Retirement explainer series

Member characteristics:
What matters for retirement solution design?

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Brief synopsis: We discuss retiree characteristics and how they impact on retirement solution design by superannuation (super) fund trustees. We identify and discuss eight 'major' characteristics selected based on their importance for the retirement solution that is most suitable for a member. Four are personal attributes, including: (1) age; (2) total financial assets, both inside and outside of super; (3) homeownership; and (4) partnered status. A further four relate to objectives and preferences, including: (5) type of income stream desired; (6) preferences over income risk and related trade-offs; (7) tolerance for return volatility; and (8) requirement for accessible funds. We also touch on other attributes that might matter; and offer thoughts on the collection and use of personal information to inform the design of retirement solutions and matching of solutions to members.

Questions addressed:

1. What are the most important member characteristics for informing the retirement solution that is suitable for an individual member?

2. How do these important characteristics impact on retirement solution design?

3. What other member characteristics might matter?

4. How might a super fund trustee approach the collection of personal information, and use it to design and match members to suitable solutions?

Key terms: Member characteristics; catering for member differences; retirement income strategies; retirement solution design; personal information.

Who should be interested? Retirement specialists, retirement leads, retirement modellers (e.g. actuaries), product designers, financial advisers, regulators, people wanting a career in the retirement income space.

Introduction

This explainer discusses personal characteristics of retirees and how they impact on retirement solution design. We approach this topic through the lens of which characteristics make a significant difference to the solution that is suitable for a retired member. We identify eight 'major' characteristics, including four personal attributes and four that relate to objectives and preferences. The table over lists these eight characteristics and indicates how each impacts on five components of a retirement solution: degree

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of investment risk taken; need for a lifetime income stream; the drawdown strategy; requirement for flexible access to funds; and, Age Pension eligibility. The Age Pension is included as an important source of both income and risk protection. It is near-impossible to effectively solve for the type of solution a retiree needs without accounting for access to the Age Pension.

Which member characteristics impact on key retirement solution components

	Characteristic impacts on retirement solution through:				
	Investment risk taken	**Need for lifetime income stream**	**Drawdown strategy**	**Requirement for accessible funds**	**Age Pension eligibility**
PERSONAL ATTRIBUTES					
1. Age	✔		✔	✔	✔

2. Total net financial assets
  - Inside super
  - Outside super
	✔	✔	✔	✔	✔

3. Homeownership	✔	✔	✔	✔	✔
4. Partnered status		✔	✔	✔	✔
OBJECTIVES & PREFERENCES					

5. Type of income stream
  - Income target
  - Income optimisation
  - Baseline plus aspirational
		✔	✔		

6. Income risk / trade-offs:
  - More reliable *vs.* higher income
  - Income sustainability *vs.* spending earlier when able to enjoy it
  - Flexibility to adjust spending
	✔	✔	✔	✔	

7. Tolerance for return volatility	✔				

8. Requirement for accessible funds
  - Unplanned spending
  - Bequests
  - Aged care
  - Ability to alter course
	✔	✔	✔	✔	

Other characteristics that could matter: life expectancy; health; personal network, e.g. dependents, intergenerational transfers; other income sources; Age Pension eligibility nuances; gender.

Before proceeding, we comment on three matters. First, we have chosen to frame the discussions from the perspective of what super fund trustees might like to know about their members for purposes such as member cohorting, retirement solution design and matching of individual members to suitable solutions. We do so recognising that, currently, super funds often know little more about individual members than their age and balance with the fund; and that trustees are inhibited in how they may use personal information under the financial advice rules[2]. We also acknowledge that financial advisers are currently better placed to tease out many of the member characteristics we discuss (and more).

Second, the range of characteristics we discuss is very much aspirational. It is a list of what 'would be great to know, if possible'. We trust that this gives the industry something to aim for over time.

Third, we often link the characteristics to the pursuit of the member income objectives and their desire for flexible access to funds, which were respectively discussed in Explainer #2 and Explainer #3. We recap the three income objectives discussed in Explainer #2 for context:

- *Income target* – The member has a particular level of income they desire to target[3]. This objective implies drawing income to achieve the target, and can deliver stable income as long as the assets last.

- *Income optimisation* – The member wishes to 'optimise' the income that is extracted from their available assets. This objective might be expressed

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as a schedule of percentage drawdown rates with reference to remaining life expectancy and expected investment returns. It always generates some income, but that income is variable.

- *Baseline plus aspirational ('hybrid')* – The member has some baseline level of income that they require and should be delivered if at all possible, e.g. to cover non-discretionary spending. Assets in excess of that needed to secure the baseline are directed at boosting income, and might be treated in a similar fashion to income optimisation.

Personal attributes

We define 'personal attributes' as characteristics related to the personal circumstances of the member. We nominate four major attributes from the standpoint that they not only significantly impact on the retirement solution a member needs, but they are also ubiquitous points of distinction across the entire member base. We briefly discuss other attributes that may matter for certain members in certain situations in a later section.

1. Age

Age matters mainly because residual life expectancy and hence the horizon declines as people get older. The drawdown strategy is the main retirement solution component that is impacted; although there are implications for other components such as the pricing and income provided through lifetime income streams. Further detail appears in the dot points below, which are roughly ordered by relative importance (as they are in each section).

- **Drawdowns** – Age is particularly relevant where drawdowns are based on a percentage of the remaining balance, as the drawdown rate should increase as life expectancy decreases. The latter is reflected in the minimum drawdown rules, but would also be applied under the income optimisation and aspirational component of any hybrid income objective. Age might also impact on the formulation of income targets, where the target could be adjusted over time to recognise that retirees typically spend less as they age.

- **Investment risk taken** – How age impacts on the amount of risk that is taken within the investment

strategy is more debatable. Academic modelling often suggests taking *more* risk with age[4]. Some people argue for de-risking with age on the basis that capacity to tolerate risk declines. Holding risk exposure stable with age is a middle path.

- **Age Pension eligibility** – Australian residents generally become eligible for the Age Pension at age 67[5].

- **Other effects associated with age** – The likelihood of withdrawing assets and thus the need for accessible funds can vary with age, e.g. repaying debt or supporting lifestyle spending earlier in retirement, or death (i.e. as a bequest), or funding aged care or medical expenses later in retirement. The risk of cognitive decline increases with age, with implications for member engagement and the need for retirement solutions that do not rely on the member making decisions.

2. Total net financial assets

Retirement solutions should ideally be designed to take into account *all* financial assets that members have available, both inside and outside of super and net of debt. Here we address a member's own assets, and expand to the household level under point 4.

Accounting for all assets can be readily done under personal financial advice, but is more difficult for fund trustees that only control the assets within super. Unfortunately, the member's total financial assets matter quite a lot for the solution that they need. For instance, the suitable solution for a retiree with only $200,000 with their super fund will differ from that needed by a retiree with $200,000 in super and $800,000 invested in shares, property, bank deposits, etc. Fund trustees cannot ignore the possibility of assets outside of super if they are to deliver a suitable solution to a member.

Total financial assets impact on the components of retirement solutions in the following ways:

- **Age Pension eligibility** – Fund trustees need to know the total financial assets of their members to understand their Age Pension eligibility under the means-testing rules. Accounting for the guaranteed income available from the Age Pension is essential as it impacts most of the other retirement solution components discussed below.

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[4] The risk of death (mortality risk) becomes more important relative to the risk of investment loss as the probability of death rises with age, such that taking more investment risk can boost expected income and utility. For an intuitive analysis of how the relative size of investment and longevity risk evolves with age, see Collie, Bob, "How

big is longevity risk", *Investments & Wealth Monitor*, May/June 2016.
[5] This applies to individuals born on or after 1 January 1957: those born earlier may become eligible from as early as age 65 and 6 months.

- **Requirement for accessible funds** – The main consideration here is whether the trustee needs to provide accessible funds within the retirement solution they provide. Retired members with substantial assets outside super may not need their super fund to cater for flexible access to funds, allowing trustees to focus the solution entirely towards delivery of income.

- **Drawdowns** – A member with greater total financial assets can afford more income. How the capacity to generate income plays through into a retirement solution depends on the income objective. Where there is an income target objective, or a baseline income under a hybrid objective, enough needs to be drawn to achieve the target or baseline income after accounting for the Age Pension and other income streams. Knowing the full financial position thus informs how much needs to be drawn from an account-based pension. Further, although income targets are often determined externally to retirement solution design (e.g. by applying a retirement standard), the possibility is also open to calibrate the target to available assets (as raised in Explainer #2). Under income optimisation and aspirational component of a hybrid objective, the 'affordable' drawdown rate does not depend on available financial assets.

- **Need for lifetime income streams** – A broad rule is that lifetime income streams are mainly required for retirees with moderate balances who may benefit from having some guaranteed income for life. Retirees with low total financial assets (say less than $200,000) may be better off with ready access to their assets in case they are needed, while relying on the Age Pension for longevity protection[6]. Retirees with substantial total financial assets (say over $1 million) might have more than enough to support a generous income stream with minimal risk of that income running out, and hence may not need longevity protection. However, we are making some broad generalisations here: what is appropriate will vary across members.

- **Investment risk taken** – The level of total financial assets may also impact on the willingness to take investment risk. Retirees that are in a comfortable position due to having substantial financial assets should have greater capacity to tolerate investment risk. The position

of retirees with low financial assets is more debatable. There is an argument that they can rely on the Age Pension and seek higher returns in pursuit of a better-than-a-modest lifestyle[7]. However, some retirees might prefer to invest defensively to protect the assets they have.

3. Homeownership

Homeownership affords an element of financial security that can have a significant impact on the type of retirement solution needed. Members who own a family home have access to an additional resource of significant value, plus their ongoing spending needs should be lower as they do not have to pay rent. In contrast, non-homeowners do not have a home as a backstop asset, and could need considerably higher income to help cover the rent.

- **Requirement for accessible funds** – Owning a home much reduces the need for accessible funds within a retirement solution. A family home can support a bequest or funding for aged care; and may provide a substantial backstop if needed through home equity loans, downsizing or sale. For homeowners, trustees might go no further than providing a modest level of precautionary or contingency savings, and not attempt to cater for end-of-life aged care or bequest motives.

- **Drawdowns** – Homeownership status can make a significant difference under an income target or hybrid income objective as both the target income and the baseline income will be much higher for non-homeowners due to the need to cover rent[8]. Homeownership status is not relevant under income optimisation, which aims to optimise the income extracted from available assets.

- **Investment risk taken** – Homeowners should have much greater capacity to bear investment risk. A home represents a lower-risk asset that not only provides a source of stable 'income' in terms of 'imputed rent', but is also available for access if really needed. Homeowners are better placed to seek higher income through taking more investment risk as poor returns should lead to less adverse consequences than for renters.

- **Need for lifetime income streams** – Homeowners may have less need for a lifetime income stream to the extent that they are better placed to rely on the Age Pension to provide a basic level of income and longevity protection.

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[6] The Age Pension also reduces the need for lifetime income streams at the margin for members with higher balances due to the downside protection it provides as a kind of option over a guaranteed real income stream.

[7] Prospect theory predicts this sort of behaviour.

[8] Both the ASFA and the Super Consumer Australia retirement standards are framed for homeowners, but could be adjusted to form targets for renters.

Meanwhile, non-homeowners may have more call to seek some income insurance to ensure they can continue to pay the rent.

- **Age Pension eligibility** – The available Age Pension differs between homeowners and non-homeowners. Further, non-homeowners may be eligible for the rental assistance supplement.

4. Partnered status

Retirement solutions should ideally cater for the overall household – although in some cases the member may have a partner and still desire an individual solution. While household solutions can be readily accommodated through personal financial advice, it is far more difficult for fund trustees given that their fiduciary obligations and control over assets operates at the individual member level. Nevertheless, the existence of a partner cannot be ignored in identifying the retirement solution that may be suitable for the member. The possibility of a partner brings the following into consideration:

- The partner might have significant assets;
- Couples can share some costs, which may impact on income needs;
- A need arises to cater for the last surviving member, giving rise to a concern with dual life expectancy and reversionary benefits[9]; and,
- The partner may still be earning income.

These elements may be quite significant for the retirement solution that the member needs. For instance, the appropriate solution may differ greatly for members with low balances depending on whether they are single or have a rich partner with millions of dollars in assets! Indeed, trustees would ideally offer different solutions to singles and couples, with the latter accounting for the financial circumstances of the partner.

- **Requirement for accessible funds** – The above argument that substantial assets outside of super can significantly reduce the call for providing accessible funds within the retirement solution extends to consideration of a partner's assets. However, this may depend on how the member wants to use their own retirement account. Members may prefer accessible funds if they wish to use their account as a ready source of capital for

their own use, or as a potential reversionary benefit for their partner if they pass away.

- **Drawdowns** – Partnered status can make a significant difference to any income target or baseline income under a hybrid income objective. In this case, the required income would ideally be determined at the household level, and the income delivered from the member's account treated as a contribution to household income. There is an argument that an income optimisation objective may be more appropriate where there is a partner with significant assets, with the aim of optimising the income delivered. Where the member wishes to use their retirement account as a source of accessible funds available for their own use, the minimum drawdown rules may be more suitable to retain as much of the balance as possible.

- **Age Pension eligibility** – The available Age Pension differs between singles and couples.

- **Need for lifetime income streams** – Members with wealthy partners may have less need for income insurance via a lifetime income stream.

Objectives and preferences

Objectives and preferences relate to the 'shape' of the income stream desired by the member. Unlike personal attributes, which tend to be quite tangible, objectives and preferences reflect personal choice and are hence subjective. Hence, their solicitation is much trickier: a topic that deserves much more attention than we afford it here.

5. Type of income stream

The type of income stream that the member desires connects with the three income objectives that we have been highlighting. It is integral to retirement solution design in the following ways:

- **Drawdowns** – The drawdown strategy is intimately connected to the income objective:
  - *Income target* – This objective implies drawing enough income to attain the target after allowing for other income sources (e.g. the Age Pension), at least until the assets are exhausted[10].
  - *Income optimisation* – This objective implies drawing down an 'affordable' amount with reference to remaining life expectancy and expected investment returns. It may be

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[9] A related consideration is that the death of a partner impacts on both the Age Pension and spending needs.
[10] As discussed in Explainer #2, consideration might be given to both adjusting the target where it gets out of

kilter with available assets, or drawing more than the target when it is safe to do so.

expressed as a schedule of percentage drawdown rates that varies with age.

- *Baseline plus aspirational ('hybrid')* – Under this objective, the first priority would be to draw sufficient income to attain the baseline, unless it is covered by other income streams, e.g. the Age Pension. Assets in excess of those needed to secure baseline income may be treated in a similar fashion to income optimisation.

- **Need for a lifetime income stream** – Lifetime income streams would be used under an income target or hybrid objective to secure the target or baseline income. Under income optimisation, their purpose is to limit the downside risk in income. As such, their use depends on income risk tolerance (discussed under point 6).

We do not see the type of income stream as a major influence on **investment risk taken**, but rather view the latter as related to tolerance for return volatility (see point 7). In making this comment, we are influenced by academic findings that the optimal strategy may entail using traditional annuities for defensive exposure while taking as much investment risk as can be tolerated within the retirement account to boost income. This is illustrated in the Appendix presenting results from an academic study[11]. The study finds that, while in some situations it is 'optimal' to take less risk within the retirement account[12], these are relatively rare.

6. Income risk and related trade-offs

The retirement income covenant refers to managing risk to the 'sustainability and stability' of retirement income. Explainer #1 highlighted how these two concepts were difficult to define and measure. Explainer #2 suggested a way forward via teasing out a member's tolerance for income risk and how they view the related trade-offs. We suggested three lines of enquiry on which we expand here, connecting them to retirement solution design.

- **Desire for more reliable versus higher expected income** – Seeking more reliable income typically results in a lower expected income. For example, income reliability can be achieved by buying a traditional fixed income based annuity,

or investing in defensive assets rather than growth assets. However, both have the effect of reducing expected income relative to buying an investment-linked annuity or investing in growth assets, which tend to deliver higher but more volatile income. Where a member stands with respect to this trade-off will influence the extent of the overall allocation towards higher-returning yet riskier assets within the retirement solution.

- **Preference for sustainable income versus spending when more able to enjoy it** – Income sustainability may be enhanced in two ways. One is allocating towards a lifetime income stream. The other is reducing the amount of income drawn so that the assets and hence the income lasts for longer. The latter in particular act to reduce income earlier in retirement when the member is more likely to be alive and able to enjoy it due to being younger and fitter[13]. Further, deferring income runs the risk of suffering the regret from not fully enjoying the assets that were saved. The member's preferences around this trade-off have important implications for the drawdown strategy, both in terms of its level and shape. It can also impact on the design of any lifetime income stream that is included within the retirement solution, which may be structured to deliver both rising and falling income trajectories.

- **Flexibility to adjust spending** – A member's flexibility to adjust their spending in line with income speaks to their capacity to tolerate income risk. Members with high flexibility should be able to draw more income earlier in retirement, take more investment risk and may have less need for a lifetime income stream due to a greater capacity to adjust spending in response to poor realised investment returns or survival to older ages. Those facing hard spending commitments are more likely to require income stability.

7. Tolerance for return volatility

Return volatility should conceptually be of little concern to retirees, who ideally should be focused on income risk. However, the fact is that some retired members may be quite concerned with their balance and thus resistant to being overly exposed

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[11] Butt, A, Khemka, G. and Warren G.J., 2022, "Heterogeneity in Optimal Investment and Drawdown Strategies in Retirement", *Pacific Basin Finance Journal*, 74, 74, 101798. These authors find that traditional annuities tend to crowd out defensive assets as they provide fixed income exposure coupled with longevity protection.

[12] Butt et al. (2022, *op cit.*) find that defensive assets are used to secure an income target where annuities are unavailable (or alternatively, the member will not accept annuities as part of the solution), or to secure an income target prior to a deferred annuity cutting in.

[13] Whether lifetime income streams reduce expected income depends on their design and the cost of the longevity insurance.

to return volatility. Another consideration is that some members might respond to investment losses by inappropriately switching to defensive assets. Trustees might attempt to gauge whether return volatility could be a major concern for the member, and limit risk within the return-seeking investment component of the solution to the (maximum) level that the member can tolerate.

8. Need for flexible access to funds

Explainer #3 discussed the flexible access to funds objective, noting four potential motivations:

(i) Meeting significant yet unplanned spending needs not covered by regular income, i.e. a precautionary savings motive;

(ii) providing a bequest[14];

(iii) supporting access to aged care; and,

(iv) having the ability to alter course in response to change or opportunities.

The requirement for flexible access to funds primary impacts on the drawdown strategy, as it shifts the objective away from extracting income towards ensuring some level of funds remains available. In Explainer #3, we proposed the idea of establishing a 'contingency account' as part of the retirement solution for those members that need flexible access to funds. How much risk is taken within the contingency account might depend on the motivation for having accessible funds. For example, a precautionary saving motive might imply investing conservatively. Meanwhile, the bequest or aged care motives might support taking more investment risk to build wealth over the long run. The need for access to funds may also influence how much is allocated to lifetime income streams.

Other attributes

We briefly recognise other member attributes that might have a meaningful impact, but tend to be relevant on a case-by-case basis:

- **Life expectancy** – Lower life expectancy implies a shorter planning horizon and less call for lifetime income streams[15]. It might also impact on drawdowns, which may be set higher with lower life expectancy. While life expectancy is largely captured by age, it can also be related to other characteristics such as health, gender and socio-economic status (in turn related to balance).

- **Health** – Members in poor health should have lower life expectancy and hence less call for lifetime income streams. The impact on the drawdown strategy could go either way. Some members in poor health may prefer to draw less income and keep aside some accessible funds for medical expenses or as a reversionary benefit for a partner. Others may wish to draw income to spend while they are able.

- **Personal network** – We consider a few possibilities under this catchall heading. The total financial resources available to some members might be enhanced by the prospect of intergenerational transfers from aging parents (e.g. bequests, gifts, etc); or possibly assistance from other relatives, friends or charities. Intergenerational transfers can be particularly relevant as they have potential to be substantial. Their existence could allow the member to take more risk and draw more income, while reducing their need for flexible access to funds. Another consideration might be the existence of dependents, e.g. adult children with special needs. This may increase either income requirements or desire to build up accessible funds for a bequest.

- **Other income sources** – Access to sources of income, such as ability to work or a defined benefit pension, could impact on the retirement solution in a similar manner to the Age Pension.

- **Age Pension eligibility nuances** – Eligibility to the Age Pension is not automatic. In addition to reaching age 67, members must meet residency requirements. This generally involves having been an Australian resident for at least 10 years in total, with no break for at least 5 of these years.

- **Gender** – Gender effects may often be captured by other characteristics and hence may not require separate consideration. For instance, females tend to have lower balances, are less likely to have a partner at older ages, and more likely to have lower risk tolerance – all characteristics that should be considered in any event. One possible exception might be accounting for the longer life expectancy of females.

Some of these additional attributes, as well as other aspects of a member's personal circumstances, might be better catered for through personal financial advice than a fund trustee via retirement solution design. This is especially the case where there exists more complex personal circumstances.

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[14] Assisting adult children to purchase a home, etc might be seen as a form of early bequest.

[15] This can depend on the extent to which differences in life expectancy are imputed into product pricing.

Member information and matching

Catering for members with differing characteristics requires collecting member information on those characteristics to inform the design and offering of retirement solutions in two ways:

1. **Solution design and cohorting** – Designing solutions for various member types or cohorts requires an understanding of the distribution of member characteristics across the member base. For instance, it would be helpful to understand how many members have substantial assets outside of super, own a house, have partners, and so on. While it may be possible to make assumptions about member types, formally profiling the member base should greatly inform and help direct the solution design efforts. Data on the characteristics of the member base might be sourced through existing member data, public databases such as the Australia Bureau of Statistics and member surveys. Surveys for profiling the member base might use sampling techniques and generate de-identified data.

2. **Personal tailoring and guidance**[16] – Trustees will need personal information on a member to either tailor a solution for that member, or guide them to a suitable retirement solution offered by the fund. For instance, personal information is required to identify the cohort to which a member belongs. While some personal information may be available to trustees, in all likelihood input from the member themselves will be required. In particular, soliciting objectives and preferences requires engaging with the member. Personal information might be provided directly to the trustee through a questionnaire[17] or a personal financial advice process.

The box above summarises the information that a trustee might collect from members to assist in matching them to a suitable solution. Of course, collecting such detailed personal information requires the member to be willing, and could create data security and privacy issues. The items listed might thus be seen as a 'wish list'.

Information trustees might seek from a member

PERSONAL ATTRIBUTES

1. Age
- Should be known by trustee

2. Financial assets
- Balances with other super funds
- Amounts on deposit
- Investments

3. Homeownership
- Homeowner or renter
- Any mortgage
- Amount of rent being paid

4. Partnered status
- Whether a partner exists with whom finances shared
- Partner's age
- Partner's assets (inside and outside of super)
- Whether the partner earns an income

OBECTIVES AND PREFERENCES

5. Income objective
- Amount spent on essentials that cannot be forgone
- Prefer a given amount of income (how much?) _or_ maximising income drawn?

6. Risk and related trade-offs
- Prefer lower stable income _or_ higher variable income?
- Prefer to spend early in retirement _or_ hold back to ensure that income can last to very old age?
- Ability to adjust spending in line with that affordable

7. Tolerance for return volatility
- Extent to which volatility in account balance would cause stress (even if a decent income guaranteed)

8. Flexible access to funds
- Desire to set funds aside 'just in case' (how much?)
- Desire to leave a bequest
- Very concerned about paying for aged care
- Prefer control over assets _vs._ income certainty

In the absence of trustees being able to source and use personal information, an alternative might be to offer a menu of retirement solutions along with descriptions of the type of member for which they are suitable. Members could then self-select a retirement solution using the member descriptions as guidance. That is, the member might conclude: "*this member type looks like me, so I'll consider that particular retirement solution*".

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[16] We reiterate that the personal financial advice rules hamper the ability of trustees to collect and use personal information in an efficient manner, but are under review.
[17] This could be done online as part of an automated process whereby the member supplies information and then is recommended a retirement solution, as envisaged under the trustee recommendations or assignment pathways as described within the Conexus Institute November 2023 report titled "*Pathways for directing members into retirement solutions*".

Another alternative is to make assumptions about the member. In particular, assumptions may prove unavoidable with regard to objectives and preferences, albeit tenuous. For instance:

- An income target could be calibrated as an income replacement rate if information is available on earnings prior to retirement; or alternatively set with reference to an income standard, e.g. those compiled by ASFA or Super Consumers Australia;

- Members might be assumed to have low risk tolerance as the default assumption for the purpose of retirement solution design;

- All members might be assumed to have some base level of demand for flexible access to funds, and be provided with a modest precautionary or contingency account of (say) $25,000.

Dealing with complexity of member needs

We have suggested eight characteristics that make a significant difference to the retirement solution that is suitable for a member. At first glance, this screams out "complexity". Eight characteristics imply a mind-boggling number of potential combinations and hence member cohorts. Even if much less than eight characteristics are considered, the problem of 'high dimensionality' would remain.

We suggest that complexity could be reduced from the retirement solution side in two ways. First is by constructing retirement solutions from a basic set of building blocks applied in differing combinations. We see four main building blocks:

- *Growth portfolio;*
- *defensive portfolio;*
- *lifetime income stream* – the trustee could deploy one, or at most, a small number of options; and,
- *drawdown strategy* – the income objectives we discuss suggest three possible strategies, with allowance for variation in income targets.

A second way of reducing dimensionality is to offer a limited number of retirement solutions that cater for multiple member types. There is nothing to say that members with differing needs cannot use the same solution. Trustees do not necessarily need to create a solution for every cohort, as long as the solutions offered adequately span the needs of members and the trustee is able to match members to suitable solutions. For instance, a solution that allocates (say) 25% to a lifetime income stream combined with (say) a 70/30 allocation to growth/defensive asset within an account-based pension plus a drawdown strategy that takes 'affordable' income may cater for a wide range of member types. Where complexity will then remain is in understanding the member and their needs so that they can be assigned to the correct cohort, and hence offered a suitable strategy.

The appendix illustrates some of these themes using results from an academic study. It shows not only how characteristics can impact on the retirement solution that a member needs; but also how solutions may be constructed from a set of basic building blocks. It also provides an indication of how similar solutions may be suitable for multiple types of members.

Closing comments – Our take

A key aim of this Explainer is to highlight the many ways in which retirees may differ that are influential for the type of retirement solution they need. Eight characteristics were discussed, each selected based on the potential to make a significant difference to some component of the retirement solution. The message that emerges is that understanding and catering for member differences is *critical*, but requires identifying and understanding member characteristics. The fact that profiling members by their characteristics is hard and complex is no excuse: it is 'mission-critical'.

Fortunately, we also see ways to reduce complexity through the way that retirement solutions are designed. One way forward is to construct solutions from a basic set of building blocks, i.e. adopt a modular design approach. Another is to exploit the possibility that a limited set of solutions may suffice to service a range of member types despite differences in characteristics and hence needs and wants. Smart retirement solution design and smart matching mechanisms could take the super industry a long way towards providing members with the retirement solutions that they need.

Member Characteristics *DO* Make a Difference

The table below conveys the results of a study by Butt, Khemka and Warren (2022)[18] illustrating how retirement solutions can vary significantly across members with differing characteristics. 'Optimal'[19] asset allocations at retirement are presented for 14 member types distinguished by their balance at retirement, homeownership status, income objective and risk tolerance. It thus spans four of the eight member characteristics discussed in this Explainer. The authors assume available assets include a growth portfolio, a defensive portfolio, an immediate real life annuity that pays guaranteed real income as long as the member survives, and a deferred real life annuity where the real income payments commence at age 85. Thus this study demonstrates the 'building block' approach referred to earlier, noting that these four asset components are then combined with a drawdown strategy designed to deliver either an income target or to optimise income. The analysis incorporates the Age Pension and related supplements.

Two main takeaways emerge. First is that the allocations differ markedly across member types.

That is, characteristics matter. Second is that the optimal solution is similar for many of the member types. For instance, the asset allocation for seven out of the 14 members is 100% growth assets. Further, some of the solutions use similar levels of annuities. These aspects may support consolidation into a smaller number of solutions that use generic annuity allocations. While the drawdown strategies may aim to deliver different income objectives, the same basic procedures could be applied in delivering income at the member-level, e.g. either applying a draw-to-target or affordable drawdown strategy.

We are, of course, discussing a theoretical exercise. The analysis also does not take into account the need for flexible access to funds or tolerance for return volatility. Thus, the retirement solutions presented should by no means be taken as recommendations. However, we trust this analysis provides some intuition around the importance of catering for members with differing characteristics, and how this might be translated into design of retirement solution menus.

How 'optimal' asset allocation can vary across member types

Cameo				Optimal asset allocation with annuities				
Initial Balance	Home-owner?	Income objective	Risk tolerance	Growth assets	Defensive assets	Immediate life annuity	Deferred life annuity	Total
$200,000	No	Target: ASFA Modest + Rent	Low	100%	-	-	-	100%
			High	100%	-	-	-	100%
$200,000	Yes	Target: ASFA Modest	Low	90%	-	-	10%	100%
			High	100%	-	-	-	100%
$500,000	No	Target: ASFA Comfortable + Rent	Low	100%	-	-	-	100%
			High	100%	-	-	-	100%
$500,000	Yes	Target: ASFA Comfortable	Low	32%	-	64%	4%	100%
			High	100%	-	-	-	100%
$500,000	Yes	Optimisation	Low	56%	-	42%	2%	100%
			High	78%	-	12%	2%	100%
$800,000	Yes	Target: ASFA Comfortable	Low	76%	-	14%	10%	100%
			High	100%	-	-	-	100%
$800,000	Yes	Optimisation	Low	71%	-	20%	9%	100%
			High	95%	-	-	5%	100%

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[18] Butt, A., Khemka, G. and Warren, G.J., 2022. Heterogeneity in optimal investment and drawdown strategies in retirement. *Pacific-Basin Finance Journal*, 74, p.101798.

[19] Dynamic programming is applied in estimating both asset allocation and drawdowns.

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