

Continuity and change:

Retirement income preferences in New Zealand, 2014 – 2022.

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Extended Abstract

This paper reports the results of a multi-criteria decision making survey investigating the preferences of a sample of New Zealanders on the design and financing of the New Zealand government's retirement income schemes. The survey, conducted in 2022, is almost identical to a 2014 survey. It is designed so that respondents make trade-offs between seven features of retirement income schemes, including taxes. The results are similar in both years.

Five results stand out.

1. There is noticeably more support in 2022 for keeping the age of eligibility at 65 years rather than 67 years, although opinion is still divided.
2. In both years support for universality and opposition to means-testing is the most important criterion overall, although it is less important in 2022 than 2014.
3. Opposition to a small compulsory saving scheme is higher now than in 2014, but it remains small. Most people would not oppose a compulsory saving scheme.
4. Opposition to an increase in current taxes has increased, but a majority of people still would be willing to pay higher taxes now to reduce the need to raise taxes on future generations.
5. Overall, the 2022 respondents were less confident than the 2014 respondents that they will be comfortable in retirement.

The survey shows New Zealanders have diverse views over the relative importance of different aspects of retirement schemes. The results can be used to make inferences about the relative popularity of different potential policy reforms. As was the case in 2014, raising the age of eligibility to 67 years attracts much less support and much more opposition than raising taxes to keep the age at 65 years. If taxes were raised, there is a preference to raise taxes sooner than later, to avoid significant increases in taxes on future generations.

¹ Reserve Bank of New Zealand. This work was commissioned when the author was visiting the Asian University for Women, Chittagong, and is not associated with the Reserve Bank of New Zealand.

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1. Introduction

This paper reports the results of a multi-criteria decision analysis survey that investigates the preferences of a large sample of New Zealanders on the design and financing of the New Zealand government's retirement income schemes. The survey is almost identical to a survey previously conducted in 2014, enabling us to examine any changes in preferences over the intervening period. The survey is designed so that respondents are required to make trade-offs between desirable features of retirement income schemes, so that any additional benefits in one dimension come at the cost of fewer benefits in another dimension. The survey considers such issues as the size and the age of eligibility to the government pension – New Zealand Superannuation –, whether or not the pension should be means tested, the taxes needed to pay for the scheme now and in the future, and whether or not a compulsory saving scheme should be introduced.

In broad terms the results of the survey are similar to that conducted in 2014. When ranking the importance of different features of a retirement scheme, respondents are opposed to means-testing and still consider universality to be the most important criteria overall, although it is less important in 2022 than 2014. There is still considerable diversity in preferences over the desirability of changing the age of entitlement to 67 years, but the fraction of respondents who believe it is important not to raise the age is slightly higher and the fraction who would not be concerned if it was increased is slightly lower. A sizeable but slightly smaller majority of people would not be opposed to a compulsory saving scheme if it helped them achieve their financial goals. Respondents also think it is more important to avoid increases in future taxes rather than current taxes, although opposition to increases in current taxes to pay for higher benefits has increased somewhat since 2014.

This study, like the previous study, indicates that there is considerable diversity in the preferences of respondents. Quite simply, people want different combinations of things. One measure of this diversity is rank coherence, which measures the extent that people rank the seven criteria in the same order. For the sample as a whole, the coherence is 0.07 on a scale from 0 to 1, indicating that stated preferences are very diverse. The diversity of views as to the best form of retirement policy is likely to be a major reason why retirement income policy reforms are so controversial in New Zealand, as they are abroad.

Despite this diversity, it is possible to use statistical techniques to identify clusters (or groups) of people with similar preferences. There are five distinctive clusters, each ranging in size from approximately 14% to 28% of the sample. These groups can largely be characterised by the extent that members agree on the means-test, age, and compulsory saving criteria. The two largest clusters support the current system but would not be opposed to a compulsory saving scheme. They differ only in terms of whether they prefer the age of eligibility to remain at 65 years (the largest group) or raised to 67 years (the second largest group). The third cluster supports greater redistribution (higher taxes, higher pensions, means-testing, and a 65-year age of eligibility). People in the smallest clusters support saving flexibility and are opposed to a compulsory saving scheme. The fourth cluster would like the minimum intervention by government while keeping the pension universal (the age of eligibility raised to 67 years, no increase in the pension, no means test, no compulsion) while the last cluster likes the structure of the current system, except would impose a means test to reduce costs.

One advantage of the technique used in this research is that it can be used to evaluate potential policy reforms. This is done indirectly, by calculating the effect of different reforms on the seven criteria, and then imputing how a respondent would rank these reforms on the basis of how they answered the survey questions. The 2014 study used this technique to evaluate preferences over

two possible reforms, relative to a 'no change' option: keeping the age of eligibility at 65 years but having a larger prefunding policy that involves additional current taxes but a smaller increase in future taxes; and raising the age of eligibility to 67 years, which also results in a less rapid increase in future taxes. The results in 2022 are similar to those in 2014, although less pronounced: in 2022, a policy which raises the age of eligibility to 67 attracts much less support and much more opposition than policies that have higher taxes and keep the age at 65. Moreover, if taxes were raised, there is a preference to raise taxes sooner than later, to avoid significant increases in taxes on future generations. These results suggest that there is still considerable willingness amongst people of all ages to support initiatives such as the New Zealand Superannuation Fund that alter the intergenerational incidence of the costs of New Zealand Superannuation by reducing costs on future generations.

We also examine whether there are distinctive responses by people with identifiable socio-demographic characteristics such as gender, age, household income, or work status. In many cases there are differences in terms of the ranking of preferences of the seven criteria. While many of these differences are statistically significant, in most cases they are small, both in relation to the average weight of a criterion and in terms of the standard deviation of these responses. It was unusual to find population subgroups (such as young people aged 18 -24 years) whose average preference weight for a particular criterion was more than 10% higher or lower than the average population preference weight. This is because there is considerably more diversity within a population subgroup than there are differences across subgroups. Nonetheless, differences exist, and in most cases these differences have sensible interpretations, and are consistent with other findings. For example, people over 65 years indicate that, relative to all younger people, it is more important to have higher pensions and more wealth in retirement, but they are less concerned to keep the age of eligibility at 65 years. They are also more opposed to means-testing, less opposed to increases in current taxes, and less opposed to a compulsory saving scheme.

Of all the differences we find, potentially the most important are the differences between people who have little confidence of being comfortable in retirement, and those who are very confident. The former group tend to have low incomes or less participation in the paid workforce than the latter. On average, the less confident group would like a higher pension, are more concerned to maintain the age of eligibility at 65 years, are more opposed to a compulsory saving scheme, and less opposed to either tax increases or means-testing than others. Those who are most confident are happier to keep the pension at the current level, and are more opposed to mean-testing. The differences are not stark – the respondents with low confidence are equally distributed across the five preference clusters – but they are present in 2022 just as they were in 2014.

The rest of the paper is organised as follows. Section 2 describes the survey methodology and the survey questions, as well as the demographic characteristics of the sample. Since the survey is almost identical to the one used in 2014, we have omitted some of the details and refer the reader to Au, Coleman and Sullivan (2015, 2019) for additional details.³ Section 3 presents the results of the 2022 survey, and compares them to the results from the 2014 survey. Aspects of the results, particularly the diversity of preferences, are discussed in section 4, which includes an evaluation of the popularity of some possible policy reforms. Conclusions are offered in section 5.

³ The earlier and longer version of this paper provides an overview of multi-criteria decision analysis as well as a review of the international literature on pension design and pension preference surveys. These are omitted in the current paper.

2. The retirement income survey

2.1 New Zealand government's retirement income schemes

The survey was designed around the specifics of the New Zealand government's retirement income schemes. Government retirement income schemes are classified three ways.

- Tier 1 schemes provide a retirement income funded from general taxation unrelated to the amount a person contributes during their working-age years. These incomes can be the same for all people (universal) or they can be means-tested.
- Tier 2 or contributory schemes provide retirement incomes that depend on the amount that people contribute to the scheme during their working-age years.
- Tier 3 schemes encourage voluntary retirement saving by offering subsidies or lower taxes.

New Zealand is one of only two OECD countries that has a tier 1 scheme but no contributory tier 2 scheme. New Zealand Superannuation, its universal tier 1 scheme, is primarily funded on a pay-as-you-go basis from general taxation, but since 2001 a modest amount of pre-funding has occurred through the New Zealand Superannuation Fund. It is not means-tested. There is a subsidised (tier 3) voluntary saving scheme, KiwiSaver, introduced in 2007.

This survey is designed to investigate New Zealanders' preferences over several possible variations to the current scheme. These variations include a change in the amount or eligibility age of New Zealand Superannuation, the introduction of a means test, changes in the amount and timing of the taxes used to fund the scheme, and the possible introduction of a tier-2 compulsory saving scheme. The survey ensures respondents take into account the cost and benefit trade-offs that would be involved if the current scheme were changed by using a multi-criteria decision analysis structure.

2.2 Multi-criteria decision analysis and the survey design

The multi-criteria decision analysis software that we use uncovers respondent's preferences by getting them to consider aspects of a complex issue in a simplified way. Each respondent is asked to evaluate a sequence of scenarios that compare two aspects of retirement income policies at a time. For example, a respondent may be asked whether they prefer the age of eligibility at 65 years but current taxes to increase by 2 per cent, or to increase the age of eligibility to 67 years but keep current taxes the same, or whether they are indifferent between the two (see Figure 1).⁴ Once they have answered this question they are asked to compare another pair of randomly selected criteria, which may involve new criteria or different combinations of previous criteria. For example, they may be asked whether they prefer to receive a pension of \$460 per week from age 65 years, or \$490 per week from age 67 years. In all cases the scenarios combine a highly ranked category from one criterion and a lowly-ranked category from another, so that each choice requires the respondent to make a trade-off. The process is repeated until the algorithm has enough information to estimate a complete preference ranking over the criteria.⁵ The survey was approved by the Ethics Committee of the University of Otago (D13/279), originally in 2014 and again in 2022 (D22/195).

⁴ Note that the tax criterion statement provides a numerical example to ensure the comparison is as clear as possible. The full statement is listed in Table 1, section 3.

⁵ The software was provided by 1000minds Ltd (www.1000minds.com). It uses the PAPRIKA (Potentially All Pairwise Rankings of all Possible Alternatives) method to estimate a respondent's preference ranking over a set of criteria. See Hansen and Ombler (2008) or Ombler and Hansen (2012) for details.

The seven criteria of the survey are listed in Table 1. The criteria and the categories are almost identical to the criteria used in the 2014 survey. The criteria were chosen after a process involving an extensive review of the retirement income policy literature, the results of a trial survey conducted on a non-representative group of public servants, and discussions with several focus groups.⁶ Each criterion in the survey is represented by two categories that are ranked from lowest to highest according to the benefits they provide a person. For example, since the categories for the 'Pension amount' criterion are '\$460 per week' and '\$490 per week', the category '\$490 per week' is ranked highest as the person gets a larger sum. Because the categories are ranked in terms of the personal benefit obtained from each criterion considered separately, low taxes are ranked more highly than high taxes, 'no means testing' is ranked higher than 'means testing', and saving flexibility is ranked more highly than compulsion. The only change in the 2022 survey is an increase in the dollar value of the 'pension size' criteria to reflect the contemporary value of the pension.⁷

The two categories for each criterion were chosen so that the value of the top category relative to the bottom category is attractive to some people in some of the comparisons.⁸ There should be no criteria where the value of the increase from the bottom to the top category is so large or so small that they are the most preferred or the least preferred options for everyone. Where possible we tried to make the dollar value of different options similar.

- The bottom category for the age of eligibility (age 65 years) is the current age when people become eligible for the pension, and the second category (age 67 years) was chosen as the most commonly discussed alternative retirement age considered in public debates.
- The bottom category for the pension amount is the 2022 value of the single person's pension; the top category is \$30 per week higher, in line with the gap chosen in 2014.⁹
- The top category of the means-testing criteria is "No means test", because New Zealand Superannuation is currently universally provided rather than means-tested. The bottom category is a hypothetical means-test that means all people with moderate wealth receive \$60 per week less than the standard amount.¹⁰ This is a fairly modest means test, but one that a fairly large number of people could expect to be applied to themselves.
- The top categories for the current and future tax criteria are the taxes that would be needed to fund New Zealand Superannuation now and in the future if there were no changes to its current structure. The bottom categories reflect the size of the tax increase that would be necessary to support a \$30 per week increase in the size of the pension, which was calculated to be approximately 2% of personal income. The same 2% increase was used for

⁶ The focus groups, conducted in 2014, included students, retirees, women, Māori, Pacific people, disabled people, retirement policy experts and representatives from Grey Power, an advocacy group promoting the welfare of older citizens.

⁷ These were increased from \$360 and \$390 per week in the 2014 to \$460 and \$490 per week in the 2022 survey.

⁸ Only two categories were chosen for each criterion to reduce the length of the survey.

⁹ The \$30 per week gap was chosen when the single pension was \$360 per week, not \$460 per week. Since the average time a person receives a pension is a little over 20 years, \$30 per week is approximately equal to the value of two years' pension payments. We could have increased the rate to \$40 per week for the 2022 survey to reflect the higher value of the pension in 2022, but decided to keep the two surveys as similar as possible. The differences in the value of the categories do not have to be exactly the same across criteria; they just need to be of a magnitude that makes comparisons realistic.

¹⁰ As approximately half of the eligible population would be affected by the means-test, the reduction in expenditure is similar to the expenditure saved by raising the age of eligibility.

both the current and the future tax criteria make the comparisons as easy as possible and to highlight the intergenerational trade-offs involved.¹¹

- The bottom category for the retirement wealth criterion is twice a person's average annual income. The top level is three times a person's average annual income. These values were chosen to provide a way of measuring the possible benefit of a compulsory saving scheme that raises savings.
- The bottom value of the saving flexibility criterion is a compulsory saving scheme that requires people to save 5% of their income each week. The top level is saving flexibility, for this provides people with the option of saving 5% of their income but also provides them with the option of not saving if they can better use the money.

The survey results are expressed as the weights of a cardinal utility function that reflect the relative importance of the highest level of each criterion. The algorithm used by 1000minds means the minimum possible weight is just under 4% (0.04), and the average weight is 14.3% because there are seven criteria and the weights sum to 100%. If criteria are equally important, they have the same weights. We also refer to the rank or relative importance of the seven criteria. The criterion with the lowest weight is said to be rank 1, while the criterion with the highest weight is rank 7.

Because the weighting function is a cardinal utility function, it has a particularly desirable property: it can be used to evaluate preferences about policy changes that simultaneously change multiple outcomes. This means the survey results can be used to estimate how individuals rank policies that differ in terms of the outcomes they deliver. The ranking is done in two steps. First, the effect of the policy on each of the seven criteria is estimated. Secondly, the effect of the policy on each respondent's utility is estimated by adding up the respondent's weights for each of the seven criteria, using linear interpolation where necessary. For example, a government could choose to raise the age of eligibility by 1 year to age 66 years, and raise current taxes by 0.5 percentage points. Since the policy raises the age of eligibility to 66 years, we would use the average of the weights for '65 years' and '67 years' to calculate the utility that arises from an age of 66 years. We then add the utility that is a weighted average of the 0% and 2% tax options of the "current tax" criteria. In this way, it is possible to estimate how each respondent will rank two or more different policy options even though we do not directly ask the respondents to evaluate this mix of policies. If there are two policies, the policy with the highest utility is considered to be the respondent's preferred policy, based on our estimates of the respondent's preferences.

Respondents were presented with questions in random order; the total number of questions each respondent answered depended on their responses. Respondents typically answered 12 questions, taking 5 to 10 minutes to complete.¹² When the software had enough information to estimate a respondent's preferences, it repeated two of the trade-off questions as a quality check and then directed the respondent to a set of questions about their social and demographic characteristics. The repeated trade-off questions were the comparison pairs that the respondent should have found the easiest to answer, based on his or her estimated preferences, and allows the exclusion of people

¹¹It should be noted that this choice is feasible in the sense that if the government chose to increase taxes by 2% immediately and invest the proceeds, after a generation the investment returns would allow future taxes to be reduced by 2%.

¹² This time does not include the time needed to answer the demographic questions at the end of the survey.

who did not answer the questions consistently or who answered the questions in a random fashion.¹³

2.3 The sample

The survey was conducted in July and August 2022 using a web panel provided by the international market research firm Dynata.¹⁴ Over 2700 New Zealand residents over the age of 18 were sent a survey link, of whom 1299 completed the survey in an appropriate time (i.e. met the minimum time threshold) and passed the internal consistency test by answering the two repeated questions consistently.¹⁵ The sample is about 25% larger than the 2014 survey, which had 1066 respondents.

Table 2 provides information about selected economic and demographic characteristics of the survey respondents. In both 2022 and 2014 the samples were random, but neither is properly representative of the New Zealand adult population. In particular, the sample is disproportionately young and female relative to the New Zealand population. For example, 58% of the sample was female in 2022, relative to 51% in the adult population; 14% were aged 18 -24 years and 25% were aged 25-35 years, relative to 11% and 19% respectively; and only 14% of the sample were aged over 65 years, relative to 21% of the adult population.¹⁶ In contrast, the sample was ethnically representative; the fraction in the survey who are European, Māori, Asian and Pacific (with the fraction of the 2018 population aged over 15 in parentheses) are 71% (71%); 18% (14%) ; 12% (15%) and 5% (7%).¹⁷

In addition to demographic information, respondents were asked three questions about their retirement savings. First, they were asked whether they were a member of KiwiSaver. In the sample, 85% of respondents younger than 65 years and 31% of respondents older than 65 years were members of KiwiSaver, which are close to the fractions in the general population, 88% and 24%.¹⁸ Secondly, they were asked if they were members of other retirement savings schemes, including those from other countries. Thirdly, they were asked how confident they are that will have enough money to live comfortably in retirement. Four options were offered: 'Not confident at all', 'Not too confident', 'Somewhat confident' and 'Very confident'. The responses to this question are one of the strongest predictors of a respondent's preferences. In 2022, 61% of respondents over 65 years and 48% of respondents under 65 years were somewhat or very confident of having a comfortable retirement. The 2022 respondents were less confident than those in 2014 that they would have comfortable retirements; the fraction answering "somewhat confident" or "very confident"

¹³ The software uses the preference weights it estimates to calculate the total value of the two options of each set of comparisons, and calculates the difference between these two values. The two pairs of comparisons with the largest difference are chosen.

¹⁴ The 2014 survey was conducted in a similar fashion, but used a different surveying company.

¹⁵ People were excluded for the following reasons: (i) they were not New Zealand residents; (ii) they started but did not complete the survey; (iii) they completed the survey too quickly; (iv) their choices indicated they were probably not taking the questions seriously (e.g. they always chose the left-hand option);(v) they did not answer the two repeated questions consistently; or (vi) they wrote comments on the survey that indicated they did not understand the survey methodology.

¹⁶ The NZ adult population figures are sourced from Statistics New Zealand, INFOS DPE058AA.

¹⁷ The NZ over 15 population figures for 2018 are sourced from Statistics New Zealand, National ethnic population projections: 2018(base)–2043 update dated 29 September 2022.

¹⁸ The NZ KiwiSaver figures are sourced from [https://www.ird.govt.nz/about-us/tax-statistics/kiwisaver/datasets/ Kiwisaver monthly data Dec 2021 - Dec 2022.xlsx](https://www.ird.govt.nz/about-us/tax-statistics/kiwisaver/datasets/Kiwisaver%20monthly%20data%20Dec%202021%20-%20Dec%202022.xlsx).

decreased by 15 percentage points, with a similar drop amongst those over 65 years and those under 65 years.¹⁹

In the following analysis, we report preferences for the entire 2022 sample and for sample subgroups identified by particular socio-demographic characteristics such as age. However, for reasons discussed in depth below, we have chosen not to reweight the sample in our analysis. The main reason is that the differences in preferences between subgroups identified by observable characteristics are small relative to the differences between respondents; that is, people differ more by how they think than how they look. Since we do not weight the results, the sample results for population subgroups will be more representative of the respective New Zealand population subgroups than the results for the full sample will be representative of the population as a whole, as the latter has some composition bias. While we have not attempted to weight the 2022 sample, we previously calculated weighted and unweighted estimates of preference weights for the 2014 sample and these were extremely similar to each other.

3. Results of the 2022 and 2014 surveys.

3.1 Methodological approach.

The estimated preferences of an individual respondent can be represented by (i) a vector of weights $w_i = (\omega_1 \omega_2 \omega_3 \omega_4 \omega_5 \omega_6 \omega_7)$ that sum to 100% and show the relative importance of the top value of each criterion, and (ii) as a vector that lists the rank he or she gives to each criterion, for example $x_i = (6 \ 5 \ 2 \ 1 \ 4 \ 7 \ 3)$. As there are only two levels for each criterion, the approaches are equivalent, but it proves that one expression is more convenient for some statistical approaches and the other expression is more convenient for other approaches. We use both.

1. Preference diversity

The diversity of preferences of a group is calculated as the mean Spearman rank correlation coefficient between all possible pairs of people in the group. To calculate this, we first calculate the Spearman rank correlation between the vectors of two members of a group, x and y .²⁰ This measure has a value between negative one and one: it is equal to one if both people rank the criteria in exactly the same way, and negative one if they rank criteria in opposite ways. The mean Spearman rank correlation is obtained by calculating the mean Spearman rank correlation for all possible pairs of respondents. If a group has uniformly distributed preferences, meaning that each of the preference rank vectors is equally likely, the group would have a mean Spearman value equal to zero. If all people had the same preferences, the value is equal to one. This measure is reported in section 3.2.

2. Mean and standard deviation

The simplest method of comparing the average importance of each criterion is to calculate the mean value of each preference weight. The standard deviation of the weights of the criteria is a measure

¹⁹ The percentage of respondents under/ over 65 years answering the four categories, from worst to best, were (9, 28, 48, 15) and (6, 21, 52, 21) in 2014; in 2022 the fractions were (18, 33, 42, 7) and (14, 25, 44, 17). The decline in confidence was fairly uniform amongst all ages under 65 years.

²⁰ If there are n criteria, the correlation coefficient is $\rho_{xy} = 1 - \frac{6}{n(n^2-1)} \sum_{i=1}^n (x_i - y_i)^2$.

of the diversity of preferences over each criterion. These measures are also reported in section 3.2 Table 3a and 3b.²¹

3. Rank distributions

For each criterion, the fraction of the respondents who rank the criteria from 1 (worst) to 7 (best) is calculated. This distribution provides an alternative method of assessing the relative importance of each criterion. In some circumstances, these distributions can be used to provide a definitive ranking of two criteria if one cumulative distribution lies entirely to the right of the other. Graphs of these distributions are used to compare the criteria with each other in 2022, and to compare individual criteria between 2022 and 2014 (figures 2a – 2g).²²

4. Differences between population subgroups

In section 3.2 we examine whether a population subgroup (e.g., people aged 65 years and over) has same the distribution of preferences over a particular criterion as people outside this group (e.g. people aged less than 65 years). We use the Wilcoxon-Mann-Whitney statistic to test the hypothesis that members of the two groups have the same distribution of preferences over a particular criterion. The population subgroups with distinctive preference distributions are reported in Table 4, along with the mean difference in preference weights.²³ These results are summarised in Table 5.

If there are large differences in preferences across subgroups, the average preference weight estimates for a particular sample will produce a poor estimate of the average preference weights of the underlying population unless the sample is representative. In contrast, if different population subgroups have only small differences in their average preference weights, it does not matter much if the sample is not representative across groups so long as it is random within groups. The estimates indicate that there are only small differences in preference weights across different population subgroups, suggesting that there is unlikely to be a problem making inferences about the wider population's preferences from our sample even though the sample is not properly representative.

5. Regression analysis

Several of the demographic characteristics are correlated – for example, most retired people are over 65 years old, and many have low incomes. This means some of the differences in the preferences of particular population subgroups reported in Table 4 will reflect the population group's other characteristics. People over 65 years old may like higher pensions, for example, because they have low household income. We use regression analysis to isolate the importance of each characteristic by itself. The regressions are estimated using the fractional multinomial logit estimator which takes into account the interdependence of the relationships between the independent socio-demographic variables and the seven criteria that occur because the weights sum to 100%. This analysis is reported in section 3.3 (table 6). In general terms, the estimates from the regressions (Table 6) are consistent with the estimates of the average preferences of different population subgroups considered one at a time (Table 4).

²¹ If there is a set of m respondents, $Y = \{y_1, y_2, \dots, y_m\}$, the mean preference vector is $\bar{\omega}$: $\bar{\omega} = \frac{1}{m} \sum_{j=1}^m \omega_j$.

²² The data are presented in Table A1 in the Appendix.

²³ The difference in the mean preference weight is an estimate of the differences in their average preferences of two population subgroups.

Since the regression analysis controls for demographic characteristics, it can be used to estimate how preferences have changed over time. The regressions in Table 6 pool the data from 2014 and 2022 but allow for a shift in preferences over time. A 'dummy' variable measures the size of the average change in preferences over time, conditional on the demographic characteristics of the sample. As we show, these conditional estimates of the average change in the preference weights for the seven criteria are very similar to the mean difference in the preference weights over the two years. This indicates that the change in the average preference weights is due to changes in underlying preferences, not changes in the type of people in each year's sample. This provides additional confidence that the changes in sample populations are not the cause of the changes in the preferences we document.

6. Preference clusters

Rather than sort the respondents by observable characteristics such as age, they can be sorted into preference clusters: that is, groups of people who have similar preferences. These clusters are found using K-means clustering. This method sorts similarly minded respondents into groups and reports the mean preference weights of each of these groups. The number of groups is determined endogenously from the sample data.²⁴ By definition, respondents in each of these groups have similar preferences and thus the respondents in a group have a high mean Spearman rank coefficient. The mean preference weights define the basic preference characteristics of each group and the number of respondents in each group indicates the relative importance of each preference cluster to the sample as a whole. We also test whether people with particular observable characteristics are distributed across these preference groups in similar fractions as the sample as a whole, or whether people with a particular observable characteristic disproportionately have preferences of a particular kind. The analysis of preference clusters is reported in section 3.4 (Tables 7 and 8).

3.2 The average level and dispersion of preference ranks.

Table 3 shows the mean and standard deviation of the preference vectors for the sample in 2022, plus the fraction of the population who ranked each criterion either highest (rank = 7) or lowest (rank = 1). Figures 3a-3g show the rank distributions for each criterion in 2022 and 2014. There are three key results.

(i) The distribution of preferences.

New Zealanders have very diverse preferences about retirement income policies. The mean Spearman rank correlation for the 2022 sample is 0.07, almost exactly the same as in 2014 (0.08). As this measure ranges from 0 (preferences are uniformly distributed: that is, each criterion is equally likely to be ranked best or worst) to 1 (all respondents have the same ranking), it is clear there is little agreement about the relative importance of the various criteria across the respondents.²⁵ However, the hypothesis that New Zealanders have uniformly distributed preferences can be rejected at the 5% significance level.

²⁴ The number of clusters that best describes the 2022 data was determined using the "Gap" criteria of Tibshirani, Walther and Hastie (2000). The number of clusters that best described the 2014 data was determined using the Bayesian Information Criteria. In both years we estimate that there are five main clusters.

²⁵ The mean ranks of the seven criteria are equal if preferences are uniformly distributed.

Table 3 also presents the standard deviations of the distributions of the individual weights. The standard deviations vary from 0.057 to 0.078 and are almost the same in 2022 as 2014. In all cases these are large relative to the mean weights, indicating there is considerable diversity in preferences across people.

(ii) The relative importance of the seven criteria.

The mean preference ranks for the different criteria range from a maximum of 0.166 to a minimum of 0.116. The ordering is almost the same as in 2014. The three highest-ranked criteria are (i) universality/means-testing (ii) future taxes rates and (iii) the age of eligibility. On average, respondents expressed a strong preference for universal rather than means-tested pensions, were opposed to policies that result in steep increases in taxes on future generations, and think it is important to retain the age of eligibility at 65 years. The lowest-ranked criterion was the flexible saving/compulsory saving criterion: few respondents thought saving flexibility provided many advantages relative to a compulsory saving scheme. The importance of additional retirement wealth was the second least important criteria. The mean weights of the other two criteria, current taxes and the pension amount, were ranked in reverse order 2014 and 2022. In 2014 respondents thought it was slightly more important to raise the weekly pension by \$30 than keep taxes low; in 2022 the ranking was reversed, although in both years the difference in the mean weights is small.²⁶

While the rank order of the criteria is nearly the same in both years, the differences between the criteria were smaller in 2022 than in 2014. The average weight on the most important criterion, pension universality/ means-testing, declined from 0.174 to 0.166. While pension universality remains the most important criteria to the largest number of respondents, the decline was due to a 10 percentage point decline in the fraction of respondents indicating that universal pensions were the most important of the seven criteria. In contrast, the importance of the least important criterion, saving flexibility, increased from 0.106 to 0.116. This was because of a 10 percentage point decline in the number of respondents that indicated that saving flexibility was the least important criterion. Nonetheless, saving flexibility remains the least important criterion for the largest number of respondents. There is also a noticeable increase in the average weights on the current tax criterion, and a smaller decrease in the weight on the future tax criterion. In both cases a high weight means respondents are opposed to tax increases. In 2014, future taxes had a 0.025 higher weight than current taxes; in 2022 this margin had reduced to 0.010.

The average weight on the age of eligibility criterion increased from 0.145 to 0.158. This change is substantial and occurred because of a 5 percentage point increase in the number of respondents indicating it was very important to keep the age at 65 years, and a 4 percentage point decrease in the number of respondents indicating this was the least important criterion. In 2014 the distribution of preferences over age was distinctly “U-shaped”, with nearly equal numbers of respondents indicating it was either the most important or the least important criterion. This was no longer true in 2012.

Do these changes in the mean weight reflect an underlying change in preferences, or do they only reflect a change in the composition of the survey samples? We believe that it largely reflects a change in preferences. Figure 2 shows the difference in the average weights for each criterion alongside the estimated differences in the average weights from the pooled fractional multinomial

²⁶ Note that the the lower weight on the pension amount criterion in 2022 is consistent with the decline in the real value of the \$30 difference in the the weekly pension in 2022 relative to 2014.

logit regressions.²⁷ The latter are calculated by pooling the two samples and allowing for a “dummy” time variable for the observations from the 2022 sample. Since the regression estimates condition on a full set of socio-economic variables, they estimate the change in preferences that is independent of the composition of the sample. The figure indicates that the change in preferences estimated from the mean change in weights is almost the same as the change in preferences estimated from the pooled regression. This suggests that the changes in the average weights are due to cross-the-board changes in average preferences, rather than changes in the composition of the sample. It follows that changes in the composition of the sample were not a major contributor to the differences in the mean weights in the two periods.

(iii) The distribution of rank preferences.

Figures 3a–3g show the entire distributions of the preference ranks.²⁸ Each graph shows the fraction of respondents ranking a criterion from 1 to 7 for both 2022 and 2014. Overall, the dominant message of the graphs is that not much has changed over the eight years: the distributions of all criteria are similar in both years.

In both 2014 and 2022 the ‘universality/means-testing’ criterion (Figure 3a) is the most important criterion to the largest number of respondents. Thirty-one percent of respondents rank universality rather than means-testing as the most important feature of retirement income policy, and an additional 27% rank it as the second or third most important. While there is a 10% decline in the fraction of respondents indicating it is the most important criterion in 2022 relative to 2014, the 2022 survey confirms that opposition to means tests is widespread.

The distribution of preference ranks for the future tax rate criterion (Figure 3b) has a characteristic inverted “U” shape, suggesting the criterion is moderately important for most respondents, but is neither the most important or least important criterion. The distribution changed little between 2014 and 2022. The distribution of preferences over current taxes (Figure 3d) has a similar shape, although the 2022 peak is shifted to the right of the 2014 peak, indicating there is growing opposition to increases in current taxes. There are still only a few respondents who think it is really important to avoid current tax increases, but the number who think it is moderately important to avoid increases in current taxes (ranks 2- 3) increased by 5%. These preference changes indicate there is a significant decrease in the number of respondents who would be willing to accept a 2 percentage point increase in current taxes if it reduced the increase in future taxes from 5 percentage points to 3 percentage points, from 65% in 2014 to 54% in 2022.²⁹ This suggests support for prefunding future New Zealand Superannuation payments through an institution such as the New Zealand Superannuation Fund has fallen, although remains positive, largely due to the growing aversion to increases in current taxes.

The change in preferences over the age of eligibility is shown in Figure 3c. There is a significant reduction in the number of respondents saying that it is unimportant to keep the age at 65 years (and thus implicitly saying they are happy to have the age increase to 67 years), and an increase in the number of respondents saying they think it is important to keep the age at 65 years. In 2014, the distribution of preferences over the age of eligibility were “U” shaped, but this is no longer the case.

²⁷ The change in the mean weights is reported in Table 3. The estimated regression dummies are the first row of Table 6.

²⁸ The raw data are presented in Table A1 in the appendix.

²⁹ In addition, 4% of people said they were indifferent between the two in 2014, and 6% in 2022. This means those opposed to the policy increased from 31% in 2014 to 40% in 2022.

The preferences over the pension amount and savings amount both have an inverted “U” shape in 2014 and 2015 (Figures 3e and 3f). This shape indicates they are neither extremely important nor unimportant. Both became less important considerations over the period.

The distribution of preference ranks for the flexible saving/compulsory saving criterion are shown in Figure 3g. In both years more than 30 per cent of respondents indicated that saving flexibility was the least important of all seven criteria, and relatively few people indicated it was important. In fact, fewer than 25% indicated it was one of the two most important criteria. These results suggest there would be little opposition to a modest compulsory saving scheme if it allows a reduction in taxes or it raises the amount of wealth available at retirement, although there is more opposition than in 2014.

Overall, these results show there is considerable continuity in people’s preferences over different aspects of retirement policy over the last eight years. Support for keeping the age of eligibility at 65 years has increased; opposition to means-testing has reduced but remains considerable; and while there is increasing aversion to increases in current taxes, there still remains positive support for programmes that can reduce the increase in future taxes.

3.3 The effect of socio-economic characteristics on preferences.

Table 4 indicates the combinations of population subgroups and criteria where the differences in preferences is significantly different from people not in the subgroup, along with the mean difference in the preference weights in the cases where the preference distributions are significantly different.³⁰ In practice, given the variation in preferences across respondents and the sample size, the differences are only statistically significant in circumstances where the mean weights differ by more than approximately 0.01, or about 7% of the average weight. The maximum difference in the average weight of a population subgroup and its complement is 0.025, and most differences are much smaller.³¹

The differences between population subgroups, even when statistically significant are small relative to the average preference weights. They are also much smaller than the variation of preferences of the people in the group, rarely third as large. In all cases the variation of preferences within a population subgroup is much larger than the variation across subgroups. Put differently, knowing something about a person (e.g., their age) is not very helpful in identifying their preferences, because the variation of preferences of people with any observable characteristic is very large. This is also true for the confidence variable which, strictly speaking, is not observable but self-assessed. Even though many of the largest differences between subgroups occurred for groups that self-identified in terms of their expected comfort in retirement rather than for groups that could be identified in terms of observable characteristics, the variation of preferences within these groups is considerable.

The results in table 4 can be examined in two ways. A particular row shows the difference in the average weights of a particular population subgroup (e.g. people aged over 65 years) and its

³⁰ The Wilcoxon-Mann-Whitney test is used to test the hypothesis that there is no difference in the distribution of preferences between a group and its complement. The table only shows differences that are statistically significant at a 5% confidence level, and highlights that are different at the 1% level.

³¹ The maximum difference in weights concerns the preference of respondents aged 55-64 years to keep the age of retirement at 65 years.

complement (all other people) across all criteria, one criterion at a time.³² Interpreted this way, the data show the extent that different subgroups have different preferences. In contrast, a particular column (e.g. the age of eligibility) shows all the population groups that have different preferences over this criterion. The “column” results are summarised in Table 5, which lists the subgroups that have significantly higher or lower weights for each of the criteria.

These subgroup comparisons do not condition on other factors that may vary across subgroups, and thus do not estimate the marginal effect of a socio-demographic factor on preference ranks.³³ The fractional multinomial logit regression model estimates the marginal effects of a particular characteristic (Tables 6 and A2). Two sets of regressions were estimated. The first set is estimated only using the 2022 data. These results are reported in table A2 in the appendix. The second set, which is reported in Table 6 and on which we focus, is estimated by pooling the 2014 and 2022 data. These estimates impose the same coefficients on the variables in both surveys, but they allow the average weights to differ across the surveys.³⁴ The regression estimates show the importance of a particular demographic variable *relative* to the reference group. The reference group was chosen to represent the most common type of person surveyed. The reference categories are a person who is aged 35-44 years; female; living in Auckland; of NZ European ethnicity; has a university degree; works full-time; lives in a household with more than \$100,000 household income; has children; is married; is somewhat confident about her retirement prospects; is a KiwiSaver member; and has no other pension plan. Each coefficient shows the additional effect of a particular characteristic on a criterion relative to this reference. For example, in Table 6 the coefficient for the age-group ‘55-64’ on the ‘Age of eligibility’ criteria is 0.0171, with a standard error of 0.0053; this means someone aged 55-64 has an average weight that is 0.0171 more than a person who is aged 35-44. These coefficients should be interpreted with reference to the average weight of the ‘Age of eligibility’ criteria, which is 0.158 (Table 3).³⁵

In general, the average results presented in Table 4 and the marginal results presented in Table 6 tell the same story. In most cases, if a population subgroup on *average* has significantly higher preferences for a criterion than other people (Table 4) then the *marginal* effect from the regression of that characteristic is positive relative to the reference group (Table 6); conversely, if it has significantly lower preferences for a criterion on average, then the marginal effect from the regression is negative relative to the reference group. Because Table 4 is much easier to interpret, the following discussion primarily refers to the average differences in preferences, but the results reflect the findings from both approaches as they are largely consistent.

³² We also calculated the Li-Schucany test statistic of the hypothesis that the two subgroups have the same mean vector of preferences across all criteria: this was rejected at the 1 per cent level for all groups and is not reported.

³³ The marginal effect of a characteristic such as age on a preference weight is its effect holding other characteristics the same. For example, middle aged people typically have higher incomes than young people, and are more likely to have children. The marginal effect of an increase in age is the effect of age, holding income and the number of children the same.

³⁴ Recall that the average differences reported in the first row of Table 6 measure the extent that the preference weights were larger or smaller in 2022 than 2014 (see Figure 2).

³⁵ Note that this coefficient is smaller than the difference in the average size of the weights between people aged 55-64 and all other people reported in table 4. There are two reasons for the difference. First, the regression coefficient is the difference between people aged 55-65 and those 35-44, not all age groups. Secondly, the regression estimate takes into account the correlation between age and other characteristics (such as income), whereas the average weight for the category does not and confounds the “pure” effect of age with the effects of other characteristics correlated with age.

The summary in Table 5 shows the following results, by criteria. Once again, it must be emphasised that the average differences between groups, while statistically significant, are small relative to the variation within groups.

1. *Universality/ Means-test.* The people most in favour of universality and most opposed to means tests are over 65 years old, and have high income. They are typically KiwiSaver members and have high confidence that they will be comfortable in retirement. Those least opposed tend to be low income, not working, and single, and Pasifika ethnicity. People who have low confidence they will be comfortable in retirement, and who are not members of KiwiSaver are also the least opposed to means tests.
2. *Future taxes.* The people who most want small increases in future taxes are female, young (aged 18-24), and have a university degree.³⁶ They are members of KiwiSaver. Conversely, those least opposed to large increases in future taxes are male, and are not members of KiwiSaver.
3. *Age.* The people who most want the age kept at 65 are aged 55 – 64 (!!), have low income, have a tertiary qualification other than a university degree, and Pasifika ethnicity. Those least opposed to raising the age to 67 are very confident they will be comfortable in retirement.
4. *Current taxes.* The people who are most opposed to increase in current taxes are aged 18 – 35, full-time university educated and Asian ethnicity. Those most comfortable with increases in current taxes are aged over 55, low income, tertiary but not university educated, and New Zealand Pakeha/ European ethnicity.
5. *Pension Amount.* The people who would most like to see the pension amount increased are people over 65 years old, those with low incomes, and those who have low confidence they will be comfortable in retirement. Those who want no change in the pension have high incomes and are somewhat or very confident they will be comfortable in retirement.
6. *Savings Amount.* The people who think high levels of saving are important are those aged over 65 years, are New Zealand Pakeha/European ethnicity, and who live in the South Island. Those who are least concerned are aged 34-45, have lower income, are Māori ethnicity, and live in the upper North island.
7. *Saving Flexibility.* The people who think saving flexibility is important are aged 35-44, have low income, are not working or are part-time, have high school qualifications, and are Māori ethnicity. They are not KiwiSaver members and have low confidence of being comfortable in retirement. Conversely, those least opposed to a compulsory saving scheme have high incomes, are full-time, and university educated. They are KiwiSaver members and typically have high confidence of being comfortable in retirement.

These results are similar to the results found in 2014. Then, as now, two sets of differences stand out. First, people aged over 65 years' old are, relative to all younger people, more opposed to means-testing, less opposed to increases in current taxes, and less opposed to a compulsory saving scheme. They also think it is more important to have higher pensions and more wealth in retirement. These results suggest, unsurprisingly, that older people are concerned to have more resources in retirement, but also, they think programmes that encourage saving are important. Secondly, people living in low-income households have a stronger preference for keeping the age of eligibility at 65 than other groups, but less concern about retirement savings; they are also more opposed to compulsory saving schemes but less concerned about universality. Many of these preferences are shared by people who are not members of KiwiSaver or who have low confidence

³⁶ This is one of the few cases where the average and marginal coefficients are different. According to the average results (Table 4), people aged 18-24 have a low weight on the future tax criteria (ie are not opposed to high future taxes.) However the coefficient is negative in the marginal results (Table 6). The other confounding variables such as income, work status and education may explain this result.

they will be comfortable in retirement, especially the limited support for universality and the opposition to support for saving flexibility. In contrast, higher income people and those who are confident they will be comfortable in retirement are more opposed to means tests, less concerned about compulsory saving schemes, and more willing to allow the age of eligibility to 67 years.

3.4 Preference clusters.

In addition to sorting the respondents by their observable characteristics such as age, they can be sorted into preference clusters (groups of people who have similar preferences). The data for 2014 and 2012 were clustered separately, using the K-means clustering procedure to estimate the appropriate number of clusters. In each year 5 clusters were chosen. Table 7 shows the cluster centroids (the mean weights of the seven criteria in each cluster) and the fraction of the sample in each cluster. Both the cluster centroids and the fractions of respondents in each cluster are nearly the same in 2022 and 2014.

In both years, the respondents in the three largest clusters, approximately 70% of the total sample, did not consider saving flexibility to be important. The members of the largest cluster ('Status quo plus compulsory saving') were characterised by their support for universality, for keeping the age of eligibility at 65 years, and for keeping the pension amount at the same level, as well as for their limited support for saving flexibility. This cluster had 27% of respondents in 2014 and 28% in 2022. The second largest cluster ('Raising the age plus compulsory saving') was similar, but in this case the respondents supported an increase in the age of eligibility to 67 years. This cluster had 24% of respondents in 2014, but only 21% in 2022. In combination, this means nearly half of the respondents supported the current level of New Zealand Superannuation with an eligibility age of either 65 or 67 years, but would not be averse to making KiwiSaver compulsory. The third most popular cluster ('Means-testing and redistribution') was characterised by the respondents' support for means-testing, higher pensions, and keeping the age of eligibility at 65 years. The people in cluster also placed low value on saving flexibility. This cluster had 19% of respondents each year. Consequently, in both years about 70% of the respondents signalled they would have little opposition to a compulsory saving scheme.

In both years the respondents in the remaining two clusters placed a high weight on saving flexibility. The people in the fourth largest cluster ('Pension minimalists') are characterised by a desire for minimal government interference in the pension scheme. They are opposed to means-testing; support raising the age to 67 years; like low taxes; want an increase in the amount of the pension; and are opposed to a compulsory saving scheme. This cluster had 18% of respondents in 2014, and 17% in 2022. The people in the last and smallest cluster ('Age 65 with means-tests and saving flexibility') wished to keep the age of eligibility at 65 years, supported means testing to reduce the cost of the scheme, and also placed a high value on saving flexibility. This cluster had 11% of respondents in 2014, and 13% in 2022.

Table 8 shows the number of people in each of the preference clusters by population subgroup. The table indicates that people in every population subgroup are distributed across the preference thought clusters in very similar proportions. While there were some small differences in the distributions of preferences across the clusters, in no case was it possible to reject the hypothesis that people in each of the demographic groups were distributed across the preference clusters in an identical manner.³⁷ This further confirms that observable characteristics have a relatively minor

³⁷ The hypothesis that members of a population subgroup are distributed in an identical manner across preference clusters was tested using a multinomial probability test. The hypothesis is rejected if the test

influence on people's preferences about retirement income policies.³⁸ The largest pattern of differences in the data concerns the retirement confidence variable: respondents who had low confidence of being comfortable in retirement are much more likely to be in the 'Means testing and redistribution' cluster than people who have high confidence they will be confident in retirement.

4. Discussion.

4.1 Diversity.

A central feature of the survey methodology is that it estimates and characterises the diversity of preferences amongst respondents. We have focussed on three characterisations of this diversity.

- i. The mean rank Spearman correlation, which measures the extent that people rank the seven criteria in the same way.
- ii. The standard deviation of the weights, which shows the dispersion of preferences over each of the seven criteria separately.
- iii. The distribution of people in different population subgroups across the five identified preference clusters.

All of these measures suggest that in both 2022 and 2014 the respondents had very diverse views about retirement income policies. Perhaps the easiest summary statistic is the mean rank Spearman coefficient, which was either 0.07 or 0.08 on a scale from 0 to 1. This statistic indicates the respondents had little agreement about the relative importance of the seven criteria. The diversity of preferences is largely uncorrelated with the diversity of observable characteristics such as age, gender, ethnicity, or income. When it comes to retirement income policies, how people think matters much more than how they look, how much they get paid, or their education background.

The diversity of preferences means it is unlikely that policy makers will find policies that are well aligned with the preferences of a particular population subgroup. As section 3.3 demonstrated, while there are identifiable differences in opinions across population groups, these differences are generally small, much smaller than the differences in opinion within the groups. In neither year could we find population characteristics that were *strongly* aligned with particular preferences. This is because preferences amongst people in all of the population subgroups that we examined were so diverse that it is always possible to find sizeable minorities of any particular subgroup that support or oppose any particular policy.

The diversity of opinion may explain the reluctance of politicians to contemplate changes to New Zealand's retirement income policies, particularly given the intensity of the political debates between 1973 and 1997. Yet it is not obvious that policies that were designed in the second half of the 20th century to deal with 20th century circumstances are the most appropriate policies for the generations who will spend their entire adult lives in the 21st century. At the very least, increases in longevity combined with the baby boomer demographic bulge mean that the costs of New Zealand's

statistic, which has a $\chi^2 (n-1)(m-1)$ distribution, is large, where n is the number of preference clusters and m is the number of separate population subgroups. The socio-demographic characteristics were tested separately. For example, there are $m=6$ separate age groups in the age classification. In no cases could the hypothesis that the distributions across clusters were equal be rejected. Note that we did not include groups with very small numbers of people (such as people reporting "other" gender) in the comparison to ensure statistical validity.³⁸ These results show the number of people in each preference cluster. There is variation within the clusters, however: the mean values of the weights of people from different population subgroups within each cluster are not equal.

retirement income policies have fallen (and will fall) quite differently on different generations, with generations born after 1980 facing much higher costs than those born earlier (Coleman 2016). As the 21st century unfolds, some changes to the structure or funding of New Zealand's retirement income policies may be desirable. Fortunately the 1000minds survey technology makes it possible to search for policies that are supported by large number of people, without simultaneously being opposed by large numbers of people.

A feature of the technology is that it allows the evaluation of hypothetical policy experiments based on the preferences of individual respondents, rather than on sample averages. Policy makers can design policies and indirectly estimate the way these would be ranked by each respondent, based on the way they answered the survey questions, without needing to directly ask the respondents to rank the policies. This makes it possible for policy makers to narrow down possible policy reforms to those which attract reasonable support and little opposition, if they so wish. We consider two possible experiments in the next section.

4.2 Hypothetical policy experiments.

(i) Raising the age of eligibility to 67 years

The algorithm used by the 1000minds software allows the survey results to be used to evaluate potential policy reforms. As we described in section 2, this is done in two steps. First, the effect of each potential policy reform package on the seven criteria are calculated. For example, one of the policy reforms we consider is raising the age of eligibility to 67 at some point in the future. This reform affects the age of eligibility and the size of future taxes, but has no effect on the other five criteria. The effects of the policy reforms have to be specified in a quantitative manner. In this case this requires an estimate of the size of future tax rates necessary to fund future pension expenditure corresponding to an age of eligibility of 67 years, given demographic projections and economic growth rates. These calculations are done by the researchers, not the respondents. Secondly, the way that each respondent ranks these different reform packages is imputed given their estimated preference weights. As the software estimates a cardinal utility function, this is done by multiplying the effect of the reform on each dimension by the policy weight for that dimension, using linear interpolation when the policy reform has an intermediate effect on a criteria. For example, the utility of a policy that raises the age of eligibility to 67 year and increases future taxes by 3.5% is calculated by adding the preference weight of age 67 to an average of the weights on the two future tax categories.³⁹ The imputed utility of each of the reforms is calculated for each of the respondents. This provides an estimate of the way each respondent would rank the reform packages, even though the respondents are not directly asked about these packages. This enables researchers to consider the relative popularity of a large variety of potential reforms.

The 2014 study used this technique to evaluate preferences over two possible reforms, relative to a 'no change' option: keeping the age of eligibility at 65 years, but having a larger prefunding policy that involves additional current taxes but a smaller increase in future taxes (SAYGO 65); and raising the age of eligibility to 67 years, which also results in a less rapid increase in future taxes (PAYGO 67). As this study is interested in knowing how preferences have changed, we have used the

³⁹ In this example it calculates the weight on a 3.5% increase in future taxes as 75% of the 'Future taxes rise by 3%' weight and 25% of the 'Future taxes rise by 5%' weight, and then adds the weight 'Age of eligibility = 67'.

identical policy reforms, including identical interpolation weights, even though estimates of the current and future taxes necessary to institute the reforms have changed since 2014.⁴⁰

The results are shown in Table 9. In both years, the policy that is ranked best by the smallest number of people, and that is ranked worst by the largest number of people, is the PAYGO 67 policy that increases the age of eligibility to 67 years. Only 13% of respondents were imputed to rank this as the best policy in 2022, and 61% ranked it as the worst policy. The unpopularity of this policy has increased relative to 2014. In contrast, a small majority of people (53%) are imputed to rank the SAYGO 65 as best, and only 19% ranked this policy as worst. While support for this policy is reduced slightly since 2014, it remains the most popular policy. This policy can be implemented by (i) raising taxes immediately and investing the proceeds in the New Zealand Superannuation Fund, (ii) using the ongoing returns from the additional funds to reduce future tax collections. The status quo option, keeping the age of eligibility at 65 with no change to current taxes, is more popular in 2022 than 2014, with 11% more people ranking it first (up from 26% to 37%) and 10 percent fewer people ranking it as worst (down from 28% to 18%). The increased popularity of this policy largely reflects the rising opposition amongst many respondents to increases in current taxes.

(ii) Providing the option to obtain a larger pension at age 67.

A second policy experiment that was considered in 2014 was the option of allowing people to obtain a larger pension if they delayed receiving the pension until they were 67 years old. This policy is easy to evaluate, as it simply requires comparing the weights on the 'Age of eligibility = 67 years' option and the 'Raise the pension by \$30 per week' option, under the assumption that these two options are fiscally neutral. In 2014 46% of respondents indicated they would be willing to delay receiving the pension if they could receive a higher amount. In 2022, this number had reduced to 40%, with a further 2.5% indifferent to the two options. This decline reflects the increasing preference for keeping the age of eligibility at 65 years amongst many respondents. Nonetheless, the option of receiving a larger but delayed pension still appears attractive to a large number of respondents. Given that it is straightforward and nearly costless for the government to provide such an option, and this option appears to be valued by large numbers of people, it is something that a welfare-enhancing future government may wish to contemplate.⁴¹

4.3 Strengths and Limitations.

Governments around the world are experimenting with new ways to incorporate public opinion and feedback into their decision making processes (Lees-Marshment 2015; for recent examples, see the programmes adopted by the Federal Reserve or the Office of Public Engagement in the U.S.A).⁴² The surveys conducted in this research utilize established multi-criteria analysis method to systematically estimate and document the publics' preferences in a way that is directly relevant to policy development and analysis. These techniques have been used by foreign governments to improve the allocation of health expenditure, and to address environmental problems, but multi-criteria decision analysis has not been used to analyse retirement income policy preferences. While several foreign surveys about retirement income policy have used other surveying techniques to ask questions that

⁴⁰ We could recalculate the relative popularity of the reforms using 2022 projections of the future taxes necessary if the age of eligibility was either 65 or 67 years, but have chosen not to do this. Note that the future taxes we calculate depend on the rate of return that is earned on invested funds. In the 2014 study, and thus in this study, the assumed rate of return was significantly lower than the average rate of return earned on the New Zealand Superannuation fund since its inception.

⁴¹ This type of option is already available in many countries, including the United States of America.

⁴² <https://www.federalreserve.gov/fedlistens.htm>; <https://www.whitehouse.gov/ope/>

explicitly require respondents to make tradeoffs between one aspect of a policy and another, the approach used in this paper has several advantages. First, respondents are not asked about complicated policy packages that affect many things at once. Rather, they are asked about their preferences towards particular features of these policy packages, in simplified settings, which should be much easier for the respondents to make. Secondly, respondents compare a large set of options, not just a few select pairings. For example, respondents are asked about the relative importance of the pension amount and the age of eligibility, the pension amount and future tax rates, and the pension amount and the amount of means-testing, not just one of these combinations. Most surveys only ask a small subset of these combinations. This enables policymakers to estimate a full ranking of the relative importance of each criteria for each person, which other surveys have not been able to do. Thirdly, the technique allows policymakers to make an indirect estimate of each respondent's preferences over a large number of policy packages that is based on the value each respondent places on each of the features of these packages, rather than just providing a ranking of the small number of complex options actually included in a particular survey. Thus the technique can be used to develop new policies, as well as evaluate those included in surveys.

These surveys also have some limitations. Surveys need to have enough criteria to capture the real-life complexity of an issue. As we deliberately copied the 2014 survey and did not introduce additional criteria, there remain topics that we have not investigated. We did not investigate whether people would like a contributory pension scheme, for example, even though these the most common type of pension scheme in the world.⁴³ Nor did we explore the different types of taxes that could be used to fund a pension scheme. If these or other omitted topics were particularly important to many respondents and were correlated with the way they answered some of the criteria included in the survey, the survey will have a form of omitted variable bias invalidating some of the analysis. Surveys inherently face trade-offs between their scope and size, and the willingness and ability of respondents to provide accurate answers, so it is unrealistic to hope to include criteria that cover all possible topics. Nonetheless, the preference weights that we estimate depend on the criteria that are omitted as well as those that are included, and it remains possible we have omitted important criteria.

It is well known that surveys are subject to framing biases: that the way questions are framed can have large effects on survey responses. Authors such as Bartels (2003) argue that framing effects may be sufficiently crucial to the design of a survey that they fundamentally undermine the use of all surveys as a source of useful information. Diamond and Hausman (1994) are particularly critical of surveys that get respondents to make comparisons which they do not frequently consider, or which juxtapose concepts that have little in common. The pretesting of the survey we undertook makes us believe that this survey is not badly affected by these concerns. Respondents indicated that they found most of the comparisons made sense, partly because they typically involved a monetary comparison. The saving flexibility criteria was possible the most difficult to word appropriately, but even in this case most of the respondents in the pre-test sample indicated they were comfortable with the concepts and believed they could make a sensible comparison. Nonetheless, it is probable that for some respondents the relative ranking of the responses reflects the wording of the questions, and that the answers might have been different if they were written differently. In the future it would be useful to experiment with the questions to see if this has a noticeable effect. For

⁴³ Contributory schemes have some features in common with compulsory saving schemes. We chose to include the compulsory saving/saving flexibility criteria rather than explore a contributory saving scheme as the focus groups showed that many people did not immediately understand many of the features of a contributory scheme.

the purposes of this study, which was to document any changes in preferences over time, it was more important to keep the framing constant rather than change the framing to find out how this may affect responses.

A third potential limitation concerns the sampling procedure. Like many other surveys, we used a large commercial internet panel. Clearly the people on this panel are not fully representative of the population at large, as many people have no interest in volunteering to become a member of these panels. Moreover, we excluded people who answered the survey who did not meet the internal consistency test, which may induce further selection bias. It is possible that people who were not surveyed or who were omitted from our sample have systematically different preferences than those who were surveyed. Obviously, we do not know the extent that this is true. Nonetheless, these panels are commonly used in international social science research, and there is little evidence that sampling and selection bias is a major problem (Benjamin et al 2015). We have no reason to believe that either the internet panel we used or the sampling procedure we used is unusually problematic.

5. Conclusion.

The results of this paper suggest that New Zealanders' preferences about the structure of the governments' retirement income programmes did not change much between 2014 and 2022. In both years there was widespread support for universal pensions, without means testing; there was little opposition to a compulsory saving scheme; there was considerable willingness to increase taxes immediately to avoid even larger increases in taxes on the next generation; and there were split opinions about whether the age of eligibility should be 65 years or 67 years. The results are similar in both years despite a sizeable decline in the number of respondents who are much less confident that they will have a comfortable retirement than was the case in 2014.

We have emphasised four changes in the results since 2014. First, more people want the age of eligibility kept at 65 years than was the case in 2014, although there is less consensus about the most appropriate time to raise taxes if the age of eligibility is not increased to 67 years.

Secondly, support for universal pensions rather than a means-testing regime is less pronounced than was the case in 2014. Nonetheless, it is still comfortably the most important policy to the largest number of people. Even the modest means test that we consider – a reduction in weekly payments of \$60 per week to people with \$200,000 additional income – is unpopular. Of course, it may be possible for a government to find a different type of means test that attracts support, but this research suggests that universality remained a cherished principle in 2022 as it was in 2014.

Thirdly, there is greater opposition to increases in current taxes than in 2014. This means there was less willingness to increase taxes immediately to reduce the extent that future taxes will need to increase to fund New Zealand Superannuation in the future. Despite this reduced support, a small majority of the respondents still would support higher current taxes to reduce the size of future tax increases, given plausible investment returns.

Fourthly, there is increased support for saving flexibility, and opposition to a small compulsory saving scheme than in 2014. Nonetheless, very few people think saving flexibility is very important, and it remains the least important of the seven criteria to the largest number of people. The lack of opposition to compulsory savings combined with the opposition to higher taxes means that programmes that substituted compulsory saving for lower taxes would still be very popular.

Finally, the results indicate that even though preferences about retirement income are diverse, they still do not depend much on observable characteristics such as age, education, income or ethnicity. Rather, New Zealanders' preferences reflect unobservable characteristics. These preferences show distinct patterns, and the respondents could be systematically sorted into groups or clusters who share similar attitudes. Some of these attitudes appear to reflect deep-seated philosophical approaches to life, as well as their expectations about their level of comfort in retirement. Perhaps one of the most surprising results of this study is how little change there have been in these preferences between 2014 and 2022. Not only are the preference clusters extremely similar, but the distribution of the sample respondents across these preference clusters changed little. This continuity is perhaps the core finding of this study, and recognition of this continuity should be central to any future change to New Zealand's retirement income policies.

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Table 1. The survey criteria

1. Amount of NZ Superannuation everyone receives
 - *\$460 a week (the current level)*
 - *increases by \$30 a week to \$390*
2. Age when NZ Superannuation starts
 - *67 years (2 years later)*
 - *65 years (current policy)*
3. Extra taxes to be paid now?
 - *everyone pays 2% more taxes (Example: \$20 more each week if earning \$50,000)*
 - *no extra taxes*
4. Extra taxes the next generation (i.e. not you) has to pay
 - *5% more taxes (Example: \$50 more each week if earning \$50,000)*
 - *3% more taxes (Example: \$30 more each week if earning \$50,000)*
5. Will everyone receive the same amount of NZ Superannuation?
 - *No, people with retirement savings greater than \$200,000 have their NZ Superannuation reduced by \$60 per week*
 - *Yes, everyone gets the same NZ Superannuation*
6. The amount of your personal savings to spend or invest when you retire
 - *2 years of your average annual income (don't worry how you get this amount)*
 - *3 years of your average annual income (don't worry how you get this amount)*
7. Savings flexibility
 - *it is compulsory to save 5% of your income each week (Example: \$50 put aside each week if earning \$50,000)*
 - *you can save when and how you like*

Source: Authors' survey criteria distributed using 1000Minds software.

Table 2. Selected economic and demographic characteristics of the survey respondents, 2022.

Category	2022	Change	Category	2022	change	Category	2022	change
Gender			Age (years)			Household income		
Male	42%	-4%	18-24	14	{+13%	<\$30,000	12%	{-5%
Female	58%	+4%	25-34	25%	{	\$30,000-\$50,000	15%	{
			35-64	47%	-12%	\$50,000-\$100,000	31%	-10%
			65+	14%	-1%	\$100,000+	32%	+5%
Education			Ethnicity			Employment status		
Degree	46%	-2%	European	71%	-5%	Full-time	54%	+1%
Post-sec. school	19%	-1%	Māori	18%	+6%	Part-time	14%	-3%
High school	34%	+2%	Pacific	5%	-1%	Not working	19%	+4%
			Asian	12%		Retired	13%	-2%
Geographical spread			Children			Marital status		
Auckland	32%	-1%	Yes	46%	+6%	Married	41%	-20%
Other North Island	44%	+3%	No	54%	-6%	De facto	22%	+7%
South Island	23%	-3%				Single	37%	+13%
Confidence in retirement			KiwiSaver member?					
Not confident	18%	+10%	Yes	78%	+11%			
Not too confident	32%	+5%	No	21%	-11%			
Some confidence	42%	-7%						
Very confident	8%	-8%						

Source: Authors' calculations derived from the survey responses. "change" is the difference between 2022 and 2014 surveys.

Table 3a. Average retirement income preferences in New Zealand, 2022 (N=1,299)

Criterion	1 Mean tests	3 Future taxes	3 Age 65/67	4 Current taxes	5 Pension amount	6 Wealth amount	7 Flexible savings
Overall importance	1	2	3	4	5	6	7
Mean rank	0.166	0.159	0.158	0.149	0.135	0.119	0.116
Std dev weight	0.078	0.057	0.075	0.059	0.067	0.058	0.074
% rank 1	14.7%	4.4%	12.5%	6.8%	14.0%	16.2%	31.0%
% rank 7	31.1%	10.6%	24.2%	9.2%	10.5%	3.8%	10.1%
Mean Spearman correlation 0.07							

Table 3b. Average retirement income preferences in New Zealand, 2014 (N=1,066)

Criterion	1 Mean tests	2 Future taxes	3 Age 65/67	4 Current taxes	5 Pension amount	6 Wealth amount	7 Flexible savings
Overall importance	1	2	3	5	4	6	7
Mean weight	0.174	0.163	0.145	0.138	0.141	0.134	0.106
Std dev weight	0.079	0.056	0.076	0.055	0.063	0.058	0.073
% rank 1	13.6%	3.1%	16.3%	6.4%	11.0%	9.6%	40.0%
% rank 7	40.9%	12.5%	19.1%	5.5%	8.3%	5.0%	8.7%
Mean Spearman correlation 0.08							
Mean Difference							
2022-2014	-0.008	-0.004	0.013	0.011	-0.006	-0.015	0.011

Source: Authors' calculations derived from the survey responses.

Table 4: Differences in preferences by population subgroups, 2022

	Means Test	Future tax	Age	Current tax	Pension Amount	Savings	Saving flexibility	Number
Full sample averages								
Mean	0.166	0.159	0.158	0.149	0.135	0.119	0.116	1299
Std	0.078	0.057	0.075	0.059	0.067	0.058	0.074	
Gender								
Male		-0.011**						541
Female		0.010**						752
Age								
18-24		-0.01		0.008				182
25-34				0.008				320
35-44						-0.01**	0.011	233
45-54								194
55-64			0.025**	-0.012**				187
65+	0.011**			-0.009	0.018**	0.009**		183
Ethnicity								
European				-0.01**		0.008		926
Māori						-0.015**	0.017*	232
Pasifika	-0.018		0.019					65
Asian				0.020**			-0.02*	152
Family Status								
No children								592
children								707
Single	-0.014**							484
Married	0.009							529
De Facto								286
Region								
Auckland					-0.010**			412
Upper NI						-0.007		212
Lower NI					0.010**			364
South I						0.009		299
Work status								
Full-time				0.010*			-0.012*	697
Part-time								188
Not working	-0.016**						0.015*	251
Retired					0.015**			163
Household Income								
<\$30,000	-0.018**		0.013	-0.011		-0.011	0.016*	153
\$30- 50,000	-0.018**						0.012	200
\$50-100,000								406
\$100,000+	0.016**					-0.009	-0.014**	414
Education								
School		-0.007					0.009	447
Tertiary			0.015**	-0.009				251
University		0.008**		0.008**			-0.013*	601
KiwiSaver Membership								
Not member		-0.008			0.012**		0.018*	279
Member	0.012	0.008			-0.012**		-0.019*	1007
Self-reported confidence about adequacy of retirement funds								
1 very low	-0.024**				0.011		0.013	229
2 low	-0.016*				0.010*			418
3 somewhat	0.022**				-0.012*		-0.010	545
4 high	0.022**						-0.015	107

Source: Authors' calculations derived from the survey responses. A ** indicates the difference in the average weight is statistically significant at the 1% level; all other reported numbers are statistically significant at the 5% level.

Table 5: Summary of preference differences by population subgroups

	High weight	Low weight
Means Test	Opposed to means test 65+, high income, married. KiwiSaver member, high retirement confidence.	Comfortable with means test Low income, not working, single, Pasifika. Not KiwiSaver member, low retirement confidence.
Future Taxes	Wants low future taxes Female, university degree. KiwiSaver member.	Comfortable with tax increases Male, 18-24. Not KiwiSaver member.
Age	Keep eligibility age at 65 55-64, low income, Pasifika, tertiary but not degree educated.	Comfortable to raise age to 67
Current taxes	Wants low current taxes 18 – 35, full-time, Asian, university educated.	Comfortable with tax increases 55+, low income, European, tertiary but not degree educated.
Pension amount	Increase in pension 65+, retired, lower North Island. Not KiwiSaver member, low retirement confidence	No change in pension High income, Auckland. KiwiSaver member, high retirement confidence.
Savings	High retirement wealth is important 65+, European, South Island.	High retirement wealth not important 33-45, low income, Māori, upper North Island.
Saving Flexibility	Saving Flexibility important – opposed to compulsion 35-44, low income, not working or part-time, School education, Māori. Not KiwiSaver member, low retirement confidence.	Saving flexibility unimportant, comfortable with compulsion High income, full-time, university educated. KiwiSaver member, high retirement confidence.

Table 6: Fractional multinomial logit estimates indicating the importance of different socio-economic variables on preferences, 2014 – 2022 pooled data.

		Means test		Future taxes		Age of eligibility		Current taxes	
		Coeff.	s. e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Year 2022		-0.0064	(0.0036)	-0.0060*	(0.0026)	0.0156**	(0.0034)	0.0087**	(0.0026)
Age	18-24	0.0008	(0.0066)	0.0105*	(0.0047)	-0.0067	(0.0061)	0.0097*	(0.0050)
	25-34	0.0005	(0.0051)	-0.0004	(0.0039)	0.0001	(0.0049)	0.0071	(0.0038)
	45-54	-0.0041	(0.0053)	-0.0013	(0.0040)	0.0066	(0.0052)	0.0028	(0.0040)
	55-64	-0.0004	(0.0053)	-0.0035	(0.0039)	0.0171**	(0.0053)	-0.0065	(0.0039)
	65+	0.0177*	(0.0077)	-0.0020	(0.0063)	-0.0140	(0.0074)	-0.0150**	(0.0057)
Gender	Male	-0.0034	(0.0035)	-0.0054*	(0.0026)	-0.0034	(0.0034)	0.0021	(0.0025)
Region	Lower NI	-0.0081	(0.0042)	0.0012	(0.0031)	0.0032	(0.0040)	0.0022	(0.0032)
	Upper NI	0.0056	(0.0048)	0.0007	(0.0036)	0.0065	(0.0048)	-0.0063	(0.0036)
	South I	-0.0098*	(0.0043)	-0.0046	(0.0033)	0.0103*	(0.0042)	-0.0015	(0.0032)
Ethnicity	Māori	-0.0012	(0.0050)	0.0015	(0.0034)	0.0046	(0.0046)	0.0024	(0.0036)
	Pasifika	-0.0219**	(0.0073)	0.0129*	(0.0051)	0.0226**	(0.0075)	0.0029	(0.0058)
	Asian	-0.0031	(0.0049)	-0.0074	(0.0038)	0.0124*	(0.0050)	0.0157*	(0.0039)
	Other	-0.0146	(0.0243)	0.0190	(0.0244)	-0.0388	(0.0209)	-0.0333**	(0.0107)
Education	School	0.0037	(0.0043)	-0.0044	(0.0031)	0.0105*	(0.0041)	-0.0056	(0.0031)
	Tertiary	0.0083*	(0.0038)	-0.009**	(0.0027)	0.0038	(0.0037)	-0.0033	(0.0029)
Work status	Part-time	0.0000	(0.0049)	0.0000	(0.0034)	0.0044	(0.0045)	-0.0064	(0.0035)
	Not working	-0.0065	(0.0049)	0.0019	(0.0035)	0.0011	(0.0046)	-0.0066	(0.0035)
Income	Retired	-0.0031	(0.0071)	0.0016	(0.0060)	0.0017	(0.0073)	0.0065	(0.0059)
	<\$30,000	-0.0161**	(0.0065)	-0.0056	(0.0047)	0.0148*	(0.0063)	0.0026	(0.0048)
	\$30-50,000	-0.0215**	(0.0054)	-0.0024	(0.0041)	0.0055	(0.0053)	0.0099**	(0.0038)
	\$50-100000	0.0081*	(0.0041)	0.0001	(0.0030)	0.0013	(0.0039)	0.0036	(0.0030)
	Not stated	0.0011	(0.0076)	-0.0056	(0.0056)	-0.0025	(0.0073)	0.0129*	(0.0057)
Children	No	-0.0030	(0.0037)	-0.0040	(0.0027)	0.0025	(0.0036)	-0.0014	(0.0027)
Marital.	Single	-0.0030	(0.0044)	0.0026	(0.0032)	-0.0056	(0.0041)	-0.0022	(0.0032)
	De Facto	-0.0004	(0.0045)	-0.0043	(0.0035)	-0.0088*	(0.0044)	0.0017	(0.0035)
Retirement confidence	Very low	-0.0254**	(0.0054)	-0.0019	(0.0038)	0.0056	(0.0049)	-0.0031	(0.0039)
	Low	-0.0131**	(0.0038)	0.0008	(0.0028)	-0.0051	(0.0037)	-0.0016	(0.0028)
	High	0.0087	(0.0049)	0.0020	(0.0037)	-0.0100*	(0.0050)	0.0100**	(0.0039)
KiwiSaver	No	-0.0113**	(0.0040)	-0.0045	(0.0030)	-0.0030	(0.0039)	0.0014	(0.0031)
Extra pension	Yes	0.0092*	(0.0044)	0.0014	(0.0032)	-0.0046	(0.0046)	-0.0031	(0.0033)
		N=2365		N=2365		N=2365		N=2365	

* Indicates the coefficient is different from 0 at a 5% confidence level

** Indicates the coefficient is different from 0 at a 1% confidence level

Table 6 (continued)

		Pension amount		Retirement wealth		Saving flexibility	
		Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Year 2022		-0.0061*	(0.0030)	-0.0170**	(0.0027)	0.0113**	(0.0033)
Age	18-24	-0.0064	(0.0053)	0.0032	(0.0049)	-0.0111	(0.0063)
	25-34	-0.0028	(0.0042)	0.0047	(0.0039)	-0.0092	(0.0050)
	45-54	0.0010	(0.0045)	0.0061	(0.0039)	-0.0112*	(0.0052)
	55-64	0.0049	(0.0046)	0.0070	(0.0038)	-0.0186**	(0.0050)
	65+	0.0206**	(0.0070)	0.0275	(0.0060)	-0.0348**	(0.0068)
Gender	Male	0.0041	(0.0029)	0.0027	(0.0026)	0.0033	(0.0033)
Region	Lower NI	0.0046	(0.0036)	0.0050	(0.0031)	-0.0080*	(0.0039)
	Upper NI	-0.0028	(0.0040)	-0.0032	(0.0037)	-0.0005	(0.0046)
	South I	0.0058	(0.0037)	0.0038	(0.0032)	-0.0040	(0.0042)
Ethnicity	Māori	-0.0081	(0.0041)	-0.0087*	(0.0035)	0.0096*	(0.0047)
	Pasifika	-0.0015	(0.0069)	-0.0020	(0.0056)	-0.0131*	(0.0061)
	Asian	-0.0001	(0.0042)	-0.0080*	(0.0039)	-0.0096*	(0.0044)
	Other	0.0324	(0.0174)	0.0386	(0.0206)	-0.0034	(0.0313)
Education	School	-0.0013	(0.0035)	-0.0004	(0.0032)	-0.0024	(0.0040)
	Tertiary	0.0011	(0.0032)	-0.0043	(0.0028)	0.0035	(0.0036)
Work status	Part-time	-0.0033	(0.0041)	-0.0006	(0.0037)	0.0059	(0.0046)
	Not working	0.0005	(0.0041)	0.0071	(0.0037)	0.0026	(0.0045)
	Retired	-0.0047	(0.0063)	-0.0026	(0.0053)	0.0007	(0.0074)
Income	<\$30,000	0.0067	(0.0056)	-0.0184**	(0.0046)	0.0160**	(0.0060)
	\$30-50,000	0.0034	(0.0047)	-0.0118**	(0.0042)	0.0170**	(0.0051)
	\$50-100000	0.0026	(0.0034)	-0.0062*	(0.0031)	0.0068	(0.0038)
	Not stated	0.0008	(0.0065)	-0.0114	(0.0061)	0.0048	(0.0070)
Children	No	0.0041	(0.0031)	0.0055*	(0.0028)	-0.0038	(0.0034)
Marital.	Single	0.0068	(0.0036)	0.0059	(0.0032)	-0.0045	(0.0039)
	De Facto	0.0063	(0.0040)	0.0045	(0.0036)	0.0010	(0.0045)
Retirement confidence	Very low	0.0181**	(0.0045)	0.0035	(0.0040)	0.0031	(0.0048)
	Low	0.0165**	(0.0032)	0.0016	(0.0028)	0.0009	(0.0035)
	High	-0.0067	(0.0041)	-0.0066	(0.0037)	0.0025	(0.0053)
KiwiSaver	No	-0.0033	(0.0033)	-0.0076**	(0.0029)	0.0283**	(0.0039)
Extra pension	Yes	0.0053	(0.0037)	0.0045	(0.0031)	-0.0126**	(0.0041)
		N=2365		N=2365		N=2365	

Source: Authors' fractional multinomial logit estimates using Stata software and data from the 2014 and 2022 surveys. The reference categories are age 35-44; female; Auckland; NZ European; University degree; full time; over \$100,000 household income; has children; married; somewhat confident about retirement prospects; KiwiSaver member; no other pension plan.

Table 7. Preference cluster weights and fractions, 2014 and 2022.

Cluster	Means test	Age	Future Taxes	Current Taxes	Pension Amount	Saving Amount	Saving flexibility	Fraction
2014								
1	0.224	0.214	0.143	0.123	0.110	0.116	0.070	27%
2	0.230	0.078	0.172	0.136	0.164	0.163	0.057	24%
3	0.076	0.157	0.188	0.154	0.185	0.171	0.068	19%
4	0.204	0.078	0.164	0.148	0.113	0.097	0.196	18%
5	0.072	0.195	0.150	0.135	0.135	0.110	0.203	13%
2022								
1	0.218	0.213	0.144	0.137	0.106	0.102	0.08	28%
2	0.212	0.082	0.173	0.15	0.166	0.155	0.063	21%
3	0.072	0.191	0.169	0.151	0.194	0.143	0.08	19%
4	0.202	0.085	0.152	0.16	0.107	0.091	0.204	17%
5	0.081	0.198	0.159	0.154	0.101	0.099	0.209	15%

Source: Authors' calculations using survey data from 2014 and 2022

Cluster 1: Status quo plus compulsory saving.

Cluster 2: Raise age plus compulsory saving.

Cluster 3: Means testing and redistribution.

Cluster 4: Pension Minimalists.

Cluster 5: Age 65 with means-tests and saving flexibility.

Table 8. Allocation of demographic groups across preference clusters,2022.

	Category	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	X ² -test	df
Total sample		28%	21%	19%	17%	15%		
Gender	Females	26%	23%	18%	18%	16%	0.63	4
	Males	25%	23%	18%	18%	17%		
Age	18-24	23%	20%	20%	17%	21%	2.47	20
	25-34	23%	20%	21%	18%	18%		
	35-44	22%	20%	22%	16%	20%		
	45-54	22%	21%	19%	18%	21%		
	55-64	23%	20%	19%	18%	21%		
	65+	23%	20%	20%	16%	21%		
Region	Auckland	25%	22%	19%	17%	17%	2	12
	Upper NI	22%	21%	21%	17%	20%		
	Lower NI	23%	21%	20%	18%	18%		
	South I	23%	21%	21%	17%	18%		
Workforce	Full-time	25%	23%	18%	17%	16%	9.02	12
	Part-time	22%	20%	19%	18%	21%		
	Not working	22%	20%	21%	18%	20%		
	Retired	23%	19%	20%	16%	22%		
Income	<\$30,000	25%	17%	18%	17%	23%	7.03	12
	\$30-50,000	25%	17%	18%	17%	23%		
	\$50-100,000	24%	22%	19%	17%	17%		
	\$100,000+	24%	22%	19%	17%	17%		
Education	School	24%	23%	18%	18%	17%	3.58	8
	Tertiary	22%	20%	21%	18%	20%		
	University	25%	23%	18%	18%	17%		
Ethnicity	European	28%	22%	18%	17%	15%	16.22	12
	Māori	22%	20%	22%	16%	20%		
	Pasifika	23%	17%	15%	17%	28%		
	Asian	25%	17%	18%	17%	22%		
Children	No	25%	23%	18%	18%	17%	0.77	4
	Yes	26%	23%	18%	17%	16%		
Marital	Single	25%	23%	19%	18%	16%	2.98	8
	De facto	25%	23%	18%	17%	17%		
	Married	23%	20%	21%	17%	19%		
KiwiSaver	No	23%	20%	20%	18%	19%	4.23	4
	Yes	27%	22%	18%	17%	15%		
Confidence	Not at all	22%	20%	22%	16%	20%	7.69	12
	Not very	25%	22%	19%	17%	17%		
	Somewhat	25%	23%	18%	18%	17%		
	Very	25%	20%	13%	19%	23%		

Source: Author's calculations using 2022 survey data.

Each row shows the allocation of a particular group across the five clusters identified in Table 7.

The final two columns show the results of a multinomial χ^2 -test that the members of each groups are distributed in the same proportion across the five clusters. No tests indicate the differences are statistically significant.

Table 9: Ranking of policy experiments, 2014 and 2022.

	1 (highest)	2	3 (lowest)	1 (highest)	2	3 (lowest)
		2014			2022	
PAYGO 65	26	46	28	37	45	18
PAYGO 67	16	28	56	13	25	61
SAYGO 65	58	26	16	53	27	19

Source: Author's calculations based on 2014 and 2022 survey data.

PAYGO 65: no change to age of eligibility, future taxes increase by 4.6%.

PAYGO 67: age of eligibility raised to 67, future taxes increase by 3.5%.

SAYGO 65: no change to age of eligibility, current taxes increase by 2%, future taxes increase by 2.6%.

Figure 1. Example of a 1000minds trade-off question.

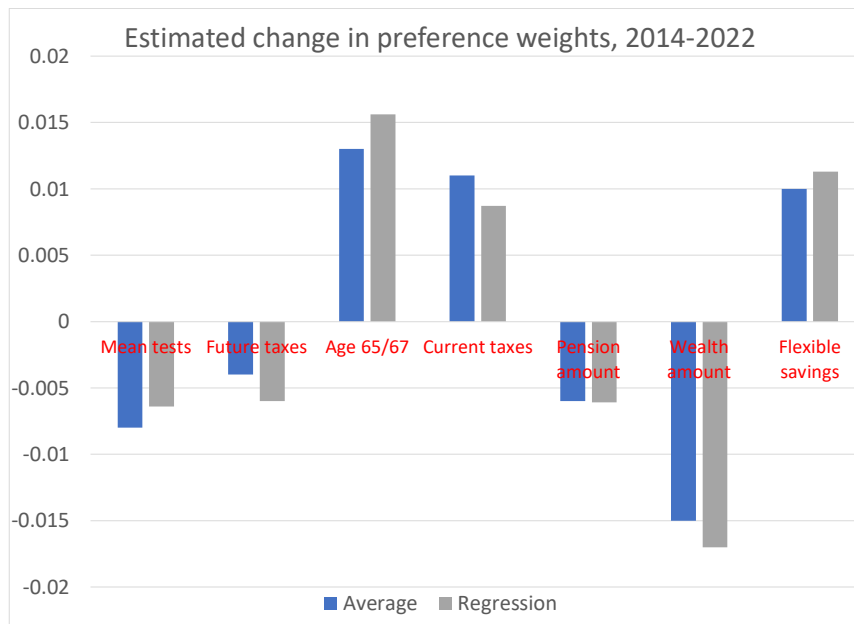
**Which of these two scenarios do you prefer the most?
(given they're identical in all other aspects)**

You should not be concerned about whether either of these policies can be delivered.
We simply want to know if you prefer one scenario more than the other.

<p>Age when NZ Superannuation starts 65 years (current policy)</p> <p>Extra taxes to be paid now? everyone pays 2% more taxes (EXAMPLE: \$20 more each week if earning \$50,000)</p> <p style="text-align: center;">this scenario</p>	or	<p>Age when NZ Superannuation starts 67 years (2 years later)</p> <p>Extra taxes to be paid now? no extra taxes</p> <p style="text-align: center;">this scenario</p>
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[« undo last decision](#) **they are equal** [skip this question for now »](#)

Figure2. Comparison of the mean and regression preference weights, 2014 - 2022



Source. Authors' calculations based on 2014 and 2012 Survey data. Mean preference weights from Table 3. Regression weights from Table 6.

Figures 3a – 3g: Distribution of preference ranks.

Figure 3a: Means testing.

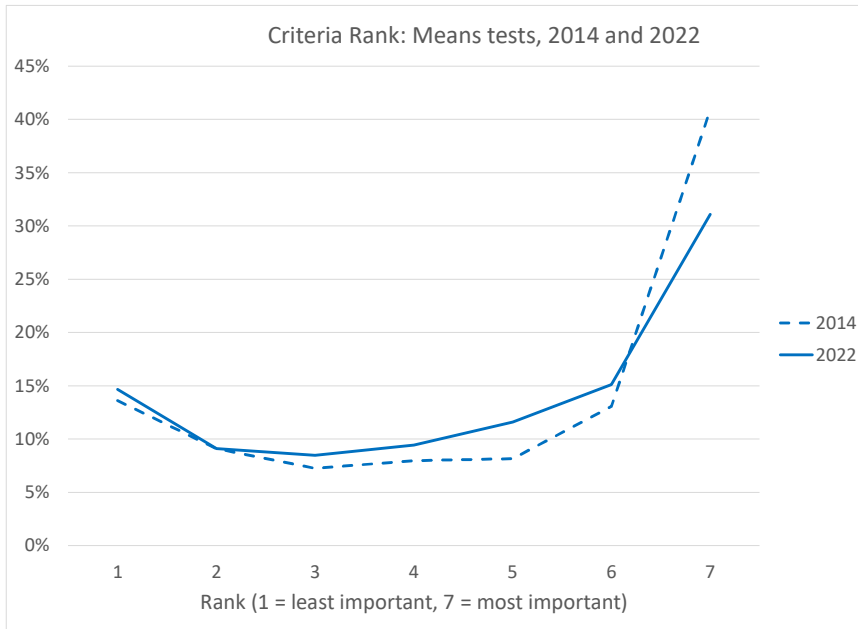


Figure 3b: Future taxes.

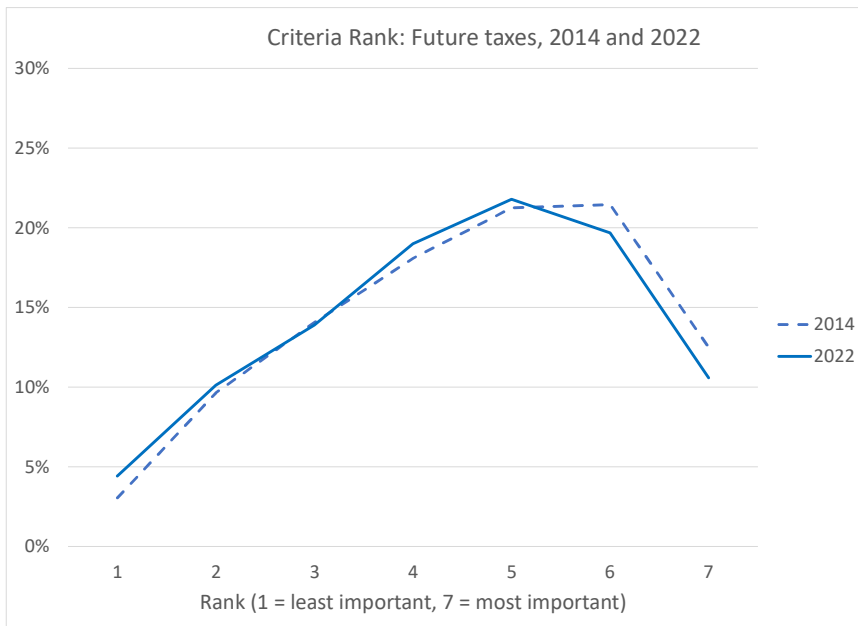


Figure 3c: Age of eligibility.

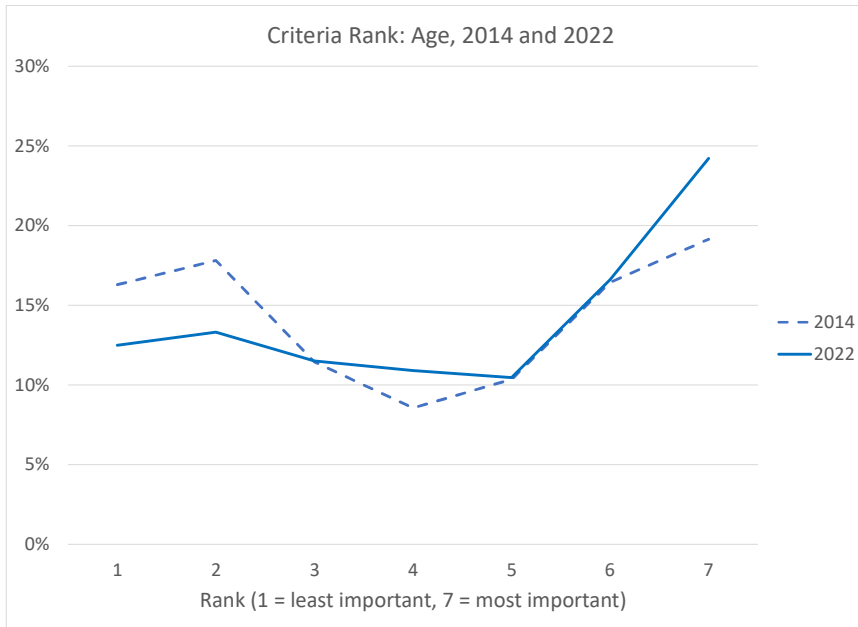


Figure 3d: Current taxes.

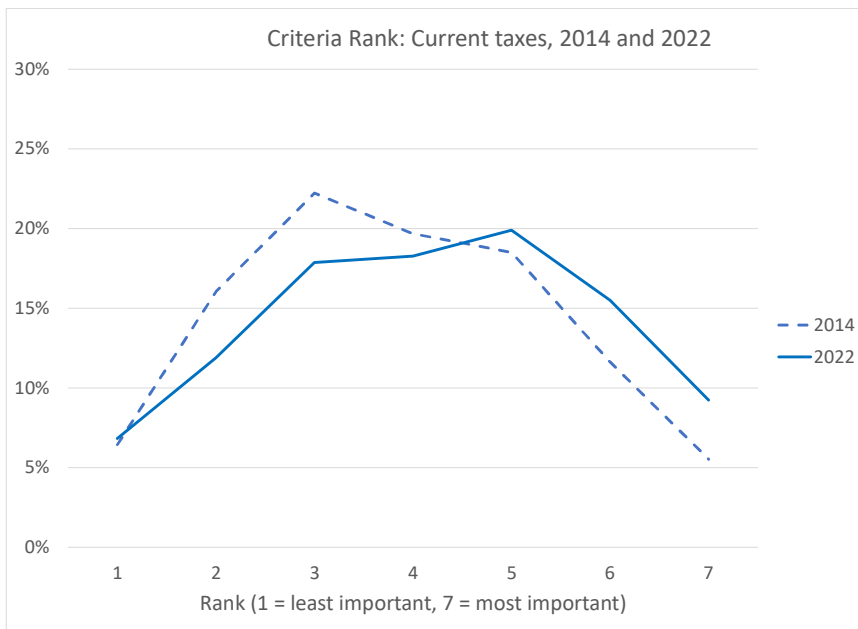


Figure 3e: Pension amount.

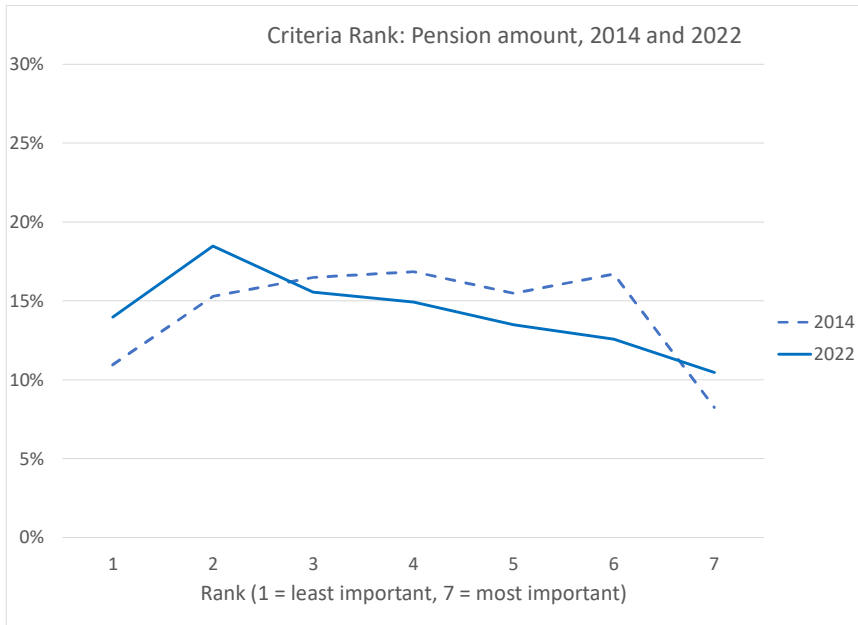


Figure 3f: Savings amount.

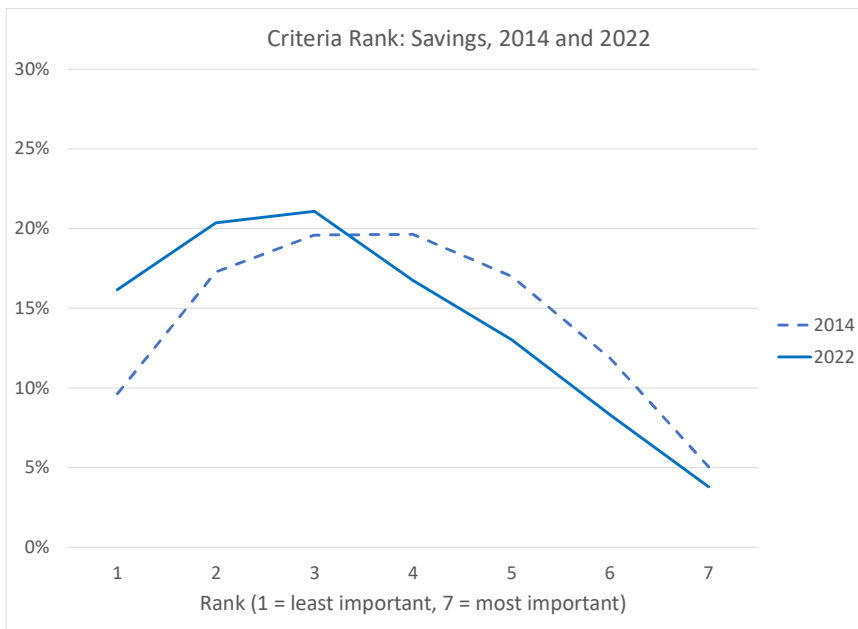
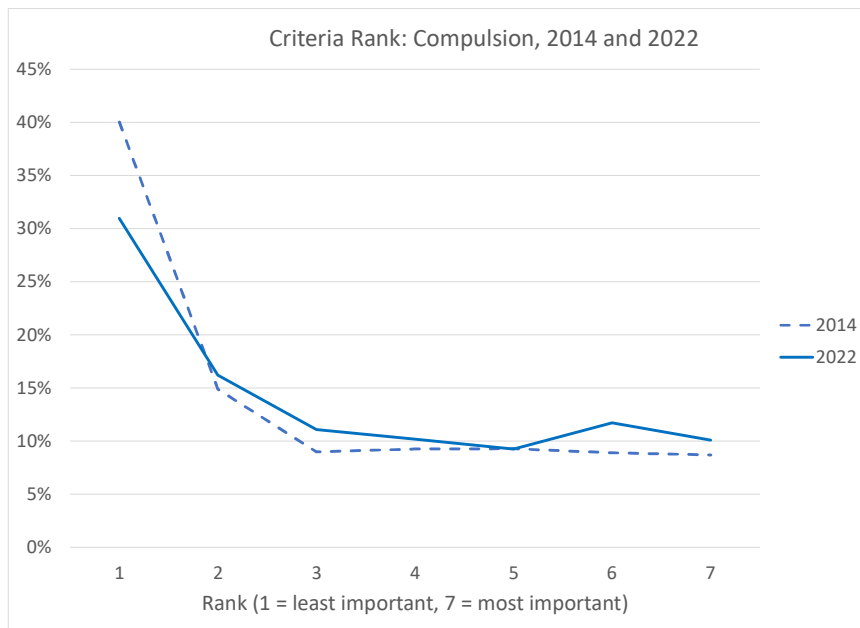


Figure 3g: Saving flexibility.



Source: Authors' calculations derived from the survey responses.

Appendix 1

Table A1: Distribution of rank preferences, 2014 and 2014.

2022							
Rank	1	2	3	4	5	6	7
Means Test	14.7%	9.1%	8.5%	9.4%	11.6%	15.1%	31.1%
Future taxes	4.4%	10.1%	13.9%	19.0%	21.8%	19.7%	10.6%
Age	12.5%	13.3%	11.5%	10.9%	10.5%	16.6%	24.2%
Current taxes	6.8%	11.9%	17.9%	18.3%	19.9%	15.5%	9.2%
Pension amount	14.0%	18.5%	15.6%	14.9%	13.5%	12.6%	10.5%
Savings amount	16.2%	20.4%	21.1%	16.7%	13.0%	8.3%	3.8%
Savings flexibility	31.0%	16.2%	11.1%	10.2%	9.2%	11.7%	10.1%

2014							
Rank	1	2	3	4	5	6	7
Means Test	13.6%	9.1%	7.3%	8.0%	8.2%	13.1%	40.9%
Future taxes	16.3%	17.8%	11.4%	8.6%	10.4%	16.4%	19.1%
Age	3.1%	9.6%	14.1%	18.1%	21.2%	21.5%	12.5%
Current taxes	6.4%	16.0%	22.2%	19.7%	18.5%	11.6%	5.5%
Pension amount	11.0%	15.3%	16.5%	16.9%	15.5%	16.7%	8.3%
Savings amount	9.6%	17.3%	19.6%	19.6%	17.0%	11.9%	5.0%
Savings flexibility	40.0%	14.9%	9.0%	9.3%	9.3%	8.9%	8.7%

Table A2 – fractional multinomial logit estimates of preference weights - 2022 data only.

		Means test		Future taxes		Age of eligibility		Current taxes	
		Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Age	18-24	-0.0001	(0.0080)	0.0050	(0.0060)	-0.0056	(0.0078)	0.0060	(0.0065)
	25-34	-0.0037	(0.0065)	-0.0044	(0.0051)	0.0013	(0.0065)	0.0064	(0.0050)
	45-54	-0.0058	(0.0072)	-0.0053	(0.0055)	0.0106	(0.0072)	0.0026	(0.0058)
	55-64	-0.0064	(0.0076)	-0.0057	(0.0057)	0.0257*	(0.0075)	-0.0089	(0.0058)
	65+	0.0208	(0.0108)	-0.0082	(0.0089)	0.0001	(0.0105)	-0.0152	(0.0080)
Gender	Male	-0.0040	(0.0049)	-0.0072*	(0.0035)	-0.0018	(0.0046)	0.0019	(0.0037)
Region	Lower NI	-0.0109	(0.0057)	-0.0018	(0.0044)	0.0064	(0.0056)	0.0026	(0.0044)
	Upper NI	0.0038	(0.0063)	0.0036	(0.0050)	0.0111	(0.0065)	-0.0060	(0.0051)
	South I	-0.0123*	(0.0059)	-0.0029	(0.0046)	0.0093	(0.0059)	-0.0012	(0.0047)
Ethnicity	Māori	0.0038	(0.0062)	-0.0024	(0.0043)	0.0068	(0.0059)	0.0040	(0.0047)
	Pasifika	-0.0208*	(0.0095)	0.0091	(0.0075)	0.0286**	(0.0102)	-0.0060	(0.0085)
	Asian	-0.0026	(0.0062)	-0.0037	(0.0052)	0.0090	(0.0065)	0.0144**	(0.0051)
	Other	-0.0043	(0.0235)	0.0203	(0.0248)	-0.0400	(0.0213)	-0.0336**	(0.0106)
Education	School	0.0002	(0.0060)	-0.0068	(0.0044)	0.0127*	(0.0055)	-0.0092*	(0.0043)
	Tertiary	0.0051	(0.0050)	-0.0088*	(0.0037)	-0.0009	(0.0050)	-0.0042	(0.0040)
Work status	Part-time	0.0088	(0.0065)	-0.0068	(0.0049)	0.0084	(0.0063)	-0.0094	(0.0050)
	Not working	-0.0049	(0.0064)	0.0037	(0.0047)	0.0047	(0.0062)	-0.0112*	(0.0049)
	Retired	-0.0060	(0.0093)	0.0030	(0.0083)	-0.0015	(0.0095)	0.0028	(0.0081)
	Income	<\$30,000	-0.0149	(0.0087)	-0.0047	(0.0066)	0.0084	(0.0083)	0.0049
	\$30-50,000	-0.0201**	(0.0075)	-0.0019	(0.0058)	-0.0038	(0.0072)	0.0143**	(0.0053)
	\$50-100000	-0.0072	(0.0054)	-0.0042	(0.0041)	-0.0017	(0.0053)	0.0079	(0.0041)
	Not stated	0.0014	(0.0079)	-0.0073	(0.0059)	-0.0070	(0.0078)	0.0175**	(0.0061)
Children	No	-0.0044	(0.0050)	-0.0074*	(0.0038)	0.0078	(0.0048)	0.0001	(0.0038)
Marital.	Single	-0.0025	(0.0058)	0.0046	(0.0043)	-0.0043	(0.0056)	-0.0049	(0.0044)
	De Facto	0.0001	(0.0060)	-0.0032	(0.0047)	-0.0136*	(0.0058)	0.0005	(0.0047)
Retirement confidence	Very low	-0.0257*	(0.0064)	0.0012	(0.0047)	-0.0006	(0.0061)	-0.0017	(0.0051)
	Low	-0.0197*	(0.0051)	0.0007	(0.0038)	-0.0072	(0.0049)	0.0042	(0.0038)
	High	0.0087	(0.0077)	-0.0009	(0.0058)	-0.0079	(0.0075)	0.0106	(0.0065)
KiwiSaver	No	-0.0135*	(0.0059)	-0.0045	(0.0046)	-0.0041	(0.0056)	0.0021	(0.0047)
Extra pension	Yes	0.0028	(0.0066)	-0.0013	(0.0049)	-0.0059	(0.0072)	-0.0002	(0.0052)
		N=1299		N=1299		N=1299		N=1299	

* Indicates the coefficient is different from 0 at a 5% confidence level

** Indicates the coefficient is different from 0 at a 1% confidence level

Table A2 (continued): fractional multinomial logit estimates of preference weights - 2022 data only.

		Pension amount		Retirement wealth		Saving flexibility	
		Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Year 2022							
Age	18-24	0.0004	(0.0070)	0.0072	(0.0062)	-0.0129	(0.0079)
	25-34	-0.0001	(0.0058)	0.0094	(0.0051)	-0.0089	(0.0065)
	45-54	0.0005	(0.0066)	0.0058	(0.0055)	-0.0083	(0.0072)
	55-64	0.0023	(0.0070)	0.0092	(0.0055)	-0.0162*	(0.0072)
	65+	0.0142	(0.0101)	0.0239**	(0.0087)	-0.0356**	(0.0092)
Gender	Male	0.0013	(0.0043)	0.0012	(0.0037)	0.0087	(0.0045)
Region	Lower NI	0.0119*	(0.0050)	0.0064	(0.0043)	-0.0146**	(0.0054)
	Upper NI	-0.0011	(0.0055)	-0.0011	(0.0051)	-0.0103	(0.0061)
	South I	0.0085	(0.0053)	0.0095*	(0.0046)	-0.0110	(0.0059)
Ethnicity	Māori	-0.0063	(0.0053)	-0.0148**	(0.0044)	0.0089	(0.0060)
	Pasifika	0.0088	(0.0101)	-0.0037	(0.0077)	-0.0160*	(0.0081)
	Asian	0.0048	(0.0058)	-0.0031	(0.0052)	-0.0188**	(0.0059)
	Other	0.0278	(0.0173)	0.0335	(0.0204)	-0.0038	(0.0342)
Education	School	-0.0045	(0.0050)	0.0013	(0.0045)	0.0062	(0.0056)
	Tertiary	0.0015	(0.0045)	0.0039	(0.0037)	0.0033	(0.0047)
Work status	Part-time	-0.0062	(0.0058)	-0.0051	(0.0051)	0.0103	(0.0063)
	Not working	0.0001	(0.0056)	0.0039	(0.0050)	0.0036	(0.0059)
	Retired	-0.0003	(0.0090)	-0.0027	(0.0073)	0.0046	(0.0103)
Income	<\$30,000	0.0109	(0.0080)	-0.0164**	(0.0061)	0.0117	(0.0081)
	\$30-50,000	0.0041	(0.0067)	-0.0083	(0.0059)	0.0155*	(0.0070)
	\$50-100000	0.0032	(0.0047)	-0.0042	(0.0043)	0.0062	(0.0052)
	Not stated	0.0012	(0.0068)	-0.0097	(0.0062)	0.0040	(0.0076)
Children	No	0.0002	(0.0043)	0.0051	(0.0038)	-0.0015	(0.0046)
Marital.	Single	0.0069	(0.0050)	0.0053	(0.0043)	-0.0051	(0.0052)
	De Facto	0.0072	(0.0055)	0.0059	(0.0047)	0.0031	(0.0060)
Retirement confidence	Very low	0.0156**	(0.0058)	0.0033	(0.0048)	0.0080	(0.0061)
	Low	0.0151**	(0.0043)	-0.0008	(0.0038)	0.0077	(0.0047)
	High	-0.0069	(0.0066)	0.0011	(0.0060)	-0.0047	(0.0079)
KiwiSaver	No	0.0032	(0.0050)	-0.0076	(0.0044)	0.0243**	(0.0056)
Extra pension	Yes	0.0092	(0.0059)	0.0074	(0.0052)	-0.0120	(0.0063)
		N=1299		N=1299		N=1299	

Source: Authors' fractional multinomial logit estimates using Stata software and data from the 2014 and 2022 surveys. The reference categories are age 35-44; female; Auckland; NZ European; University degree; full time; over \$100,000 household income; has children; married; somewhat confident about retirement prospects; KiwiSaver member; no other pension plan.