THE DISTRIBUTIONAL IMPACT OF KIWISAVER INCENTIVES

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Abstract

New Zealand's approach to retirement incomes profoundly changed with the recent introduction of KiwiSaver and its associated tax incentives. Previous policy reduced lifetime inequality, but KiwiSaver and its tax incentives will increase future inequality and lead to diverging living standards for the elderly. In this paper we evaluate the distributional effects of these tax incentives along with other impacts of KiwiSaver. Using data from a nationwide survey carried out by the authors, we estimate the value of the equivalent income transfer provided to individuals by the tax incentives for KiwiSaver participation. Concentration curves and inequality decompositions are used to compare the distributive impact of these tax incentives with those for New Zealand Superannuation. Estimates are reported for both initial and lifetime impacts, with the greatest effect on inequality apparent in the lifetime impacts.

INTRODUCTION

New Zealand's distinctive approach to retirement saving profoundly changed on 1 July 2007 with the introduction of KiwiSaver and its associated tax incentives. The previous approach, in place since 1990, provided a non-contributory flat pension to anyone who qualified by virtue of age and residency and then let people supplement that as they saw fit without favouring one particular savings vehicle over another (St John and Willmore 2001). In contrast, many countries also promote a contributory (and often mandatory) savings scheme to supplement the basic pension and voluntary provision. Because the flat pension, NZ Superannuation, is paid to everyone at a standard amount unrelated to previous earnings, it helps to equalise lifetime incomes.[2] Scobie et al. (2005) show that NZ Superannuation places a floor under the income of retirees, so that even when some fall below a relative poverty line (60% of the median) the poverty gap is negligible. Also, Ginn et al. (2001) describe it as a "women-friendly" pension because there are no earnings-related contributions, so women receive the same payments as men even though their average incomes are lower and they participate in the labour force for fewer years.

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[2] O'Connell (2004) considers NZ Superannuation to be an example of a "citizen's pension" – a basic amount payable to all citizens.

These same features are not present in KiwiSaver, which will lead to diverging living standards for the elderly. Since KiwiSaver is a workplace saving scheme, it will amplify gender, ethnic, educational and other inequalities reflected in earnings and employment variations. Not only will wealth (and retirement income) gaps emerge between members and non-members, the differing levels of member and employer contributions and variation in the performance of KiwiSaver funds will also introduce inequality. While such inequalities might be considered an inherent feature of any saving scheme, they are likely to be compounded by the generous taxpayer incentives provided to KiwiSaver members (Crossan 2007).

The main incentives for KiwiSaver participation are the $1,000 tax-free contribution on first joining (the "kick-start"), the matching contribution of up to $20 per week ($1,043 per year) from the government for members aged over 18,[3] and the exemption from Employer Superannuation Contribution Tax (ESCT) for employer contributions up to a maximum of 4% of the employee's gross pay.[4] In addition, there is a subsidy for the purchase of a first home of up to $5,000 (subject to income and house price limits), and a fee subsidy of $40 per year. From 1 April 2008 employers received a tax credit of up to $20 per week to (partially) offset the cost of compulsory employer contributions into the accounts of employed KiwiSaver members. These compulsory employer contributions are set to rise one percentage point per year, from 1% of gross pay in 2008 to 4% by 2011. Existing superannuation schemes that become KiwiSaver-compliant can access many of these benefits, including the exemption from ESCT for employer contributions and the matching government contribution of up to $1,043 per year. The investment income earned within KiwiSaver schemes is also favoured by comparison with equivalent earned income. The highest-paid members had tax on fund earnings capped at 30% from 1 April 2008, which is lower than either of the two higher marginal rates of tax on earned income (33% for pay between $38,000 and $60,000 and 39% for pay above $60,000).[5]

Although KiwiSaver began in July 2007, the various incentives were proposed in two distinct groups, which are often called KiwiSaver I and KiwiSaver II (Crossan 2007). The KiwiSaver I incentives were announced in the May 2005 Budget, and were the $1,000 kick-start and the

[3] Although this is called a tax credit, it has little to do with the tax system except as the source of the revenue for this grant. Thus, individuals who pay no tax can still receive up to $1,043 per year from the government into their KiwiSaver account if their own contributions match or exceed this level.

[4] The ESCT was previously known as the Specified Superannuation Contribution Withholding Tax (SSCWT). The basis of the ESCT is that any contribution that an employer makes to a superannuation fund for the benefit of an employee is liable for tax, at rates that depend on the employee's salary. From 1 October 2008 the ESCT is 12.5% for contributions to employees earning less than $16,800 per year, 21% for those earning between $16,800 and $48,000, and 33% for those earning over $48,000. So, for example, if an employee earning $50,000 has an employer who wants to contribute $3,000 to the employee's superannuation fund, only $2,000 would go into the fund and the other $1,000 would be paid as tax. But for KiwiSaver funds, all of the employer contribution would go into the superannuation and none would be paid as tax (for employer contributions up to an amount equal to the lesser of either the employee's contribution, or 4% of the employee's gross salary).

[5] Note that in early 2009, following a change of government, that:

- the ESCT tax concession was reduced by half
- the required employer contribution is now limited to 2% of pay
- the employer tax credit (effectively a capped subsidy) was removed
- the flat rate fee subsidy was removed.

Also, the new regime for taxation of investment earning on KiwiSaver assets applies to all collective investment vehicles that qualify as a Portfolio Investment Entity (PIE), not just KiwiSaver funds. Many non-KiwiSaver investment funds have adopted this tax treatment. The stated purpose of the PIE regime is to prevent the over taxation of people on lower incomes and to tax investments in PIEs broadly in the same way as direct investments by individuals.

fee subsidy. There was also a design feature, rather than a tax incentive, that all employees beginning a new job were auto-enrolled in KiwiSaver and then could opt out, rather than having the default of not being enrolled and having to opt in. The remaining incentives were announced in the Budget of May 2007 just before the beginning of the scheme, except for the ESCT exemption, which was announced in late 2006.

The original arguments for the KiwiSaver scheme were to: "Encourage a long-term saving habit and asset accumulation by individuals who are not in a position to enjoy standards of living in retirement similar to those in pre-retirement" (Section 3, KiwiSaver Act 2006). Proponents of this intervention appear concerned that many New Zealanders are not saving sufficiently for their own retirement, although this issue remains unsettled.[6] A related concern that was often highlighted by the Minister of Finance who introduced KiwiSaver is that New Zealand appears to have one of the lowest household savings rates among the developed countries (Cullen 2007), although the evidence for this claim is also controversial.[7]

These tax incentives will have varying impacts on inequality. The effect of the kick-start incentive for joining KiwiSaver and the $1,043 matching contribution depend on patterns of KiwiSaver membership. If it is mainly the rich who join, then despite the equal and capped nature of these payments, they will raise inequality. Regardless of membership patterns, the exemption from ESCT for employer contributions will increase inequality; because this is capped as a percentage of salary rather than a dollar amount, higher earners benefit more from this incentive than lower earners (while non-earners and the self-employed do not benefit at all). Over time the ESCT exemption will become the most important source of inequality, since it provides open-ended benefits every year until retirement, while the kick-start benefit is a one-off and the matching government contribution is capped. Finally, growing KiwiSaver balances for the more highly paid will be favoured by the concessionary tax treatment of investment income. Hence, any tendency for KiwiSaver incentives to contribute to inequality can be expected to increase over time as compulsory employer contributions increase each year from 1% of pay in 2008 to 4% in 2011.[8]

These likely effects on inequality should not be surprising. New Zealand experimented with tax-favoured saving schemes over two decades ago. These were found wanting because they encouraged shifts from non-tax-favoured saving into tax-favoured saving, with little evidence that saving actually improved overall, but with a large hidden cost to the Government in tax forgone that reduced public saving (St John 2006). Moreover, Treasury at the time found that tax incentives largely favoured the better off, who can use tax-favoured schemes to avoid

[6] Research using the assets and liability module from wave 2 of the Survey of Family, Income and Employment (SoFIE) suggests that most of the pre-retirement population (aged 45−64) has made adequate provision for retirement, especially among the lower-income groups, where NZ Superannuation represents the majority of their retirement income (Le et al. 2007).

[7] See Le 2007 for discussion of the data problems that affect the interpretation of household saving rates for New Zealand, and Whitehead 2007 for arguments in favour of a more pro-saving set of policies.

[8] The effect of the tax credit to employers is harder to evaluate, because its incidence, and the incidence of the implicit payroll tax in the form of compulsory employer contributions to KiwiSaver accounts, depends on the supply and demand elasticities in the labour market. Changes introduced in September 2008 in the Employment Relations (Breaks and Infant Feeding and Other Matters) Amendment Act prevent employers from paying a lower salary to KiwiSaver members because the employer has taken the compulsory employer contribution into account. Consequently, according to Littlewood (2008), "those who cannot afford to join KiwiSaver are now to be materially worse off with respect to total remuneration from their employer than their otherwise equivalent colleagues [who join KiwiSaver]". This is an additional layer of inequality on top of that due to the tax incentives analysed in the current study.

higher tax rates and who save the most anyway. Consequently, this previous experiment with tax breaks for saving schemes was ended in 1987.

Although a comprehensive evaluation of KiwiSaver is planned, it may be several years before standard data sources show impacts on inequality. The Survey of Family, Income and Employment (SoFIE) would be a natural source for such analysis, given that it collects information on financial assets like retirement savings schemes every second year (the even-numbered waves), and also allows for a wide variety of distributional analyses based on demographic and economic characteristics. However, wave 6 of SoFIE went into the field in October 2007 without any questions on KiwiSaver, so it will not be until wave 8 in 2009/10 when the necessary data are collected.[9] The processing lags in accessing SoFIE data make it likely that independent analyses will have to wait until after 2011. By that year, the annual fiscal costs of KiwiSaver are forecast to be almost $3 billion (Gibson 2008), which is a very large amount of public expenditure not to be scrutinised, considering that the entire annual cost of NZ Superannuation is just $8 billion.[10]

Therefore, to provide more immediate data to help inform ongoing appraisals of KiwiSaver and its associated tax incentives, we initiated a nationwide KiwiSaver survey in December 2007, which ran until February 2008. Almost 400,000 people had joined KiwiSaver at the time of the survey, and enrolment continued to grow strongly throughout 2008, reaching 716,000 after 12 months and 827,000 by October 2008. Even within the first year, government expenditure of $1.1 billion was required for KiwiSaver (New Zealand Treasury 2008:116). The unexpectedly high expenses on KiwiSaver were also a contributor to the replacement of government surpluses with forecast deficits in late 2008.[11] Hence an evaluation even at this early stage is desirable. A major objective of the survey was to provide information that could be used to estimate the value of the equivalent income transfer provided to individuals by the tax incentives for KiwiSaver participation. In this paper we report on the results of this survey, using tools such as concentration curves and inequality decompositions to compare the distributive impact of these tax incentives with those for NZ Superannuation.

This comparison is not meant to imply that KiwiSaver is necessarily an alternative to NZ Superannuation, since it was designed to work on top of NZ Superannuation rather than instead of it. There are, however, considerable fiscal risks with KiwiSaver and it is possible that future governments could respond to these by adjusting NZ Superannuation rather than KiwiSaver. For example, in just two years, between Budget 2005 and Budget 2007, the forecast mid-term (2016/17) cost of KiwiSaver incentives increased by a factor of 32 due to the introduction of the additional tax incentives in KiwiSaver II (Crossan 2007). Politically it may be difficult to roll back these tax incentives in the future, because a set of entitlements based on individual accounts has been created, whereas it could be easier to adjust NZ Superannuation, which is based on more of an implicit social contract between working-age and retired generations. Moreover, because NZ Superannuation has been the dominant

[9] Wave 8 is the last wave of SoFIE planned, so there will be no longitudinal information available on KiwiSaver behaviour over time.

[10] This forecast is based on membership increasing at an average rate of 1,000 per day beyond the first year, which accords exactly with the observed growth. The forecast is conservative in not allowing for either the tax-favoured treatment of fund earnings or for wage growth, which increases the costs of the ESCT exemption.

[11] According to Table 2.5 of the Pre-Election Economic and Fiscal Update, expense changes due to KiwiSaver costs that were not apparent in the May 2008 budget contribute 7% in 2011 and 10% in 2012 of the replacement of government surpluses (of the operating balance before gains and losses) with deficits (New Zealand Treasury 2008:30).

feature of retirement incomes policy for several decades, it provides an appropriate benchmark for evaluating the inequality effects of an innovation like KiwiSaver.

THE KIWISAVER SURVEY

The data used in this paper are from a nationwide postal survey carried out by the authors between December 2007 and February 2008. A simple random sample was drawn from the New Zealand electoral rolls, at a sampling rate of 1:2,000 for all general electorates. A higher sampling rate, of 1:1,000, was used for the Māori electorates because a sufficient number of respondents was needed to enable estimates of KiwiSaver incidence across different ethnic groups. A total of 1,662 survey forms were sent out, with 604 completed responses. The response rate was 38%, after adjusting for almost 100 cases where forms were not delivered due to changed addresses. A set of sampling weights was derived to account for both non-response and the higher sampling rate from Māori electorates, and all results presented below are weighted to ensure they are nationally representative of the population aged 18 years and above.[12] These sampling weights range from 1,370 to 13,800, with an average value of 4,810.

The survey included questions on knowledge and use of KiwiSaver, the level of contributions that individuals and their employer made to KiwiSaver accounts, and the method of joining (auto-enrolment, direct enrolment, and having an existing saving scheme become KiwiSaver compliant). These details facilitate calculation of the incentives that individuals are eligible for, which vary between KiwiSaver and KiwiSaver-compliant schemes. Demographic and economic details on the respondents were based on questions copied from the Census, with additional questions to capture information on earnings, given that KiwiSaver contributions are mostly based on the level of gross earnings.[13]

Table 1 reports descriptive statistics from the survey for several characteristics of interest, for six sub-groups. The first group is the full sample of those without either KiwiSaver or a KiwiSaver-compliant savings scheme, which also includes people, aged 65 and above who are not eligible for KiwiSaver. The second group is the non-members in the 18–64 years age range. The next three groups are for those who (i) were auto-enrolled in KiwiSaver, (ii) those who enrolled directly via their employer or with a KiwiSaver fund, and (iii) those whose existing saving scheme became KiwiSaver compliant. The last column of the table is for the aggregate of all three of these KiwiSaver or KiwiSaver-compliant membership groups.

[12] Specifically, we grouped responses into 36 cells, based on gender, two ethnicity categories (combining Māori and Pacific Islanders into one group and all other ethnicities into the other), three age groups (18−34, 35−54 and 55 and above) and three income ranges ($25,000 and below, $25,001 to $50,000 and $50,001 and above). The same grouping was applied to population totals derived from the New Zealand Income Survey, and the ratio of population in each cell to the number of KiwiSaver survey responses in the corresponding cell was used as the sampling weight. Ideally this procedure would have been carried out with the 2006 Census instead of the Income Survey, but the Census introduced the "New Zealander" ethnicity category, which is not comparable with the ethnic groups specified in the KiwiSaver survey. We are grateful to Steven Stillman for assistance with this weighting exercise.

[13] The survey used the 14 income brackets from the 2006 Census, but the actual median income in each bracket rather than the middle of the range is then used in the calculations. This median is calculated from the 2006 New Zealand Income Survey, which obtains actual income levels rather than income ranges. We are grateful to Steven Stillman for providing these medians.

Table 1 Descriptive Statistics for Various Sub-groups in the Survey

	Non-members					
	All ages	18-64	Auto enrolled	Direct enrolled	KiwiSaver compliant	All KiwiSaver
Age 18-34	0.31 [0.03]	0.39 [0.03]	0.67 [0.12]	0.16 [0.06]	0.29 [0.16]	0.30 [0.06]
Age 35-54	0.38 [0.02]	0.47 [0.03]	0.31 [0.12]	0.51 [0.07]	0.71 [0.16]	0.50 [0.06]
Age 55-64	0.31 [0.02]	0.14 [0.02]	0.02 [0.02]	0.33 [0.06]	0.00 [0.00]	0.20 [0.04]
Male	0.48 [0.02]	0.48 [0.03]	0.51 [0.15]	0.52 [0.07]	0.49 [0.16]	0.52 [0.06]
Māori and Pacific Island	0.14 [0.02]	0.16 [0.02]	0.10 [0.09]	0.14 [0.05]	0.17 [0.15]	0.14 [0.04]
5th Form qualifications or below	0.35 [0.02]	0.29 [0.03]	0.31 [0.14]	0.22 [0.05]	0.07 [0.07]	0.21 [0.05]
6th or 7th Form, trade cert or diploma	0.45 [0.02]	0.49 [0.03]	0.45 [0.15]	0.46 [0.07]	0.56 [0.15]	0.48 [0.06]
Bachelor's degree or higher quals	0.20 [0.02]	0.22 [2.02]	0.24 [0.10]	0.33 [0.06]	0.37 [0.14]	0.32 [0.05]
Home owner	0.69 [0.02]	0.63 [0.03]	0.30 [0.11]	0.77 [0.07]	0.76 [0.15]	0.66 [0.06]
Owner of other property	0.20 [0.02]	0.19 [0.02]	0.04 [0.04]	0.34 [0.06]	0.07 [0.07]	0.24 [0.05]
Income (annual, pre-tax)	33,668 [1,192]	35,930 [1,426]	32,571 [4,367]	46,375 [3,649]	56,754 [11,951]	44,626 [3,091]
Sample size	505	384	16	71	12	99
population	2,463,153 [69,722]	1,968,222 [79,572]	103,948 [30,266]	280,729 [35,733]	58,570 [18,264]	443,247 [48,527]

Note: Standard errors of means in brackets

The survey estimates of KiwiSaver membership compare well with official data. Reports from the Government showed a total of 381,000 KiwiSaver members by the end of December 2007 and 414,000 by late January 2008, not counting those in KiwiSaver-compliant schemes. Approximately 8% of these were under age 18 and so will not show up in a sample based on the electoral rolls.[14] Therefore the relevant age group population is between 352,000 and 382,000, and our survey estimate of this population is 384,700.

The breakdown between types of KiwiSaver members changes over time, making it harder to see how the survey compares with official data. The survey estimate of 280,700 direct enrollees is 2.7 times larger than the estimated number of auto-enrollees, at 103,900. This same breakdown is not publicised monthly when administrative data on total membership are released, but information supplied by the Inland Revenue Department indicates that by the end of December 2007 there had been 183,400 auto-enrollees, of whom 58,000 had opted out, and 255,700 direct enrollees, giving a ratio of direct to auto-enrolled members of just over 2:1, similar to the end of the first full year of KiwiSaver, when direct enrolments were 36% of total net enrolment (Inland Revenue 2008) . In contrast, the same ratio in October 2007 had been 3:1,[15] which reflects the fact that the people with the most incentive to join

[14] Based on a report in the Beehive Bulletin of 12/10/07 that 8.6% of members are under age 20.

[15] An Official Information Act request by the New Zealand Institute of Economic Research, with information provided on 4/12/07 for October 2007, shows that by that month there were 62,920 auto enrolled (a further 32,752 had opted out) and 188,816 direct enrolled.

directly would have done so as early as possible in order to maximise their tax incentives. Hence the sample appears to be a reasonable reflection of this changing pattern.

The survey suggests that KiwiSaver members are older than non-members, are less likely to be Māori or Pacific people, but more likely to be male, to hold a degree or higher qualification, and to have higher incomes. Large differences are apparent between direct enrollees and auto-enrollees, with 67% of auto-enrollees below age 35 but only 16% of direct enrollees in this age range. This likely reflects the higher job turnover among the young, raising their auto-enrolment rate. For direct enrolments, older people have an advantage since they can obtain the tax incentives with lower opportunity cost, because they do not have to lock up their own contributions for very many years before cashing in their KiwiSaver accounts at age 65. Substantial income differences are also apparent. While auto-enrollees have annual incomes that are $3,000 below similarly aged non-members, direct enrollees have annual incomes that are $10,000 higher and members of KiwiSaver-compliant schemes have annual incomes that are over $20,000 higher. These income differences between KiwiSaver members and non-members suggest that the KiwiSaver incentives will tend to raise inequality, even for the $1,000 kick-start and $1,043 annual government contribution payments, which are capped.

THE INCIDENCE OF KIWISAVER INCENTIVES

One way to consider the incidence of the KiwiSaver incentives is to see what share of the total accrues to various population sub-groups. This is of interest because NZ Superannuation is approximately a "citizen's pension" – a basic amount payable to all citizens – so is distributed largely according to population shares. It seems appropriate, therefore, to compare the distribution of KiwiSaver incentives to population shares as well. A disaggregation into groups defined by age, gender, ethnicity, education and income is reported in Table 2.

Table 2: Shares of Population and KiwiSaver Incentives Accruing to Various Sub-Groups

Groups	Share of population (a)	Share of First Year Incentive (b)	Share of Lifetime Incentive (c)	Relative shares (b)/(a) (d)	(c)/(a) (e)
Age					
Age 18-34	0.374	0.284	0.462	0.759	1.234
Age 35-54	0.476	0.496	0.467	1.044	0.982
Age 55-64	0.150	0.219	0.071	1.461	0.473
Gender					
Female	0.511	0.432	0.407	0.846	0.798
Male	0.489	0.568	0.593	1.160	1.211
Ethnicity					
Maori and Pacific Island	0.159	0.113	0.101	0.707	0.635
Other ethnic groups	0.841	0.887	0.899	1.056	1.069
Education					
Fifth form qualifications or below	0.279	0.196	0.163	0.703	0.587
6th or 7th Form, trade cert or diploma	0.484	0.465	0.455	0.960	0.940
Bachelors degree or higher quals	0.238	0.340	0.381	1.430	1.606
Income Group					
Up to $30,000	0.456	0.227	0.143	0.499	0.314
$30,001-$70,000	0.439	0.600	0.666	1.365	1.515
$70,001 and above	0.105	0.173	0.191	1.654	1.825

Because only those aged less than 65 are eligible for KiwiSaver, the comparisons are restricted to that group. Separate calculations are made of the incidence of the tax incentives in the first year and their lifetime incidence.[16] In order to calculate this lifetime incidence, we have to estimate present values.[17] Specifically, we calculate the present values of the tax incentives received between 2007 and the year when members who had joined by December 2007 reach age 65.[18]

[16] These calculations are just for members who had joined by the time of the survey. Other calculations based on projected membership once 50% of the age-eligible population have joined are reported below.

[17] The present value of an income stream (or any other benefit such as a tax break that is enjoyed over a number of years) is the sum of the present values of each year's income. Because money has time value, the present value of each year's income must be discounted at a rate that compounds with every year further into the future.

[18] To carry out this calculation we combine our survey data with 2006 Census average earnings and employment rates for age, gender and qualification cohorts and with life table data on survival rates for the same cohorts. The expected value of earnings at any future age, *a*, is then the product of the cohort-specific employment and survival rates and the current earnings of people of age *a* with the same characteristics, allowing for real income growth at an assumed annual rate of 2% and variation of the respondent's idiosyncratic income from the cohort mean. The value of KiwiSaver contributions is then calculated, based on the assumption that individuals continue contributing at the same rate in the future as they reported in the survey, and that employer contribution rates stay the same if they are already 4% or above, and otherwise increase according to the KiwiSaver legislation, from 1% in 2008 to 4% in 2011. The values of the tax incentives in each year until age 65 are calculated once these member and employer contributions are known, assuming a continuation of the current rules. These predictions of the tax incentives in each year are then converted to a present value assuming a real discount rate of 6%.

The sub-groups who receive a larger share of first-year KiwiSaver incentives than their population share would warrant are those above age 55, males, and especially those with bachelors' degrees or higher qualifications and high-income earners (Table 2, columns (a), (b) and (d)). For example, in the first year of the KiwiSaver scheme, 34% of the value of the incentives is being captured by degree holders and above, despite this group being only 24% of the population. Similarly, 17% of the tax incentives go to those with incomes above $70,000 despite this group being just 11% of the population. Those with only Fifth Form qualifications or less, females, Māori and Pacific people, and especially those with annual incomes below $30,000, receive only small shares of the value of KiwiSaver incentives in the first year relative to their population size.

The inequality across population sub-groups in the distribution of KiwiSaver incentives is even more apparent in the lifetime estimates. The highest income group receives over 80% more of the lifetime incentives than their population proportion would predict, while the lowest income group receives less than one-third of their proportionate share (Table 2, column [e]). Similarly, Māori and Pacific people, women and the least educationally qualified group receive an even smaller share of the lifetime value of KiwiSaver incentives than either their share in the first year or their population share would predict. Age is the only characteristic where the incidence patterns vary between the first year and lifetime, since the lifetime calculations give younger KiwiSaver members more time to accumulate incentives. This tendency for the unequal incidence of KiwiSaver incentives to strengthen over time reflects the growing importance of the ESCT exemption as a source of benefit, and the diminishing effect of the one-off $1,000 kick-start payment over a longer time horizon.

THE IMPACT OF KIWISAVER INCENTIVES ON INEQUALITY

KiwiSaver incentives are unequally distributed, as Table 2 makes clear. So, too, however, are many other rewards in both a market economy and from public transfers. Hence, what matters is how much KiwiSaver incentives contribute to inequality compared with other income sources. We therefore use a decomposition technique, developed by Lerman and Yitzhaki (1985), which shows the contribution of each income source to inequality in total incomes. In this decomposition, each source's contribution to the Gini coefficient for total income is the product of its own inequality (G), its share of total income (S), and its correlation with the rank of total income (R).[19]

The results of this decomposition for the first year of KiwiSaver are shown in Table 3. All three of the KiwiSaver incentives considered (the $1,000 kick-start, the $1,043 matching contribution and the ESCT exemption) act to increase inequality (based on their positive values for I – the share of inequality due to each source). The most unequally distributed of these three incentives is the ESCT exemption, as seen from its very high Gini coefficient (0.98). Moreover, the ESCT exemption is also the most highly correlated with the rank of total income (R = 0.84), showing that this incentive accrues mainly to the rich. In fact, the contribution to inequality from the ESCT exemption is twice its contribution to total income, as seen from the (I/S) ratio of 2.0, which is easily the highest of any income source. The contrast with NZ Superannuation is striking. The correlation of NZ Superannuation with the rank of total income is negative (R = -0.34), so NZ Superannuation acts to reduce total inequality, by approximately 5% (I = -0.05).

[19] The Gini coefficient is a measure of inequality, which ranges from 0 (perfect equality where all have the same income) to 1 (complete inequality where one person has all the income and everyone else has none).

Table 3: Inequality By Income Source, Annual Income 2007/2008

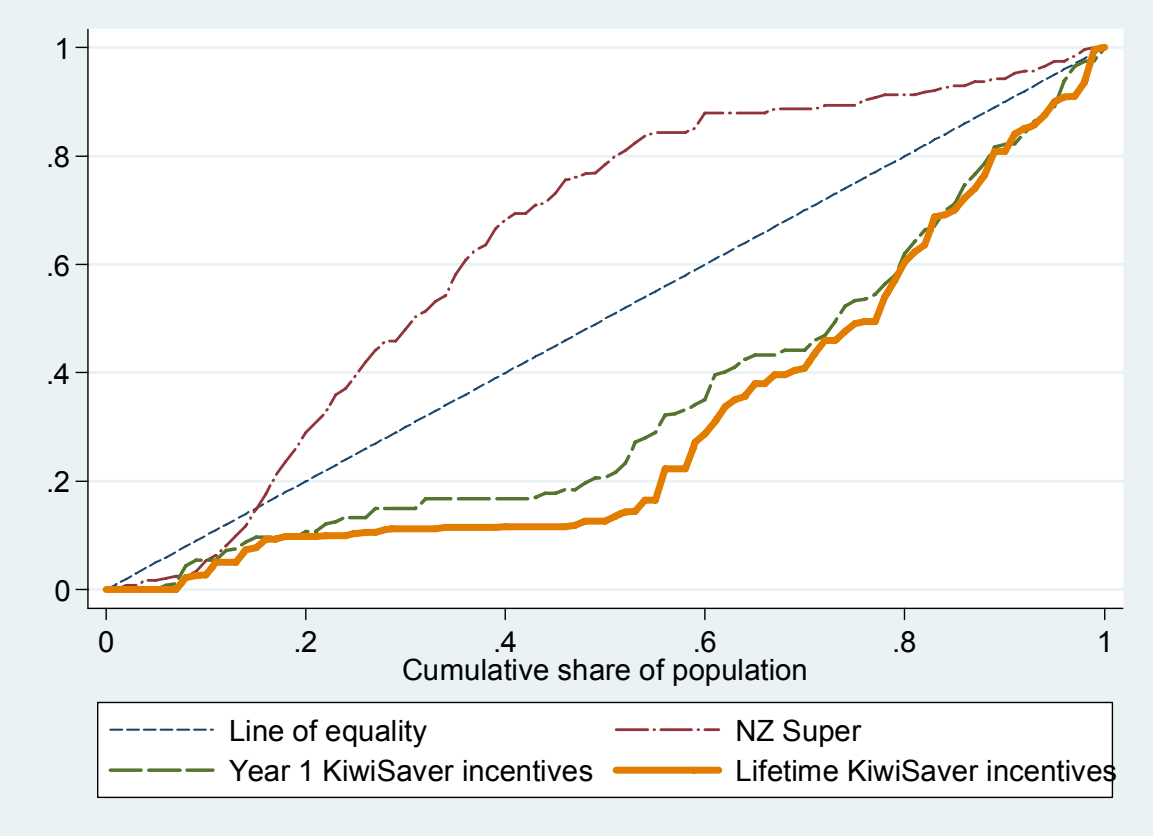
	Share of total income	Gini coefficient by source	Correlation with rank of total income	Share of income inequality	Relative income inequality
	(S)	(G)	(R)	(I)	(I/S)
Income source					
KiwiSaver Tax Incentives [a]	0.0083	0.8693	0.4421	0.0078	0.9398
$1000 kick-start	0.0037	0.8676	0.3087	0.0024	0.6486
$1043/yr tax credit	0.0038	0.8696	0.4866	0.0039	1.0263
ESCT exemption	0.0007	0.9774	0.8419	0.0014	2.0000
New Zealand Super	0.0696	0.8367	-0.3440	-0.0486	-0.6983
Earnings	0.7173	0.5716	0.8749	0.8690	1.2115
Other income	0.2047	0.8047	0.4306	0.1718	0.8393
TOTAL		0.4128			

Note: All values weighted by sampling weights, which are the expansion factors needed to gross the sample up to population totals, for the resident New Zealand population age 18 and above.
Income sources with a negative R and I act to reduce overall income inequality.
[a] Includes the fee subsidy of $40 per year.

Because the ESCT exemption will, over time, become a more important source of benefit, while the kick-start benefit is a one off, a longer-term perspective would be likely to find that the overall impact of KiwiSaver incentives on inequality is even greater than what is shown in Table 3. This intuition is confirmed in Figure 1, which compares *concentration curves* for KiwiSaver incentives in the first year and over the lifetime, with the concentration curve for NZ Superannuation. These concentration curves show the cumulative percentage of KiwiSaver incentives (or any transfer) accruing to the poorest *x*% of the population. The horizontal axis measures percentiles of income distribution, from poorest to richest, and the vertical axis measures accumulated percentage of total transfers. If everyone, irrespective of income, received exactly the same value of KiwiSaver incentives, the concentration curve would be a 45-degree line from the bottom left-hand corner to the top right-hand corner; this is the *line of equality*. Transfers and income sources with concentration curves above the line of equality (i.e. those with concave curves) reduce inequality; those below the line of equality increase inequality. If one concentration curve is below (more convex than) another, it indicates a more unequal distribution of this transfer or income source.

The concentration curve for the lifetime value of KiwiSaver incentives lies mostly below the concentration curve for the incentives in the first year. For example, the poorest 50% of the population (according to current incomes) receive just 13% of the lifetime value of KiwiSaver incentives (conditional on current membership levels) but over 22% of the incentives in the first year. Hence the KiwiSaver incentives are more unequally distributed in the long run, as also shown in Table 2, and are therefore likely to produce a larger impact on lifetime inequality than the impact in the first year shown in Table 3. The effect of NZS in dampening inequality is also apparent in Figure 1, with the concentration curve for NZ Superannuation being almost everywhere above the line of equality.

Figure 1 Concentration Curves for KiwiSaver Tax Incentives and NZ Superannuation



One potential concern with the results presented thus far is that they may provide a misleading guide to how KiwiSaver incentives will affect inequality once more members have joined. At the time of the survey only about 15% of the relevant age-range population had joined, while government projections allow for either a "high" take-up rate of 65% after 10 years or a "fast" take-up rate of 50% after five years. Perhaps as more people join the impact on inequality is reversed?

To help assess the likely impacts of KiwiSaver incentives on inequality in the future, when there are higher membership rates, we first estimate probit regression models of whether or not a survey respondent is already a member. These models provide predicted probabilities of membership, based on characteristics such as age and income, so that we can then simulate who would be a member in future by assigning the non-members with the highest predicted probabilities into the simulated membership group. Because auto-enrollees and direct enrollees have quite distinct characteristics (younger and poorer for auto-enrollees, versus older and richer for direct enrollees), we estimate separate models for these two membership categories. The results of the two probit models are reported in Table 4, and these show the relevance of young age for auto-enrolment, and high incomes, higher qualifications and older age for direct enrolment.

Table 4: Probit Regression Models Used to Simulate Future Membership of KiwiSaver

	Auto enrolment			Direct enrolment		
	Coefficient[a]	Standard error	P>|z| [b]	Coefficient[a]	Standard error	P>|z| [b]
Age						
Age 18-34	ref group					
Age 35-44	-0.018	0.015		0.066	0.052	
Age 45-54	-0.042	0.015	**	0.150	0.063	***
Age 55-64	-0.040	0.012	**	0.307	0.081	***
Gender						
Female	ref group					
Male	0.003	0.017		-0.007	0.028	
Ethnicity						
Māori and Pacific Island	-0.021	0.016		0.016	0.042	
Other ethnic groups	ref group					
Education						
Fifth form qualifications or below ref group	ref group					
6th or 7th Form, trade cert or diploma	-0.024	0.023		0.068	0.034	**
Bachelors degree or higher quals	-0.016	0.019		0.144	0.058	***
Income Group						
Up to $30,000	ref group					
$30,001-$70,000	0.015	0.020		0.073	0.040	**
$70,001 and above	-0.009	0.018		0.084	0.050	*

Note: Number of observations = 481. The pseudo-R_2 for the auto enrolment model is 0.10 and for the direct enrolment model is 0.11. The Wald tests for the goodness of fit of the entire model are 12.52 for the auto enrolment model and 38.19 for the direct enrolment model. These are statistically significant at the 0.08 and 0.01 level with 9 degrees of freedom.

[a] The coefficients are transformed into marginal effects, showing the effect of a one unit change in the explanatory variable on the probability of being an auto or direct enrolled KiwiSaver member.

[b] *** = significant at 0.01, ** = significant at 0.05, * = significant at 0.1.

The predictions from the models in Table 4 are used to simulate a situation that may occur by about the year 2011, by which time 50% of the population may have been enrolled in KiwiSaver (assumed to be split between 20% auto-enrolled and 30% direct enrolled, since the 2.7:1 ratio found in the survey will fall over time). Existing KiwiSaver and KiwiSaver-compliant members are assumed to maintain their current status. We also assume that all of the direct enrollees will have joined prior to the year that is being simulated, since this group will want to enroll as quickly as possible to maximise the value of the tax incentives. One-fifth of the auto-enrollees are assumed to join in the year being simulated, because membership of this group should grow at a declining rate over time.[20]

The simulation also assumes that existing members and their employers maintain their current KiwiSaver contribution rates, except that where employer contribution rates are below 4% of gross pay, these are raised in line with the schedule set out in the KiwiSaver legislation. The simulated new members are assumed to contribute 4% of their earnings,

[20] Although the rate of job turnover may be approximately constant over time, turnover will yield fewer new auto enrolments in future because a rising fraction of people starting new jobs will already have enrolled in KiwiSaver.

which is the same rate as their employer contributes. The other components of income (earnings, NZ Superannuation and other income) are left at the same values used for the calculations reported in Table 3, so that the only factors changing are the expansion in KiwiSaver membership and the mandated rise in the rate of employer contributions.

The results of the inequality decomposition for the simulated situation in a year like 2011 are shown in Table 5. All of the KiwiSaver incentives still increase inequality, even with one-half of the age-eligible population enrolled. In total, the simulated KiwiSaver incentives contribute 1.5% to an annual income total that includes them as equivalent to an income stream, but they contribute 1.8% to the total inequality. In the simulation, the kick-start payment is a relatively minor part of the total incentive package, while the ESCT exemption becomes almost one-third of the total (up from one-twelfth in the first year). This tax exemption is, once again, proportionately, the largest contributor to inequality of any income source considered in Table 5, as seen from its (*I*/*S*) ratio of 1.6. The impact of KiwiSaver incentives in raising income inequality is therefore likely to be an enduring feature of their design, rather than simply a transitory byproduct that disappears once membership becomes more universal.

One inference some may draw from Table 5, which we would argue is erroneous, is that the contribution to inequality from KiwiSaver incentives is *just* 1.8%. This seems small relative to the contribution from earnings (86.7%) or from other income (16.5%). In fact the correct comparison is with the contribution to inequality from NZ Superannuation (-5.0%). There are two reasons for this. First, earned income in market economies is characteristically unequally distributed and makes the major contribution to overall income inequality. Even a transfer programme as large as NZ Superannuation (equivalent to over 4% of GDP) can only moderate that market inequality by a small amount. Second, both NZ Superannuation and KiwiSaver are retirement incomes policies, so they are natural comparators. It seems somewhat inefficient to have two policies ostensibly targeting the same goal (secure and equitable incomes in retirement) which are having such offsetting effects on income inequality. Thus, in our opinion, the correct inference to take from Table 5 is that over one-third of the inequality reduction achieved by NZ Superannuation might be undone by KiwiSaver incentives.

Table 5: Predicted Inequality By Income Source When One Half of Age Eligible Population are in KiwiSaver

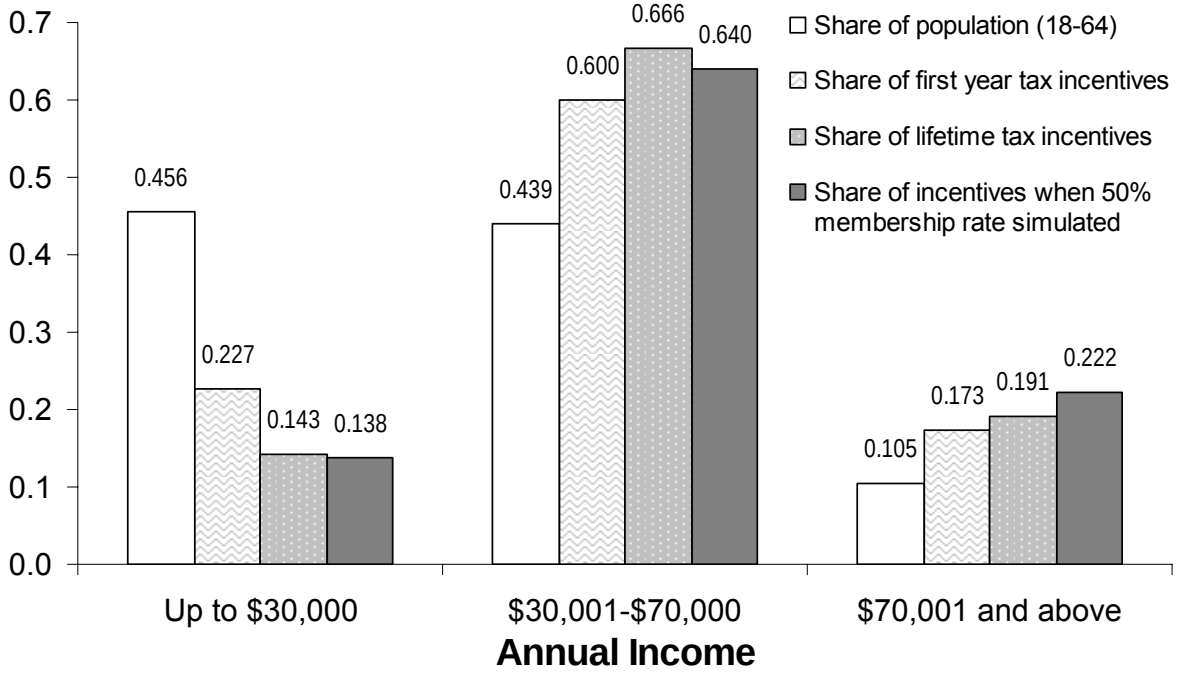
	Share of total income	Gini coefficient by source	Correlation with rank of total income	Share of income inequality	Relative income inequality
	(S)	(G)	(R)	(I)	(I/S)
Income source					
KiwiSaver Tax Subsidies [a]	0.0154	0.7010	0.6774	0.0178	1.1558
$1000 kick-start	0.0009	0.9694	0.1932	0.0004	0.4444
$1043/yr tax credit	0.0098	0.6610	0.6437	0.0101	1.0306
ESCT exemption	0.0044	0.7986	0.8228	0.0070	1.5909
New Zealand Super	0.0691	0.8367	-0.3603	-0.0503	-0.7279
Earnings	0.7121	0.5716	0.8820	0.8672	1.2178
Other income	0.2032	0.8047	0.4187	0.1654	0.8140
TOTAL		0.4140			

Note: Calculations based on simulated membership estimated from the probit models in Table 4, assuming that 30% of the age eligible population are direct enrollees, 20% are auto-enrollees, and 50% are non-members. Existing KiwiSaver and

KiwiSaver compliant members (ca. December 2007) maintain their membership. The simulated members are assumed to contribute 4% of earnings and the employer contribution is also 4%. Existing members and their employers maintain their current contribution (employer contribution rates below 4% are raised to 4%). Direct enrollees are assumed to have joined KiwiSaver before the current year, while one-fifth of auto enrollees are assumed to have joined in the current year with the rest joining in earlier years.
For other notes, see Table 3.

Another way to consider the results from the simulation of 50% KiwiSaver membership is in terms of the incidence of the tax incentives. Figure 2 compares the population shares of various income groups with their shares of the tax incentives received in the first year, with the lifetime value of the tax incentives for first-year members, and with the shares of incentives once 50% of the population are members. Both the lifetime impact for first-year members and the simulated incidence in the year when membership reaches 50% are substantially more unequal than in the first year. For example, the richest group (those with incomes of $70,001 and above) receive 22% of tax incentives once membership reaches 50% (and employer contributions are raised to 4%), compared with only a 17% share of the incentives in the first year.

Figure 2 Incidence of KiwiSaver Tax Incentives in Several Time Periods and Simulations



COMPARISONS WITH OTHER FINDINGS

The analyses reported in this paper are based on a survey that was fielded when KiwiSaver was not yet one year old. One concern with drawing inferences from these results may be that the results could differ if based on data that were collected once KiwiSaver had been in place for longer. However, the nature of our results suggests that such a concern is misplaced, because the largest contribution to inequality from KiwiSaver incentives is from the tax-free nature of the employer contributions, in the form of the ESCT exemption. Thus even if the analysis waited until a hypothetical situation where every worker in New Zealand had joined KiwiSaver, the tax incentives would still be found to be inequality increasing. The reason is that the ESCT exemption is capped in terms of a percentage of the worker's gross salary

rather than in dollar terms, so this incentive is worth much more for well-paid workers, and hence contributes to rising inequality.

Moreover, other analysts who use data from a later period than when our survey was fielded provide several corroborating results for the main results presented here. First, demographic data on membership compiled by Inland Revenue at the end of the first year of KiwiSaver accords well with the survey estimates in Table 1; auto-enrollees are younger and are paid below average (by one-quarter) while direct enrollees are paid above average (by one-quarter) compared with all wage and salary earners (Inland Revenue 2008:6–7). Second, St John et al. (2008) use hypothetical modelling of individuals under different assumptions about income, based on pre-1 October 2008 tax rates and assuming a net real rate of return of 2% in KiwiSaver funds, and find a very considerable inequality in the lifetime value of KiwiSaver incentives. They first consider a 40-year-old whose earnings ($23,660) are only one-half of the weekly average, who at age 65 will receive a total value of KiwiSaver incentives and subsidies of $69,889, with $6,366 of this due to the tax exemption on employer contributions (the ESCT exemption). In contrast, for someone earning four times the weekly average ($189,280) the ESCT exemption is worth $94,578 by age 65 and the total value of KiwiSaver tax incentives and subsidies is worth $164,315. These calculations show the inequality-increasing effects of KiwiSaver tax incentives, especially the ESCT exemption.

Furthermore, our findings concur with international evidence from longer-established tax-advantaged saving programmes. For the US, Joulfaian and Richardson (2001) found that in 1996 less than 10% of the benefits from tax-deferred earnings-based retirement saving programmes accrued to the bottom half of wage-earning households. By contrast, 55% of the benefits went to the top decile of households. According to a later study by Burman et al. (2004), about 70% of tax benefits from "401(k)" plans in 2004 went to the highest 20% of tax-filing units and over half to the top 10%. Given their lower contribution limits, Individual Retirement Account (IRA) tax benefits are less regressive. However, the top 40% of households still received 85% of these IRA tax benefits and the top quintile alone got 60%.[21] Hughes (2002) observes that in Ireland and the UK, tax incentives for retirement saving result in high coverage rates for middle- and high-income earners, but low coverage rates for low-income earners. In both countries, two-thirds of the tax benefits accrue to the top income quintile, while less than 3% go to the bottom quintile.

OTHER IMPACTS OF KIWISAVER

Although our main attention has been on the effects of KiwiSaver incentives on inequality, our survey data also provide results that can help to understand other impacts of KiwiSaver, especially with regard to the stated goal of improving the financial position of New Zealanders in retirement.[22] The questionnaire asked about several potential impacts, including expectations of the adequacy of retirement incomes and qualitative indicators of saving

[21] 401(k) plans and IRAs are the most common voluntary, workplace-based, tax-preferred savings instruments in the USA. In 2004, employer plus employee contributions to 401(k) plans were tax deductible up to US$41,000 or 100% of earnings in 2004, whichever was lower. The cap for IRAs was the lower of US$3,000 or 100% of earnings.

[22] An ideal study of improvements in financial position in retirement due to KiwiSaver would require panel data, because it involves a before and after comparison. Such data are not available and will not be available under current survey planning because it is only in the final wave of SoFIE that questions will be asked about KiwiSaver.

versus dis-saving and the trend in saving. In this section we examine the results for these indicators to see what impacts KiwiSaver may already be having.

Because KiwiSaver members differ from non-members in many ways, simple comparisons of means are unlikely to provide an unbiased estimate of the impact of joining KiwiSaver. Regression models can control for differences in average characteristics, but many studies show that this method is less successful at dealing with the sample selection problem that occurs when subjects in non-experimental studies cannot be randomly assigned to "treatment" and "control" groups. Such problems are relevant to attempts to measure the impacts of KiwiSaver, because members choose to join (even auto-enrollees have the choice to opt out).

Propensity-score matching (PSM) is an increasingly popular non-experimental evaluation method, with proponents claiming that it can replicate experimental benchmarks when appropriately used (Dehejia and Wahba 2002). Using PSM to estimate the impact of KiwiSaver entails first estimating a probit equation for the probability of a survey respondent being a member (including of KiwiSaver-compliant schemes). The resulting propensity score then allows each member to be matched only to those non-members whose characteristics give them similar predicted probabilities of being members. A comparison of the two matched samples then gives an estimate of the "average treatment effect", which in this case is the impact on the outcome variable from joining KiwiSaver. The propensity scores also allow us to ensure that non-members who are quite unlike members are not used in the comparisons, in order to improve the validity of the impact estimates.

The results for five possible impacts of KiwiSaver that are considered are reported in Table 6. These impacts are: (i) the respondent's expectation about the adequacy of their future retirement income, (ii) whether the respondent's household is currently saving, in the sense of spending less than income, (iii) whether they are dis-saving, by spending more than income, (iv) whether their saving has gone up in the past year, and (v) whether saving has gone down. In addition to the average treatment effects estimated with PSM, the table also reports the overall mean of these five variables and linear regression estimates of the treatment effects.

The two statistically significant impacts apparent are that KiwiSaver members expect their retirement income to be more adequate than do non-members (by 0.4 points on a five-point scale) and they are more likely to report that their household saving has gone *down* in the last year. Specifically, 33% of the working-age population live in a household where saving is reported to have gone down in the last year. But KiwiSaver members are even more likely to say that their household saving has gone down, with statistically significant treatment effects of 9.4% (PSM) and 11.6% (probit). Hence, if one of the aims of KiwiSaver is to increase the overall level of household saving, this initial result does not look promising. Given the turbulence that occurred in financial markets in 2008, it may be several years before any effect of KiwiSaver on household saving can be observed in aggregate data, so continued surveying of household saving behaviour may be required to detect this impact.

Another notable feature from Table 6 is the low proportion of households who are dis-saving, in the sense that they report spending more than their income. Less than 13% of the working-age population is living in such households (with no significant difference between those in KiwiSaver and those not). Perhaps coincidentally, the 2001 Household Saving Survey (HSS) also found that 13% of adults had negative net worth, which would reflect a wealth stock

position consistent with having a flow of dis-saving.[23] Although dis-saving by 13% of adults may be a concern, it appears to be a far less widespread problem than is believed by key decision-makers. For example, the Minister of Finance who introduced KiwiSaver often claimed that "for every dollar households earn, they spend $1.15 on average" (Cullen 2007). Even if the other 87% of the population are zero savers rather than positive savers, the 13% dis-savers would need to spend $2.15 per dollar of income for the claimed $1.15 of spending per dollar of income to be true on average. It is doubtful that banks and other lenders would allow such profligacy over the long run (the data series of household saving rates behind the $1.15 average appear negative since 1993), so there may be a need for closer examination of the savings data that appear to have partly motivated the introduction of KiwiSaver, and possibly the tax incentives in KiwiSaver II.

Table 6: Impacts of KiwiSaver Membership on Saving and Retirement Income Expectations

	Mean (std dev)	KiwiSaver Treatment Effects Regression[a] (std error)[c]	PSM[b] (std error)[c]
Expected adequacy of retirement income	2.552	0.387	0.398
1 = Totally inadequate, 5 = Very satisfactory	(0.052)	(0.145)***	(0.128)***
	0.456	-0.071	-0.029
Household spends less than income	(0.026)	(0.071)	(0.052)
Household spends more than income	0.126	-0.028	-0.006
	(0.018)	(0.035)	(0.031)
Saving gone up in the last year	0.234	-0.014	0.009
	(0.022)	(0.058)	(0.055)
Saving gone down in the last year	0.327	0.116	0.094
	(0.024)	(0.064)*	(0.056)*

Note: Estimates are based on 480 observations for working age respondents to the KiwiSaver survey. The KiwiSaver membership includes those respondents in KiwiSaver compliant schemes. The models also include dummy variables for age group, gender, ethnicity, highest qualification, region, home and other property ownership, and income.

[a]An ordered probit is used for the regression model of expected adequacy of retirement income, and probit models are used for the other four impacts studied. The coefficients reported have been transformed into marginal effects, showing the effect of a one unit change in the explanatory variable on the probability of the outcome.

[b]Propensity Score Matching estimates, with the propensity scores estimated from a probit model of KiwiSaver membership, using dummy variables for age group, gender, ethnicity, highest qualification, region, home and other property ownership, and income. Five blocks of the propensity scores are created and the balancing property is satisfied. The average treatment effects are estimated by kernel matching, restricted to the region of common support and the standard errors are from 100 bootstrap replications.

c *** = significant at 0.01, ** = significant at 0.05, * = significant at 0.1.

[23] The HSS had separate samples of unpartnered individuals and couples, and the 13% is a weighted average of 24% of unpartnered individuals and 8% of couples having negative net worth. Some commentators such as Skilling and Waldegrave (2004) wrongly give unpartnered individuals the same weight as couples (rather than half the weight, since a couple has two people) and report that 16% of the population had negative wealth.

CONCLUSIONS

Recent changes to New Zealand's system of saving for retirement, with the introduction of KiwiSaver and its associated tax incentives, will increase future inequality in lifetime incomes and lead to diverging living standards for the elderly. Such inequalities might be considered an inherent feature of any saving scheme, since rewards partly depend on the amount of risk that is borne. However, it is unclear whether either proponents of the KiwiSaver scheme or the general public are aware of the likely impacts on inequality. This is especially because the most dis-equalising component of KiwiSaver incentives is the ESCT exemption, which was introduced in December 2006, with little fanfare and even less consultation (St John 2006), outside of the main announcements in May 2005 for KiwiSaver I and in May 2007 for the subsequent extensions of KiwiSaver II incentives.

These increases in inequality might also be deemed to be an acceptable cost in order to obtain the benefit of higher household saving. However, there are grounds for doubt about this as well, since both previous New Zealand experience and overseas evidence suggests that tax incentives for saving mainly encourage shifts from non-tax-favoured saving into tax-favoured saving, with little change in overall saving but a large hidden cost to the Government in tax foregone. In a companion paper to the present study, we use the survey results to examine how much new household saving is being stimulated by KiwiSaver and how much is simply a reshuffling of money that would have been saved anyway. It appears that out of every dollar in KiwiSaver accounts, only 9–19 cents is new saving (Gibson and Le 2008). The evidence on household saving behaviour reported in the current paper also gives grounds for caution when interpretations are made that equate the total amount in KiwiSaver balances as "new" saving. Whatever the ultimate change in household saving brought about by KiwiSaver, it is an open question as to whether this is sufficient to warrant the increases in inequality described here. Continued monitoring of this inequality increase and ongoing comparison with the inequality-reducing benefits of New Zealand Superannuation will remain relevant tasks for all social policy analysts and practitioners interested in inequality and retirement living standards.

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