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How Much New Saving will KiwiSaver Produce?

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Abstract

After two decades of tax neutrality for private saving, New Zealand policy changed radically with the recent introduction of tax incentives for KiwiSaver. A key issue for tax-favoured saving schemes is the extent to which existing saving is reshuffled versus new saving created by reduced consumption. Using data from a nationwide survey carried out by the authors, we estimate that each dollar of KiwiSaver balances represents only $0.09-$0.19 of new saving. The rest is either reshuffling amongst existing saving and debt by KiwiSaver members, or else taxpayer and employer transfers which reduce national saving elsewhere. Homeowners are least likely to fund their KiwiSaver contributions by reducing spending, indicating possible mis-targeting since owners are often blamed for excessive consumption arising from house price wealth effects. There is little evidence that KiwiSaver affects either the reported trend in saving or the presence of dis-saving. Since only one-tenth of households report negative saving, KiwiSaver may be a costly and ineffective solution to a relatively small problem of insufficient household saving.

Keywords

KiwiSaver
retirement saving
substitution effects
tax incentives

JEL Codes

H21, J26

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I. Introduction

Whether households have accumulated sufficient wealth to have decent retirement incomes and whether apparent falls in aggregate saving signal a falling preparedness for retirement are some of the most hotly debated questions in economics (Skinner, 2007; Scholz, Seshadri and Khitatrakun, 2006). Recent tax and retirement saving policy changes in New Zealand are motivated by a belief that aggregate saving has fallen and that future retirement incomes are in danger (Cullen, 2007) even though there is no necessary relationship between the household saving rate calculated from aggregate data, and the adequacy of saving for retirement by individuals (Coleman, 2006). Indeed, as *The Economist* points out, in regard to aggregate saving and research on the adequacy of saving in America:

> 'Ironically, economists [...] have become more sanguine [about individuals' savings adequacy] even as measured savings rates have fallen' [9/4/05, p.56]

But whether based on correct reasoning or not, the goals of raising national saving and improving the adequacy of individuals' private saving for retirement have emerged as central issues in economic policy making in New Zealand.

In this regard, New Zealand's distinctive approach to retirement saving changed dramatically on 1 July 2007, with the introduction of tax incentives for KiwiSaver. The prior approach, which had been in place for 20 years, 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.[1] The underlying principle was one of tax neutrality for private saving (St John, 2007). In contrast, KiwiSaver provides large incentives to rearrange the form in which remuneration is received (Littlewood, 2008), enables some streams of income to be almost entirely tax-free,[2] and for moderately high earners (say, Professors) can enable lifetime tax liability to be reduced by almost $100,000.

The main KiwiSaver incentives are the $1,000 tax-free contribution on first joining (the 'kickstart'), the matching contribution of up to $20 per week ($1,043 per year) from the

[1] In contrast to these two components, agencies such as the World Bank (1994) promote a 'three-pillar' approach with (i) a non-contributory mandatory basic pension, (ii) contributory, and often mandatory forced savings, and (iii) voluntary savings (St John and Willmore, 2001).

[2] The TTE regime in place from 1987 until the introduction of KiwiSaver had contributions to saving schemes made from after-tax income, income earned in the fund was taxed, and withdrawals from the fund were free from tax, giving a Taxed/Taxed/Exempt regime. Under KiwiSaver, employer contributions are tax free (up to a 4% of gross earnings limit) and income earned in the scheme is only partially taxed compared with equivalent income earned directly by individuals, so effectively an EtE regime has been created for this particular income stream.

government for members aged over 18,[3] and the exemption from Specified Superannuation Contribution Withholding Tax (SSCWT) for employer contributions up to a maximum of four percent of the employee's gross pay. 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), a fee subsidy of $40 per year, and from 1 April 2008 employers will receive 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 employer contributions are set to rise from one percent in 2008 to four percent of the employee's gross salary by 2011. Also, the investment income earned within KiwiSaver schemes is favoured by comparison with equivalent income earned directly by individuals, with a tax rate of only 30 percent rather than the 39 percent on the highest paid. Existing superannuation schemes that become KiwiSaver-compliant can access many of these benefits, including the exemption from SSCWT for employer contributions and the matching government contribution of up to $1,043 per year.

Many of these incentives are fairly traditional, in the sense that many other countries use similar distortions in an attempt to increase saving. Yet most evidence concludes that tax-favoured retirement saving programs, like 401(k) employment-related schemes and Individual Retirement Accounts (IRAs) in the United States, do little to increase net saving and simply lead to a reshuffling of portfolios to take advantage of tax incentives (Engen, Gale and Scholz, 1996). Households who save the most in these schemes are largely contributing funds they would have saved anyway, while national saving falls because of the substantial loss in tax revenue from the exemption on tax on contributions into and returns within the accounts (Engen, Gale and Scholz, 1994). For example, Attanasio and DeLeire (2002) find that $1,100 of the $3,170 average IRA balance for new contributors over 1982-86 came from tax exemptions, and most of the rest was from contributors reshuffling their assets. Less than ten percent ($275) came from genuine new saving, in the form of a reduction in consumption. A slightly higher estimate of the fraction of new saving comes from studies of 401(k) schemes; Engen and Gale (2000) estimate that between zero to 30 percent of 401(k) balances represent net additions to private saving, while Benjamin (2003) estimates that one quarter of 401(k) balances represent new national saving.[4] Benjamin (2003) also finds that it is contributors without housing assets who have the highest fraction of new saving.

These traditional tax incentives are in contrast to the main innovation when KiwiSaver was first announced in 2005, of automatic enrolment of all new employees who then had up

[3] While 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, such as those out of the workforce, 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] Neither of these estimates takes into account any deadweight losses from raising tax revenue elsewhere because of foregone tax on contributions to and fund earnings within 401(k) programs.

to eight weeks to withdraw. This mechanism of requiring purposive opting-out rather than opting-in reflected findings from behavioural economics that people often procrastinate and face commitment problems when trying to save for old age (Thaler and Benartzi, 2004). Since auto enrolment could lock in people who otherwise wouldn't be saving and who may have few assets (most job-starters are young) it might be expected to reduce the scope for reshuffling and produce a higher fraction of new saving. Indeed, in a report done for the Inland Revenue Department (IRD) after KiwiSaver was announced but before the generous tax incentives were added, Toder and Khitatrakun (2006) predicted that KiwiSaver would have a more positive impact on national saving than programs like 401(k) since it did not rely so much on costly incentives and instead relied on lower cost auto enrolment.

But the opportunity to observe the impact of a low-cost, low-incentive regime relying on automatic lock-in was lost once generous tax incentives were added to KiwiSaver in July 2007. In fact, the auto enrolment provision has made a relatively small contribution to KiwiSaver thus far. Only one-third of members (as at the end of 2007) are auto enrollees.[5] Moreover, the survey described below shows that these two membership groups are quite distinct, with auto enrollees younger and poorer than average, and direct enrollees older, more qualified, and much richer. Since auto enrollees are poorer, they also contribute less per capita, so their share of KiwiSaver member contributions is only one-quarter.

This relative insignificance of auto enrolment also means that earlier predictions of how KiwiSaver might raise aggregate saving need revisiting. While a comprehensive evaluation under IRD leadership is planned, it may be several years before standard data sources show impacts on household saving. The Survey of Family, Income and Employment (SoFIE) is a candidate for such analysis since it collects information on assets and liabilities every second year, allowing household saving to be calculated from the change in net worth. 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 necessary data are available. The processing lags in accessing SoFIE data make it likely that independent analyses will have to wait until 2012.[6] By that stage, cumulative government expenditure on KiwiSaver incentives will likely have exceeded $6 billion,[7] which is equivalent to 3.5 percent of current GDP. Hence, it would

[5] Specifically, by 31 December 2007 there had been 183,400 auto enrollees, of whom 58,000 had opted out, and 255,700 direct enrolees. We are grateful to Michael Littlewood for providing these figures.

[6] Moreover, SoFIE does not collect consumption data, so one of the most plausible strategies for identifying the impact on saving – of examining consumption changes for KiwiSaver members versus matched non-members will not be possible.

[7] According to a Memorandum to Cabinet 'Budget 2007: KiwiSaver Plus' (CAB (07) 136, 19 April, 2007) which is available from www.treasury.govt.nz the projected costs under the mid-estimate of a take up rate of 50% of the eligible population joining KiwiSaver after ten years rise from $299

be expensive to find out only then if the main effect of KiwiSaver incentives is just to encourage shifts from non-tax favoured saving into tax-favoured saving with little overall improvement in saving.

Therefore to provide more immediate data to help inform the on-going appraisal of KiwiSaver and its associated tax incentives, we initiated a nationwide KiwiSaver survey in December 2007. Almost 400,000 people had joined KiwiSaver by this stage, requiring government expenditure of over $800 million in the first year alone, making an evaluation even at this early stage desirable. A major objective of the survey was to estimate the fraction of money in KiwiSaver accounts that represented new saving, compared with money that was simply a reshuffling or a transfer from elsewhere that would offset any gain in national saving. The survey also obtained information that can be used to examine the impacts of KiwiSaver on saving trends and expectations about the adequacy of retirement incomes.

II. The KiwiSaver Survey

The data used in this paper are from a nationwide postal survey carried out by the authors in December 2007 and January 2008. A simple random sample was drawn from the New Zealand electoral rolls, at a sampling rate of 1:2000 for all general electorates and a higher sampling rate, of 1:1000, for the Maori electorates since response rates were expected to be lower for Maori and a representative sample was desired. A total of 1662 survey forms were sent out, with 604 completed responses. The response rate was just over 38 percent, after adjusting for almost 100 cases where forms were not delivered due to changed addresses. A set of sampling weights were derived to account for both non-response and the higher sampling rate from Maori electorates and all results presented below are weighted to ensure that they are nationally representative of the population age 18 years and above.[8] These sampling weights range from 1370 to 13,700, with an average value of 4,810.

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million in 2007/08 to $1332 million in 2011/12 and have a cumulative nominal value of $4.5 billion. However, since take up rates appear to be much higher (Crossan, 2007) either the high take-up rate of 65% after 10 years or the fast take up rate of 50% after five years appear more realistic. Both of these scenarios imply cumulative costs of over $6 billion by 2012.

[8] Specifically, we grouped responses into 36 cells, based on gender, two ethnicity categories (combining Maori 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.

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 tax 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, since KiwiSaver contributions are mostly based on the level of gross earnings.[9] A question was also added from the Survey of Consumer Finances (SCF), which is carried out in the US every three years and asks respondents whether, over the preceding year, the family's spending was less than, more than, or about equal to its income. Bucks, Kennickell, and Moore (2006) point out that even though only qualitative the answers to this question are a useful indicator of whether families are saving. In the most recent SCF (2004), seven percent of families in the U.S. reported that their spending usually exceeds their income. We also added another, similar, question, asking whether, over the past year, the amount that their household manages to save has gone up, stayed the same or gone down.

Table 1 reports descriptive statistics from the survey for several characteristics of interest, for four sub-groups. The first group is the sample of those aged 18-64 who are not in either KiwiSaver or a KiwiSaver-compliant scheme, and covers the overlap of the eligible age range for KiwiSaver and being old enough to be on the electoral rolls. The second group is the KiwiSaver members who report that they are funding their own contribution either from money they would have saved anyway, by transferring money from other retirement accounts, by reducing debt repayments or by borrowing. We treat all of these methods as 'reshuffling'. The third group is those KiwiSaver members who report that they are paying for contributions from money that they would have spent. This group is, potentially, providing new saving; exactly how much depends on what is assumed about the fungibility of unspent money for repaying any debt they may have.[10] The last column of the table is for the aggregate of the KiwiSaver and KiwiSaver-compliant membership groups.

[9] 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.

[10] This partial reliance on assumptions is regrettable but given the complete absence in New Zealand of longitudinal data on consumption, saving, investment and debt, no other feasible form of analysis will offer more concrete evidence.

Table 1: Descriptive Statistics for KiwiSaver Non-Members and Members by Payment Method

	Non-Members Age 18-64	Pay by Reshuffling Saving or Debt	Pay by Reducing Spending	All KiwiSaver
Age 18-34	0.39	0.27	0.32	0.29
	[0.03]	[0.09]	[0.08]	[0.06]
Age 35-54	0.47	0.45	0.52	0.49
	[0.03]	[0.08]	[0.08]	[0.06]
Age 55-64	0.14	0.28	0.16	0.22
	[0.02]	[0.07]	[0.05]	[0.04]
Male	0.48	0.59	0.45	0.51
	[0.03]	[0.08]	[0.08]	[0.06]
Maori and Pacific Island	0.16	0.06	0.19	0.13
	[0.02]	[0.05]	[0.07]	[0.04]
5th Form qualifications or below	0.29	0.17	0.26	0.22
	[0.03]	[0.06]	[0.07]	[0.05]
6th or 7th Form, trade cert or diploma	0.49	0.55	0.40	0.47
	[0.03]	[0.08]	[0.08]	[0.06]
Bachelors degree or higher quals	0.22	0.28	0.34	0.31
	[0.02]	[0.07]	[0.07]	[0.05]
Home owner	0.63	0.77	0.55	0.66
	[0.03]	[0.09]	[0.08]	[0.06]
Income (annual, pre-tax)	35930	47524	41872	44509
	[1426]	[5102]	[3631]	[3067]
Sample size	384	47	52	99
Population	1968222	206821	236426	443247
	[68733]	[34053]	[36298]	[47688]

Note: KiwiSaver members also includes members of KiwiSaver compliant schemes.
Standard errors of means in brackets

The survey estimates of KiwiSaver membership compare well with official data. The estimate of 443,247 at the bottom of the last column in Table 1 is for the combination of KiwiSaver and KiwiSaver compliant schemes. Restricting attention just to KiwiSaver, for which monthly administrative data are reported, the survey estimate is 384,680 with a standard error of 45,780. Administrative data indicate that there were a total of 381,000 KiwiSaver members by the end of December 2007 and 414,000 by late January 2008. Approximately eight percent of these will be under age 18 and so will not show up in a sample based on the electoral rolls.[11] Therefore the relevant age group population is between 352,000 and 382,000, which is close to our survey estimate of 384,680.

In terms of characteristics, the results in Table 1 indicate that KiwiSaver members are older, richer and better qualified than non-members. The age and income differences are especially apparent when comparing with those who pay their KiwiSaver contributions by reshuffling existing savings or debt. The reshufflers are also more likely to be male and to be home owners. In contrast, those from whom KiwiSaver is extracting new saving in the form

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

of reduced consumption spending are more likely to either be women, Maori and Pacific Islanders, or those with low qualifications. These may not necessarily be the groups that can best afford to reduce current consumption spending, especially since New Zealand Superannuation replaces a higher proportion of their income at retirement than for others (Scobie, Gibson and Le, 2005). For example, to the extent that retirement saving is motivated by a goal of consumption smoothing, it may not be optimal to force Maori and Pacific Islanders to save more during a phase of their lifecycle when consumption is already low.

III. Modeling the Sources of KiwiSaver Contributions

According to Table 1, slightly more KiwiSavers pay their contributions by reducing spending than by reshuffling, but since reshufflers are richer they may still make a bigger contribution to the aggregate value of KiwiSaver balances. In addition to reshuffled and new saving contributions by members, the other sources of KiwiSaver balances are from the employer, the taxpayer and in the longer term, from the investment returns. The impact on national saving then depends on how public saving declines given the cost of the tax incentives and the loss in tax revenue from the exemption on tax on employer contributions and also on what proportion of the net employer contribution would have been saved in the absence of mandated contributions and tax incentives.

To estimate the size of each source we make several simplifying assumptions. First, we ignore investment returns since these will not make a major contribution in the first year, and indeed in some cases were negative as world stock markets declined in late 2007. Second we allow members to have the full year contribution from their own payments, their employer payments, if any, and from the taxpayer even though some members may have been in the scheme for only a few months at the time of the survey. Third we base our estimates of total KiwiSaver balances just on those who had joined by the time of the survey because otherwise we have to forecast what sort of people would join in the remainder of the first year and how much they would contribute. This assumption does not affect our estimate of the fraction of KiwiSaver balances which is new saving, which is our main focus. We also assume that net employer contributions would otherwise have shown up in national saving through either corporate tax receipts or PAYE income tax on higher gross salary of employees.

The final assumption we make concerns the fungibility of funds for those KiwiSaver members who report paying their contributions from reduced spending. Many of these respondents had mortgages on either their home or some other property so their reduced consumption spending also could have been allocated to faster repayment of mortgage debt rather than going into KiwiSaver. Consequently, even KiwiSaver contributions for this group could be viewed as reshuffling, in the form of slower than feasible repaying of debt.

Alternatively, one could assume complete inflexibility for repaying mortgages faster, so that all reduced spending is allocated to KiwiSaver contributions as new saving. The truth should be somewhere between these two extremes and so a range of estimates is given, varying the share, θ of member contributions reported as coming from 'reduced spending' that are assumed to be allocated to mortgage debt repayment.

The estimated total value of first year KiwiSaver balances is $1,736 million, for those who had joined by the time of the survey and following the assumptions set out above. The largest source of these balances is the taxpayer, who contributes $863 million (Table 2). The second largest source is reshuffled member contributions, which range from $547 million (θ = 1, so all reduced spending by KiwiSaver members with mortgage debt goes into faster debt repayment) down to $372 million (θ = 0). Conversely, new saving by members, in the form of reduced consumption spending, ranges from $162 million (θ = 1) to $337 million (θ = 0). The smallest source of funds is from employers (net of the SSCWT exemption), who provide $164 million.

Table 2: Estimated Components of KiwiSaver Account Balances in First Year of the Scheme

	θ = 0.00	θ = 0.25	θ = 0.50	θ = 0.75	θ = 1.00
New saving by member ($mil)	337	293	249	206	162
	[48]	[44]	[42]	[41]	[42]
Reshuffled by member ($mil)	372	416	459	503	547
	[52]	[50]	[50]	[51]	[54]
Transfer from employers ($mil)	164	164	164	164	164
	[34]	[34]	[34]	[34]	[34]
Transfer from taxpayers ($mil)	863	863	863	863	863
	[55]	[55]	[55]	[55]	[55]
Ratio of new saving to total balance in KiwiSaver accounts	0.19	0.17	0.14	0.12	0.09
	[0.03]	[0.02]	[0.02]	[0.02]	[0.02]

Note: Estimates are national totals for the population aged 18-64 and exclude any first year investment income earned within the KiwiSaver funds. Member and employer contributions and taxpayer subsidies are calculated on a full-year basis since the month of joining was not reported in the survey.
θ is the share of those member contributions that are reported to come from "reduced spending" which is assumed to be allocated to debt repayment, for those respondents who had mortgages on dwellings and other properties.
Standard errors of means in brackets

The results in Table 2 suggest that KiwiSaver produces very little new saving. Specifically, each dollar of KiwiSaver balances appears to represent only $0.09-$0.19 of new saving. This low efficiency should not be surprising since it is within the estimated range found for IRAs in the U.S. by Attanasio and DeLeire (2002) and for the 401(k) program by

Engen and Gale (2000) and Benjamin (2003). If allowance is made for the marginal cost of taxation, at an assumed cost of, say, $0.30 per dollar of revenue either foregone or raised elsewhere and then transferred into KiwiSaver balances,[12] it is quite likely that national saving is actually reduced by KiwiSaver. Specifically, for any $\theta>0.25$ in Table 2, the deadweight cost of transferring $863 million of tax revenue into KiwiSaver accounts exceeds the estimated amount of new saving. The reduction in national saving is even more likely once administration, compliance and implementation costs of KiwiSaver are counted. Ironically, there is corroborating evidence for a negative effect of KiwiSaver on national saving from the government's own macroeconomic forecasts. According to Treasury (2007), the fiscal cost of KiwiSaver is estimated to be $1.2 billion in 2011 while the effect on household saving is expected to be only $1.1 billion.

The estimate of $0.09-$0.19 of new saving per dollar in KiwiSaver balances is an average that hides considerable variation across population sub-groups. Some groups like homeowners have attracted considerable attention as a source of perceived saving problems. Specifically, they are claimed to be spending beyond their income, due to wealth effects from rising house prices (Bollard and Hunt, 2008). Hence it is worth looking at disaggregated evidence to see which groups have a new saving fraction which varies from the 9-19 percent average. In Table 3 we report estimates for probit models of the decision to fund KiwiSaver contributions from reduced spending (as opposed to funding them from reshuffling). The estimation sample is restricted to KiwiSaver and KiwiSaver compliant members, although the results are still weighted to national totals of this combined group.

The most important result in Table 3 is that KiwiSaver seems to be unsuccessful at extracting much new saving from homeowners. Specifically, homeowners are 45-88 percent less likely to fund their KiwiSaver contributions from reduced spending than are renters with otherwise similar characteristics. The strongest effect is for those KiwiSaver members who own their home mortgage-free; for this group the likelihood of funding contributions from reduced spending is 72-88 percent lower than for renters. This result corroborates the finding of Benjamin (2003), for the U.S., where it is contributors without housing assets whose 401(k) balances have the highest fraction of new saving rather than reshuffled saving.

[12] Thomas (2007) uses the 1986 New Zealand tax reform as a 'natural experiment' to estimate a total deadweight loss of 29 cents for each dollar of tax revenue collected in 1986. Attempts to use the same methodology for tax reforms in 2000 were less successful, so up to date estimates of the marginal cost of taxation in New Zealand are currently lacking. Treasury calculations assume a deadweight cost estimate of 20%, which is viewed as a 'conservative' assumption.

Table 3: Probit Models of Probability of Paying KiwiSaver Contributions From Reduced Spending

	All KiwiSaver Members[a]			Direct Enrollees Only		
	Coefficient[b]	Standard error	P>|z|[c]	Coefficient[b]	Standard error	P>|z|[c]
Age						
Age 18-34	ref group					
Age 35-54	0.092	0.177		0.034	0.259	
Age 55-64	0.120	0.244		0.124	0.324	
Gender						
Female	ref group					
Male	-0.254	0.125	**	-0.433	0.160	**
Ethnicity						
Maori and Pacific Island	0.253	0.182		0.170	0.235	
Other ethnic groups	ref group					
Education						
Fifth form qualifications or below	ref group					
6th or 7th Form, trade cert or diploma	-0.215	0.175		-0.172	0.227	
Bachelors degree or higher quals	0.159	0.199		0.139	0.239	
Income Group						
Up to $30,000	ref group					
$30,001-$70,000	0.359	0.155	**	0.477	0.167	**
$70,001 and above	0.203	0.168		0.187	0.182	
Home Ownership						
Renter	ref group					
Own - with a mortgage	-0.454	0.169	**	-0.515	0.226	*
Own mortgage-free	-0.720	0.105	***	-0.877	0.093	***
Membership Category						
Directly enrolled	ref group					
Auto enrolled	-0.326	0.183	*			
KiwiSaver compliant scheme	-0.316	0.168	*			
Number of household (HH) members	-0.191	0.086	**	-0.008	0.103	
Number of dependent children in HH	0.294	0.100	***	0.109	0.130	

Note: Number of observations = 98 for the regression with all members and 70 for the regression with direct enrollees only. The pseudo-R^2 for the all member model is 0.29 and for the direct enrollee model is 0.41. The Wald tests for the goodness of fit of the entire model are 34.71 for the all member model and 36.75 for the direct enrollee model. These are statistically significant at the 0.01 level.

[a]Includes members of KiwiSaver compliant schemes.

[b]The coefficients are transformed into marginal effects, showing the effect of a one unit change in the explanatory variable on the probability of reporting that their KiwiSaver contribution is being paid from money they would have spent.

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

The other groups who are less likely to fund their KiwiSaver contributions from reduced spending are males (25-43 percent less likely) and those who are either in KiwiSaver compliant schemes or who are auto-enrolled (both 32-33 percent less likely). This last result is surprising because it might be expected that since auto enrollees may not otherwise be in a saving scheme, they should have a reduced scope for reshuffling existing saving. Given this

unexpected result, a check on the robustness of the other patterns is carried out by re-estimating the probit model, just on the group of direct enrollees (reported in the final columns of Table 3). Almost all of the patterns stay the same, and in fact become stronger for homeowners, males and the middle income group, who are seen to be more likely to fund their contributions by reducing spending (conditional on homeownership status).

IV. Estimating the Impacts of KiwiSaver

The stated goals of KiwiSaver are to improve the financial position of New Zealanders in retirement and increase aggregate saving. The evidence in Table 2 on aggregate KiwiSaver balances suggests that the second goal may not be achieved. An evaluation of the first goal requires examining household-level impacts. The questionnaire asked about several potential impacts, including expectations of the adequacy of retirement incomes and qualitative indicators of saving 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.

Since KiwiSaver members differ from non-members in many observable (see Table 1) and unobservable 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 impacts of KiwiSaver since 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 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. Several matching approaches are available, including matching each treated observation, *i* to the *nearest neighbour* (or neighbours) from the control group, and *kernel* matching where a weighted average of the *j* control group neighbours is taken with weights proportional to the closeness of propensity scores for *i* and *j*. We use the kernel matching approach.

Figure 1 illustrates the distribution of the propensity scores using a smoothed density. It is apparent that while many non-members have characteristics like those of members, others do not, given that the propensity scores for members range up to 0.69 but for non-members only to 0.53 (and many non-members have scores between 0.009 and 0.044 while no members have scores that low). Therefore in the results that follow, estimation of the average treatment effect is restricted to the area of common support, where the two distributions overlap. In other words, non-members who are quite unlike members are not used in the comparisons.

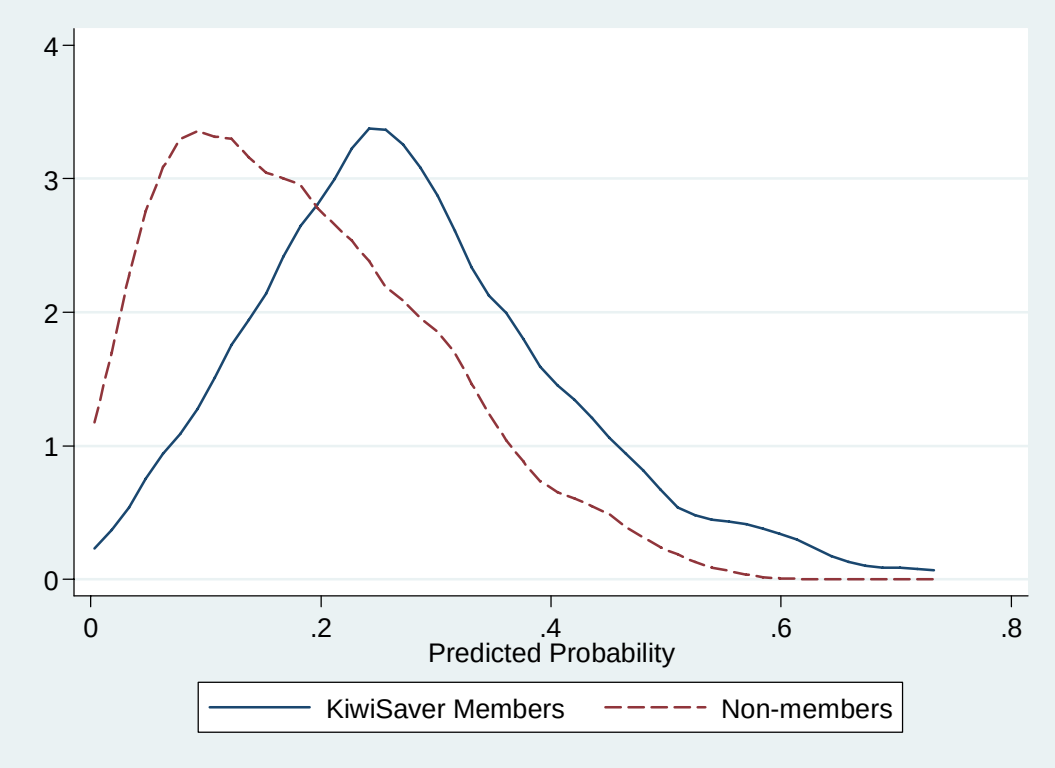

Figure 1: Distribution of the Propensity Scores for KiwiSaver Membership

The results for the five possible impacts of KiwiSaver that are considered are reported in Table 4. 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 in Table 4 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 percent 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 percent (PSM) and 11.6 percent (Probit). Perhaps this corroborates the finding in Table 2 that most of the money in KiwiSaver balances has not come from new saving since it is unlikely that respondents who had cut back on spending to fund their KiwiSaver contributions would then say that their saving had gone down.

Table 4: Impacts of KiwiSaver Membership on Saving and Retirement Income Expectations

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

Another notable feature from Table 4 is the low proportion of households who are dis-saving, in the sense that they report spending more than their income. Less than 13 percent of the working age population live in such households (with no significant difference between those in KiwiSaver and those not), while the proportion of households who are dis-saving is

only 10.5 percent.[13] Perhaps coincidentally, the 2002 Household Saving Survey (HSS) also found that 13 percent of adults had negative net worth, which would reflect a wealth stock position consistent with having a flow of dis-saving.[14] Another comparison is with the situation in the U.S., where the same question on spending more than income is asked, and where seven percent of households reported negative saving in 2004 (Bucks et al, 2006). The proportion in New Zealand who are dis-saving is only one-half higher than in the U.S., whereas an aggregate indicator like the (negative) household saving rate calculated from the sector accounts is 3,700 percent higher in New Zealand than in the U.S.[15]

Although dis-saving by one-tenth of households may be a concern, it appears to be far a less widespread problem than is believed by key decision-makers. For example, the Minister of Finance often claims that 'for every dollar households earn, they spend $1.15 on average' (Cullen, 2007). Such a claim appears to be inconsistent with the evidence in Table 4. Even if the 46 percent of households who spend less than income were assumed to spend exactly their income, for average spending across all households to be $1.15 per dollar of income requires that the 10.5 percent of dis-saving households spend more than $2.40 per dollar of income. It seems implausible that such relaxed budget constraints could exist in a competitive financial market, especially because the time series of the statistic (from the sector accounts) that generates the claim of $1.15 spent per dollar of income has been negative 1993. In other words, those decision-makers and commentators who equate the aggregate household saving figures with an assumed micro-level behaviour also have to believe that profit oriented lenders have become increasingly lax over time, rewarding dis-savers with ever more generous budget constraints in each successive year. Such an assumption seems implausible and highlights the fundamental inconsistency between micro-level evidence on household saving, such as that reported in Table 4, and the aggregate estimates coming from the experimental household sector accounts (Le, 2007).

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[13] A sample based on individuals overstates the importance of large households, who are more likely to dis-save, because a large household has more chance of having a resident selected in the sample. This can be corrected by redefining the sampling weight as the original weight divided by household size.

[14] 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.

[15] See Table 3 of Bollard, Hodgetts, Briggs and Smith (2006) for a comparison of aggregate household saving rates in the U.S. and New Zealand for 2005, which is the latest year with comparable data available.

IV. Conclusions

The introduction of KiwiSaver and its associated tax incentives was designed to lift aggregate saving, correcting the alleged problem that New Zealand households are bad savers. However, the evidence reported here confirms findings from overseas (Attanasio and DeLeire, 2002; Engen and Gale, 2000; Engen, Gale and Scholz, 1994) that tax incentives encourage people to shift existing saving to the tax-preferred vehicles, with little change in overall saving but large costs to taxpayer. Specifically, we find that out of every dollar of KiwiSaver balances, only 9-19 cents are 'new' saving. The rest is either reshuffling amongst existing saving and debt by KiwiSaver members, or else taxpayer and employer transfers which decrease national saving elsewhere. When the deadweight loss of tax incentives is taken into account, KiwiSaver is likely to lower rather than lift national saving. A reduction in national saving would be even more likely if administration, compliance and implementation costs of KiwiSaver are counted and if some estimate were made of the productivity loss from having 'tax planning' once again become an important occupation in New Zealand.

Moreover, there is a further cost to society of the KiwiSaver tax incentives, which comes from their impact on inequality. Gibson, Hector and Le (2008) show that once KiwiSaver achieves a 50 percent membership rate, the tax incentives will increase the Gini coefficient for income inequality by about 1.8 percent.[16] This offsets much of the five percent reduction in inequality that is achieved by New Zealand Superannuation.

KiwiSaver also appears to be poorly targeted, if one of its motivations was to reduce spending by homeowners who have benefited from wealth effects due to rising house prices. Homeowners are the group who are least likely to pay their KiwiSaver contributions from reduced spending, and instead are able to reshuffle existing saving and debt to take advantage of the tax incentives. Similar patterns have been found in the U.S. (Benjamin, 2003). Instead, those who reduce consumption spending to contribute to KiwiSaver are more likely to be either female or Maori and Pacific Islanders. New saving from these groups may be undesirable in the sense of lowering lifetime utility by consuming less now to supplement a

[16] It is possible to value this extra inequality, in terms of foregone social welfare, using the framework of the Atkinson inequality index, *A*. It can be shown that average per capita welfare is $\bar{y} - \bar{y}A$, where $\bar{y}$ is average income (Creedy, 1996). The tax incentives for KiwiSaver cause the Atkinson index to rise by 0.85 percentage points, if the inequality aversion parameter is ε=1.0, and by 0.21 percentage points for an inequality aversion parameter of ε=0.5 (by comparison, Creedy and Sleeman (2005) use inequality aversion parameters of 0.2, 0.6 and 1.2 when evaluating excise taxes in New Zealand). Since average income is not being raised by KiwiSaver tax incentives, it is only the 'cost' term, $\bar{y}A$ that is relevant to the evaluation. Given average income of $35,600, the per capita cost of the extra inequality ranges from $75 ($\varepsilon$=0.5) to $300 ($\varepsilon$=0.5). The aggregate value of this loss in social welfare ranges from $220 million to $880 million.

future level of retirement consumption that will already be high relative to lifetime averages, given the high replacement rates that New Zealand Superannuation provides to these groups.

The results reported here also undermine one of the rationales for KiwiSaver, which is that New Zealand households are bad savers. In contrast to this reputation, and claims of households spending $1.15 for every dollar they earn (Cullen, 2007), only one-tenth of households report spending more than their income. Hence, given the enormous direct and deadweight costs, KiwiSaver is likely to be a costly and ineffective solution to a relatively small problem of insufficient household saving.

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