with provisions set according to different levels of pension savings and benefits. So, for example, the government introduced different levels of tax applicable to superannuation contributions at AUS$50,000 per person per annum, $100,000 per person per annum, and at $150,000 per person per annum. The age-based deduction limit was abolished, and people under 65 years of age were permitted to bring forward three years of contributions amounting to $450,000. Superannuation benefits paid as a lump sum or as a pension were to be treated as tax-free for people aged 60 and over and benefits paid to people under 60 years of age were provided with a tax-free and a taxable component. The legislation "encouraged (people) to transfer money into superannuation early in (their) working life rather than leaving (it) until the last few years of their working life" (Fernandez 2007).

Notice, the government gave notice of its intention to do so more than a year before the implementation of its legislation on July 1st 2007. Furthermore, public commentary on its intentions, the likely component parts of the legislation, and the implications of the legislation for current working men and women was widespread and punctuated by events that brought the issues before the public. Superannuation funds, their agents, and financial advisers also publicised the changes. By this account, information on the reform of the policy framework was more likely 'ubiquitous' rather

[9]/. Commonwealth of Australia, Tax Laws Amendment (Simplified Superannuation) Act 2007.

than 'discrete', with implications for those interested in making provision for their imminent retirement and those planning for retirement sometime in the future. It is arguable that these provisions were most relevant to those aged 60 years or over (contemplating imminent retirement) and those aged 50 years or over (planning for retirement). For the first group, these changes could have affected retirement decisions (discrete decisions) whereas for the second group these changes may have prompted making a series of changes over the longer term.

6.1 Calling frequency and moments

With respect to the pattern of advice-seeking by participants in the Mercer Super Trust sub-plans, it has been noted that the single most important spike in call volume occurred in the three weeks prior to July 1st, 2007 and the day immediately following that date. Notwithstanding the onset of the global financial crisis in 2008 and 2009, this single event stands out as exceptional in relation to the entire period 2004 – 2013. See Figure 2. Here, then, is a test of the robustness of previous findings as regards the status and relative significance of various predictors of advice-seeking behaviour. Notice, web enquiries were not relevant in this case because this facility had not yet been introduced.

Having established the call 'window' as June 12th through to July 2nd 2007, those that called before the July 1st moment were deemed *leaders* and those that called after that moment were deemed *followers.* Excluded were frequent callers who might have called anyway (2387), and excluded were those that called both before and after the July 1st moment within the call window (51). This left 7710 leaders and 437 followers.

Within the window, the period leading up to the July 1st moment was obviously far longer than the period immediately following that date. Also, there were many more callers before the moment than after the implementation of the legislation. Consideration was given to the gender, age, sub-plan experience, account balance, salary, and salary sacrifice commitment of leaders and followers. Inspection suggested that there were no differences between the average gender, age, membership period, and salary sacrifice commitment of leaders and followers. However, tests for differences amongst leaders and followers in terms of the distribution of participants around the mean of each variable established that there were statistically significant differences between leaders and followers on age (nonparametric and parametric) and salary (nonparametric only). It would seem that leaders and followers came from the same sample on gender, account balance, experience in the sub-plan, and salary sacrifice. See Table 4 below.

[Insert Table 4 About Here]

6.2 **Estimated model – call behaviour (window and non-window)**

A logistic model was estimated for the entire period leading-up to June 12th, 2007 and (separately) through the period of the 'window' June 12th–July 2nd, 2007. At issue, as in the previous analysis, was the probability of calling against the base case of not calling as determined by the independent variables. In this case, for consistency frequent callers were excluded from both samples and overlapping callers were excluded leaving 89,584 pre-window callers and 10,516 window callers. The results for this analysis are summarised in Table 5. It is shown that gender, age, account balance, salary, and membership period were significant for both samples, a finding broadly consistent with the findings on the type of caller against the base case. Notice, however, the gender, account balance, salary, and years in the fund effects were all stronger for callers during the window than for callers over the previous period. While date of birth was significant for both samples, its effect was stronger over the previous period than through the window.

[Insert Table 5 About Here]

7 Synthesis of Results

The premise the paper is that individuals seek advice when confronting an issue that is salient or, more specifically, claims their attention over and above other issues that have a claim on an individual's cognitive and decision-making resources (Bordalo et al. 2012). Following recent findings on patterns of retirement

planning and saving for the future, it was hypothesised that a person's age or stage in the life-cycle may prompt advice seeking when confronting an issue that is especially pertinent to their prospects. It was also suggested that individuals are more likely to seek advice when their material well-being is in play, even if expressed in nominal terms. Drawing upon findings in cognitive psychology, it was suggested that we should expect that gender differences in risk aversion or tolerance may translate into differential rates of advice-seeking: all things being equal, women are more likely than men to seek advice.

So as to provide an integrated account of our findings, let us begin with the simplest representation of the issue: the probability of not calling, calling once, being an average caller, or being a frequent caller. Against the base case of calling once, it was shown that being male increased the probability of not calling (conversely being female increased the probability of calling), just as being younger than older increased the probability of not calling, whereas having a larger than smaller account balance increased the probability of calling. In terms of being an average or frequent caller, the parameter on gender was consistent as above. In terms of the size of the effect, it was shown that an increasing account balance and increasing years in the fund increased the probability of being both an average and frequent caller whereas the salary and age effects were less important although with the expected signs on the parameters. The size of an account balance and membership period increases the probability of being a frequent caller.

A multinomial logistic model was estimated to examine the combination of using the call centre and the web facility. It was shown that the gender effect was consistent with the analysis of the call centre. Men were more likely to be in the Not Called, No Web group and less likely to in the Called, No Web group even though the male effect was positive for the Web Only and Web and Called groups. Women have a higher propensity to use the call facility as opposed to the preference of men for the web portal. As expected, being younger rather than older increased the probability of being a web user over a caller. That is, for some participants, being a web-user stands in place of being a caller. When compared with the Not Called category of the previous analysis the effects of salary and account balances for the Not Called, No Web are larger. Higher salaries and balances increase the likelihood of using both the web and the call centre together, while decreasing the probability of not using both. Account balance generally showed, however, a larger effect compared to salary. It was also shown that having a higher than lower account balance increased the probability of being a web user and a caller, although it is notable that it is more powerful than the account balance effect in relation to being a web-user.

This brings us to the singular event; that is, the pronounced spike in call activity when considered over the entire period. Through the period 2004 – 2008 participants could only call if they needed advice. The web enquiry facility was introduced in the second half of 2008. The spike in call activity occurred in June 2007, foreshadowing a significant change in the federal government's tax treatment of superannuation saving and benefits effective July 1st, 2007.

In the first instance, we sought to determine whether there was an appreciable statistical difference between those that called within the window leading up to June 30th 2007 and those that called immediately after. The key finding was that there was no difference between those that called before and those that called after except that the volume of calls immediately prior to the introduction of the new tax regime was far and away much larger than the volume of calls immediately thereafter. Here, being male decreased the probability of calling while, conversely, being female increased the probability of calling. The gender effect swamped all other effects[10]. The account balance effect was less important than experience in the fund compared

[10]/. Note, our findings on gender hold even if the incentive effects of a large account balance are held in abeyance. Being a woman increased the probability of seeking advice over the entire period and, especially, during the 'window' containing the influence of the change change in the tax treatment of superannuation benefits. We were not able to establish statistically significant interaction effects between participants' gender, account balances, and experience (time in the fund). See, by contrast, the experimental findings of Fryer et al. (2007).

to previous findings over the entire period (with or without the web-user factor). Likewise, being older rather than younger was less important. Having a higher salary rather than a lower salary was more important in this episode than over the entire period.

There is a measure of continuity joining the entire period with the spike in call activity. However, it is notable that the spike in calls virtually doubled the volume of calls during the month of June 2007 compared to the base line trend in calls over the entire period. As indicated above, when considered over the entire period, the single largest component in the variance of calling was actually the day in the week followed by the seasonal effect; there were, in fact, no other spikes of such significance. Furthermore, recognising that the gender effect appeared and reappeared through the entire analysis with different levels of significance, during the singular episode the gender effect was pronounced. Whereas the account balance effect was often the most important or second most important effect in findings prior to the singular event, it was the salary effect that dominated during the spike. On these counts, it is arguable that the singular event was actually 'different' than the patterns observed over the entire period.

It can be argued that three factors can explain the evidence on patterns of advice-seeking across the entire period with respect to calling versus not calling, calling versus not calling with or without the web facility, not calling, and being an average caller or a frequent caller against calling just once. Specifically, these results can be explained by reference to the issue of gender, stage of life-cycle, and material well-being. The variables representing these issues are, perhaps, more precise than the larger phenomena underpinning the theoretical and experimental research that underpins their significance. At the same time, the spike in calling would seem to warrant deeper analysis than that shown above.

8 Conclusions

Two key points should be made before considering in detail the implications of these findings. First, our study of advice-seeking behaviour is set in an institutional context that participants believe is at least benign (unsullied by a commercial interest in giving advice) and/or supportive of participants' decision-making (being a 'service' provided by the sub-plans sponsors' agent). Second, in large part, it is reasonable to suppose that advice-seeking is not an instance of 'primed' behaviour—that is, in some way encouraged or induced by the sponsors' agent. As such, observed patterns of advice-seeking should be seen as voluntary. See the Appendix.

Overall, it was found that the predictors of advice-seeking were gender (female rather than male), age (older than younger), account-balance (larger than smaller), and experience-related (longer rather than shorter). Across a range of issues, the same variables tended to be more or less significant than others, have the expected sign on the parameter, and be applicable to those issues. Note, the significance of the gender effect – women more than men tended to seek advice although this effect was somewhat less evident once the web-based facility was introduced (the web-facility drew in younger male advice-seekers than the call facility).

The paper began with a discussion about the nature of retirement planning and decision-making, and the nature of the information available when making those types of decisions. Perhaps unlike many other types of decisions, it is reasonable to suppose that this type of decision is "continuous" in the sense that it can be done or contemplated every day of the year up until retirement. Likewise, it is reasonable to suppose that the information available in making this type of decision is, in the Australian case at least, "ubiquitous". That is, available virtually cost-free every day of the year. And yet, in this case as in most other cases involving DC pension plans, most people, most of the time, do not make a pension 'decision' and do not seek advice. In fact, the evidence indicates that a minority

sought advice over the period 2004-2013 and, of those that sought advice, a majority sought advice just once during their time in the Mercer Super Trust. Furthermore, comparing advice seekers to non-advice seekers, those that sought advice were a special segment of the Super Trust participant—those that had an immediate and substantial stake in the performance and structure of the superannuation system.

At one level, these results are entirely expected. By convention, we have come to expect that most DC plan participants are 'passive' participants (Samuelson and Zeckhauser 1988). But our results are, nonetheless, surprising in that those that sought advice during the window containing the implementation of changes in the federal government's superannuation tax regime (June-July 2007) did so as the window closed, not when these changes were first mooted, or when legislation was passed. In effect, they waited to the last moment to seek advice. Why procrastinate? Why wait until the last moment to seek advice?

Here, three possible explanations are relevant. First, whereas we conceptualised retirement planning as a "continuous" decision situated in a world of ubiquitous information, it could be the case that, notwithstanding the opportunity to act continuously, most participants treat these types of decisions as 'discrete' in the sense that they only pay attention when an issue arises that is so significant that it "activates" attention (Bordalo et al. 2014). Second, given the flow of information about superannuation (in general) and changes in policy regarding the tax treatment of superannuation contributions and benefits (in particular), most people realised they could, in fact, wait until the last moment before acting on their intentions. And when they responded, a significant portion of participants sought advice before acting (if at all). Third, our results could be thought consistent with Bolton and Faure-Grimaud (2009) in that having announced its intention to provide a window for tax-preferred superannuation contributions, government prompted participants to delay making a commitment until they had to (thereby freeing-up attention for other intervening issues).

The utility of the first explanation can be buttressed by recent research in cognitive science to the effect that many people compress complex issues, spread over time, into distinct issues, amenable to routine treatment up until these types of decision-making procedures appear unable to deal with the specifics of the issue. In other words, the logic of the issue is deliberately violated so as to economise on effort (over time). Where an issue is presented that would seem to demand effort because it falls outside of the parameters of the decision-rule, those that put in the effort appear to be those for whom the issue is most salient. This also provides a rationale for the patterns of those that sought advice and those that did not (see also Eyster and Rabin 2010).

Our results provide insights into mobilising the interest of pension-plan participants. For instance, the finding that web-users are younger, have lower account balances, and have less experience in pension plans implies that this is a 'pathway' that could be utilised by sub-plan sponsors and agents to encourage participants to take advantage of the advice facility. Similarly, the significance of gender (being female) suggests that female participants could also be brought into affinity groups (stratified by account balance, experience, etc.) with issue-specific foci. Likewise, bringing in men into the equation would seem to need a distinctive strategy, rather than a generic strategy. While our results are simply a first step in better understanding the patterns of participant-initiated advice-seeking, these results suggest that mobilizing participants may be more successful around specific topics than the (more) abstract notion that retirement planning and saving for the future is salient to all participants whatever the circumstances.

9 Appendix

Call centres linking dispersed clients to a central processing site are ubiquitous to the global services industry (Russell 2008). In some sectors, call centres have taken the place of storefront offices providing the customer with automated and individualised attention in accordance with the simplicity or otherwise of enquiries regarding the purchase of, and performance of, financial products and services. More recently, web-based and internet-based services have, in some cases, supplanted call centres allowing customers to get ready access to the information needed to make financial decisions on a 24/7 basis (Miles 2005). In the Australian superannuation industry, providers (banks, insurance companies, sponsors, and super funds) rely upon call centres and web-based facilities to communicate with and service participants. This is especially important when providers are located in a major metropolitan area and service participants across Australia.

In many sectors, call centres and their related advisory services are outsourced to specialist vendors that are often remote (nationally and internationally) from the superannuation provider and their participants. Whereas customers may be able to access call centres via toll-free numbers, in some sectors like insurance customers effectively pay for services through the premium prices charged for access to information and advice. By contrast, some of Australia's largest superannuation funds and providers including the Mercer Super Trust (MST) provide in-house call and web-based facilities without directly charging superannuation plan participants. In the case of the MST, in-house provision is deemed consistent with providing these services at a level of quality consistent with participants' interests given the competition for service contracts across the superannuation industry. Economies of scale encourage in-house provision. Small funds and providers find it difficult to provide cost-efficient in-house call and web-based facilities.

The MST has a single call and web-based facility located in Melbourne, its administrative centre and the leading Australian financial centre. The call centre receives calls on the helpline and internet-based enquiries. Of the approximately 100 staff in the call centre, about 30 FTEs are devoted to the MST. Turnover is relatively low, by industry standards (Balt et al. 2009). The facility is open between 8 AM and 7 PM, five days a week and is organised around three teams: (1) receiving inbound calls, (2) providing financial advice, and (3) making direct sales calls. The ethos of the call centre is focused on consumer service; communicating the nitty-gritty of superannuation and financial issues is conditional on consumer satisfaction. Note, there has been considerable debate about the proper qualifications of advisers including those that provide advice on superannuation (only) and those that provide advice on financial matters in general. As of December 2014, those providing financial advice to MST participants were required to have a qualification consistent with the minimum requirements of regulators.

The inbound team can provide information and advice on superannuation issues, but must pass on to the financial advice team callers and internet queries that go beyond superannuation to other financial issues. These two teams are expected to treat callers and web-based queries in accordance with the 'best interests' of participants. Retention issues and related sales and services are dealt with by the outbound team. In terms of key performance indicators, teams one and two are encouraged to take the time necessary to resolve queries, ensure that participants receive the "right information", and where appropriate refer participants to the financial advice team. It is apparent that the average length of call has been increasing over time and is currently about 4.5 minutes per call. To the extent that team members receive bonuses, these are based on the performance of the MST not their performance or the performance of the call facility. Individual members may receive, however, one-off awards for 'good' performance - $50 vouchers.

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Figure 1 Information and Decision Making

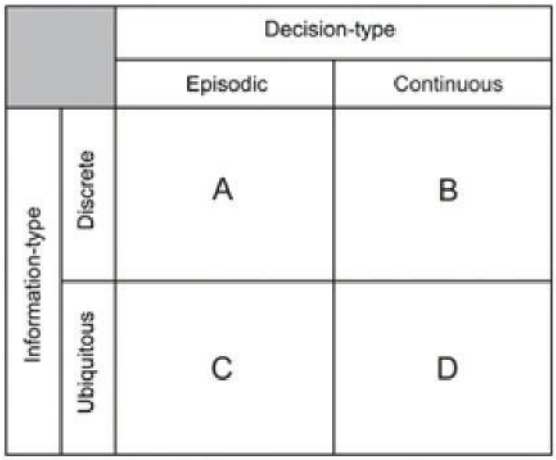

Figure 2 Monthly frequency of calls

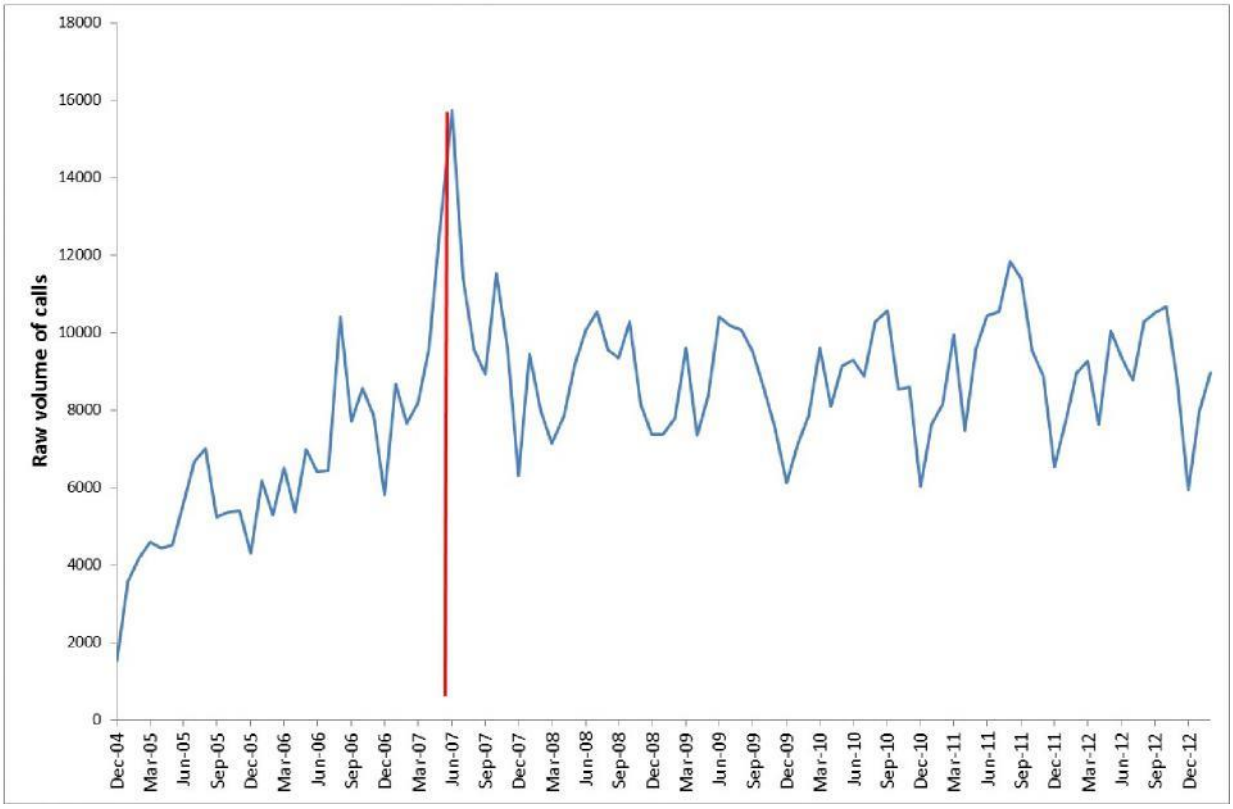

Figure 3 Gender Marginal Effects (Male) by Age, Balance on Call Behaviour

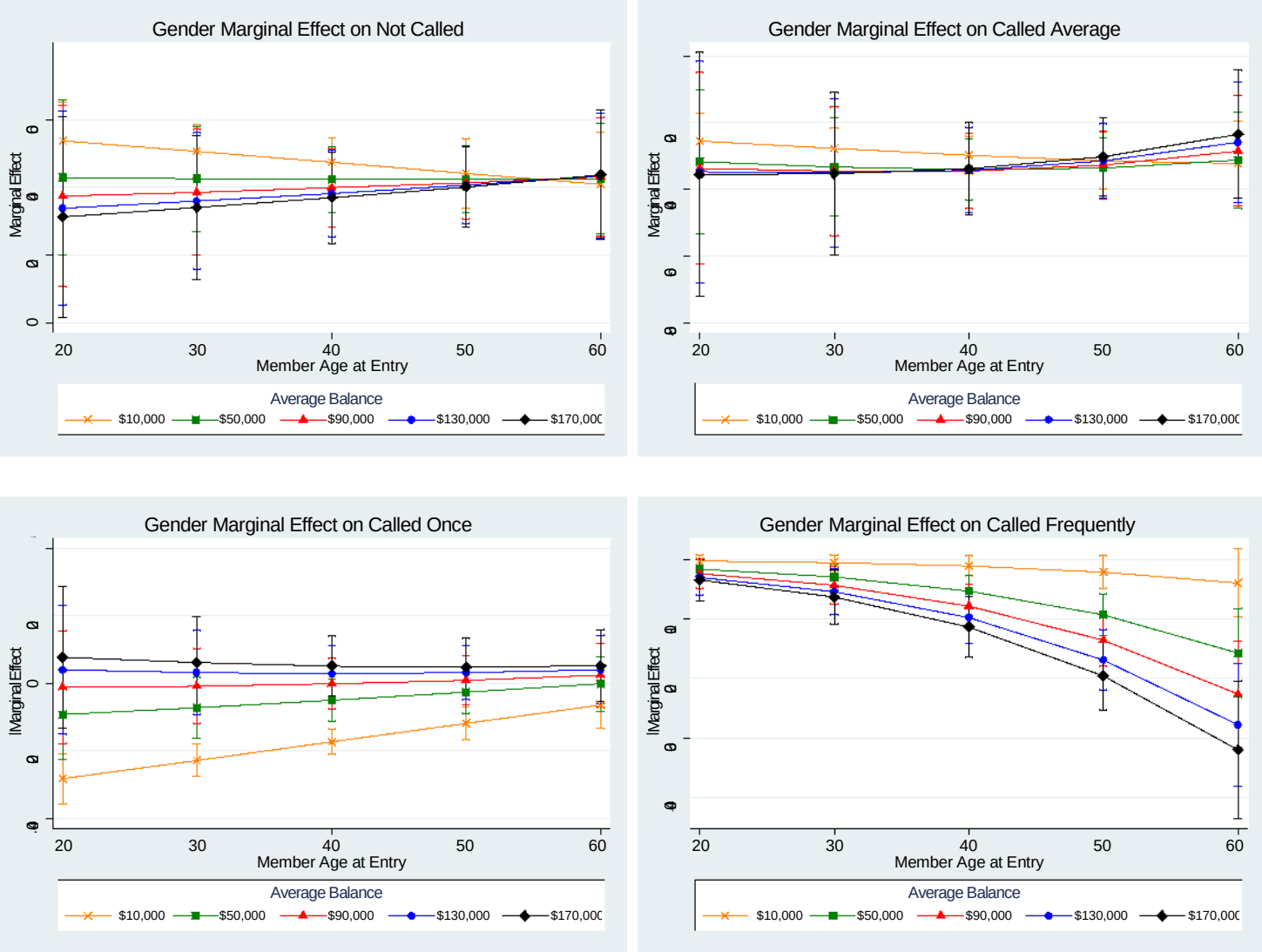

Figure 4 Marginal Effects of Age by Gender and Balance on Call Behaviour

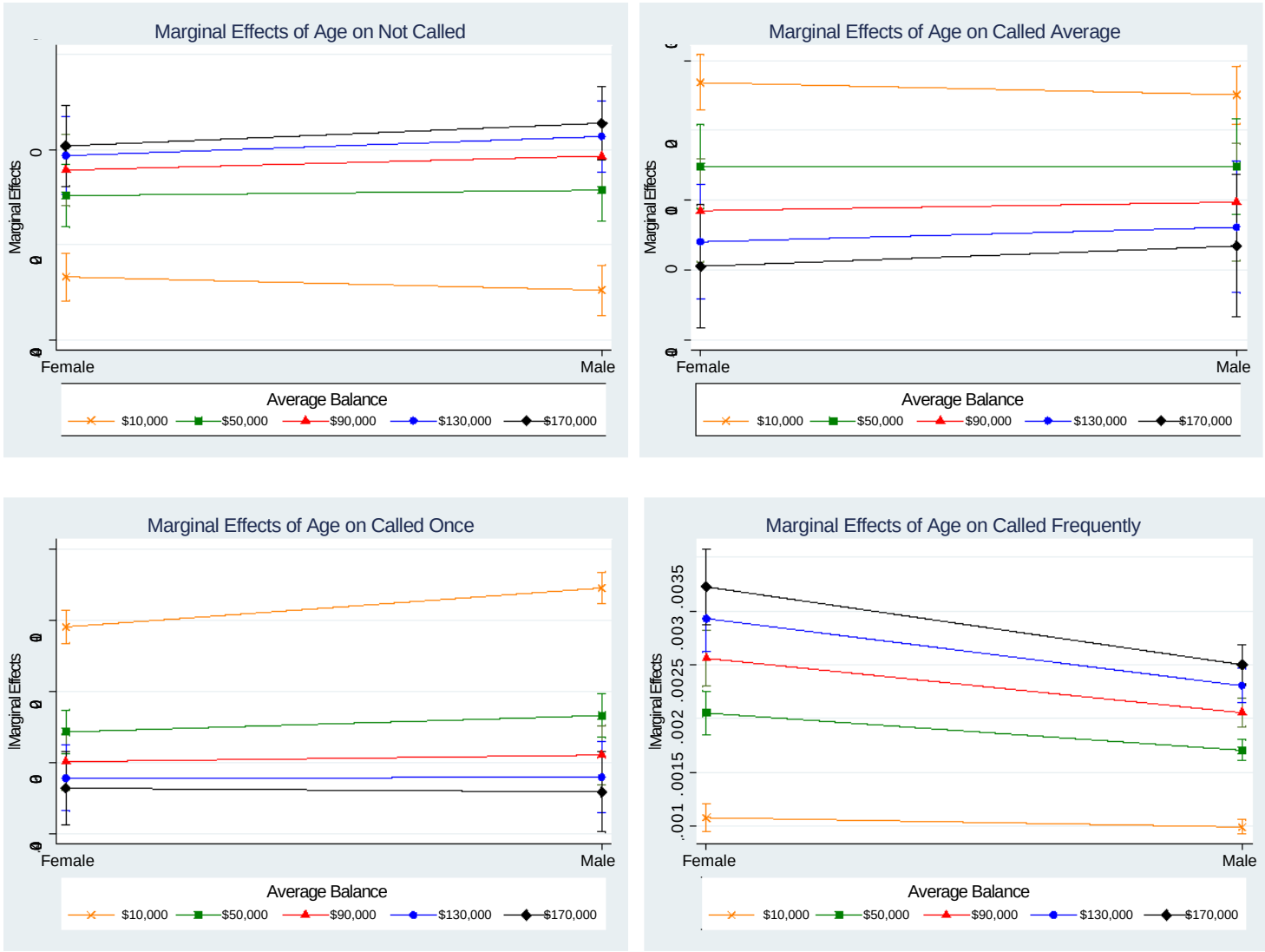

Figure 5 Marginal Effects of Balance by Gender and Age on Call Behaviour

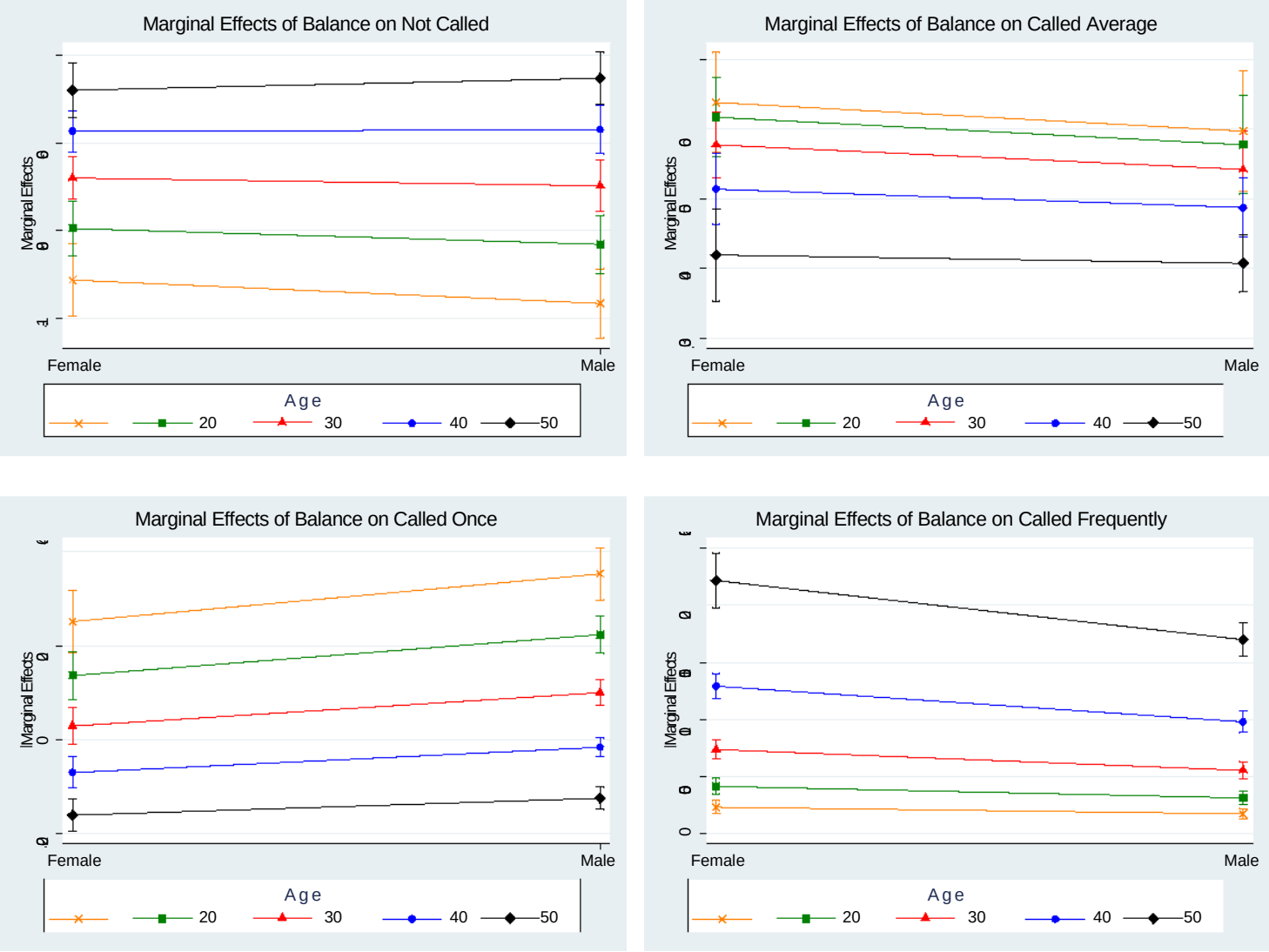

Table 1 Descriptive statistics about caller types

	n	Mean	SD	n	Mean	SD
	Not Called			**Not Called and No Web**		
Gender	316629	0.608621	0.48806	68708	0.62901	0.483073
Age	316629	41.76972	11.83608	68708	41.89484	10.85881
Balance	236328	29850.37	66490.45	53317	8.776886	1.763278
Salary	145593	67083.76	45928.91	19843	10.78597	0.500089
Membership	316629	2.718026	2.645591			
Membership-Pre_Web				68708	1.126854	1.782985
Membership-Post_Web				68708	3.424865	1.916961
	Called Once			**Called but No Web**		
Gender	97975	0.598153	0.490274	30693	0.586518	0.492466
Age	97975	43.09641	10.99577	30693	44.93425	11.14571
Balance	89206	48833.6	90725.38	28814	9.602572	1.640641
Salary	54973	77777.68	52937.09	12216	10.93591	0.55144
Membership	97975	3.981291	3.126152			
Membership-Pre_Web				30693	2.22584	2.1529
Membership-Post_Web				30693	2.54505	2.052993
	Called Average (2-7)			**Web but No Called**		
Gender	130549	0.623429	0.484528	146685	0.603729	0.489124
Age	130549	46.39958	11.422	146685	38.13603	11.02598
Balance	119819	78341.66	129389.2	120127	8.778825	1.843239
Salary	74623	89710.37	65024.78	**83886**	11.02557	0.565017
Membership	130549	4.965944	3.286594			
Membership-Pre_Web				146685	0.597307	1.503693
Membership-Post_Web				146685	4.474157	1.203818
	Called Frequently (>7)			**Called and Web**		
Gender	22338	0.683902	0.464962	176979	0.628504	0.483206
Age	22338	53.72853	11.3457	176979	45.2555	11.48544
Balance	19250	132721.4	192507.7	161138	10.14078	1.506887
Salary	12718	104060.1	79753.3	105069	11.18552	0.56749
Membership	22338	6.414719	3.251759			
Membership-Pre_Web				176979	1.815944	2.280829
Membership-Post_Web				176979	4.147116	1.443946

Table 2 Marginal Effects for Caller Behaviour

This table presents the marginal effects from a multinomial logit estimation of the likelihood of being in one of four calling behaviour groups: Not Called; Called Once; Average Caller; and Frequent Caller. Marginal effects are for a unit change in each variable at mean values of remaining variables. Group membership is estimated as a function of gender, age, balance (natural log), salary (natural log), membership length in sub-plan, and member location (state). Two dummy variables are included to capture if a member had no web access available (No Web Access) and if they had web access and used it (Access, Web User), with the omitted category those who had access but had not used the web. Additionally, gender, balance and age are allowed to interact. Dummy variables for member location (state) are included but not tabulated. Residuals are clustered at sub-plan level.

	Change in Probability	**Standard Error**	**Z**	**p-value**	**[95% Conf. Interval]**	
Predicted outcome: Not Called (50.1% probability at mean values, 50.5% sample)						
Male	0.0473	0.0036	13.09	0.0000	0.0402	0.0543
Age	-0.0026	0.0002	-11.95	0.0000	-0.0031	-0.0022
Account Balance	-0.0663	0.0025	-26.87	0.0000	-0.0711	-0.0615
Salary	-0.0445	0.0066	-6.74	0.0000	-0.0574	-0.0315
Membership	-0.0180	0.0017	-10.73	0.0000	-0.0213	-0.0147
No Web Access	-0.0860	0.0151	-5.70	0.0000	-0.1156	-0.0564
Access, Web User	-0.3072	0.0101	-30.33	0.0000	-0.3270	-0.2873
Predicted outcome: Called Once (22.3% probability at mean values, 19.1% sample)						
Male	-0.0147	0.0020	-7.43	0.0000	-0.0186	-0.0108
Age	-0.0010	0.0001	-11.56	0.0000	-0.0011	-0.0008
Account Balance	0.0047	0.0013	3.58	0.0000	0.0021	0.0073
Salary	0.0100	0.0020	4.96	0.0000	0.0061	0.0140
Membership	0.0051	0.0009	5.74	0.0000	0.0034	0.0068
No Web Access	0.0195	0.0052	3.76	0.0000	0.0093	0.0296
Access, Web User	0.0451	0.0061	7.45	0.0000	0.0332	0.0570
Predicted outcome: Called Average (25.6% probability at mean values, 26.0% sample)						
Male	-0.0309	0.0031	-9.85	0.0000	-0.0371	-0.0248
Age	0.0025	0.0002	14.16	0.0000	0.0021	0.0028
Account Balance	0.0544	0.0024	22.77	0.0000	0.0498	0.0591
Salary	0.0302	0.0056	5.38	0.0000	0.0192	0.0411
Membership	0.0109	0.0010	11.40	0.0000	0.0090	0.0128
No Web Access	0.0609	0.0095	6.42	0.0000	0.0423	0.0794
Access, Web User	0.2239	0.0057	39.56	0.0000	0.2128	0.2350
Predicted outcome: Called Frequently (2.0% probability at mean values, 4.4% sample)						
Male	-0.0016	0.0010	-1.69	0.0910	-0.0035	0.0003
Age	0.0011	0.0000	28.98	0.0000	0.0010	0.0012
Account Balance	0.0072	0.0003	20.48	0.0000	0.0065	0.0078
Salary	0.0043	0.0010	4.47	0.0000	0.0024	0.0062
Membership	0.0020	0.0002	12.48	0.0000	0.0017	0.0023
No Web Access	0.0057	0.0011	5.00	0.0000	0.0035	0.0079
Access, Web User	0.0382	0.0011	33.98	0.0000	0.0360	0.0404
N			285,268			
Nagelkerke-R^2			0.253			

Table 3 Marginal Effects for Web and Call Access Combination

This table presents the marginal effects from a multinomial logit estimation of the likelihood of being in one of four calling and web-use behaviour groups: Not Called and No Web; Called Only; Web Only; Called and Web. Marginal effects are for a unit change in each variable at mean values of remaining variables. Group membership is estimated as a function of gender, age, balance (natural log), salary (natural log), Pre-membership experience (membership length in years prior to introduction of web), Post-membership experience (membership length in years after introduction of web), and Post-Only (Dummy with value one is only became member after introduction of Web. Additionally, gender, balance and age are allowed to interact. Dummy variables for member location (state) are included but not reported. Residuals clustered at sub-plan.

	Change in Probability	**Standard Error**	**Z**	**p-value**	**[95% Conf. Interval]**	
Predicted outcome: Not Called and No Web (43.24% probability at mean values)						
Male	0.0361	0.0042	8.51	0.0000	0.0278	0.0444
Age	-0.0036	0.0002	-16.51	0.0000	-0.0041	-0.0032
Account Balance	-0.1068	0.0045	-24.00	0.0000	-0.1156	-0.0981
Salary	-0.0582	0.0107	-5.42	0.0000	-0.0792	-0.0371
Pre-Membership	-0.0007	0.0021	-0.33	0.7430	-0.0048	0.0034
Post-Membership	0.0092	0.0056	1.63	0.1020	-0.0018	0.0202
Post-Only	0.1140	0.0162	7.02	0.0000	0.0822	0.1458
Predicted outcome: Called, No Web(41.50% probability at mean values)						
Male	-0.0617	0.0039	-15.88	0.0000	-0.0693	-0.0541
Age	0.0032	0.0002	17.61	0.0000	0.0029	0.0036
Account Balance	0.0561	0.0025	22.06	0.0000	0.0511	0.0611
Salary	-0.0157	0.0064	-2.47	0.0130	-0.0281	-0.0032
Pre-Membership	0.0042	0.0019	2.19	0.0280	0.0004	0.0080
Post-Membership	-0.0418	0.0024	-17.51	0.0000	-0.0465	-0.0371
Post-Only	-0.0977	0.0082	-11.90	0.0000	-0.1138	-0.0816
Predicted outcome: Web, Not Called (3.28% probability at mean values)						
Male	0.0085	0.0015	5.67	0.0000	0.0056	0.0115
Age	-0.0003	0.0001	-4.95	0.0000	-0.0004	-0.0002
Account Balance	0.0026	0.0010	2.52	0.0120	0.0006	0.0047
Salary	0.0158	0.0020	7.97	0.0000	0.0119	0.0197
Pre-Membership	-0.0016	0.0005	-2.91	0.0040	-0.0027	-0.0005
Post-Membership	0.0091	0.0011	8.10	0.0000	0.0069	0.0113
Post-Only	0.0121	0.0025	4.83	0.0000	0.0072	0.0170
Predicted outcome: Called and Web (11.96% probability at mean values)						
Male	0.0171	0.0033	5.22	0.0000	0.0107	0.0235
Age	0.0007	0.0001	4.71	0.0000	0.0004	0.0010
Account Balance	0.0481	0.0042	11.53	0.0000	0.0399	0.0563
Salary	0.0580	0.0056	10.40	0.0000	0.0471	0.0690
Pre-Membership	-0.0020	0.0009	-2.07	0.0380	-0.0038	-0.0001
Post-Membership	0.0235	0.0027	8.88	0.0000	0.0183	0.0287
Post-Only	-0.0284	0.0085	-3.32	0.0010	-0.0451	-0.0116
n				216,998		
Nagelkerke R^2				0.273		

Table 4. Descriptive statistics: leaders vs followers

Variables	Obs.		Mean		Std. Dev.		Min		Max	
	Leaders	*Followers*	*Leaders*	*Followers*	*Leaders*	*Followers*	*Leaders*	*Followers*	*Leaders*	*Followers*
Male	7710	437	0.57	0.57	0.50	0.50	0	0	1	1
Yearof birth	7710	437	1967	1968	11	11	1930	1930	1991	1987
Membership	7710	437	5.65	5.60	3	3	0	0	16	16
Acc. Balance	7138	390	53405	48251	98163	65751	-1963	0	3007078	470535
Year of exit	4832	272	2009	2009	2	2	2001	2004	2013	2013
Salary sacrifice	1492	63	7376	7132	11778	15298	-650	34	106237	108667
Salary	5001	294	72905	78522	66450	55643	8	12446	3184220	658313

Table 5 Logistic model estimation: comparison between the peak-window and pre-peak window period

	Non -window sample							**Window sample**					
Caller	Coef.	**Std.** Err	**z**	**P>z**	**195% conf.** int.]		Caller	Coef.	**Std.** Err	**z**	**P>z**	**195% conf.** int.]	
Male	-0.185	0.012	-14.95	0.000	-0.209	-0.161	Male	-0.277	0.037	-7.51	0.000	-0.350	-0.205
Year of birth	-0.032	0.001	-58.03	0.000	-0.033	-0.031	Year of birth	-0.015	0.002	-8.46	0.000	-0.019	-0.012
Acc. Balance.	0.127	0.003	41.91	0.000	0.121	0.133	Acc. Balance	0.036	0.008	4.31	0.000	0.019	0.052
Salary	0.009	0.002	5.27	0.000	0.005	0.012	Salary	0.014	0.005	2.84	0.004	0.004	0.023
Membership	0.153	0.002	76.77	0.000	0.150	0.157	Membership	0.199	0.005	40.76	0.000	0.190	0.209
Fund	0.000	0.000	-23.22	0.000	0.000	0.000	Fund	0.000	0.000	4.72	0.000	0.000	0.000
const	61.378	1.093	56.14	0.000	59.235	63.520	const	25.323	3.582	7.07	0.000	18.303	32.343