



New Zealand Society of Actuaries (Inc)

Insights into pre-retirement KiwiSaver accounts

By the Retirement Income Interest Group
of the New Zealand Society of Actuaries

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Purpose

This report aims to give new insights into how KiwiSaver savings are distributed across the New Zealand pre-retirement population.

This report uses new analysis from a sample of KiwiSaver accounts held by people aged 45 and older. This account-level data allows us to delve into how KiwiSaver balances are distributed across the population and look at reasons why people might have high or low balances. This sets the scene for a planned follow-up report which will look at how much retirees could have in their KiwiSaver fund for future decumulation, and what the policy implications of that picture are.

The paper is intended for informed readers – policy makers, regulators, providers or advisers – and we hope it is also interesting for individuals who are considering how to prepare for their own retirement.

Previous reports from the Retirement Income Interest Group (RIIG) of the New Zealand Society of Actuaries are available from <https://actuaries.org.nz/resources-and-publications/reports/>.

Current members of RIIG are: Alison O’Connell, Christine Ormrod, Ian Perera (Convenor), Fraser McKay, Kelvin Prisk, and Simon Ferry. We also acknowledge the contribution to this paper from Daniel Mussett, our previous convenor.

We thank the KiwiSaver providers who entrusted us with anonymised data.

Where views are expressed in this paper, they are the collective personal views of the members of RIIG. This paper does not necessarily reflect the positions of our employers, other members of the New Zealand Society of Actuaries, or any KiwiSaver provider. Any errors are our own.

Nothing in this paper should be taken as financial advice or as a recommendation for how any individual should manage their money.

For further information please contact: Convenor, Retirement Income Interest Group by email society@actuaries.org.nz

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Summary

- 1. Modest KiwiSaver balances for most.** This analysis uses account-level information from a range of KiwiSaver providers, covering 40% of KiwiSaver accounts held by New Zealanders aged 45-64 and 50% of those aged 65 and over. New insights are possible because we can look at the *distribution* of individual account balances. This shows a cluster of small KiwiSaver balances and a 'tail' of large balances. This means the average balance figure is not helpful information. For the majority of those currently close to retirement KiwiSaver will provide a modest supplement to other income, with the median balance for 60–64-year-olds being \$38,000 for men and \$31,400 for women.
- 2. Men more likely to have larger KiwiSaver balances than women and are significantly more likely to have the largest balances.** 13% of men aged 45-64 have KiwiSaver balances of \$100,000 or more, but only 6% of women do. Women are more likely to have balances of less than \$50,000: 74% of women aged 45-64 compared to 64% of men.
- 3. Investment fund choice is driven by account balance rather than gender.** This data does not support the idea that women aged 45-64 are more conservative investors than men. Instead, both men and women tend to be invested in lower risk/lower return funds if they have small balances and invest more in growth assets if they have larger balances. From age 60 both men and women become increasingly likely to be in lower risk/return funds, especially women. Only among the over-65s do women clearly appear more conservative investors than men.
- 4. Gender difference in contribution levels drive differences in account size.** Men are more likely to have the largest KiwiSaver balances compared to women because men are more likely to contribute at higher levels, and total contributions are higher for men than women. For men, 46% of accounts have total (member plus employer plus government) contributions of \$4,000 or more, compared to only 33% for women. At the low end of the contribution distribution, 52% of women have contributions below \$3,000, compared to 43% of men. This skew in contribution levels is likely caused by the gender wage gap, and/or that men are more likely to choose to make a higher rate of contributions than women. Both employer and, especially, Government contributions are proportionately more important to women than men.
- 5. Individual financial advice is not realistic for most KiwiSavers.** The modest levels of balances show that individualised financial advice on how to draw down KiwiSaver will not be cost-efficient for most KiwiSaver members currently at an age to be thinking about drawdown. Most retirees will rely on generalised guidance, which should be simple, readily available and consistent across multiple sources. Regulation should get ahead of this demand.
- 6. Account-level data analysis, even on a segment of the market, is valuable.** More useful insights are possible with real data like this. We suggest that the FMA and Retirement Commissioner consider how to trial this with a view to whole-of-market data collection and analysis on a regular basis.
- 7. Our next paper will consider the distribution of retirees' likely income prospects.** However, assuming KiwiSaver members do not change their contribution levels from now until they reach age 65, the current situation will roll forward at the level of investment returns achieved. The compounding of investment returns over the period will widen differences in the size of balances between men and women.

1. Modest KiwiSaver balances for most

Account-level data gives new insights

- Six KiwiSaver providers supplied anonymised data about the KiwiSaver accounts they manage on behalf of members. The providers included bank owned and specialist fund managers. They were all in the top twenty providers by size as at 31 March 2021 with three in the top five.
- The data was anonymised, so individual account holders could not be identified. The data comprised year or date of birth, account balance and investment fund choice at 31 March 2021, and, contributions in the year to 31 March 2021.
- This dataset adds to the available statistics on KiwiSaver, which has been limited to total fund size, total contributions and average member balance, by provider¹; added to only recently by information on the current distribution of KiwiSaver balances by age bands or gender². Until now no linked data on relevant attributes such as contribution rates or investment class has been available.
- This dataset covers a subset of the market, both by age (45 years and older) and number of providers. This has kept the analysis to a manageable amount of data. With this trial, we test whether there would be value in extending to the whole market.
- We have focused on pre-retirement ages because we want to estimate the distribution of KiwiSaver balances for those New Zealanders reaching age 65 in the next twenty years. This is the subject of our next paper. Longer forecasts would be subject to more uncertainty, and younger people have more time to adjust their savings habits.
- KiwiSaver began in 2007. The members in our dataset did not have the opportunity to save in KiwiSaver for their entire working life, as younger New Zealanders now have. Our older members may have other savings for retirement.

Large amount of data; consistent with whole market

- The data analysed comprised over 473,000 KiwiSaver accounts for members with their 45th birthday in 2021 or earlier. During data preparation, some accounts were filtered out or adjusted – see Appendix.
- We split the adjusted data into two groups: those with 45th-64th birthday in 2021 and those with 65th-84th birthday in 2021. We refer to these groups as “45-64” and “65-84”, and the total as “45+”.
- After preparation, the data for analysis comprised 451,555 KiwiSaver accounts:
 - 376,002 in the 45-64 group, and,
 - 75,553 in the 65-84 group.

- As at the same date as our data, 31 March 2021, the total KiwiSaver population reported to the FMA³ was 3.1 million accounts, of all ages. A report for the Retirement Commissioner by MJW⁴ further subdivided market data at 31 December 2021 by age groups.
- The data for our analysis comprises roughly 40% of the age 45-64 segment and 50% of the age 65-84 segment identified by MJW. Our data shows similar key indicators to the MJW data. For example:
 - 46% of our accounts aged 45-64 were held by men, which is the same as shown in MJW data.
 - The average account balance in our data (age 45-64) is around \$44,000 which compares with MJW at \$40,335 at ages 46-50 increasing to \$53,579 at ages 61-65.
- From checks of our dataset we conclude that our analysis should give results that indicate the situation for the whole market of KiwiSaver members aged 45-64 to a reasonable level of accuracy.
- There are fewer accounts held by people aged 65-84, and these include large accounts which are likely to be lump sum transfers in. Interpretations of data for this age group may be less robust than for ages 45-64, but some insights are included here for interest.
- **This analysis must be read understanding that the results may not hold for the whole market, or for future cohorts. However, we believe this report shows new insights that are likely to hold more widely for current age 45+ cohorts. This could be confirmed with further analysis if more providers joined our dataset, and trends could be revealed if the analysis were repeated over time.**

Shape of distribution of balances implies averages are unhelpful

- Chart 1 shows the distribution of account balances for four age groups, and for male and female account holders separately. Table 1 shows the key numbers.
 - The 'box and whisker' chart shows the median (50th percentile) account balance for each age/gender group in the middle of the box. This is the amount where half of the group have a balance above and half below.
 - The 25th and 75th percentiles of the account balances in each group are at the bottom and top of the box.
 - The 5th and 95th percentiles are shown by the whiskers "—".
 - The average is shown by "X".
- Chart 1 shows that for each age/gender group, the distribution is wide, but clustered at the bottom of the scale, that is, there are many small KiwiSaver balances and a 'tail' of large balances. There are also outliers, which are very large balances beyond the 95th percentile.
- **In each group, the median is less than the average. Because the distribution of account balances within each group shows a cluster and tail, the average is a poor way to describe a group or compare it to others.**

Chart 1: Distribution of account balances, in dollars, for KiwiSaver members aged 45-64 in 2021, by age group and gender

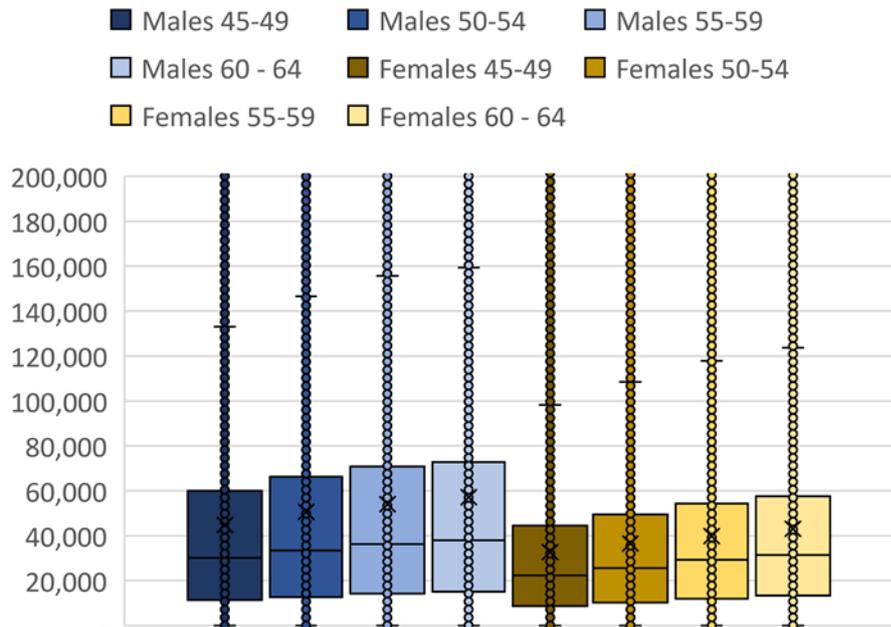


Table 1: Measures of account balance distribution shown in Chart 1, in dollars

	Males	Age group			
Percentile	Total	45-49	50-54	55-59	60-64
25%	13,120	11,316	12,702	14,160	15,025
Median - 50%	34,294	30,182	33,368	36,248	38,008
75%	67,275	60,032	66,275	70,783	72,782
Max (millions)	3.2m	1.7m	1.9m	3.2m	2.1m
Average	51,494	44,842	50,555	54,084	57,265

	Females	Age group			
Percentile	Total	45-49	50-54	55-59	60-64
25%	10,693	8,612	10,189	11,879	13,372
Median - 50%	26,897	22,302	25,644	29,218	31,412
75%	51,265	44,490	49,493	54,285	57,506
Max (millions)	2.0m	0.7m	2.0m	1.0m	2.0m
Average	37,853	32,656	36,484	39,756	43,102

Males less Females		Age group			
Percentile	Total	45-49	50-54	55-59	60-64
25%	2,427	2,704	2,513	2,281	1,654
Median - 50%	7,397	7,880	7,724	7,030	6,596
75%	16,010	15,542	16,782	16,499	15,277
Average	13,640	12,185	14,071	14,329	14,163

KiwiSaver balances for the majority of those close to retirement are modest

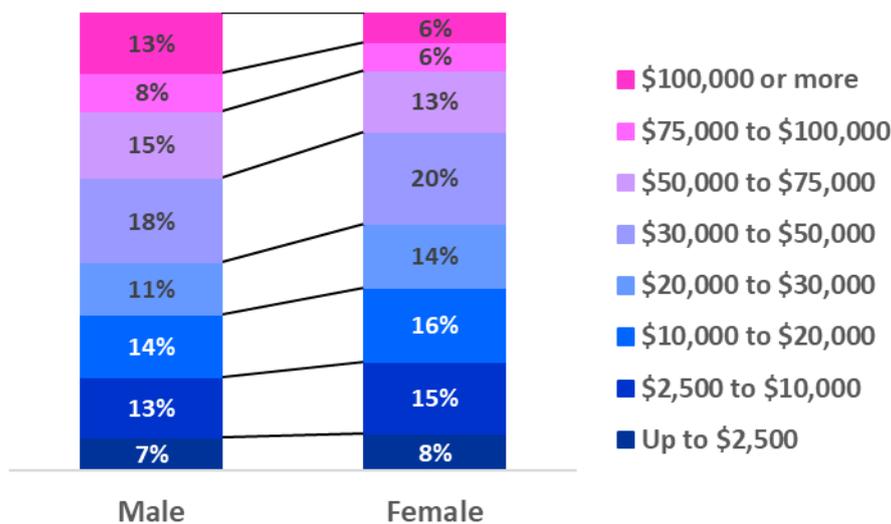
- Chart 1 shows that, as expected, account balances increase with age, and indicators for the size of balances held by men tend to be higher than those held by women in each age group.
- Our analysis highlights the modest levels of most balances.
 - Three-quarters of men aged 45-64 have a KiwiSaver balance below \$67,275, and three-quarters of women in that age group have a KiwiSaver balance below \$51,265.
 - For the group closest to retirement, aged 60-64, three-quarters of men have a balance below \$72,782. For women of that age, three-quarters fall below \$57,506.
 - At the median, half of men aged 60-64 have a balance below \$38,008. For women of that age, half fall below \$31,412.
- This gap of around \$6,600 or 20% by which the median balance for men aged 60-64 exceeds that for women is smaller than the gap shown using average balances.
- There are some very large KiwiSaver balances, over \$1 million. Accounts of this size make up 0.015% of the total number of accounts in our database. Both men and women hold these. These accounts are probably from transfers in, for example from overseas pension funds. They tell us nothing about KiwiSaver for the vast majority of account holders, but they do accentuate the skew of the distribution.
- **This initial analysis shows that at least in the short-term, KiwiSaver for most retirees will be a helpful but modest supplement to New Zealand Superannuation or other retirement income. As KiwiSaver has only been available for the last fifteen years it will become more significant as members contribute for a greater proportion of their working life.**

2. Men more likely to have larger KiwiSaver balances than women

Men over-represented with higher balances

- Chart 2 splits the distribution of account balances by gender into size bands. For example, 7% of the accounts of men aged 45-64 are \$2,500 or less, while 8% of the accounts of women are. If account balances were evenly distributed between men and women, there would be the same percentage of accounts in each band for men and women.
- Women are over-represented in all account sizes up to \$50,000, with men being over-represented in the larger accounts.
 - 64% of men aged 45-64 have KiwiSaver balances of less than \$50,000. 74% of women do.
 - The largest difference is in the largest accounts. 13% of men aged 45-64 have KiwiSaver balances of \$100,000 or more. Only 6% of women do.
- This picture of accounts held by women generally in lower balances and men in higher balances is the case at each age between 45 and 64 years (not shown).
- There has always been concern that women have lower account balances than men. Our analysis shows how that gap varies by account balance in the 45-64 age group, with the largest difference in the largest accounts.

Chart 2: Percentage of accounts for members aged 45-64 in each band of balance size, by gender
 100% = 174,405 accounts male and 201,597 accounts female¹

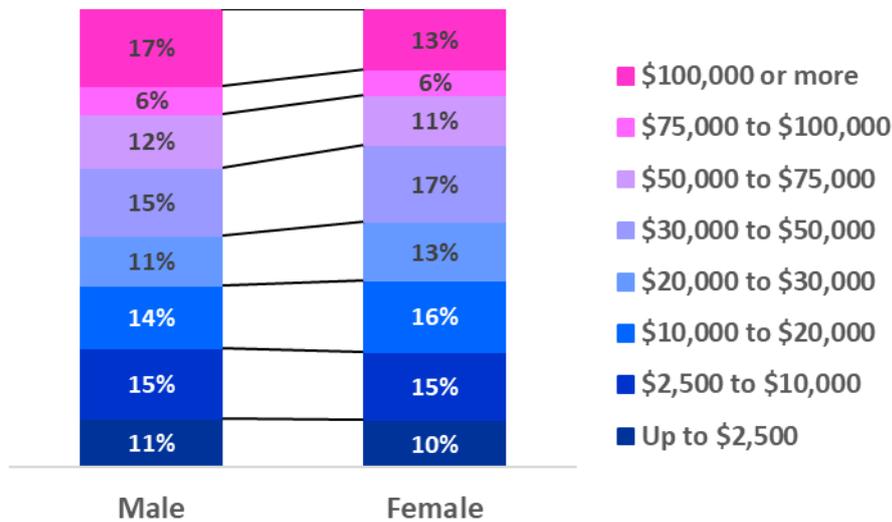


¹ Note, for all charts, totals may not sum to 100% due to rounding

Account balances more evenly distributed for over 65s

- After age 65, members can withdraw some or all of their KiwiSaver balance. The distribution of balances for KiwiSaver members aged 65 and over therefore reflects the behaviour of those who have made a choice to remain invested in KiwiSaver, or done so through inertia.
- The distributions of account sizes for men and women are more similar at ages 65-84 than those at ages 45-64 (Chart 3).
 - 66% of men in this age group have KiwiSaver balances of less than \$50,000. 70% of women do.
 - 17% of men aged 65-84 have KiwiSaver balances of \$100,000 or more. 13% of women do.
- This analysis will have to be repeated over time to see whether this is a feature of this particular cohort (perhaps reflecting the newness of KiwiSaver), or whether women’s KiwiSaver balances grow faster than men’s around age 60-70 (perhaps reflecting women working and saving longer, and/or women drawing down slower).

Chart 3: Percentage of accounts for members aged 65-84 in each band of balance size, by gender
 100% = 34,646 accounts male and 40,907 accounts female



3. Investment fund choice is driven by account balance rather than gender

Most people in KiwiSaver choose some growth assets

- We estimated the proportion of growth assets in each account, given data on the fund in which each account was invested and information on the asset mix of each provider's fund types.
- Chart 4 shows the distribution of fund choices for ages 45-64, by gender. For example, 41% of females and 38% of males are in a fund with up to 30% of growth assets. These are in the lowest risk/lowest return funds, and probably reflect KiwiSaver members staying in the default fund they were enrolled into.
- While the largest block of accounts is at the conservative end of the fund type spectrum, there are many KiwiSaver members choosing more risk in search of higher investment returns. 35% of females and 39% of males are in a fund holding at least 60% in growth assets.

Women aged 45-64 are only slightly more conservative investors than men

- Chart 4 shows that the KiwiSaver accounts of women aged 45-64 are distributed slightly more towards the lower risk/lower return end of the fund type spectrum, compared to men, but the difference is not significant.
- Table 2 shows that the main factor associated with fund choice is account balance. Smaller accounts tend to be invested in more conservative funds that have lower proportions of growth assets. For example, for account balances between \$10,000 and \$20,000, 45% of accounts held by men and 47% held by women are invested in a fund with up to 30% growth assets. The investment choices of men and women are similar at each account balance size.
- **The data does not support the idea that women aged 45-64 are more conservative investors than men. Instead, both men and women tend to be invested in lower risk/lower return funds if they have small balances, and have more growth assets if they have larger balances.**

Chart 4: Percentage of accounts for members aged 45-64 by level of growth assets, by gender
 100% = 174,405 accounts male and 201,597 accounts female

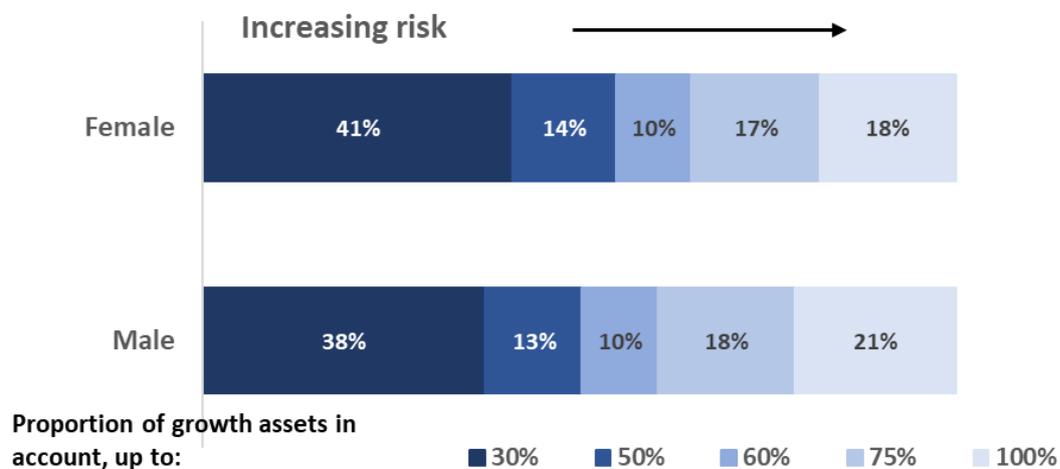


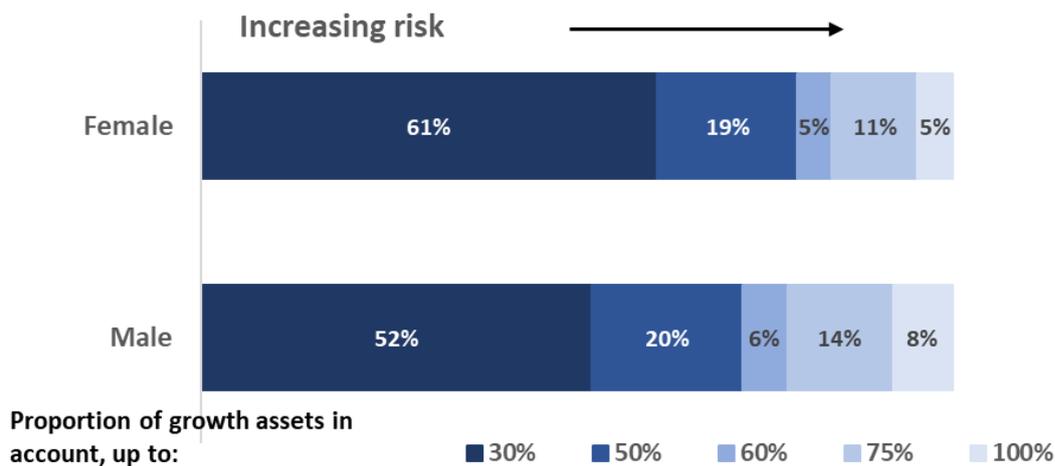
Table 2: Heat map showing how accounts of different balance size in dollars are distributed into funds described by proportion of growth assets

	Male					Female			
	0 - 30%	30% - 50%	50 - 75%	75% - 100%		0 - 30%	30% - 50%	50 - 75%	75% - 100%
Up to \$5,000	63%	8%	16%	13%		64%	9%	15%	12%
\$5,000 to \$10,000	49%	11%	21%	18%		51%	12%	21%	16%
\$10,000 to \$20,000	45%	12%	24%	19%		47%	13%	24%	16%
\$20,000 to \$30,000	43%	13%	25%	19%		44%	14%	26%	17%
\$30,000 to \$50,000	38%	14%	28%	20%		37%	16%	29%	18%
\$50,000 to \$75,000	30%	15%	33%	22%		29%	16%	34%	21%
\$75,000 to \$100,000	22%	14%	37%	27%		21%	16%	39%	24%
Over \$100,000	12%	12%	41%	34%		12%	14%	44%	30%
Total	38%	13%	28%	21%		41%	14%	27%	18%

The 65-84 age group is more likely to be in low risk assets than the 45-64 age group, especially women.

- The proportion of each gender’s KiwiSaver accounts in conservative investments increases slowly with age until age 60 (not shown). From age 60, both men and women become increasingly likely to invest in lower risk/lower return funds and at age 65 there appears to be significant change.
- Chart 5 shows the same distribution as in Chart 4, for the accounts of ages 65-84. For both men and women, the proportions in lower risk/return funds are significantly higher than for the 45-64 age group. For ages 65-84, women clearly appear more conservative investors than men.
- It is not surprising that 65-year-olds and older are in lower risk/lower return fund types than pre-retirees aged 45-65, as it is common to switch to more conservative assets as a response to needing to decumulate.
- However, it is not necessarily wise to invest entirely in the lowest risk assets for drawdown after age 65. As previous RIIG reports have explained, more income should be able to be drawn down over later life if KiwiSaver continues to be invested in higher return assets, although there are risks involved. We looked at drawdown from a Balanced Fund (60% growth assets) and a Conservative Fund (20% growth).
- **This analysis supports the case for information on drawdown options given to new retirees to include more explanation of the benefits and risks of keeping KiwiSaver invested in higher levels of growth assets than this data shows for the current 65-84 group.**

Chart 5: Percentage of accounts for members aged 65-84 by level of growth assets, by gender
 100% = 34,646 accounts male and 40,907 accounts female

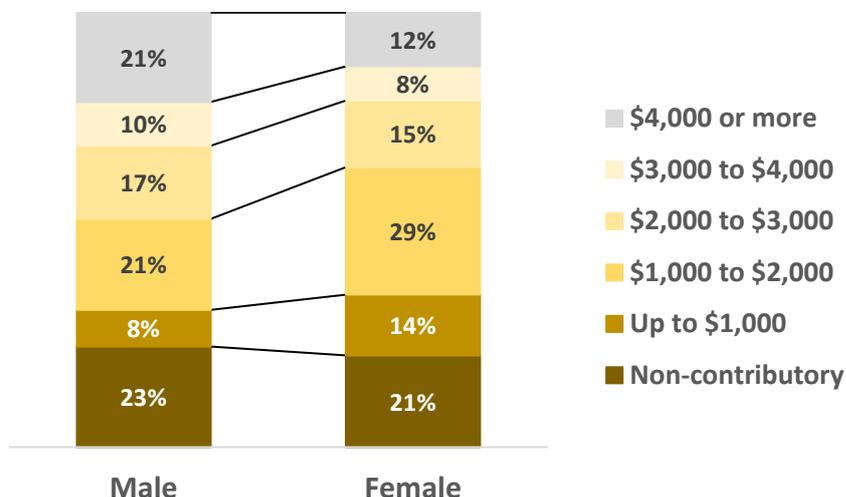


4. Gender difference in contribution levels drive differences on account size

Men are more likely to make higher contributions than women

- Our dataset included information on contributions, in dollars, made into each account in the year ending 31 March 2021. Contributions are made by the member, by the member’s employer, and by the government. Broadly:
 - Employee contributions can be zero (temporarily), 3%, 4%, 6%, 8% or 10% of salary, and individuals can contribute more with no limit.
 - Employers must match at least 3% of salary and may choose to contribute more.
 - The government contribution is 50c for every \$1 of member contribution, up to a maximum of \$521.43 each year.
- Chart 6 shows the distribution of member contribution levels for ages 45-64. Around 22% of members did not contribute in the year.
- The distribution of account balances stems from the distribution of contribution levels. Men are more likely to have the largest KiwiSaver balances compared to women in part because men are more likely to contribute at higher levels.
 - Contributions made by female KiwiSaver members are concentrated between \$1,000 and \$2,000 a year. 29% of women contribute at that level compared to 21% of men.
 - Men are more likely to contribute at the highest levels. 21% of men made contributions of \$4,000 or more, while only 12% of women did.
- **The contrasting skew in member contribution levels - men skewed high, women skewed low - could be because of the gender wage gap⁵, and/or that men are more likely to choose to make a higher rate of contributions than women. The latter is an easier choice if on a higher salary, and more men than women have the highest salaries.**

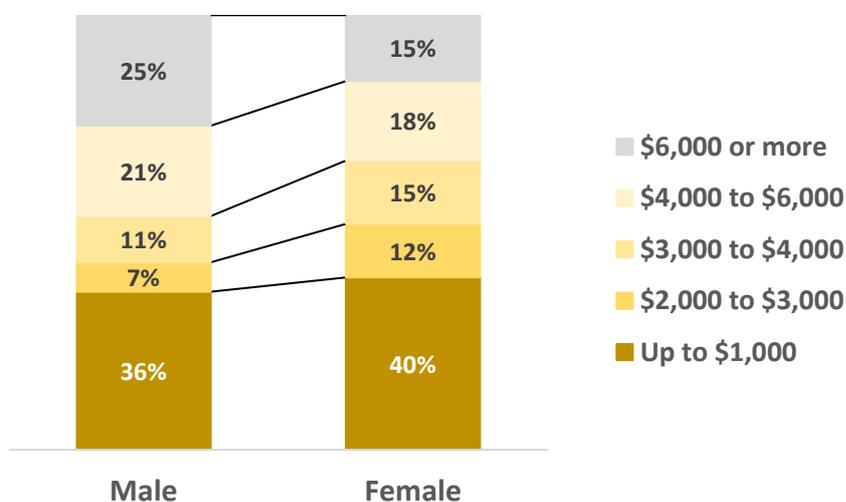
Chart 6: Percentage of accounts for members aged 45-64 in each band of member contribution level, by gender. 100% = 174,405 accounts male and 201,597 accounts female



Total contribution levels skewed high for men and low for women

- Both employer and Government contributions add to member contributions (and their impact on balance levels is then compounded by investment returns over time).
- Chart 7 shows the distribution of total contributions, made by member, employer and Government, for the 45-64 age group. Note the different scale on Chart 7 compared to Chart 6 to accommodate the higher level of total contributions compared to member contributions only.
- The different skew in the distribution of contribution levels for men and women is still apparent.
 - **For men, total contribution levels are skewed to the highest levels:** 46% of contributions are \$4,000 or more, compared to only 33% for women.
 - **For women, total contribution levels are skewed to the lowest levels:** 52% of women have contributions below \$3,000, while 43% of men do.

Chart 7: Percentage of accounts for members aged 45-64 in each band of total contribution level, by gender
 100% = 174,405 accounts male and 201,597 accounts female



Employer and Government contributions have a greater impact for women than men

- Adding Government and employer contributions enables more KiwiSaver members to achieve a contribution level of \$4,000 a year or more. Table 3 shows the increase in proportions of males versus females who reach that level through these additions. Both employer and Government contributions bring proportionately more women than men to the \$4,000+ level.
- Compared to Government contributions, employer contributions are larger in dollar terms, and have no cap. Employer contributions are more valuable to those members contributing at higher levels, who are disproportionately men.
- Government contributions are added at half the rate of member contributions and are capped at \$521 a year. Proportionately more women contribute at less than \$1,000 a year, roughly when the Government contribution caps out (14% compared to 8% for men, see Chart 6).
- **Both employer and Government contributions have a greater impact for women than men. The addition of Government contribution is especially more important to women than men.**

Table 3: Exploring the impact of adding employer and Government contributions to member contributions alone

	Proportion of KiwiSaver members with contributions of \$4,000 a year or more		Impact relative to member contribution alone
	Male	Female	
Member contributions only	21%	12%	
Member plus employer contributions	40%	27%	More than doubles for females; less so for males
Member plus employer plus Government contributions	46%	33%	Almost triples for females; slightly more than doubles for males

5. Implications and next steps

Is the variation in KiwiSaver balances a problem?

- There is wide variation in KiwiSaver balances across the age 45+ population. To some extent, this is not unexpected, as KiwiSaver contributions are primarily made as a percentage of salary, and there is wide variation in salaries.
- There are only three ways to maximise a KiwiSaver balance at retirement:
 - put more contributions in.
 - achieve higher investment returns, net of fees, and/or
 - do not take any money out before retirement.
- However, doing the opposite of any of the above may have a good rationale for individuals at some point in their life or in policy terms:
 - Individuals may achieve better overall lifetime outcomes by lowering or stopping contributions when taking a break from paid work or building a business.
 - Employers and the Government similarly must balance other demands when considering the level of their contributions.
 - Individuals are entitled to choose a lower risk/lower return fund if they are uncomfortable with higher risk options.
 - Being able to take money out to buy a first home, or if in severe hardship, might be a more pressing priority than long-term saving for many people.
- Maximising KiwiSaver balances is not the purpose of the KiwiSaver Act which is *to encourage a long-term savings habit and asset accumulation by individuals who are not in a position to enjoy standards of living in retirement similar to those in pre-retirement. The Act aims to increase individuals' well-being and financial independence, particularly in retirement, and to provide retirement benefits*⁶.
- Similarly, maximising KiwiSaver balances is not suggested by the Retirement Commissioner's Purpose Statement for New Zealand's Retirement Income System, which includes: *To actively support New Zealanders to build and manage independent savings that contribute to their ability to maintain their own relative standard of living*⁷.
- The distribution of KiwiSaver balances is not the only indicator of financial wellbeing in retirement. People may have other resources which contribute to retirement income or lower retirement costs (for example, owning a home). This analysis looks at individual KiwiSaver balances, while household finances may be more properly analysed jointly.
- **In summary, there is no absolute right answer on what the distribution of KiwiSaver balances *should* look like. However, this analysis has shown that the majority of both men and women aged 45-64 have modest KiwiSaver account balances, with men more likely to have the larger. Moreover, we can point to the cause of the difference as being different levels of both member and total contributions.**

Policy implications

- **This analysis suggests that:**
 - **For most New Zealanders aged 45+, KiwiSaver is working as a helpful but modest supplement to New Zealand Superannuation (NZS) or other retirement income. NZS remains crucial.**
 - **Individualised financial advice on how to draw down KiwiSaver will not be cost-efficient for most KiwiSaver members currently at an age to be thinking about drawdown. Many, if not most, retirees will rely on generalised guidance such as KiwiSaver statements or information on Sorted. As we have recommended before⁸, such guidance should be simple, readily available and consistent across multiple sources. Regulation should get ahead of this demand.**

Account-level data analysis is valuable

- This report has also shown that analysis of actual account-level data, even for a segment of the market, offers new valuable insights. More could be gained by different analyses on this data set, and we welcome feedback and suggestions.
- A larger dataset, analysed over time, would provide even more insight. We suggest that the FMA and Retirement Commissioner consider how to develop this with a view to whole-of-market data collection and analysis on a regular basis (annual or every three years coincident with the triennial Review of Retirement Income Policies).

Our next paper: projecting the distribution forward

- Our next paper will include projections for the distribution of retirees' likely income prospects.
- However, it is logical to suppose that in the absence of KiwiSaver members changing their contribution levels from now until they reach age 65, the current situation will roll forward at the level of investment returns achieved. The compounding of investment returns over the period will widen the distribution of account balances and differences in the size of balances between men and women.

Appendix: Data preparation

- Data requested**
- For account holders with their 45th birthday in 2021 and older, as at 31 March 2021:
 1. Year of Birth
 2. Gender
 3. Year joined this KiwiSaver provider
 4. KiwiSaver Balance at end of accounting period, in dollars
 5. Percentage allocation to each of the types of funds used for determining projected balances in member statements: Defensive, Conservative, Balanced, Growth and Aggressive (adds to 100%).
 6. Government contribution for the accounting period
Either:
 7. Total contribution (member and employer) made during the accounting period (including any one-off voluntary payments up to \$1,500).
Or, preferred if possible:
 8. Total member contribution made during the accounting period (including any one-off voluntary payments up to \$1,500), in dollars
 9. Total employer contribution made during the accounting period, in dollars
 - Note, all data was completely anonymised. No names, addresses or other identifying information on account holders was asked for or received.
- Data cleaning**
- Over 473,000 data records were received in total with birth year 1976 or earlier. From these, some were filtered out for obvious errors or irrelevant data, including:
 - Missing or infeasible year of birth.
 - Aged over age 65 with nil account balance.
 - Aged under age 65 with no account information and no contribution information, as these are probable recent transfers in or out.
 - Records with missing gender, that is blank cells. Records with gender explicitly stated as being 'Unknown' are not included in the analysis.
 - The small number of accounts with members aged 85 and over were filtered out as, given the start date of KiwiSaver, they would not be representative of regular pre-retirement saving.
 - Additionally, the data of some accounts was adjusted where reasonable:
 - A minority of providers supplied actual date of birth for account holders. This was disregarded and only the year of birth was used.
 - A few negative dollar contribution amounts were converted to positive.
 - Under age 65, no account information but contribution information: account balance was set equal to contributions received over the previous year.

- Member contributions were adjusted where there was an infeasible combination of ratio of total contributions to account balance and ratio of employee to employer contributions. These cases are likely to arise due to recording of transfers in but would distort the projection of future balances.
- Cleaned data comprised 451,555 accounts: 376,002 aged 45-64 and 75,553 aged 65-84.

Data reasonableness checks

- We checked each provider's data for internal consistency, for example:
 - Member ages in reasonable range and reasonable number of births per year.
 - Contributing members were aged between 45 and 75.
 - For each member, the combined total allocation across each of the investment options summed to 100%.
 - Everyone joined when they were under age 65.
 - The average ratio of member contributions to company contributions was about 1.6 (excluding outliers).
 - Some member contribution values were very large in proportion to the account balance (e.g. around 90%) representing transfers in from another scheme. These were all over age 65.
- Provider data was also checked for reasonableness against that indicated in publicly available reports, including:
 - FMA KiwiSaver Annual report - <https://www.fma.govt.nz/assets/Reports/Kiwisaver-AR-2021.pdf>
 - MJW KiwiSaver market review - <https://mjw.co.nz/wp-content/uploads/2021/10/MJW-KiwiSaver-Market-Review.pdf>
 - Westpac survey (Nexus Research, September 2020) - <https://www.westpac.co.nz/about-us/media/kiwis-young-and-old-are-neglecting-their-kiwisaver-survey-finds/>

Glossary

KiwiSaver is New Zealand's regulated private retirement savings scheme. KiwiSaver started in 2007 and has just over 3 million members, from a total population of 5.1 million people. Members choose, or are auto-enrolled into, a KiwiSaver account from one of more than 30 providers.

New Zealand Superannuation (NZS) is New Zealand's public (tier one) pension.

Typically, people save into a retirement fund during their working life, then seek to supplement New Zealand Superannuation and other income in retirement, if any, by taking money from that fund. This process of spending down a fund in later life is known as **decumulation, income streaming or drawdown**. The focus in RIIG's work is on drawing down money from a fund each year, not necessarily of the same amount each year.

"Drawdown" is the process by which amounts are taken each year from an accumulated capital fund (such as KiwiSaver) which remains invested and so continues to benefit from investment growth. The amount taken – the **"income"** each year – will normally exceed the investment return on the fund, with the rest of the **"income"** coming from the fund capital itself. The fund is therefore expected to reduce in size over time.

The term **"retirement"** is used in this paper for the phase of life when most people do significantly less or no paid work and generally need income from their savings or other sources. While some individuals may transition from full employment to being fully retired on a specific, pre-planned day, the reality is rarely this straightforward.

By **"retiree"** we mean an individual who is close to or in retirement and thinking about how much income to draw down from their retirement fund. A retiree need not be of any particular age, but we envisage that people start thinking about their drawdown options at any time over age 50 and start drawing down after age 65. For people who work beyond age 65, age 70 may be a typical time to start drawing down.

End notes

¹ FMA (2021) KiwiSaver Annual Report 2021 <https://www.fma.govt.nz/assets/Reports/Kiwisaver-AR-2021.pdf>; MJW (2021) "KiwiSaver Market Review" Melville Jessup Weaver <https://mjw.co.nz/wp-content/uploads/2021/10/MJW-KiwiSaver-Market-Review.pdf>

² MJW. (2022). "KiwiSaver Demographic Study." Melville Jessup Weaver for Te Ara Ahunga Ora Retirement Commission. <https://retirement.govt.nz/policy-and-research/kiwisaver/>

³ FMA (2021) KiwiSaver Annual Report 2021 <https://www.fma.govt.nz/assets/Reports/Kiwisaver-AR-2021.pdf>

⁴ MJW. (2022). "KiwiSaver Demographic Study." Melville Jessup Weaver for Te Ara Ahunga Ora Retirement Commission. <https://retirement.govt.nz/policy-and-research/kiwisaver/>

⁵ For example, see <https://www.stats.govt.nz/news/gender-pay-gap-unchanged>. For further discussion of the potential reasons for differences between size of men's and women's KiwiSaver balances see NZIER. (2022). "KiwiSaver equity for women: Building long-term financial wellbeing." NZIER report to Kiwi Wealth. <https://www.nzier.org.nz/publications/kiwisaver-equity-for-women-building-long-term-financial-wellbeing>.

⁶ KiwiSaver Act 2006 <https://www.legislation.govt.nz/act/public/2006/0040/latest/DLM378378.html>

⁷ Tauākī Aronga mō te Pūnaha Moniwhiwhi Ahungarua o Aotearoa, Purpose Statement for New Zealand's Retirement Income System <https://retirement.govt.nz/policy-and-research/retirement-income-system-policy/purpose-statement-for-new-zealands-retirement-income-system/>

⁸ RIIG. (2021). "How to make drawdown a success." Retirement Income Interest Group of the New Zealand Society of Actuaries. <https://actuaries.org.nz/wp-content/uploads/2021/11/How-to-make-drawdown-a-success-FINAL-Nov21.pdf>.