Measuring retirement savings adequacy in Australia*

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Prepared for the Melbourne Money and Finance Conference, 2 July 2013

Abstract: We present two new metrics to assess the adequacy of retirement savings and estimate these metrics for a representative sample of the Australian population aged 40 to 64 using data from the HILDA survey. Our estimates support the widely held belief that most individuals are not 'on track' to achieve a comfortable standard of living in retirement, although couples appear better prepared than singles. We also estimate the relative expected contributions of the various 'pillars' of retirement income (compulsory superannuation contributions, voluntary superannuation contributions, the Age Pension and voluntary savings) and find that ignoring the last of these pillars is a significant omission. The metrics presented here may provide a better way to communicate adequacy to individuals, with the goal to improve saving.

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It is widely believed that most Australians do not currently have sufficient savings to fund their retirement (Hajkowicz, Cook and Littleboy, 2012; Institute of Actuaries of Australia, 2012). The Government expects that for the foreseeable future even those retirees who will have made significant contributions in superannuation throughout their working lives will rely substantially on the Age Pension (Australian Government, 2010).

It is an open question, however, how to best assess the adequacy of retirement savings during the pre-retirement years. How do we determine whether there is a shortfall in retirement savings and how large it is? What observable individual characteristics (current age, wealth, income etc.) are best able to explain likely consumption shortfalls? How is information on shortfalls best presented to individuals to make them aware of their impending retirement income outcome and induce them to increase their savings? This article is part of a larger project seeking to provide answers to such questions.

We use two measures to assess adequacy of retirement savings, the consumption shortfall and the age gap. The metrics are computed with an algorithm initially developed for the MoneySmart retirement calculator (ASIC, 2013) but extended to take into account additional information. We apply this algorithm to the specific circumstances of 5,124 individuals (single and in relationships) between age 40 and 64 using data from the HILDA survey, a representative sample of the Australian population (Wooden and Watson, 2007), and estimate the adequacy of retirement savings of each member in this sample based on our metrics. Alternative projections are produced taking into account different potential sources of retirement income.

Our analyses support the widely held belief that retirement savings in the Australian population are grossly inadequate and that most Australians will continue to be dependent on the Age Pension to fund consumption during retirement. Even when we take into account the Age Pension, mandatory and voluntary superannuation and other private savings and investments, we expect 95.8% of singles and 88.1% of couples to receive the Age Pension either partly or fully at some stage during retirement, and the Age Pension to contribute 66.7% and 34.9% of the target consumption level during retirement for singles and couples, respectively. This suggests that private savings, let alone superannuation alone, will be nowhere near sufficient to fund

consumption during retirement even of those Australians who will have made significant contributions to superannuation for most their working life.

The article is structured as follows. In section 1 we consider the question of how retirement savings targets, and potential shortfalls might be defined. The key characteristics of the MoneySmart retirement calculator and the way in which retirement savings target metrics used in this paper are calculated is explained in section 2. Section 3 provides a brief overview of the HILDA Survey, explains how the particular subsample of respondents was chosen and how problematic issues such as distinguishing between individual and household circumstances were addressed. Section 4 presents results which outline the extent of shortfalls in current wealth from a required retirement savings target path for both single and couples. Section 4 also examines the extent to which our two chosen metrics of retirement savings targets generate similar outcomes. Section 5 summarizes our findings and, since both metrics provide similar results for any individual, raises the question for future research of whether their behavioural impacts, and thus suitability in public policy campaigns may differ.

1. Retirement savings targets

Standard textbook expositions of life-cycle savings and consumption behaviour envisage rational individuals saving at a rate which generates sufficient wealth at retirement to enable a smooth consumption pattern over both working years and retirement. Reality is somewhat different. Individuals form (and dissolve) households with others, future income is unknown and uncertain, returns on accumulated wealth are uncertain, age of retirement is sometimes flexible and sometimes involuntary, time of death is unknown, and private wealth available for retirement may be supplemented by government benefits (Age Pension) in amounts determined by complex eligibility and means-testing rules. The ability of most individuals to adequately assess the rate of savings required at any stage of their life-cycle to achieve some target retirement savings amount is, at best, open to question (Skinner, 2007).

Moreover, persuasive evidence exists that individuals are subject to severe behavioural biases, which affect saving and investment decisions (Benartzi and Thaler, 2007; Benartzi, 2012). These biases include excessive discounting of far distant events (Thaler and Benartzi, 2004), use of mental accounts (Thaler, 1985), and de-

cisions being influenced by the way in which potential outcomes are "framed" (Tversky and Kahneman, 1985).

The introduction of compulsory, tax-advantaged, superannuation is one response to the perceived inadequacy of savings for retirement (and consequent future budgetary costs of Age Pension entitlements) arising from such factors. But with retirement savings targets that are generally assumed necessary for adequate retirement consumption levels still heavily dependent on voluntary savings, individuals still face the problem of understanding whether their pre-retirement savings behaviour puts them 'on track' to meet such a target. And while it is possible to develop techniques for answering that question, the effectiveness of such information in influencing savings behaviour is, given behavioural biases, likely to depend on how it is presented ("framed").

We return to the "framing" issue in the conclusion of this paper, and here consider how target retirement savings levels might be defined. There appear to be two main types of contenders. The first type defines target retirement wealth by reference to a desired "replacement ratio". The target is then that level of wealth which will enable an income stream[1] in retirement equal to some proportion of pre-retirement employment income. Typically an average replacement ratio in the region of 60-70 per cent is assumed (higher for lower income relative to higher income individuals), reflecting the fact that changed consumption needs, a shift from accumulation (savings) to decumulation mode, and different tax circumstances in retirement will reduce the income level needed to maintain a similar lifestyle level (Munnell et al., 2011).

The replacement ratio approach takes account of different income levels in the population and the likelihood of "habit formation" in consumption and lifestyle preferences, such that wealthier individuals are assumed to have higher retirement consumption ambitions than the less wealthy. We adopt an alternative approach by developing metrics based on achieving a specified level of retirement consumption independent of pre-retirement income levels. This is both simpler and arguably provides for a more tangible estimate of target level of retirement wealth required for individuals unsure of their likely final pre-retirement income. Specifically, a target level of retire-

[1] Strictly, the terminology should refer to a cash flow, because some part of the post retirement funds received and used for consumption is a running down of the capital amount available.

ment “income” is specified for an assumed post-retirement life expectancy and the required retirement savings target to achieve this income level is calculated. In practice, the linking of Age Pension support to private wealth means that there is no unique resulting retirement savings target. There is some range of private retirement savings consistent with achieving the target retirement income, with lower levels implying larger Age Pension support. But there is some lower bound to this range below which there will be a retirement savings gap such that the target income cannot be achieved for the full period of retirement.

Target retirement income levels used in this article are the ’comfortable’ targets provided under the ASFA Retirement Standard for singles and couples (Association of Superannuation Funds of Australia, 2012). The ‘comfortable’ target income levels are $38,339 and $52,472 for singles and couples, respectively.[2] In comparison, in 2010 mean household income of retirees in Australia was at $32,031 for singles (median $21,000) and $54,330 for couples (median $41,136).[3]

We use current wealth and forecast accumulation from savings and returns on wealth to compute an expected retirement savings amount. Where this amount is above a lower bound, the target income can be met with varying levels of dependence upon the Age Pension (including none) during the retirement phase as private wealth is run down.

Where retirement savings are below a lower bound, the shortfall can be presented using (at least) two metrics. One is to calculate the difference between the level of consumption that can be sustained until life expectancy and the target level of consumption. We call this the ‘consumption shortfall’. The alternative metric is to calculate the number of years at which the target level of consumption can be maintained before private wealth is exhausted, at which point consumption must be reduced to the level of the (full) Age Pension until predicted age of death. The shortfall can then be presented as the predicted number of years in that latter state. We call this the ‘age gap’.

[2] We use the ASFA levels from December 2012, deflated to 2010 dollars. In this article, all dollar figures are expressed in 2010 AUD, unless stated otherwise.

[3] These figures were computed using 2010 HILDA data.

While these two metrics are calculated using the same assumptions, they may give somewhat different results because of the different post-retirement consumption patterns (and mortality) assumed. Hence, a second objective of this article in addition to quantifying the extent of shortfalls is to consider the correlation between the signals provided by the two metrics and identify causes of difference.[4] A third objective is to assess the relative importance of the 'four pillars' of retirement savings (compulsory super, voluntary super contributions, the Age Pension, and other voluntary savings) in determining financial well-being in retirement.[5] A fourth is to assess whether available indicators of current household financial position provide good indicators of likely retirement outcomes.

2. Forecasting retirement target shortfalls

The expected level of private savings available at retirement for individuals of various pre-retirement ages is calculated using extensions to a proprietary algorithm developed by Towers Watson for the MoneySmart calculator which is made available for public use by ASIC.[6] Various amendments to the algorithm have been made for the purpose of this study to incorporate additional information on individual circumstances that is available in the HILDA Survey.

The process of calculating retirement target consumption shortfalls proceeds as follows. Data inputs used are current real and financial assets (and liabilities), wage and salary income (w), age, and household details such as marital status and home ownership. In the accumulation phase until the assumed retirement age (65), specific forecasting assumptions are made about rates of return on assets (r = 6.4% p.a. net of investment tax and asset-based fees prior to retirement; 6.5 % p.a. net of asset-based fees after retirement), price inflation (i = 2.5% p.a.), real income (wage and

[4] An objective for future research is to consider which metric may provide more effective signals to individuals in the pre-retirement phase about inadequacies in their current savings plans if target retirement incomes are to be met.

[5] Our ordering of the four "pillars" for our projections is different to that used in public policy discussions, where the age pension is normally seen as the first pillar. We adopt a different ordering in order to accommodate means testing of pensions in our projections.

[6] The MoneySmart calculator enables individuals to input personal financial details and obtain output on likely shortfalls in retirement consumption in the form discussed above. The calculator is available at www.moneysmart.gov.au.

salary) growth (f = 1% p.a.)[7], compulsory superannuation contributions (sg)[8] and voluntary savings rates (s) based on current levels in the HILDA survey data, allowing for contributions tax (t) and administration/insurance costs (c) where applicable.

The forecasting model is non-stochastic, and retirement savings (K) evolve prior to retirement according to a process of the generalised form[9]:

$$K_{t+1} = K_t (1 + r) + ((sg + s) w_t (1 - t) - c) (1 + r / 2)$$

where $w_{t+1} = (1 + i) (1 + f) w_t$.

Once the specified retirement age is reached (assumed to be 65), Age Pension eligibility is calculated in that, and in each subsequent, year in line with both income and assets means tests requirements. The resulting part or full pension income is assumed available for consumption in addition to the assumed use of private wealth. Since the assets test treats home ownership differently to other assets, this is taken into account and current status as a renter or homeowner is assumed to be maintained until retirement. It is also assumed that home ownership is maintained until death and bequeathed to descendants.

The assumed consumption pattern is maintained in real terms to ensure the purchasing power of the retirement income over time is not eroded. The retirement income is assumed to increase in line with nominal wage growth (i.e. $(1+i)(1+f)$).

The two metrics produced to indicate current shortfall from a wealth accumulation path which would reach the target retirement savings target make different assumptions about the post retirement phase consumption. The consumption shortfall metric calculates the difference between the level of consumption that can be achieved and the target level of consumption maintained until death. This metric is expressed in a 2010 dollar value to ensure consistency between individuals retiring at different

[7] This is also relevant for calculating pension amounts given the linking of the full pension to 25% of average weekly earnings.

[8] The contribution rate is 9% of wage and salary income increasing in future years in line with current government legislation to eventually increase it to 12%.

[9] Annual steps are used, with additions to wealth (or subtractions in the retirement phase) occurring mid-year, apart from Government co-contributions where the end of the year is adopted.

points in time and comparability against retirement income targets based on current costs of living.

The 'age gap' metric assumes that individuals immediately commence consuming at the target rate upon retirement (if accumulated wealth permits), drawing down private wealth and using whatever Age Pension income is available to them. They continue to do so until private wealth is exhausted and they are forced to revert to a lower level of consumption equal to the full Age Pension amount. The difference between the age at which that occurs and death (assumed to be life expectancy in this case) is the age gap metric.[10]

Because this involves a different run down of private wealth compared to the saving shortfall metric, and thus has different implications for Age Pension income receipts over the retirement phase, these two measures will not be perfectly correlated. In Section 4 we present estimates of the two shortfall metrics as well as correlations between them for the HILDA sample of individuals.

The various assumptions built into the forecasting model can be varied to test the sensitivity of the conclusions to the various input parameters.[11]

3. The HILDA Survey

The input data comes from the HILDA Survey, a household panel study that commenced in 2001 with a nationally representative sample of 13,969 respondents in 7,682 households. The survey is conducted annually by face-to-face interview with every household member aged 15 years and over, supplemented by a self-completion questionnaire, also administered to all household members aged 15 years and over (Wooden and Watson, 2007; Summerfield et al., 2012).

The survey has a longitudinal design. To maintain cross-sectional representativeness of the Australian population over time, people who join households in which original sample members reside are added to the sample (most importantly children

[10] For couples, the age gap is calculated twice, first using the life expectancy of one member, then the other.

[11] Determining the sensitivity of the shortfall metrics to the various assumptions, including policy parameters, is the subject of ongoing work.

of original sample members). A weakness in the sample generation process is that immigrants who arrive in Australia after the initial sample was selected have relatively little chance of being included in the sample.[12] The unit record data are, however, supplied with sample weights to enable population inferences to be made from the HILDA sample. All analyses presented in this paper employ the cross-sectional population weights.

Information is collected on a wide range of topics, including labour market and education activity, retirement intentions and behaviour, income, expenditure, health and disability, subjective wellbeing and personal relationships. Importantly for this study, the HILDA Survey also collects detailed information on household assets and debts every four years (2002, 2006 and 2010). For each household, information was collected on 11 asset components and 7 debt components, which can be combined to produce estimates of household net worth, as well as estimates of the values of wealth components, such as the home, other property, superannuation, equity investments, businesses and bank accounts.

This article draws on the data collected in 2010 (Wave 10), which contains information on 14,255 individuals over the age of 15 residing in 7,317 households. However, we only report results for the 5,124 individuals between age 40 and 64, residing in 3,519 households. Full details on household wealth and derived variables used, and all other input data from the HILDA Survey used to produce retirement income projections as well as summary statistics of key variables, are presented in Appendix 1.

4. Results

In this section we report results from our estimations described in section 2 to provide an overview of the extent of shortfalls in retirement savings target tracking in the Australian population. In all of our analyses, we produce four alternative projections of the consumption level in retirement, with each successive projection taking into account additional potential sources of retirement funds. The first projection considers only mandatory superannuation. In the second projection we add voluntary su-

[12] This weakness was at least partially rectified in Wave 11 when the sample was augmented by an additional 4,009 respondents in 2,153 households.

perannuation contributions, while the third projection additionally takes into account the Age Pension. Finally, we add other investment assets to the pool of assets in the fourth projection. This information is typically not included in estimates of retirement savings due to unavailability of data. The HILDA Survey, however, measures in detail different types of assets and debt of households and hence we are able to consider these assets (see Table 1 in the Appendix for a list of the wealth components included in our analysis). This last projection provides our primary results, while differences between the outcomes of the alternative projections provide information on the relative contributions of the various pillars.

As described above, we only report results for members of the HILDA sample between age 40 and 64. While in principle it is possible to project retirement savings for individuals younger than 40 years of age, in practice these projections are likely to be much less reliable because of greater uncertainty about future earnings, household composition, home-ownership status and wealth accumulation. All results presented below (for percentiles, medians and means etc.) were computed using population weights to make them representative of the Australian.

Consumption shortfall results

We first examine consumption shortfalls, the difference between the level of consumption that can be sustained until life expectancy and the target level of consumption (cf. Section 2 for a definition and details of computation).

Including investment assets as well as compulsory and voluntary super and the Age Pension in the pool of assets available to fund consumption during retirement (projection 4) we estimate a median shortfall of $12,167[13] for singles (31.7% of the comfortable level) and $702 (1.3%) for couples. 78.9% of singles and 48.6% of couples will have retirement consumption levels below the target consumption levels, and 95.8% and 88.1%, respectively, are expected to receive the Age Pension either partly or fully at some stage during retirement. Even in this projection, taking into account a wide array of sources of private retirement income which include superannuation and other investment assets, the Age Pension is expected to fund 66.7% of singles' and 34.9% of couples' consumption during retirement.

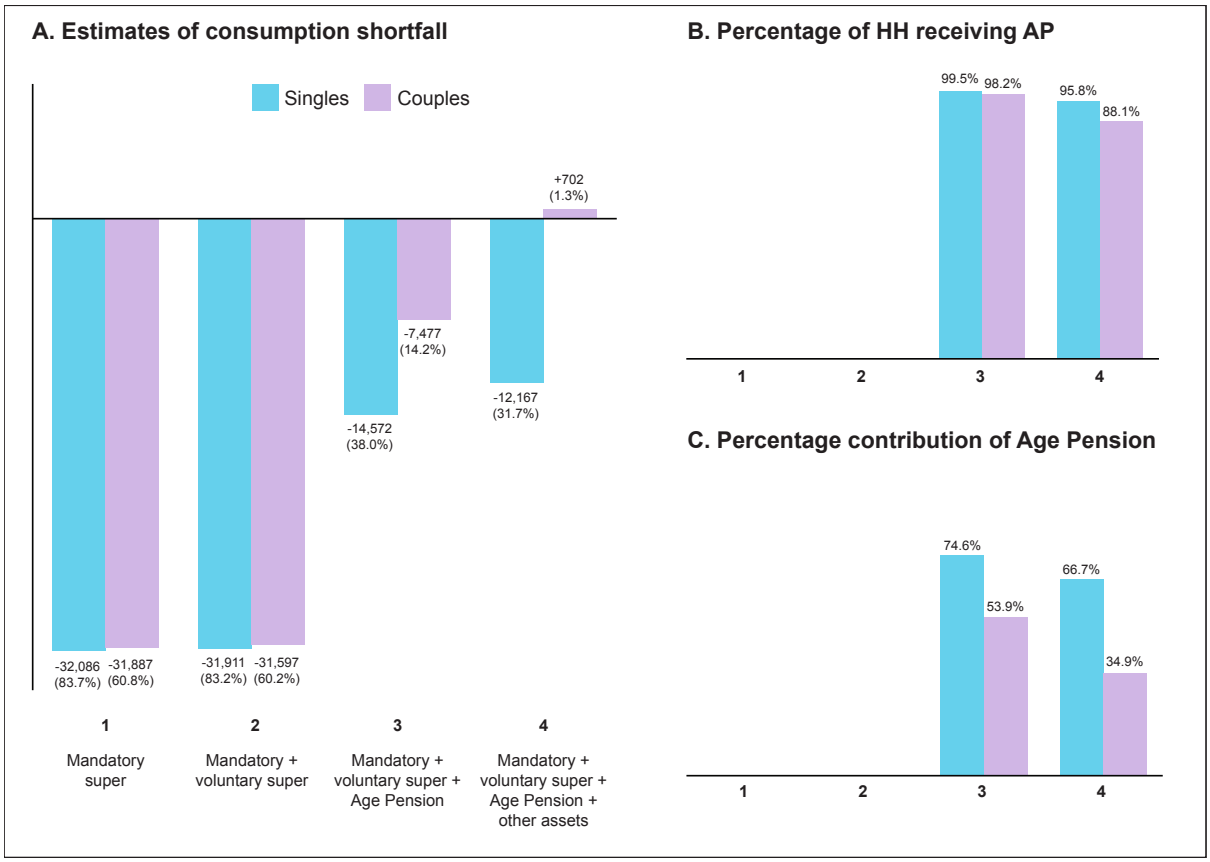
[13] All statistics reported in this section are sample median unless stated otherwise.

To examine the relative contributions of the various ‘pillars’ of retirement savings we compare the four projections (see Figure 1). The median consumption shortfall in the first projection, which only takes into account mandatory superannuation, is $32,086 for singles and $31,887 for couples, or 83.7% and 60.8% of the target income level, respectively. Adding voluntary superannuation contributions improves the shortfalls immaterially to $31,911 and $31,597, or 83.2% and 60.2% of the target income level. In the projection that takes into account mandatory and voluntary superannuation, only 5.1% of singles and 15.1% of couples would be able to reach target consumption levels.

Introducing the Age Pension (projection 3) reduces the consumption shortfall significantly, to $14,572 (38.0% of target income) for singles and $7,477 (14.2% of target income) for couples. In this projection, 89.2% of singles and 68.4% fall short of the target retirement income level, and 99.5% of singles and 98.2% of couples are expected to receive the Age Pension either partly or fully at some time during their retirement. Comparing this to projection 4 results presented above, it is apparent that including assets outside of superannuation has a significant effect on our estimates of consumption shortfalls, particularly for couples.

Figure 1. Saving shortfall. (A) Estimates of the consumption shortfall by projection basis and marital status. The metric is computed as the difference between the level of consumption that can be sustained until life expectancy and the target level of consumption. In figure below, the target level of consumption is the ASFA ‘comfortable’ level deflated to 2010 AUD ($38,339 for singles and $52,472 for couples). (B) Percentage of households in the sample expected to receive the Age Pension during retirement by projection. (C) Estimated percentage contribution of the Age Pension to household consumption during retirement, by projection. Additional statistics are

available in Table 2 in the Appendix.

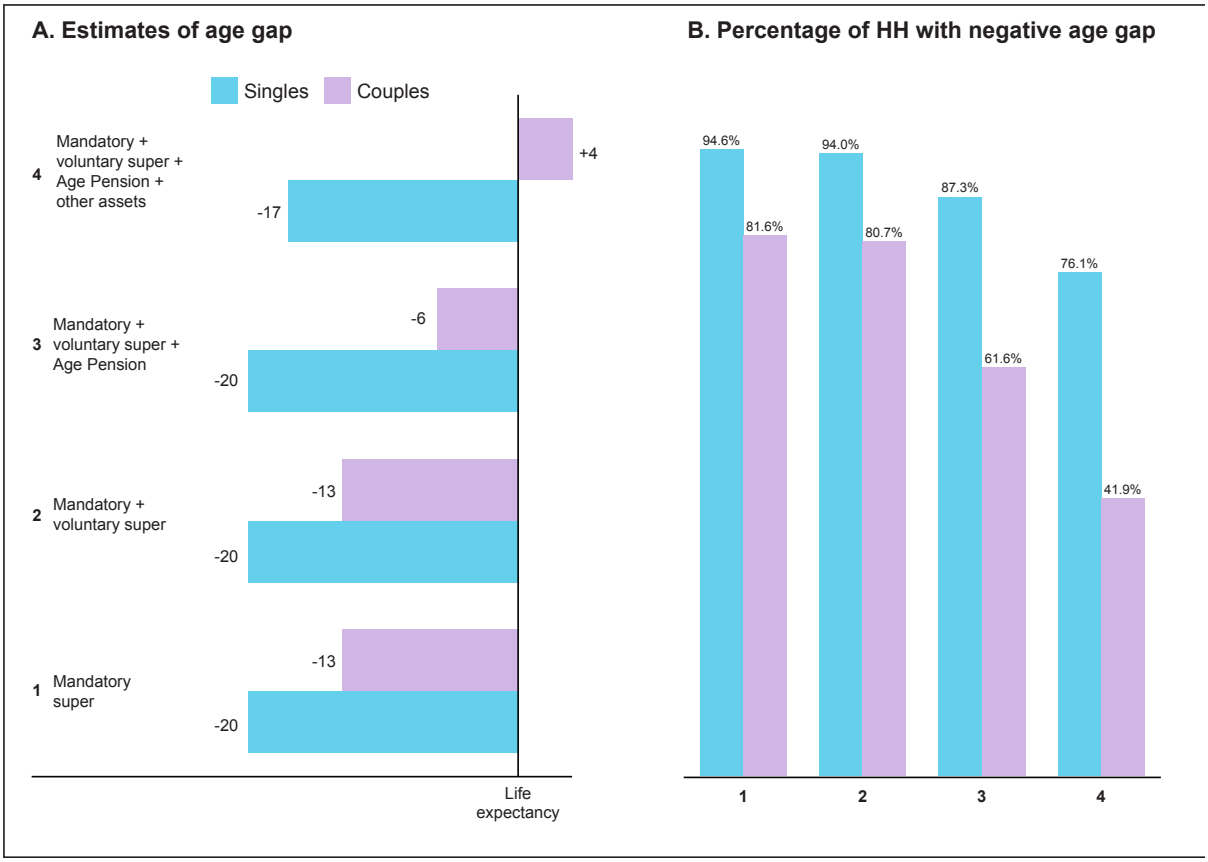


Age gap results

We now turn to our other metric of the adequacy of retirement savings, the 'age gap' (see section 2 for details). The median age gap in the first two projections is -20 years for singles and -13 years for couples. This means that if we only take into account superannuation, half of singles in our sample are expected to run out of savings 20 years or more before they are expected to die, and 13 years or more in case of couples, assuming that they consume at the target consumption level from the beginning of retirement. In fact, in our second projection (mandatory and voluntary superannuation), 94.0% of singles and 80.7% of couples are expected to run out of savings before life expectancy.

When taking into account the Age Pension, the age gap changes to -20 years for singles and -6 years for couples. And when we add investment assets, the gap improves to -17 years for singles and +4 years for couples. In the last projection, 76.1% of singles and 41.9% of couples run out of savings before life expectancy.

Figure 2. Age gap. (A) Age gap metric by projection basis and marital status. The metric assumes that individuals immediately commence consuming at the target rate upon retirement (if accumulated wealth permits), drawing down private wealth and using whatever Age Pension income is available to them. They continue to do so until private wealth is exhausted and they are forced to revert to a lower level of consumption equal to the full Age Pension amount. The age gap is the difference between the age at which that occurs and life expectancy. (B) Proportion of households in the sample expected to have a negative age gap for each projection basis. Additional statistics are available in Table 3 in the Appendix.



Comparisons and correlations

Finally, we consider the relation between our two metrics across the alternative projections as well as the relation between our metrics and key financial figures, using the Spearman rank correlation.[14] All correlations reported are significant at the $p<0.001$ level.

[14] The Spearman Rank correlation is a nonparametric measure of association. A value of close to 1 implies that the ranks of two variables are similar (technically, that one variable can be described by a

We first look at correlations of the same adequacy metric between the four projections considered above. The correlation between the consumption shortfall in the first projection and projections two, three and four is 0.998, 0.953 and 0.711, respectively. The correlation between the age gap metric in the first projection and projections two, three and four is 0.998, 0.984 and 0.7727, respectively. Adding private savings to available retirement wealth affects not just the predicted aggregate outcomes, but also 'reshuffles the pack' somewhat – ignoring this variable leads to different predictions about who will face shortfalls.

To compare the ordering of sample members across the two metrics, we consider the correlation between the income shortfall metric in projection four and the age gap metric in this projection, which is 0.971. Both metrics thus provide very similar predictions, suggesting that the choice between them for provision of information to individuals about retirement savings adequacy is likely to depend on behavioural considerations.[15]

We also consider the correlation between the adequacy metrics and three key household financial variables, current household disposable income, current household superannuation balance and current household net worth. The correlation between the consumption shortfall in projection four and these three financial variables is 0.582, 0.706 and 0.750, respectively.[16] The correlation between the age gap metric in projection four and the three financial variables is 0.598, 0.716 and 0.767, respectively.

5. Discussion

In this paper we have used data on a representative sample of the Australian population to examine extent and causes of shortfalls in target retirement savings tracking. We propose two new metrics to measure the adequacy of retirement savings, the consumption shortfall and the age gap. We estimate these metrics for a repre-

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monotonic function of the other variable), whereas a value close to 0 indicates that there is no relation between the two variables.

[15] It is important to note, however, that the behaviour assumed in the estimations of the age gap does not maximise Age Pension receipts.

[16] Higher values of each financial wealth variable reduce the size of the gap (i.e. make it a less negative number) – hence giving rise to positive correlations.

sentative sample of the Australian population aged 40 to 64 using data from the HILDA survey, producing alternative projections which successively build in each of the four pillars of the Australian retirement income system.

Our analyses support the widely held belief that retirement savings in the pre-retirement Australian population are grossly inadequate and that Australians will continue to be heavily dependent on the Age Pension to fund consumption during retirement.[17] Looking at consumption shortfall, we find that even among those Australians who will have contributed significantly to superannuation for at least half their working life, superannuation is nowhere near sufficient to fund an adequate level of consumption during retirement. The picture changes only slightly when taking into account non-superannuation private savings. Even in the projection that takes into account superannuation and other private savings, about 9 out of 10 Australians are expected to receive the Age Pension either partly or fully at some stage during retirement, and the Age Pension will contribute about 42% of the target consumption level during retirement on average. But including private savings does 'reshuffle' the pack somewhat in terms of predicting which individuals will face shortfalls. This variable is thus an important addition to information requirements for such predictions (and one which most other analyses, including those of super funds drawing only on their available member data have been unable to include).

Another way to look at the adequacy of retirement savings is the age gap. We find that in our most comprehensive projection, about half of the population are expected to run out of savings before reaching their life expectancy. Our two metrics give very similar predictions about retirement outcomes for any individual (relative to the population generally).

We also find that financial variables such as current household income, superannuation balance or net worth are not necessarily good 'proxies' of or substitutes for the adequacy of retirement savings, and more comprehensive metrics such as the ones we propose in this article should be considered. In other words, the position of sample members in the distribution of current household income, superannuation bal-

[17] Our assumption of retirement age 65 means that the results reported are optimistic given that average retirement age in Australia at present is significantly below 65, while the increase in pension eligibility age to 67 and consequent effect on retirement age would tend to work in the opposite direction.

ance or net worth is not necessarily an adequate reflection of their position in the distribution of retirement adequacy.

To the extent that individuals are unaware of the extent of likely shortfalls and the consequences for retirement wellbeing, the question arises of which of the metrics proposed here (or potentially others) are most likely to have impact, and influence subsequent savings behaviour. This is an empirical question and warrants further investigation. Also relevant in that regard is the information, which can be provided to individuals regarding the effect that a change in pre-retirement savings behaviour will have on the size of their shortfall. Whether information of the form “increasing savings by $x per month will reduce the shortfall in target retirement consumption by $y (or z%)” or “increasing savings by $x per month will reduce the number of years where retirement consumption is reduced and is solely dependent on the age pension by y years” has more impact also warrants further investigation. Information provision of this sort is potentially one important addition to other measures to promote retirement savings such as pension age eligibility, promoting appropriate investment strategies and taxes.

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Appendix

Table 1. Summary statistics of key input variables. This table displays summary statistics of key input variables used in the estimation of the adequacy metrics.

Variable	Statistic		
	Median	Mean	SD
Sex (0: male; 1: female)	1.00	0.53	0.50
Age	51.0	51.1	7.0
Married (0: not married; 1: married/de facto)	1.00	0.77	0.42
Unemployed (0: not unemployed; 1: unemployed)	0.00	0.02	0.15
Retired (0: not retired; 1: retired)	0.00	0.12	0.33
Household disposable income	83,151	92,879	65,495
Gross annual wage/salary	36,000	45,093	53,226
Receives Age Pension (0: no; 1: yes)	0.00	0.17	0.38
Age Pension share of HH income	0.00	0.08	0.23
Employer super contributions (%)	9.00	9.67	3.94
Voluntary super contributions	5.34	10.25	18.38
Household super balance	120,000	229,073	347,653
Household investment assets[1]	51,210	332,497	777,384
Household non-investment assets[2]	25,000	39,362	61,978
Household home value	420,000	484,506	475,922
Household net worth	620,084	951,730	1,219,696

[1] Household investment assets: Bank accounts + cash investments + equity investments + assets in trusts + life insurance + equity of property investments (excl. primary residence) + business equity – investment loans

[2] Household non-investment assets: Collectibles + vehicles

Table 2. Consumption shortfall. This table displays summary statistics of the consumption shortfall metric. The metric is computed as the difference between the level of consumption that can be sustained until life expectancy and the target level of consumption. In table below, the target level of consumption is the ASFA 'comfortable' level deflated to 2010 AUD ($38,339 for singles and $52,472 for couples).

	Savings shortfall				
Scenario	**p25**	**Median**	**p75**	**Mean**	**SD**
Singles					
Super only[1]	-37,595	-32,086	-24,291	-27,871	14,273
Super only[2]	-37,595	-31,911	-23,800	-27,510	14,739
Super[2] + Age Pension	-19,596	-14,572	-7,786	-11,644	11,557
Super[2] + Age Pension + Other assets	-18,481	-12,167	-2,305	-4,679	28,613
Couples					
Super only[1]	-44,150	-31,887	-15,191	-25,232	28,228
Super only[2]	-44,020	-31,597	-14,195	-24,597	28,703
Super[2] + Age Pension	-18,120	-7,477	3,666	-4,075	22,706
Super[2] + Age Pension + Other assets	-11,699	702	23,942	21,963	76,929

[1] Mandatory contributions only

[2] Mandatory + voluntary contributions

Table 3. Age gap. This table displays summary statistics of the age gap metric. The metric assumes that individuals immediately commence consuming at the target rate upon retirement (if accumulated wealth permits), drawing down private wealth and using whatever Age Pension income is available to them. They continue to do so until private wealth is exhausted and they are forced to revert to a lower level of consumption equal to the full Age Pension amount. The difference between the age at which that occurs and life expectancy is the 'age gap'.

	Age gap				
Scenario	**p25**	**Median**	**p75**	**Mean**	**SD**
Singles					
Super only[1]	-23	-20	-16	-17	8
Super only[2]	-23	-20	-15	-17	9
Super[2] + Age Pension	-23	-20	-12	-15	11
Super[2] + Age Pension + Other assets	-22	-17	-1	-10	15
Couples					
Super only[1]	-19	-13	-5	-10	11
Super only[2]	-19	-13	-4	-10	12
Super[2] + Age Pension	-17	-6	8	-4	15
Super[2] + Age Pension + Other assets	-11	4	19	4	16

[1] Mandatory contributions only

[2] Mandatory + voluntary contributions