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Taxing capital income and the Z-tax solution

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Abstract

This paper looks at issues with conventional approaches to capital income taxation, such as the income tax, the capital gains tax and the cash-flow consumption tax, and finds that there are difficulties with all of these. It proposes an alternative solution based on treating ordinary capital income in the same manner as capital gain, with tax deferral until drawdown. To achieve this it relies on a novel combination of two taxes, the pre-paid and the post-paid consumption tax, whereby tax levied under the latter takes account of tax previously paid under the former. In other words this 'Z-tax' is a modified form of cash flow consumption tax where much of the tax is payable up front. It potentially allows all capital income to be treated similarly, and allows excess returns - economic rents - to be taxed.

Keywords: Z-tax, capital gains tax, cash flow tax, consumption tax, capital income taxation, tax reform, economic rent, expenditure tax, comprehensive income tax, rate of return allowance

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1 Introduction

Three 'ideal' approaches to taxation are the comprehensive income tax (CIT), the consumption or expenditure tax (ET) – which effectively exempts a large fraction of capital income - or hybrids such as the rate of return allowance (RRA), which provides an allowance for the 'risk free' portion of the capital return. Difficulties in administering a CIT and its associated capital gains tax (CGT), along with its discrimination against savings, have led to calls for consumption taxation. Arguably this may go too far, and a case can be made for at least taxing that component of capital return which is above the risk-free rate (e.g., the Government bond rate), the excess return being here called 'rent'. Hence the RRA is favoured by some tax theorists. However, the RRA shares many of the administrative difficulties of the CIT.

The paper argues the case for a modified cash flow consumption tax (CFCT), the Z-tax (ZT), which is a cash flow version of the RRA. The core intuition underlying the ZT is that unlike a conventional CFCT, much of the revenue is collected at the point of initial saving rather than final consumption. Credit is then given for this prior tax, uplifted, when final consumption occurs. This overcomes some of the issues associated with the CFCT such as the difficulty of taxing immigrants bringing in capital and emigrants taking it out. It can also be used to tax economic rents, something the CFCT does only partially.

Another way of viewing the ZT is that it is that it is very hard to tax capital gains like annual capital income, but it is quite possible to tax such income like capital gains - with deferral of tax if savings are not consumed - so that, at least in principle, all forms of capital income can receive the same treatment.

The Z-tax falls between an income tax and a cash flow consumption tax (CFCT) and would simplify and strengthen the system of capital income taxation. In Australia it has the potential to yield up to $40-70 billion of extra revenue annually, depending on the form of Z-tax adopted and whether there is the political will to extend it to owner housing and superannuation accounts. If capital income were neutrally taxed in this way, the economic efficiency costs (excess burden) of income taxation would be reduced and could rival those of taxes such as the uniform GST or payroll tax, creating new avenues for comprehensive tax reform.

Part 2 of this paper considers issues with conventional capital income and capital gains taxation. Part 3 considers defects with the CFCT and Part 4 looks at the RRA advocated by the Mirrlees Committee (2011). Parts 5 and 6 describe the Z-tax, and Part 7 details effective tax rates associated with the different tax options discussed.

2   Issues with conventional taxation of capital income

2.1   Conceptual issues

First, we need some clarity in understanding different regimes for taxation of saving, or capital income, and the relationship between these different tax regimes. Taxes on saving can be levied at three points (Ingles 2015) – *wage earnings, investment earnings, or drawdown for consumption*. The options are fully Tax (T), partially tax (t) or Exempt (E). The comprehensive income tax (CIT), at least in theory, is a TTE system: Taxation at earnings, Taxation of investment earnings and Exemption when consumed. The wage tax is a TEE system, also called a 'pre-paid' expenditure tax. The consumption tax (CT) is an EET system also called a 'post-paid' expenditure tax. This includes indirect consumption taxes such as a Value Added Tax (VAT) or Goods and Services Tax (GST). It also includes direct consumption taxes of the cash-flow variety, such as the CFCT. In broad terms the present value of tax revenue is the same under either EET or TEE if the tax rate applying at the time of saving and spending are the same. However EET, unlike TEE, can act as a lump sum equivalent tax on 'old' capital, as can the various indirect tax options.

Australia currently applies a very concessional tax regime to most forms of saving, and its treatment of home ownership and superannuation is broadly consistent with an expenditure tax treatment (Treasury 2010a Ch. 4.2). Hence, Australia's current income tax is actually a hybrid of income and expenditure taxes, leaning heavily towards the latter. In this paper, I call this system a *horizontal hybrid* because different assets receive different treatment. In place of this, I will argue for a *vertical hybrid system*, where all assets receive the same treatment, albeit one which is intermediate between an income and expenditure tax. In particular I will suggest that we should aim to tax so-called *economic rents* - returns in excess of a risk-free or risky interest rate.

We need to understand the nature of capital income. The yield to capital, conceptually, comprises the risk-free component plus the reward to risk and/or skill. In Australia such 'excess returns' or 'economic rents' have typically comprised over two-thirds the total return on capital (an estimate based on comparing the 'normal' return on capital to the risk-free return - i.e. the bond rate in real terms). Economic rent is perhaps a misnomer as some part of excess return is a *quasi-rent.*[1] The normal concept of an economic rent, based on Ricardo (1817), is a return which is surplus to that required to induce the investment. Excess returns necessary to induce risky investment, for example, are not really of this nature (Kleinbard 2016 p.45-50). I here use the term 'rent' to refer to all returns over the risk-free rate, but this caveat needs to be borne in mind.

The issue of how to tax capital has been widely debated for some decades by academics and by government policy reviews. In Australia, the Asprey Committee (1975) and the Henry Review (Treasury 2010a) were attracted to having a greater weight on the taxation of consumption. Similarly the US Presidents' Panel (2005), the Meade report (1978) and the Mirrlees Review (2011) for the Institute for Fiscal Studies in the UK were in various degrees attracted to an ET approach to taxing capital income.

Ultimately, the Mirrlees Review preferred a hybrid tax system. It proposed an RRA that provided a deduction from taxable income for the risk-free part of capital yield. The RRA system is an explicit rent tax that includes quasi-rents. In broad terms, I concur with the intent of this proposal (as does the Grattan Institute: Daley and Wood 2016). The RRA is a hybrid of a CIT and an ET. However it is potentially a nearly neutral 'vertical hybrid'[2] as opposed to the existing CIT/ET 'horizontal hybrid' which is distinctly non-neutral.

In this paper, I advocate a cash-flow version of the RRA which I give the name the Z-tax (ZT).The case for the ZT arises from defects in the income tax (and the associated capital gains tax), and different defects with mooted alternatives to it such as the CFCT

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[1] http://www.economicsdiscussion.net/theory-of-rent/quasi-rent-explained-with-diagram/1787

[2] A comprehensive base would include owner-occupied housing. I call it nearly neutral because the uplift rate is limited to the risk-free rate and full neutrality would add on a risk premium as discussed in Kleinbard 2016.

and the RRA. In the remainder of this part, I set out some issues in taxing capital income and gains.

2.2 Capital gains tax

The capital gains tax (CGT) is an important tax because it buttresses the income tax (PIT) and makes it hard to avoid by converting wage or business income to capital gain. However, the CGT is a complex tax which yields only modest revenue and has high compliance costs (Evans 2002).

There are several issues with designing and implementing a CGT. These include:

- Accrual versus realisation basis;
- Adjustment for inflation;
- Lumpy nature of the tax.

The Mirrlees Committee explained these issues as follows:

> "The taxation of capital gains raises major problems for a conventional income tax: taxing gains on realization rather than on accrual creates a lock-in effect, encouraging people to delay the sale of assets whose value has risen, and taxing purely nominal gains makes effective tax rates highly sensitive to inflation. Piecemeal attempts to deal with the latter problem by taxing nominal capital gains at preferential rates invite tax avoidance, favouring the conversion of earned income into more lightly taxed capital gains where this is possible." (Mirrlees et al. 2012, p. 671-673)

To treat capital gains the same as ordinary income under a CIT would require that accruing capital gains be taxed in each year, or else that there be a compensation, in the final tax rate applied, for the benefit of deferral of taxation as a result of the realisation basis.

An accrual basis requires annual revaluation. This is not so difficult with publicly listed shares, more difficult with real property, and very difficult with private companies and other forms of asset. There are also liquidity issues for taxpayers if gains are taxed on accrual, before realisation for cash.

In practice, CGT systems do not attempt to tax accruals and instead settle for a realisation basis (with minor exceptions). This confers a large advantage for investors, relative to a CIT, if investments are held a long time. It is possible for Governments to devise formulae which compensate for this advantage conferred on the investor

(basically tax paid is higher the longer the period held and the higher the appreciation rate - Fane and Richardson 2005), and Italy has experimented with such a system. However, such formulae are complex and hard for taxpayers (and politicians) to understand. As I will show below, they may not even be desirable, as a deferred or realisation basis compensates for the over-taxation of long-duration savings under an income tax. Traditionally, this has been referred to as the 'double taxation' of savings (Fisher 1939). This is an important reason some theorists prefer consumption taxation.

Inflation is an issue for most forms of capital income, especially for long-held assets for which a large part of the capital appreciation may in fact be fictitious. Australia from 1986 to 1999 indexed capital gains for inflation. However, following the Ralph Review (1998) indexation was dropped and replaced with a 50 per cent discount. Many (e.g., Fane and Richardson 2005) regard this as an inferior system, as it favours those with short-term, fast appreciating assets. However even if we were to return to the previous system this would still favour capital gains over other, unindexed forms of capital income because of tax deferral.

One of the motivations to move to a discount system was to try and accelerate realisations, as it was felt that revenues would be brought forward under this system. This reflects the issue of 'lock-in' (Minas et al 2015). Investors may choose to hold on to assets simply because of the tax bill on realisation, even though in a non-tax situation they would prefer to adjust their portfolios. If owner-occupied housing were brought into the CGT net, lock-in would become a big problem. There would be significant disincentive for older households to downsize their housing.[3] These issues can be addressed by allowing rollover of assets with embedded taxable gain (as is currently allowed in respect of some small business investments) but at the cost of added complexity and further deferring revenue.

2.3 Capital gains tax reform options

CGT reform is a salient issue. The ALP proposed to reduce the discount for assets held for over a year from 50 per cent to 25 per cent.[4] The Grattan Institute has

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[3] This is already an issue as a consequence of social security means tests exempting housing: see Ingles and Stewart (2017).
[4] https://www.alp.org.au/negativegearing

supported such a policy (Daley and Wood 2016). While the goal is to ensure the income tax applies more comprehensively, the consequence is that we would move from one somewhat arbitrary outcome to another.

Even at modest levels of inflation, a zero real capital gain can be converted into an apparent nominal capital gain which would be subject to tax under any such discount system, leading to a reduction in capital as a result of the tax. To illustrate this, I model capital accumulations over time periods ranging from 1 to 30 years using a constant inflation rate of 2.5 per cent, and real returns of zero, 4 and 8 per cent respectively. The tax rate chosen is a uniform 35 per cent.

The methodology I apply for calculating effective tax rates (ETRs) is to compare the outcome with that under a 'no tax' regime.[5] So:

(1) ETR = 1- (post-tax profit/no-tax profit).

For example if the 'no tax' profit in year n = 100 and the post-tax profit = 75, the ETR = 1-(75/100) = 0.25.

This method shows a zero ETR for either a pre-paid or a post-paid ET, which is consistent with economic understanding. This accords with the ETR definition in the Henry Review who stated that 'a zero effective tax rate represents an expenditure or consumption tax treatment; a rate equal to the statutory rate represents a real income tax outcome' (Treasury 2010b, Chart A1-19). The ETR on capital gain so calculated generates a number of implications for an ideal capital income tax regime. However, this ETR method cannot be easily used where tax causes a reduction of capital over time; for this (Figure 1) set of results I show this reduction as a simple percentage.

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[5] Fane and Richardson (2005 p253) define the ETR as the ratio of the present value of the combined tax payments to the PV of the combined real incomes. This methodology is more generalised but is conceptually similar. Daley and Wood 2016 p 9 define it as ''reduction in annual returns because of tax divided by untaxed return' which on the face of it is the same as my definition – but they compare ETRs with taxes on labour income (p10), which is not my approach. My ETR is relative to a consumption tax base, where the consumption tax in either its' prepaid (wage tax) form or post-paid (cash flow consumption tax) has an ETR of zero.

2.3.1 CGT without indexation can cause real capital losses

Figure 1 shows capital loss under an unindexed CGT regime at a zero per cent real yield and various discount factors.

Figure 1: reduction in capital over 0-30 years if real yield is zero, realisation CGT

Reductions in capital over 0-30 years, zero real yield, various discounts
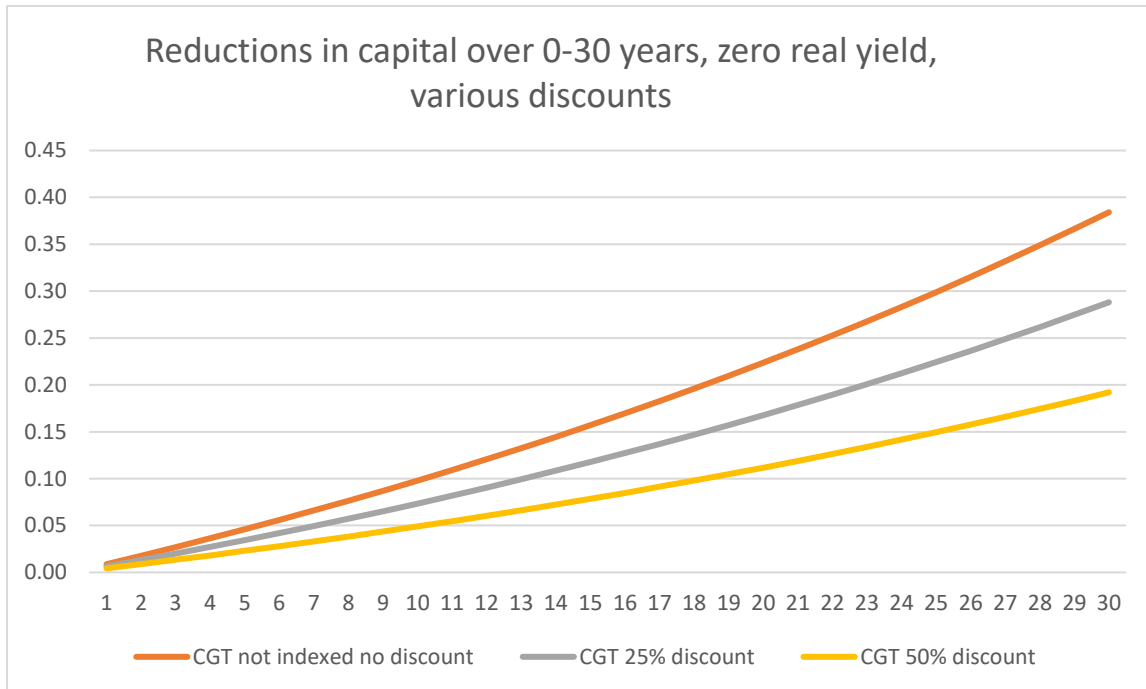
Source: Author calculations.

It can be seen in Figure 1 that with zero real yield the 50 per cent discount attenuates but does not remove the real loss of capital under a nominal capital gains tax regime. The 25 per cent discount makes the loss of capital even worse than under the 50 per cent discount. Both regimes are preferable to no discount however (in this scenario). If there is no discount, ETRs are very high, even in higher rate of return scenarios. However, the ETRs do fall over time reflecting the benefits of tax deferral. This is shown in Figure 2.

Figure 2 – unindexed CGT ETRs, no discount, 4 per cent and 8 per cent real yields
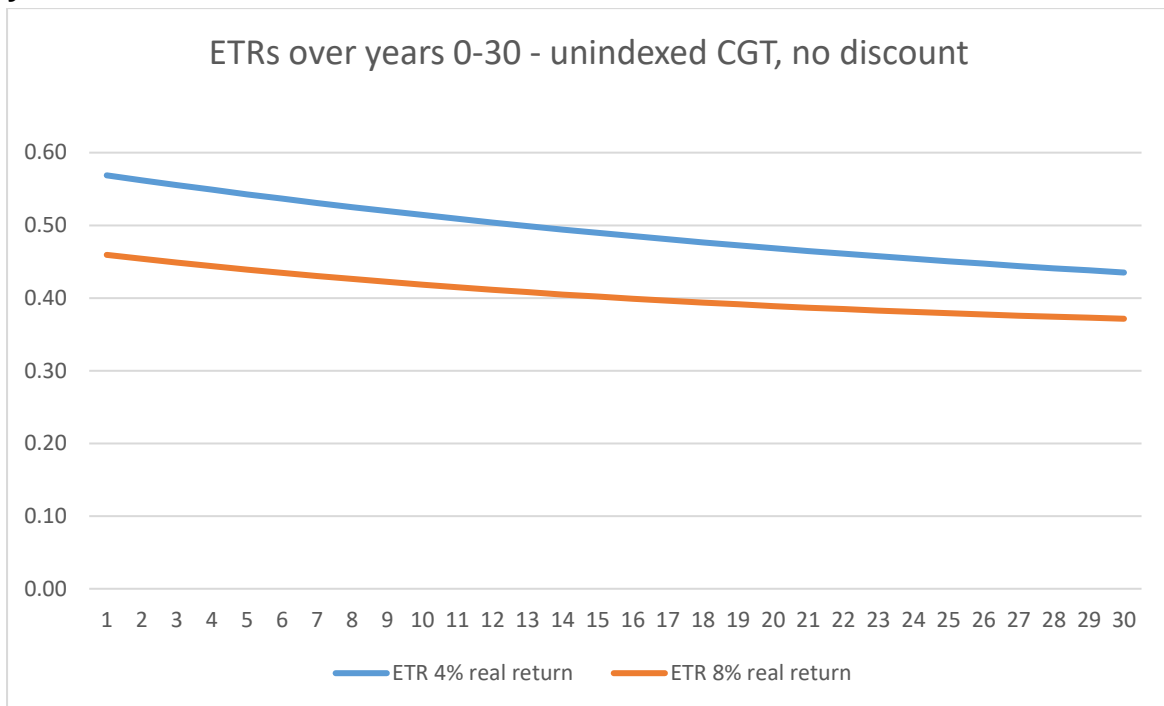
Source: Author calculations.

Figure 2 shows that the ETRs under an unindexed CGT are everywhere higher than the nominal 35 per cent tax rate, although deferral of tax does attenuate these high ETRs over time. How does this compare with an indexation regime? According to the ETR methodology described above, ETRs at a zero per cent real yield are undefined (there is no loss and there is no tax) and at 4 per cent and 8 per cent real yield are a constant 35 per cent over time. That is, they are independent of the time period chosen and the success or otherwise of the investor. This appears to be a rather attractive theoretical property (which is shared by the indexed version of the Z-tax as I will explain later).

However the indexed CGT is not intertemporally neutral (as it affects the timing of consumption) as that would require a zero effective tax rate. In such a tax regime the return from deferring consumption is precisely equal to the underlying yield on the capital that the saving finances; this was Meade's (1978) definition of an expenditure tax. Both the pre-paid ET (wage tax) and the post-paid CFCT have an ETR of zero at all points in time and hence are not shown in the Figures.

Some will dispute that the wage tax is equivalent to the CFCT, with many arguing that the CFCT falls on 'economic rents' (a view discussed and mainly dismissed below). However, if the initial investment is grossed up under the CFCT to reflect the same foregone consumption as for the wage tax, it can be readily shown by simple spreadsheet modelling that this zero ETR result is robust and applies irrespective of yield.

Applying the terminology set out at the beginning of this part, the CGT is a TEt system (where small t denotes a tax on drawdown at less than the full rate), whereas the accrual income tax is TTE.

2.4 Defects of an accrual income tax

The CIT drives a wedge between the pre-tax consumption opportunities offered by the economy and the post-tax consumption opportunities offered to the individual, and this wedge becomes greater the longer the period consumption is deferred; i.e., the ETR tends to rise over time. By contrast an ET imposes no such wedge. This discrimination against future consumption is worsened if there is no indexation of the income tax base (this is true both of the taxation of ordinary income as well as capital gains). Over very long periods of time (assuming no disruption to saving or the rate of return) as represented by individuals with infinitely long time horizons - that is who value the welfare of their descendants as much as their own - the distortion becomes extreme.

A realisation-based indexed CGT defers taxation and the value of the deferral precisely offsets the tendency of the income tax ETR to rise over time. With an accrual tax there is no such offset: This is shown in Figure 3.

Figure 3 ETRS over time, accrual income or accrual capital gains tax

ETRs over years 0-30 - accrual income tax and accrual CGT
vs realisation CGT (all are indexed)
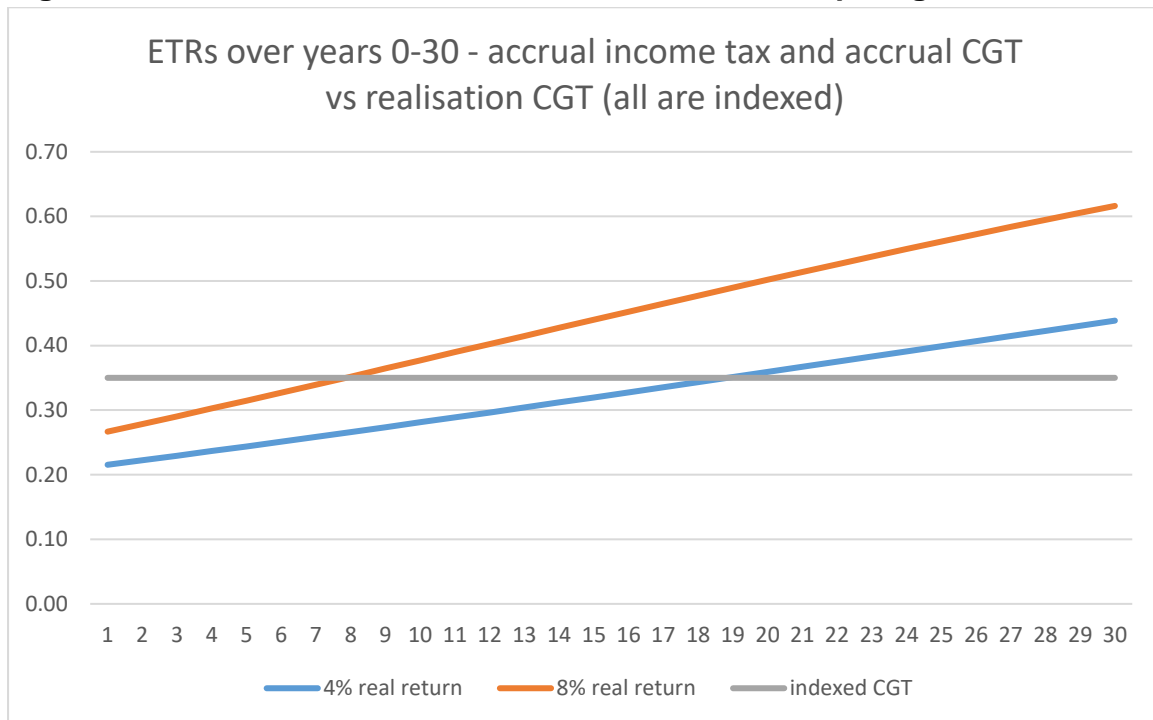
Source: Author calculations. An assumed 35 per cent tax rate corresponds to .35 on the vertical axis. 'Indexed CGT' is on realisation; accrual CGT is the same outcome as an income tax.

If you tax profit at a given rate under an indexed realisation-based capital gains tax, the ETR equals the personal income tax (PIT) or CGT rate, and is therefore invariant to both time and the yield assumption. This is a mechanical outcome of the ETR definition used here.

Some economists have called for the taxation of capital gains to be on an annual accrual basis; that is the annual increment in value is calculated and taxed. This notion flows from the theory of the Haig-Simons CIT.[6] In the past, I have proposed taxing accruing real capital gains (Ingles 2009) and others have proposed elaborate schemes devised to offset the benefits of tax deferral when calculating the CGT rate (e.g. Fane and Richardson 2005).

However, the above chart illustrates that to avoid the ETR rising over time, the taxation of income accruals should ideally be made more similar to the taxation of realised capital gains, and not the reverse. This is the approach I pursue with the Z-tax.

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[6] http://taxreview.treasury.gov.au/content/downloads/report/Appendix_B_Potential_Tax_Bases.pdf

The increase in ETRs over time under an accrual tax is made much worse if the tax base is not indexed (by deducting the inflation factor from the nominal gain in each period). This is shown in Figure 4.

Figure 4 unindexed accrual income or CGT tax, 4 and 8 per cent real yields

ETRs over years 0-30 - accrual income tax or CGT, not indexed
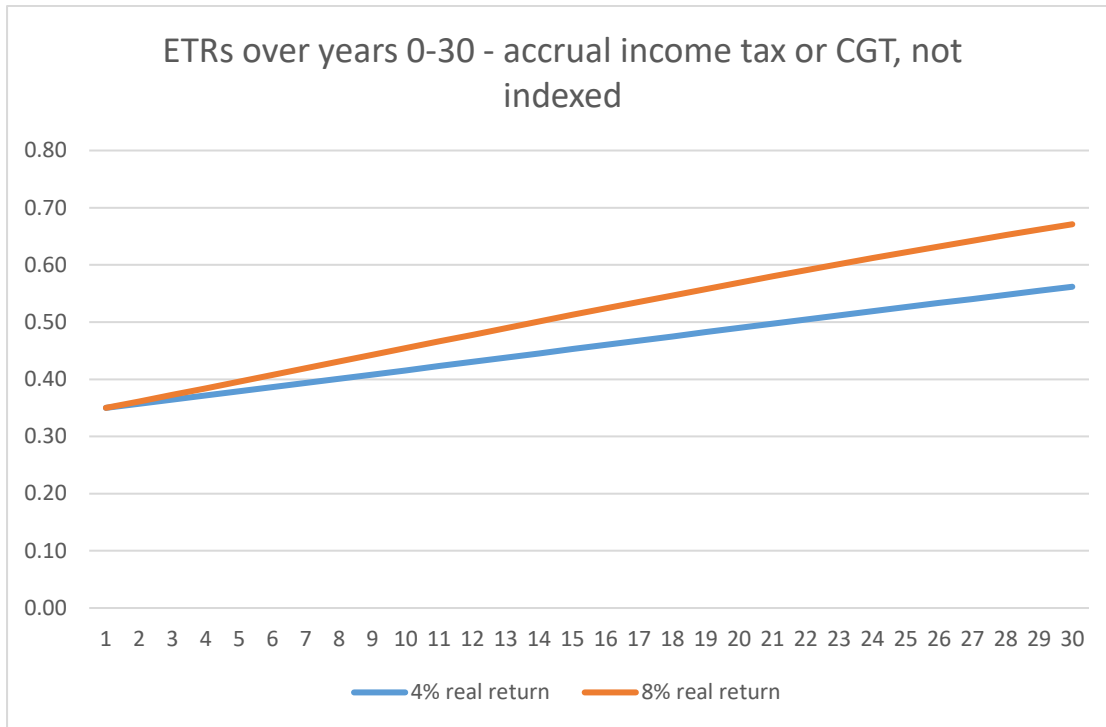
Source: Author calculations.

Figure 4 shows that tax rates under an unindexed accrual income tax or CGT are everywhere higher than the nominal 35 per cent tax rate applied in the modelling. Arbitrary discounts (such as the Henry Review's suggestion of a uniform 40 per cent discount for all capital incomes and most costs)[7] attenuate the very high ETRs shown in Figure 4, but don't deal effectively with differences in real yields, as shown in the Figure 1 example where real yield is zero and capital is effectively confiscated.

Table 1 summarises the results shown in figures 2-4, with a 35% nominal tax rate.

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[7] http://taxreview.treasury.gov.au/content/FinalReport.aspx?doc=html/publications/Papers/Final_Report _Part_2/chapter_a1-3.htm

Table 1: ETRs over 30 years

Tax regime (35% rate)	Real return	Movement in ETR over time	ETR at year 30
Unindexed CGT, no discounts	4	falling	43
	8	falling	38
Accrual income tax or CGT, indexed, no discounts.	4	rising	43
	8	rising	62
Indexed realisation CGT	4	Uniform (flat)	35
	8	flat	35
Unindexed income tax	4	rising	57
	8	rising	68

These results are also summarised diagrammatically in Figure 8, later.

2.5 CGT complexity

Capital gains tax can be extremely complex when it involves assets with varying cost base. This is illustrated in the box below.

Box 1: Complexity of a conventional capital gains tax

Consider this example published in the SMH November 19 2017: "What to do when capital gains tax paperwork becomes a 'nightmare' [Personal finance expert George Cochrane answers your money questions.]

"In your column of October 29, you are correct to advise reader ML that she is in a nightmare situation if she only has a calculator or a spreadsheet to use to calculate the CGT cost bases after having purchased pre-1985 shares and then joined the Bonus Option Plan (BOP) as well as accepting subsequent rights issues. Although she didn't name the shares, I assume she refers to ANZ, which has a history of BOPs and rights issues. The nightmare disappears if she uses a system that specialises in CGT reconstructions using historical data. We have such a system, used by accountants etc. and, with this system I replicated ML's account of her holdings. I assumed she had bought 2000 ANZ shares at $5/share on September 19, 1985 (the day before CGT started), then joined ANZ's BOP when it opened, and accepted future rights issues and the BOP issues on all her shares. The result is that she would have, as at June 30 this year, 34,105 ANZ shares with a market value of $979,495 spread across around 350 parcels of pre and post shares. Of these, 17,417 shares would be pre-1985 shares and exempt from CGT and 16,688 would be post shares subject to CGT. At the closing price of $28.72 a share on June 20, her assessable capital gain would have been $220,206 if she had sold all her shares (ignoring brokerage and other sales costs)." G.K. AIMS-STM Pty Ltd

"More than any other example I have come across, this illustrates the complexity of CGT records where people have pre-1985 shares and/or reinvest their dividends in either bonus share plans or dividend reinvestment schemes.

I estimate the investor would have had 65 occasions over 33 years in which she would have received seven dividend reinvestments and 58 issues under the bonus option plan when it opened from March 31, 1989. She would also have received a 1 for 5 rights issue at $3.76 a share on February 13, 1992, and a 2 for 11 rights issue at $13.00 on October 29, 2003.

I have seen people spend thousands of dollars on getting accountants to value the CGT liability of a longstanding portfolio to prevent the entire sale price considered to be a capital gain.

I can't help but feel that the legislation makes record keeping too complex."

I note that this complexity is addressed by a CFCT; I also note that it is also addressed by the ZT.

2.6 Using an annual wealth tax (AWT) or deeming to unify the income tax and CGT

An AWT is essentially a deemed tax on capital income. For example if the real capital yield is 4 per cent and a 35 per cent tax rate applies, this is the same as an AWT of 1.4 per cent. Alternatively we can strip out actual capital incomes and deem all capital to yield the same 4 per cent return; this system is used in the Netherlands. Deeming is used in the welfare system, along with a harsh annual wealth tax called the asset test. In Ingles et al (2019) an AWT is used to make the *required tax rate* in some *Basic Income* ideas more sustainable.

'Presumptive' income taxation based on wealth resolves the issue, under a CIT, of how to treat capital income the same as capital gains. However there is a big drawback to the presumptive taxation of capital income, which is that it discriminates against unsuccessful or unsophisticated savers and advantages successful ones (Ingles 2016). For this reason I don't spend a lot of time on it here although I use the AWT in some of my Figures to illustrate these issues.

2.7 How much capital income is taxed under the 'income' tax?

Ingles 2015 concluded that inclusive of company tax (part of which paid by foreign shareholders) capital pays relatively modest net tax in Australia; around $70 billion per annum. This compares with a theoretical potential tax yield of around $200 billion,[8] with an implied shortfall around $130 billion compared to a CIT.

There are several reasons why there is so little tax on capital in our current income tax. The first is that owner-occupied housing is a political untouchable, and such housing represents half of household assets. Superannuation (one-fifth of assets) is even more lightly taxed, as there is a net subsidy. Capital gains are not taxed as they accrue, but rather can be deferred indefinitely so long as they are not realised. In addition, there are still assets extant which benefit from the pre-1986 capital gains exclusion provision.

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[8] This assumed a 7 per cent real yield on a total asset of $9 trillion and a marginal tax rate of 33 per cent. Total assets are now higher but yields are less. I disregard taxes on land and transfers in these figures.

The second main reason capital pays little tax is that it is possible through tax planning to legally (or otherwise) avoid tax. The 'Panama papers' are an expression of this, but they are the tip of an iceberg. A number of high income individuals spend more on tax planning than they actually pay in tax.[9] Trust and company structures (often combined) can reduce tax for high wealth taxpayers (Richardson 2017).

2.8 Conclusion on CIT, CGT

Given a choice between an arbitrary CGT discount and the previous indexation system, the latter produces a fairer outcome, eliminating negative returns for unsuccessful savers (shown in Figure 1) and providing a structure of ETRs which is time invariant and invariant to the real rate of return assumed. This is a defensible outcome. It is not unattractive as a policy goal as it mitigates but does not eliminate the income tax's double taxation of savings.

We could imagine extending the indexed realisation CGT to all capital incomes by putting these into a notional box and allowing tax-free compounding inside the box.[10] We could also allow rollovers within the box. However there would be complexity in indexing and in treating annual flows into and out. These complexities are addressed by the ZT system, which is otherwise quite similar in concept to this suggestion.

3 Issues with Cash Flow Personal Taxation

The comprehensive income tax (CIT) is no longer widely regarded as the touchstone of income tax reform, as it is now well recognised that it hard to administer in its pure form and it discriminates against those who prefer future consumption.[11] Because of these sort of difficulties, theorists have proposed forms of direct (progressive) expenditure taxes such as the CFCT or hybrids such as the RRA. However, both the CFCT and the RRA have difficulties. I deal first with the CFCT.

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[9] http://www.smh.com.au/federal-politics/political-news/meet-the-48-millionaires-who-pay-no-income-tax-not-even-the-medicare-levy-20170419-gvnkxh.html

[10] This should not be confused with the Dutch 'box' system, which is a method for imputing capital incomes using deeming.

[11] E.g., Andrews 1974. However, for a favourable view see Kleinbard (2017) who sees it as a positive feature of the CIT that the effective tax rate on savings rises over time. I take issue with this, as discussed further below.

3.1 The cash-flow consumption tax (CFCT)

A CFCT is a subset of the general class called consumption taxes (CTs). Expenditure can be taxed directly using the cash-flow approach and the CFCT can have any desired (progressive) rate structure as it is levied on individuals. Like other forms of post-paid consumption tax it effectively exempts the return to capital.

The CFCT (unlike its indirect counterpart the VAT) is relatively untried – outside of superannuation accounts in many countries - and poses a number of difficult transition issues. I have described it as an EET system. The CFCT can open up opportunities for avoidance, and creates problems when people emigrate or return. It has rarely been tried, with its' main application being for retirement savings accounts like 401k's in the US.

The progressive rate structure also creates issues for the CFCT as its theoretical neutrality is only achieved if tax rates are the same at the time of saving and the time of dissaving. Otherwise there can be a subsidy for saving (if the latter are lower) or a net tax on saving (if higher), infringing the intertemporal neutrality criterion. (This is also an issue for the ZT).

The biggest issues of a CFCT relate to transition. Currently savings are part of the tax base; these would become deductible when made under a CFCT. Capital drawdowns would become fully taxable. Transition issues have been dealt with extensively in reports such as Meade (1978) and US Treasury (1977) and a number of proposals have been put forward to address such issues. For example, taxpayers could be given the option of special (registered) investment accounts of the EET variety (as in Canada and the US). The big disadvantage of this policy is that it would have large up-front costs to revenue, as revenue is deferred for possibly very long periods until consumption. This could be mitigated in part by capping the accounts, at a level sufficient perhaps to cater for most life cycle savings (Kleinbard 2017 suggests a $US 1million cap). However any such cap is necessarily arbitrary.

3.2 Why is an expenditure tax favoured by many tax theorists?

The CFCT is, at least in theory, a simple tax. Exponents go back to Kaldor (1956) and even beyond. People who make net savings over the course of the year receive a tax credit (refund) at their marginal rate. People who make net dissavings receive a tax

bill, at the same rate. There is no separate capital gains tax as all realisation events result in cash in (taxable) and reinvestment events result in cash out (creditable). There is, in effect, full and automatic rollover relief and tax deferral until consumption.

The underlying economics of expenditure taxation is that the return to the saver is equal to the economic yield on the investment the savings finance – i.e. there is no tax on capital income and hence no intertemporal tax wedge discouraging savings.

A direct ET can be designed to have any desired rate structure; we are not restricted to a proportional tax on consumption. However the proportionate ET does exhibit some nice theoretical properties, as it fully achieves intertemporal neutrality. It can also be levied indirectly, as a VAT.

3.3 Taxing expenditure is (almost) the same as exempting capital income

Taxing expenditure (or consumption) is approximately equivalent to exempting capital income from tax. Why is this? Because when monies are saved, tax is deferred; the tax is only payable when savings are consumed and the present value of the future tax receipts is equal to the up-front tax that would have been payable if the income were taxed initially. It follows that the real return to saving is similar under a wage tax and an expenditure tax assuming a constant tax rate, and the net present value of tax revenue is also the same.

3.3.1 Does a CFCT tax economic rents?

A major difference between the pre-paid and post-paid CT concerns economic rents – returns in excess of the cost of capital. The consensus in the literature is that the CT exempts the risk-free part of the return to capital but falls on super-normal returns such as high returns due to skill or luck – see for example Mirrlees (2011, pp. 301-302), Auerbach (2006 pp. 5-6), and Gentry and Hubbard (1996). On this view the CT can be regarded as a compromise between the income and wage (TEE) taxes, and closer to the former. In Ingles 2015 pp17-18 I analyse this view and find it unconvincing. The neutrality of the CT arises from the fact that the government implicitly invests alongside the saver as a silent partner, and shares fully in the gains or losses – including in the outsize gains. But this does not on the face of it reduce returns to the saver, and the modelling shown below bears this out.

However if the saver is constrained in his investment choices there can be some tax on rents. "If higher than normal returns are associated with scarce investment opportunities, monopoly rents or a good idea that cannot be replicated, then government under a consumption tax can be an unwanted partner in the business" (Toder and Rueben 2005 p8).

The pre-paid CT corresponds to a TEE regime and the post-paid to an EET regime. It is possible to model these two regimes in the context of retirement lump sums after 40 years (net of tax) and to show that they produce identical outcomes irrespective of the rate of return assumption employed. The first set of bars (CIT4 etc.) shows net lump sums under a 'normal' return scenario of 4 per cent real per annum. The second set (CIT8 etc.) shows lump sums under an 8 per cent return scenario, as in the case of a particularly skilful investor. In both cases the zero tax outcome – TEE – is set equal to one.

Figure 5 – ratio of net lump sums to no-tax option (TEE), various tax systems, 4 and 8 per cent real rates of return.
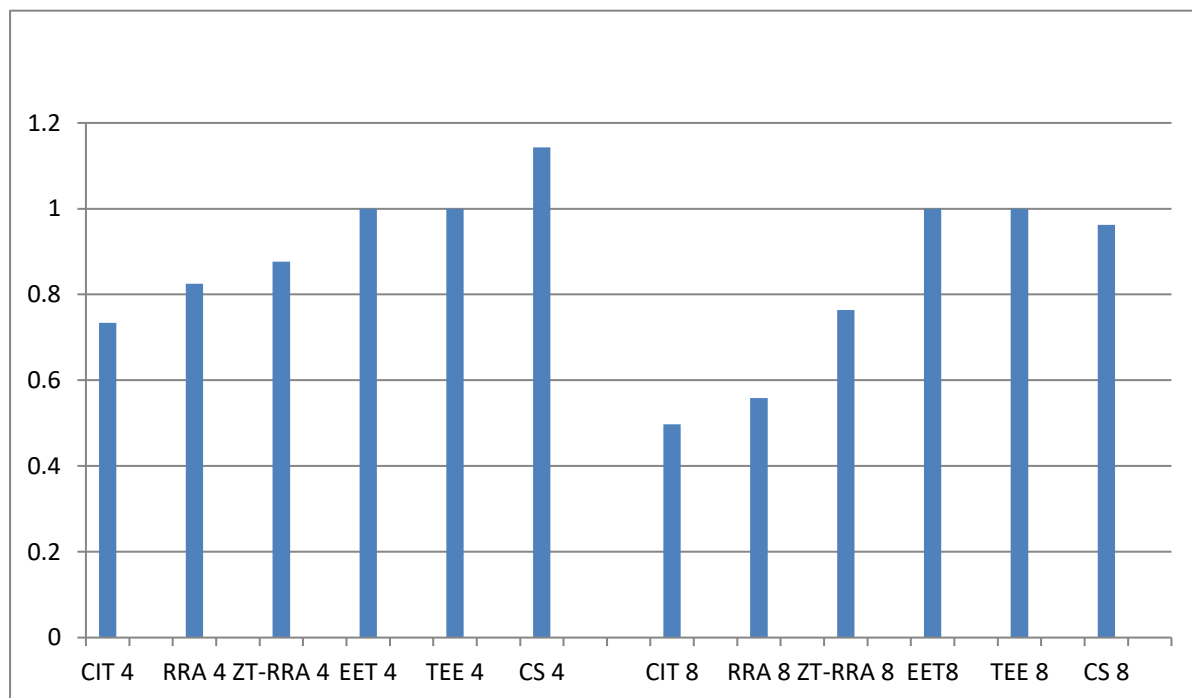
Source: Author calculations. Note: ZT-RRA (Z-tax) is a cash flow version of the RRA. Other systems are as per the text; CS is current superannuation tax system. Numbers 4 and 8 refer to the annual real rate of return assumption (% p.a.) over 40 years.

The results show that the post-paid CT option (EET) does not reduce the net return to the saver, even in the case where there are significant economic rents (EET8). By contrast the RRA (with 2 per cent real uplift) is only slightly more generous than the income tax and this is more noticeable in the 8 per cent return scenario. Consistent with the Treasury tax expenditure estimates, the current superannuation tax system (CS) is more generous that a no-tax system at normal (4 per cent) rates of return. All the tax systems shown are fully indexed for ease of comparison, so the graph should be regarded as an approximation to the unindexed reality as regards the CS[12].

It has been put to me that it's a matter of logic that a post-paid consumption tax such as a GST exempts the normal return but taxes economic rents. Think of an ice-cream vendor that puts up prices on a hot day; they pay more GST since their revenues rise and their expenses do not, and hence the GST falls on economic rent.

My response is that a GST is a tax on wages plus business economic rents, as argued e.g., by Devereux and Vella 2014. There is no doubt that a business cash flow tax falls on such rents, as I discuss later, so there is no inconsistency here.

Many experts regard the best taxation of superannuation as the CFCT – i.e. EET. On the modelling here, and assuming that supernormal returns are unlikely in superannuation, it appears that (at least with proportional taxes) much the same outcomes can be achieved with TEE; this would bring forward revenues and would be a relatively easy transition (Ingles and Stewart 2015; Stewart and Ingles 2016). It also facilitates 'double taxation' of superannuation savings as the means test applies more easily to the final accumulation (Ingles and Stewart 2017); the net effect of TEE plus means test would be to positively tax retirement savings whereas this is not achieved at the moment (and would not be achieved under EET because of the typical low tax rate in retirement).

3.3.2 Rents in the context of gearing

In the context of gearing (borrowing) the CT unambiguously falls on economic rents. This can be seen with a worked example in which the taxpayer borrows funds for the investment (Ingles 2015 p19).

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[12] I also use a stylised 35per cent flat tax rate

Mirrlees argues that the CT and the RRA are equivalent in terms of their treatment of excess returns (Mirrlees 2011, Table 13.3, p. 302). My conclusion is that they are different. The RRA exempts the risk-free return; by contrast the CT falls mainly on those super-normal returns that result from gearing. The RRA falls much more explicitly on 'rent' than does the CT.

3.3.3 Conclusion on taxing rents

The CT confers a clear advantage on a long-term saver compared to a CIT. My tentative suggestion is that around a quarter of asset returns are assessable under a CT, these being mainly due to gearing. This compares with two-thirds under the RRA. In revenue terms the latter can, in principle, garner up to $140 billion compared to $50 billion for the former.[13] A CT, even if fully comprehensive, would thus have a net cost to revenue unless applied to 'old' capital (Appendix 1 suggests that total taxes on capital are around $70 billion, excluding land taxes and duties). But taxing old capital would make the tax politically very difficult. Overall it is realistic to suggest that a CT is only part way to a tax on economic rents, notably those flowing from gearing and from non-replicable investment opportunities.

An explicit tax on economic rents is closer to a pure CIT than the CT and may in fact be a sensible compromise objective for capital income taxation. Certainly that is the conclusion of the Mirrlees Review. Mirrlees' RRA also taxes some quasi-rents and this is appropriate if we accept the view that pure cash flow taxes are too generous to capital income (e.g. Kleinbard 2017 finds that up to half of all wealth is inherited. See also Piketty 2004). Hence the RRA or the (Z-tax) cash-flow variants of it canvassed here appear to be preferable to the CT options, especially if they could include housing.

4 Rate-Of-Return Allowance (RRA)

The RRA, most recently and expansively proposed by the Mirrlees Review (2011), explicitly exempts risk-free returns by deducting from taxable capital income an annual allowance equal to the risk-free rate. A bond rate may be used as the proxy for this. The RRA system has a number of appealing neutrality properties with respect to

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[13] Assuming that housing and super are brought into this tax net.

investment allocation, choice of funding between injection of new equity or retained earnings and the timing of realisation of shares (Christiansen 2004, Mirrlees 2011).

I earlier described the RRA as a 'vertical hybrid', meaning it falls between a CIT and an ET. The revenue potential of a comprehensive RRA (i.e., including housing) might be about twice that of the current 'horizontal hybrid' income tax. This could amount to around $130 billion per annum, based on an estimate that rents are two thirds of the total return to capital.[14]

The RRA as proposed by Mirrlees is based on the conventional income tax, with the allowance then deducted. Mirrlees suggests:

> "As a practical reform proposal, the RRA has potential advantages over the pure expenditure tax approach recommended in the Meade Report (1978). The RRA collects tax revenue up front and provides tax relief only as returns are realized, making the transition to it comparatively straightforward. It also mitigates the risk of loss of revenue occurring as a result of those who did the saving avoiding future tax liability by moving abroad before they draw down their savings. In the context of increased international migration, this is an important consideration" (Mirrlees 2012 p670).

Under the RRA system, savings are out of after tax income, and then tax is charged only on returns above the normal rate of return (TtE). For assets such as interest-bearing accounts where no supernormal returns can be earned, an earnings tax (TEE) is equivalent (Mirrlees 2010, p. 330). For retirement saving, maintaining the current UK EET is suggested by Mirrlees, on the (erroneous) basis that this is economically equivalent to the RRA. For owner-occupied housing RRA taxation is preferred (i.e., with capital gains and imputed rent included in the tax base) but the political difficulties are noted. For rental housing Mirrlees advocated the RRA system as bringing the tax regimes for rental and owner-occupied housing much closer together (Mirrlees 2011, p. 402).

There are administrative complexities in the RRA system, identified by Mirrlees as:

> "the record-keeping requirements, the relative complexity or unfamiliarity of the calculations required, and the treatment of 'losses' – or, more properly, returns below the normal rate. On the other hand, one of the

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[14] Ingles 2015 bases this estimate on the historical return to equities and housing as compared to that of bonds. See for example Queensland Competition Authority QCA 2012.

attractions of the RRA is that the transition to it is likely to be easier, both technically and politically, than the transition that would be required to move us to a cash flow consumption tax" (Mirrlees 2010, p.333).

As noted earlier it is also easier to manage issues around individuals moving abroad than under the CFCT (Mirrlees 2011, p. 489).

The RRA system eliminates the much of the deferral advantage of a realisation-based CGT and there would be no reason to offer a CGT discount, so this could be abolished.

In sum, the RRA is a more direct method of taxing economic rents at the individual level than the CFCT, given my strong caveats on the extent to which the CFCT does in fact tax rents. But the RRA shares with the CFCT (and the CIT) the difficulty that the ideal tax treatment of owner-occupied housing might be politically unacceptable (Mirrlees 2011, p. 400). As with the CFCT, the inability to tax housing properly becomes less economically costly under the RRA because the general taxation of capital becomes lighter.

5 The Z-Tax (ZT)

5.1 Intuition and concept

The intuition behind the ZT is that rather than trying to tax capital gain as income – with all the issues that entails – we should tax all capital income like capital gain; that is, with deferral until ultimately consumed. The theoretical justification for allowing deferral is that this reduces the intertemporal distortion inherent in the income tax as illustrated in Figure 3. However, in the ZT proposal, deferral is not on the generous terms conferred by conventional cash flow taxation.

Administration of the ZT is through a concept of a savings 'box'. All savings go into a notional ZT 'box' and attract a tax credit (calculated at the marginal tax rate) which attaches to the box and carries forward at an uplift rate, for example the inflation rate or the bond rate. The credit is added to each year according to the amount of net new savings (and the tax rate). Earnings re-invested within the account are tax free. Drawdowns from the account, or 'box' are fully taxable (at individual's marginal rates) but the tax credit reduces (offsets) tax otherwise payable on outflows when savings are drawn down. The outcome can be described as TEt.

In effect the ZT is a modified cash-flow consumption tax with a considerable element of pre-payment. (For an alternative or complementary description of the ZT, the reader may wish to refer to Ingles 2015 pp.35-41.)

In principle the ideal ZT credit on savings is equal to the amount of income tax paid on that last saved 'lump' of income. The ZT payable on dissaving is equal to the tax on that lump of consumption. In practice it may be acceptable to approximate these taxes by reference to the taxpayer's marginal rate.

There is automatic rollover relief and deferral within the ZT box; hence it addresses the problem of 'lock in'. The ZT limits the rise in the effective tax rate on saving over time by means of the uplift factor. This approach allows all capital incomes (including capital gains) to be treated similarly – a vertical hybrid. However this is only fully realised if the tax is comprehensive.

In the ZT-IT (ZT–Income Tax) the credit is indexed to inflation. In the ZT-RRA the uplift factor is an interest rate related to the government bond rate (at the moment interest on say the 10-year bond is below 3 per cent). In the ZT-ET (expenditure tax) the indexation factor is the normal or average return on assets; only this version is fully intertemporarily neutral but it doesn't collect much if any net revenue. It does redistribute from successful to unsuccessful investors however.

The ZT is less generous to savers than a CFCT as it applies to economic rents. In this it is similar to the RRA; however, the RRA taxes rents on an accrual basis, whereas the ZT-RRA taxes rents on a realisation basis and hence is more generous to the taxpayer.[15] Both definitions of 'rents' are viable as rent is in any case an amorphous concept and it is too simple to assume that any return above a risk-free rate is an economic rent[16] (Reynolds and Neubig 2016).

In a technical sense the ZT combines the pre-paid expenditure tax (TEE) and the post-paid expenditure tax (EET), linked through the ZT box into which all of an individual's savings are notionally placed. This allows a credit to be given for TEE previously paid

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[15] This can be offset by allowing a lower uplift rate in the ZT. Modelling (Figure 2) shows that over a 40 year investment period (like superannuation) the ZT-IT gives very similar results to the RRA.
[16] Many such returns will be quasi-rents in the sense that the higher return is needed in order to induce the investment.

when the EET is levied. Running annual adjustments account for net flows into and out of the box.

ZT credits are available for refund in proportion to capital inside the ZT box. This feature is meant to prevent large tax bills coming due when there are drawdowns from the ZT box. For example if the capital is $100 and half is drawn down, the tax on this $50 is set against half the ZT credit attached to the account.

> Example 1: $100 saved, rate of return = 8 per cent, ZT-RRA uplift = 4 per cent. Marginal tax rate 30 per cent. Initial ZT credit is therefore $30.
>
> After 5 years capital in Z-tax box = $146.93 and ZT credit has grown to $36.50
>
> Drawdown in year 6 is say $30; notional tax is then $9. Credit available is 30/146.93*36.50 = $6.125 and net new tax is $2.875.

The ZT system integrates the tax treatment of interest, capital gains, dividends and other forms of capital income. All of these benefit from tax deferral which becomes more valuable, the longer the savings are held. There is unlimited deferral (until death) and rollover within the ZT account. At death there would ideally be a full tax applied to assets within the ZT box, at which point the credit would be fully used up. This is not a 'death tax' as such; it is a deemed realisation/consumption.

The effect of the ZT is to avoid the double taxation of savings inherent in an income tax, whereby the effective tax rate rises over time. Under the ZT the ETR can be made relatively flat (as shown in the Figure 3 example of the indexed CGT - the ZT-IT is identical).

Compared to RRA the Z-tax is simpler as it doesn't start with the difficult concept of 'income' but rather is a modified form of consumption tax. Compared to a CFCT (EET), the Z-tax is slightly more complicated but brings forward revenue. It also falls more explicitly on economic rents, hence raises more revenue. It works better than EET when taxpayers move to an overseas domicile and on death (as tax owing will be much less[17]). For immigrants a ZT credit would be allocated for their brought-in capital.

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[17] Assuming a deemed realisation on death under the CFCT.

As international mobility increases, these issues become a very serious barrier to a conventional CFCT.

In each year the tax credit is updated as:

1. ZT credit brought forward from prior year plus uplift rate
2. additional tax credits attributable to net new savings, or negative ZT credit adjustment attributable to net dissaving
3. Borrowings and repayments have no tax effect. The ZT system is only interested in net savings into, and consumption from, the box.

The tax credit brought forward each year is a rolling amount and does not require recourse to historical records, quite unlike the calculation of basis for the capital gains tax.

5.2 Design issues

Design issues for the ZT include the credit uplift rate, the range of assets covered, the tax rate and the treatment of imputed rent assuming (as we might hope) that housing is included. There is also the issue of asset rollovers, and the treatment at the time of death.

5.2.1 Grossing up

In one method the ZT offset would be calculated in proportion to its share of grossed up total assets in the account – i.e., inclusive of the tax credit, which could be treated akin to the franking tax credit for dividend distributions. For example at a 30% tax rate a saving of $7000 would be grossed up to $10,000 before applying the applicable ZT credit of $3000. On eventual consumption (let's say the investment doubles) the tax rate is then applied to the total of $14,000 drawdown plus accumulated tax credit. Alternatively we can use a simplified calculation, where the tax credit is 30% of the net of tax contribution of $7000. On drawdown the accumulation of $14,000 is simply taxed at 30% less accumulated tax credit.[18] This simpler approach with no grossing up is the method used in the text, but the first method more accurately describes the ZT

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[18] See also fn. 46 in Ingles 2015. The equivalence of the 2 methods has been confirmed by running them on a retirement savings spreadsheet.

conceptually. I note, however, that the equivalence of the two methods depends on there being a uniform tax rate.

5.2.2 The ZT credit uplift rate

The Z-tax parameters are flexible. If the tax credits are increased annually by only the inflation rate, the tax becomes a form of indexed realisation income tax (ZT-IT) which however provides for lifetime tax averaging and rollover and deferral of capital gains. Thus the treatment of capital income moves closer to an ET the longer savings are held. This means that the ZT is a hybrid income/expenditure tax, albeit (desirably) a vertical hybrid.

Alternatively if the interest rate on the tax credits is set to be similar to the average real return on savings the tax base becomes similar to the EET (ZT-ET) except that there is a tax on returns above the normal rate (super profits) and a possible subsidy on returns that fall below the normal rate. (This depends on the treatment of unused tax credits left in the account at the time of final dispersal or death. The ATO could – in the full loss offset model - pay these out[19]: hence the possible subsidy.) This becomes a more egalitarian tax system than the ET, albeit that its economic properties are similar – i.e., it is intertemporally neutral. The ZT-IT and ZT-RRA are not fully neutral in this dimension.

5.2.3 Scope of the tax

The Z-tax proposal would ideally apply equally to all forms of savings (including housing) but for practical reasons some forms of personal use assets (e.g. cars, furniture) might be left out. Low return assets, such as savings accounts, would pay little or no tax because the Z-tax incorporates an uplift factor at least equal to or higher than the inflation rate. They could be wholly exempted (see below).

5.2.4 The tax rate

The progressive tax system poses issues for the ZT, as it does for the CFCT. Since the ZT credits are equal to the income tax paid on income saved, a saver on a low income and a zero marginal tax rates accumulates no ZT credits, but may face tax on withdrawal from the ZT box. One answer to this is to allow credits for low income

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[19] I do not necessarily advocate the full loss offset model, as it is inconsistent with the mechanism I advocate for giving low marginal rate taxpayers an inflated credit – see below.

earners at a standard rate of say 20 or 30 per cent. Credits would however not be refundable in this system if the marginal rate on withdrawal were lower than the crediting rate. Another option is to have a flat tax system such as is envisaged in some *Basic Income* ideas (Ingles et al 2019). However the system still works without a flat tax, albeit that the effective tax rate on savings varies according to the tax rate applying at the time savings are made and the time they are drawn down.   This is not a huge drawback as (unlike the CFCT, which shares this drawback) the ZT is not meant to be fully intertemporally neutral in any case.

5.2.5 Tax treatment of housing

It is highly desirable that owner housing be bought into the purview of the Z-tax system, as the current TEE treatment fails to pick up economic rents and the historical total return to housing is quite high in Australia - certainly comparable to the 7 per cent-plus historic real returns from equity investments. With gearing – which is the norm - it is even higher and at times can be in the order of 15-20 per cent annually[20], although this tends to reduce over time as the gearing ratio declines. There would be no taxation of accruing capital gains, only realisations, and then only if consumed. However imputed rent from e.g., homes and holiday homes should be included in taxable personal incomes and treated as a consumption outflow from the ZT account.

For example 2 to 3 per cent of the net equity in the property might be deemed to be net imputed rent[21] and added to the taxpayer's taxable consumption each year. This rate is meant to reflect a net rental return after costs (interest costs and repairs would not then be explicitly deductible). People with large mortgages (and small equity) would be initially little impacted by this, but they would be impacted as their mortgage fell over time and the house value increased. (The same issue arises with the CIT, the CFCT and the RRA, if they are to be comprehensive.)

This might be taxed in other ways, e.g., a 1 per cent property tax[22] as a proxy for taxing the imputed rent implies a 3 per cent real yield and a 33 per cent marginal tax rate;

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[20] Gearing can also work in reverse, if prices are falling.
[21] Gross rental yields are around 4-5 per cent, with costs around on-third: hence the 2-3 per cent rate suggested.
[22] On the full improved value – i.e., not just the land.

however this method requires an interest deduction which introduces complications (such as inflation adjustment) not involved in the imputed real yield method.

Deeming of imputed rent works quite well as owner rental income is relatively predictable and loans can be netted out of the base. However deeming is less successful in taxing other forms of capital income as real yields vary markedly and a single deeming rate does not capture this variation. The ZT is therefore preferable.

5.2.6 Rollovers

There is unlimited rollover in the Z-tax account. If you own a house and sell it to buy another, the new asset remains in the account and the transaction has no tax consequences. But if you downsize and pull monies out of the account to finance consumption, that part is taxed. This treatment avoid some of the issues that would likely arise if capital gains tax were extended to owner housing, which could create a very serious obstacle to moving or downsizing. With the ZT rollover relief is automatic.

5.2.7 Death

There needs also to be a deemed consumption on death. In practice what this means is that many people might pay little ZT over their working lifetimes but would pay tax if they run down assets in retirement and/or leave an estate which embodies previous untaxed gains. Although this is politically fraught, the net revenue would finance a lot of reduction in other more distorting taxes.

5.2.8 Bank accounts

Bank accounts and their associated interest could be left outside the ZT accounts, with the interest being non-taxable. With the ZT-RRA the uplift rate would normally be larger than the rate of return achieved, so this is a net saving to the revenue. With the ZT-IT there may be some excess return but this could be disregarded (as proposed by Mirrlees 2011 in respect of the RRA). However there needs to be provision to leave cash inside ZT accounts in the event of rollovers, pending purchase of any new asset.

5.2.9 Tax treatment of dividends etc.

Dividends and interest from assets within the box are disregarded if re-invested. This takes care of CGT complications arising from dividend re-investment highlighted in the Box shown earlier. However if they are consumed they count as withdrawals from the box.

5.2.10 Tax treatment of borrowings

The ZT treatment turns out to be very simple – borrowings and interest paid out are simply disregarded. As interest reduces eventual payouts from the box, this makes interest implicitly deductible.

We consider two possibilities. Case 1 involves borrowing inside the ZT box. This borrowing does not increase the tax credit given for investment in the box and repayments of principal and interest are disregarded – although obviously they reduce the sums available for payout at a later date.

Consider the example where $100 borrowing finances a $100 investment. Plod achieves 4 per cent real, Gates achieves 100 per cent real. Borrowing cost is 4 per cent real. Tax rate is 50 per cent. In Case 1 there is no flow of equity into the box, hence the tax credit carried forward is zero. Plod pays the lender back $104 after 1 year and is left with zero gain and zero tax. Gates pays back $104 and is left with $96 which on payout attracts a tax liability of $48, leaving $48. Tax takes half the economic profit, as intended.

Case 2 involves borrowing outside the box, which then finances an equity injection into the box. The $100 injected attracts a tax credit of $50 which is worth $52 after 1 year.[23] Plod draws down $104, his tax bill ($52) and credit are precisely offset so no tax is payable. His net $104 goes back to the lender, leaving a net return of nil. Gates has $200 after 1 year, his tax bill is $100-52 = 48, leaving $152; he repays the lender $104 leaving $48 which again is half the economic profit from the investment.

Note that borrowings from related parties at higher than market interest rates could be used to reduce ZT. This is partly addressed by making interest receipts from non-bank sources fully assessable: i.e., the loan is just another box asset of the related party. However with progressive marginal rates there is scope for income splitting through related party loans – just as there is now.

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[23] I here assume a 4 per cent real uplift factor – e.g. ZT-ET. I use this factor in the modelling for superannuation lump sums as it is equal to expected yields from superannuation savings.

5.2.11 Business tax implications

Small business would have the same option to enter into the ZT box system as savers. We would not need to account for depreciation; interest, capital gains etc. but rather we need only monitor net flows into and out of the box. The latter would be taxable and split, as appropriate, between the owners of the small business. For small business there need not be a separate business income tax.

For large business the situation is more complicated. One option is to abolish the corporation tax. With unlimited rollovers and deferral allowed at the personal level, there is little tax gain from corporations re-investing income on behalf of the investor, so the corporation does not need to be used as a pre-collector of income tax. However it might be desired to retain the company tax so that there is some tax on foreign corporations and location-specific economic rents.

A ZT corporation tax system is possible as discussed separately (Ingles 2019). The system is very simple in concept, as it is an adaption of the S-Cash Flow Corporation Tax[24] (S-CFCT) proposed by Meade (1978) which taxes net flows to shareholders (dividends, buybacks and capital returns, less new monies raised). This is in effect a lump sum tax on corporate equity, as the discounted value of future cash flows to shareholders is in theory the same as the equity value of the corporation. These future cash flows include economic rents. It would be more efficient than the current corporate income tax as it does not overly impact marginal returns from new investment[25] (Murphy 2018).

The S-CFCT overcomes issues with the more common R-CFCT (also known as a Brown tax), in that it can be used to tax financial as well as other corporations. However it has two major disadvantages. One is that it requires payments to companies when cash flows are negative. Instead, under the ZT a credit would be paid, to be carried forward at an uplift rate and subsequently used to offset against tax liabilities. If the uplift rate is the bond rate this becomes a sort of cash-flow version of the allowance for corporate equity (ACE) tax.

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[24] Cash flow corporation tax, as opposed to CFCT which is cash flow consumption tax.
[25] Depending on the ZT uplift rate.

A second major problem with the S-CFCT is that firms can hoard cash and never pay any tax (think Berkshire in the US). This can be addressed by including net increase in cash in the tax base, and to prevent double counting a corresponding ZT credit would be given. This would offset tax when cash was eventually paid out.

A further adjustment to this system is to include net flows to and from lenders in the tax base, and this overcomes issues associated with hybrid debt instruments, which creates opportunities for avoiding the S-CFCT using, for example, inflated interest rates. Murphy (2017) has shown that this adjustment is neutral (albeit in the context of a bank supertax). This tax is in effect a lump sum tax on the enterprise value (i.e., including borrowings) and to avoid disadvantaging heavily geared companies at its inception a ZT rebate would need to be given to reflect the total value of their borrowings. In general the transition can be easily handled, as existing firms can be given retrospective ZT credits.[26]

5.2.12 Transition

Transition from the current income tax to a ZT is much easier than transition to a personal CFCT. This is because there is no immediate loss of revenue such as would accompany the latter tax. Also, the payment of tax up front is a much more familiar system and it eases issues relating to e.g., taxpayers departing to live overseas, as most of the revenue is already collected. Incoming taxpayers could be given a ZT credit calculated as a percentage (say, 30 per cent) of their net assets brought in.

The transition could be voluntary, as the ZT is a more generous treatment of many forms of capital income than the current income tax. This is notably so for bank interest and (possibly) dividends. However for housing and superannuation this is not the case and people would need to be nudged into a voluntary ZT system by higher taxes on these 2 asset classes.

5.3 Discussion

Administratively the ZT is the same as the CFCT but with an offset for (uplifted) wage tax previously paid[27]. The administration of the cash-flow tax has been discussed

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[26] However it may, for loss neutrality, require a full refund if ZT credits are in the account when a corporation folds.
[27] Conceptually, with the ZT we have a TEt system with:

extensively in the literature (Andrews 1974, Meade 1978, US Treasury 1977) and there is a general view that the administration is at least as simple as the income tax and indeed allows for the possibility of a good deal of simplification.

In effect under the ZT-RRA variant of the ZT the revenue authority owns a share of all investments in the ZT account and shares in the proceeds in proportion to the tax rate – just as in the case of the CFCT. In return the authority gives the taxpayer a notional government bond of the same initial value as its investment share, redeemable only on realisation of the investment. This notional bond, together with its uplift factor, is what creates a quasi-neutral savings tax regime[28]. The same argument has been made for company tax schemes incorporating an *allowance for corporate equity* (ACE) (see Ingles and Stewart 2018).

Like the CFCT the ZT does not require us to measure capital gains or annual income from capital (unless consumed, such as housing imputed rent). The tax authority can treat the ZT account as a 'black box', with the only concern being when monies are paid in or out. This makes – at least in principle - for a simple tax system. However the tax authority needs to keep an annual track of the total value of investments in the box so that tax credits can be paid proportionately to drawdowns; this would also help with compliance. Records do not need to be kept for more than one year, as the ZT credit and ZT 'box' values are rolling totals.

## 6 The ZT and retirement income outcomes

I here use the example of retirement incomes to test and explain the properties of the ZT. In modelling the possible application of ZT to retirement incomes, it becomes clear that over a 40 year period the outcome under ZT-IT (indexed) is very similar to the outcome under RRA. The ZT-RRA is somewhat more generous than RRA (Figure 6.

- A wage tax (pre-paid ET)
- An earnings exemption (if not consumed)
- Plus a cash flow consumption tax (post-paid ET) where the weight of tax is calibrated to:
(a) reflect the prior pre-payment of wage tax
(b) reflect the tax's aim – i.e., to tax income, or rents, or super-profits.

[28] Any tax on capital income detracts from intertemporal neutrality to some extent. TEE and to a lesser extent EET do not, as they explicitly or effectively exempt capital income. ZT-ET has the same effect but taxes high returns and subsidises low returns (depending on the refund policy adopted).

See also Ingles and Stewart 2015). This illustrates the benefits of tax deferral under the ZT.

Figure 6: Net Retirement lump sums at 40 years under various tax options, earnings equal AWOTE in 2015, tax rate 35 per cent
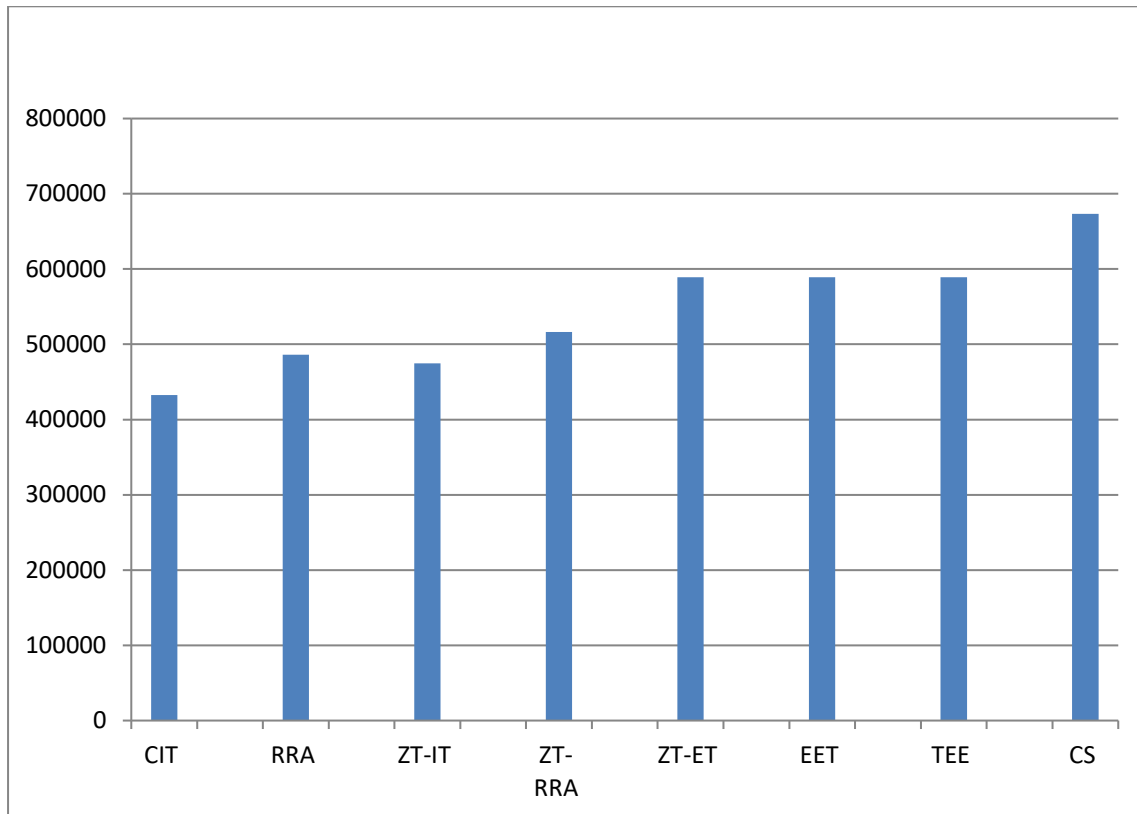
Source: Modelling by author. CS refers to the current retirement tax system in Australia. The CS and CIT base is indexed. In all tax systems except CS the tax rate is 35 per cent. EET and TEE are post-paid and pre-paid expenditure taxes, respectively. The uplift rate for the ZT-ET is 4 per cent real, the same as the assumed net return in the superannuation system.

Figure 6 shows the benefit that accrues to savers from tax deferral under the ZT. As expected, the returns under EET, TEE and ZT-ET are the same[29]. Outcomes under the RRA, ZT-IT and ZT-RRA are quite similar, with the last the most generous. The

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[29] This result depends on the ZT uplift rate being the same as the assumed real rate of return. If I double the assumed rate of return to 8 per cent, while leaving the ZT uplift at 4 per cent, the ZT shows a lower return than TEE or EET. Hence the ZT-ET can tax some economic rents.

current retirement savings system (CS) is even more generous than a no-tax situation, which is TEE (or, equivalently, EET). The indexed CIT is relatively ungenerous.[30]

These results can also be expressed in terms of the effective tax rate on final savings, or equivalently, the tax wedge between current and future consumption. This is shown in figure 7 below for 4 and 8 per cent real returns respectively.

Figure 7: effective tax rates after 40 years of saving, 35 per cent nominal tax rate, 4 and 8 per cent real returns
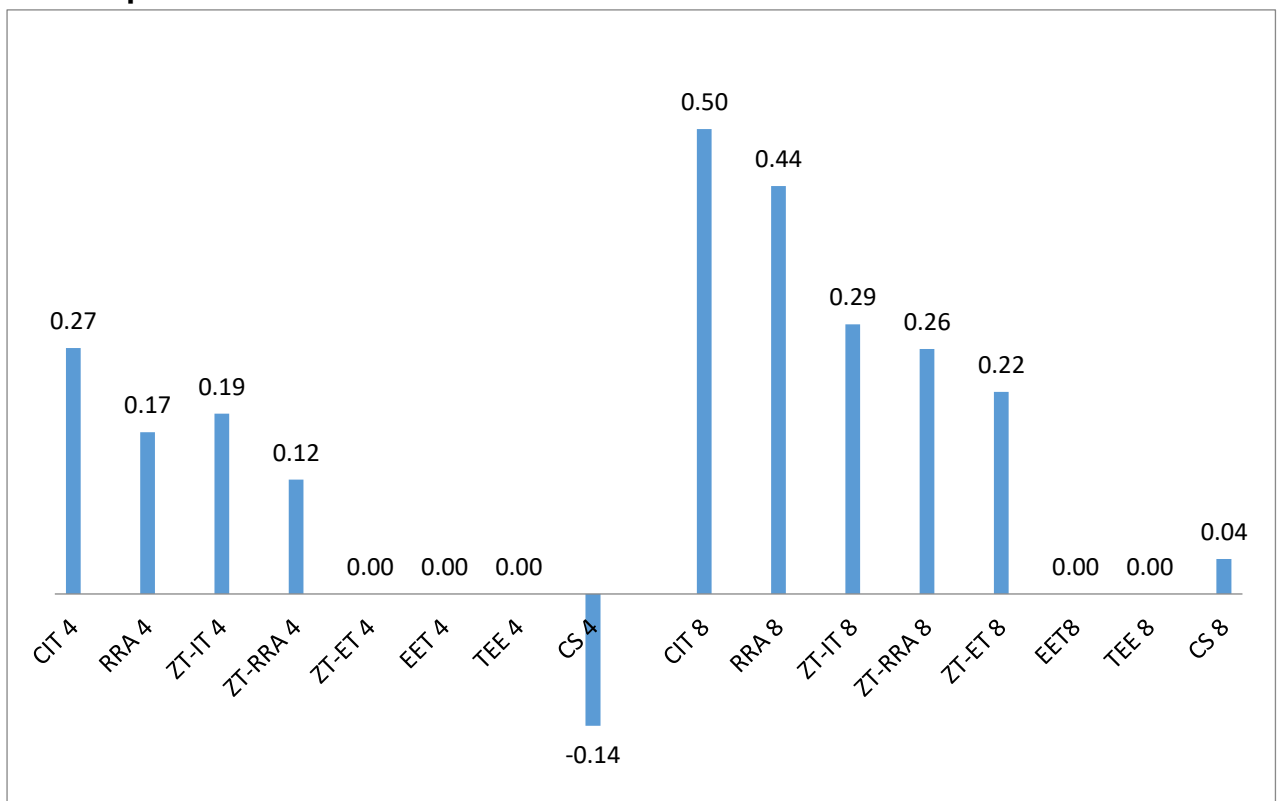
Source: Modelling by author. Assumptions see Figure 6. Note: all rates are relative to a TEE outcome (savings yield exempt). We take the lump sum outcome as a percentage of the no tax outcome, subtract this from 1, and this gives the implicit tax rate.

I note that a change in the modelled rate of return from 4 per cent to 8 per cent has no impact on the comparison between EET and TEE; as argued earlier, neither taxes economic rents in the superannuation environment where there is assumed to be no

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[30] It is not shown in this graph, but I also modelled the ZT without an indexation factor. This produced an outcome very close to the indexed CIT, showing that over a long period of time the advantages of tax deferral can compensate for not indexing.

gearing. The ZT does tax these rents.[31] The current superannuation tax system subsidises most savers.

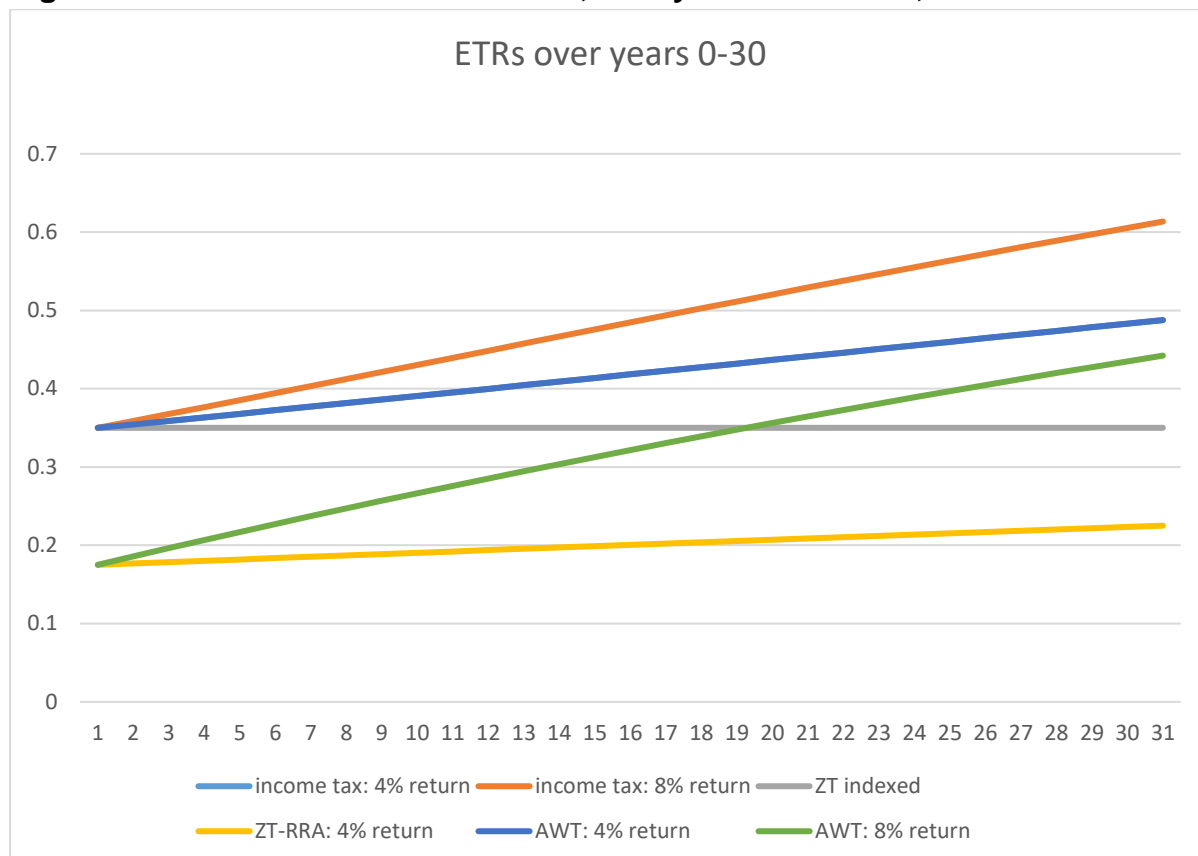## 7 Effective tax rates over time under different tax options

In Section 2.3 I discussed the definition of the effective tax rate (ETR) and its method of calculation (as used in Figure 7). It provides a simple shorthand method of examining the economic differences between various tax regimes.

Figure 8 shows ETRs over time for several tax options including the ZT-IT and ZT-RRA, assuming a 4 per cent real yield and 35 per cent tax rate. Recall that the ZT-IT (indexed) has a credit uplift rate equal only to the inflation rate, whereas the ZT-RRA has an uplift rate equal to the bond rate. The flat 35 per cent ETR line for ZT-IT is invariant to the yield assumption; the same line also applies to the realisation CGT, if indexed. The ETR for both pre-paid and post-paid expenditure tax is not shown as it is zero. I include an annual wealth tax (AWT) in this table as it is an alternative to an income tax (Ingles 2016) which, as noted earlier, integrates capital gains taxation. An AWT can be substituted for with a regime of deeming capital incomes, like the Dutch 'box' system, and this has advantages if the income tax is progressive.

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[31] There is no tax wedge under the ZT-ET with 4 per cent real returns, because this is the ZT uplift rate. There is a 26 per cent tax wedge with 8 per cent returns, as the ZT uplift rate is fixed at 4 per cent.

Figure 8: Effective tax rates over time; 0-30 year investment, various 35% taxes

ETRs over years 0-30

Legend: income tax: 4% return — income tax: 8% return — ZT indexed — ZT-RRA: 4% return — AWT: 4% return — AWT: 8% return

Source: Author calculations.

Note: ETRs are calculate by reference to the 'no tax' results as per the text. Indexed CGT (not shown) is the same result as the ZT-IT (indexed), and the income tax 4 per cent line is covered by that for the AWT as they are identical at the 4 per cent rate of return (by design, as the AWT rate is 1.4 per cent, or 35 per cent of 4 per cent). The CFCT is zero, as is the ZT-ET at a 4 per cent rate of return (this being equal to the ZT uplift rate). There is a single savings event in year 1 and then a single realisation event in year x.

What this illustrates is the very marked tendency for the ETR to rise over time under the income tax (and also an annual wealth tax - AWT), and that this is fully offset under a realisation based (and indexed) CGT. Both the ZT-IT and the ZT–RRA show a pattern of ETRs which is reasonably constant over time, the former at 35 per cent and the latter at around 20 per cent.

If, under an income tax, an investment yields both income (e.g. dividends) and capital gain, the resultant effective tax rates will be a hybrid of the relevant lines shown in the graph. Hence there will be a strong incentive to try and convert income into capital gains. This is offset to some extent by dividend imputation in the current corporate tax

system, but if this is to be abolished (as suggested by Ingles and Stewart 2018) the case for a more neutral personal tax system such as the ZT is further strengthened.

8 Conclusion

The paper has canvasses difficulties with conventional approaches to capital income taxation, and considered suggested solutions. The CIT, for example, is hard to implement and theoretically deficient as it discriminates against savers. This discrimination is partly ameliorated by tax deferral under a realisation capital gains tax (CGT), but at the expense of a different treatment of capital gains compared to ordinary income. In principle the ZT-IT could be approximated by allowing capital income to build up over time and be taxed as an indexed capital gain, but the computation of tax liability and basis would be very difficult.

The CFCT is an elegant solution to many of the problems that bedevil the CIT, and should be administratively simpler (Andrews 1974). The Bradford (1986) X-tax or Hall-Babushka (1983) 'flat tax' are similarly elegant. The problem with these taxes is that they exempt much of the return to capital, and it is arguable (with Mirrlees) that we should attempt to tax at least the economic rent part of this. Mirrlees' RRA seems sensible, but preserves many of the administrative difficulties of the income tax on which it is based.

The author proposes that these difficulties are overcome in the cash-flow version of the RRA, the ZT. The ZT has a number of advantages compared to the CFCT. These include:

- it brings revenue forward
- greater revenue potential
- reduced scope to cheat
- ease of transition
- more redistributive as it taxes more economic rents
- administrative ease might be very similar
- departing and incoming taxpayers can be accommodated more easily.

The ZT options provide a means for politicians of whatever stripe to implement their preferences without distorting savings and investment decisions. For example those

on the left may prefer the ZT-IT, those on the right the ZT-ET, and the centrists, the ZT-RRA. Only the ET option is fully inter-temporally neutral, but deviations from full neutrality are likely to be far less costly that the current hybrid ET/IT.

The uplift factor can be varied from time to time without impacting the overall neutrality of the system. This also builds in fiscal flexibility. The Z-tax can be designed to approximately replicate the outcomes under either of the RRA or the indexed CGT.

The modelling herein suggests that the ZT is a viable system at the personal level and would have a number of advantages compared to our existing tax treatments of capital income. Basing taxation on cash flows rather than income holds out the possibility of a good deal of administrative simplification. It would also have advantages compared to other suggested taxes designed to even out the treatment of capital gains, such as accruals taxation, annual wealth tax or deeming. A ZT is also viable at the corporate level (where it would modify Meade's S-cash flow corporation tax) and this would co-exist nicely with a personal ZT as both taxes involve deferred – i.e., cash flow – taxation and hence tax is not reduced by retaining it within the corporation.

APPENDIX: How much revenue could be generated by comprehensive taxation of asset incomes?

Total household assets in Australia are around the $10 trillion mark. If they earn on average a 5 per cent real return that is a capital income of $500 billion. Since wealth, even inclusive of housing, is very concentrated, the relevant marginal rate would be quite high - perhaps 40 per cent. This implies a theoretical CIT revenue yield of $200 billion vs the current $70 billion, mainly collected through company tax[32]. This calculation excludes taxes on property and stamp duties, although it is arguable that some of the former are capitalised into land values.

In practice, it would be very hard to tax some of the elements that make up total household assets. Some assets yield a lot less than a 5 per cent real return, others more.[33] For example the net real yield on superannuation investments is estimated by Treasury to be 4 per cent, as funds hold a mix of high and low-yield (safe) assets and high administrative fees (of over 1 per cent of assets) reduce the gross yield. On the other hand many geared property investments (including owner housing) can yield more than 10 per cent. Also bank accounts earn very little in real terms, although these only account for 4 per cent of total household assets.

It would be hard to tax personal use assets (such as cars and electrical goods), and these account for around 9 per cent of household assets.[34]

Another way of measuring the tax foregone on assets is in the Treasury's Tax Expenditure Statement (TES - Treasury 2018). The TES broadly applies a CIT benchmark although there are variations from a pure CIT benchmark. This shows very large tax expenditures on superannuation ($35 billion), owner occupied housing

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[32] Company tax revenue is $77 billion with 7 billion attributable to superannuation funds. A third of company assets are foreign owned, leaving a net $45 billion attributable to domestic shareholders. There are relatively modest additions to this yield at the personal level, because of imputation.

[33] Piketty 2014 estimates an average real return to capital of 5 per cent. The Australian figure is higher than that for the rest of the world. For example returns to equites have a long run real yield of over 7 per cent, at the top of the international league table. Housing yields are comparable with equities. We also need to account for inflation of returns flowing from gearing in the housing sector.

[34] But perhaps not that hard. For example, we could use insured value as the tax base for cars, boats, and jewellery and household goods and impute income at 6 per cent. There would however then be an incentive to under-insure.

(imputed rent is not normally included in the TES but is around $35 billion[35]), housing capital gains (approx. $75 billion[36]), and other capital gains ($7 billion). However, the Treasury methodology gives a lower total revenue cost of concessions compared to mine, partly because it assumes capital gains taxation on realisation, whereas capital gains should be taxed as they accrue under a theoretically ideal CIT. Also the TES assumes taxation of nominal rather than real gains, which raises their estimate.

I suggest in the text that economic rent comprises around two-thirds of the total return to capital, an estimate based on applying the 'normal' return on capital to the total capital stock, and deducting the risk-free return (i.e. the bond rate in real terms). Hence a tax on economic rent could have a base of around $140 billion per annum. If this could be taxed comprehensively (and the obstacles are political, not economic) this would yield around $60 billion in revenue - comparable to now[37]. However if the tax base were not broadened, an economic rent tax would yield less rather than more revenue as income from e.g., corporate sources would become more lightly taxed.

We can use the TES figures to estimate the yield from a ZT-IT. We take the total tax expenditure for housing (say $70 billion net of costs) and add around $15 billion for investment housing (which currently yields a negative net revenue). There are swings and roundabouts on capital gains (the $7 billion discount disappears, but is replaced by indexation), and we gain around $20 billion from superannuation: a total of $100 billion less some losses/deferral from allowing rollovers up to the time of death, leaving say $50-60 billion net new revenue for the ZT-IT. The revenue from a ZT-RRA is however much less; less indeed than the RRA itself due to tax deferral in the ZT version. There should, nonetheless, be some net gain relative to now, due to the massive base broadening envisaged.

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[35] Pulo 2014 gives an imputed rent figure of $27.5 billion in 2012-13 but also allows cost offsets of $21 billion against either capital gain or imputed rent.

[36] Approximate because over $20 billion costs need to be deducted from the Treasury's gross figures for imputed rent and capital gain... The capital gains main residence exemption was $20.5 billion in 2014-15, and the discount component another $25.5 billion (Treasury 2016), and these would be rising quickly with the general rise in house prices.

[37] Most assets are owned by the top 20 per cent of households, so taxing asset incomes implies a high marginal rate. However this is less true of housing assets.

GLOSSARY OF TERMS

ACC   Allowance for corporate capital, loan as well as equity.

ACE   Allowance for Corporate Equity. This is the corporate analogy of the RRA, and works in the same way by allowing corporations to earn the risk-free rate of return on equity tax free. As with the cash-flow corporation tax it taxes economic rents.

AWT   Annual Wealth Tax

CIT   Comprehensive Income Tax, also known as the Haig-Simons income tax

CT   Consumption Tax – this can be direct, as in the CFCT, or indirect as in the GST or VAT.

ET   Expenditure Tax, which I use as a generic name for that class of taxes which tax capital income more lightly than the CIT. These include CTs and wage taxes.

EET   This means Exempt contributions, Exempt earnings and Tax withdrawals. This is equivalent to CFCT, also called a post-paid expenditure tax.

Pre-paid ET This levies tax up-front by taxing wages only. It is equivalent to TEE.

Post-paid ET This levies tax when income is consumed, and is equivalent to EET of CFCT.

GST   Goods and Services Tax. This is the Australian name for the VAT.

IT   Income tax

RRA   Rate of Return Allowance. This is a method to modify the income tax so as to exempt the risk-free rate of return, which can be proxied by the government bond rate.

TEE   Tax contributions, Exempt earnings and Exempt withdrawals. This is equivalent to a wage tax. Also called a pre-paid expenditure tax.

VAT   Value Added Tax. This is form of consumption tax which is normally levied indirectly (i.e. on firms) but can be made into a direct tax on individuals using a system such as Hall-Rabushka's or the Bradford X-tax.

X-tax   This is a form of VAT where wages are deducted from the tax base for firms and taxed progressively at the individual level.

Z-tax or ZT   This is the authors' proposal for a cash flow version of the RRA

ZT-IT (or ind)   ZT – income tax or ZT-indexed. Uplift at the inflation rate only.

ZT-RRA   ZT – RRA – uplift at the risk free rate (e.g. the 10-year bond rate)

ZT- ET   ZT expenditure tax: uplift at the average return on assets

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