

SUPERANNUATION

drawdown behaviour

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This paper provides a longitudinal study of withdrawals from account-based pensions from superannuation savings to provide a better understanding of drawdown patterns in retirement. Our analysis of the data indicates that most retirees in their 60s and 70s draw down on their account-based pensions at modest rates, close to the minimum amounts each year. Indeed, if these drawdown rates were to continue, most retirees would die with substantial amounts unspent. These findings are consistent with empirical evidence to date that suggests retirees are inclined to draw down their wealth relatively slowly.

The Australian superannuation system as we know it commenced in 1992 with the introduction of the Superannuation Guarantee, which requires all employers to contribute a proportion (initially 3 per cent, rising to 9 per cent by 2002 and 9.5 per cent today) of an employee's earnings into a superannuation fund. It is therefore only in recent years that large numbers of people have begun entering retirement with significant superannuation balances.

On retirement, people have the option to withdraw some or all their superannuation balance (as a 'lump sum'), set up an account-based pension (providing a flexible income stream) or invest in longevity management products such as annuities (offering a fixed income stream, often for life).

With no upper limits to the amounts retirees can withdraw from their funds, concerns have been raised about the potential for retirees to overspend (Productivity Commission 2015), particularly as those who have exhausted their superannuation savings would generally become eligible for the government age pension. Because this potential incentive for rapid consumption on retirement would have significant implications for public spending there is considerable interest in better understanding drawdown patterns in retirement.

The empirical evidence to date suggests that retirees are inclined to draw down their wealth relatively slowly. Wu et al. (2014) examined Centrelink data covering a sample of aged pensioners between 1999 and 2007, finding evidence that many retirees engage in precautionary saving, holding or even building a buffer of wealth (in addition to the family home) in the order of \$50,000 per person. Rather than drawing down their assets, many were living off the income generated from their investments, along with the age pension, often spending less than the Association of Superannuation Funds of Australia (ASFA) standards for even a modest lifestyle. It is unclear to what extent this behaviour is motivated by precautionary or bequest motives, or some combination of both.

The cohort examined by Wu et al. (2014) had very limited superannuation, as the sample began in 1999 when few retirees had significant balances (less than 10 per cent of the sample had money in superannuation). People who retire with small balances (less than \$80,000) are likely to withdraw all of their superannuation as a lump sum (Productivity Commission 2015). This is to be expected as money kept in superannuation will be subject to ongoing fees, and the tax benefits are of little relevance to those on low incomes. The median value of lump sums at retirement is \$20,000 (using data from 2012–13), which is mostly used to fund housing (including paying down mortgages and renovations) or invested elsewhere, with only a minority using it primarily for consumption (Productivity Commission 2015).

Retirees with larger balances typically take only a small proportion in the form of a lump sum at retirement; the majority then choose to take an account-based pension rather than an annuity (Productivity Commission 2015). Relatively few people buy annuities (O'Meara et al. 2015), which is in line with experience elsewhere (e.g. Benartzi et al. 2011). This lack of interest in annuities is puzzling, as they appear to offer a more efficient way for self-funded retirees to manage longevity risk (Ralston and Maddock 2015).

Retirees with account-based pensions are subject to minimum drawdown rates, which increase with age (see Table 1 below), but are free to withdraw more. The minimum drawdown rates were intended to provide a relatively stable retirement income with low risk of running out of money (Australian Government Actuary 2014), however, this strategy is costly for individuals. The Australian Government Actuary reported in 2014 that on average, a person retiring at age 65 and following the minimum drawdown rates will leave 31 per cent of their account-based pension unspent. To date, there has been little analysis of the actual rates at which retirees choose to draw down their account-based pensions from superannuation savings.

TABLE 1: Minimum drawdown rates by age for account-based pensions

Age	<65	65-74	75-79	80-84	85-89	90-94	95+
Minimum drawdown	4%	5%	6%	7%	9%	11%	14%

Note: These rates were reduced by 50% in 2008/09, 09/10 and 10/11 tax years, and by 25% in 2011/12 and 2012/13.

This study aims to address that gap using data accessed from the Australian Taxation Office (ATO), which is described in more detail in Zhu et al. (2015), supplemented by industry data. The ATO data covers members of superannuation funds regulated by the Australian Prudential Regulation Authority (APRA), which includes all retail and industry super funds, as well as people with self-managed superannuation funds (SMSFs). APRA funds comprise around 29 million member accounts (many people have more than one account), with \$1.25 trillion of savings (APRA 2016). There are now over 550,000 SMSFs, with just over one million members holding around \$590 billion of savings, accounting for 29 per cent of total superannuation assets (ATO 2015).

Data and methodology

The ATO dataset (Zhu et al. 2015) provided a random sample of 150,000 individuals consisting of: 50,000 individuals with only an APRA-regulated superannuation fund balance in 2004; 50,000 with only an SMSF balance in 2004; and a further 50,000 who had both APRA and SMSF balances. The data covers 11 tax years, for the years ending June 2004 to June 2014, and includes year of birth, superannuation balance at the end of each tax year, total contributions (both personal and employer) in each tax year, and the total amount of benefit payments received (if any) in each tax year (available only for SMSF accounts).

The APRA fund data was drawn from annual member contributions statement forms submitted to the ATO by superannuation funds and subsequently linked to individuals (including all of their superannuation regardless of the number of accounts held). Each SMSF is required by law to submit a tax return annually, including account information for each member of the fund. The SMSF data used for our analysis were at the level of the individual, not the fund, drawn from SMSF annual return forms.

Due to ATO privacy restrictions, balances were rounded to the nearest \$1,000, which affected the accuracy of some of the data, such as returns and withdrawal rate calculations (particularly for APRA funds with generally much smaller balances). The process of extracting the data and a range of further descriptive statistics are provided by Zhu et al. (2015); the current paper focuses only on drawdown behaviour. The data did not provide any information regarding transition to retirement arrangements (where retirement age individuals could work part-time while contributing to and withdrawing from retirement savings simultaneously), so this behaviour has not been investigated within this paper.

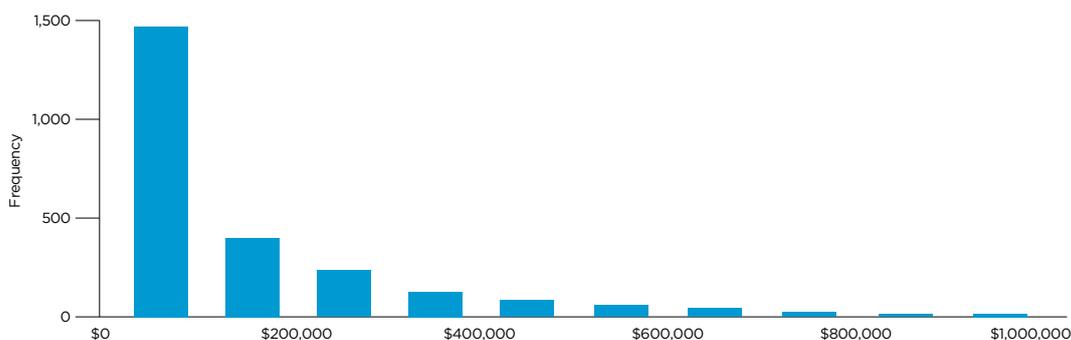
Because of limitations in the ATO data with respect to the drawdown from APRA funds, a second dataset was also included in the study. This second set of data covers approximately 2,600 retirees with account-based pensions at a large APRA-regulated superannuation fund, across five financial years to June 2015. Further information on this smaller dataset is available from the authors upon request.

Results

Balance at retirement

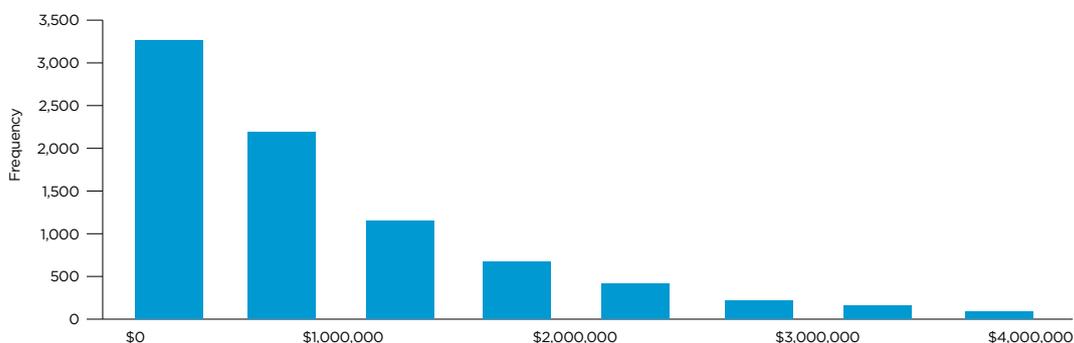
The ATO dataset does not directly indicate retirement age. For our analysis it was inferred as the age at which an individual ceased making contributions to superannuation. The overwhelming majority of individuals with just APRA superannuation had less than \$100,000 at retirement, while a small number had much larger balances. Figure 1 shows the frequency distribution at various account balances on retirement. The median value for data shown in Figure 1 was \$67,000. For those who also had an SMSF, they tended to have less in their APRA fund than those who only had an APRA fund; the median retirement balance was \$35,000 for this cohort.

FIGURE 1: Frequency distribution of balance at inferred retirement age for individuals with an APRA superannuation fund account only



Individuals retiring with an SMSF had much larger balances. For example, Figure 2 (note the different scale on these charts) shows the frequency distribution for different superannuation balances at retirement. For those with just an SMSF, the median individual balance at retirement was \$670,000, while those who also had an APRA fund had a median of \$503,000 in their SMSF.

FIGURE 2: Frequency distribution of balance at inferred retirement age for individuals with SMSF only

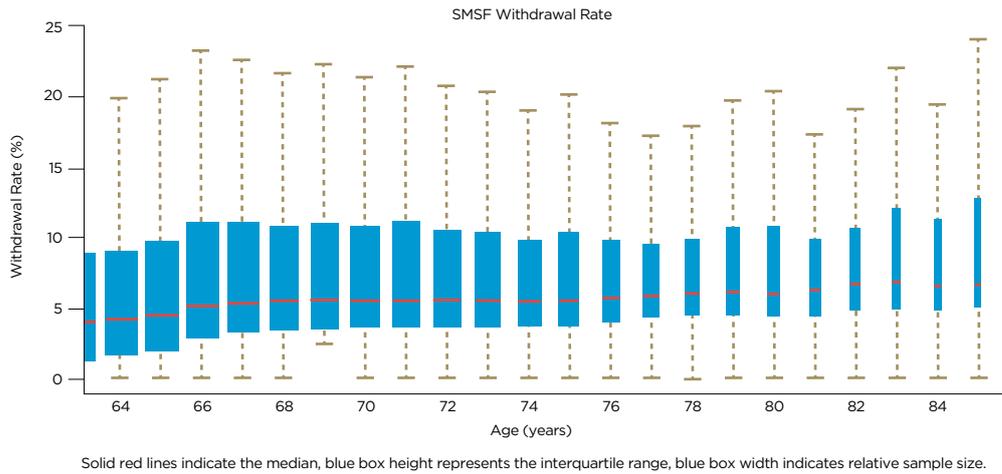


Balance change in retirement

The ATO dataset includes withdrawal rates for SMSFs, but not for APRA accounts.

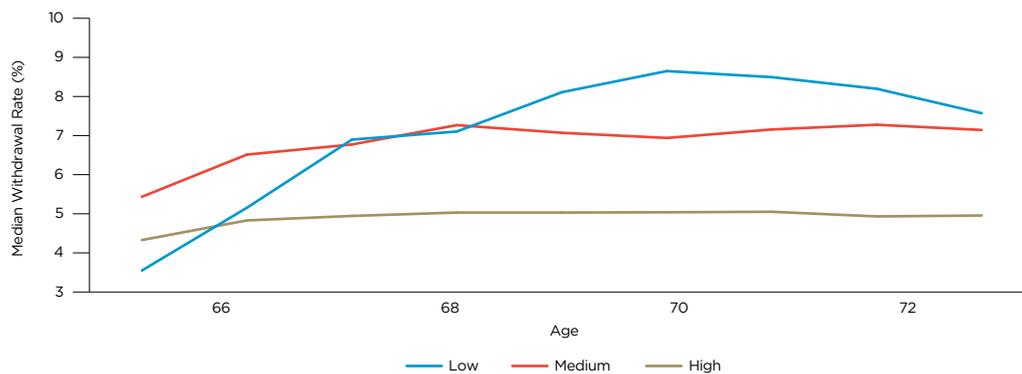
Figure 3 shows withdrawal rates by age (the thicker line represents the median, while the upper and lower boundaries of each box represent the 75th and 25th percentiles, respectively, and the upper and lower ends of the whiskers for each box represent the 95th and 5th percentiles, respectively). The median withdrawal rate was 5 to 6 per cent for retirees aged up to 75, and around 6 per cent after that. Note the data were rounded to the nearest \$1,000, which introduces some noise into the calculation of withdrawal rates. In five years of the 11-year period, minimum withdrawal rates were reduced (see Table 1), so the lower quartile tracked below the standard minimum withdrawal rates. While most retirees withdrew less than 6 per cent annually, there was considerable variation, and some withdrew much larger proportions of their retirement balances; the upper quartile of withdrawals was 10 to 12 per cent.

FIGURE 3: Withdrawal rate, as a proportion of balance, for SMSF accounts by age



For more detailed analysis, the withdrawal rates were separated into three groups according to retirement account balance level, as shown in Figure 4. As shown clearly in the figure, interestingly, those with the highest initial balances (representing the top third of the sample) showed the lowest withdrawal rates.

FIGURE 4: Withdrawal rates for SMSF retirees classified into three groups based on retirement balance level



Note: Rounding introduces greater errors for the low-balance group.

To gain further insight as to withdrawal behaviour, Figures 3 and 4 were emulated but focusing upon absolute dollar withdrawal figures rather than rates. Figure 5 provides the distribution of withdrawals at each age throughout the dataset period. The median, upper quantile and lower quantile of the withdrawal dollar amount stay fairly constant from ages 65 to 80, suggesting that retirees may be selecting a withdrawal dollar figure at retirement and maintaining this level of withdrawal throughout retirement without change. However, the falling level of the top whisker suggests some retirees may be withdrawing larger amounts or a set percentage of their funds and reducing withdrawals with age. Of additional interest are the levels of the median withdrawal dollar amounts, which approximately equal the current ASFA ‘comfortable’ retirement standard dollar figure of \$42,893, and the lower quantiles of the withdrawal dollar amount distributions for each year, which generally equate to the current ASFA ‘modest’ retirement standard dollar figure of \$23,651.

FIGURE 5: Withdrawal absolute amount distribution, for SMSF accounts by age

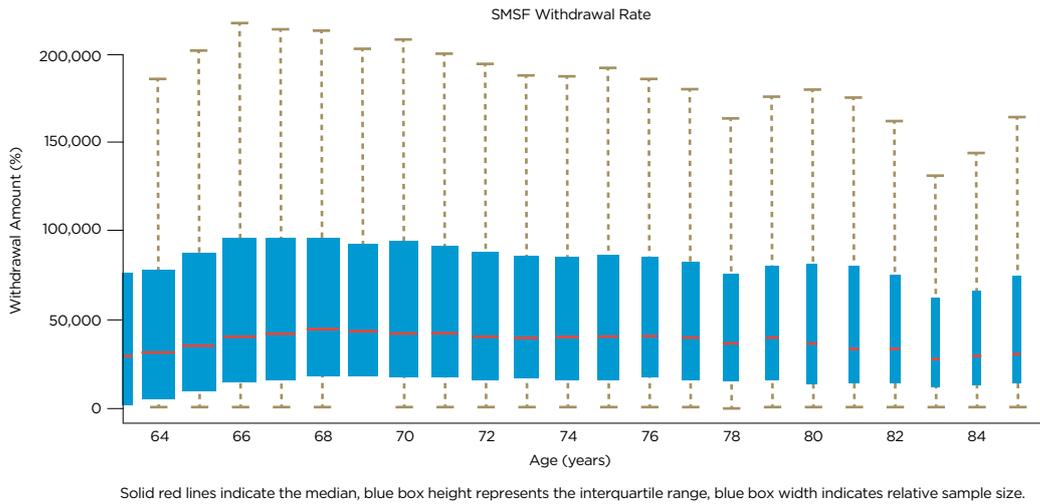
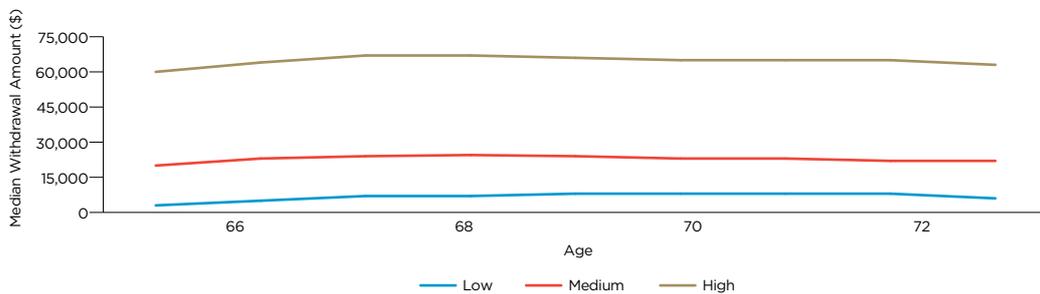


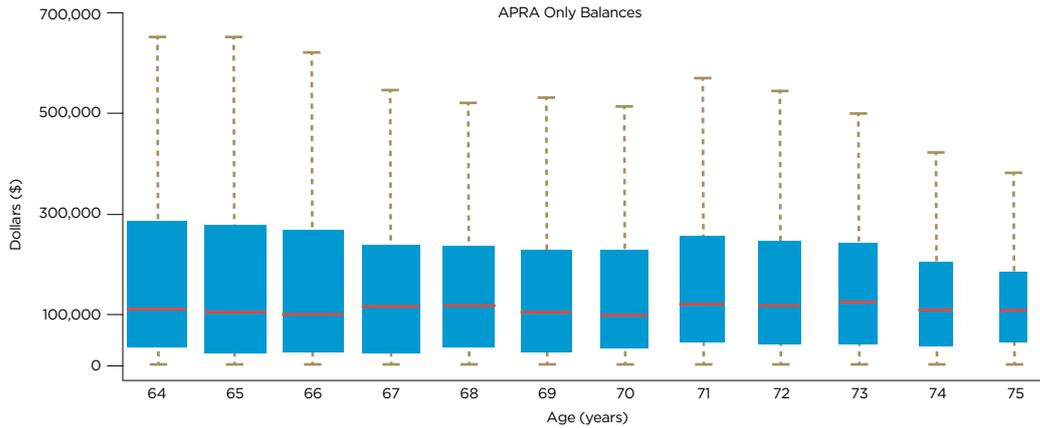
Figure 6 provides the median withdrawal dollar amount at each age for the three levels of retirement account balance as in Figure 4. Notably, a similar pattern of withdrawal behaviour as in Figure 5 is apparent across each of the three balance level cohorts, with each group withdrawing a fairly stable dollar amount across all ages. Further, these dollar amounts are notable in that the median level for the medium group is quite low at approximately \$20,000, below the current ASFA 'modest' retirement standard level, while the median level of the low balance group is extremely low. Also, the median withdrawal dollar level of the high balance group is far in excess of the ASFA 'comfortable' retirement standard level.

FIGURE 6: Withdrawal absolute amount for SMSF retirees classified into three groups based on retirement balance level



Retirees' balances for both APRA and SMSF accounts showed little evidence of declining with age. However, accounts with smaller balances were more likely to be closed, meaning that median balances were higher for older retirees. Figure 7 highlights this behaviour in retirees with only APRA superannuation accounts. The sample size for retirees in their 80s was very small, therefore only retirees of 75 or younger age are selected for the figure.

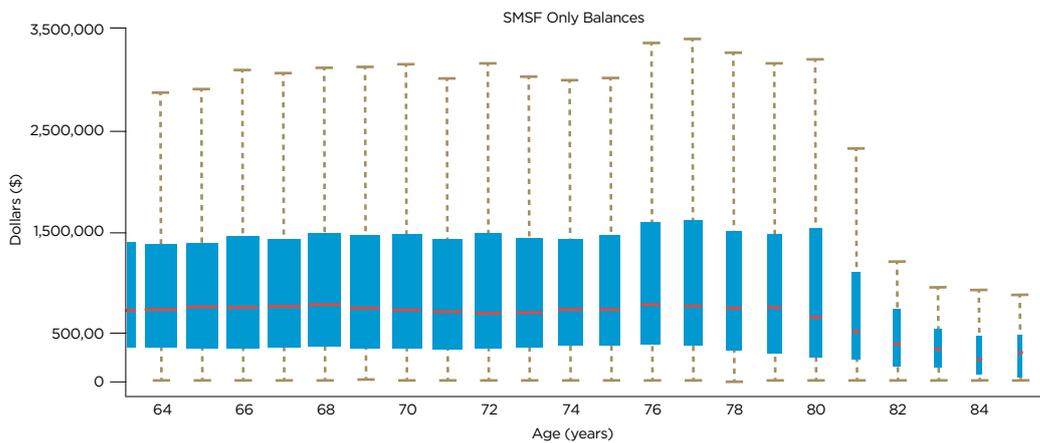
FIGURE 7: Balances held by retirees with just an APRA superannuation fund



Solid red lines indicate the median, blue box height represents the interquartile range, blue box width indicates relative sample size.

Figure 8 shows a similar pattern of account balance behaviour for retirees with only an SMSF superannuation account. The sample size for retirees' with just SMSF accounts became much smaller from the age of 80 years onwards. However, the SMSF account balances stayed relatively stable from the age of 64 years until 80 years.

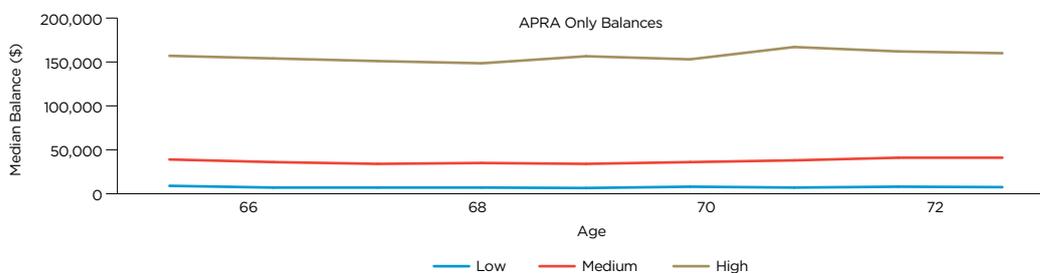
FIGURE 8: Balances held by retirees with an SMSF account only



Solid red lines indicate the median, blue box height represents the interquartile range, blue box width indicates relative sample size.

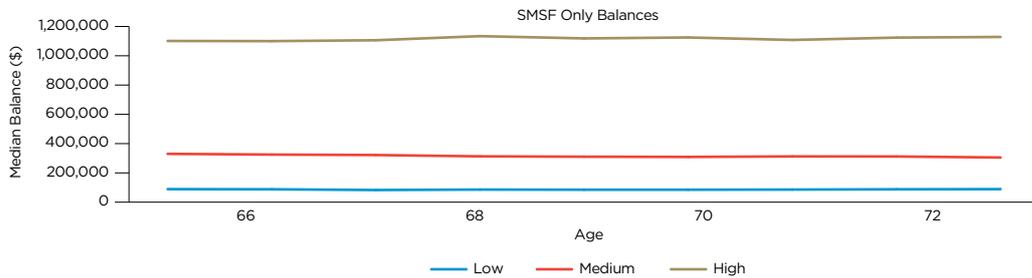
Breaking the data into groups based on balance size (as in Figure 9) shows the same pattern of relatively stable account balances among those who started out with low, medium and high balances.

FIGURE 9: Balances held by retirees with an APRA fund only, split into groups based on the relative size of their balance in 2004



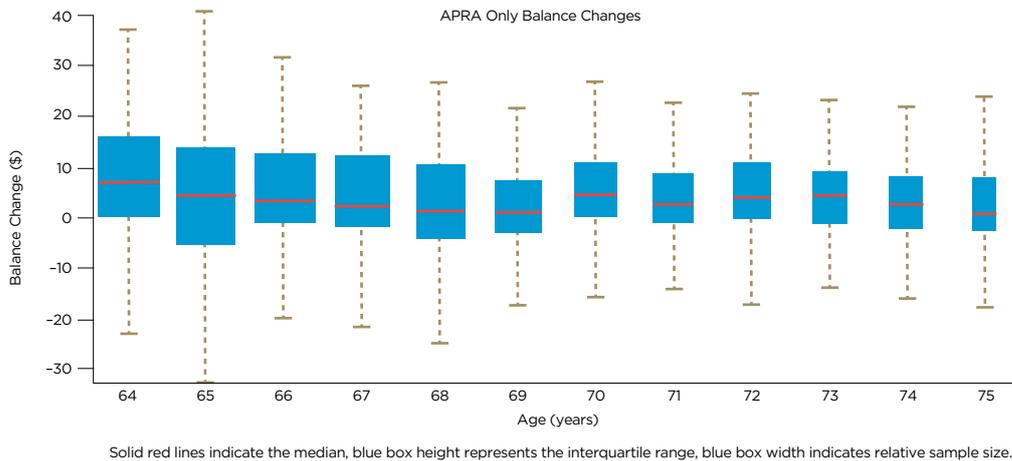
Similarly for retirees with just SMSF accounts, the data can be broken into groups based on their account balance size with low, medium and high balances. Figure 10 shows the same pattern of relatively stable account balances among these three groups:

FIGURE 10: Balances held by retirees with an SMSF fund only, split into groups based on the relative size of their balance in 2004



Examining the net change in accounts that remain open provides a better measure of balance evolution among retirees. Among those with just an APRA fund the median balance change was positive, indicating that for most retirees investment returns exceeded withdrawals (Figure 11), though the changes of APRA account balances were close to zero at the age of 68, 69 and 75 years. Again, meaningful inferences about the 75+ age group cannot be made from this dataset.

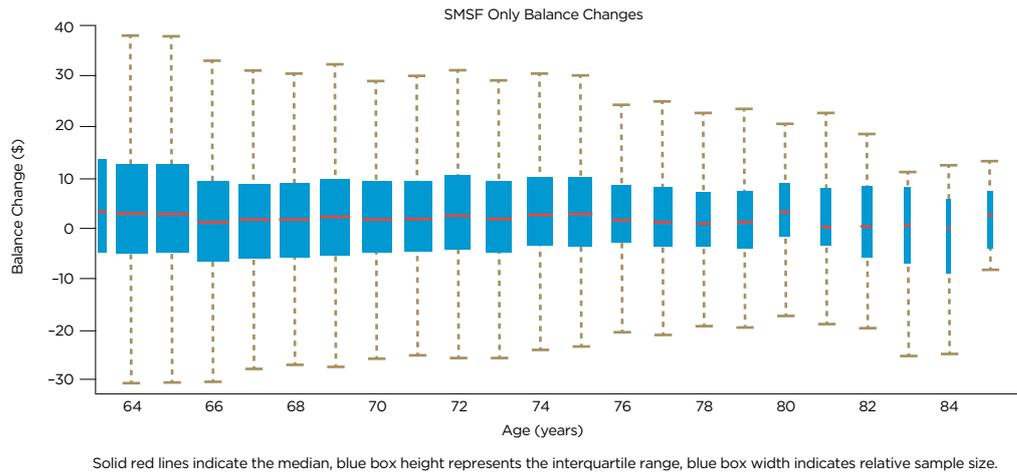
FIGURE 11: Net balance changes for retirees with just an APRA fund



Solid red lines indicate the median, blue box height represents the interquartile range, blue box width indicates relative sample size.

Across all ages represented in the dataset, the median balance change in SMSF accounts was positive (see Figure 12), indicating that investment returns exceeded withdrawals for most retirees in most years, though for the 79+ age group, the median balance change was nearly all zero. Importantly, there was considerable variation. The lower quartile was consistently below zero, indicating that in more than 25 per cent of cases withdrawals exceeded investment returns. The growth rate of account balances appeared to have declined from the age of 75 (coinciding with an increase in the minimum withdrawal rate), but the data became very thin, and nothing can be reliably inferred for members in their 80s.

FIGURE 12: Net balance changes for retirees with just an SMSF

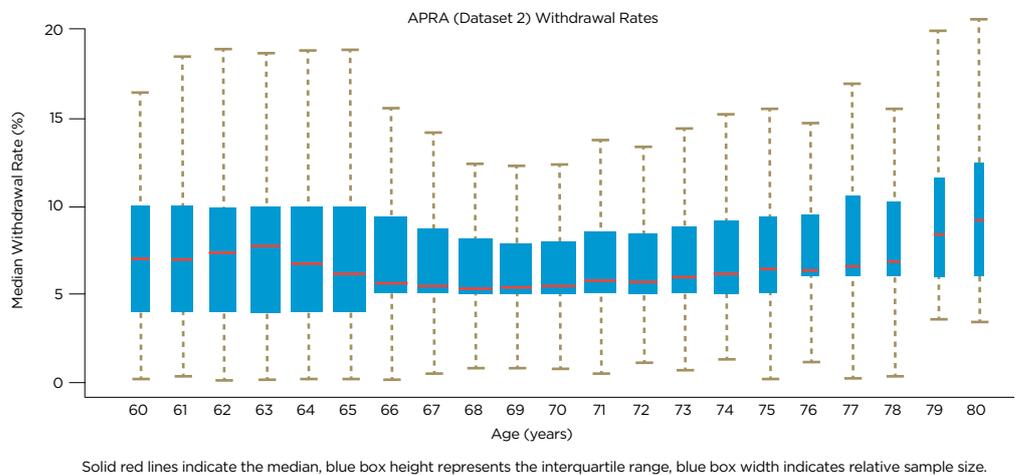


Dataset two: APRA-fund

The 2,600 retirees represented in the second dataset had a median age of 65 at the start of the dataset (June 2010). The data provide a detailed picture of drawdown activity by retirees aged between 60 and 75 over the five years, but older ages are not well represented. However, this data is valuable in providing insight as to the balance and withdrawal behaviour of members of an APRA-regulated fund, information which is unavailable for APRA fund members within the ATO dataset. This also allows comparisons to be made between SMSF and APRA account holders about retirement income activity. The median account balance in June 2010 was \$151,000, which had risen to \$194,000 by June 2015.

Figure 13 plots the median and upper and lower quartiles (25% and 75%) of withdrawal rate by age for this dataset. Withdrawal rates were relatively high among the small number of retirees under age 65 (who were not yet eligible for the age pension), but dropped close to the minimum rate of 5 per cent at 65 (though note for some of the years covered by this dataset the minimum rates were lower). Notably, the median withdrawal rate for each age for this data is almost identical to that of the ATO data SMSF account holders (see Figure 3) although the ATO data SMSF account holders display a far greater range of withdrawal rates around this median. This seems to indicate that most superannuation account holders, regardless of whether their balance is held in an APRA-regulated fund or SMSF, withdraw at or close to the legislated minimum withdrawal rates despite the significant difference in median account balance level between these two cohorts of retirees. Potential reasons for such behaviour are provided in the conclusion section of this paper.

FIGURE 13: Withdrawal rates, as a proportion of account balance, for dataset 2 accounts by age



In 2015 the median withdrawal was 0.56 percentage points above the minimum. In earlier years, when the minima had been reduced, this difference was greater. For example, in 2010 when the minimum rates were halved, the median withdrawal was 3.75 percentage points higher than the reduced minimum. For dataset 2, we do not have data for the period prior to the reduction; our data suggest that retirees were more likely to stay around the regular minimum withdrawal rates, rather than actively tracking the minimum as it was adjusted. The same finding has been reported (Zhu et al. 2015) for retirees with SMSF when their withdrawal behaviour was analysed before and after the period when minimum withdrawal rates were halved from 2008 to 2011. In the financial years ending in 2014 and 2015, 36 per cent of retirees withdrew the same dollar amount while 27 per cent kept the same percentage. There was little evidence of retirees being drawn to round numbers; across the dataset 16 per cent of withdrawals were in multiples of \$1,000 and 38 per cent in multiples of \$50.

Individuals with larger balances tended to have lower withdrawal rates. The median withdrawal rate for balances over \$200,000 was 5.5 per cent, compared to 7.3 per cent for those under \$200,000 (and 6.0 per cent overall).

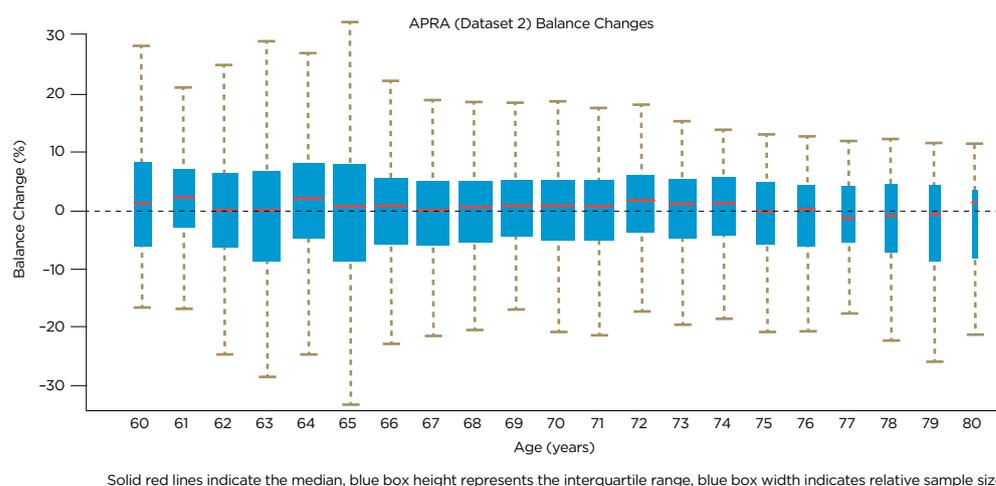
Figure 14 shows the distribution of withdrawals in dollar amounts by age. Notably, this plot differs significantly from that of ATO data SMSF account holders (see Figure 5). The median, upper quantile and lower quantile of the withdrawal dollar amount fall consistently from ages 65 to 75, unlike for the SMSF account holders where the withdrawal dollar distributions at these age are fairly consistent. This may be because older members of this APRA fund have smaller balances (as superannuation covered fewer of their working years).

FIGURE 14: Withdrawal absolute amount distribution, for dataset 2 accounts by age



As with the ATO dataset, most balances showed positive net growth in nominal terms over most years. Figure 15 shows median balance growth by age. Across the dataset the median net annual balance change was 0.6 per cent, indicating that investment returns slightly exceeded withdrawals in most cases. However, there was considerable variation. For those with balances below \$200,000 the median balance change was -0.4 per cent per year; for larger balances it was 3.2 per cent. From the age of 75 years, the median growth rate reaches zero and turns negative onwards. Again, the median of the net balance changes at each age for dataset 2 account holders replicate those of the ATO data SMSF account holders albeit with a narrower spread around this median. This tends to indicate, given withdrawal rates are similar across these two cohorts also, that net investment return rates across these two cohorts are also quite similar across the relevant time period.

FIGURE 15: Net balance change, as a proportion of account balance, for dataset 2 accounts by age



A panel regression model was applied to investigate withdrawal behaviour in greater detail (more information on this is available from the authors). The model confirmed that withdrawal rates were significantly negatively correlated with balance (i.e. the higher the balance, the lower the withdrawal rate). Men withdrew significantly more than women (median of 6.4 per cent versus 5.4 per cent), which may reflect their lower life expectancies.

Withdrawal percentages were positively correlated with investment returns in the current, but not the previous financial year, suggesting some retirees may continually adjust their withdrawals in response to market conditions. The net rate of balance change was significantly correlated with balance, which may be due to individuals with larger balances paying proportionally lower fees or selecting different investment options. The growth rate in balances also declined with age. It was more pronounced from the age of 75 years, perhaps reflecting increasingly conservative asset allocations and higher rates of withdrawals.

Conclusions

Our analysis of the data indicates that most retirees in their 60s and 70s draw down on their account-based pensions at modest rates. This is consistent across both SMSF and APRA funds, and broadly holds for different-sized balances (though smaller balances are drawn down somewhat faster than larger ones). There is no evidence of widespread rapid drawdown of superannuation. Indeed, if retirees were to continue withdrawing close to the minimum amounts each year, most would die with substantial amounts unspent. These results correspond with the findings of Wu et al. (2014) that assets are only drawn down very slowly in retirement.

It is important to note, however, that the data analysed here mainly covers retirees in their 60s and 70s. As superannuants continue to age, withdrawal rates must increase (e.g. at 85 the minimum withdrawal is 9 per cent). The data also cover a time period which includes many years of strong investment returns, which may not continue into the future. Therefore the observation of many (though far from all) retirees growing their superannuation balances was likely restricted to younger age groups and dependent on strong investment returns. The observed growth was also in nominal, rather than real (i.e. inflation-adjusted) terms.

The account-based pension system requires retirees to make complex decisions. Longevity and future expenses are highly uncertain, particularly for younger retirees. Defining the optimal rate of drawdown under such uncertainty is therefore a major challenge. The data suggest that for many retirees the minimum withdrawal rates have come to represent a default option. Once a default or status quo option has been identified it acts as a powerful magnet (e.g. Kahneman et al. 1991).

An alternative explanation is that the mandated minimum withdrawal rates may be acting as a minimum boundary constraint forcing retirees to withdraw some superannuation assets rather than funding their consumption purely through non-superannuation financial assets only. However, this interpretation of the data is questionable in light of the findings of Burnett et al. 2013, which demonstrated by reference to HILDA (Household Income and Labour Dynamics in

Australia) survey data that few people maintain any significant level of financial wealth outside of superannuation to support their retirement lifestyles.

It may be a psychological challenge for an individual to draw down on a large sum of money that has been saved over many years during one's working life and is a non-replenishing resource, particularly as superannuation is primarily discussed as being a vehicle for savings rather than consumption. Retaining a lump sum, rather than converting it into an income stream, may give people an illusion of wealth (Goldstein et al. 2016); it also allows an ongoing option, which is valued for its own flexibility (Bobadilla-Suarez et al. 2016).

Many of the retirees represented in this dataset were drawing relatively small incomes from the superannuation. For example, among the cohort in dataset two, median (and even upper quartile) withdrawal amounts were well below both the current ASFA 'comfortable' retirement standard annual figure of \$42,893 and the 'modest' retirement standard of \$23,651. However, those aged over 65 are likely to be eligible to receive some age pension if they have no other significant sources of income. The income test for the age pension means that every dollar withdrawn from superannuation can result in a loss of 50c of pension income (for a single person this is currently relevant for withdrawals between \$4,264 and \$49,707 per year). This is likely to represent a further financial disincentive, and psychological barrier (loss aversion), to drawdown for those with modest balances.

Retirees with account-based pensions are essentially self-insuring for longevity risk. Managing such risks at the individual level is costly and inefficient, requiring a large proportion of savings to be retained, with only those who reach a particularly old age spending all of their savings. It is likely that the perceived costs are substantially reduced, or viewed as a benefit, by the fact that the unspent balance can be passed on as a bequest. While products such as annuities can in theory manage this longevity risk, in practice, people may consider them to be more risky, as the realised value of an annuity is entirely dependent on lifespan (Hu and Scott 2007).

Ralston and Maddock (2015) note that retirees generally need more information and advice; they also suggest that well-designed default options would help many retirees better manage their finances. There may also be opportunities to improve the way annuities and other income stream products are designed and communicated. For example, in a hypothetical choice experiment (Shu et al. 2016), changes in attributes such as timing, duration and increments doubled the proportion of people who selected an annuity. Framing decisions in terms of consumption rather than investment has also been shown to increase the attractiveness of annuities (Brown et al. 2013).

The data analysed here suggest that Australian retirees are more likely to draw down their superannuation slowly to ensure it lasts their whole lifetime than to spend more rapidly in order to increase their age pension entitlement. However, the same may not be true of older retirees, or future cohorts of retirees. Although the superannuation system is still growing, having only commenced widespread application throughout society in the last 20 years, it is suggested that the age-based patterns of low but increasing withdrawals across ages in accordance with the mandated minimum withdrawal rates will probably continue until the full evolution of the superannuation system in another 20 years' time. Further future investigation will be necessary to determine 'steady-state' retiree behaviour once such maturation of the superannuation system is complete.

Further and more detailed analyses of evolving patterns of retiree behaviour will be facilitated by the data now routinely collected by government and industry. As the majority of younger retirees have partners, future analyses would benefit from consideration of the household, rather than just the individual, as this is the level at which most financial decisions are likely to be made.

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