Tax Working Group
Te Awheawhe Tāke

Tax Working Group Information Release

Release Document

September 2018

taxworkingroup.govt.nz/key-documents

This paper contains advice that has been prepared by the Tax Working Group Secretariat for consideration by the Tax Working Group.

The advice represents the preliminary views of the Secretariat and does not necessarily represent the views of the Group or the Government.

Coversheet: **Further information on Marginal Effective Tax Rates**

Information Paper for the Tax Working Group

May 2018

Key points

- Submitters have raised issues with the chart showing the marginal effective tax rate on different savings that was in the *Submissions Background Paper*.
- The Secretariat can confirm that the methodology used to produce the chart is sound and consistent with previously published literature, but acknowledges that the labelling of the chart could have been clearer.
- Modelling results are heavily dependent on assumptions, particularly regarding capital gains and inflation.

Recommended actions

We recommend that you:

a **note** the contents of this paper

b **invite** submitters with concerns about the conclusion to set out their views on:

i. what assets they consider to be over- or under-taxed in New Zealand
ii. the causes of any over- or under-taxation

Further information on Marginal Effective Tax Rates

Information paper for the Tax Working Group

May 2018

Prepared by Inland Revenue and the Treasury

TABLE OF CONTENTS

1. Introduction

1. This paper sets out a fuller description of the marginal effective tax rate (METR) analysis in the *Submissions Background Paper*. (The material that appeared in the *Submissions Background Paper* is provided in Appendix 1.)

2. While METRs are an established way of looking at the tax treatment of assets, they are not necessarily intuitive, and are very reliant on assumptions. Submitters have raised questions about the underlying methodology and the assumptions behind that methodology. In particular, the New Zealand Property Investors Federation has provided a paper by Morgan Wallace criticising the approach taken by the Secretariat. The Morgan Wallace paper has been provided to the Group alongside this paper.

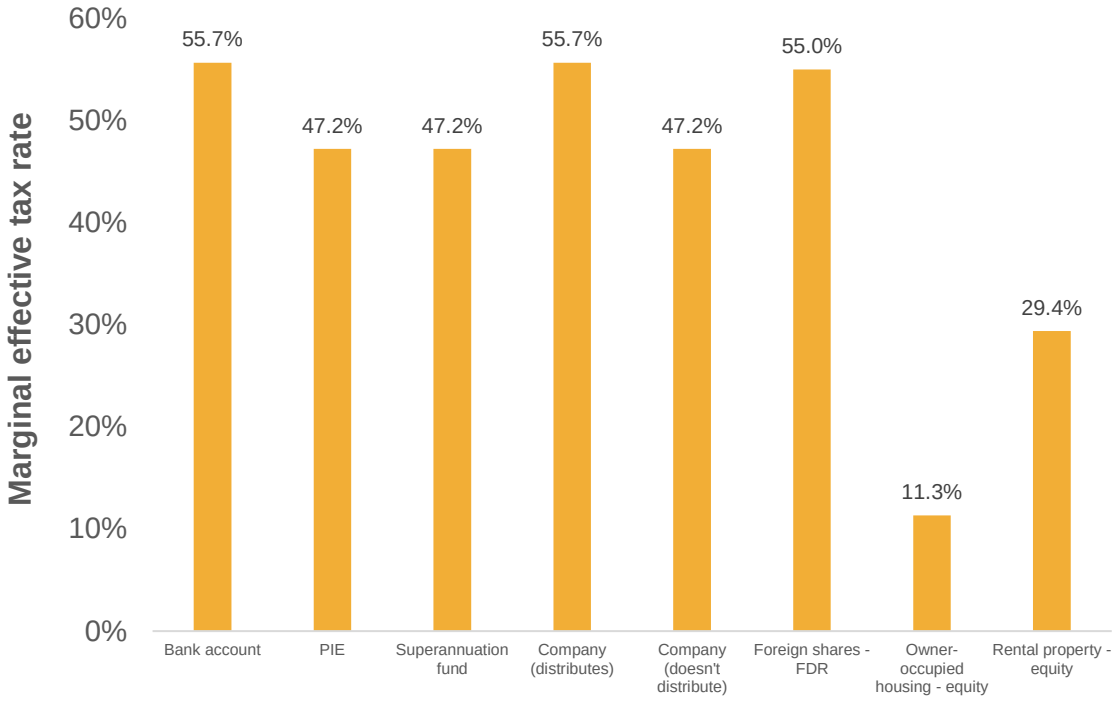
3. This paper sets out some of the detail behind the methodology and assumptions. The Secretariat suggests that the Group invite submitters with concerns about the analysis to set out their views on:

    - what assets they consider to be over- or under-taxed in New Zealand; and
    - the causes of any over- or under-taxation.

2. Marginal Effective Tax Rates

4. The following chart from the *Submissions Background Paper* has generated considerable commentary from submitters and other interested parties.

Figure 21: Marginal effective tax rates on savings



Treasury/IRD

2.1 The Secretariat's approach to the calculation of METRs

5. In order to analyse the effect of tax on saving decisions, we must examine the incentives facing a taxpayer who is contemplating the investment of an additional dollar into one of a range of savings vehicles. We concentrate on incentives at the margin by looking at an investment that will provide a return that is just sufficient to make the investment worthwhile.

6. The Secretariat's analysis follows a methodology set out by the OECD (2018).[1] We assume a fixed pre-tax real rate of return, then calculate the minimum post-tax real rate of return that will make the investment worthwhile.

[1] The OECD methodology, in turn, follows King and Fullerton (1984). Note that the OECD produces different results for New Zealand as it has applied different assumptions about inflation and local property rates, and it does not include tax paid at the company level for companies.

7. The METR will be the difference between the pre- and post-tax rates of return, divided by the pre-tax rate of return:

$$t_e = \frac{r - s}{r}$$

8. Where t_e is the METR, r is the fixed pre-tax real return, and s is the after-tax real rate of return on investing in a particular savings vehicle.

9. To find the post-tax rate of return, we must model the stream of returns and the taxes associated with a marginal investment over time. Modelling the stream of returns requires an assumption about how the return is received (i.e. as capital or revenue). It is also necessary to apply current tax law to the return to calculate the after-tax return. All taxes are modelled, including local authority rates where applicable.

2.2 Assumed returns and the treatment of risk

10. One of the key underlying assumptions relates to the returns generated by each type of saving vehicle. Our analysis assumes that all of the saving vehicles generate a nominal return of 5.06%. This is made up of a 3% real return and 2% inflation.[2] The 3% real return is consistent with the assumption used by the OECD in its recent work on this subject. The 2% inflation assumption is consistent with the midpoint of the latest Policy Targets Agreement between the Reserve Bank Governor and the Minister of Finance.[3]

11. Several submitters have queried the validity of these assumptions on the basis that foreign shares and property would usually be expected to generate higher returns than bank deposits.

12. This is an important point, and it comes down to the treatment of risk. Our analysis assumes that there is no risk in owning a bank deposit, a rental property, or foreign shares – and that the risk in owning any one of these assets is equivalent to the risk in owning a government-issued bond (which is commonly assumed to have zero risk). In other words, our analysis ignores risk and treats all investments as if they were risk-free.

13. The Secretariat stands by this approach. It is consistent with the finding in the 'taxation and risk' literature that it is appropriate to analyse taxes in terms of their impact on risk-free returns if the tax system treats risk neutrally – and the New Zealand tax system generally does so.[4] The underlying logic is that risk premiums will *not* be taxed if gains and losses are treated symmetrically, and so the full impact of a tax will fall on the risk-free return.

---

[2] (1 + 3%) x (1 + 2%) - 1 = 5.06%

[3] See https://www.rbnz.govt.nz/monetary-policy/policy-targets-agreements/pta2018.

[4] See Weisbach (2004) for a detailed explanation of why a comprehensive income tax does not tax the return to risk.

14. This approach is also generally consistent with the methodology used by the OECD.There are two main divergences between the OECD's results and our results:

    - **Rental property.** The OECD estimates that, in New Zealand, savings in rental property face a higher METR than savings in bank deposits. This result reflects the OECD's assumption that local government rates represent a higher proportion of property value than is likely to be the case at present.[5]

    - **Debt-financed investment.** The OECD calculated METRs for debt- as well as equity-financed investment. METRs on debt-financed investment are difficult to interpret, and so we did not perform this calculation for our analysis.

15. However, there do appear to be two valid concerns about the approach we took in the *Submissions Background Paper*:

    - **Assumptions regarding the allocation of returns.** It is difficult to convert a risky return into a risk-free return for assets such as rental housing that generate both taxable income and tax-free capital gains. Assumptions about the allocation of returns between taxable income and tax-free capital gains will inevitably be hypothetical and arbitrary.

    - **The drafting of the paper.** Rental property is the only real investment that was modelled for the *Submissions Background Paper*. For each of the other saving vehicles, the entity or structure was assumed to be holding a risk-free security. The text of the *Submissions Background Paper* does not make this fact sufficiently clear.

16. One particular problem with the drafting is that the *Submissions Background Paper* referred to returns to savings 'in a company.' The Secretariat actually modelled the tax system's effect on *a company holding a risk-free security*, but some submitters thought the text was referring to publically-listed equities. These submitters believed it would be inconsistent to assume zero capital gains for publically-listed equities, while assuming capital gains of 1% for rental property.

17. If we assumed that publically-listed equities earned risk-free returns in the same profile as rental property, then rental property would indeed have a higher METR than companies because of the additional impost of local government rates.

[5] The OECD assumes that local government rates represent 0.6% of rental property values, which is drawn from an estimate produced in 2011. More recent random sampling by the Secretariat has provided an average value of 0.34% across the five major urban centres.

2.3 Limitations and constraints of METR analysis

18. In retrospect, it would be much simpler to illustrate the tax system's effects on different entities and structures by assuming that the investment is a uniformly risk-free security with consistent capital gains, but held through different structures.

19. The approach we have taken is therefore best used to identify the METRs applying to the same type of investment when it is held in different types of entities. It is probably less well suited to comparing taxes across different real investments.

20. There may be value in a different exercise that attempted to model the different capital/revenue profiles of risk-free returns from different types of investments. Such an exercise, however, could become extremely complex – particularly when depreciation rates are taken into account.

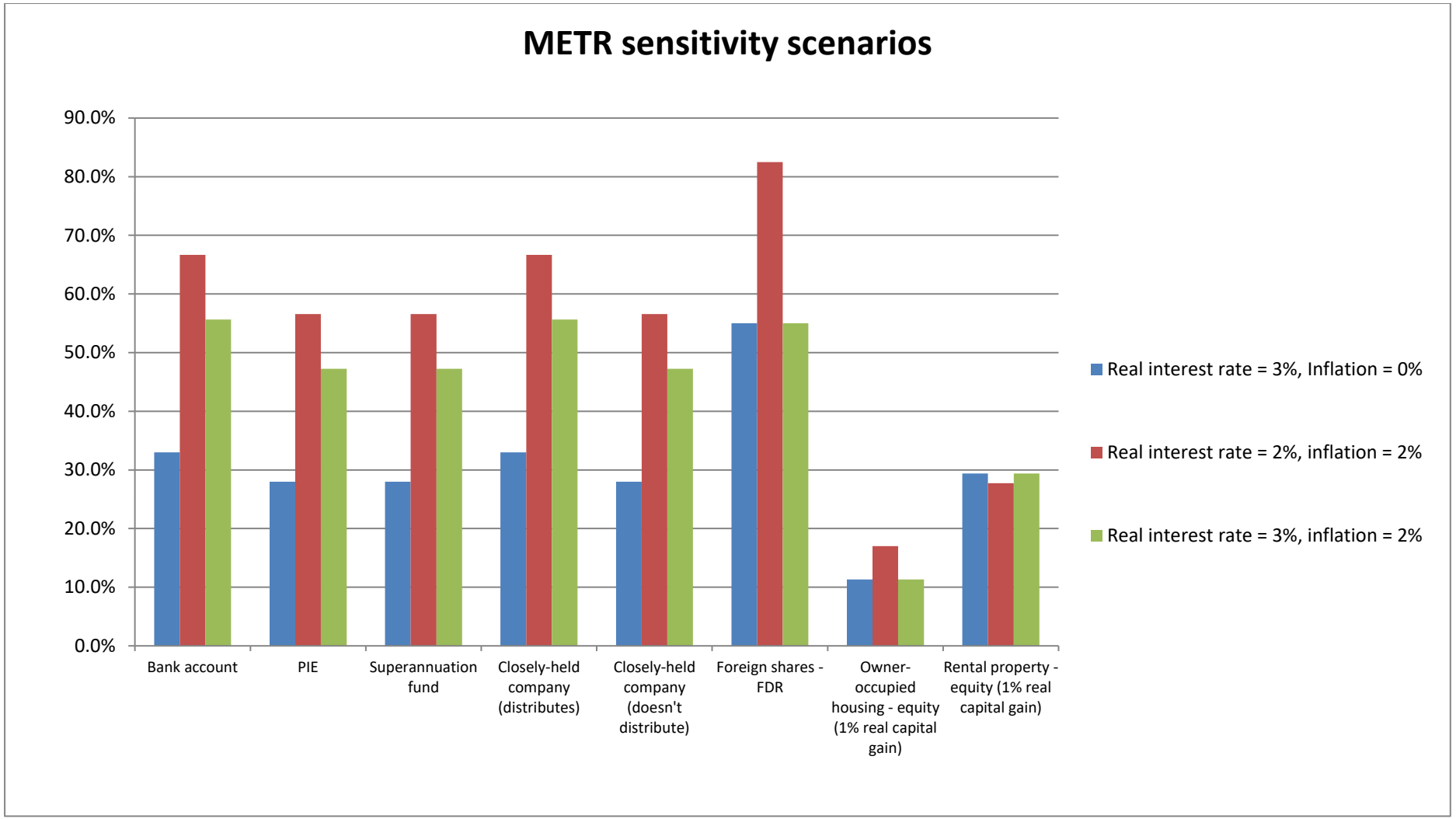
21. OECD (2018) provides a summary of the limitations of the METR approach:

> While there is great analytical utility in being able to summarise complex tax systems into a single comparable parameter, the METR methodology is not without limitations. In particular, the METRs are scenario and assumption driven, with results sensitive to those scenarios (e.g. the income level chosen) and assumptions (e.g. on inflation, the real rate of return, expected holding period, split between income and capital gains).
>
> For simplicity, the modelling also effectively assumes certainty as to the pre-tax rate of return, the tax system and other parameters that in reality may be subject to change over time. While there is uncertainty over the holding period of an asset, savers are assumed to be risk neutral to this uncertainty – which may not be the case in reality. More fundamentally, the fixed-p approach ignores differences in risk among alternative investments (i.e. higher risk assets are likely to require higher pre-tax rates of return) and that rates of return may vary with household wealth (e.g. because of better quality information of investment opportunities).

22. The chart on the following page provides METRs under differing assumptions about inflation and the real interest rate to indicate the sensitivity of the results to certain key assumptions.

2.4 Next steps

23. The Secretariat is happy to discuss these issues further with the Group at the meeting on Friday 1 June.


METR sensitivity scenarios
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Bank account
PIE
Superannuation fund
Closely-held company (distributes)
Closely-held company (doesn't distribute)
Foreign shares - FDR
Owner-occupied housing - equity (1% real capital gain)
Rental property - equity (1% real capital gain)
Real interest rate = 3%, Inflation = 0%
Real interest rate = 2%, inflation = 2%
Real interest rate = 3%, inflation = 2%

Appendix 1: Material in the *Submissions Background Paper*

Tax on household savings

One policy concern that has been raised in New Zealand is the different tax treatments of different investments - in particular, the treatment of housing as compared with other investments. If our broad-based, low-rate system is working well, there should be only minor (or no) differences in the tax treatment of different forms of investment. One way to systematically look at whether the tax system is balanced and neutral toward saving in different forms is to look at *marginal effective tax rates* on household savings. Marginal effective tax rates measure the tax rate on real, pre-tax income for investments that earn the same rate of return and will depend on a number of assumptions that are open to question.[1]

The tax rates in Figure 21 below vary because of:

- the non-taxation of capital gains when some assets are expected to earn capital gains;
- the difference between the company, PIE, and personal rates;
- the different tax treatment of foreign shares compared with domestic shares;
- the levying of local government taxes on real property; and
- the taxation of gains that are solely due to inflation.

As nominal income is fully taxed (that is, income including the inflation component), a 33% tax on the *nominal return* (that is, the *real return* plus inflation) on savings in a bank account is actually a materially higher tax on the *real return*. As risk-free rates have declined around the world, the relevance of taxing nominal rather than only real returns has increased. Figure 21 assumes a 3% real risk-free rate.[2] This is a low assumption relative to historical risk-free rates, but is high relative to current risk-free rates in New Zealand.

As shown in Figure 21, owner-occupied and rental housing is undertaxed relative to other assets.[3] It is noted that the Terms of Reference for the Group specifically exclude any recommended changes to the tax treatment of owner-occupied housing.

Foreign shares are relatively highly taxed under the foreign investment fund (FIF) rules and the *fair dividend rate* (FDR) system, whereby income is calculated at 5% of the opening value of the shares each income year. If real returns are only 3% (as assumed), this will overtax foreign shares.[4]

---

[1] In this exercise it is assumed that the *real risk-free return* is 3%, inflation is 2%, and the statutory marginal tax rate is 33%.

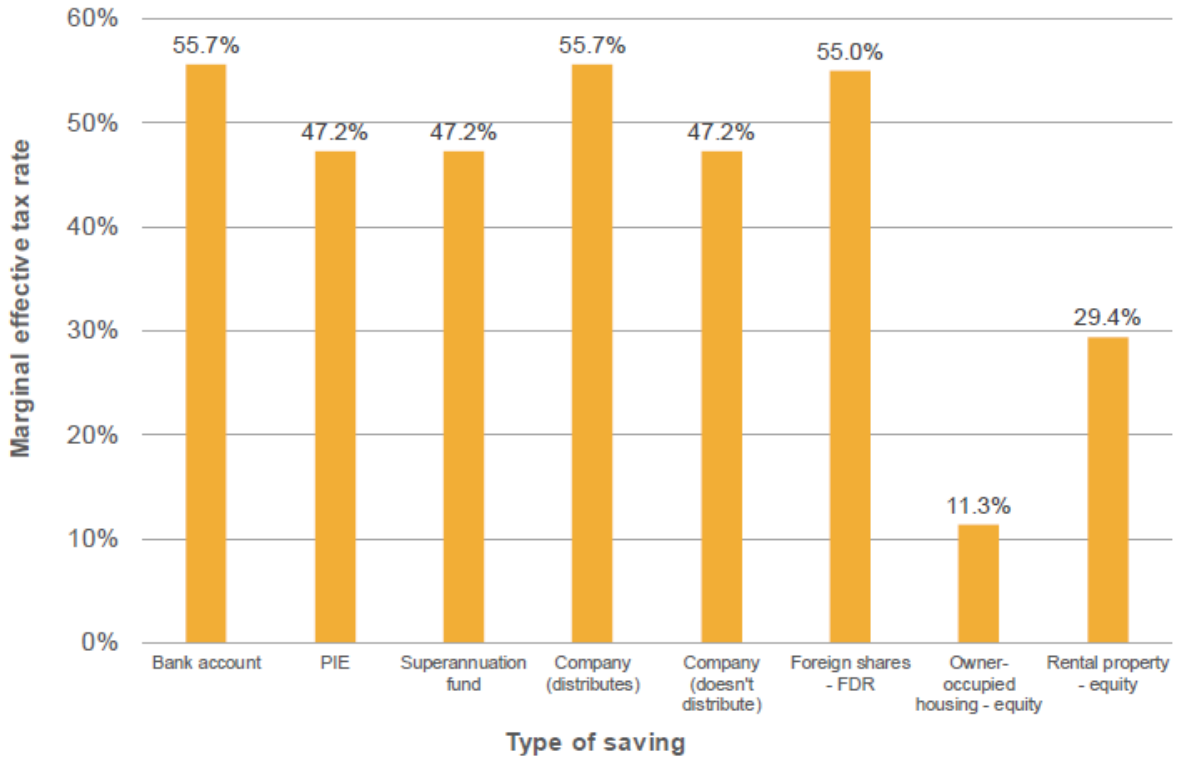
[2] The PIE, superannuation fund, company and foreign shares are all assumed to be holding interest-bearing deposits that earn this risk-free rate.

[3] In the case of owner-occupied housing, equity has a positive tax rate (rather than 0%) because housing is subject to local property taxes (rates). In Figure 21, rates are assumed to be 0.34% of the market value of a property, based on Inland Revenue analysis.

[4] The situation for foreign shares is more complicated as individual investors and trustees receive a $50,000 de minimis, whereby if the cost of the shares is less than or equal to $50,000, individuals must return the dividends

Under a broad-based, low-rate system, ideally the bars in Figure 21 would line up perfectly and there would be no difference in marginal effective tax rates between the types of investments. Relative to other countries, New Zealand's marginal effective tax rates on savings are quite uniform, but there may be room for improvement to make our current system more consistent. Consistent treatment should improve both fairness and efficiency.

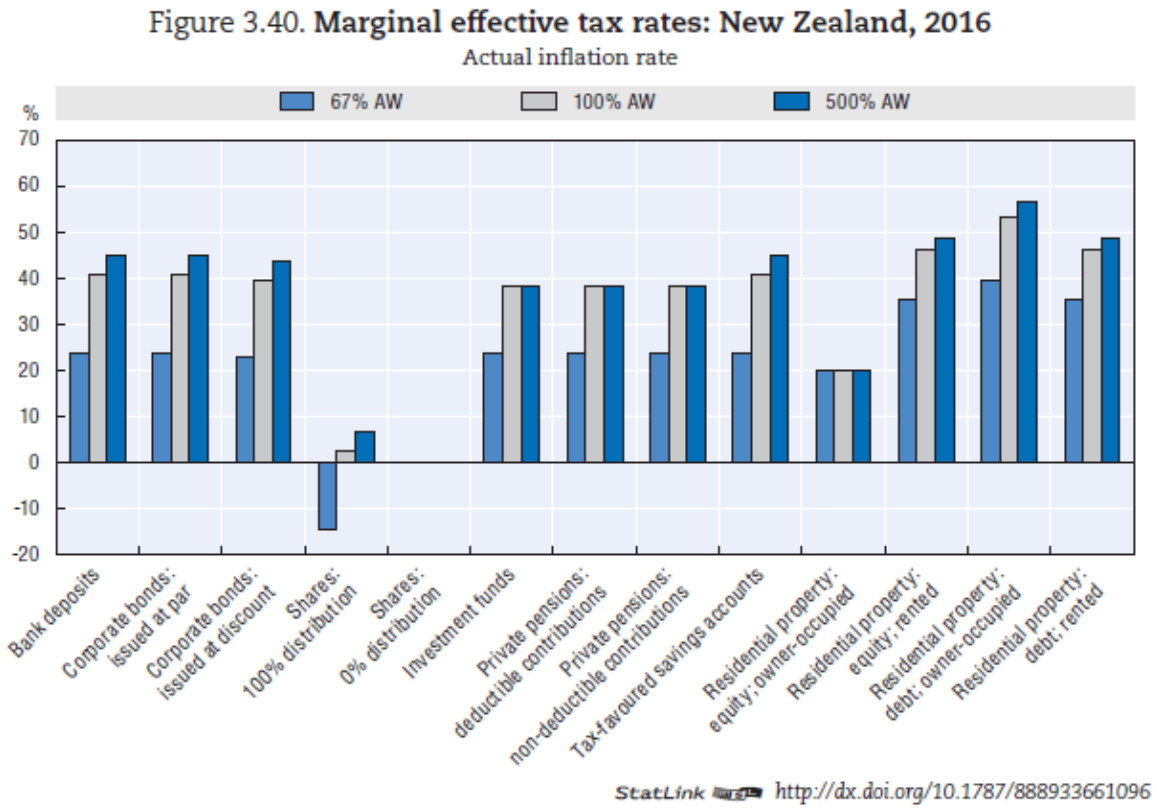
Figure 21: Marginal effective tax rates on savings



Source: Treasury/IRD analysis

as income instead of paying tax under the FIF rules. Individuals can use the 'comparative value' method if the cost is over $50,000 but the returns are lower than 5%. If the returns were 3%, individuals would pay tax on 3%. If the returns were -5%, individuals would pay no tax but would get no relief for losses. These more generous options are not available for PIEs that hold foreign shares.

Appendix 2: OECD results for New Zealand



Note that:

- "67% AW" refers to a taxpayer earning 67% of the average wage, and facing a marginal tax rate corresponding with that income level.
- The OECD modelling approach does not include tax paid at the company level for shares, assumes a different level of inflation, and assumes a higher level of rates (0.6%) relative to the market price of residential property than we do (0.34%).

References

King, M. A. and Fullerton, D. (1984). *The Taxation of Income from Capital: A Comparative Study of the United States, the United Kingdom, Sweden, and Germany*. National Bureau of Economic Research, Inc.

OECD (2018). *Taxation of Household Savings*. OECD Tax Policy Studies, No. 25. OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264289536-en

Weisbach, D.A. *The (Non) Taxation of Risk*. John M. Olin Program in Law and Economics Working Paper No. 203, 2004.