

Understanding superannuation contribution decisions: Theory and evidence

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1 Introduction

Though the Australian superannuation system can trace antecedents to the 19th century, the modern phase emerged only as recently as the 1980s through the industry wide employment agreements (Awards) and cemented through the Superannuation Guarantee Act of 1992. The modern system is built around compulsion which currently results in 9.25 percent of salary being contributed to a complying superannuation fund by employers on behalf of employees. The rate is legislated to increase in increments to 12 percent by 2019¹. The compulsory employment based system complements the means-tested government age pension and the voluntary savings of individuals. This paper is focused on the latter third “pillar” of the retirement income system; in particular, the voluntary savings undertaken and managed within the superannuation system.

The assets under management in the superannuation sector have grown substantially to \$1.75 trillion (APRA 2013). This reflects the individual experience where superannuation has become the largest asset outside the family home, largely due the mandatory superannuation contributions from employers. Despite the total superannuation asset values exceeding annual GDP, concerns remain as to the adequacy of retirement savings with some analysis suggesting the retirement savings gap of \$836 billion (Rice Warner Actuaries 2012). Debate remains as to the appropriate superannuation guarantee rate with the Review of Australia’s Future Tax System (Commonwealth of Australia 2009) suggested a further tax concession of 7.5%.

In addition to the mandatory component of the superannuation, various mechanisms are in place to promote voluntary retirement savings via superannuation. Unlike the Superannuation Guarantee (SG) component, which has resulted in greater than 90% coverage among employees (ABS 2009), voluntary contributions have been less successful. This pattern is not unique internationally.

¹ Though the current federal government has suggested a deferral in the timing of these increases.

The coverage of private (voluntary) retirement saving system is only 60% in countries that have relied on voluntary systems such as the U.S., U.K., and Canada (Antolin & Whitehouse 2009). Comparisons are difficult between compulsory and voluntary based systems, however, the participation rate in Australia is still lower (below 30%), which can be attributed to reliance on the compulsory component of the superannuation system.

Participation in voluntary contribution requires people to have a certain level of involvement in retirement planning, knowledge of the system, and interaction with their employer, superannuation fund or both. Surveys (Roy Morgan Research, 2003, 2005, 2008) have suggested knowledge is not high with only one-third reporting having considered how much they needed to save for retirement.

The direction of recent reviews, most recently the Super System review (Commonwealth of Australia 2010) and subsequent policy changes (MySuper), previously Simpler Super (Commonwealth Treasury 2006) and the Review of Australia's Future Tax System (Commonwealth of Australia 2009) reflect a direct challenge to the assumption of an informed and engaged membership of funds. As the Super System Review bluntly assessed it "many consumers do not have the interest, information or expertise required to make informed choices" (Commonwealth of Australia 2010, p.5).

In light of such evidence, this paper provides a review of individual retirement savings decisions with a focus on the contributions or savings behaviours. In particular, the paper examines lessons learned from international retirement saving systems and the limited number of studies examining the Australian superannuation system in order to provide a better picture of who and why people do or do not make voluntary contributions. We start with a brief introduction of the regulations governing voluntary contribution to superannuation and incentives offered. Then, the international literature is reviewed to examine the modelling of contribution behaviours. Particular attention is given to the role of demographics, plan specific features as well as tax incentives. We also provide evidence from the study of several publicly available micro-level databases in Australia. The final contribution is

a preliminary analysis of member contribution behaviours using a new database provided by Mercer Australia.

2 Contribution choices in superannuation

The current superannuation system has evolved sporadically from the modest beginnings of the 1980s, as previously noted. The Superannuation Guarantee Act in 1992 was pivotal legislation which resulted in widespread coverage, and was designed, in part, to reduce reliance on the means-tested age pension. Though efforts are made to reduce people's reliance on the age pension, a majority of retirees will still be eligible for the age pension at some stage through their retirement. Hence, it is important to recognise the influence of the means-test criteria on individual choices in contributions decisions.

Members of a superannuation fund have a number of channels that allow them to make further contributions into their superannuation account to boost their account balance. The fundamental motivation through superannuation rather than a non-superannuation asset is the relative tax concessions contributions it enjoys, albeit at changing levels and subject to financial year limits.

2.1 Voluntary Contributions Types

The first type of voluntary contribution is salary sacrifice. Salary sacrifice is a pre-arrangement with the employer where fund member forgoes part of their pre-tax salary in exchange for employer making the equivalent amount of employer contribution into the superannuation account. The salary sacrifice contribution is taxed concessionally at 15% as the funds enter superannuation. For taxpayers facing higher marginal tax rates, salary sacrifice therefore offers a direct tax advantage for retirement savings though this option is bounded by several limitations. First, salary sacrifice into superannuation is not offered by all employers, and may not be available for all employees within the same employer. There are, unfortunately, no official data to shed light on the level of actual level of offering of salary sacrifice offering. Secondly, maximum concessional contribution limits are in place which limit the amount that can be salary sacrificed.

The second type of voluntary contribution is personal contributions. These contributions can be periodically deducted from after-tax salary or made on an irregular basis directly to the superannuation fund. Tax treatment differs depending

on the employment status of the contributor. For employees, the contributions do not attract the 15% contributions tax, but the investment return on the contributions, as with salary sacrifice, is taxed at 15%². For the self-employed, tax concessions can be claimed and therefore the voluntary contribution is effectively treated as a pre-tax contribution. In addition to tax concessions on contributions and investment returns, the government makes co-contributions on eligible personal contributions made by low income earners under the *Superannuation (Government Co-contribution for Low Income Earners) Act 2003*. At present a maximum \$500 government co-contribution may be received by an individual earning \$33,516 or less and making a \$1,000 personal contribution.

A third type of voluntary contribution is spousal contributions, where contributions are made on behalf of the spouse into a spouse's account. Aside from tax benefit on investment returns, this option offers a tax rebate of 18% on the first \$3,000 spouse contributions for low income earners. Reflecting the modest incentive, in absolute size, the take up rate for this option is extremely small, and is not separately reported in the official statistics published by ABS (2009).

In this paper, the first two types of voluntary contributions are reviewed given the small participation rate of the third. Much of the literature examined in this paper focuses on the employee population as they comprise a large proportion of the work force. It is important to note that savings for retirement can be achieved outside of superannuation structures. However in this paper we focus only on savings within superannuation. It is also important to emphasise that along with the tax concessions to save within superannuation are constraints on accessing the savings when "inside". Superannuation savings can be withdrawn once the individual reaches preservation age, which at present ranges from 55 (born on or before 1 June 1960) to 60 (born after 30 June 1964).

² The effective tax rate on investment returns is lower than 15% due to imputation credits and discounted capital gains. Yoo & de Serres (2004) estimated that the effective tax rate is 7.1%.

2.2 Predictors of contribution decisions

In universal public pension schemes and defined benefit plans, individuals do not have to make as many decisions about retirement savings. At the least, investment strategy is the plan sponsor's choice. Participation or enrolment may be automatic for an individual and contribution rates may also be predetermined. The question of adequacy, however, remains. For the majority of Australians, superannuation funds are primarily defined contribution (DC) funds, where choices and responsibility are completely left to the fund members. The types of choices available to superannuation members in the Australian system include voluntary contribution decisions, choice of fund, roll-over/consolidation of fund balances, choice of investment strategies, commencement of a transition to retirement scheme, and choice of lump sum or income stream in withdrawal.³ Given so many choices available to fund members, it is somewhat surprising to see so little active choices made.

Focussing here on the contributions choice, is there a pattern that can be identified to predict who is saving more for retirement? Further, what are the characteristics the participants exhibit? In this section, we will review evidence from the international literature to address these questions.

2.3 Contributions, demographic and socio-economic factors

When thinking about the characteristics that can help identify the potential contributors to superannuation funds, demographic and socio-economic factors are the most available and can be readily used in the modelling of contribution behaviours. The most frequently studied personal characteristics include age, gender, income (salary), education and family composition.

Among the personal characteristics studied, analysis of age and income has consistently led to the same conclusion that older and higher income earners participate more and contribute more via retirement saving accounts. Such a

³ The choice of lump sum or income stream may also be faced by defined benefit fund members.

relationship has been established by a number of studies in the US (e.g., Poterba *et al.* 1995; Bassett *et al.* 1998; Poterba *et al.* 1998; Springstead & Wilson 2000; Purcell 2009; Copeland 2010) that have examined the distribution of participants in retirement saving schemes from various population surveys (e.g., CPS, SIPP, SCF, EBRI databases). Guariglia and Markose (2000) examine British personal pension plans, and also find that that older, higher paid British citizens are more likely to be involved in schemes. In Germany, pension plan ownership is also related to age and income (Dumann 2008). Along the same lines, Munnell *et al.* (2001) look at the influence of homeownership and show that homeowners are more likely to become plan participants.

The life-cycle hypothesis of Modigliani and Brumberg (1954) is the most common model employed to explain the correlation between plan participation, age and income. The model suggests that forward-looking individuals plan their consumption and savings over the lifecycle, and savings behaviours are more likely to occur as one ages prior to retirement

Research on the correlation between gender, education and voluntary contributions is inconclusive. Although males are often associated with actively managing retirement savings (e.g., Hardy & Shuey 2000; Purcell 2005; Mitchell *et al.* 2006), some research (e.g., Papke 2004; Huberman *et al.* 2007) suggests that women have a higher probability of participation. A majority of the literature finds a positive connection between higher education and savings scheme participation, though a few (e.g., Munnell *et al.* 2001; Papke 2004) find no impact, and even a slightly negative effect. Despite the differences, many suggest that educational qualification can be good indicators of financial and scheme specific knowledge (Bassett *et al.* 1998), as well as income levels and job opportunities when these are unknown (Even & Macpherson 2000).

In addition to the above mentioned characteristics, family composition is also found to have some influence on participation. Married individuals are found to have a higher probability of participation in pension plans, suggesting a joint decision and coordination between family members (Shuey 2004). The presence of children, on

the other hand, reduces the chance of participation, especially for women (Joulfaian & Richardson 2001; Shuey & O'Rand 2006).

2.4 The association with member job characteristics

Another area investigated of the determinants of voluntary retirement savings participation are employee job characteristics including job tenure, occupation, industry, and firm size. Job characteristics can reveal several aspects of individual needs and preferences, as well as characteristics of the position itself.

Firstly, job characteristics may reveal individual risk preference where risk averse individuals choose a more stable job. Even and Macpherson (2005) suggest that having part-time or casual employment reduces the probability of participation and Shuey (2004) finds that being in a large firm increases the probability.

Second, job characteristics are associated with income certainty which is an important factor in the savings decisions. Benito (2006) identifies that job security reduces the need for emergency savings, leaving higher potential for retirement savings.

Third, differences in employer offerings are often captured through job characteristics. For example, Even and Macpherson (2005) and Huberman *et al.* (2007) document that longer job tenure is positively associated with program participation, which in turn reflects the matching requirement set by the 401(k) programs. Shuey (2004) also records differences in participation rates by industry and occupation. In more detail, Chatterjee and Zahirovic-Herbert (2009) and Chatterjee (2010) demonstrate that participation is higher in the public sector than in the private sector, and suggest that this is likely due to the compulsory participation. They also show that public employees are more likely to be covered in a DB than a DC plan.

Despite the explanatory power of job characteristics, they are not commonly included in the modelling of voluntary contributions primarily due to the availability of the data. However, differences in the practices between sectors and industry are worth exploring to provide a better picture of the voluntary saving behaviours. This aspect will be explored with the Mercer database to be discussed in section 4.

2.5 The influence of plan/fund features

Plan or fund specific features are other areas that have attracted attention in the US thanks to the efforts made by plans to promote participation in retirement saving vehicles, particularly 401(k)s. Choi *et al.* (2001) summarise such features as including: matching contributions; education on plan features; automatic enrolment; automatic increase in contribution rates; automatic cash distribution at termination; as well as investment and borrowing options.

The automatic enrolment with opt out mechanism has substantially promoted both participation and contribution such as in the public sector saving plans (Thaler & Benartzi 2004; Beshears *et al.* 2009), largely attributed to the wide prevalence of inertia. Chetty *et al.* (2012) estimate that 85% of the population are passive decision makers. This behaviour is also observed in the Australian superannuation funds. For example, civil and military service industry members have a much higher participation rate in voluntary contributions due to its design of the plan (Bateman & Piggott 2011). Concerns remain in the US that while participation rates are improved through the auto-enrolment feature, it may have lowered contribution rates for those who would otherwise have opted in (Choi *et al.* 2001; Madrian & Shea 2001).

Although the association of individual education level and participation is inconclusive, education on plan features has a positive influence on retirement savings. Evidence from both the employee's side (Bernheim & Garrett 2003) and the employer's side (Bayer *et al.* 2009) show a positive link between retirement savings and employer-based education, particularly for low and middle income earners. Further, Duflo and Saez (2002; 2003) illustrate a significant peer effect on 401(k) and 403(b) participation where knowledge of the plan was passed among the peers.

Improvement in plan flexibility is also shown to increase plan participation. Holden and VanDerhei (2001) show that the availability of options to borrow against fund balances encourages plan participation, even though only a small number of participants apply for a loan and the debt ratio is often low. Offering investment choice within a fund was found to increase participation by 36% (Papke 2003). However, the number of choices should be limited with Mitchell *et al.* (2007) suggesting that when investment choices are over 30, the participation rate falls.

Matching as an incentive to stimulate retirement saving has been used widely in the US. A similar version of this in Australia is the government co-contribution for the low income earners. Such measures are believed to be an effective way of stimulating participation. However, debate on the extent to which matching has promoted retirement savings has shown large disparity. Research is in agreement on the positive relationship between participation and the offer of matching (Even & Macpherson 2005), but the effect is estimated to vary from very small (Smith *et al.* 2004; Mitchell *et al.* 2007) to very large (Duflo *et al.* 2006). Papke and Poterba (1995) find a substantial increase in contribution levels when matching is available while Engelhardt and Kumar (2007) conclude that the response of contribution level to matching is rather inelastic.

There are parallels between the features of many Australian superannuation funds when compared with US plans. The Superannuation Guarantee can be considered as an extreme case of an auto-enrolment plan. Investment choice offerings vary widely by fund, and some employers offer matched offerings. The opportunity to borrow and availability of company stocks, in the case of the US, are two notable differences

2.6 The role of tax incentives

The major benefit of participation in retirement saving account is its tax benefit. The decision to commit contributions to a retirement savings account, such as superannuation, is constrained by many factors including, time to retirement, uncertainty, budget constraint, and rule changes. The effect of the tax incentive on retirement saving decisions is often hard to measure due to the fact that it is correlated with income, which itself is positively associated with the likelihood of making or increasing contributions.

Within the limited literature available, a positive relationship between participation and tax incentives has been found; however, there is less than full agreement on the magnitude of the effect of tax incentives. Venti and Wise (1988) model IRA contributor status and contribution levels jointly accounting for contribution limits. The results show a substantial rise in the probability to participate, along with incentive, but no effect on the contribution rate. Attanasio *et al.* (2004) and Disney

et al. (2010) examine tax-exempt saving vehicles in the UK and Engelhardt (1996) and Milligan (2003) investigate Registered Retirement/Homeownership Saving Plans in Canada. Their evidence suggests an increase in participation after the products were first introduced or when the contribution limit was increased.

Research also argues that the impact of tax deductions is not large in terms of retirement savings. Collins and Wyckoff (1988) estimate the elasticity of savings in IRA participation to be 0.24. Power and Rider (2002) find the semi-elasticity to be 0.25 among the self-employed in the US Keogh/SEP program. Both papers conclude that the marginal tax rate has a limited impact on retirement saving decisions. In addition, Eaton (2002) explored a panel dataset and examined three aspects of the tax effect: the change in the tax price of contributions; the change in gross income; and the change in taxable income. This attempts to disentangle the effect of the tax incentives from the effect of income. Eaton (2002) finds a substantial impact from the change in taxable income with only a small influence from the change in gross income and no change due to tax price. This suggests that the true effect of tax incentive is not significant. This is particularly relevant in the Australian context given the current discussion of the cost, equity and necessity of providing tax incentives to encourage superannuation savings. The tax expenditure estimate for the concessional taxation of employer contributions in 2013/14 is \$16 billion (Commonwealth Treasury 2014) and forecast to reach \$20.7 billion in 2016/17, though there are contested views as to the suitability of the methodology employed in these estimates.

3 What do we know about Australian superannuation member contribution decisions?

The Superannuation Guarantee Act has resulted in the near universal coverage of Australian workers with superannuation entitlements. The coverage rate has steadily increased to its current level of over 90% (ABS 2000-2013). In contrast, the participation rate in voluntary contributions, on the other hand, has fallen steadily at a rate of 2.5% per year from half of employees making voluntary contributions in 1993, to a little less than a quarter in 2007. The trend is observed in all age groups except the 55 and older, where the decline in participation slowed down between 2000 and 2007 (ABS 1994-1995, 2001, 2009).

In the same period, the rules governing voluntary contributions have experienced substantial changes. A useful chronology of changes to 2010 is provided by Nielson and Harris (2010). The Government co-contribution scheme was first introduced in 2003 to replace the tax offset for low income earners. Age-based concessional contribution limits were abolished in 2007 and replaced with a uniform contribution cap with a transitional period for people over 50. Contribution limits have progressively reduced but from an individual planning perspective there have been continued adjustments announced and implemented as well as being announced and not implemented. This has had the effect of introducing uncertainty around rule changes and prospects of future changes which needs to be considered when reviewing individual decisions. The taxation regime has changed from taxation on entry and on earnings with concessional tax applied to withdrawals (TTt), to concessional taxation on entry and on earnings with no tax on withdrawal (provided at age 60) (ttE) in 2007.

Questions of interest relating to contributions include:

- What determinants of voluntary contributions emerge when considering the rule changes in the last decade?
- Are the patterns observed in the US and elsewhere observed in Australia notwithstanding differences in the retirement system design?

- What unique patterns are evident that relate to the design of Australian retirement system?

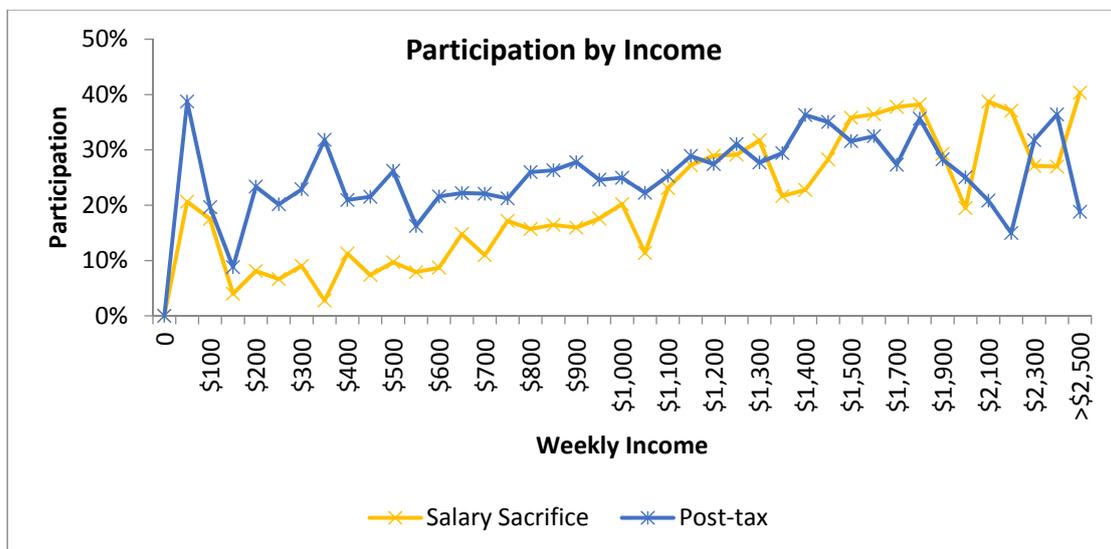
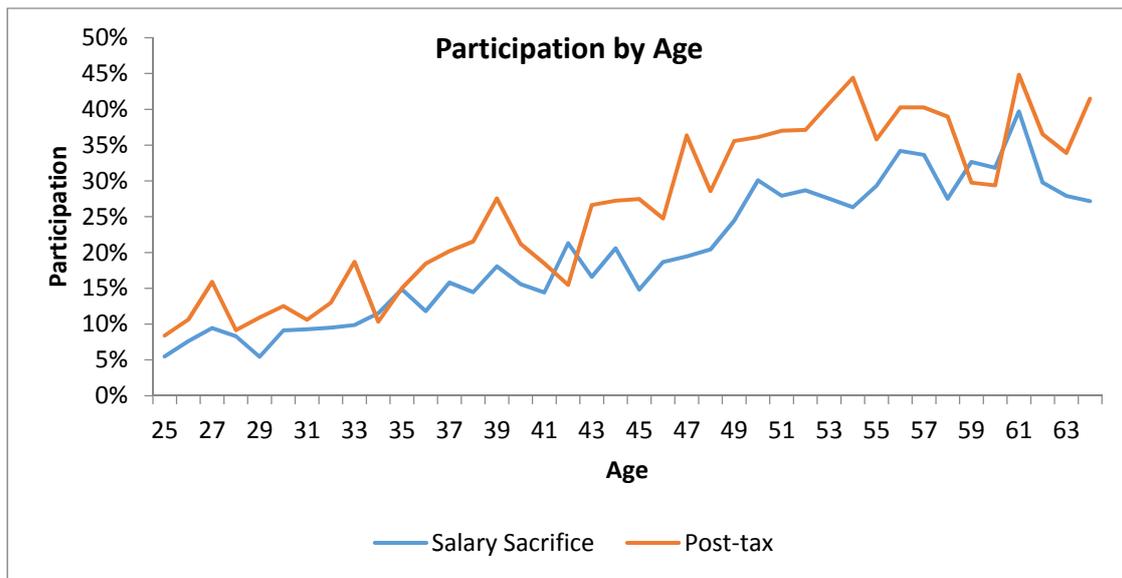
In this section, we will begin to address these questions based on Australian evidence.

3.1 What do we know from population surveys?

Micro-level data on voluntary superannuation contribution decisions are limited. The Australian Bureau of Statistics (ABS) produces a survey of employment, retirement and superannuation (SEARS) which has been undertaken in 2000 and 2007. These surveys provide comprehensive information on contribution decisions, demographics, socio-economic and employment factors. The survey of income and housing (SIH) undertaken biannually by the ABS also has similar factors to those explored by international studies. But, only information on salary sacrifice decisions are elicited. The longitudinal dataset HILDA, in recent waves (from wave 10), started to collect information on salary sacrifice decisions as well.

In these datasets, salary sacrifice participation for superannuation is estimated to be approximately 10 percent of the employee population, while participation in post-tax contributions is approximately 20 percent. As illustrated from the summary statistics from SEARS 2007 survey in Figure 1, there is a clear pattern of increased participation rate with both age and income levels.

Figure 1 Participation rate for voluntary contributions (SEARS 2007, job tenure over 2 years)



Feng (2013) utilises these datasets to examine the determinants of salary sacrifice and post-tax contribution decisions utilising a bivariate probit model. Five sets of factors (demographic, socio-economic factors, housing, job attributes and other factors) are explored that are suggested to predict contribution behaviours based on international literature and special features of the Australian retirement system design.

The results confirm the well documented pattern that age and income are the strongest predictors of voluntary contribution participation. Education level acts as a proxy for income and employment characteristics and can be a good predictor when

information is not available. Gender and family composition (marital status and number of children) were surprisingly found to have no significant relationship with the decision to make further contributions, which is a different result to that previously documented internationally. Job attributes, on the other hand, have shown to have significant predictive power, where individuals in more stable jobs (such as in permanent employment or working in large firms) are more likely to contribute in both types of voluntary contributions.

Feng (2013) also explores some of the features of the Australian retirement system. The treatment of the family home within the means-tested Age Pension is of particular note. The value of the family home is exempt from the assets test although the threshold for the asset test is lower for homeowners. Feng (2013) documents a negative relationship between homeownership and voluntary contributions participation, with those with mortgages and renting less likely to participate after controlling for income and demographic factors. This suggests a definite savings ordering with voluntary retirement savings second after property ownership.

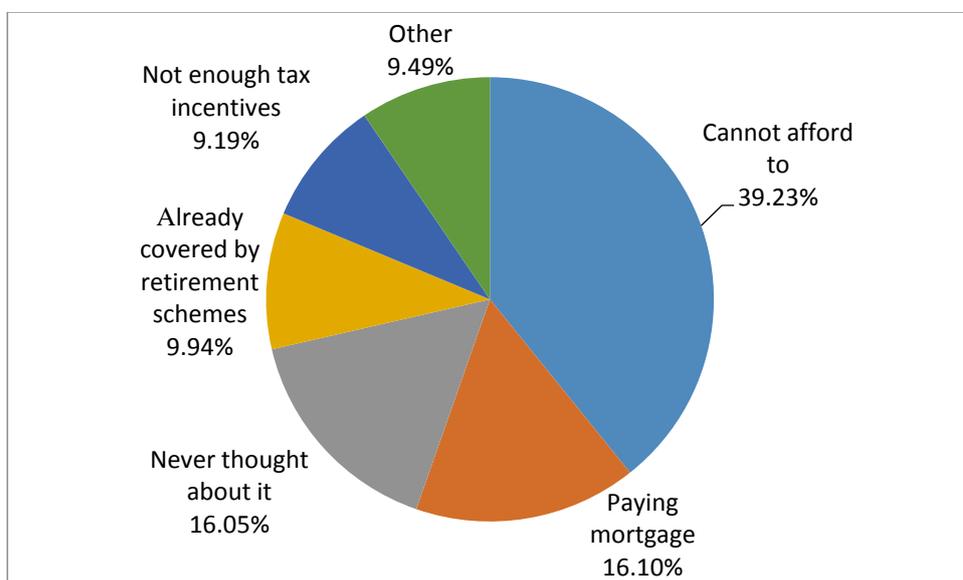
Another aspect of voluntary contribution decisions examined is the response to tax concessions offered through salary sacrifice. The evidence suggests no strong change in individual behaviour when individuals are faced with various levels of tax concessions, consistent with international evidence. It must be noted, however, that the influence of income in predicting participation interacts with the eligibility for tax concessions as noted previously.

3.2 What reasons could explain the lack of participation?

The above discussion provides us with a model that could help predict the participation in voluntary contributions to superannuation. However, many of the characteristics that predict participation are not amenable to change (e.g., family composition) to induce higher level of participation. Recent academic literature has focused on aspects that could help us understand the mechanism(s) behind the complex decision process. We explore some of the theories and empirical evidence that help explain the lack of participation.

In the SEARS 2007 survey, respondents were asked why they did not make any voluntary contributions. The main reasons are summarised in Figure 2. The largest proportion (39%) nominated unaffordability as the main reason, reflecting household budget constraints. Analysis of HILDA data also suggests that a significant indicator of non-participation is budgetary constraints reflected in the ability to raise emergency funds within a short period of time. Together with the respondents who nominate paying mortgages as the main reason, over half of the respondents nominate their financial situation as the main reason.

Figure 2 Main reasons for not making any voluntary contributions (SEARS 2007)



The second biggest reason (“never thought about it”) can be associated with the retirement planning perspective, and has also been identified in more detailed studies as a key explanatory variable of non-participation. Agnew *et al.* (2013b) surveyed people close to retirement and report over half do not have any plans for retirement. Further, Croy *et al.* (2010a, b, 2012) based on survey results from members of four superannuation fund established a strong association between planning and voluntary contributions.

The third reason (“already covered by retirement schemes”) is nominated because people consider that they are well covered by the mandatory employer contributions. This behaviour can be related to the status quo bias often reported in other areas of behaviour. Status quo bias and procrastination are often cited as

reasons for people to delay an action. The massive increase in participation rates after automatic enrolment is one example (Bailey *et al.* 2003) of methods to overcome this. Shuey and O'Rand (2006), Enis (2010) and Kusko *et al.* (1994) all find persistence in plan participation even when there is substantial change in the benefit of participation. Bateman *et al.* (2014a) further highlight that having an interest in superannuation is not readily transferred to active engagement in retirement saving decision making.

Other reasons not examined in these surveys, but increasingly examined elsewhere, is the level of financial literacy which may prevent individuals from making complex choices such as retirement saving decisions. Lusardi and Mitchell (2011) found low financial literacy among particular groups including young, low-educated women and report a positive relationship between financial literacy and the likelihood of retirement planning. A number of papers (e.g., Bateman *et al.* 2012; Agnew *et al.* 2013a; Agnew *et al.* 2013c; Bateman *et al.* 2014b) examine the financial competency of Australians and their results suggest a wide dispersion in financial literacy which compares poorly internationally. In addition, the knowledge of superannuation system specifically is limited, which impacts individuals willingness/ability in developing retirement saving plans.

4 Preliminary results from Mercer database

Many of the current studies on Australian superannuation contributions behaviour described so far are based on population surveys which often suffer from a reporting bias, especially when knowledge of the superannuation system is poor. It is not readily observable the extent to which respondents are correctly distinguishing between post-tax and salary sacrifice arrangements, for example. Further, time series information is limited and data is primarily cross-sectional which only provides a snapshot of savings behaviour, without any analysis available of trends in retirement savings. This is true both in an aggregate sense as well as at the micro-level.

To further investigate the analysis of contributions, we now investigate individual records drawn from the Mercer Super Trust, Corporate Division. The Trust includes details of 187 sub-plans from many different employers drawn from a wide cross-section of Australian industry. Members of these sub-plans are therefore drawn from a wide cross-section of employees – full and part-time, junior level to executive, active and exited members

This preliminary analysis includes members with at least one financial year contributions record and a balance record for a financial year. This produces 162,605 members for 2002/03 to 2011/12 as described in Figure 3 and Figure 4. This time period allows an analysis covering different external conditions, notably including the global financial crisis, and incorporating periods where the rules governing contributions have changed significantly. The results presented should be viewed as preliminary and will be subject to further analysis at a more refined level. However, the results are a useful complement to the previous discussion.

Figure 3 Sample Breakdown by Gender and Financial Year ('000 s)

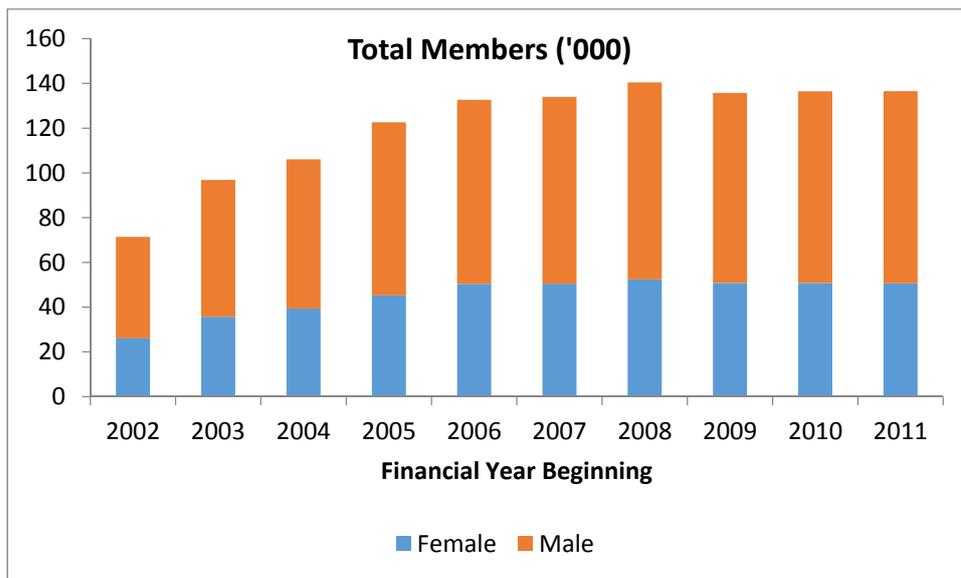
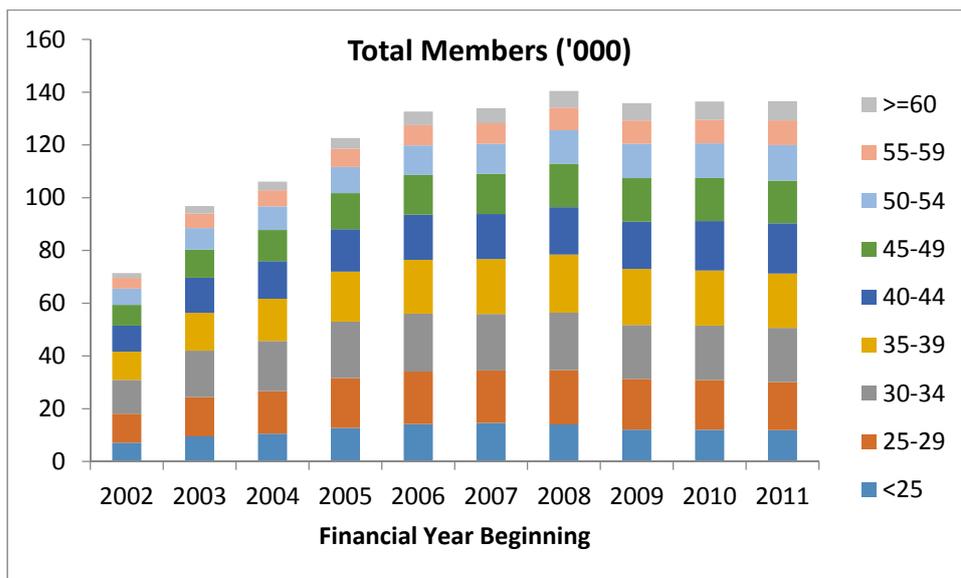


Figure 4 Sample Breakdown by Age and Financial Year ('000 s)



4.1 Contribution participation rate

We first examine the incidence of salary sacrificed contributions and post-tax contributions. For inclusion in the estimations, a member required an employer contribution in the financial year. Receipt of an employer contribution signals an ability to make salary sacrifice, that is, it indicates earnings from an employer and hence the option to sacrifice (if available). However, receipt of employer contributions is not needed to be able to make a post-tax contribution to the fund. As a result the post-tax rate may overstate the true rate. However, because

continued employment is a requirement for continued fund membership we don't believe this to result in a significant difference. Future analysis will more closely examine those with broken contributions histories, suggesting broken employment history, and attempt to track these members as they are transferred to the Personal Super Division of the Trust.

Overall, there is a declining pattern evident for both salary sacrifice (SS) and post-tax (PT) contribution participation between 2002/03 and 2011/12 as indicated in Figure 5. Rates are relatively stable to 2007/08 but from 2008/09 through 2011/12 a drop is observed in both salary sacrifice and post-tax contributions. Figure 6 identifies that the only age group which does not experience the declining trend is the oldest age group, those 60 years and above.

A breakdown of participation by gender identifies clear differences but consistent trends. There is a substantially greater likelihood of salary sacrifice contributions by males. The participation rate is over five percentage points in all financial years. In contrast, females are more likely to make post-tax contributions, though the difference in participation rates is of a much smaller magnitude.

The breakdown of participation by age, shown in Figure 6 and Figure 7 indicates a clear positive relationship between voluntary contribution decisions and age.⁴ Across age groups, however the general pattern for both salary sacrifice and post-tax contributions is a reduction in participation rates. This pattern is more distinct with post-tax contributions.

In contrast to the population surveys discussed previously, the participation rate is almost always higher (except for the very young) in salary sacrifice. The rate of decline on the other hand is very similar.

⁴ Note that the age breakdown is for age as at the corresponding financial year and hence a member may appear across two cohorts through the timespan of the data.

Figure 5 Participation Rate in Voluntary Contributions by Gender and Financial Year

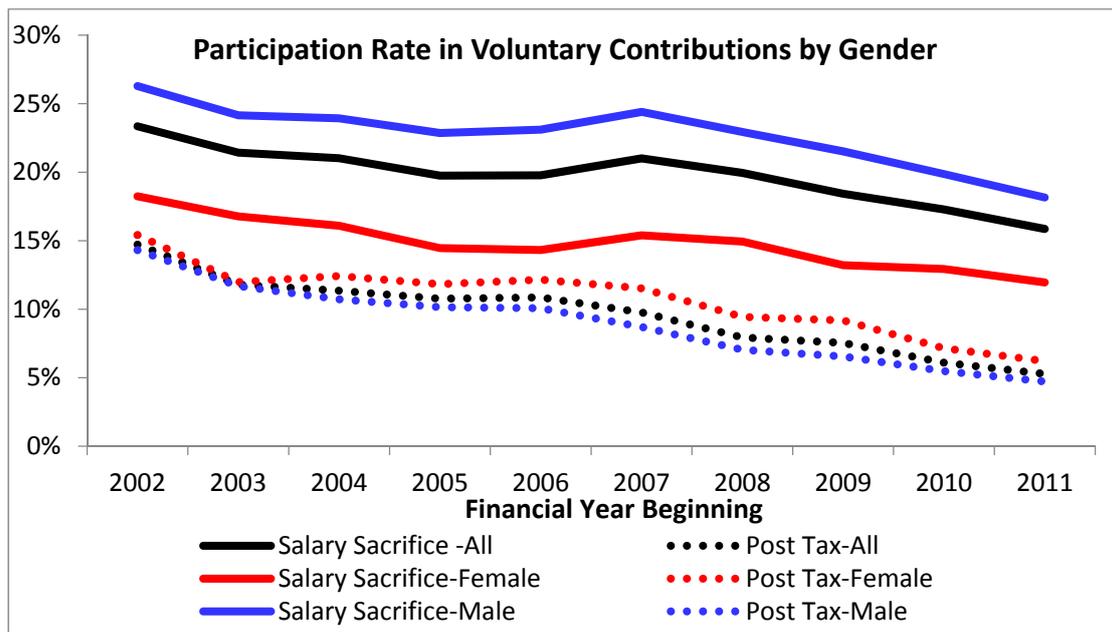


Figure 6 Participation Rate in Salary Sacrifice Contributions by Age and Financial Year

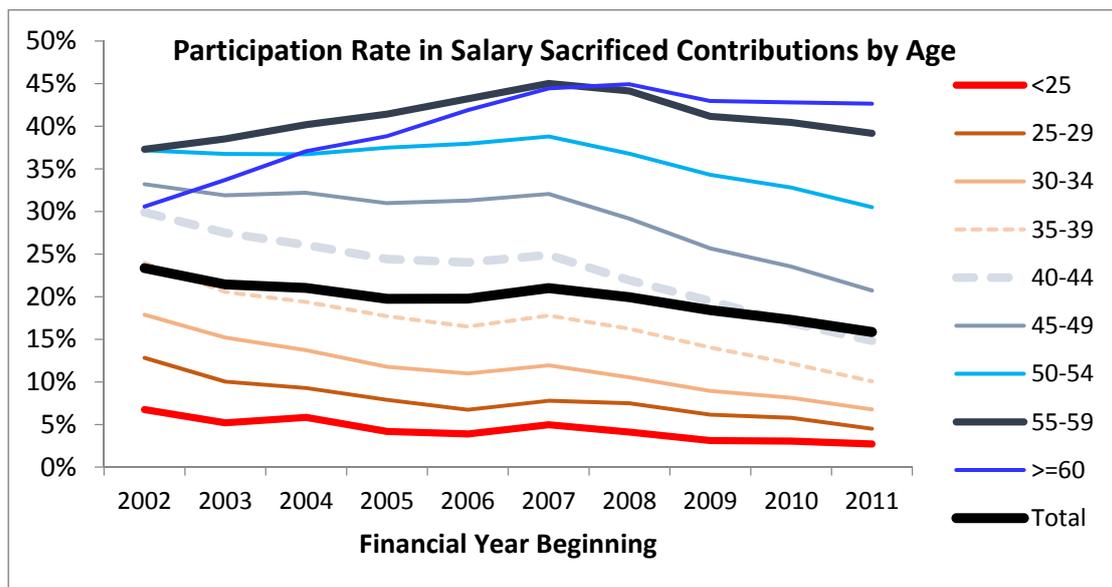
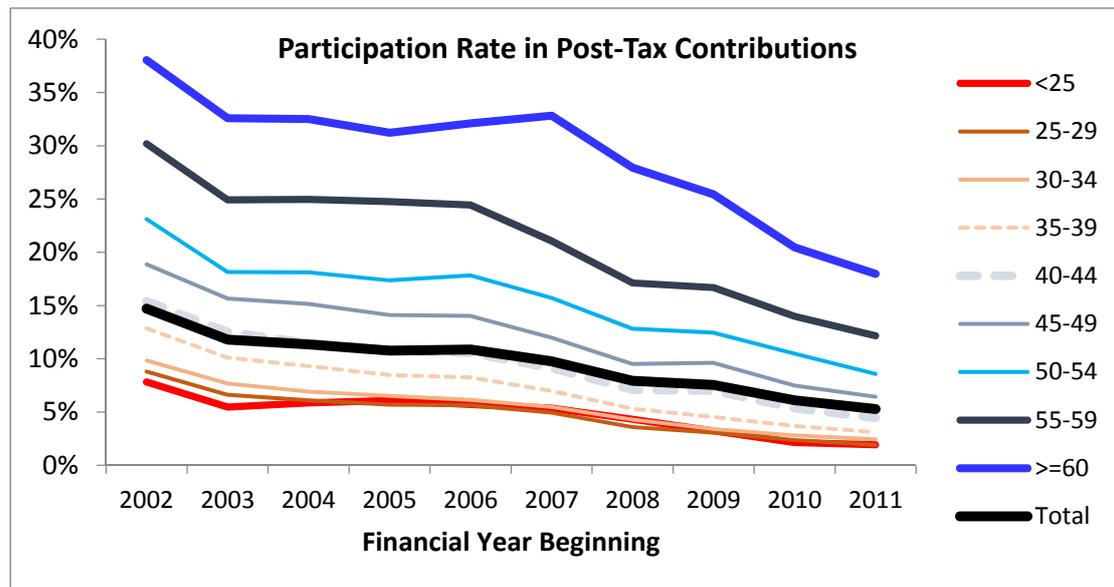


Figure 7 Participation Rate in Salary Sacrifice Contributions by Age and Financial Year



4.2 Timing of the start of the contributions

The longitudinal nature of the data allows us to explore the commencement of voluntary contributions following the member commencing with the fund. Figure 8 to Figure 11 provide a breakdown of how long before a member commences a salary sacrifice or post-tax contribution arrangement after commencing with the fund. Analysis here is restricted to those joining during or after the 2001/02 financial year.

Figure 8 provides a breakdown for salary sacrifice contributions by gender. What is noticeable is that the previously identified gender difference is largely related to the first financial year since the member joins the fund. That is, a larger proportion of males choose to enter a salary sacrifice arrangement in the first year of fund membership. After the first year the gender difference reduces. Figure 9 also highlights that the age differences in commencement of salary sacrifice arrangements are most pronounced in the first year of membership. The salience of opportunities to salary sacrifice is heightened in the first year of employment as employees first arrange salary payments and are made aware of contribution options. This is suggestive that revisiting the initial communications provided when a member joins a fund may be a means of increasing further participation in voluntary contributions arrangements. It is worthwhile noting however that time effects may confound the above conclusion. That is, the regulatory changes that occurred from

2007/08 to contributions limits are difficult to separate from patterns related to membership length.

Figure 8 Time Before Commencing Salary Sacrifice (by Gender)



Figure 9 Time Before Commencing Salary Sacrifice (by Age)

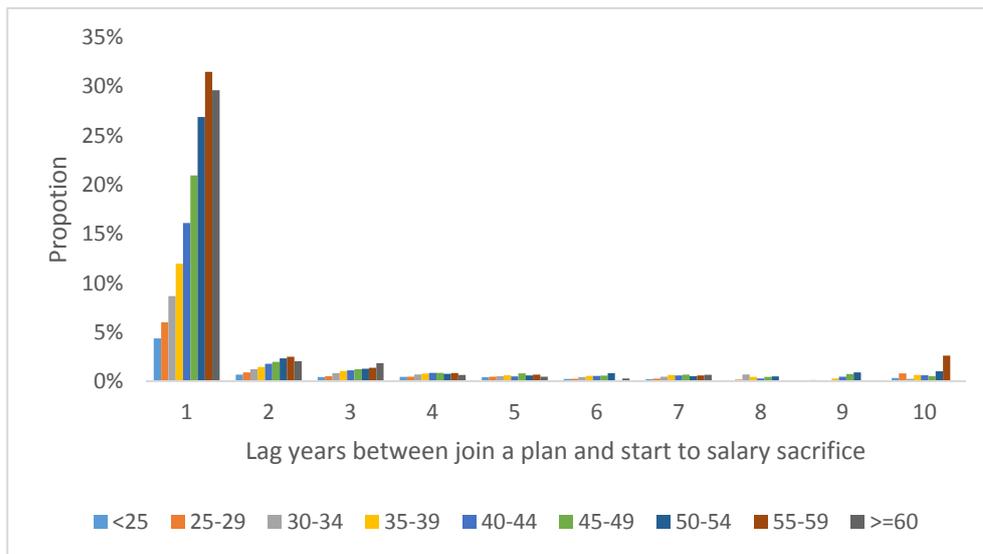


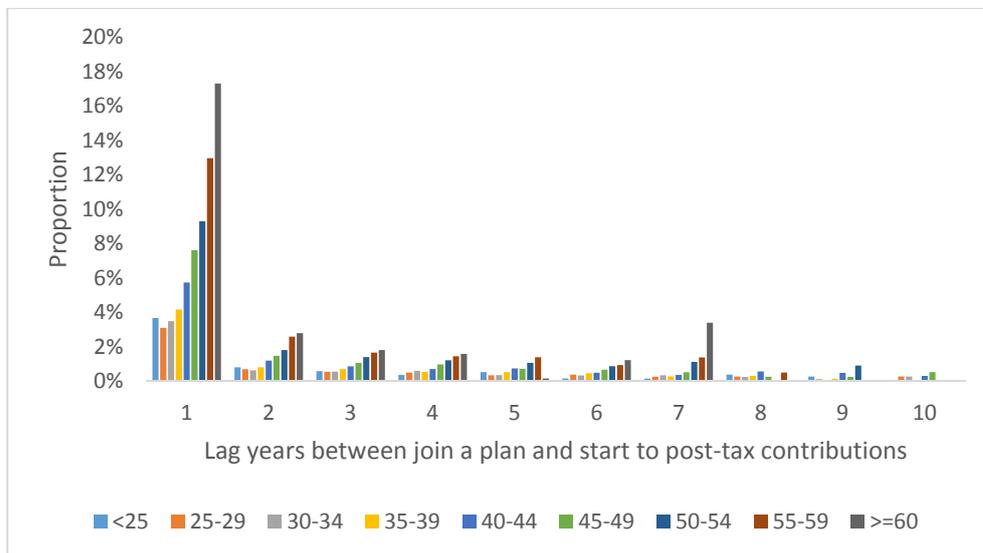
Figure 10 presents a profile of participation in post-tax contributions arrangements by the time before the arrangement is commenced, broken down by gender. As noted previously, the gender profile for post-tax contributions is the reverse of salary sacrifice arrangements. The absolute gender difference in participation in post-tax contributions, however, is not as large as for salary sacrifice arrangements. The net effect of which is that men are more likely to participate in voluntary contributions. The quick decline in the proportion of people who commence post-tax

contributions after the first year of membership is also evident. This pattern is consistent by gender and across age groups. Figure 11 highlights the age pattern as prevalent in salary sacrifice arrangements. Older members are more likely to participate in post-tax contributions.

Figure 10 Time Before Commencing Post-Tax (by Gender)



Figure 11 Time Before Commencing Post-Tax (by Age)



5 Conclusion

The modern phase of Australia's superannuation system now extends into its third decade. While this is now close to an individual's expected working lifespan, the history is marked by frequent rule changes impacting contribution rates, contribution limits, and taxation. Recent policy changes have entrenched the "libertarian paternalistic" design of the system. The system is based on compulsion which requires individuals to save for their retirement though this contribution is made by the employer on the employee's behalf. A belief that the compulsory rate is inadequate has seen the compulsory rate increased alongside policies to encourage more voluntary retirement savings through tax incentives and provision of options within superannuation funds. Despite these efforts, participation in voluntary retirement savings appears to be declining.

This paper has presented an overview of international literature relating to the determinants of voluntary retirement saving participation, with a focus on available Australian evidence. From this review, a number of key socio-economic and demographic factors, as well as job characteristics are identified to be important predictor of participation. Other factors such as retirement planning, financial literacy, status quo bias can also explain the lack of voluntary contributions.

A preliminary analysis of a new, large database made available by Mercer Australia provides a valuable addition to this literature by allowing a view from within a superannuation fund instead of the population surveys currently available. The longitudinal nature of the database allows a better understanding of trends, impact of external events, and persistence in actions.

Future analysis of this database will continue to add to our understanding of member behaviour in relation to voluntary contributions. In view of the preliminary evidence suggesting a decline in those making voluntary contributions, future work will examine who this applies to. For example, is this due to those who were previously contributing ceasing to do so, but otherwise continuing to receive employer contributions, or is it because those who were previously contributing are leaving the fund (retiring from their employer) and new younger members are not

choosing to contribute? Additionally, what has happen to the amount that has been contributed? How has this changed over time and how significant have rule changes been in changing the amount contributed? We will address these issues in future work.

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