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Corporate income taxation in Australia

Theory, current practice and future policy directions

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Authorship

This report is a Tax and Transfer Institute Policy Report. It was written by Kristen Sobeck, Robert Breunig, and Alex Evans.

The report was edited by Ric Curnow. Graphic and typographic design, as well as layout and electronic publication were done by Giraffe.

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Executive Summary

Since its introduction at the federal level more than a century ago, the corporate income tax has undergone reforms and modifications enacted in response to changes in economic conditions both domestic and global, the design of other tax policies and rates, and political and revenue pressures. These changes were implemented through the statutory tax rate, but also through the definition of the tax base, depreciation allowances, tax concessions, the treatment of dividends, capital gains and fringe benefits, and differentiation by company size, among others. Over time they have added complexity, created loopholes, and amplified inequities across companies and different income streams.

For decades, Australian taxation experts have maintained that from an economic welfare (or efficiency) standpoint, Australia stands to gain markedly from reform of one of its most damaged and damaging taxation regimes. Productivity growth has been weak since a peak during the mining boom in 2012 – 13 and the design of the current corporate income tax system contributes to that weakness. Productivity growth drives economic growth and improvements in living standards. By improving investment conditions and the attractiveness of investing in Australia, corporate tax reform can contribute to productivity improvements.

This report provides a framework for policy analysis of the corporate income tax system in Australia to broaden understanding of the topic and heighten policy debate. It achieves this by tackling three questions:

- What are the main problems (distortions) associated with the current corporate income tax system (chapter 2)?
- What policy options could be implemented in Australia to redress these problems (chapter 3)?
- What is the best policy option (chapter 4)?

This report argues that the introduction of an Allowance for Corporate Equity (ACE) is the best approach for corporate income tax reform. It also addresses how neither a *decrease in the headline corporate tax rate* nor the introduction of *accelerated depreciation* (or an investment allowance) — the two corporate tax "reform" proposals most commonly bandied-about in Australia — represent effective reform. Both policies retain the system's pre-existing distortions. Decreasing the headline corporate rate in isolation could improve investment in the long-run, but provides a windfall gain to existing equity investors. Similarly, while investment allowances and accelerated depreciation spur investment in the short-run (but not necessarily the long-run), they tend to favour specific industries.

Finally, the report includes several appendices which discuss: the difference between the "normal" return to investment and economic rents; the history of corporate income taxation in Australia; an overview of how the Commonwealth and states and territories tax natural resources; an overview of methods used to calculate effective corporate tax rates; a detailed explanation of how the imputation system works in practice and its losers and winners; and a review of Australia's two sectoral cash-flow taxes, the Petroleum Resource Rent Tax (PRRT) and the Northern Territory's Mineral Rent Tax.

What are the main problems associated with the current corporate income tax system?

Using economic theory and empirical research drawn from the domestic and international literature, chapter two identifies seven economic problems (distortions) inherent in the design of the current corporate income tax (**Table 1**). These problems compromise the efficiency and fairness of the system, harm investment, and constrain economic growth. Exacerbating these seven problems is a corporate tax system that has grown increasingly complex. While these and similar problems have been actively studied and debated globally, this report provides insight to their importance in the Australian context.

Table 1. Summary of the problems associated with the current corporate income tax system

Problem	Summary	Consequence
1. Gap between the statutory corporate income tax (CIT) rates and personal income tax (PIT) rates	The corporate tax rate (25 per cent for small companies and 30 per cent for large companies) is substantially lower than the highest marginal tax rate (47 per cent) in the personal income tax system.	Paying marginal PIT at a rate higher than the CIT rate incentivises individuals to incorporate whenever the CIT rate is lower. This creates inefficiencies and inequities. Businesses operated through trusts can leverage arbitrage opportunities between the CIT rate and all beneficiary PIT rates lower than the CIT rate (including the tax-free threshold). These arbitrage possibilities are used by individuals to split income across individuals in one financial year and across different financial years (deferral benefits). This distortion compromises the tax revenue base and the efficiency and fairness of the tax system.
2. Debt bias	Firms are not taxed on debt financing expenses (interest payments) because these costs are recognised by the tax system as legitimate business expenses and are deductible. However, the cost of equity financing, an alternative to debt, is not recognised.	Incentivises firms to use debt. Increases risk of bankruptcy. Over-reliance on debt is not apparent to a large extent in Australian data. However, this could be a large concern for MNEs, for which data are limited.
3. Taxing the normal return to investment	Since the cost of equity financing is not recognised by the tax system, firms that use equity financing need to make more than the normal return on investment to remain viable.	Reduces the ability for marginal firms (those just breaking even) to exist (since they cannot expense all of their costs). More profitable firms do not invest as much as they would in the absence of the tax. A tax system which reduces investment discourages productivity and economic growth.

Problem	Summary	Consequence
4. High statutory corporate income tax rate	Australia's corporate tax rate is higher than most OECD countries and geographic neighbours.	The high corporate income tax rate increases the pre-tax return firms must obtain to meet global investors' expected return on investment. This lowers foreign investment in Australia and encourages Australian firms to invest overseas. Even if corporate tax only applied to economic rent, it could still discourage foreign investment in Australia where those rents are mobile (see **Appendix A** for a discussion of economic rents). Lower investment leads to less productivity and slower economic growth. The relatively high statutory corporate income tax rate incentivises large MNEs to issue debt to their Australian subsidiaries. This compromises the tax revenue base.
5. Variation in effective corporate tax rates	Effective corporate tax rates, which take into account the actual tax rate paid by companies, differ from the headline corporate rate and can influence investment decisions. Effective tax rates vary substantially across different types of investments.	The effective tax rate applied to specific investments varies depending on the financing a company uses, how depreciation is applied, and how other tax system design features (such as concessional treatment) apply. While these features may be appropriate (lower tax rates on R&D have positive spill over effects), the wide variation compromises efficiency and exacerbates incentives to invest in certain assets using a specific type of funding even when this may not be economically efficient.
6. Differences between economic and tax depreciation	Differences between tax and economic depreciation benefit some firms and cost others. For example, if an asset's tax depreciation is less than its economic depreciation, a firm cannot deduct full costs from its taxable income.	Differences between economic and tax depreciation result in a tax on the normal return on investment for some firms and a subsidy to investment for others. It has an ambiguous effect on investment because it depends on the composition of taxed to subsidised firms.
7. Imputation system	The imputation system subsidises domestic investment.	The imputation system encourages Australian companies to distribute dividends. The imputation system encourages investors to make investments based on tax design, deterring them from opportunities that give them the best return (based on their risk and liquidity preferences). Evidence suggests eliminating the imputation system would: (1) neither harm nor encourage investment ("new view" explanation) or (2) only directly affect investment into cash-constrained domestic firms that rely heavily on domestic shareholders ("agency" theory explanation). Elimination of imputation would likely reduce the degree of home bias in the portfolios of Australian investors.

What policy options could be implemented in Australia to redress these problems?

A review of leading options for reform, including a comprehensive business income tax (CBIT), allowance for corporate capital (ACC), allowance for corporate equity (ACE) and cash-flow tax (CFT), is presented in **Table 2** and **Table 3**. These options are evaluated against their ability to resolve the seven problems identified in chapter two. Reform should also look to simplify the overall system.

Table 2. Summary of the problems addressed by the different approaches to corporate income taxation (assuming revenue neutrality within the corporate tax system)

Problem	Does this system resolve the problems of the current system:			
	CBIT	**ACE**	**ACC**	**CFT (pure, not modified)**
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	No, it is worsened. The gap gets bigger because the CBIT broadens the tax base and the corporate tax rate can be lowered. Arbitrage opportunities through the use of trusts and the lower PIT rates remain.	Yes, partially. The gap between the highest PIT rate and the CIT rate is reduced because the CIT rate increases. However, arbitrage opportunities remain through the use of trusts and the lower PIT rates.	Uncertain. It is not possible to determine whether a revenue neutral ACC rate would go up or down.	Yes, partially. The gap between the highest PIT rate and the CIT rate is reduced because the CIT rate increases. However, arbitrage opportunities remain through the use of trusts and the lower PIT rates.
2. Debt bias	Yes. All financing costs are excluded from the tax base.	Yes, partially. The normal return to equity is recognised as a financing cost. However, since the normal return to equity may vary by firm, the notional return to equity designated in the ACE will be more generous to some firms and less generous to others. The ACE will lessen but not eliminate the bias.	Yes	Yes.
3. Taxing the normal return to investment	No, it is worsened. Since no financing costs are recognised as an expense incurred by businesses, running a business is more costly. Taxation of the normal return to investment can be reduced, for equity financed investments, by a reduction in the statutory corporate tax rate.	Yes, partially. See comment above about the normal return to equity varying by firm.	Potentially. The normal return to equity and debt are recognised as a financing cost. However, since the normal return to both debt and equity may vary by firm, the notional return designated in the ACC will be more generous to some firms and less generous to others. The ACC will lessen the bias but not eliminate it.	Yes.

Problem	Does this system resolve the problems of the current system:			
	CBIT	**ACE**	**ACC**	**CFT (pure, not modified)**
4. High statutory corporate income tax rate	Yes. If MNEs cannot write-off their debt as a cost, they have less incentive to allocate it to a high tax country such as Australia. A revenue neutral change to a CBIT would allow a reduction in the statutory corporate income tax rate.	No. Other regulation will be required to redress this issue. A revenue neutral ACE with a higher rate could encourage MNEs to shift more debt to Australia. It could also encourage MNE's to double-dip tax deductions through Australia.	No. Other regulation will be required to redress this issue.	No. Other regulation will be required to address this issue. A revenue neutral CFT with a higher rate could encourage MNEs to shift more debt here, but it is hard to know since the tax system would be entirely different. Concern about future tax evasion arises where companies structure large investment cash outflows in Australia and declare future cash inflows from those investments in other countries.
5. Variation in effective corporate tax rates	Yes, partially. Variation caused by differences between tax and economic depreciation will remain. Variation caused by differences in financing will be eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.	Yes, mostly. Variation caused by differences in economic and tax depreciation will be partially eliminated. Variation caused by differences in financing will be partially eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.	Yes, mostly. Variation caused by differences in economic and tax depreciation will be eliminated. Variation caused by differences in financing will be eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.	Yes.
6. Difference between economic and tax depreciation	No. Identical treatment to the current corporate income tax system	Yes, partially. A difference will remain however, if the actual return to equity differs from the allowance rate for corporate equity.	Yes.	Yes.

Table 3. Impact of different approaches to corporate income taxation on shareholders and bondholders

Problem	Does this system resolve the problems of the current system:			
	CBIT	**ACE**	**ACC**	**CFT**
Impact on shareholder dividends	Identical treatment to the current corporate income tax system	If the imputation remained, as it currently operates, shareholders would only receive franking credits for the portion of the dividend which had been taxed at the corporate level (the economic rents). In general, a rethink of the imputation system's operation would be desirable if an ACE were introduced.	If the imputation remained, as it currently operates, shareholders would only receive franking credits for the portion of the dividend which had been taxed at the corporate level (the economic rents). In general, a rethink of the imputation system's operation would be desirable if an ACC were introduced.	The imputation system would require reform.
Impact on corporate bondholders' return on investment	No, it is worsened. The marginal tax on interest payments received by bondholders will increase with additional taxation at the corporate level.	Identical treatment to the current corporate income tax system	If the ACC 's notional return to capital is set lower than the interest rate owed on a corporate bond, part of the bondholder's return will be taxed at the corporate and shareholder level. In general, a rethink of the taxation of interest would need to be considered if an ACC was introduced.	Identical treatment to the current corporate income tax system

The best policy option: An allowance for corporate equity (ACE)

Relative to a CBIT, ACC and CFT, this report recommends the introduction of an Allowance for Corporate Equity (ACE) for three principal reasons.

An ACE resolves or attenuates problems inherent in the design of the current corporate income tax system

- It stimulates investment by reducing the marginal effective tax rate on investment (in some cases to zero).
- It reduces the "debt bias" in investment decisions by granting a deduction for the cost of equity financing.
- It eliminates most variation in effective corporate tax rates across different investments.
- It is insensitive to depreciation methods and would enable a radical simplification of the current schedule.
- It is insensitive to inflation as higher nominal profits are offset by a higher allowance for corporate equity.

As the only option implemented at a national level, Australia can draw on the international ACE experience and research

- Evidence suggests the introduction of an ACE increases investment, possibly with heterogenous effects on active and passive investment. An ACE also reduces firm leverage.

Implementation and transitional costs of an ACE are lower than an ACC, CBIT or CFT

- The ACE resembles the current corporate income tax system, augmented with an extra deduction for the cost of equity. Both the CBIT and ACC are also similar in design to the current system. By contrast, the introduction of a CFT would change the tax base and result in the potential for companies' double-taxation and increased tax evasion (and tax revenue loss).
- An ACE does not change the existing treatment of debt. By contrast, the CBIT, ACC, and CFT (under an R-base) alter the deductibility of debt, thereby presenting transitional and financial challenges for highly leveraged firms. While a CFT with an R+F base retains debt interest deductibility, it still requires a change in the tax base (noted above).
- The current system of depreciation could remain the same under an ACE, ACC or CBIT. It could also be simplified under an ACE. Under a CFT, depreciation would be eliminated and its introduction would require transitional measures to account for companies' un-deducted depreciation allowances.
- The potential for companies' double-taxation, increased tax evasion, and the high transitional costs associated with the deductibility of debt and un-deducted depreciation allowances were among the reasons both New Zealand and Norway opted against introducing a national CFT.

In summary, unlike the ACC, CBIT and CFT, the introduction of an ACE achieves the goal of stimulating investment, with minimal implementation and transitional costs, and with scope for simplification of some aspects of the current system, namely depreciation. By contrast, while a CFT will also spur investment, transitional costs are substantive and feature among the reasons other countries have opted against introducing one at the national level. While an ACC and CBIT more closely align to the design of the current system, they will both have transitional costs associated with disallowing some or all of debt interest. In addition, a CBIT could discourage investment by increasing the cost of capital. An ACC's impact on investment, will depend on its design.

However, an ACE will not in isolation resolve all challenges associated with corporate taxation. The value of integrating personal and corporate income tax levels to maintain revenue neutrality while implementing an ACE is diminished because of arbitrage opportunities, which could be addressed with a review of hybrid business structures, such as trusts. In addition, some economic rents are mobile. If firms that make economic rents have discretion regarding their location, a lower corporate tax rate is a stronger incentive for relocation than an ACE.

ACE Implementation considerations

Should Australia introduce a hard (all equity) or soft (new equity) ACE?

A soft ACE – the recommended approach for Australia - only recognises new equity, as opposed to a company's entire stock of equity. Global tax reform experience suggests introducing a modest reform, such as a soft ACE, and gradually strengthening it over time is typically more successful. A soft ACE more closely resembles the existing system than a hard ACE (which recognises all equity) and is less costly to implement. Restricting the base to new equity also encourages new investment and eliminates windfall gains to existing equity investments.

At what rate should the notional return to equity be set?

The ACE rate should be set at the 10-year government bond rate. This rate is comparable to that of other countries and should be adjusted annually to avoid misalignment with the long-term rate. Losses should be uplifted at the ACE rate and offset against future liabilities. Alternatively, to reduce the risk of unused losses, losses incurred in a given year could be applied against other tax liabilities such as the goods and services tax (GST), pay as you go tax (PAYG), and fringe benefits tax (FBT).

In addition, an ACE rate for small and medium enterprises (SMEs) should be set at 0.5 percent higher than the rate for larger companies. This increase is a risk premium associated with the higher probability of SMEs going bankrupt (and being unable to use the ACE allowance).

The lower corporate income rate applicable to smaller businesses should be removed and the rate standardised at 30 percent for all companies. While this increases the rate that applies to small businesses, it would apply to a smaller corporate tax base. SMEs will typically benefit more from a higher ACE rate as a lower tax rate only benefits companies with positive taxable income, less likely amongst SMEs, in particular start-ups and growth companies. A higher ACE rate and loss carry forward provisions will assist small businesses to earn a normal return, encourage capitalisation, and stimulate investment.

How could an ACE be financed?

Although an ACE narrows the corporate income tax base, the statutory corporate income tax rate should not be increased. Raising the statutory rate increases effective corporate tax rates, deters inward investment, encourages outward profit-shifting, negatively affects the investment decisions of cash-constrained firms, and discourages companies able to choose the location of their investments from investing in Australia.

If revenue neutrality is desired it could be achieved through other means, such as:

- Debt-financing, particularly given the current low interest rate environment and investment benefits expected from the reform;
- An increase in the GST. Research suggests that the increase in investment induced by the introduction of an ACE is amplified if revenue neutrality is financed from a change in the GST, instead of an increase in the statutory corporate tax rate. Australia's GST is low relative to other OECD countries;

- Reform of the imputation system. Depending on the design of reform, this could be revenue neutral or revenue positive. Part of the argument in favour of retaining the imputation system relates to the lower levels of firm leverage observed in Australia following its introduction. An ACE lowers levels of firm leverage. In so doing it weakens the argument for retaining the imputation system as the loss of any effect imputation has in reducing leverage can be offset with an ACE; or
- Simplification of the existing corporate tax and transfer system including reduction or elimination of concessional measures directed at business.

Concluding remarks

While the introduction of an ACE will contribute to a more dynamic investment environment in Australia, it still falls short of the system-level reform of the tax and transfer system that has been repeatedly called for by this and other reports. Systemic and comprehensive tax reform would integrate corporate income tax reform with reform of the broader tax and transfer system, explore interactions across the different tax rates and tax bases, and assess the cumulative inter-related effects of these interactions on the overall system. In turn, this type of broader reform would accelerate Australia's future economic prospects and enhance the well-being of Australians. While this report focuses on the corporate tax system, ideally its recommendations – and those of TTPI's other reports in this series (e.g. Varela et al. 2020 on the taxation of savings) – should be considered and implemented in the context of this long-called-for comprehensive tax reform in Australia.

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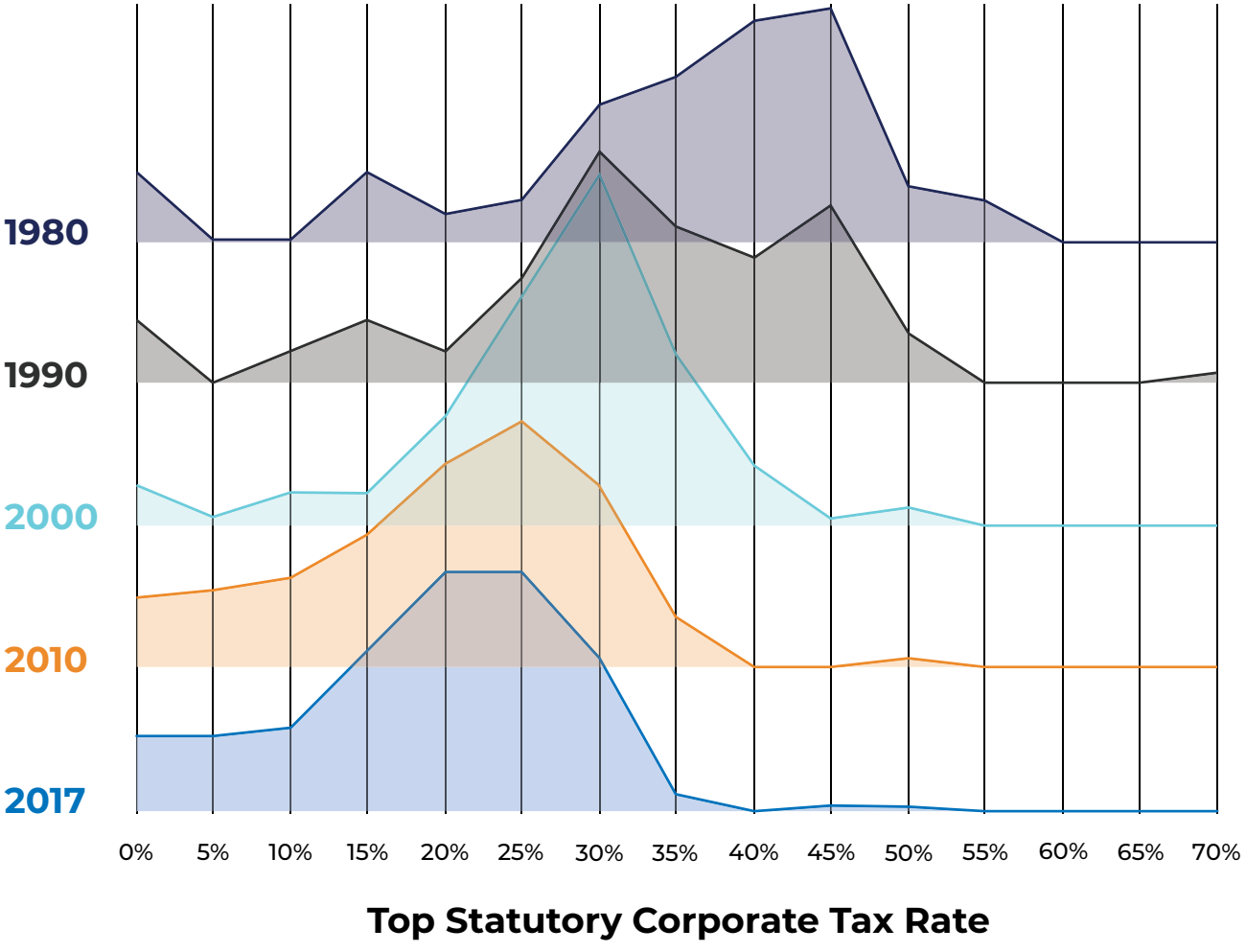
1 Introduction

Taxing corporations effects a brake on investment, with negative impacts on innovation, productivity, employment, wages and the economic growth that enhances well-being. These negative effects have been exacerbated by globalisation and the increasing mobility of capital, placing additional pressure on countries to lower corporate taxes (as shown in **Figure 1**) to keep or attract investment and instead rely more heavily on other taxes, such as value added / consumption taxes. As a result, while corporate tax has been an important part of tax systems in most countries since the early 20th century, over the last 50 years countries' reliance on corporate income tax revenue has declined and stabilised.

Figure 1. The Worldwide distribution of statutory corporate income tax rates, 1980-2017.



Source: Reproduced from the Tax Foundation Fiscal Fact No. 559, Corporate Income Tax Rates around the world, Sept. 2017.

From an economic welfare (or efficiency) standpoint, Australia stands to gain from reforming one of its most damaging taxes. Cao et al. (2015), Murphy (2016), KPMG (2010) and Australia's Future Tax System Review (the Henry Review) all identified Australia's corporate income tax as one of the two most damaging taxes for the Australian economy. Productivity growth has been weak since a peak during the mining boom in 2012 – 13 (Productivity Commission, 2020) and corporate tax contributes to that weakness. Productivity growth drives economic growth and improvements in living standards. By improving investment conditions and the attractiveness of investing in Australia, corporate tax reform can contribute to productivity improvements.

This report provides a framework for policy analysis on the corporate income tax system in Australia to broaden understanding of the topic and heighten policy debate. Chapters can be read sequentially or in isolation depending on the interests and expertise of the reader.

Chapter two discusses economic theory relating to the corporate tax and its effects and reviews relevant empirical literature which attempts to validate theory using data. From these dual theoretical and empirical bases, the report identifies seven major problems (distortions) that arise from the current design of Australia's corporate tax system:

1. The gap between the corporate income tax rate and all of the lower rates (and tax-free threshold) that apply to labour income through the personal income tax system;
2. A debt bias in financing;
3. Taxation of the normal return on investment;
4. High statutory corporate income tax rates;
5. Significant variation in the effective corporate tax rates that apply to different investments;
6. Differences in the treatment of economic and tax schedule depreciation; and
7. The imputation system – how much income derived through a corporation from equity investments should be taxed in the hands of shareholders and whether differential treatment should be applied to foreign and domestic shareholders.

These problems compromise the efficiency and fairness of the tax system, harm investment, and constrain economic growth. While these problems have been actively studied and debated globally, this report provides some sense of how important they are in the Australian context.

Chapter three presents various policy options which could be implemented in Australia to redress these problems.

Drawing on evidence presented in chapters two and three, chapter four concludes by recommending an Allowance for Corporate Equity (ACE). Implementation considerations of an ACE are also discussed, as are incremental policies which could be considered in addition or as an alternative to the introduction of an ACE.

The report also examines other topics relating to corporate tax, such as the economic incidence of the corporate tax. Incidence analysis addresses the question of who actually pays for the corporate tax in terms of foregone well-being. An explanation of effective tax rates is provided as part of this discussion since these can differ from the *statutory* corporate tax rate (sometimes called the headline tax rate) because of other features of the tax system such as deductions or concessions. Evidence of where investment in Australia comes from and whether the marginal investor is domestic or foreign is also presented. The two most commonly proposed "reforms" in Australia—decreasing the headline corporate tax rate and introducing accelerated depreciation—are also evaluated in the context of the seven problems the report identifies. The report demonstrates why neither of these policies represent genuine reform.

The report includes appendices which explore: the difference between the "normal" return to investment and economic rents; the history of corporate income taxation in Australia; an overview of how the Commonwealth and states and territories tax natural resources; an overview of methods used to calculate effective corporate tax rates; a detailed explanation of how the imputation system works in practice; and a review of Australia's two sectoral cash-flow taxes, the Petroleum Resource Rent Tax (PRRT) and the Northern Territory's Mineral Rent Tax.

Corporate income tax reform, even if it addresses all seven problems identified in this report, will not spur economic productivity, growth and investment as effectively as comprehensive tax reform. Comprehensive tax reform would integrate corporate income taxation reform with reform of the broader tax and transfer system, explore interactions across the different tax rates and tax bases, and assess the cumulative inter-related effects of these interactions on the overall system. Comprehensive tax reform proposals are more amenable to evaluation against the overall goals and design principles of Australia's tax system: adequacy, resilience, simplicity, fairness, prosperity and policy consistency (Tax and Transfer Policy Institute (TTPI), 2018). While this report focuses on the corporate tax system, ideally its recommendations – and those of TTPI's other reports in this series (e.g. Varela et al. 2020 on the taxation of savings) – will be considered and implemented in the context of long-called-for comprehensive tax reform in Australia.

2 Economic theory and empirical evidence on corporate income taxation

Several aspects of the corporate income tax system in Australia distort incentives in ways which: create incentives for inefficient behaviour; undermine the tax system and; negatively impact economic growth. First, when the statutory corporate income tax rate is lower than personal income tax rates it incentivises taxpayers to choose the corporation, instead of another **organisational form** (Evans, 2018), to shelter income.[1] Second, the tax system disregards companies' equity financing costs, thereby encouraging a greater use of debt financing, especially across borders, and altering firms' **capital structure**. Third, inconsistent tax treatment of investment costs, such as equity financing and depreciation of particular assets, affects firms' **investment** decisions and business viability. Finally, interaction between the imputation system, the personal income tax system, and the corporate income tax system influences company **payout** decisions and shareholders' return on dividends.

This chapter details how the design of the corporate income tax system distorts firms' behaviour in four areas: organisational form, capital structure, investment and payout decisions. Following this, two additional topics are considered: the **economic incidence** of the corporate income tax and evidence on **effective corporate tax rates**. Each subsection provides an overview of both relevant economic theory and international empirical evidence. The relevance of international evidence to the Australian context is evaluated. The chapter concludes by isolating and identifying seven problems of the current corporate income tax system.

2.1 Organisational form: does the design of the corporate income tax system influence firms' decision to incorporate?

In order to understand whether the design of the corporate income tax system influences firms' decisions to incorporate, it is important to understand how businesses in Australia can be organised and how the corporate income tax base is defined. This section presents some trends about tax rates applicable to Australian businesses, characteristics of businesses in Australia and an overview of the definition of the corporate income tax base. It concludes by presenting the economic theory and international empirical research on the impact of the design of the corporate income tax system on companies' organisational form choices, as well as the relevance of this international literature to the Australian context.

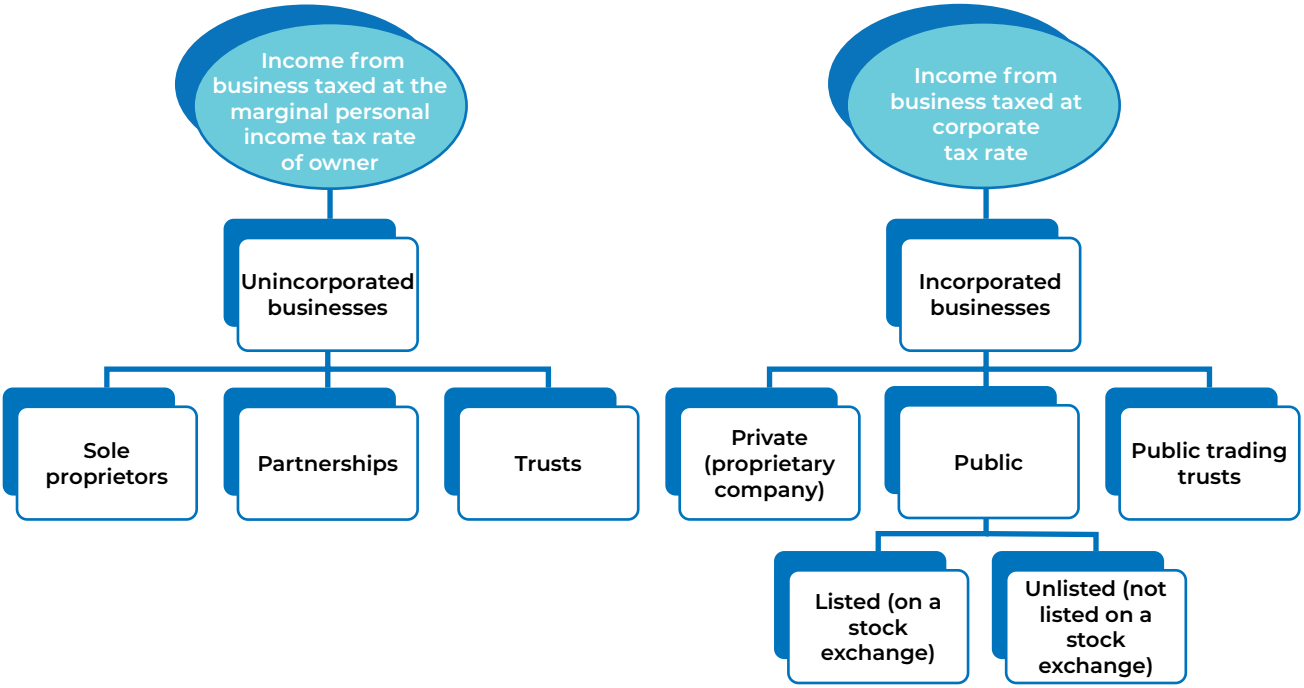
1 Sheltering "refers to the practice of directing income to a company to access a lower tax rate than the natural taxpayer's rate where the taxpayer is a shareholder in the company." This can give taxpayers the benefit of deferring paying tax at the natural higher personal rate "...until the company distributes to the natural taxpayer (the shareholder) (Evans, 2019)."

2.1.1 Tax rates applicable to Australian businesses

Business owners in Australia must choose between operating through an incorporated entity[2] or operating through a partnership, trust or other unincorporated structure (**Figure 2**). While incorporation comes at a cost, it also brings benefits. Significantly, while owners are directly responsible and liable for debt in a sole proprietorship or partnership (unincorporated business), this is generally not the case for owners of a company (incorporated entity).

More pertinent to this discussion, incorporated and unincorporated businesses operate under different taxation schemes. If a business is unincorporated[3], income will be taxed to the owner(s) at the applicable personal income tax rate. If a business is incorporated, the entity is taxed on income at the statutory corporate tax rate. If the personal marginal income tax rate applicable to an unincorporated business owner is higher than the statutory corporate tax rate and the business is expected to generate profit, incorporation could confer a tax advantage because of the difference in the tax rates. Further, a corporation provides deferral benefits (permanent or temporary) and can be used as a shelter. Conversely, if the business generates short term losses, incorporation prevents the individual from applying those losses to personal income and reducing their total tax liability.[4] Companies are also ineligible for some tax benefits, such as the capital gains tax discount.

Figure 2. Possible legal forms of businesses in Australia, by applicable tax rate



Note: Limited liability partnerships are taxed as companies.

Source: TTPI.

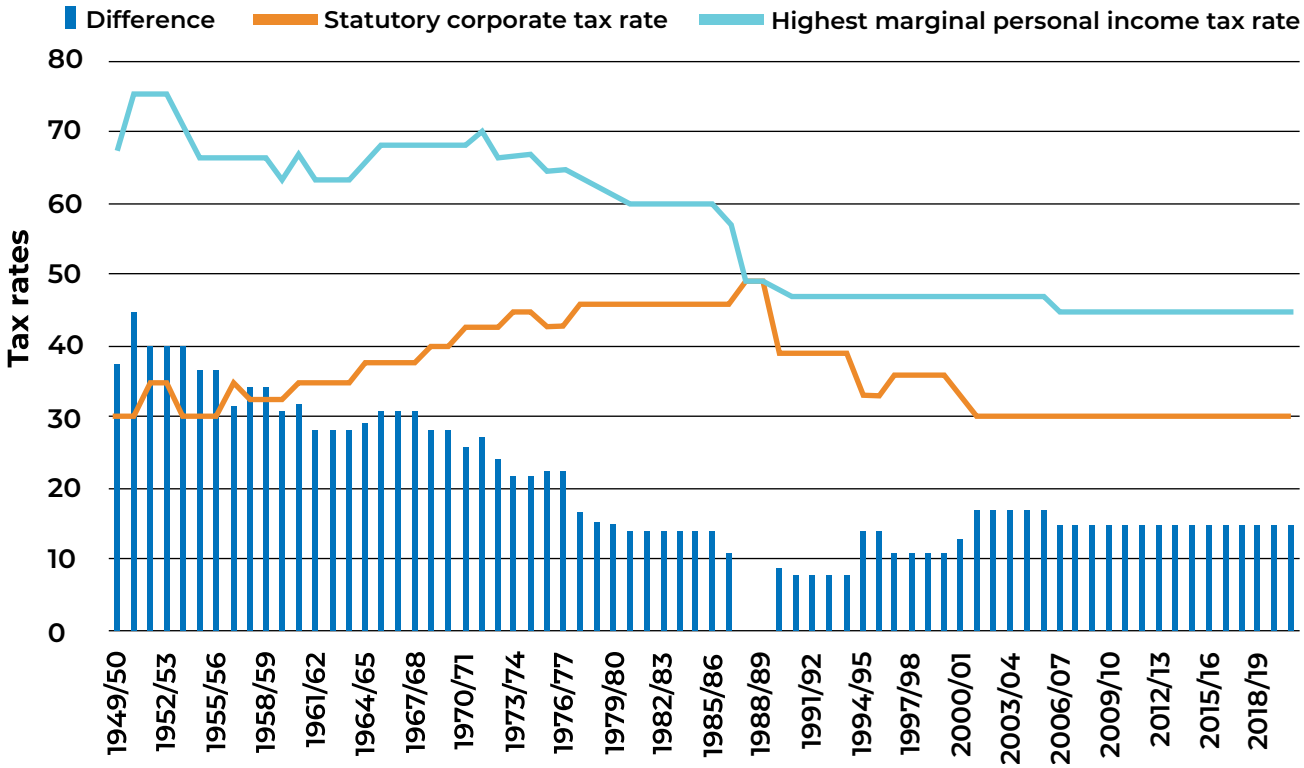
2 In Australia, this refers to a proprietary limited company, or public limited company structure.

3 Unincorporated firms can take conduct business in various forms: an individual (sole proprietor), by partners using a partnership or by a trustee using trust property.

4 If a sole proprietor or partnership incurs a loss, the loss from their business can flow through and be deducted from other taxable income sources owned by the sole proprietor or partners. However, in a company, the losses can no longer flow through to the owner(s)' other income sources; losses incurred within a company can only be deducted from future company profits.

Figure 3 illustrates the gap between the statutory corporate income tax rate and the highest marginal personal income tax rate between 1949 and 2021. The magnitude of the gap shows the size of the potential tax advantage from incorporation. The gap reached its peak in 1950 at 45 percent, fell to zero between 1987 and 1989 and increased steadily to 15 percent in 2006, the level at which it has since remained. The short period between 1987 and 1989 was the only period during which the two rates aligned, thereby eliminating the potential tax benefits and incentives favouring incorporation.

Figure 3. Tax wedge between highest marginal personal income tax rate and statutory corporate tax rate, 1949 - 2021

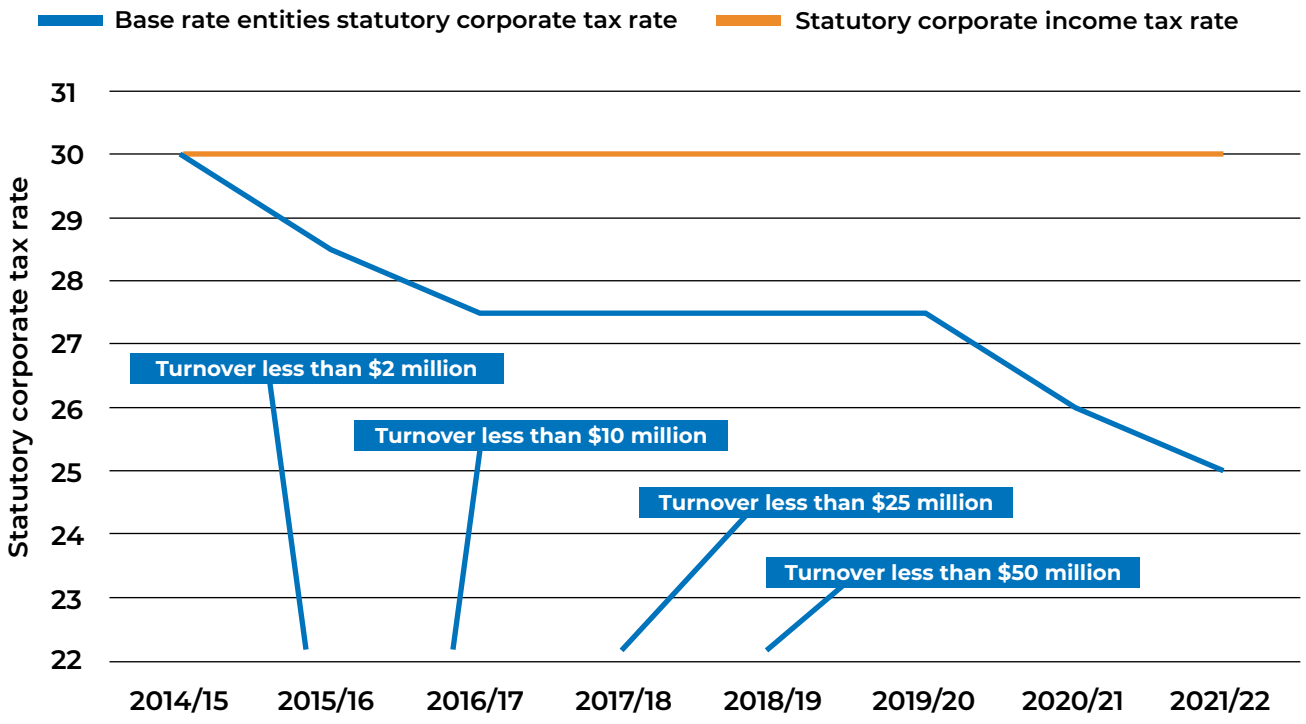


Note: The rates above exclude the Medicare levy and all other temporary levies applied.

Source: ATO.

Over time, other policies have contributed to widening or reducing the gap between the highest marginal personal income tax rate and the corporate income tax rate. Since 2015, two different statutory corporate income taxes have applied in Australia to incorporated businesses. A 30 percent rate applies to the largest companies while a lower 25 percent rate applies to base rate entities (**Figure 4**). Base rate entities are smaller incorporated businesses as defined by annual turnover and share of passive income. The definition of base rate entities' maximum annual turnover increased from $2 million in 2015 to $50 million in 2018. In addition, to be considered a base rate entity, 80 percent or less of assessable income must be passive income. The higher 30 percent corporate income tax rate applies to all other incorporated businesses that do not meet both base rate entity requirements.

Figure 4. Statutory corporate income tax rate in Australia, 2014 - 22



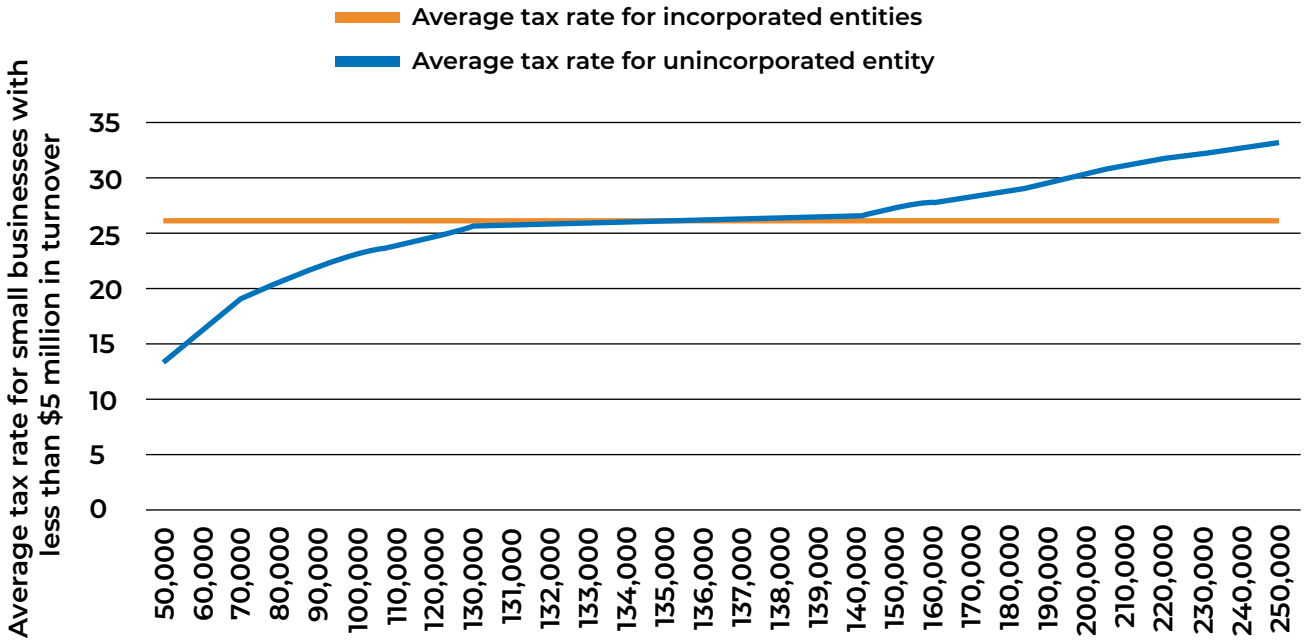
Source: ATO

The creation of a lower corporate income tax rate for small and medium businesses widened the gap between the highest marginal income tax rate and the statutory corporate income tax rate applicable to small businesses. By contrast, the small business income tax offset narrowed this gap indirectly since it provides up to a $1000 tax offset to unincorporated businesses with $5 million or less in turnover. Part of the justification for a lower tax rate for smaller businesses is that they have less access to debt financing (and/or higher interest rates) and rely more heavily on equity. Since the return on debt is excluded from the tax base but the normal return on equity is included in the tax base, a lower tax rate at least partially helps to mitigate this disadvantage. This example also shows how statutory rates interact with other aspects of the tax system to reduce effective tax rates.

Using income tax rates applicable in the 2020-21 financial year, **Figure 5** shows the company income ranges wherein the difference in tax rates is most likely to affect business owners' incentive to incorporate. Taking into account the lower corporate income tax rate applicable to small, incorporated businesses (base rate entities), incorporation is beneficial for businesses with taxable incomes that exceed about $136,000.[5] Beyond this point, businesses pay a higher average percent of their income in tax by remaining an unincorporated business. The empirical academic literature (further discussed below) suggests that non-tax factors also play a significant role in the determination of organisational form.

5 This calculation assumes that unincorporated businesses cannot reorganise as trusts.

Figure 5. Average tax rate for small incorporated and unincorporated businesses with less than $5 million in annual turnover, by taxable company income, 2020-21



Note: The graph above applies the corporate tax rate applicable to base rate entities (26 percent) and the personal income tax rate schedule for unincorporated businesses that applied in the 2020 – 21 financial year. It also assumes sole trader ownership (i.e. a single owner without income splitting).

Source: Authors' calculations.

The data suggest most businesses in Australia remain unincorporated at least in part because of their small size. For example, in the 2016-2017 financial year nearly 60 percent of all businesses had an annual turnover of 200,000 AUD or less.[6] Combined with consideration of non-tax factors affecting decisions to incorporate, most businesses likely fall below the threshold wherein incorporation could confer a financial advantage.

2.1.2 How is the corporate income tax base defined?

An incorporated business's income tax base refers to a company's taxable income, the difference between its revenue and costs:

Equation 1

Corporate income tax base
=revenue - labour costs - material costs - debt interest - depreciation

In Australia, "other taxes", such as the payroll tax or taxes on the use of natural resources, are also subtracted from revenue in order to calculate the corporate income tax base. The corporate income tax base can further be reduced through various tax deductions for which a company is eligible or through business losses from previous years carried forward.[7] Corporate income tax payable (corporate income tax *revenue* from the government's perspective) is calculated by multiplying the statutory corporate income tax rate by the corporate income tax base (taxable income) and subtracting any tax credits for which the company is eligible:

6 During this period, the highest personal income tax threshold applied to individuals with income exceeding 180,000 AUD. Turnover refers to a business's ordinary income before tax deductions.

7 In October 2020, the Government also introduced temporary loss carry-back rules because of the pandemic.

Equation 2

Corporate income tax revenue
=[Statutory corporate income tax rate*(corporate income tax base - other taxes - tax deductions - losses from previous years)] - tax credits

Australia's corporate income tax system is source-based. Source-based taxation taxes production where it occurs (as opposed to where the owner resides). Generally, source-based taxation systems exempt foreign income from tax.

2.1.3 What are the characteristics of companies in Australia?

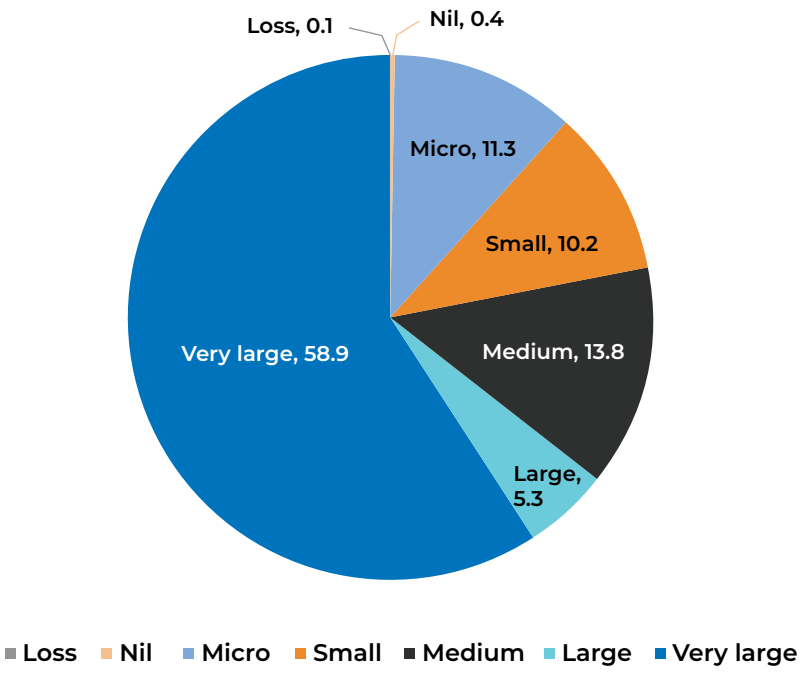
Australia's corporate tax demographics reflect businesses' engagement with the corporate tax system. The Australian Taxation Office's (ATO) Tax Statistics for 2017-2018 show that companies (1,012,452) remain, by a slim margin, the most preferred business vehicle compared with trusts (902,286), with partnerships (301,271) declining in popularity. Although large and very large companies are fewer in number (**Table 1**), accounting for only 0.3 percent of the total number of companies, they contribute about 64 percent of the total corporate income tax revenue. In contrast, micro, small and medium companies, together, comprise 86 percent of the total number of companies and account for the remaining 36 percent of the total corporate income tax revenue.

Table 1. Number of companies by size, 2017 - 18

Entity size	Number	Percent
Loss (business income is less than $0)	1,528	0.15
Nil (business income is equal to $0)	137,576	13.59
Micro (business income is $1 to less than $2 million)	777,994	76.84
Small (business income is $2 million to less than $10 million)	72,474	7.16
Medium(business income is $10 million to less than $100 million)	19,971	1.97
Large (business income is $100 million to less than $250 million)	1,606	0.16
Very large (business income is $250 million or more)	1,303	0.13
Total	1,012,452	100

Source: ATO Taxation Statistics 2017-18.

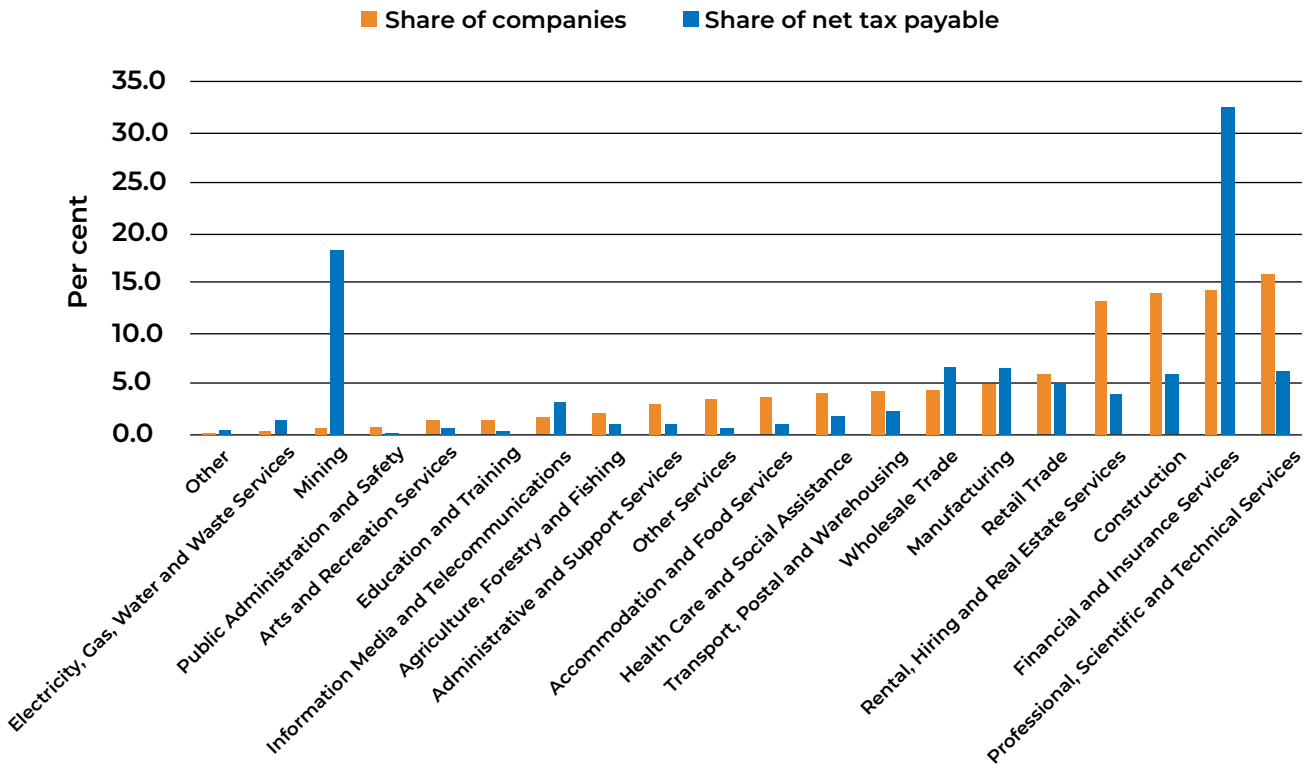
Figure 6. Share of net corporate tax paid by company size, 2017-18



Note: Loss companies paid less than 0.1 percent of total corporate income tax.
Source: ATO Taxation Statistics 2017-18.

More than half of corporate income tax revenue is collected from companies with business income exceeding $250 million and almost half from two sectors: financial and insurance services, and mining (**Figure 7**).

Figure 7. Share of all companies and net corporate income tax paid, by industry, 2017-18



Source: ATO Taxation Statistics, 2017-18

2.1.4 Economic theory and evidence: How much does the tax wedge between the corporate tax rate and the highest personal income tax rate matter?

A corporate income tax rate lower than personal income tax rates incentivises incorporation. However, factors other than taxation also influence a firm's selection of organisational form, raising questions about the extent to which the tax wedge is a problem. If a large problem, it should weigh heavily in policymakers' decisions about tax system design. If it is only a small problem, then policymakers can prioritise other concerns. In general, large (small) problems have large (small) efficiency losses.[8]

Three overarching economic theories are generally applied to predict the size of the distortion caused by a difference in the rates that apply to the corporate and non-corporate sectors. Harberger (1966) posits that efficiency losses are likely to be small since the corporate and non-corporate sectors produce different goods and capital cannot shift easily between the two sectors. Gravelle and Kotlikoff (1989, 1993) suggest otherwise. They argue that identical or very similar goods are simultaneously produced in the corporate and non-corporate sectors. As a result, the efficiency losses from a differential tax rate can be quite large because of substitution between the two sectors. Gordon and Mackie-Mason (1994) theorise that the importance of non-tax factors, relative to tax rates, will ultimately determine the size of efficiency losses since participation in either sector has significant non-tax costs and benefits.

The empirical literature should help assess the validity and relevance of these theories. The earliest studies (Ayers et al. 1996; Mackie-Mason and Gordon 1997; Carroll and Joulfaian 1997; Goolsbee 1998) provide evidence most closely aligned with the theory suggested by Gordon and Mackie-Mason (1994): efficiency losses are relatively small since non-tax factors tend to dominate decisions regarding organisational form. More recent literature provides diverse findings. For example, focusing exclusively on the retail trade sector in the US, Goolsbee (2004) uses variation in corporate state tax rates to reveal that higher corporate tax rates induce movement towards the non-corporate sector. He calculates large efficiency costs for the sector that more closely align with the economic theory posited by Gravelle and Kotlikoff (1989, 1993). Significantly, the author finds evidence that in states with progressive corporate income tax rates, firms tend to subdivide corporate activity into multiple entities to minimise marginal tax rates.

The relevance of these findings to other sectors or to the overall economy should, however, be questioned. In particular, the author notes that the retail trade sector is relatively immobile. As a result, owners' organisational choice is limited to remaining unincorporated or incorporating. By contrast, a more mobile enterprise has a third choice: incorporation in another state, or country, with a lower corporate income tax rate. Business mobility could influence the magnitude of efficiency losses calculated by Goolsbee (2004).

De Mooij and Nicodeme (2008) also consider the effect of differential tax rates in the corporate and non-corporate sectors using panel data from 17 European countries. They observe that across Europe, statutory corporate income tax rates have declined while corporate income tax revenues have remained relatively stable. They attribute this in part to increased incorporation and argue that tax revenue has shifted from personal income tax towards corporate tax, thereby stabilising corporate income tax revenue. de Mooij, Hebous and Hrdinkova (2018) provide some evidence of income shifting towards the corporate form in Belgium. However, the authors argue that the absence of a capital gains tax in the personal income tax system played a larger role than differential tax rates between the personal and corporate organisational forms.

8 Efficiency losses are also referred to as deadweight loss.

2.1.5 How does the international evidence apply to Australia?

No empirical research has been conducted on the extent to which the tax wedge between corporate and personal income tax rates has encouraged incorporation in Australia. Both limited data availability and the option of other organisational forms (partnerships or trusts) have contributed to this.[9] These other forms offer flexibility to distribute profit and minimise taxation compared to an incorporated business, by enabling owners to distribute taxable income between the personal and corporate income tax systems (de Silva, et al., 2020).

The prevalent use of trusts by closely held businesses[10] is unique to Australia. Real estate investment is also often carried out through a real estate investment trust (REIT) in Australia and is not subject to corporate tax. Elsewhere trusts are not commonly available or used to carry on business (Evans 2019). In the US the federal income tax code recharacterises private trading trusts as corporations. The unique ability to use trusts for conducting business raises questions about the applicability to Australia of conclusions reached in the international literature. Closely held businesses need not only consider the wedge between the highest personal marginal income tax rate and the corporate income tax system, but the wedge between the corporate rates and the potentially lower marginal personal income tax rates that a trust affords them. Evaluating the magnitude of this reclassification is challenging given limited data availability, secrecy surrounding the use of trusts, and the complex combinations of structures created to minimise tax.

Trusts

Closely held businesses can distribute income to various beneficiaries through a trust, maximising the use of all beneficiaries' tax-free thresholds. Unincorporated businesses can also designate a separate company, referred to as a bucket company, as a beneficiary. In this way, any business profit can avoid being taxed at a rate higher than the 30 percent corporate income tax rate. Further, because Australia allows franked dividends to flow through a trust to a beneficiary, where an individual has a tax rate that is less than the level of company tax paid, the beneficiary can be refunded the difference. Trusts also permit flexibility with respect to the timing of distributions. For instance, income attributed to the bucket company can be distributed as a dividend later, such as during a trust beneficiary's retirement when marginal personal income tax rates are low (or zero).[11]

Organising businesses through trusts also provides non-tax advantages. A survey of advisors has cited "flexibility" and "asset protection" as key motivators (Freudenberg, 2013). One flexibility is that, in the context of a discretionary trust, the trustee can choose different individuals to be beneficiaries each year, provided they are listed as a member of the class of potential beneficiaries. The other key benefit is to enable owners to conduct business and undertake intergenerational wealth transfer in one vehicle. This is significant when combined with the flexibility described above.

The combination of organisational forms available to closely held businesses to minimise their tax is consistent with the increase in trusts and incorporated businesses observed in **Figure 8**. Since 2002-03, trusts have become more popular than partnerships (Evans 2019). Evans (2019) argues that growth in the number of trusts is consistent with the added benefits and flexibility that trusts afford to closely held businesses. Growth in the use of trusts initially accelerated during the late 1970s and mid-1980s after policy settings and legislative changes made companies less favourable than trusts for business operations. Evans shows that the

9 While a self-managed superannuation fund cannot be used to conduct a business, it can own passive assets used in the business of a related entity.

10 A closely held business is one that has a small number of owners or shareholders.

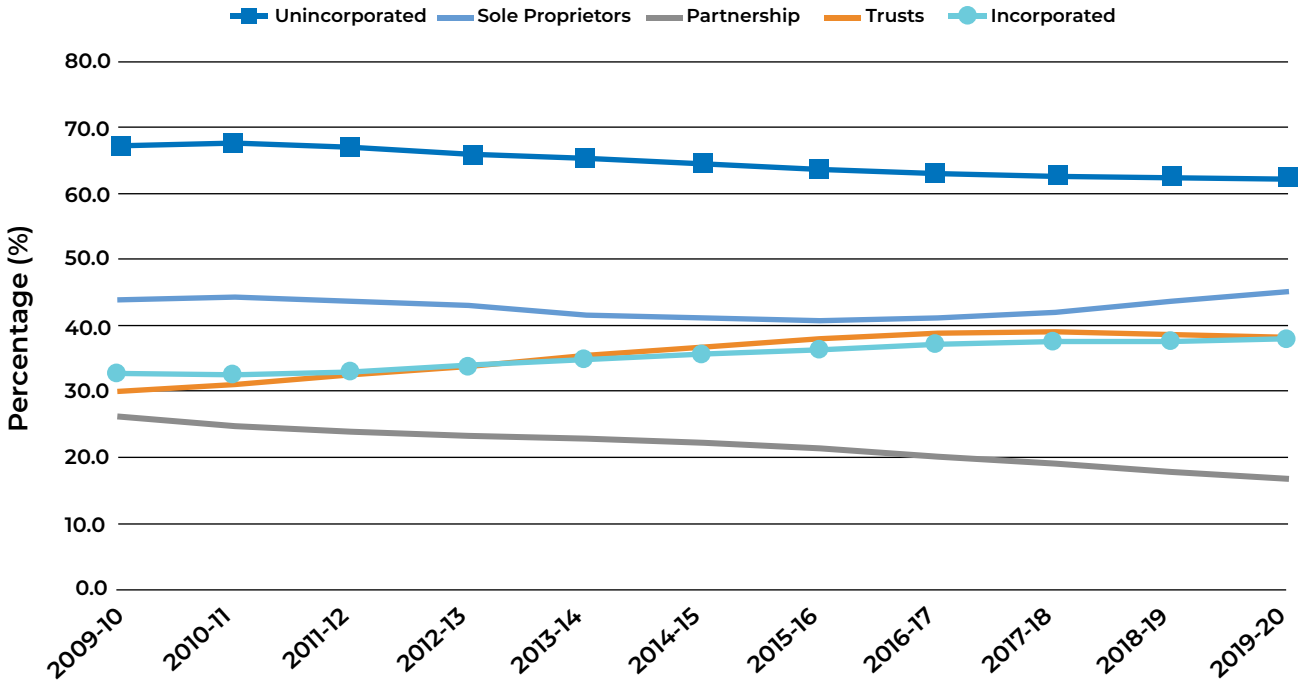
11 For further discussion and explanation of these tax planning methods see Stewart et. al (2015) and Sainsbury and Breunig (2020).

use of trusts has increased since the 1990s, relative to the use of companies and partnerships, because of the treatment of income derived through trusts, the capital gains treatment of trusts, and the combined effects of the imputation system and refundability of franking credits. Trusts are used in combination with other vehicles, such as companies (Evans, 2019).

Accurate estimates of the income redirected through trusts for tax minimisation are difficult to produce. In part because few legal disclosure requirements are imposed on private vehicles (companies and trusts), and trustees are only required to provide a trust deed to the Australian Tax Office in the event of an audit. While the trust deed would not explicitly provide information about the potential for tax minimisation and avoidance in itself, it could be helpful when coupled with the tax returns for the trustee and beneficiaries. A simple reform in the Australian context would be to impose more comprehensive disclosure requirements for trusts and private corporations.

Bearing in mind the difficulties associated with identifying trusts used solely for tax minimisation, De Silva et al. (2020) estimate that discretionary trusts shelter as much as $1.2 billion in tax in Australia every year. The growth in trusts is also consistent with preliminary evidence from Johnson and Breunig (forthcoming) which suggests that the taxable income of the self-employed is more sensitive to tax rates than that of wage earners.

Figure 8. Businesses in Australia by legal form, 2009 -20



Note: Unincorporated businesses comprise sole proprietors, partnerships, and trusts. Incorporated businesses include private and public sector companies. Public sector companies comprise less than one percent of those businesses.

Source: ABS 8165.

2.1.6 Concluding remarks on organisational form

Differences between personal and corporate income tax rates can incentivise businesses to choose a particular organisational form to minimise tax.[12] The international literature does not agree on whether non-tax or tax factors dominate businesses' choices regarding organisational form.

12 From a policy perspective, a gap between the highest personal marginal income tax rate and the corporate income tax rate may be preferable insofar as it allows for policymakers to more closely align the domestic corporate tax rate with international corporate tax rates.

On one hand, it suggests non-tax factors are a significant consideration for decisions regarding organisational form. On the other, it points to behavioural changes consistent with businesses responding to the tax wedge. Some international research suggests that in the presence of a progressive corporate income tax rate, firms subdivide to minimise their marginal tax rate. Research from Europe attributes some of the stability of corporate income tax revenues to increased incorporation most likely arising from a decline in statutory corporate income tax rates.

Data constraints have precluded an evaluation of the extent to which the difference between these tax rates influences organisational form, relative to non-tax factors, in the Australian context. The unique ability to use a trust to carry on a business in Australia also lessens the extent to which findings from the international literature apply. Australian data show an increase in the use of trusts since the late 1970s, likely due to the flexibility and tax minimisation strategies available to businesses that operate through a trust. Estimating the amount of revenue redirected through trusts for tax minimisation is difficult, but recent estimates suggest discretionary trusts in Australia shelter up to $1.2 billion in tax annually (about 0.2 percent of GDP in the 2016-17 financial year).

2.2 Payouts (profit distribution): does the taxation of payouts influence investment?

Following payment of corporate income tax, companies can retain their profits (as retained earnings) or distribute them as dividends. Under a classical corporate income tax system, company profits are taxed at the corporate level and then, if distributed to shareholders as dividends, taxed again at the shareholder's marginal income tax rate. In the academic literature, this is referred to as economic double taxation under a classical tax system.[13]

Double taxation is not of itself a problem. Double taxation is a worry when it results in a high marginal rate of taxation. For example, under a classical taxation system, if a company distributes $100 profit to a shareholder at the top Australian marginal income tax rate, it first pays 30 percent in company tax. The remaining $70 dividend is distributed to the shareholder and taxed again at her marginal rate of 45 percent. The shareholder receives a post-tax dividend of $38.50 from her $100 payout, at a cumulative 61.5 percent tax rate!

To eliminate double taxation for Australian (tax) residents who invest in an Australian company, the imputation system credits the shareholder with the tax ("franking credits") already paid by the company issuing the dividend. The shareholder is eligible for a refund of the franking credit in the event that her marginal income tax payable is less than the amount of the franking credit on the dividend paid to her. For a detailed review and examples of how the Australian imputation system works, see **Appendix E**. The imputation system does not apply to investments in foreign companies made by Australian (tax) residents. Similarly, foreigners investing in Australia are ineligible for the imputation credits; however, there is no dividend withholding tax on a franked dividend paid to a foreign shareholder.

However, while high rates of double taxation may influence companies' payout policies (i.e. the likelihood and frequency of dividends) – indeed, evidence suggests the introduction of Australia's imputation system increased the frequency of payouts – theory is ambiguous about the effect on aggregate investment. The most recent empirical literature suggests it depends on the composition of firms in a country. This section reviews the theory and empirical evidence on dividend taxation and how they apply to Australia's imputation system. It also discusses the marginal investor in Australia and current international practices on imputation.

13 Not all returns on equity are subject to double taxation (Evans, 2018; Harris, 2013; Goode, 1951; McLure Jr, 2001; Graetz and Warren Jr, 2007). This can arise, for example, when the tax system applies different taxation to capital gains and dividends.

2.2.1 Economic theory and evidence: Does the "double taxation" of dividends reduce investment?

The effects of taxation on companies' dividend policies have been studied in detail. The "old view" of dividend taxation assumes that firms are cash-constrained and that additional (marginal) investment must be funded externally (Feldstein 1970). To grow, firms require equity. Shareholders providing that equity expect a return on their investment. Taxing dividends increases the return shareholders require to entice them to invest. So by taxing dividends the government effectively increases the cost of equity and reduces the value of equity supplied to the firm. Under this "old view", dividend taxation reduces investment. This view also concludes that an increase in the statutory corporate income tax rate reduces investment. Poterba and Summers (1985) provide evidence based on time series data from the United Kingdom in favour of the old-view.

By contrast, the "new view" of dividend taxation assumes firms are cash-rich and can fund additional (marginal) investment with retained earnings (Auerbach 1979; King 1977; Bradford 1981). As a result, the firm does not require additional equity. Under the new view, taxing dividends imposes a higher tax on investors without influencing firms' investment decisions. However, while the impact of taxing dividends on investment differs from the old-view, an increase in the statutory corporate income tax rate reduces investment under both the "old" and "new" views.

Auerbach and Hassett (2003) use time series data from the United States to show that the marginal source of investment is retained earnings, providing support for the new view. Yagan (2015) also provides some support in favour of the new view using a sample of unlisted firms. He evaluates the impact of the 2003 dividend tax cut in the United States by comparing similar large and private C and S corporations (only the former of which were affected by the tax cut). He finds that the policy had no impact on investment or employee compensation, but did increase corporate payouts. Desai and Goolsbee (2004) evaluate the same change to dividend taxation in the United States in 2003 and also find results consistent with the new view.

Alternatively, the "lifecycle view" combines both views. Sinn (1991) argues that firms start off as old view firms in need of external funding. As they grow, they increasingly fund investment out of retained earnings and mature into new-view firms at which stage they begin issuing dividends.

Chetty and Saez (2010) allow for heterogeneous effects among firms because of agency problems. Their "agency theory" model proposes that managers and shareholders have differing interests.[14] Managers are interested in investment in their pet projects (which may not provide a return to shareholders) and shareholders are concerned with profit-maximisation. Shareholders can incentivise managers to prioritise profit-maximisation if they impose costly monitoring processes and/or apply incentive pay. Since monitoring costs are high, only large shareholders do so. The model shows that a decrease in dividend taxation increases the return to shareholders (and the value associated with monitoring managers), increases managers' preference for dividends, and causes managers in cash-rich firms to reduce pet project investment and increase dividend payouts.

By contrast, among cash-constrained firms, lowering tax on dividends promotes equity (share) issues and both productive and (non-productive) pet investments. The aggregate effect is ambiguous because of the counteracting effects a dividend tax cut has on investment for cash-constrained and cash-rich firms. However, if one assumes the return on a marginal investment is higher for a cash-constrained than a cash-rich firm, then the dividend tax cut improves allocation of investment and raises efficiency. Under the agency theory view, increases in the statutory corporate income tax rate also reduce investment.

14 The agency theory for dividend taxation arose from the empirical findings observed from Chetty and Saez (2005), suggesting that agency effects play an important role in the United States.

Alstadsaeter et al. (2017) evaluate the impact of Sweden's 2006 dividend tax cut and provide evidence in support of agency theory. The authors conclude that while the tax cut did not affect aggregate investment, it did improve capital allocation. Cash-constrained firms had increased access to equity and invested more, while cash-rich firms increased dividend distributions.

In summary, several theories consider the impact of corporate taxation and dividend taxation on investment. All the theories establish that corporate income taxation reduces investment. However, the theories diverge regarding whether a second layer of taxation of dividends decreases investment further. Recent empirical literature tends to align with the new or agency view of the corporation. Collectively, the evidence suggests that reducing (or eliminating) dividend taxation may help to improve capital allocation to cash-constrained firms and increase payouts among cash-rich firms. It also suggests that reducing dividend taxation has an ambiguous effect on investment because of firm heterogeneity, firm composition, and the marginal source of funding.

2.2.2 How does the international evidence apply to Australia's imputation system?

Empirical evidence regarding dividend taxation in Australia cannot be directly compared to the studies above because unlike the countries in which those studies occurred, Australia's taxation system does not treat foreign and domestic shareholdings held by domestic shareholders identically. To understand the effects of the imputation system in Australia requires separating shareholders into three categories: domestic shareholders who invest domestically, domestic shareholders who invest abroad, and foreign shareholders who invest domestically. Australia's imputation system treats all three differently.[15]

In Australia, if a domestic shareholder invests domestically (e.g. acquires shares in Qantas Ltd) and receives a dividend, she receives franking credits (corresponding to corporate tax paid on company profits prior to distribution). She (the shareholder) is taxed on the dividend at her personal marginal income tax. However, the franking credits she receives offset the personal income tax for which she is liable. If a company distributes all of its profits and all of its investors are domestic, the net effect of the imputation system is that company profits are taxed at shareholders' personal marginal income tax rates.

By contrast, if a domestic shareholder invests abroad (e.g. acquires shares in a US resident company like Microsoft Inc), US corporate income tax is paid on the dividend prior to distribution. Additional foreign taxes, such as withholding taxes, may also be imposed on the dividend. The Australian shareholder is not entitled to franking credits in respect of US corporate tax paid. In addition, when she (the shareholder) receives her dividend in Australia, she will be required to include the dividend as part of her assessable income and pay her marginal income tax rate on the dividend received.[16]

Similarly, when a foreign shareholder invests in Australia (e.g. acquires shares in Qantas Ltd) and receives a dividend, she is not eligible for a franking credit in respect of Australian corporate tax paid by Qantas Ltd. While there is no Australian dividend withholding tax on a franked dividend paid to the foreign shareholder, she may in addition be required to pay personal income tax in her country of residence. A simple numerical example of the post-tax return for these different shareholders is provided in **Appendix E**. Unsurprisingly, the Australian shareholder investing in Australia receives the highest post-tax dividend payment.

15 Domestic shareholders are domestic (tax) residents but domestic and foreign dividends generated by their investments are treated differently.

16 While the shareholder may be eligible for an offset or credit for the withholding taxes, there will be no offset or credit for the foreign corporate income tax paid on the underlying profits.

The differing perspectives on dividend taxation in prior studies have distinct implications in the context of Australia's imputation system and its three cataegories of shareholder:

- If the "old view" is accepted, equity is the marginal source of funding. By reducing the layers of taxation, Australia's imputation system reduces the cost of equity and thereby encourages investment. However, the magnitude of the reduction in the cost of equity for a particular company depends on the ratio of equity issued to Australian shareholders against equity issued to foreign shareholders investing in Australia. At one extreme is an Australian firm which only issues equity to foreign shareholders. Foreign shareholders investing in Australia are ineligible for franking credits and so receive no benefit from Australia's imputation system. The only way to reduce the cost of equity issues made by Australian firms to foreign shareholders is by reducing the corporate income tax rate. Eliminating the imputation system for an Australian firm wholly reliant on foreign capital would not affect its cost of capital. At the other extreme is an Australian firm which only issues equity to Australian shareholders. Since this firm's investors are Australian tax residents, they benefit from the imputation system. Eliminating the imputation system and reinstalling a classical tax system (with double taxation) would increase the cost of capital to this firm. The change in the cost of capital to Australian firms with a combination of domestic and foreign shareholders will lie between these two extremes.
- If the "new view" is accepted, firms use retained earnings as their marginal source of funding. As a result, dividend taxation does not impact firms' cost of capital, the type of investor does not matter, and the imputation system neither harms nor encourages investment.
- If the "agency" view is accepted, the impact of the imputation system on firm investment depends on the type of firm (cash-rich versus cash-constrained) and the type of investor. If a company is cash-rich, eliminating the imputation system would likely decrease the frequency of payouts and increase unproductive (pet) investment projects. If a company is cash-constrained, eliminating the imputation system would increase its cost of capital and decrease investment. For cash-poor firms, the domestic/foreign ratio of equity holders affects their cost of capital, as per the "old view". A cash-poor Australian firm that issues all equity to foreign shareholders will experience no change to its cost of capital if the imputation system was removed.

Recent literature suggests that agency theory and the new view are the prevailing explanations for the impact of dividend taxation on investment. These theories hold for the United States and small open economies, such as Sweden. They also apply to listed and unlisted firms. This suggests that were Australia to eliminate the imputation system, it would: (1) neither harm nor encourage investment or (2) directly affect investment by cash constrained firms that rely heavily on Australian shareholders who invest in Australia.

To what extent do Australian firms rely on domestic versus foreign shareholders? To what extent do share prices capitalise the value of franking credits? These questions can be answered by determining whether the marginal equity investor in Australia is domestic or foreign. Ainsworth et al. (2015) provide an extensive review of studies that attempt to assess whether imputation credits are valued in share prices and/or reflected in the cost of capital. Regarding share prices, the empirical research is varied but tends to provide some evidence of partial pricing. Regarding the cost of capital, they find that imputation is largely ignored by companies that formally estimate their cost of capital. Imputation does however, seem to (at least partially) influence companies' financing choices (capital structure) and payout policies because domestic shareholders value their imputation credits.

Murphy (2018) provides an updated review and calculates the value of imputation credits. Acknowledging that imputation credits may have different market values for different types of companies, he estimates the value of franking credits for different types of companies and weights these values by the share of each company type in total corporate income tax. If franking credits were fully incorporated into market prices, then $1 of franking credits would equal $1 of market return. Murphy (2018) finds that the overall average franking credit value is 21c per dollar. This implies that while domestic shareholders (the only shareholders who can use the franking credits) have some market power, it is not very large, lending support to the hypothesis that the marginal investor is foreign.[17] These results suggest that if the "agency" theory applies to dividend taxation in Australia and imputation were eliminated, the average cost of capital would increase slightly for cash-constrained firms. The average may not be particularly informative however, given the considerable heterogeneity in the size of firms and their access to different funding sources.

2.2.3 What does international best practice suggest for Australia's imputation system?

While Australia has retained its imputation system, most countries with imputation systems have eliminated them.[18] Elimination occurred for reasons linked to base broadening, increasing foreign investment, and/or increasing retained earnings. In the European Union, the European Court of Justice (ECJ) ruled that dividend imputation discriminated against foreign investors. The ECJ required that credits for corporate tax be extended equally to foreign investors or they would breach the EU's freedom of permanent establishment and free movement of capital principles. Countries were unwilling to implement this requirement because of revenue concerns and instead modified their imputation systems.

Most (but not all) EU countries modified their systems to concessionally tax dividends (Germany, Italy, Finland and France). Others moved towards non-taxation of dividends (Malaysia and Singapore) or implemented a combination of policies. For example, Ireland moved to a classical system but markedly decreased its statutory corporate income tax rate. Indeed, Schizer (2016) suggests it can be advantageous to have two levels of taxation, one at the corporate level and the second at the shareholder level, particularly when both levels have relatively low rates. These examples suggest that a move towards the elimination of imputation would be in line with international practice. (Ainsworth 2016)

Theoretical models of optimal portfolio allocation and empirical research show significant benefits of an internationally diversified portfolio, not only for risk management, but also in terms of return on investment. Such theories suggest domestic shareholders should hold a proportion of domestic equity equivalent to their country's share of equity in the global market. An overinvestment in domestic securities held by domestic investors is referred to as "home bias". In practice, home bias is observed in most countries and tends to be higher in emerging markets (Coeurdacier and Rey, 2013).

17 This view was also supported by the Re:think tax discussion paper (2015). Swan (2019) recently suggested that the marginal investor is foreign but they can "escape [Australian] tax by actively recycling franking credits to Australian investors who, naturally [because of the tax offset], value them far higher than their close to zero value to foreign investors." However, the number of transactions in the week preceding the 45 day rule would suggest this does not happen in practice.

18 The United Kingdom, Ireland, Germany, Singapore, Italy, Finland, France, Norway and Malaysia have all dropped imputation.

An imputation system encourages this bias. For example, Daly and Vo (2013) find that while the degree of home bias in Australia decreased between 1997 and 2005, the optimal foreign holding of foreign equity in an Australian's investment portfolio should be about 98 percent, while in practice it is about 17 percent. Evidence for the United States suggests that foreign portfolio holdings represent about 15 percent of a domestic investor's portfolio when they should represent closer to 56 percent (Cai and Warnock 2004).[19]

Other factors also contribute to home bias and illustrate why reform of the imputation system is unlikely to completely eliminate it, even as it has declined over time. Transaction costs, fees, commissions, asymmetric information, and political and institutional differences between countries all contribute to home bias. For example, in Australia, Daly and Vo (2013) found that capital controls and transaction costs are statistically significant factors which contribute to home bias, while increased bilateral trade and better foreign governmental institutions tend to reduce it. Between 2001 and 2005, Mishra (2008) found that the availability of the internet and the share of foreign firms listed in the Australian domestic market also helped to reduce home bias. By contrast, he found that transaction costs did not influence Australia's equity home bias (Mishra 2017). While these papers focus on home bias in equity, other studies also observe it in other forms of investment like mutual funds, bonds, and superannuation funds.

The imputation system is also correlated with the level of dividend payouts. Following the re-introduction of the imputation system in the 1980s, the dividend payout ratio of Australian firms increased considerably, compared to the rest of the world (Ainsworth et al., 2016). Pattenden and Twite (2008) also find that dividend payouts increased across firms following the introduction of the imputation system and that firms with higher levels of franking credits were more likely to initiate a dividend.

Payout policies in Australia are also heavily influenced by the weight of superannuation funds in the Australian economy. Australian superannuation fund investments are concessionally taxed and receive a refund for franking credits. As a result, superannuation funds invest heavily in investments that issue franked dividends. Jun et al. (2011) confirm this and find that pension funds and unit trusts have a disproportionate amount of their portfolios invested in dividend paying stocks; the trend is driven by stocks paying fully franked dividends. Australian superannuation funds are underweighted in stocks paying unfranked dividends. Thus it remains in the interest of public companies in Australia to issue frequent and franked dividends to compete for investment from the superannuation funds (Cormick and McLaren 2018). This incentive was quantified by a report commissioned by the Association of Superannuation Funds Australia Limited (ASFA) which found that the "…after-tax return from dividends would reduce by 18 percent for accumulation funds and 30 percent for pension fund members [if the imputation system were eliminated]…" (Cormick and McLaren, 2018). Share buy-backs are another means through which companies distribute profits to shareholders subject to a low personal income tax rate. Companies purchase shares back from shareholders at below market prices by offering a large fraction of the payout through the franking credit system, thereby producing a tax-free (or very low tax) payout to the shareholder (Brown and Davis, 2012; Brown and Davis, 2020b; Brown and Davis, 2020a). The company and the shareholder split the tax gain—the company purchases the shares below market price and the shareholder gets an after-tax payout higher than she would get by selling at the market price.

19 Some home bias is justified. People may prefer to invest in companies with which they are familiar and whose behaviour and performance they can directly monitor. For those who live in countries with strong institutions, there are good reasons to invest domestically rather than in overseas destinations with weaker enforcement of property rights or opaque accounting practices.

The imputation system also provides an incentive for Australian companies, with significant Australian tax resident shareholders, to profit shift into Australia where they can utilise the imputation system (Ingles and Stewart, 2018). In addition, Li and Tran (2019) note that there may be a correlation between the imputation system and lower levels of corporate tax avoidance behaviour. They found that, between 2009 and 2012, "profitable Australian listed companies" distributed "a higher proportion of their after-tax profits as franked dividends and companies with less foreign ownership engage[d] in less corporate tax avoidance."

2.2.4 Concluding remarks on payouts

The academic literature proposes three views on the impact of dividend taxation on investment: the "old view", "new view" and "agency" theory. The most recent literature suggests that agency theory and the new view are the prevailing explanations for the impact of dividend taxation on investment. These results hold for the United States (a large open economy) as well as small open economies, such as Sweden. They also apply to listed and unlisted firms. They suggest that if Australia were to eliminate the imputation system, it would: (1) neither harm nor encourage investment ("new view" explanation) or (2) only directly affect investment by cash constrained domestic firms that rely heavily on domestic shareholders ("agency" theory explanation).

The Australian academic literature suggests that, on average, firms rely heavily, but not exclusively, on foreign investment. This is shown through studies that show franking credits are at least partially priced in share prices. While domestic shareholders (the only shareholders who can use the franking credits) have some market power, it is not very large, lending support to the hypothesis that the marginal investor is foreign. These results suggest that if the "agency" theory applies to dividend taxation in Australia and it eliminated imputation, the average cost of capital would increase slightly for cash-constrained firms. Cash-rich firms would likely reduce the frequency of their dividend payments. These results suggest that if increased investment is a policy priority, less emphasis be placed on taxation at the shareholder level. That is, the generosity of the imputation system in Australia could be reduced without greatly impacting investment. If the end goal is increased investment, policies should focus on the corporate level. These findings are echoed by Auerbach (2006): "[tax reforms] should occur at the corporate level, rather than at the shareholder level, given the greater mobility of corporations and their income." Removing the imputation system would also align with current international practice.

2.3 Capital structure: does the design of the corporate income tax system influence firms' financing choices?

In order to grow, firms can finance future investment through debt (issuing bonds or taking a loan), equity (issuing stocks) or retained earnings. While debt generally has a lower rate of return for investors than equity, equity offers more flexibility. Companies are required to repay debt to bondholders in fixed payments. This is not the case for shareholders, who in exchange for a share in the profits, also share in the upside rewards and downside risks. At the same time, if a company has too much debt, banks will consider it higher risk and require a higher return (charge a higher interest rate). A tax system which treated debt and equity equally would ensure that companies select the most appropriate balance of financing sources to maximise their profit.

In practice, many countries have tax systems that favour the use of debt. First, this is achieved at the corporate income tax level by allowing companies to claim a deduction for interest payments made to bondholders (or banks), thereby reducing their taxable income (interest payments received by bondholders are taxed at their marginal income tax rate). In contrast, while shareholders (equity holders) also expect a return on their investment, the cost of financing this return cannot be deducted from the corporate tax base. Second, debt finance preferences are reinforced at the shareholder level by taxation policies on distributed profits.

Under a classical income tax system, the return on equity is taxed at the corporate level and taxed a second time if it is distributed as dividends to shareholders or when it is sold by shareholders through capital gains (described in greater detail in section 2.2). The corporate layer of taxation is removed for dividend payments made by Australian companies to Australian shareholders through its imputation system, reducing some, but not all, financial dis-incentive to use equity; insofar as domestic resident companies can receive loans from non-resident foreign lenders, the incentive to use debt remains, despite the imputation system.[20]

Differential tax treatment of debt and equity financing is partially explained by international legal and accounting principles that consider interest payments a cost of doing business and the return on equity-financed investment as business income. This distinction is not necessarily desirable. An overreliance on debt may make companies more vulnerable to business cycle downturns and credit crunches (Sorenson, 2017). Higher reliance on debt also increases the costs associated with bankruptcy. The tax preference for debt also potentially discriminates against smaller businesses since they have less access to debt financing (and/or higher interest rates) and rely more heavily on equity.

The differential treatment of debt and equity is also important because in the absence of equal treatment by the tax system, the "normal return to investment" is taxed (see **Appendix A** for a full explanation of the "normal return to investment"). The "normal return to investment" refers to the return required for a firm to just break even. Since equity financing costs are not recognised as deductible costs by the tax system, firms need to make a return that is greater than the normal return to be viable. As a result, marginal firms (firms that would just break even in the absence of the tax system) are not viable under the current corporate income tax system; only firms that make more than the normal return (or firms that exclusively use debt) are viable.

2.3.1 Economic theory and evidence: what influences firms' optimal capital structure?

The tax system is not the only factor influencing a firm's optimal capital structure. Various economic theories exist to help explain capital choice and its impact on firm value. The starting point is Modigliani and Miller (1958), which shows that in perfect and frictionless capital markets the composition of capital structure has no bearing on firm value or the cost of capital. The theories that followed relax the assumptions that underlie Modigliani and Miller's (1958) model and allow for market imperfections, thereby showing how capital composition can influence firm value. For example, the trade-off theory (Kraus and Litzenberger 1973) argues that firms seek debt levels that balance tax advantages of using debt against the costs of bankruptcy. It predicts an optimal and moderate level of leverage (debt). By contrast, the pecking order theory (Myers 1984; Myers and Majluf 1984) argues that firms prefer using retained earnings since they are the least risky financing source. Only when retained earnings are exhausted will the firm seek external funding, preferably debt over equity, since debt is less risky.

20 Non-resident lenders will face a maximum 10 percent withholding tax on debt interest repayments made by the resident borrower. By contrast, dividend payments made to non-residents, ineligible for franked dividends, face a 30% corporate tax rate on their equity returns.

None of these theories can be generalised to explain the capital structure of all firms. The empirical literature provides support for the different theories that varies based on the particular dataset and time period employed. For example, in a meta-analysis of more than 100 studies on capital structure determinants, Hang et al. (2018) find that across all studies, tangible assets, the market-to-book ratio and profitability are the main determinants of debt leverage. This suggests that it is mostly the ability to take on debt that determines debt levels. The authors also note that:

"Over just the past five years (2012–2016), the number of studies has increased by more than 300 articles, each proposing its own set of core determinants (among others, Anwar and Sun, 2015, Frank and Goyal, 2009, Öztekin, 2015). This vast number of studies amplifies the heterogeneity of empirical findings, rather than revealing unified evidence of the real drivers of corporate capital structure."

They conclude that "The results for the determinants of capital structure do not seem to follow one single theory." These conclusions are echoed by others (Frank and Goyal 2009; Myers 2001). Myers (2001) concludes that while much is known about financing tactics (the timing of a specific security issue or tax-efficient design), their impact on overall (first-order) levels of debt and equity financing remains unknown. Unfortunately the academic literature and has yet to shed conclusive light on the extent to which a tax system that incentivises debt influences a firm's optimal choice of capital structure. Taxation plays a role but its importance relative to other factors remains unknown.

2.3.2 How do Australian corporations finance investments?

Retained earnings – that is internal financing – seem to be the largest source of funding for Australian public and private corporations outside the financial sector (Connolly and Jackman 2017). This aligns with non-financial corporations in the US where most aggregate gross investment is funded from internal cash flow (Myers 2001). The cash holdings of Australian businesses (which would allow for internal financing) have increased over time, with the cash to assets ratio rising from about 9 percent in 1990 to 13.5 percent in 2015 (La Cava and Windsor, 2016).

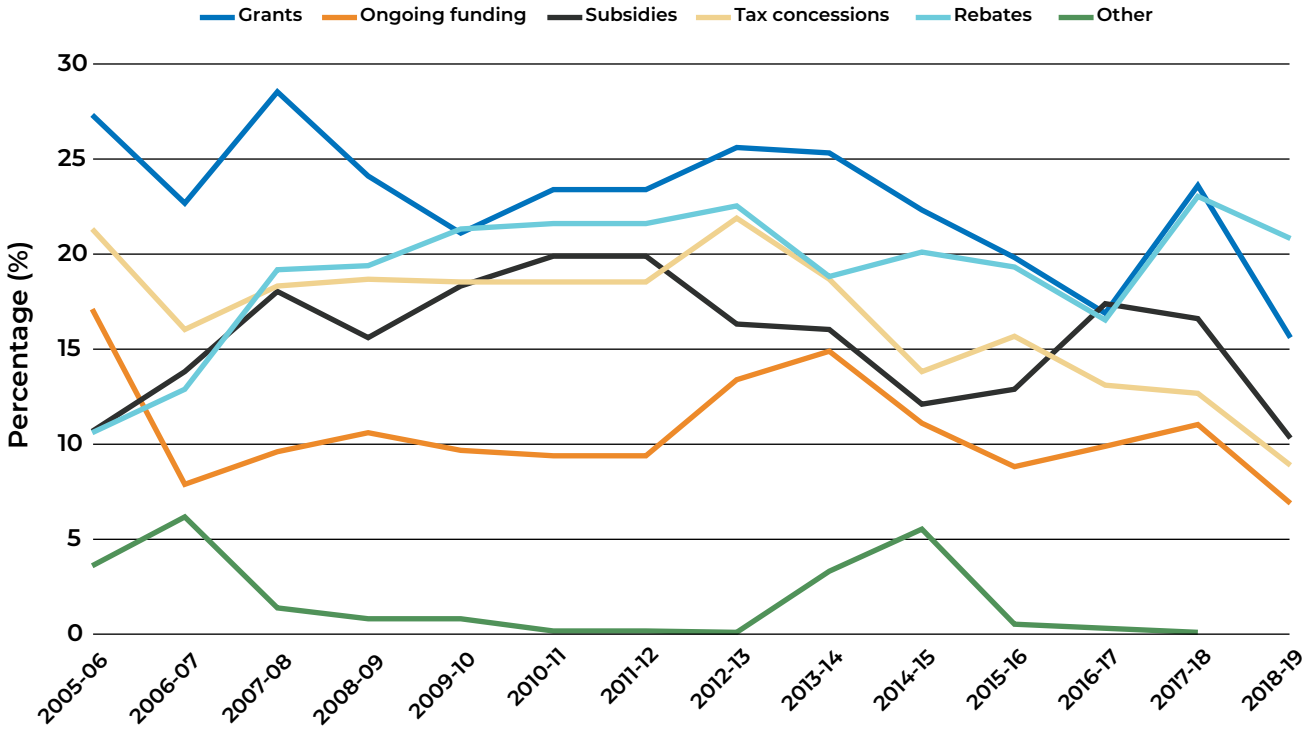
The level of cash retained varies across firms. For example, Deloitte (2015) analysed the cash reserves of the 200 largest publicly listed, non-financial companies on the ASX in 2014. They found that 20 percent of these companies had accumulated 82 percent of the cash reserves, suggesting a large concentration of cash among a relatively small number of companies (mostly in the mining, consumer businesses and industrials sectors). The Deloitte research also shows that these large cash holding companies experienced lower revenue and share price growth since 2009, compared to their lower cash holding counterparts.

When considering *external* funding – funding sources other than retained earnings – in Australia, Connolly and Jackman (2017) show that excluding the financial sector, companies' balance sheets comprise about 40 percent debt and 60 percent equity. External funding is primarily used to finance mergers and acquisitions. Australian firms also tend to incur debt primarily in the form of bank loans, as opposed to debt securities (like corporate bonds). This is largely because the Australian market for corporate bonds is underdeveloped. While very large firms can (and do) issue debt in international corporate debt markets, smaller firms have limited access to international debt securities markets. External financing is also limited and costly for smaller firms. In general, banks have less preference for unsecured (without collateral) lending and charge a higher interest rate for it. The availability of venture capital funding in Australia is also limited, further restricting smaller firms' options for equity financing. (Connolly and Jackman, 2017)

The more limited use of debt by smaller Australian corporations is also reflected by the empirical literature. Qiu and La (2010) analysed the capital structure of Australian non-financial publicly listed firms comprising the Australian Stock Exchange All Ordinaries Index (ASXAORD) between 1992 to 2006. Consistent with Connolly and Jackson's (2017) more recent research, they found a significant number of Australian firms do not use debt and that those firms tend to be smaller and less profitable. Li and Stathis (2017) also considered the capital structure of Australian publicly listed firms from 1984-2007 and identified eight factors that explained about 22 percent of the variation in firms' leverage. These factors included: profitability, log of assets, median industry leverage, industry growth, market to book ratio, tangibility, capital expenditure, and investment tax credits. In more recent research, Li and Islam (2019) looked at how industry-specific factors influence the capital structure of publicly listed Australian firms between 1999 and 2012. The authors show that across all industries, firm size is the only factor that affects capital structure determination and, within industries, firms that operate in economically significant industries (as a share of GDP) tend to be more highly leveraged. Their results imply that larger firms tend to be more highly leveraged and that capital structure determinants can vary by industry.

Australian firms can also access financing through the government (see **Figure 9**). Across all businesses, only about 11 percent receive this type of funding. However, its use varies tremendously by company size. While fewer than 10 percent of companies with 0 – 4 employees have any form of government funding, between 50 – 60 percent of firms with at least 200 employees do. Grants are the most common form of government funding for larger companies, followed by rebates, tax concessions, and subsidies.[21] While the statutory corporate income tax rate is progressive (lower for smaller companies), a greater share of larger companies benefit from government transfers than smaller companies.

Figure 9. Percentage of businesses employing at least 200 employees that receive government financing, by type of financing, 2005 – 2019



Source: ABS 8167.

21 The disproportionate allocation of government funding to large companies flags the importance of considering the broader tax and transfer system when investigating any single aspect of the system.

2.3.3 Does the personal income tax system influence firms' optimal capital structure?

At the shareholder level, the imputation system equalises to some extent the tax treatment of debt and equity financing because it removes the double taxation of shareholders' dividends. Since the introduction of imputation in the 1980s, data suggest that the ratio of debt to equity among Australian non-financial corporations has declined (Ainsworth et al., 2016). However this decline occurred alongside other policy and economic changes, confounding the attribution of the reduction to imputation alone.

Some argue that the influence of the personal income tax system, through imputation, is minimal in a firm's financing decisions if the marginal investor is foreign (as this report argues) or when a firm's investment is financed by other companies to which the statutory corporate income tax rate applies (De Mooij, 2012). For example, IMF (2016) found that:

"Empirically, the effect of the personal income tax (PIT) on corporate leverage ratios is less-clear cut than that of the CIT (Graham 2008), although some recent studies find that higher personal income tax rates on interest, relative to dividends and capital gains, reduce leverage ratios of domestic firms (Overesch and Voeller 2010; Lin and Flannery 2013)."

Tax is only one consideration among many that influence a firm's optimal corporate financing structure.[22]

The tax treatment of different types of financing can in some instances offset differences in taxation across investments. For instance, an individual's return on investment (i.e. interest received, capital gain, dividend, etc.) can be taxed on accrual or realisation (deferral). Taxation on accrual implies that the return on investment is immediately taxed when it is earned (or at least in the same financial year). By contrast, taxation on realisation only occurs when the asset is sold.

A simple example of this is provided in **Table 2**. Interest payments, such as from a bank account or a bond, are taxed each financial year. By contrast, taxation of equity (stock returns, property investment, etc.), is deferred until the investment is realised or a dividend payout is made. As shown in the table, taxation on deferral confers an advantage. Moreover, in Australia capital gains are taxed concessionally compared to interest payments. Capital gains are taxed only on 50 percent of the value of the gain if the asset is held for 12 months or more. From the table below, in the absence of the capital gains discount, an investor who had invested $100 and received $133 at the end of three years would pay $12.25 in tax (.37*$33). By contrast, with the capital gains discount, she only pays tax on half of the value of the gain ($33/2*.37), equal to $6.12. The capital gains discount increases the return on investment from 20.85 percent to about 27 percent. The tax advantage conferred through taxation on deferral, alongside the capital gains discount in Australia, can partially counteract the debt bias at the shareholder level and shift investors' preferences towards equity.

22 For a short review of this literature in the Australian context, see SzeKee et al. (2011).

Table 2. Taxing a $100 investment on accrual versus deferral for an individual with a 37c marginal income tax rate

Time period	10 percent return on investment on $100		Tax due		Post-tax return on investment	
	Accrual	Deferral	Accrual	Deferral	Accrual	Deferral
1	110	110	10*.37 = $3.70	0	$6.30	
2	106.30*1.10 = 116.93	110*1.10 = 121	(116.93-106.30)*.37 = $3.93	0	$6.70	
3	113*1.10 = 124.30	121*1.10 = 133.10	(124.3- 113)*.37 = $4.18	0	$7.12	
Total	124.30-$4.18-100 = $20.12	$33.10	$11.81	(133.10-100)*.37 = $12.25	20.12 percent	20.85 percent
Total with capital gains discount				(133.10-100) = 33.10 *.5 = 16.55*.37 = $6.12	20.12 percent	27.0 percent

Source: Authors' calculations.

2.3.4 Debt financing and tax minimisation by MNEs

Evidence suggests a tax system that preferences debt provides an avenue for debt and profit-shifting and tax minimisation by MNEs. However, while excessive leverage can have negative implications for macroeconomic stability, this is less of a concern for debt-shifting MNEs, as they share risk within their multinational group (IMF 2016). Profit-shifting and tax minimisation utilising debt financing do however compromise the tax base and tax revenue in countries where the debt cost is incurred. This is of concern for countries like Australia with high statutory corporate income taxes.

The OECD continues to develop reforms through the G20-OECD base erosion and profit-shifting (BEPS) project. This section reviews some of the main strategies MNEs employ, through the use of debt, to reduce Australian corporate tax.[23] This section also briefly discusses challenges associated with measuring BEPS.

Cross-border debt shifting refers to a strategy employed by firms that heavily finance through debt compared to equity as a strategy to reduce their taxable income. For example, if an MNE has one subsidiary (company A) in a high corporate tax country (such as Australia) and a second subsidiary (company B) in a low corporate tax country (such as Singapore), the first subsidiary could borrow money from the second. In this scenario, the first subsidiary would then deduct the interest payments made to the second subsidiary from its taxable income in the high tax country. Since the borrowing subsidiary operates in a country with a high corporate tax rate, it pays a higher share of its profits in tax and benefits more from the interest deductibility. Greater interest deductibility allows the borrowing subsidiary to reduce its taxable income in its country of residence and the multinational group to reduce its total tax payable globally. This is particularly attractive in Australia, not only because of the relatively higher company tax rate that makes the debt interest deduction worth more, but also because imputation does not apply to cross border equity financing.

23 Strategies employed by MNEs are reviewed in more detailed by Dharmapala (2008).

In response, many countries have instituted rules that limit interest deductibility for loans if a firm's debt-to-equity ratio exceeds a specific threshold; these regulations are referred to as thin capitalisation rules. Sorenson (2017) also finds that limiting interest deductions are more effective at reducing debt-bias than a comprehensive business income tax (CBIT) (further discussed in chapter three). As of 2005, three-fifths of European countries and two-thirds of OECD countries had rules governing thin capitalisation; Buettner et al. (2012) found that among German MNEs, the imposition of thin capitalisation rules reduced firms' reliance on internal financing between 1996 and 2004. Australia applies thin capitalisation rules.

Another form of tax planning used by MNEs is to take advantage of the difference in legal definitions of debt and equity both within and across countries; this is particularly relevant for so-called hybrid securities. Hybrid securities are classified as debt in tax accounts but have many properties of equity.[24] To address this strategy, many countries (including Australia) have introduced anti-hybrid measures, consistent with the recommendations of the OECD BEPS process. In addition to the anti-hybrid measures, Australia has introduced a "targeted integrity rule" which denies deductions for the payment of interest to low tax affiliates in circumstances where the anti-hybrid measures do not apply.

A debt arrangement may also be used to carry out transfer pricing, another strategy employed by MNEs to reduce their taxable income in countries with high corporate income tax rates (this strategy is unrelated to the debt bias in the corporate income tax system). For example, companies can write-off the cost of their inputs in production. Company A can buy some of its production inputs from company B. The amount charged by company B can be deducted by company A from its taxable income (as an expense) thereby reducing corporate income tax payable by company A (and company A may be in a high tax country, such as Australia).

One well known example of transfer pricing in Australia occurred between the Chevron Funding Corporation (CFC), based in the United States, and Chevron Australia. In 2003, the CFC borrowed $2.5 billion, at a 1.2 percent interest rate, and loaned this borrowed money to its subsidiary, Chevron Australia, at a 9 percent interest rate (Killaly, 2018; Mather, 2017). The high interest repayments made by Chevron Australia to the CFC reduced Chevron Australia's corporate tax obligation in Australia. In addition, the CFC issued dividends from its profit on the loan, of about $2.6 billion, to Chevron Australia where they were classified as US earnings in Australia, and hence untaxable as non-portfolio, foreign-source dividends. The Australian Federal Court ultimately denied the 7.8 percent interest rate markup, paving the way for the ATO to claim about $340 million in taxes, penalties and interest on the 2003 loan.

To address this strategy, many countries (including Australia) have introduced transfer pricing legislation which includes the principle of "arms-length" pricing. Arms-length pricing requires company A to pay the market price (as opposed to any arbitrarily chosen price) for inputs purchased from company B. The market price refers to the price of the inputs company B would have charged to any other company (to which it was not related). Implementation challenges arise however, when the inputs required by company A do not have a market price (because there is no market for the input). For example, market pricing company A's use of intellectual property (IP) specific to both subsidiaries' production is challenging where there is no market for the IP. A strategy applied by several countries (Ireland, the United Kingdom, Belgium, the Netherlands and Luxembourg) to discourage transfer pricing to profit-shift is to adopt concessional tax rates, sometimes referred to as "patent boxes", that apply to income generated by intellectual property (Auerbach 2018).[25]

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24 The effectiveness of thin capitalization rules in Australia and policies to redress BEPS are addressed in detail in Kayis-Kumar (2019).

25 In May 2021, the Australian Government announced that it will introduce a patent box for eligible corporate income associated with new patents in the medical and biotechnology sectors. The patent box will apply to companies for income years commencing on or after 1 July 2022.

Despite legislation to counteract tax minimisation strategies employed by MNEs, measuring the effectiveness of those policies and the magnitude of their effects proves challenging. The fungibility of international intercompany transactions provides other avenues for tax minimisation. For example, certain categories of income such as interest, dividends, royalties and lease payments are highly mobile. Subsequent studies arguing that thin capitalisation rules have been effective at protecting the tax base may conflate effectiveness with compliance. MNEs could simultaneously comply with thin capitalisation rules and minimise their tax burden in high tax jurisdictions by structuring other forms of highly mobile income in different ways (Kayis-Kumar 2019). Moreover, as Kayis-Kumar (2019) indicates:

> "...in the absence of a requirement that MNEs fully disclose their intercompany transactions in financial statements, cross-referencing the information reported to taxing authorities against that reported in financial statements is a highly challenging task. Commentators such as De Simone and Stomberg observe that '[f]inancial reporting for income taxes is so complex that even sophisticated financial statement users often ignore detailed tax disclosers' and 'taxation is often viewed by the market as beyond meaningful analysis."

2.3.5 Concluding remarks on capital structure

The differential treatment of financing costs by the tax system incentivises the use of debt and results in a system that taxes the normal return on investment. Taxing the normal return on investment negatively impacts marginal companies (those just breaking even) by compromising their viability; it also reduces investment among non-marginal firms (those that make above normal returns).

Several theories attempt to explain the capital structure of firms. The empirical literature concludes that despite a multitude of studies, no single theory can explain firms' capital structure composition. Consequently, in general, while the current corporate income tax system incentivises the use of debt over equity, the importance of the tax system in a firm's decision making process, relative to other influential factors, is uncertain.

Descriptive data from the Australian context suggests that, in the first instance, firms tend to rely on retained earnings to finance their investments. If *external* funding in Australia is considered, Connolly and Jackman (2017) show that in the non-financial sector, companies' balance sheets are comprised of about 40 percent debt and 60 percent equity. Australian studies consistently suggest that smaller firms tend to hold less debt than larger companies. While this could be an explicit choice by smaller firms, it could also be partially attributed to the higher financing costs smaller firms incur and lower access to alternate forms of debt financing such as corporate bonds.

The imputation system may have contributed to a more equal balance of debt and equity as the ratio of debt to equity among Australian non-financial corporations has declined since its introduction in the 1980s. However, this occurred alongside other policy and economic changes, confounding the attribution of the reduction to imputation alone. Moreover, if the marginal investor is (mostly) foreign, imputation is likely minimal in a firm's financing decisions (De Mooij, 2012; IMF 2016).

Finally, MNEs exploit the preferential treatment the tax system affords to debt by using it to reduce their global tax payable and compromise the tax base (and tax revenue) of countries with high corporate income tax rates, such as Australia. Legislation has been enacted to counteract some of the strategies MNEs employ. However, due to the fungibility of international

intercompany transactions and reporting requirements, evaluating the effectiveness of these policies is challenging. While estimating the potential loss in tax revenue incurred as a result of this phenomenon and policy responses specific to addressing base erosion and profit-shifting of MNEs are important issues that lie outside the scope of this paper, there is some information available.

The ATO produces a tax gap analysis for different groups of taxpayers. The tax gap measures what the ATO would have collected if every taxpayer were compliant with the law. They found that in 2017 – 18, the net tax gap for large corporates (defined as a corporate group with more than $250 million in gross income) was 3.7 percent. While this may seem small, the net estimate reflects the gap *after* the ATO took action against companies. The gross gap, which estimates the tax gap prior to ATO compliance and enforcement actions, amounted to 7.5 percent (approximately $4.1 billion). In the absence of ATO action, the gap is much larger.

Some profit-shifting is also permitted within the law, including profit-shifting that shifts the domicile of intellectual property or increases debt to the boundary permitted by thin capitalisation rules. Torslov et al. (2021) estimate that about 7 per cent of the Australian tax base is lost to profit-shifting. Further, they only consider profit-shifting involving tax havens, whereas profit-shifting through transfer pricing often does not involve tax havens.[26] If transfer pricing was included in the estimate, closer to 10 per cent of the Australian tax base is lost to profit-shifting.[27]

2.4 Investment: Does the design of the corporate income tax system impact investment?

Two theories consider the impact of taxation on aggregate investment: the user cost of capital and q theory of investment. The models are described below in their basic form, though both theories have been extended since their emergence. Both theories assume that the neoclassical theory of optimal capital accumulation applies (described below) and thus conclude that corporate taxation reduces aggregate investment. This section discusses these theories and is followed by a review of empirical research that attempts to validate these theoretical models.

The impact of the corporate income tax system is also closely linked to the treatment of debt and equity (described in section 2.3). By not recognising the cost of equity financing, the tax system taxes the normal return to investment, thereby reducing investment on both the extensive and intensive margins.

2.4.1 Economic theory: User cost of capital and Tobin's q

Under neoclassical theory, a firm will choose to maximise its profits, taking into account the price it can charge for its final output, the costs of its inputs, and the cost of renting capital for production. A firm's demand for capital - its optimal capital stock – is determined by the equilibrium condition where marginal revenue product equals the rental price of capital. In other words, firms will continue to invest until the point where the marginal cost of investment exactly equals the marginal revenue it collects (otherwise the firm would make a loss).

26 A complete review of these challenges and proposed solutions, specific to the Australian context, is provided by Kayis-Kumar (2019) and more generally at an international level by the OECD's base erosion and profit-shifting initiative.

27 This estimate is based on information from Torslov et al. (2021) and semi-elasticities calculated from De Mooij and Devereux (2011).

Since firms usually own capital, rather than rent it, Hall and Jorgenson (1967) developed a model of investment that defines the "user cost of capital" which determines the optimal level of capital stock and subsequent level of investment that arises over time. Firms have a choice between retaining and using their capital or selling it. There are three (opportunity) costs to retaining the capital: (1) the interest foregone on the revenue received by selling the capital today (2) the lost value on the capital because it depreciates over time and (3) changes in the price of the capital over time, which can be positive or negative. The user cost of capital can also be expressed mathematically:

$$r_K(t)=r(t)p_K(t) + \delta p_K(t) - \Delta p_K(t)$$

Where $r_K(t)$ represents the user cost of capital (the pre-tax real rate of return required), r(t) the real interest rate at time t, $p_K(t)$ the price of the capital at time t, and δ the depreciation rate. An increase in taxes effectively increases the pre-tax required rate of return (the user cost of capital) and reduces the optimal stock of capital, thereby decreasing investment over time.

One of the difficulties associated with the user cost of capital model is that it does not allow for adjustment costs. Adjustment costs associated with increasing or decreasing levels of capital in a firm can be internal or external. Internal costs include the installation of machines or retraining new workers. External costs occur when the supply of capital is not perfectly elastic (see TTPI Tax Fact #11 for a discussion of elasticity). In other words, in the absence of a perfectly elastic supply of capital – a supply of capital that can immediately respond to meet an increase in demand – the price of capital can be driven up by an increase in firm demand. As a result, the increase in the price of capital tempers the increase in capital stock that would have otherwise occurred.

The q theory of investment accounts for these adjustment costs. The theory (Abel 1982; Hayashi 1982; Summers 1981) argues that adjustment costs increase with each additional amount of capital purchased (adjustment costs are convex, or u-shaped, and marginal costs increase). In this model, the total cost of purchasing an additional unit of capital is equal to the purchase price, plus the adjustment costs. q is interpreted as the market value of a unit of capital. In other words, if a firm increases its capital stock by one unit, the present value of the firm's profits increase by q, as does the value of the firm. q represents the ratio between the market value and replacement cost of capital. Investment should increase as the value of q increases and firms invest as long as each additional dollar spent on capital raises the value of the firm by more than a dollar. The imposition of a corporate income tax reduces the value of q and subsequently the capital stock. More recent dynamic stochastic general equilibrium (DSGE) models show that while adjustment costs can influence investment behavior[28], they do not matter in the steady state (Christiano, et al., 2005; Smets and Wouters, 2007).

Another important consideration in these theoretical models is that depreciation is assumed to refer to actual economic depreciation, rather than accounting tax depreciation applied through the tax system. Economic depreciation refers to the true loss in value incurred by an asset. Tax depreciation is calculated under a legislative formula based on an estimated effective life for eligible capital assets (plant or equipment and listed intellectual property assets), or over a set effective life of 40 years or 25 years for certain buildings or capital improvements. The estimate may be provided by the Australian Taxation Office (ATO) in a "safe harbour"[29] ruling,

28 For example, both of these references model capital adjustment costs as a function of the change in investment, rather than the initial level (i.e. second as opposed to first derivative), which better matches the hump-shaped response of investment to various shocks that is observed in the data.

29 A "safe harbour" ruling refers to the calculation of the effective life of assets determined by the ATO. These determinations, if applied by businesses in their tax statements, will not be challenged in any audit process.

or estimated by the taxpayer. The taxpayer can elect to apply either the prime cost (straight line) or 200 percent diminishing value methods of depreciation (however, intellectual property assets such as patents must be depreciated on the prime cost method).[30]

Under the current corporate income tax system, if tax depreciation differs from economic depreciation, this introduces a short-term distortion.[31] For example, if tax depreciation is less than economic depreciation, a firm cannot fully expense its costs. If a firm cannot fully expense its costs, and it is just breaking even (operating on the margin), it can no longer exist. By contrast, if a firm is more than breaking even, the distortion eats into the normal return expected by its investors. Similar to the lack of recognition the corporate income tax system affords to the normal return on equity, distortions between economic and tax depreciation affect firms' normal return on investment (see **Appendix A**). Consequently, differences between economic and tax depreciation can influence the level and type of investment.

2.4.2 Empirical research findings

In an extensive review in the Handbook of Public Economics, Hassett and Hubbard (2002) provide an overview of the evolution of empirical methods used to estimate the impact of corporate taxation on investment. Over the course of the 1960s and 1970s, academics struggled to empirically attribute aggregate investment to any particular economic theory. Since variables which were expected to affect investment changed simultaneously over the business cycle alongside the level of investment, researchers were unable to successfully disentangle the direction of causation. Moreover, since the introduction of tax incentives is usually correlated with aggregate investment (they are introduced when investment is low), estimates of the impact of tax incentives are imprecise. The limited variation from time-series variables employed in a partial equilibrium setting also limited the ability to explain aggregate investment fluctuations.

In an attempt to circumvent the lack of variation, researchers in the 1980s turned to microdata, exploiting differences in how depreciation applied to distinct assets. In general, the results could not definitively conclude that aggregate investment was affected by tax changes.[32] Hassett and Hubbard (2002) describe how at least three methodological challenges confounded the interpretation and validity of the results. These included: measurement error, misspecification of the costs of adjusting the capital stock, and capital stock heterogeneity.

More recent studies exploit panel data to identify the effect on investment of tax incentives like accelerated or bonus depreciation. In panel data, all firms in the dataset for a single country experience the same economic context, culture, and institutional factors that complicated the interpretation of results from studies that relied on cross-country variation in corporate tax rates. Panel data studies can also better address some of the methodological concerns noted by Hassett and Hubbard (2002).

Zwick and Mahon (2017), for example, contest the earlier findings reported in the review by Hassett and Hubbard (2002). They find that tax incentives have a greater effect on investment once small and medium enterprises (SMEs), excluded from previous analyses, are included. Since SMEs are more financially constrained, they respond more strongly to investment incentives.

30 See https://www.ato.gov.au/business/depreciation-and-capital-expenses-and-allowances/general-depreciation-rules---capital-allowances/prime-cost-(straight-line)-and-diminishing-value-methods/

31 If they differ, the difference is adjusted, but only on termination of use or disposal of the asset, by a statutory balancing adjustment.

32 These studies found that the marginal costs of capital adjustment in the US ranged between 1 to 5 USD per dollar of investment, implying small effects of permanent investment incentives on investment.

Lending support to Zwick and Mahon's (2017) argument is research on the importance of cash flow for corporate investment. Edgerton (2010) considers bonus depreciation measures implemented in 2002 in the United States. He argues that since *temporary* tax incentives are usually introduced to spur investment during recessions, they are less effective than they would be in times of growth because firms have greater cash-flow available in the latter period. He finds that cash-flow is important and that declines in aggregate cash-flows suggest the policy was 24 percent less effective than it would have been had it been implemented when cash-flow ratios were at their height.

Maffini et al. (2019) consider a *permanent* change in the thresholds that permitted first-year depreciation allowances among mid-sized firms in the United Kingdom. Relative to firms that never qualified for the allowances, the investment rate increased by between 2.1 and 2.6 percentage points within three years. They argue the results (increased investment) cannot be attributed to an increase in cash-flow, but rather to a decrease in the cost of capital.

Garrett, Ohrn and Suarez Serrato (2020) consider the impact of accelerated depreciation on the labour market. The impact depends on whether firms increase investment in assets that complement or substitute labour. Considering the bonus depreciation measures implemented in the United States since 2002, the authors conclude that substitution between labour and capital increased over time (favouring capital). As a result, the policy only resulted in short-term employment growth. In the short-term firms invested the same amount of capital as they did prior to the introduction of the policy (and required more workers to operate the increased capital). However, in the long-term there was neither employment nor earnings growth (as substitution towards capital intensive production increased). They also find that the policy generated only one job for every $53,000 spent on the policy. The evaluation also shows that the policy resulted in an increase in investment.

2.4.3 How does the international evidence apply to Australia?

To date, only one study has considered the impact of tax incentives on investment in Australia. Rodgers and Hambur (2018) evaluate the impact of the Small Business and General Business Tax Break, a temporary investment allowance afforded to companies for equipment investment committed between 13 December 2008 and 31 December 2009. The investment allowance allowed companies to deduct an "additional percentage" of the cost of equipment investment, on top of the standard depreciation deductions. The "additional percentage" varied by company size, with small companies allowed to deduct an additional 50 percent and large companies 30 percent (before 30 June 2009).[33]

The authors focused on the impact of the policy on small companies with revenue between about $1.7 to $2.3 million in the 2007-08 financial year and revenue greater than $2 million in 2009-10.[34] These companies are almost exclusively owned by Australian residents. Using a regression discontinuity design, they separate this group of similar companies into two groups based on 2007-08 revenue, defining those with revenue between $2 to $2.3 million as "large" and those with revenue between $1.7 to $1.99 million as "small". The definitions of large and small were based on the policy settings. Since both large and small companies were quite similar from the onset, they argue those companies with revenue just below the $2 million threshold, where the higher deduction applied, were very similar to those with revenue just above the threshold (and eligible for a lower deduction). Comparing investment across the two groups, they find that a higher deduction increased investment. Using a different statistical method (difference in difference) and dataset, the authors also compare investment across

33 Equipment investments made by large companies between 1 July 2009 and 31 December 2009 could only deduct an additional 10 percent (instead of 30 percent) of the cost.

34 Detailed selection criteria are provided in the paper.

small and large companies (based on a broader definition of "large" companies) and find similar results.

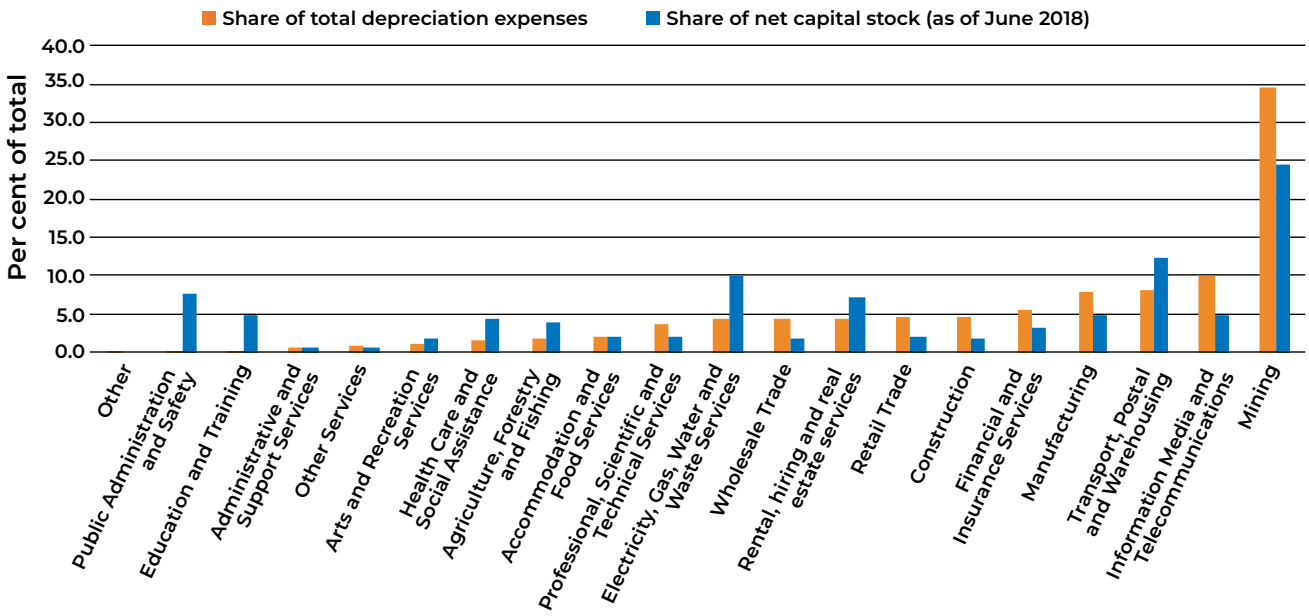
This is an important area for future research in the Australian context that has been largely constrained by data availability. More studies would contribute to the Australian evidence about the impact of tax incentives on investment. Nevertheless, in addition to the evidence provided by Rodgers and Hambur (2018), some conclusions can be drawn from the international evidence in this area since the design and implementation of these policies is similar to how they have been and could be applied to the Australian context.

Accelerated depreciation

While the most recent international literature concludes that policies such as accelerated depreciation tend to increase investment (at least in the short run), it is important to bear in mind the types of firms these policies disproportionately impact. Accelerated depreciation disproportionately benefits firms with a large share of physical capital assets, especially assets with a longer life. This is because deductions for depreciation are not adjusted in real terms over time. For example, if a machine cost $1,000,000 and had an effective life of 20 years, the firm could only deduct $50,000 from its taxable income each year for 20 years (under straight-line depreciation). $50,000 today is worth more to a company than $50,000 in 20 years because of the time value of money. Subsequently, policies like accelerated depreciation, which allow firms to bring forward more or all of their future expenses, are most valuable to firms with the largest share and value of long-life assets.

Figure 10 shows the percentage of all depreciation expenses recorded by the ATO in 2016 – 17 by industry. It presents an approximation for the industries likely to be most affected by the introduction of a policy such as accelerated depreciation and illustrates that the mining industry accounted for a significant share of total depreciation expenses (nearly 35 percent of total expenses). Ideally, the chart would also show the average effective life of the assets depreciated in each industry, since an industry could deduct a large value of depreciation annually because of expensive assets with relatively short effective lives. However, these data are not available. Nevertheless, since mining projects tend to last several years, it can be inferred that the introduction of accelerated depreciation in the Australian context is likely to disproportionately benefit mining.

Figure 10 Industry share of total depreciation expenses, 2017-18



Source: ATO Taxation Statistics 2017 – 18.

Decreasing the headline corporate tax rate

Also consider the trade-off of applying accelerated depreciation instead of decreasing the statutory corporate income tax rate (though the two policies are not mutually exclusive). Two factors are required for a firm to benefit from the introduction of accelerated depreciation: a firm must make an investment and the investment needs to be in an asset that has an effective life greater than one year. In other words, by design, while accelerated depreciation favours industries and companies with long-lasting assets, there is a direct link between investment and the policy (i.e. companies cannot access the policy if they do not make an investment). By contrast, all companies benefit from a reduction in the statutory corporate income tax rate as they do not have to make additional investment to benefit from the reduction. While theoretical and empirical literature suggests a reduction in the statutory corporate income tax rate leads to greater investment over the long run, to observe an immediate impact on investment following a tax rate reduction is more difficult than assessing the short-term impact of accelerated depreciation.

Some challenges associated with evaluating the immediate impact of a change in the statutory corporate income tax rate are methodological (discussed in section 2.4.2) and others relate to the time horizon and context. Corporations today operate in a context of "superabundant" capital, where the cost of capital is at historic lows with large amounts of cash relative to investible ideas (Mankins et al. 2017). This partially manifests in the Australian market by the increased cash holdings of some Australian firms (La Cava and Windsor 2016; Deloitte 2015). Capital abundance could temper the immediate impact on investment of a reduction in the corporate income tax rate.

The effect of this superabundance of capital is compounded by high hurdle rates for new investment set by companies unwilling to lower them.[35] Some Australian CEOs recently argued in the Australian Financial Review that reluctance to lower hurdle rates has occurred for a variety of reasons (Thomson and Boyd, 2019). In some cases, equity risk premiums have increased counteracting the impact of low interest rates. In others, investment horizons are long-term (10 to 15 years). Some CEOs also acknowledged the importance of long-term strategies for riding out economic fluctuations (including periods of lower short-term interest rates) (Thomson and Boyd, 2019). This contextual factor could limit short-term, observable effects on investment of a decrease in the statutory corporate income tax rate.

2.4.4 Concluding remarks: the impact of corporate taxation and tax incentives on investment

Empirical research on the impact of corporate taxation on aggregate investment reveals a longstanding series of efforts to assess the validity of economic theories. Attempts to estimate the impact of taxation have had mixed success due to the methodological challenges associated with estimating the relationship between investment and corporate income taxation.

However, both economic theory and recent empirical research conclude that taxes and tax incentives matter for investment. Corporate taxation tends to reduce investment, while tax incentives, such as accelerated depreciation or investment allowances, increase it (at least in the short run). However, the specific mechanisms underlying changes in investment and the magnitude of the effect induced by taxes remain actively debated. Moreover, it is not yet possible to identify with certainty whether increases in investment represent intertemporal shifts (i.e. a shift forward) or increases that would have not otherwise occurred.

35 A hurdle rate is the minimum rate of return required on an investment by a company.

By nature of the direct link between investment and accelerated depreciation (firms cannot use the policy if they do not invest), international evidence suggests that introducing accelerated depreciation or an investment allowance would increase investment in Australia (at least in the short run). To date, only one study has considered the impact of tax incentives on investment in Australia and suggests they have a positive impact (Rodgers and Hambur, 2018). Descriptive evidence comparing sectors suggests the introduction of accelerated depreciation in Australia would disproportionately benefit the mining industry. This is an area ripe for future research, limited by existing company data constraints.

Reducing the corporate income tax rate is another policy lever available to government to spur investment. All companies would have equal access to this option, unlike accelerated depreciation or targeted investment allowances. However, firms do not have to invest to benefit from the tax cut. While theory and empirical studies suggest this would spur investment over the long run, companies' high hurdle rates and the observed superabundance of capital could temper the effect of such a policy change. A corporate tax cut also results in a windfall gain to existing, non-Australian equity investors.

2.5 Economic incidence of corporate income taxation: who really pays for the corporate income tax?

There are two forms of tax incidence: statutory and economic. The statutory incidence refers to the entity or individual legally responsible for paying the tax. By contrast, the economic incidence refers to the individual or entity that experiences a loss in well-being as a result of the tax. The statutory and economic incidence do not always align. In the case of the corporate income tax, corporations bear the statutory incidence. The economic incidence of the corporate income tax is however, more complex and debated in the literature. This section briefly overviews the economic theories posited for both a closed and open economy. Some of the (limited) empirical literature that estimates the economic incidence is also presented.

2.5.1 Economic theory and empirical evidence: who bears the incidence of the corporate income tax?

Economic theory

Harberger (1962) showed that in a closed economy, capital principally bears the burden of the corporate tax. In his model, there are two sectors: corporate and non-corporate. Both use capital and labour (referred to as the factors of production) in equal proportions to produce output. A tax is only imposed on capital in the corporate sector. This increases the cost of capital in the corporate sector relative to the non-corporate sector. As a result, capital and labour flow to the non-corporate, untaxed sector, where the cost is lower. The tax has two effects: (1) there is an incentive to substitute labour for capital in the corporate sector (factor-substitution) and (2) an increased demand for goods produced by the non-corporate sector (output effect).

Harberger demonstrated that it is capital in general, not just the shareholders of the corporation, who bear the tax. The excess supply shift of labour and capital into the non-corporate sector pushes down the return in the non-corporate sector until reaching equilibrium with the corporate sector. Since the adjustment occurs without changing the wages of workers, all capital (both corporate and non-corporate) bears the cost of the corporate income tax over the long run. In his model, Harberger provides some examples where even in a closed economy, labour can bear some of the cost of a corporate tax. The distribution of the cost between labour and capital however, depends on other factors, like differences in each sector's reliance on labour and capital for production.

In contrast to a closed economy, in a small open economy prices are set at the global level for tradeable goods and mobile factors of production, like capital. Labour is also mobile, but not to the extent of capital. As a result, the economic incidence of a corporate income tax is distributed to less mobile or immobile factors of production, namely labour and land (Bradford 1978; Kotlikoff and Summers 1987; Mutti and Grubert 1985; Harberger 1995).

Intuitively, the global return to capital (r^*) is determined by the intersection of the global supply and demand for capital. For example, if r^* is 10 percent and the government of a small open economy imposes a corporate tax on firms of 2 percent, the tax effectively reduces firms' return on investment to 8 percent. In order to retain their pre-tax global return of 10 percent, firms can either invest elsewhere, where the full return is guaranteed (i.e. where capital is not taxed) or invest in the same country but reduce their costs of production to compensate for the loss. In the short run, an immediate relocation is unlikely for many firms because of upfront fixed-costs, like the creation of a factory. Nevertheless, cost reduction can be achieved in the short run by reducing wages directly or indirectly by decreasing the number of workers employed. Another option for the firm would be to increase the prices of the goods it sells, but this is only possible if firms have market power (see **Appendix A**).

Over the longer term however, the higher costs of business associated with taxation are exacerbated. Existing firms consider higher returns on investment in other countries when thinking about where to make their future investments. Additionally, potential investors, who may have considered the small open economy in the absence of taxation, decide to invest elsewhere. In this way, pre-existing capital gradually leaves the country and future capital is deterred. Both factors reduce the overall level of investment compared to that which would have occurred in the absence of the tax. In the long run, this reduced investment materialises in the form of lower labour productivity and lower real wages for workers. Subsequently, in the long run, in a small and open economy, workers ultimately bear the cost of taxing investment.

The intuitive explanation is also presented graphically in **Figure 11**. In a closed economy, domestic savings must equal domestic investment and the domestic interest rate would be set at their intersection, rdom. In a small open economy, changes at the national level do not affect interest rates at the global level and the world interest rate is set at r^*. The foreign supply of capital is a straight line since foreigners are willing to meet any demand for investment at the world interest rate. If r^* occurs above (below) rdom, as in r_2^* (r_1^*), desired domestic savings at that interest rate exceeds (is less than) the desired domestic demand for investment resulting in a trade surplus (deficit).

Figure 11. Savings and investment in a small open economy.

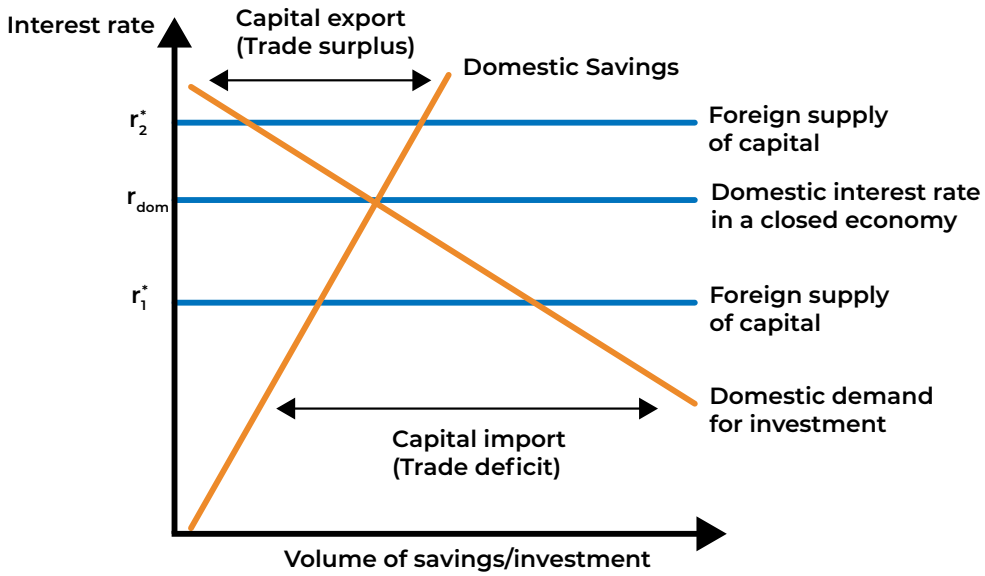


Figure 12. Savings and investment in a small open economy.

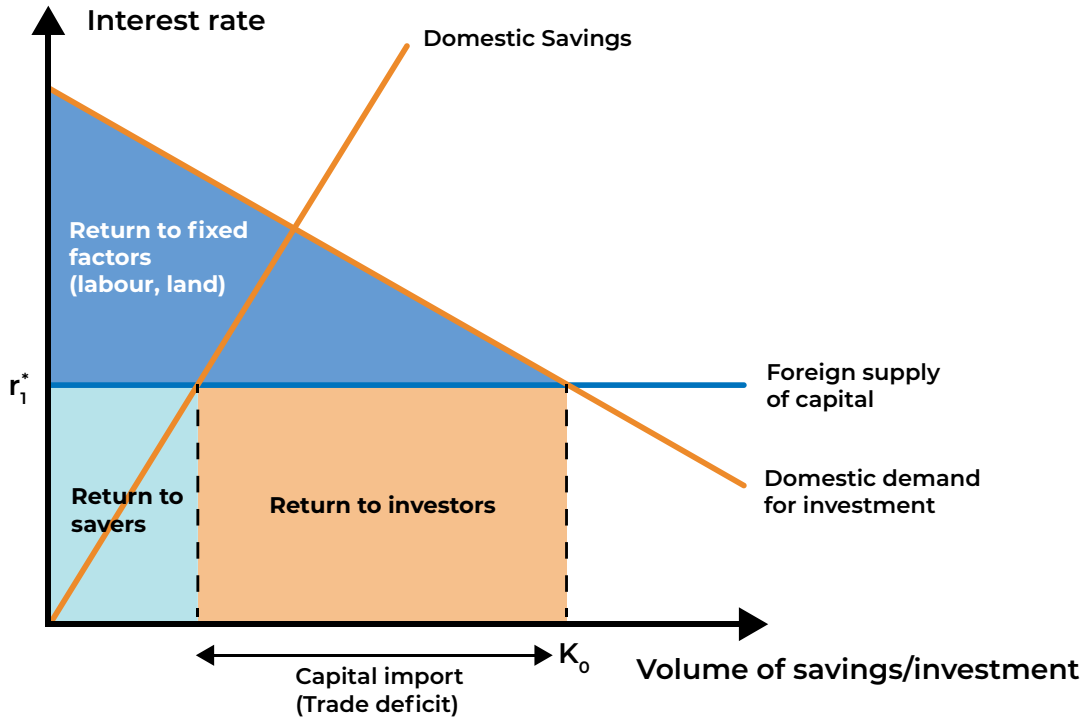
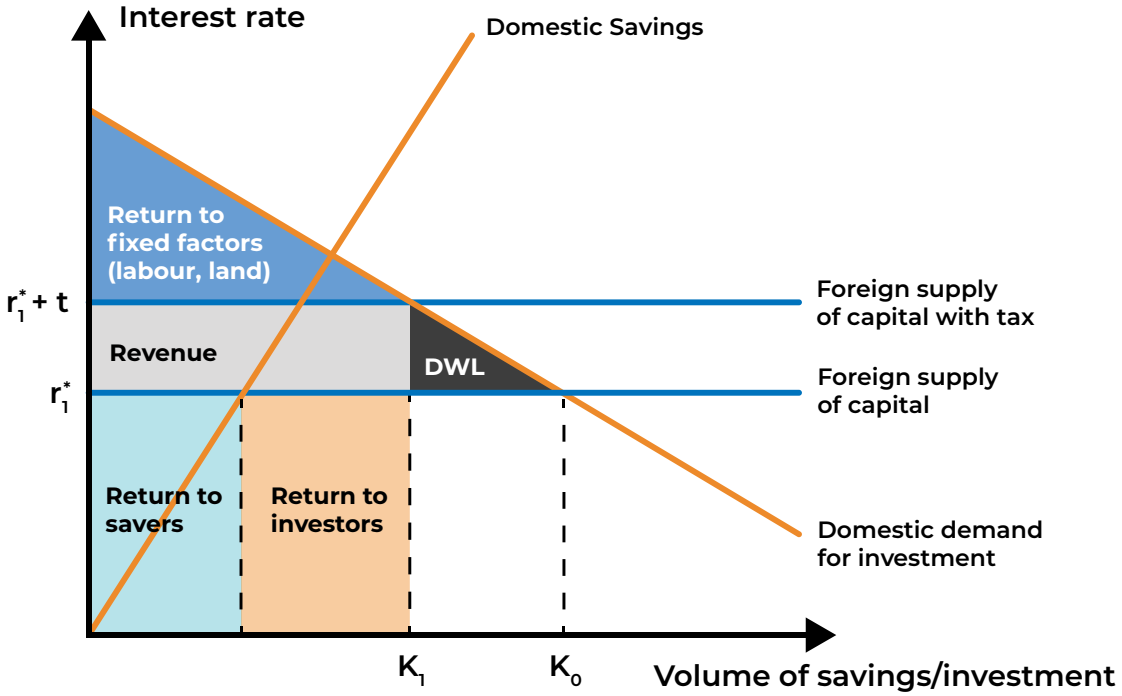


Figure 12 and **Figure 13** show the impact of a tax imposed on a small open economy with a trade deficit (capital importer). This is the case for Australia. At r_1^*, K_0 levels of capital are supplied. Once a tax is imposed, the required rate of return for capital increases by the tax, t, to $r_1^* + t$. As a result, while the government increases its tax revenue, the amount of capital invested by foreigners decreases from K_0 to K_1, and a deadweight loss is produced (represented by the triangle DWL). The deadweight loss represents the foregone investment that would have occurred in the absence of the tax. As can also be seen from **Figure 13** the cost of tax in the form of reduced foreign investment is borne by land and labour (a smaller triangle).

Figure 13. Savings and investment in a small open economy following a tax on investment.



This deadweight loss represents foregone investment which results in less economic activity and less growth. This reduces society's well-being and also reduces the amount of taxable activity. The size of the deadweight loss remains an empirical question and depends on the openness of the economy and the nature of product and factor markets. Deadweight losses tend to grow over time because long-term supply and demand curves are more elastic than those in the short term. This matters for tax system design, as collecting tax revenue in a way that does the least damage to productive activity and encourages prosperity is a core design principle.

The previous description greatly simplified how the economic incidence of the corporate income tax can be borne by factors other than capital. Depending on the assumptions that underlie the particular open-economy model applied, the economic incidence can be entirely borne by labour or distributed between capital, labour and land. The consensus in the theoretical literature is that labour and capital share the incidence of corporate tax, but studies diverge in the magnitude that each bears.

Empirical evidence

Similar to the theoretical literature, the empirical evidence reached the same consensus about the incidence of the corporate income tax. Clausing (2012) expresses empathy for researchers in this area. Because of the lack of "...a crystalline roadmap for investigation, exogenous changes in tax policy are difficult to identify, and the true consequences of variations in corporate tax policies likely occur over time...". Her research (2012, 2013) also suggests the lack of definitive research linking corporate tax rates and wages could be due to data limitations and/or that tax policies likely influence ownership and financing patterns rather than aggregate levels of investment in different countries, since MNEs can adeptly separate income from the physical locations of investment. Freebairn (2015) attributes the mixed evidence to the fact that the "corporate tax burden is sensitive to a number of assumptions and parameters for which there are both plausible alternatives and imperfect knowledge." Auerbach (2018) echoes this:

"A handful of studies have tried to approximate this type of experiment to determine the share of the burden falling on labor, using panel data on countries, labor compensation and tax rates. Unfortunately the results of such analyses fall within a very wide range, from finding virtually no effect to finding that 'a 1 percent increase in corporate tax rates leads to a 0.5 percent decrease in wage rates."

Two approaches have been applied to calculate the incidence of the corporate income tax: general and partial equilibrium. General equilibrium approaches use computable general equilibrium (CGE) models to simulate the impact of taxation on various aspects of the economy over the long run.[36] CGE models mathematically define relationships between different sectors of the economy and select model parameters (usually estimated from data) to estimate the impact that changes, like a decrease in the corporate income tax rate, might have on aggregate variables like investment, overall well-being (deadweight loss), etc. By contrast, partial equilibrium approaches do not consider interactions between different sectors as a result of policy change. However, results from these more data-driven approaches can provide parameters to apply in CGE models. In this way, partial and general equilibrium analyses are complementary, despite their differing strengths and weaknesses. Freebairn (2017) reviews the complementarities of partial and CGE models, and some CGE models used in the Australian context.

36 While CGE models can help to quantify the economy-wide effects of a policy change, they have limitations. First, they do not consider the time required to adjust to the final outcome the models calculate. In particular, the incidence of the tax over the short, medium and long-term can potentially vary and have different distributional consequences on current and future capital owners and workers (Auerbach 2005). Second, the models do not consider other tax provisions that reduce effective tax rates, like research and development tax credits or accelerated depreciation (see chapter two). Third, the models do not consider the possibility that other countries lower their corporate tax rates in response to a decline in one country. If countries lower their rates in response to a change in one country, the incidence is likely more borne by capital.

Gravelle (2013) reviews the modelling results from four different CGE models for the United States. The key assumptions underlying the four models are: international mobility of capital, international product substitution, size of country, factor substitution, and factor intensities. Her analysis shows that the distribution of the economic incidence varies considerably, both within and across studies, based on the assumptions and parameters used. For example, the Grubert and Mutti (1985) model suggests that domestic capital bears between 14 and 100 percent of the economic incidence of the corporate tax depending on the extent of capital mobility; more mobility results in a lower percentage of the tax borne by domestic capital. Similarly, in the Gravelle and Smetters (2006) model, depending on the parameters applied, the share of the economic incidence borne by domestic labour varies between -7 and 74 percent. The wide variability of these results points to the importance of carefully selecting the parameters applied to CGE models.

In a separate study, Gravelle (2011) reviews seven partial equilibrium studies (Hassett and Mathur 2007; Felix 2007; Desai et al. 2007; Felix 2009; Carroll 2009; Arulampalam et al. 2012; Felix and Hines 2009) that empirically attempt to estimate the distribution of the economic incidence of corporate taxation. She identifies three types of methodologies: those which use variation in corporate tax rates across countries to estimate the effect on wages; those which use the same methodology but focus on the variation across US states; and those using a wage bargaining model. She concludes that the first type of studies (cross-country) present very volatile (and potentially improbable) results and suggests that the degree of volatility is what originally encouraged economists to rely on Harberger's theoretical model to assess the economic incidence of corporate taxation. Similar to the CGE models, these studies also focus on changes in the statutory corporate income tax rate and disregard potentially revenue-neutral changes to the tax base (which have been significant, see Devereux et al. 2002). As a result, the studies she reviewed suffer from omitted variable bias. They do not accurately account for all of the different reasons countries might change their statutory corporate income tax rates or for other tax policies that might influence wages. Nevertheless, despite some of the limitations of these approaches, the results from the empirical research can improve CGE models and shed light on the shorter and/or medium run impact of policies.

Freebairn (2015) considers the economic incidence of corporate taxation in an Australian context. He states that for the entire economic incidence of the corporate tax to fall on labour: the external (international) supply of equity funds would need to be perfectly elastic (unlimited and fully responsive at a given interest rate), domestic firms could not have any market power, and all firms would need to be fully geographically mobile. He argues these assumptions are quite extreme. For example, "Risk aversion with higher levels of international borrowing, supported by ratings agencies; preferences for investment at home because of more familiar legislation, regulations and customs; and the risks of changes in currency values" all suggest that the supply of international funds is not perfectly elastic. Moreover, while some firms are geographically mobile, not all are (e.g. petroleum and mineral resources sectors and many services). If not all firms are mobile, the economic incidence cannot be fully shifted to workers. Finally, simple long run models considering the economic incidence assume that all national investment is financed with equity, but in reality, equity is only one source among several. His work aligns with that of Gravelle and suggests it seems very unlikely that the entirety of the corporate income tax is borne by workers in the Australian economy. He concurs that calculation of the particular share attributed to workers greatly depends on the assumptions used within a particular model.

2.5.2 Conclusions on the economic incidence

The theoretical literature has yet to reach a consensus on the extent to which labour, land, and capital bear the economic incidence of corporate income taxation. The empirical literature is equally divided. The range of possibilities from the theoretical and empirical literature arises because the "corporate tax burden is sensitive to a number of assumptions and parameters for which there are both plausible alternatives and imperfect knowledge (Freebairn 2015)." It is also extremely difficult to find variation in tax rates either across countries or within-countries that can be used to identify the effect of changes in corporate tax rates independent from differences in other policies or tax systems.

There does seem to be acceptance in the literature that neither labour nor capital bear the entire burden of corporate tax. For example, historically the United States' Congressional Budget Office assigned 100 percent of the burden of corporate income taxes to individuals based on their receipt of capital income. In 2012, this practice was modified and it now assigns 25 percent of the incidence to individuals in proportion to their wage and salary income and 75 percent in proportion to their receipt of capital income (Auerbach 2018). Research on the Australian context also supports a sharing of the tax burden; it is very unlikely that the entirety of the corporate income tax is borne by either workers or capital.

2.6 Measuring the distortions in one number: effective corporate tax rates

While the statutory corporate income tax rate is one of the tax rates that affects business decisions, the marginal and average effective tax rates are equally as important. Effective tax rates account for differences in countries' tax legislations that reduce or increase the size of the corporate income tax base. As a result, while the statutory corporate income tax in one country may be relatively high, as in Australia, the narrowing of the corporate income tax base through the treatment of depreciation, investment allowances, differentiated rates by firm size and tax credits for research and development reduce the amount of corporate tax companies actually pay.

Average effective tax rates are useful for companies when making discrete decisions, like where to make a long-term investment. By contrast, marginal effective tax rates inform company decisions regarding expansions of pre-existing investments. Headline statutory corporate tax rates influence both the effective average and marginal tax rates and, in isolation, inform companies' accounting practices and decisions to shift profits to lower taxed jurisdictions.

Three approaches are used to compute effective tax rates (Nicodeme 2001): micro forward looking, micro backward looking and macro backward looking. Micro studies focus on the behaviour of firms. Macro studies use aggregated data across firms. The differences between the methods are discussed in **Appendix D**. Comparing effective corporate tax rates across studies proves challenging because of the different methods, different time periods, features of the tax systems considered in the analyses, and specific variables considered for their computation. Nevertheless, results from some available studies on Australia suggest the effective corporate income tax rate is lower than the headline statutory rate.

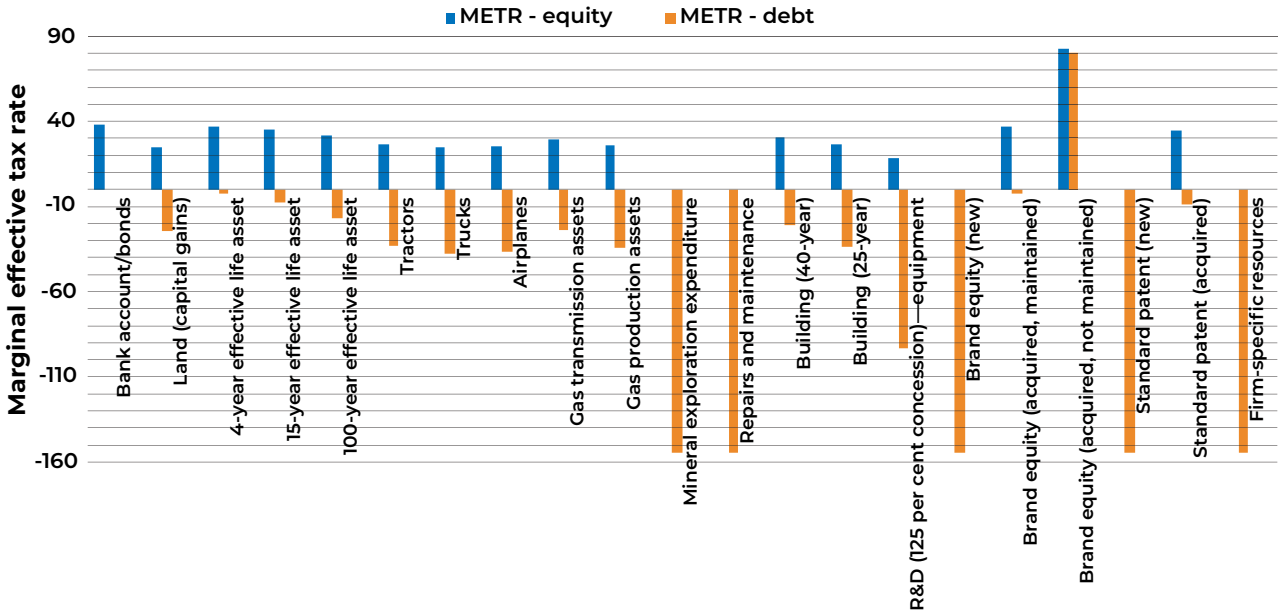
Using a backward looking macro model, the Australian Treasury (2007) calculated that the average effective corporate tax rate declined by about 10.5 percent between 1980-81 and 2004-05. They attribute the decline primarily to reductions in the statutory corporate income tax rate over the period. Looking at US owned foreign companies – defined as "those that are incorporated in a country other than the United States but have more than half of their stock owned by a single US taxpayer" – the Congressional Budget Office (2017) estimated average and marginal effective tax rates in all G20 countries. In 2004 and 2012 there were about 2,800 US-owned foreign corporations operating in Australia. Also employing a macro backward

looking model, the CBO estimates the average effective tax rate for these firms amounted to 17 percent in 2012, the fourth lowest rate in the G20. Using a different approach – a backward looking micro model – the Oxford University Centre for Business Taxation found that Australia's effective average tax rate amounted to 26.6 percent in 2012 and 25.3 percent in 2015 (Devereux, et al., 2016).

However, Auerbach (2018) highlights the limited ability to generalise conclusions about firm behavour in response to an effective tax rate based on the calculation of one rate. Distinct effective tax rate calculations are required depending upon the type of investment decision: how much to invest in Australia, the types of assets in which to invest, the type of financing used to invest in those assets, investment in Australia compared to another country, investment in Australian corporate stock, bonds, or noncorporate business. In summary, a range of effective tax rates can be calculated, depending on the question one seeks to answer. These differing rates change over time as policy decisions alter the framework on which calculations are based.

Bearing these limitations in mind, Sorenson and Johnson (2010) calculate the effective tax rates on specific investments in Australia and show significant variation across time horizon and investment type. These examples are presented in **Figure 14**. For example, the marginal effective tax rate on an investment in a building (with a 25 year effective life), financed with equity, amounted to 26.2 percent. If the same building were financed with debt the marginal effective tax rate is -33.6 percent. Mineral exploration financed with equity has an effective marginal tax rate equal to zero, while for exploration financed by debt it amounts to -154.5 percent. This variation compromises the efficient use of capital since it incentivises investment in some assets (as opposed to others) using particular funding sources (instead of the source that would be most efficient for the company).

Figure 14 Marginal effective tax rates on selected investments, by source of financing



Source: Adapted from Sorenson and Johnson (2010)

2.7 Chapter 2 summary

This chapter identified seven distortions that the current design of the corporate income tax engenders. **Table 3** summarises these problems and their consequences.

Table 3 Summary of the problems associated with the current corporate income tax system

Problem	Summary	Consequence
1. Gap between the statutory corporate income tax (CIT) rates and personal income tax (PIT) rates	The corporate tax rate (25 per cent for small companies and 30 per cent for large companies) is substantially lower than the highest marginal tax rate (47 per cent) in the personal income tax system.	Paying marginal PIT at a rate higher than the CIT rate incentivises individuals to incorporate whenever the CIT rate is lower. This creates inefficiencies and inequities. Businesses operated through trusts can leverage arbitrage opportunities between the CIT rate and all beneficiary PIT rates lower than the CIT rate (including the tax-free threshold). These arbitrage possibilities are used by individuals to split income across individuals in one financial year and across different financial years (deferral benefits). This distortion compromises the tax revenue base and the efficiency and fairness of the tax system.
2. Debt bias	Firms are not taxed on debt financing expenses (interest payments) because these costs are recognised by the tax system as legitimate business expenses and are deductible. However, the cost of equity financing, an alternative to debt, is not recognised.	Incentivises firms to use debt. Increases risk of bankruptcy. Over-reliance on debt is not apparent to a large extent in Australian data. However, this could be a large concern for MNEs, for which data are limited.
3. Taxing the normal return to investment	Since the cost of equity financing is not recognised by the tax system, firms that use equity financing need to make more than the normal return on investment to remain viable.	Reduces the ability for marginal firms (those just breaking even) to exist (since they cannot expense *all* of their costs). More profitable firms do not invest as much as they would in the absence of the tax. A tax system which reduces investment discourages productivity and economic growth.
4. High statutory corporate income tax rate	Australia's corporate tax rate is higher than most OECD countries and geographic neighbours.	The high corporate income tax rate increases the pre-tax return firms must obtain to meet global investors' expected return on investment. This lowers foreign investment in Australia and encourages Australian firms to invest overseas. Even if corporate tax only applied to economic rent, it could still discourage foreign investment in Australia where those rents are mobile (see **Appendix A** for a discussion of economic rents). Lower investment leads to less productivity and slower economic growth. The relatively high statutory corporate income tax rate incentivises large MNEs to issue debt to their Australian subsidiaries. This compromises the tax revenue base.

Problem	Summary	Consequence
5. Variation in effective corporate tax rates	Effective corporate tax rates, which take into account the actual tax rate paid by companies, differ from the headline corporate rate and can influence investment decisions. Effective tax rates vary substantially across different types of investments.	The effective tax rate applied to specific investments varies depending on the financing a company uses, how depreciation is applied, and how other tax system design features (such as concessional treatment) apply. While these features may be appropriate (lower tax rates on R&D have positive spill over effects), the wide variation compromises efficiency and exacerbates incentives to invest in certain assets using a specific type of funding even when this may not be economically efficient.
6. Differences between economic and tax depreciation	Differences between tax and economic depreciation benefit some firms and cost others. For example, if an asset's tax depreciation is less than its economic depreciation, a firm cannot deduct full costs from its taxable income.	Differences between economic and tax depreciation result in a tax on the normal return on investment for some firms and a subsidy to investment for others. It has an ambiguous effect on investment because it depends on the composition of taxed to subsidised firms.
7. Imputation system	The imputation system subsidises domestic investments.	The imputation system encourages Australian companies to distribute dividends. The imputation system encourages investors to make investments based on tax design, deterring them from opportunities that give them the best return (based on their risk and liquidity preferences). Evidence suggests eliminating the imputation system would: (1) neither harm nor encourage investment ("new view" explanation) or (2) only directly affect investment into cash-constrained domestic firms that rely heavily on domestic shareholders ("agency" theory explanation). Elimination of imputation would likely reduce the degree of home bias in the portfolios of Australian investors.

3 Policy options to improve the corporate income tax system

The previous chapter considered how seven features of the current corporate income tax system introduce problems (distortions) which influence the behaviour of firms and compromise the efficiency of the economy and the integrity of the corporate income tax system. These distortions are substantial and have led many economists to conclude that the deadweight loss associated with the current corporate income tax system is high compared to other taxes (Cao et al. 2015; Murphy 2016; KPMG 2010; and Australia's Future Tax System Review Review 2010).[37] Of all taxes in the Australian economy, corporate income tax is among those causing the most damage, hindering productivity and economic growth.

How can the corporate income tax system be reformed to reduce and/or eliminate these distortions? What are the options available? How affectively do these options address the seven distortions? Alternatives to the current corporate income tax system include: the Comprehensive Business Income Tax (CBIT), the Allowance for Corporate Equity (ACE), the Allowance for Corporate Capital (ACC), and Cash-flow taxes (CFT).[38] Other possibilities, which fall short of substantial reform, such as reducing the corporate tax rate or introducing accelerated depreciation, are briefly discussed in chapter four.

This third chapter reviews these options in detail and summarises the economic theories that underlie their design and the potential costs and benefits of their implementation. It also reviews implementation challenges. An extensive empirical literature review on the effects of the ACE is also provided since it is the only corporate tax system to have been implemented in multiple countries at the national level. This report ultimately recommends the introduction of an ACE (discussed in detail in chapter four).

Tables 4, 7, 8 and 9 evaluate the four substantive reform options against their ability to resolve six of the seven distortions inherent in the current corporate income tax system. The seventh distortion, identified as arising from the imputation system, is excluded since an imputation system is compatible with all options. The justification for imputation is also reduced with many of these options. The imputation system is also discussed in more detail in chapter four when we consider how an ACE might be designed for Australia. For each reform option, the implications of reform at the shareholder level are considered. One issue is the impact on shareholder dividends. Another is the impact on corporate bondholders.

37 Nassios et al. 2019 find a negative deadweight loss. However this is because they consider the impact of reducing the corporate income tax to zero, which results in a windfall gain to foreign investors (who willingly invested at a 30% corporate tax rate). This windfall gain reduces long run gross national income and appears as a negative excess burden.

38 These are also reviewed in detail by Ingles and Stewart (2018).

3.1 Broadening the corporate tax base: Comprehensive business income tax (CBIT)

The comprehensive business income tax (CBIT) has never been implemented, but was originally proposed by the US Department of Treasury (1992) and considered by the Swedish Corporate Tax Reform Committee (2014).[39] Unlike the economic rent taxes discussed below (ACE, ACC and CFT), the CBIT taxes all business income, including the normal rate of return on investment. It achieves this by disallowing the deduction of interest from a company's corporate income tax base and thereby eliminating the bias associated with debt financing. The calculation of the CBIT corporate income tax base is presented below:

Corporate income tax base (also referred to as profits)
=revenue - labour costs - material costs - ~~debt interest~~ - depreciation

In theory, by increasing the size of the corporate income tax base (by eliminating interest deductibility), the CBIT increases the cost of debt-financed capital which reduces investments on the margin. However, by broadening the corporate income tax base, the statutory corporate income tax can be reduced, enabling a revenue neutral policy change and partially offsetting the increase in investment costs. By disallowing interest deductions, the CBIT neutralises the choice between debt and equity.

Since MNEs shift debt as a tax minimisation strategy, and since Australia has a relatively high statutory corporate income tax rate, the introduction of a CBIT would likely reduce the amount of debt held by MNEs in Australia (since they could no longer deduct interest payments from their taxable income). Introduction of a CBIT coupled with a lower corporate tax rate could attract mobile economic rents or MNEs' paper profits to Australia (de Mooj and Devereux, 2011). A CBIT decreases the cost of equity capital through a reduced corporate income tax rate but increases the cost of debt-financed capital by disallowing interest deductions.

The CBIT has other limitations. For example, any reduction to the corporate tax rate reduces its effectiveness as an integrity measure, backstopping the personal income tax (because it increases the gap between the personal and corporate tax rate). Such a reform could accompany a change in the top marginal income tax rate for personal income tax. Evidence from the preceding chapter suggests that while the gap between the statutory corporate income tax rate and the highest personal income tax rate is important, the flexibility afforded by trusts and the access they afford to all marginal personal income tax rates and the corporate rate are even greater challenges compromising efficiency, fairness and the integrity of the system.

Transitional issues associated with CBIT introduction could be significant. Marginal companies with substantial debt could no longer deduct interest payments from their taxes. This could have significant financial implications for the survival of these companies. International tax treaties might require renegotiation since interest deductibility is generally an internationally accepted tax practice (Head and Krever, 2007).

Table 4 evaluates a revenue neutral CBIT against its ability to resolve the distortions inherent in the design of the current corporate income tax system. A CBIT would broaden the corporate income tax base, providing a revenue neutral option for a corporate income tax rate reduction. Compared to rent taxes (described in detail in the next section) that narrow the tax, Ingles and Stewart (2018) suggest that a broader tax base could reduce incentives for base erosion and profit-shifting through the deductions and allowances available in an international environment. By disallowing interest deductibility, it would neutralise the choice of financing

39 Swedish Corporate Tax Reform Committee. (2014). Neutral bolagsskatt – för ökad effektivitet och stabilitet (Neutral corporation tax - for increased efficiency and stability). SOU 2014:40, Stockholm 2014.

between debt and equity but would increase the cost of capital and decrease the viability of marginal investment projects. Part of the increase in the cost of capital could be reduced by a reduction in the statutory corporate income tax rate. A reduced corporate income tax rate could further reduce profit-shifting and encourage foreign investment. A CBIT would also increase the rate of taxation on interest payments received by debt holders since the return would be taxed at the corporate and shareholder levels.

Table 4 Does a revenue neutral CBIT eliminate the current corporate income tax system's problems?

Problem	Is the problem resolved?
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	No, it is worsened. The gap gets bigger because the CBIT broadens the tax base and the corporate tax rate can be lowered. Arbitrage opportunities through the use of trusts and the lower PIT rates remain.
2. Debt bias	Yes. All financing costs are excluded from the tax base.
3. Taxing the normal return to investment	No, it is worsened. Since no financing costs are recognised as an expense incurred by businesses, running a business is more costly. Taxation of the normal return to investment can be reduced, for equity financed investments, by a reduction in the statutory corporate tax rate.
4. High statutory corporate income tax rate	Yes. If MNEs cannot write-off their debt as a cost, they have less incentive to allocate it to a high tax country such as Australia. A revenue neutral change to a CBIT would allow a reduction in the statutory corporate income tax rate.
5. Variation in effective corporate tax rates	Yes, partially. Variation caused by differences between tax and economic depreciation will remain. Variation caused by differences in financing will be eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.
6. Difference between economic and tax depreciation	No. Identical treatment to the current corporate income tax system
Implications at the individual level	
Impact on shareholders' dividends	Identical treatment to the current corporate income tax system
Impact on corporate bondholders' return on investment	No, it is worsened. The marginal tax on interest payments received by bondholders will increase with additional taxation at the corporate level.

3.2 Narrowing the corporate tax base: economic rent taxes

The allowance for corporate equity (ACE), allowance for corporate capital (ACC), and the cash-flow tax (CFT) are corporate tax reform options that, by design, exclusively tax economic rents (see **Appendix A** for a detailed discussion of economic rents). While rent taxes do not tax the normal return on investment, if economic rents are mobile, they can influence the location of future investment choices through the effective average tax rate. In setting the corporate tax rate under a rent tax, care needs to be taken to balance revenue considerations with the potential disincentives for investment at a high rate.

The options of using ACE, ACC and/or CFT merit consideration since, in addition to excluding the normal return on investment, they reduce and/or eliminate some of the other problems inherent in the current corporate income tax system. In so doing, these systems improve efficiency and fairness. This section presents the ACE, ACC and CFT in greater detail together with a corresponding table summarising how each addresses the problems identified in

chapter two. The ACE is the only form of rent tax that has been implemented at a national level, though modified CFTs have been introduced in some sectors. **Table 6** provides an extensive literature review of the impact of the ACE. A discussion of the modified CFTs implemented in Australia at the sectoral level, the Petroleum Resource Rent Tax (PRRT) and Northern Territory's Mineral Rent Tax are summarised in **Appendix F**.

3.2.1 Allowance for corporate equity (ACE)

The case for the allowance for corporate equity (ACE) was originally set out by Boadway and Bruce (1984), before being proposed by the Capital Taxes Group of the Institute for Fiscal Studies (1991) and the Mirrlees Review (2011) for the United Kingdom. The ACE allows companies to deduct a notional return on equity as well as debt interest. As a result, companies only pay corporate tax if they make a return on equity higher than the notional return used for the deduction. Only economic rents are taxed, and the debt-bias and distortion to marginal investment are eliminated. The corporate tax base for the allowance for corporate equity is presented below:

Corporate income tax base (also referred to as profits)
=revenue - labour costs - material costs - debt interest - return on equity$_e$ - depreciation

An ACE in theory

An ACE has four theoretical advantages. Primarily, an ACE is investment neutral. Since an ACE includes all costs of financing as expenses and eliminates the distortion between tax and economic depreciation, firms just breaking even (marginal firms) are untaxed. In addition, marginal investments (made by marginal and non-marginal firms) are also untaxed because the pre-tax return on a marginal investment will equal the notional rate of return on equity, Rn, and by definition, be excluded from the corporate tax base. By recognising all financing costs, an ACE should in theory stimulate investment on both the intensive and extensive margins. In other words, it will stimulate marginal investment of existing firms (the intensive margin) and give equitable opportunity to new marginal firms to open and start up business (the extensive margin).

Second, an ACE removes the distortion in corporate financing decisions between debt and equity.[40] The inclusion of a deduction for the return on equity in the corporate tax base however, narrows the corporate tax base and revenue collected from it. For this reason, a higher tax rate is required to maintain the same level of corporate tax revenue (though this is not our recommendation and is discussed in the next chapter). As indicated by the subscript e in the equation above, the return on equity is a notional, or estimated, value. The marginal return to equity – the return on equity per dollar invested – is represented by:

$$\frac{\textit{Corporate income tax base}}{\textit{Equity funded capital stock}} = Rn + Rr + Rri + Rrm$$

Freebairn (2016) defines Rn as the normal investment return, Rr as the risk premium specific to a firm, Rri as location-specific economic rents, and Rrm as mobile economic rents. The latter three components are referred to as the equity premium. The ACE effectively allows for the normal investment return – Rn (times the amount of equity funded capital stock) – to be deducted from the corporate income tax base.

40 The Mirrlees Report (2011) stated that the ACE"...can be thought of in two ways: either as a counterpart to allowing the interest cost of debt finance to be tax deductible, or as a series of deferred tax allowances which compensate for the absence of the up-front 100% allowance for equity-financed investment expenditure provided by the cash-flow taxes. These two interpretations are broadly equivalent in examples with perfect certainty about future returns, while the second interpretation turns out to be more appropriate in the presence of risk and uncertainty."

A third advantage of the ACE is that it eliminates distortions between economic depreciation and depreciation defined by the tax schedule. Using the tax base defined in the equation above, **Table 5** shows how inconsistencies between the tax schedule depreciation and actual economic depreciation cancel each other out. If depreciation in the tax schedule is lower than economic depreciation, the ACE tax base will be larger, and more corporate tax payable. Over time, tax payable under the tax schedule depreciation decreases, relative to that payable under economic depreciation, since the ACE tax base is smaller. Differences in the depreciation schedules change the book value of equity over time; the faster depreciation is applied, the smaller the book value of equity and the lower the allowance for corporate equity. As a result, irrespective of the depreciation schedule chosen, in net present value terms, profit remains the same. Finally, an ACE is unaffected by inflation (Mirrlees 2011). Increases in the value of profits due to inflation will also be captured by increases in Rn (which is represented in nominal, as opposed to real values).

Table 5. Economic depreciation and tax schedule depreciation under an ACE.

Year	Book value of equity	Revenue	Costs	Tax Schedule Depreciation	Allowance for corporate equity (5%)	Taxable profit	Tax payable	Net profit	NPV Profit
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	(a_{t-1})-(b_{t-1})				(a)*.05	(b)-(c)-(d)-(e)	(f)*.3	(f)-(g)	(h)/((1.05)^t)
0	100	500	200	25	5.00	270.00	81.00	189.00	189.00
1	75	450	190	25	3.75	231.25	69.38	161.88	154.17
2	50	420	190	25	2.50	202.50	60.75	141.75	128.57
3	25	400	180	25	1.25	193.75	58.13	135.63	117.16
								Total NPV profits across all years:	**$588.90**
Year	**Book value of equity**	**Revenue**	**Costs**	**Economic Depreciation**	**Allowance for corporate equity (5%)**	**Taxable profit**	**Tax payable**	**Net profit**	**NPV Profit**
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	(a_{t-1})-(b_{t-1})				(a)*.05	(b)-(c)-(d)-(e)	(f)*.3	(f)-(g)	(h)/((1.05)^t)
0	100	500	200	75	5.00	220.00	66.00	154.00	154.00
1	25	450	190	10	1.25	248.75	74.63	174.13	165.83
2	15	420	190	10	0.75	219.25	65.78	153.48	139.21
3	5	400	180	5	0.25	214.75	64.43	150.33	129.86
								Total NPV profits across all years:	**$588.90**

Note: The table assumes a 30% corporate income tax rate, and an interest rate and allowance for corporate equity both equal to 5%.

Source: Authors' calculations.

International experience implementing an ACE

The ACE is the only rent tax to have been introduced in practice at a national level and the countries listed in **Table 6** have experimented with it in varying forms. Both Switzerland and Denmark have also proposed to introduce an ACE in the near future. This section reviews the empirical evidence derived from these countries' experience with an ACE.

Disregarding other differences in the design and implementation of ACE systems, in general they fall into one of two categories: full (hard) or partial (soft). A full ACE implies that the notional interest rate deduction applies to the entire equity stock, whereas a partial ACE implies that the deduction only applies to new equity. The appendices of Hebous and Ruf (2017), IMF (2016) and Kayis-Kumar et al. (2022) provide an overview of the specific details of implementing countries' ACEs. **Table 6** below summarises the ACE in place in each country and provides a brief overview of the academic literature evaluating its impact.

Table 6. Countries that implemented an ACE and the effects identified in the academic literature

Country	Description of ACE	Academic literature effects
Austria (2000 – 2004)	• Partial (soft) ACE. Did not exempt normal economic profits from taxation but applied a lower tax rate to them compared to economic rents. Only applied this system to post-reform equity. The notional return was taxed at 25 percent for corporations instead of 34 percent. • The ACE's repeal was implemented alongside a reduction of the statutory corporate tax rate to 25 percent.	• Petutschnig and Rünger (2017) show that the application of a partial ACE in Austria during the early 2000s increased corporate equity ratios by 5.5 percentage points. • Profit distribution ratios declined by 7.55 percentage points (Petutschnig and Rünger 2017). • After the repeal of the ACE, the authors found corporate equity ratios decreased and profit distribution ratios increased (Petutschnig and Rünger 2017).
Belgium (Since 2006)	• Full (hard) ACE until 2018. SMEs also eligible for a supplemental nominal interest deduction. • From 2018: Partial (soft) ACE.	• Burggraeve et al. (2008) found the imposition of the ACE had a limited negative impact on corporate tax revenue, but acknowledged this could change in the longer-term (analysis limited to non-financial companies). • Princen (2012) finds the Belgian system encouraged firms to decrease their leverage by 2 to 7 percent and that no clear-cut impact of the ACE on investment can be determined (analysis limited to non-financial companies). • Kestens et al. (2012) find the ACE contributed to a decline in the debt ratios of Belgian SMEs (analysis limited to non-financial companies). • The effectiveness of the ACE in Belgium on SMEs' leverage ratios seems negligible in the short run (Campenhout and Caneghem 2013). • Aus dem Moore (2014) exploits differences in investment responses of small, medium, and large firms. While the introduction of the ACE is likely to impact the cash-flow of all firms, small and medium firms are more likely to use the cash-flow on increased investment. The author finds that in response to the ACE, investment increased by 3 percent but also acknowledges the importance of other factors at play. • Panier et al. (2015) observe an increase in a firm's share of equity, especially among large and new firms (analysis limited to non-financial companies). • de Mooij, et. al (2018) consider the impact of the ACE on financial companies' leverage. They find the ACE was highly successful in reducing bank leverage, reaching a magnitude of 13.7 percentage points.

Country	Description of ACE	Academic literature effects
Brazil (Since 1996)	Partial (soft) ACE. Only allows notional interest to be deducted if it is paid out to shareholders (or credited to owners in closed companies) and not if equity is retained. Limits imposed on the level of notional interest that is tax deductible.	• Portal and Laureano (2017) argue this reform is mischaracterised as an ACE and as a result has unexpected effects like an increase in debt bias. In addition, they find that controlling shareholders who enjoy preferential tax benefits under this scheme can influence a company's distribution policy.
Croatia (1994 – 2000)	Full (hard) ACE.	• Limited data and other simultaneous reforms limit the analyses available. A summary of the system is provided in Keen and King (2002).
Cyprus (Since 2015)	Partial (soft) ACE.	No literature available
Italy (1997 – 2003) (Since 2011)	Partial (soft) ACE. In 1997, Italy did not exempt normal economic profits from taxation, but applied a lower tax rate to them ("ordinary income") compared to economic rents ("extra profits"). In 2011, Italy introduced a notional interest deduction (initially set at 3 percent) on capital increases made from 2010. The notional rate was increased gradually and then decreased gradually to 1.5 percent in 2018. The decrease was implemented alongside a reduction of the statutory corporate tax rate to moderate the impact of the ACE on tax revenue.	• Bordignon et. al (2001) found the initial reform reduced the cost of capital for firms that used equity financing. However, due to the nature of the initial reform, the impact on the average tax rate was not as extreme. • Firms decreased leverage; mostly profitable firms issued new equity (Staderini 2001). • The ACE reduced manufacturing companies' leverage ratios by almost 9 percentage points in the 2011-13 period. The effect is larger for small and medium enterprises (SME's) and for mature firms in the 2011-13 period (Branzoli and Caiumi 2018).
Latvia (2009 – 2014)	Partial (soft) ACE.	No literature available
Liechtenstein (Since 2011)	Full (hard) ACE.	No literature available
Malta (Since 2018)	Full (hard) ACE.	No literature available
Poland (Since 2019)	Full (hard) ACE	No literature available
Portugal (2010 – 2013)	Partial (soft) ACE.	No literature available
Turkey (Since 2016)	Partial (soft) ACE.	No literature available
Cross-country analyses		• Using data on German-based MNEs, Hebous and Ruf (2017) find an ACE reduces the total debt ratio in a country by 3 to 5 percentage points. They find a positive effect on passive investment and no effect on active investment. • The average leverage ratio of firms fell by 45 percent following the introduction of the ACE (Hebous and Ruf 2017)

Source: Authors' compilation.

The results from **Table 6** suggest that while the imposition of an ACE tends to reduce the share of debt leverage held by companies, its effect can vary by firm type and context. For example, in Belgium where a full ACE was imposed, Campenhout and Caneghem (2013) find a negligible effect on debt leverage held by SMEs, while Kestens et al. (2012) identify an effect on debt leverage for SMEs. By contrast in Italy, where a soft ACE was imposed, the effect of the ACE on debt leverage was greater for SMEs and mature firms. de Mooij, et. al (2018) consider the impact of Belgium's ACE specifically on financial companies' leverage. They find that the ACE was highly successful in reducing bank leverage (by about 13.7 percentage points).

Using cross-country data of German MNEs, Hebous and Ruf (2017) consider the impact on debt leverage in various countries where a hard or soft ACE was present. They find that the average leverage ratio of firms fell by 45 percent following the introduction of the ACE and that it reduced the total debt ratio in a country by 3 to 5 percentage points.

Studies also consider the impact of the ACE on factors like public finances or investment. In the same Hebous and Ruf (2017) cross-country study, the authors find a positive effect on passive investment and no effect on active investment. Aus dem Moore (2014) finds that in response to the ACE, investment increased by 3 percent among small and medium businesses. Considering tax revenue, Burggraeve et al. (2008) found that the imposition of the ACE in Belgium had a limited negative impact on corporate tax revenue, but acknowledge this could change in the longer-term. de Mooij et al. (2018) estimate the revenue effect of an ACE at 10 percent of corporate income tax revenue in Belgium. The IMF (2016) estimates the cost of introducing an ACE for an average OECD country to range between 10 to 12 percent of corporate income tax revenue.

In cases where only one country had an ACE in place, MNEs exploited cross-country differences in the treatment of equity to minimise tax. For example, when Belgium introduced an ACE in 2006, Hebous and Ruf (2017) found that German MNEs in Belgium lent equity to corporate group members in other countries. This practice enabled MNEs in Belgium to double-dip their tax deductions, first as equity in Belgium, and then as debt in the country where the equity was loaned. However, this was not problematic for Belgium from a tax revenue standpoint. The authors also found that while the ACE decreased leverage, the increase in equity did not necessarily result in more active investment (i.e. investment in production, as opposed to passive investment). These examples point to the importance of design considerations, as well as international coordination regarding tax payments and loans made between countries with and without ACE systems in place.

Several countries eventually eliminated their ACE. They did so to prioritise reducing the corporate income tax rate or for tax revenue concerns, rather than in response to a design-flaw of the system itself (Kayis-Kumar 2015). An advantage of implementing corporate income tax reform within broader tax reform is that such concerns can be incorporated or offset elsewhere in the tax system. The soft ACE implemented by various countries also provides a means to reduce the tax revenue implications of narrowing the tax base. It also eliminates the windfall gain for pre-existing equity investments. Coupling the introduction of an ACE with base-broadening measures was another mechanism employed to ensure or improve the likelihood of revenue neutrality. For example in Belgium, where a hard ACE was initially introduced, the system was implemented with provisions to attempt to ensure revenue neutrality. The definition of taxable capital gains was revised and investment allowances and the tax credit system for SMEs were eliminated (Burggraeve et al. 2008).

Belgium is the most recent country to weaken its ACE alongside a reduction in its corporate income tax rate. In response to international trends in corporate taxation, a multi-year reform of corporate income taxation was introduced in 2018 (described in de Mooij et al. 2018). The multi-year plan decreased the corporate income tax rate from 34 percent to 29.57 percent in 2018 then further reduced it to 25 percent in 2020. The reform also changed the system from a full to a partial ACE[41], broadening the corporate tax base.

41 Specifically, from 2019, the interest rate that applies to equity capital can only be applied to the difference between: (1) the average of the stock of equity in the year in question and four years prior and (2) the average stock of equity held in the previous five years.

ACE conclusions

In summary, as presented in **Table 7**, an ACE is appealing because it addresses many of the problems identified in chapter two. It (at least partially) removes debt bias and reduces (and in some cases eliminates) corporate taxation of marginal investments. By design, it also accounts for inflation fluctuations. Transitional costs are lower than for other types of rent taxes like the cash-flow tax (described below) since an ACE does not drastically change the existing tax base and the system can remain source-based. Furthermore it is the only form of rent tax to have been introduced at the national level in multiple countries.

Empirical evidence from the countries that implemented an ACE suggests its introduction reduced firm leverage. Evidence also suggests that while an ACE increased investment, it had potentially heterogenous effects on active and passive investment. The experience of Belgium showed that, despite narrowing of the corporate income tax base with an ACE, revenue neutrality can be achieved by simultaneously enacting other tax reforms. De Mooj et al. (2018) use a CGE model to simulate the impact of introducing a revenue-neutral ACE and conclude that the positive effect on investment is greater if financed by an increase in VAT revenue, relative to an increase in the statutory corporate tax rate.

However, country experience is mixed and some countries have enacted then repealed the ACE. Concerns raised about the ACE, like other rent taxes, relate to the added opportunities for profit-shifting by MNEs. Belgium provides evidence to this effect, with firms double-dipping tax deductions with non-ACE countries. However, this only has tax revenue implications for the non-ACE jurisdictions.

Table 7 Does a revenue neutral ACE eliminate the corporate income tax system's problems?

Problem	Is the problem resolved?
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	Yes, partially. The gap between the highest PIT rate and the CIT rate is reduced because the CIT rate increases. However, arbitrage opportunities remain through the use of trusts and the lower PIT rates.
2. Debt bias	Yes, partially. The normal return to equity is recognised as a financing cost. However, since the normal return to equity may vary by firm, the notional return to equity designated in the ACE will be more generous to some firms and less generous to others. The ACE will lessen but not eliminate the bias.
3. Taxing the normal return to investment	Yes, partially. See comment above about the normal return to equity varying by firm.
4. High statutory corporate income tax rate	No. Other regulation will be required to redress this issue. A revenue neutral ACE with a higher rate could encourage MNEs to shift more debt to Australia. It could also encourage MNE's to double-dip tax deductions through Australia.
5. Variation in effective corporate tax rates	Yes, mostly. Variation caused by differences in economic and tax depreciation will be eliminated. Variation caused by differences in financing will be mostly eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.
6. Difference between economic and tax depreciation	Yes.
Implications at the individual level	
Impact on shareholders' dividends	If imputation remained, as it currently operates, shareholders would only receive franking credits for the portion of the dividend which had been taxed at the corporate level (the economic rents). In general, a rethink of the imputation system's operation would be desirable if an ACE were introduced.
Impact on corporate bondholders' return on investment	Identical treatment to the current corporate income tax system

3.2.2 Allowance for corporate capital (ACC)

The allowance for corporate capital (ACC) is similar to the ACE. However, instead of providing an explicit allowance for equity it combines debt and equity and allows for a singular notional allowance for both. The tax base is defined as:

Corporate income tax base (also referred to as profits)
=revenue - labour costs - material costs - capital allowance$_e$ - depreciation

The ACC has the same theoretical and practical challenges as the ACE, with one subtle difference. According to economic theory, since both debt and equity are treated the same, the tax system eliminates the distortion in corporate finance. In practice, similar to the return on equity for the ACE, since the capital allowance is estimated, any difference between the actual return on equity and/or interest rate paid on debt, and the allowance defined and permitted by the notional return in the ACC, will result in a partial over or under taxation of the normal return on investment. By contrast, under the ACE only the normal return to equity is potentially exposed to taxation (since interest payments remain fully deductible). No country has an ACC in operation.

Showing how a revenue neutral ACC addresses the problems of the corporate income tax system is more complex than for an ACE since all debt and equity are treated the same. Consequently, while this effectively removes the debt bias of the system, revenue neutrality will depend on the rate at which the notional return to capital is set and the composition of debt and equity held by firms. For example, assume a company owes a 5 percent return on their corporate bonds to investors. Under the current corporate income tax system and an ACE, the firm could write-off the totality of the interest payments made to bondholders from its taxable income. However, under an ACC, this is only possible if the notional return to capital is set at 5 percent. If it is set higher than 5 percent, the firm can further reduce its taxable income and tax payable. If it is set lower than 5 percent, then the firm can deduct less interest from its taxable income. If the firm has no equity, then tax revenue remains the same if the rate is 5 percent, goes down if it is set at 6 percent and increases if it is set at 4 percent. **Table 8** presents the implications of an ACC.

Table 8 Does a revenue neutral ACC eliminate the corporate income tax system's problems?

Problem	Is the problem resolved?
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	Uncertain. It is not possible to determine whether a revenue neutral ACC rate would go up or down.
2. Debt bias	Yes
3. Taxing the normal return to investment	Potentially. The normal return to equity and debt are recognised as a financing cost. However, since the normal return to both debt and equity may vary by firm, the notional return designated in the ACC will be more generous to some firms and less generous to others. The ACC will lessen the bias but not eliminate it.
4. High statutory corporate income tax rate	No. Other regulation will be required to redress this issue.
5. Variation in effective corporate tax rates	Yes, mostly. Variation caused by differences in economic and tax depreciation will be eliminated. Variation caused by differences in financing will be eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.
6. Difference between economic and tax depreciation	Yes.

Problem	Is the problem resolved?
Implications at the individual level	
Impact on shareholders' dividends	If imputation remained, as it currently operates, shareholders would only receive franking credits for the portion of the dividend which had been taxed at the corporate level (the economic rents). In general, a rethink of the imputation system's operation would be desirable if an ACC were introduced.
Impact on corporate bondholders' return on investment	If the ACC 's notional return to capital is set lower than the interest rate owed on a corporate bond, part of the bondholder's return will be taxed at the corporate and shareholder level. In general, a rethink of the taxation of interest would need to be considered if an ACC was introduced.

3.2.3 Cash flow taxes (CFT)

Cash flow taxes are sometimes referred to as business activity taxes since they tax activity, rather than outputs. Cash flow taxes are based on a completely different tax base; they tax the difference between cash inflows and cash outflows, instead of income as measured by the difference between revenue and expenses.

The idea of a CFT appeals to economists largely on its theoretical merits, since no country has ever implemented one at the national level. This section reviews the different corporate tax bases that a CFT can have. It then reviews the significant challenges that the introduction of a CFT would impose. While a CFT has never been implemented nationally, some countries considered it. Some modified CFTs have been applied to individual sectors in Australia. These sectoral examples are detailed in **Appendix F**.

Defining a corporate tax base for the cash-flow tax

The academic literature points to three options to define the corporate cash flow tax base:

R-based. In this case the tax base is the difference between sales and purchases of real goods and services. Real goods and services refer to those produced in the non-financial sector. The R-base is:

Taxable cash flow tax base (R based) = (PR + SV + FAI) - (MAT + LAB + OTH)

Cash inflow is comprised of three streams: the sale of products (PR), the sale of services (SV), and the sale of fixed assets and inventory (FAI). The cash outflow (expenditure) is captured by the purchase of materials (MAT), the payment of wages and salaries (LAB), and the purchase of other services and goods used in the business, including the purchase of fixed assets and inventory (OTH). Financial cash flows related to financing the business (borrowing or lending) are excluded from the tax base implying that among other exclusions, interest payments are no longer deductible, and interest received by the company would no longer be taxed. Under this system, capital investments would be expensed immediately (instead of over time through depreciation).

The R-base is ineffective for financial companies since payment for "real" services in the financial sector can be disguised as financial services, and excluded from the tax base. For example, reduced or zero interest rates could be charged to customers by banks for the "real" services provided. For this reason, a separate tax system would need to be considered for the financial sector (Institute for Fiscal Studies Capital Taxes Group, 1991).

R + F based. This tax base includes both the R-based tax base described above, but also includes the financial flows (F) of companies (in both the financial and non-financial sector). The R+F tax base includes non-equity financial transactions that refer to the borrowing and lending of funds. Non-equity financial transactions are financial institutions' profit margins (the difference financial institutions charge between borrowing and lending funds). Under the R + F tax base, financial flows are treated symmetrically as part of the cash flow calculation. For example, interest paid on debt would represent an outflow thereby decreasing the tax base and interest received would amount to a cash inflow increasing the tax base. Similar treatment would also apply to borrowed funds; a loan disbursed to a company would increase its tax base (cash inflow), while repayments of the loan over time would reduce it (cash outflow).

It would be possible to design a dual system with separate calculations and potentially different tax rates for the R base and F base. Injections of equity would be excluded from inflows in the R+F cash-flow base, and equity repurchases, and dividends would be excluded from outflows. The R+F base defined in this manner applies to "all net financial flows related to borrowing, including principal amounts, as well as to net real inflows (Auerbach et al. 2017)." The taxable R+F cash flow tax base is presented below where BF is borrowed funds, IR is interest received, LR is loan repayments, IP is interest paid, DP is debt paid, and LF is funds lent to others.

Taxable cash flow tax base (R+F based)
=(PR + SV + FAI + BF + IR + LR) - (MAT + LAB + OTH + IP + DR + LF)

S-based. The S-based cash-flow tax is based on the net flow of cash between corporations and their shareholders. The identity presented below signifies that any difference between the inflows and outflows should be either paid to shareholders or paid in tax. For this reason, the R+F cash flow tax base is equivalent to the S base plus taxes (S+T).

S base = dividends paid + purchases of shares - issues of new shares

$$S + T = R + F$$

Origin or destination-based cash-flow taxes?

Another design feature that should be considered is whether cash-flow taxes should be origin or destination based. Under an origin-based cash-flow tax, the cash generated in a particular period is taxed where it is produced and the formulas presented above for each of the tax bases remain the same. By contrast, under a destination-based cash-flow tax (DBCFT), the cash would be taxed where it is consumed, similar to a VAT. Under a destination-based system, imports are taxed while exports remain untaxed. The tax base also changes. An example of how the tax base changes under a destination-based cash-flow tax based on the R tax base is presented below:

Destination based taxable cash flow tax base (R based)
= (PRdom + SVdom + FAIdom) - (MATdom + LABdom + OTHdom)

Cash inflow comprises three streams: the sale of products sold domestically (PRdom), the sale of services sold domestically (SVdom), and the sale of fixed assets and inventory sold domestically (FAIdom). Cash outflow (expenditure) is captured by the purchase of domestic materials (MATdom), the payment of wages and salaries (LAB), and the domestic purchase of other services and goods used in the business, including the purchase of fixed assets and inventory (OTHdom).

The literature on destination-based cash-flow taxes (DBCFT) suggests that they would be effective at mitigating revenue loss from international tax planning (Auerbach et al. 2017; Devereux et al. 2020). Business sales to domestic companies would incur a deduction, while foreign sales (exports) would not be subject to the DBCFT. As a result, the DBCFT's effectiveness relies on the immobility of final consumers. In the event that a destination-based cash-flow tax was implemented in Australia, only the economic rents received by Australian shareholders from natural resource companies (iron ore, coal, petroleum) would be taxed, foregoing significant tax revenue from location-specific rents in Australia that are foreign owned. This is particularly relevant for Australia given the sector's significant contribution to corporate income tax revenue under the current corporate income tax system.This revenue loss would however, be partially offset by taxation of Australian shareholders' rents on all overseas investments.

The significance of the mining sector is one reason Ingles and Stewart (2018) argue that source-based taxation is preferable for corporations in Australia. In addition, they argue that: (1) transition costs are reduced by retaining the existing source-based system; (2) a source-based system is consistent with the current international tax system; (3) as a net-capital importer and resource-rich exporter, value and economic rents are generated primarily through the export of goods (resource and agricultural products) and services (financial and education services); and (4) a more effective way of taxing consumption in Australia would be through a higher goods and services tax (GST), currently set at a low level relative to other OECD countries. Subsequently, even in light of some international changes that challenge continued reliance on source based taxation, such as increased reliance on intellectual property, important reasons suggest it has continued relevance in the Australian context.

National cash flow taxation in theory and practice

A CFT has many theoretical advantages. First, it neutralises the choice between debt and equity financing. Second, it eliminates the effects of inflation since expenses are accounted for in the same period they are taxed (as opposed to traditional treatment of depreciation). This also equalises the choice between present and future investment since investment expenses reduce the tax base immediately. Third, the elimination of depreciation potentially reduces the administrative tax burden for complying with the tax code and for tax administration. Moreover, distortions engendered by differences between economic depreciation and the depreciation established by a tax schedule no longer play a role. Since CFTs only tax economic rent, marginal investments are not taxed.

Despite these theoretical advantages, hurdles must be cleared prior to implementation. First of these are concerns and implications linked to choosing the appropriate statutory rate. In theory, the transition to a CFT from a traditional corporate income tax system narrows the tax base since the former only taxes economic rents while the latter taxes economic rents and the normal return on investment. This implies the need for an increase in the statutory tax rate to ensure government revenue neutrality. The relavence of this theoretical implication depends on a CFT's real-world implementation. Similar to the tax base narrowing implied by an ACE or ACC, in the short run the elimination of certain tax expenditures alongside the introduction of a CFT could mitigate potential revenue shortfalls. In the long run, eliminating the distortionary effects associated with taxing the normal return on investment could in theory result in higher levels of investment. However, implementing a higher statutory corporate tax rate could raise incentives for profit-shifting.

Second, implementing a pure cash-flow tax will raise tax revenue concerns. Under a pure cash-flow tax, the government is implicated as a silent partner, providing tax-credit for upfront investments. In years where the cash-flow is negative (outflows exceed inflows), the government would refund the difference. This in effect requires the government to compensate companies with greater outflows, a potentially significant tax revenue

consideration. This could present challenges, particularly in cases where positive revenue is not expected from investments for significant periods. In practice, the cash-flow tax can be modified, such as by uplifting losses by an uplift rate (as implemented in the petroleum sector and the Northern Territory – see **Appendix F**). However such modifications introduce their own distortions.

Third, depending on the type of tax base selected, potential income misclassification arises. For example, electing an R+F base eliminates the possibility for companies to redefine real sales as untaxed financial income (OECD 2007). By contrast, an R base would be simpler to administer but would require a supplementary tax for the financial sector. Finally, a choice is required whether to tax at source or destination. As noted earlier, choosing a DBCFT for Australia, exempting revenue from the export-oriented mining sector, has major tax revenue implications.

These considerations, among others, discouraged Norway and New Zealand from adopting cash-flow taxes following reviews of their corporate tax systems. In Norway, the Scheel committee considered replacing the corporate income tax with a CFT in its review in 2014. It decided against this proposal for several reasons. First, international differences in definitions and the treatment of income and costs could increase the likelihood and potentially the magnitude of double taxation. This was of particular concern to a small open economy aiming to attract more investment. Second, implementing a CFT while continuing to comply with current tax treaties and international obligations would be challenging from a legal standpoint. Finally, tax revenue would be more volatile and countercyclical, falling in times of investment expansion (large cash outflows) and increasing in periods with lower investment (smaller cash outflows).

New Zealand also considered implementing a CFT in 2001, and again specifically for small business in 2002, neither of which eventuated. The transitional obstacles featured among challenges associated with implementation. In particular, new investments made by firms would receive an immediate deduction (in the form of large cash outflows) under a CFT, while investments made prior to its imposition would have to forego future years of tax-deductible depreciation. The 2002 review proposed three options with differing winners, losers and consequences. Allowing firms to deduct the remaining undepreciated value of pre-existing assets upon transition to the CFT would have resulted in significant tax revenue loss for the government and higher income taxes on workers. Concerns emerged about future tax evasion where companies structured large investment cash outflows in New Zealand and future cash inflows from those investments in other jurisdictions. Finally, a proposed CFT exclusively for small businesses was dropped over implementation concerns about growing companies that would need to transition from a CFT small business scheme to a traditional corporate income tax scheme as a large business.

Garnaut et al. (2020) simulate the introduction of a national R-based and source based cash-flow tax for Australia with a separate tax for the financial sector (the financial services income tax: FSIT). The FSIT would apply at 30%, the same rate as the proposed R-based cash-flow tax rate. Companies could choose to switch from the current corporate income tax system to the CFT at any point over a 10 year period. They would be obligated to switch to the CFT after year 10 in the absence of a prior change. The authors estimate the introduction of an R-based tax would generate more corporate income tax revenue than the current corporate income tax system because of revenue gains from taxable corporations with international dealings and the boost to private investment induced from replacing the corporate income tax system with a CFT.

While the authors estimate the proposed revenue gains from a CFT, they do not fully discuss or estimate associated transitional costs. They do not discuss how remaining undepreciated assets are treated when companies make their switch. If all remaining depreciation

allowances are allowed to be deducted prior to the irrevocable switch, the government will incur revenue losses not accounted for in their modelling. If the authors expect companies to bear the cost of the change by denying deductibility of remaining depreciation allowances, they neglect to discuss the implications. Companies that invest in assets with very long effective lives would likely wait until the 10 year period ended to switch (to fully take advantage of the depreciation allowances) and might also defer large investments until they enter into the new system. The transitional implications for government tax revenue and companies of disallowing debt interest deductions, particularly for heavily leveraged companies, is not discussed in the modelling.

The authors also advocate for a two-sided, fully refundable, cash flow tax, while pointing to the reluctance of preceding Australian governments to introduce one for the mining sector. As an alternative to full refundability, they suggest that the Australian Securities Exchange (ASX) could create a market to sell the offsets. While a potentially valid proposition, its introduction would insert an untested additional step into a transition to a CFT.

Sectoral modified CFTs: Australia's Petroleum Resource Rent Tax (PRRT) and the Northern Territory's Mineral Rent Tax

While no country has implemented a cash-flow tax at the national level, modified versions of a cash-flow tax have operated at the sectoral level. Two examples are Australia's Petroleum Resource Rent Tax (PRRT) and the Northern Territory's Mineral Rent Tax. These are discussed in detail in **Appendix F**.

Cash-flow tax conclusions

Cash-flow taxes share the advantageous theoretical properties of other rent taxes: marginal investments are not taxed, the choice between debt and equity financing is neutralised, they account for inflation, and eliminate depreciation (through immediate expensing). These benefits are summarised in **Table 9**.

At the same time, compared to an ACE, ACC, or even a CBIT (which is not rent tax), the administrative and transitional challenges associated with introducing a CFT are significant. Internationally, no country has introduced a CFT at the national level. New Zealand and Norway considered and rejected the possibility. As a result, while it is possible to draw upon the experiences of countries which considered, and ultimately rejected a CFT, no empirical research on its effects is available. Australia could lead the world and implement a CFT: to do so would be risky. A pure CFT has greater tax revenue implications than an ACE or CBIT since it requires the government to refund outflows that exceed inflows. Modified versions of the CFT limit the government's exposure, but these modifications introduce their own distortions. If the Australian government implements a destination-based CFT, it will forego the taxation of foreign-owned Australian natural resources, a significant source of corporate tax revenue.

Evidence from Australia's PRRT and the Northern Territory's resources tax suggests that modified versions of CFTs work at the sectoral level. However, "success" depends on the yardstick applied. Business leaders concluded the PRRT succeeded by not taxing marginal investments, but the generous uplift rates, lower commodity prices, and changes to the tax design over time (with the inclusion of onshore projects) all contributed to the system's declining tax revenue. Moreover, while lessons can be learned from a modified CFT's application to sectors with location-specific rents, the policy transferability of these experiences to all incorporated businesses demands a considered cautious approach.

Table 9 Does a revenue neutral (source-based) CFT eliminate the corporate income tax system's problems?

Problem	Is the problem resolved?
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	Yes, partially. The gap between the highest PIT rate and the CIT rate is reduced because the CIT rate increases. However, arbitrage opportunities remain through the use of trusts and the lower PIT rates.
2. Debt bias	Yes.
3. Taxing the normal return to investment	Yes.
4. High statutory corporate income tax rate	No. Other regulation will be required to address this issue. A revenue neutral CFT with a higher rate could encourage MNEs to shift more debt here, but it is hard to know since the tax system would be entirely different. Concern about future tax evasion arises where companies structure large investment cash outflows in Australia and declare future cash inflows from those investments in other countries.
5. Variation in effective corporate tax rates	Yes.
6. Difference between economic and tax depreciation	Yes.
Implications at the individual level	
Impact on shareholders' dividends	The imputation system would require reform.
Impact on corporate bondholders' return on investment	Identical treatment to the current corporate income tax system

3.3 Chapter 3 summary

This chapter reviewed four alternative approaches to the current corporate income tax system: the CBIT, ACE, ACC, and CFT. **Table 10** summarises how and whether the alternative approaches to the current corporate income tax (CIT) system address the problems identified at the corporate level in this chapter. **Table 11** summarises the impact of these alternative systems on shareholders' dividends and interest payments received by bondholders.

Table 10. Summary of the problems addressed by the different approaches to corporate income taxation (assuming revenue neutrality within the corporate tax system)

Problem	Does this system resolve the problems of the current system:			
	CBIT	**ACE**	**ACC**	**CFT (pure, not modified)**
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	No, it is worsened. The gap gets bigger because the CBIT broadens the tax base and the corporate tax rate can be lowered. Arbitrage opportunities through the use of trusts and the lower PIT rates remain.	Yes, partially. The gap between the highest PIT rate and the CIT rate is reduced because the CIT rate increases. However, arbitrage opportunities remain through the use of trusts and the lower PIT rates.	Uncertain. It is not possible to determine whether a revenue neutral ACC rate would go up or down.	Yes, partially. The gap between the highest PIT rate and the CIT rate is reduced because the CIT rate increases. However, arbitrage opportunities remain through the use of trusts and the lower PIT rates.

Problem	Does this system resolve the problems of the current system:			
	CBIT	**ACE**	**ACC**	**CFT (pure, not modified)**
2. Debt bias	Yes. All financing costs are excluded from the tax base.	Yes, partially. The normal return to equity is recognised as a financing cost. However, since the normal return to equity may vary by firm, the notional return to equity designated in the ACE will be more generous to some firms and less generous to others. The ACE will lessen but not eliminate the bias.	Yes	Yes.
3. Taxing the normal return to investment	No, it is worsened. Since no financing costs are recognised as an expense incurred by businesses, running a business is more costly. Taxation of the normal return to investment can be reduced, for equity financed investments, by a reduction in the statutory corporate tax rate.	Yes, partially. See comment above about the normal return to equity varying by firm.	Potentially. The normal return to equity and debt are recognised as a financing cost. However, since the normal return to both debt and equity may vary by firm, the notional return designated in the ACC will be more generous to some firms and less generous to others. The ACC will lessen the bias but not eliminate it.	Yes.
4. High statutory corporate income tax rate	Yes. If MNEs cannot write-off their debt as a cost, they have less incentive to allocate it to a high tax country such as Australia. A revenue neutral change to a CBIT would allow a reduction in the statutory corporate income tax rate.	No. Other regulation will be required to redress this issue. A revenue neutral ACE with a higher rate could encourage MNEs to shift more debt to Australia. It could also encourage MNE's to double-dip tax deductions through Australia.	No. Other regulation will be required to redress this issue.	No. Other regulation will be required to address this issue. A revenue neutral CFT with a higher rate could encourage MNEs to shift more debt here, but it is hard to know since the tax system would be entirely different. Concern about future tax evasion arises where companies structure large investment cash outflows in Australia and declare future cash inflows from those investments in other countries.

Problem	Does this system resolve the problems of the current system:			
	CBIT	**ACE**	**ACC**	**CFT (pure, not modified)**
5. Variation in effective corporate tax rates	Yes, partially. Variation caused by differences between tax and economic depreciation will remain. Variation caused by differences in financing will be eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.	Yes, mostly. Variation caused by differences in economic and tax depreciation will be partially eliminated. Variation caused by differences in financing will be partially eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.	Yes, mostly. Variation caused by differences in economic and tax depreciation will be eliminated. Variation caused by differences in financing will be eliminated. Variation induced by explicit policy choices to incentivise certain types of investment (like R&D) will remain.	Yes.
6. Difference between economic and tax depreciation	No. Identical treatment to the current corporate income tax system	Yes, partially. A difference will remain however, if the actual return to equity differs from the allowance rate for corporate equity.	Yes.	Yes.

Table 11. Impact of different approaches to corporate income taxation on shareholders and bondholders

Problem	Does this system resolve the problems of the current system:			
	CBIT	**ACE**	**ACC**	**CFT**
Impact on shareholder dividends	Identical treatment to the current corporate income tax system	If the imputation remained, as it currently operates, shareholders would only receive franking credits for the portion of the dividend which had been taxed at the corporate level (the economic rents). In general, a rethink of the imputation system's operation would be desirable if an ACE were introduced.	If the imputation remained, as it currently operates, shareholders would only receive franking credits for the portion of the dividend which had been taxed at the corporate level (the economic rents). In general, a rethink of the imputation system's operation would be desirable if an ACC were introduced.	The imputation system would require reform.
Impact on corporate bondholders' return on investment	No, it is worsened. The marginal tax on interest payments received by bondholders will increase with additional taxation at the corporate level.	Identical treatment to the current corporate income tax system	If the ACC 's notional return to capital is set lower than the interest rate owed on a corporate bond, part of the bondholder's return will be taxed at the corporate and shareholder level. In general, a rethink of the taxation of interest would need to be considered if an ACC was introduced.	Identical treatment to the current corporate income tax system

4 A framework for reforming the corporate income tax system

This report aims to provide a framework for policy analysis on corporate income tax in Australia to broaden understanding of the topic, heighten debate and shed light on potential policy directions for corporate tax reform. Chapter two identified seven problems inherent in the design of the current system. Chapter three provided an overview of various approaches to corporate income taxation that attempt to redress the types of problem identified. This chapter recommends Australia introduce an Allowance for Corporate Equity.[42] It presents the case for an ACE drawing on evidence presented in the preceding chapters and on the five principles of tax reform previously identified by the Tax and Transfer Policy Institute (2018):

- Adequacy and Resilience – Does the tax system raise enough money to fund government operations, and is this likely to persist in the future?
- Simplicity – Can the system be easily understood and used by the Australian population?
- Fairness – Do people in similar situations pay a similar amount of tax (horizontal equity)? Do people with a greater capacity to pay taxes pay a larger share (vertical equity)?
- Prosperity (efficiency) – Does the tax system promote economic growth? Put another way, does the tax system avoid producing large distortions to economic decision-making that reduce the size of the economy?
- Consistency – Is a potential change to the tax system consistent with and supportive of other taxes and laws levied by all levels of government?

This chapter also reviews the implications of introducing two policy changes frequently discussed in the Australian public sphere: a decrease in the statutory corporate income tax rate and introduction of an investment allowance.

4.1 A better system – An allowance for corporate equity (ACE)

An ACE will resolve or attenuate many problems with the current corporate income tax system

In comparison to the current corporate income tax system, an ACE:

- Would stimulate investment on the intensive and extensive margins by reducing the marginal effective tax rate on investment (in some cases to zero). Reducing the corporate tax rate in isolation would also spur investment but at a much greater fiscal cost;
- Lessens the existing debt bias by recognising the financing costs of equity;
- Mostly eliminates variation across the effective corporate tax rates of different investments;

42 The Henry Review (2010) also advocated for the introduction of an ACE. However, at that time, only limited empirical knowledge existed as few countries had introduced an ACE. Since then, international research and experience with the ACE has expanded. This report draws on the added experience of countries which have introduced an ACE and considered (and ultimately rejected) other forms of corporate income taxation, such as the CFT. By doing so, it reinforces and further strengthens the Henry Review's original policy proposal, that an ACE is suited to corporate income tax reform in Australia.

- Is insensitive to the method of depreciation (it eliminates differences between economic and tax depreciation) and enables a radical simplification of the current depreciation schedule, and;
- Is insensitive to inflation because higher nominal profits are offset by a higher allowance for corporate equity (also set in nominal terms).

The transitional costs of an ACE are lower than an ACC, CBIT or CFT.

- Even though the ACE taxes economic rents, it greatly resembles the current corporate income tax system and builds upon it by adding an extra deduction. While the CBIT and ACC also build upon the existing system, a CFT would completely change the current tax base.
- An ACE does not change the existing treatment of debt. Subsequently, there is no need to consider the financial implications of introducing the new system on highly leveraged firms. Transitional measures for these firms would be required if an ACC, CBIT or CFT was introduced.
- A national CFT poses additional challenges (in addition to the treatment of highly leveraged firms). These transitional challenges were identified by Norway and New Zealand, countries which considered and ultimately rejected introducing a CFT. In particular, given the different tax base, in the absence of recognition internationally, some companies could be double taxed in foreign jurisdictions. Concern about future tax evasion arises in cases where companies structure large investment cash outflows in Australia and declared future cash inflows from those investments in other countries.

An ACE is the only alternative form of corporate taxation that has been implemented elsewhere at the national level

Compared to the other reform alternatives, including other rent taxes, the ACE is also better suited because it is the only alternative corporate income tax system to have been implemented and evaluated elsewhere in the world at the national level. Australia can draw upon evidence and experience from these implementations. In particular:

- Empirical evidence from countries that implemented an ACE suggests its introduction reduced firm leverage.
- The results also suggest that while an ACE increased investment, it has potentially heterogenous effects on active and passive investment.

While Australia has introduced modified sectoral CFTs, no country has introduced a modified or pure CFT (where the government fully refunds company losses when outflows exceed inflows) at the national level. In addition, while a pure CFT is more efficient than an ACE, a pure CFT is unlikely to be introduced.[43] Modified versions of a CFT introduce additional distortions and complexity. In particular, apparent from the experience of the PRRT in Australia, choosing an uplift rate(s) can prove challenging and costly. Admittedly, the notional return to equity for an ACE would also need to be determined in Australia (similar to the uplift rate for a modified CFT). However, the higher transitional costs associated with a CFT and its lack of implementation elsewhere in the world render an ACE a more appealing alternative.

43 A pure CFT is equally as efficient as an ACE when the notional return to equity set by the government (under an ACE) equals the actual return to equity. When this condition is met, the normal return to investment is not taxed under an ACE or CFT. When this condition is not met however, a pure CFT is more efficient than an ACE because the normal return to investment remains untaxed under a CFT, while under an ACE it is either taxed or subsidised.

The ACE will not in isolation resolve all national or global challenges associated with corporate taxation

- While a revenue neutral ACE would improve integration with the personal income tax system (because it would require an increased corporate tax rate), we do not recommend this approach. We propose retaining the current statutory corporate income tax rate at 30% (discussed in greater detail in the next section). Considering the tax system more broadly, the value of integrating personal and corporate income tax levels is diminished because of arbitrage opportunities through access to trusts and lower personal income tax rates. These issues are best addressed through a separate (though ideally coordinated) review of hybrid business structures.
- Some economic rents are mobile. If firms that make economic rents have discretion regarding the choice of location for their business, a lower corporate tax rate provides a stronger incentive for relocation than an ACE (Rose et al. 2021).
- The current international system is based on source-based taxation and the ACE proposed for Australia in this report is also source-based (a destination based ACE is described in detail in Hebous and Klemm (2020)). Broader challenges regarding whether the international tax system should retain this source-based system or transition to a destination based system (Devereux et al. 2020; Devereux 2019) and the implications of an international transition towards a destination based system for Australia fall beyond the scope of this report, which assumes source based taxation will remain in effect for the foreseeable future. The recently announced pillar one and pillar two BEPS reforms do not substantially move away from source-based[44] taxation. While they confer some taxing rights on destination countries, these rights apply only to a portion of profits from a small number of very large companies.

4.1.1 Implementation considerations of an ACE

Several implementation decisions need consideration prior to introducing an ACE. Detailed discussion of design and implementation considerations of an ACE in Australia are available in a companion report written by TTPI (Kayis-Kumar, et al., 2022 forthcoming). The main findings from that report are integrated into this section.

Should Australia introduce a full or partial ACE?

A full (hard) ACE applies the notional return to a company's entire stock of equity. A partial (soft) ACE only applies the notional return to new equity. Both systems have been introduced internationally and both have advantages and disadvantages. While a full ACE resolves more of the problems of the current corporate income tax system, it is also more costly in terms of tax revenue because it narrows the corporate tax base more than a partial ACE.

A partial ACE, with no upper limit to increases in equity financing[45], is recommended for Australia for several reasons. First, global tax policy reform experience suggests that introducing a modest reform and gradually strengthening it over time is typically more successful (Kayis-Kumar, et al., 2022 forthcoming). A partial ACE more closely resembles the existing system than a full ACE and is less costly in terms of tax revenue (Kayis-Kumar, et al., 2022 forthcoming). Restricting the equity base to new equity also ensures that new investment is required to take advantage of the ACE. Windfall gains to existing equity investments are also eliminated in the case of a partial ACE.

44 While the definition of "source-based" taxation is evolving in some legal contexts to include consumers' jurisdiction, the definition in this paper explicitly excludes it.

45 Some countries limit the amount that can be deducted. For example, Poland allows up to 60,000 euros to be deducted.

At what rate should the allowance for corporate equity be set?

The rate selected for the notional rate of return on equity ultimately determines whether (and by what magnitude) corporate finance choices between debt and equity are neutralised. Setting the rate too low, while an improvement on the current corporate income tax system, will insufficiently neutralise the cost of debt and equity and attenuate the ACE's impact on investment. Setting the rate too high will unnecessarily subsidise capital investment at a cost paid by taxpayers. Two factors merit consideration in setting the ACE rate: (1) the opportunity cost of equity financing and (2) the treatment of losses in the corporate tax system.

Opportunity cost of equity financing

Equity is inherently riskier than debt because as a shareholder, one shares in the profits and losses in the company. By contrast, debt holders are guaranteed a fixed return, irrespective of a business's performance. Debt holders also rank ahead of shareholders in the queue to recoup their investment in the event a company goes bankrupt. For these reasons, the opportunity cost of equity financing can be viewed as the return an investor would receive without taking any (or minimal) risk.

The treatment of losses

The opportunity cost of equity cannot be determined without consideration for how the current income tax system treats losses. In general, if losses are not recognised by the tax system, higher risk projects are discouraged. An ACE can incorporate losses and retain their value over time. Unutilised losses can be carried forward and uplifted at the ACE rate to retain their value. Alternatively losses could be fully refundable. These options are reviewed in detail in Kayis-Kumar et al. (2022 forthcoming).

Bearing in mind the opportunity cost of equity and treatment of losses, this report recommends that:

- The ACE rate be set at the 10-year government bond rate. This rate is comparable to that of other countries and should be adjusted annually to avoid misalignment with the long-term rate.
- Allow losses to be uplifted at the ACE rate and offset against future liabilities.
- To reduce the risk of unused losses, those incurred in a given year could be applied against other tax liabilities, such as goods and services tax, pay-as-you-go income tax and fringe benefits tax. This provides many of the benefits of full refundability particularly for businesses starting-up or incurring closing-down expenditure.

Should the statutory corporate income tax rate be increased?

Since an ACE narrows the corporate income tax base, an increase in the statutory corporate income tax rate is the obvious lever to maintain revenue neutrality.[46] However, this report recommends that:

- The statutory corporate income tax rate not be increased. If revenue neutrality is required, retaining the existing statutory rate at 30% together with modification of other policy settings is our recommended approach.

46 Cooper (2012) observed that: "Lest it be thought that this proposal would represent merely modest tinkering at the margins of corporate tax policy, one recent estimate suggests that an ACE could reallocate as much as 20 percent of the corporate tax base. If that estimate is close to accurate, it would mean having to find about $15 bn each year in foregone revenue…To put it another way, the corporate tax rate would likely have to rise over 37 percent to recover from super-profitable companies the amount no longer being collected from barely profitable companies." He also noted that the aforementioned estimate"…assumes an ACE rate of 5.6 percent which is above the government's long term bond rate at the time of writing in December 2011."

A higher statutory corporate income tax rate would increase effective corporate tax rates, deter inward investment and encourage outward profit-shifting (Bordignon et al. 2001; Klemm 2007; OECD 2007). It would also negatively impact the investment decisions of cash-constrained firms (Kayis-Kumar et al. 2022). A higher corporate tax rate would further discourage companies with the ability to choose the location of their investments from investing in Australia (Rose et al. 2021).

How should an ACE be financed? Should revenue neutrality be pursued?

Revenue neutrality could be pursued, but need not be. If revenue neutrality were desired it could be achieved through changes in other tax bases. For example, in their simulation of a revenue neutral ACE, de Mooj et al. (2018) conclude that the positive effect on investment is greater if financed by an increase in VAT revenue than by an increase in the statutory corporate tax rate. In Australia, since the goods and services tax (GST) is at a low rate relative to other OECD countries and the deadweight loss associated with the GST is lower than alternative forms of taxation, this presents a compelling option for the pursuit of revenue neutrality if required.

Reform of the imputation system could also be pursued. Depending on the design of reform, this could be revenue neutral or revenue positive. Part of the argument in favour of retaining the imputation system is the lower levels of firm leverage observed in Australia after the introduction of imputation. Empirical evidence about the ACE suggests it too generates a reduction in firm leverage. As such, if imputation was reformed, the loss of any effect it has in reducing firm leverage could be offset with the introduction of an ACE.

Reduction or elimination of concessional measures directed at business should also be considered with any corporate tax reform package. Consistent with tax design principles, this would also help to simplify the business tax system. Finally, if revenue neutrality is not a desired outcome of tax reform, debt-financing can be considered, particularly given the current low interest rate environment and investment benefits expected from the reform.

Should the lower corporate income tax rate for SMEs be retained?

As a matter of policy coherence, if an ACE were introduced, consideration would need to be given to whether SMEs retain a lower statutory corporate income tax rate or whether one statutory rate applies to all businesses.[47] As discussed in chapter two, the academic literature reveals access to multiple corporate income tax rates encourages companies to subdivide into smaller companies to leverage the lower tax rate. In Australia, the definition of companies eligible for the lower corporate tax rate is based on “aggregated turnover”, which includes the turnover of connected entities and affiliates, thereby reducing the incentive to subdivide. To date no research has evaluated the effectiveness of this integrity provision on SMEs’ behaviour.

On introducing an ACE, two policy recommendations for SMEs are:

- The lower corporate income rate applicable to SMEs be removed and the rate standardised at 30 percent for all companies. While this increases the rate that applies to SMEs, it would apply to a smaller corporate tax base.
- The ACE rate be 0.5 percentage points higher for SMEs (currently defined as those with annual turnover less than $50 million). This is a risk premium associated with the higher probability of SMEs going bankrupt (and being unable to use the ACE allowance).

47 Cooper (2012) expressed concern that an ACE might be bad for small businesses. However, we disagree for reasons given in this section.

Under these recommendations SMEs will typically be better off as the benefits of a higher ACE rate outweigh those of a lower statutory corporate income tax rate. A lower corporate income tax rate is only beneficial insofar as a company has positive taxable income, which is less likely amongst SMEs (in particular start-ups and growth companies), more so after COVID-19. By contrast, a standardised corporate tax rate combined with a higher ACE rate and loss carry forward provisions will assist small businesses to earn a normal return, encourage capitalisation, and stimulate investment.

Could the current imputation system continue to operate if an ACE was introduced?

If an ACE is introduced, imputation could continue to operate as it does. The undesirability of this is discussed in detail later in this chapter. Under the current corporate income tax system, domestic shareholders who invest domestically receive franking credits equal to the corporate tax paid on the value of the entire dividend. If an ACE is introduced, and the imputation system retained, domestic shareholders will only receive franking credits for the portion of the dividend taxed at the corporate level (the economic rents, and disguised labour income, not the normal return).

Would an ACE reduce the incentive for MNE profit-shifting?

None of the proposals introduced in chapter three directly eliminate multinational debt and profit-shifting. However, if Australia were to introduce an ACE, specific regulation with the potential to address this concern in the Australian context has been extensively examined by Kayis-Kumar (2019). Australia would still need to work with other countries to reduce profit-shifting through the OECD BEPS process.

Are there additional challenges identified in the literature?

Cooper (2012) argues that definitional / boundary issues remain important considerations for the adoption of an ACE. If the ACE applies only to corporate entities, as does the current corporate tax system, the problems discussed above with respect to businesses conducted through private trusts (and partnerships) would not be solved by the adoption of an ACE. Consideration would also need to be given to the inclusion of other bodies, including charities, government and tax exempt entities, co-operatives, and mutual organisations.

If a hard ACE were implemented, a second challenging boundary issue emerges over what qualifies as equity. Cooper argued it would be easiest and most logical to apply the debt / equity distinction already established in Australian income tax law. That regime enables simple instruments to be classified fairly easily (e.g. ordinary shares and preference shares qualify as equity, and redeemable preference shares as debt) and Cooper argues that when modified "things can become murky quickly". Many of the issues Cooper raises can be managed by only extending the ACE to new equity and basing ACE calculations on end-of-year book value in current prices. Further, as the ACE attenuates the bias in favour of debt, issues around whether instruments are debt or equity will be reduced if not completely removed.

Cooper also discusses issues related to the treatment of investment in subsidiaries (i.e. "how to handle dividends flowing between the companies, and how to handle the movement of shareholdings through subscriptions and redemptions"). He argues that because the ACE focuses on "relieving the local tax wedge only" it raises cross-border issues - "for the position of non-residents earning income in the country (and the treatment of that income in their country of residence), and for the treatment in Australia of residents earning income offshore." While this is potentially a problem for the tax bases of other countries, it is not an argument against implementing an ACE in Australia.

4.2 Incremental reforms

While implementation of an ACE is the policy goal, other policy options should also be considered, irrespective of whether an ACE is implemented.

4.2.1 Improving the integrity of the tax system: a review of hybrid business structures

As shown in **Table 10**, neither the current corporate income tax system, nor any of the alternative corporate tax systems resolve the gap in tax rates between the statutory corporate income tax system and the personal income tax system. Indeed, under revenue neutral solutions, some alternative systems would widen this gap. As this report makes clear, the gap between the highest personal income tax rate and the statutory corporate income tax rate is relatively unimportant in Australia because of a greater problem: the ability to structure a business through a trust with both individual and corporate beneficiaries of the business revenue. This type of business structure facilitates access to all of the personal income tax rates that are lower than the statutory corporate income tax rate (in addition to the lower statutory corporate income tax rate that currently applies to small businesses).

The combination of these factors results in a "hybrid" category of taxpayers that can exploit advantages from both the personal and corporate tax systems. As a result, changes to either part of the tax system affect them directly and provide avenues for tax minimisation unavailable to wage earners and large corporations. This not only compromises the fairness of the existing system, but also the tax revenue base. Moreover, the use of trusts is growing alongside the use of incorporated business, suggesting the ongoing availability of this type of business structure is likely to further erode the tax revenue base.

Due to the hybrid nature of these particular businesses, reform proposals specific to them fall outside of the scope of this report. However, this report identifies this category of business as a large concern that requires more research and tailored regulation. In particular, examination of international practices for closely held businesses could provide a helpful starting point. In some countries, the "hybrid" identity of some closely held businesses has engendered regulation specific to them.

4.2.2 Reforming the imputation system

Irrespective of whether an ACE is introduced, the imputation system should be reformed. The original intent of the imputation system was to eliminate the double taxation of distributed profits. According to economic theory, eliminating this double taxation achieves two objectives:

- **Spur investment.** In theory, according to the "old view", eliminating double taxation reduces firms' cost of equity, spurring investment.
- **Reduce debt bias at the corporate level**.

In practice, both the theoretical and empirical research on the impact of double taxation on investment has moved on from the "old view" and suggests that:

- **Double taxation of dividends does not discourage investment for all firms**. Internationally, recent economic theory and empirical research suggest that double taxation of dividends has no or limited impact on investment. The theoretical literature proposes three theories which explain the impact of dividend taxation on investment: the "old view", "new view" and

"agency" theory. Recent empirical literature suggests that agency theory and the new view provide the most compelling explanations for recent data analyses evaluating the impact of dividend taxation on investment. These results hold for the United States and small open economies, like Sweden and apply to listed and unlisted firms.

The results suggest that if Australia were to eliminate the imputation system, it would: (1) neither harm nor encourage investment ("new view" explanation) or (2) only directly and negatively impact investment by domestic cash constrained firms that rely heavily on domestic shareholders ("agency" theory explanation). Cash-constrained firms that rely on foreign investment are not impacted since their investors are not affected by the imputation system. Foreign investors are only impacted by the statutory corporate income tax rate. In other words, the literature indicates that the generosity of the imputation system in Australia could be reduced, without greatly impacting investment.

- **The imputation system distorts domestic investment choices (types of assets) and the timing of profit distribution. Both factors contribute to inefficient capital allocation.** The imputation system distorts domestic investors' investment choices by concessionally taxing their return on equity, relative to the return on equity they would receive if they invested abroad. The differential tax treatment induces domestic taxpayers (particularly those with very low marginal income tax rates) to disproportionately invest in Australian companies eligible for franking credits. The magnitude of difference in taxation of domestic versus foreign shares is calculated and discussed in detail in Varela et al. (2020). Not surprisingly, research from countries that eliminated their imputation systems also found that more balanced investment portfolios resulted (Bond et. al 2007).

  For taxpayers using hybrid business structures, the preferential tax treatment of domestic dividends enabled by the imputation system, coupled with the ability to defer distribution of distributed profits until individual shareholders (of the hybrid business structure) transition to lower marginal income tax rates (such as in retirement), provides another avenue for tax minimisation. It also results in an additional layer of distortion, by encouraging delayed profit distribution.

The imputation system has had an ambiguous effect on firms' debt bias:

- As discussed in 2.3.3, data suggest the ratio of debt to equity among Australian non-financial corporations has declined since the 1980s (Ainsworth et al., 2016). This decline however, occurred alongside many other policy and economic changes, confounding the attribution of the reduction to imputation alone. Moreover, as previously mentioned, the empirical literature suggests introducing an ACE would reduce firm leverage, counteracting any detrimental impact the reform of imputation may have.

In summary, the imputation system is not proven to impact on investment. In addition, it distorts investment choices and the timing of distribution, contributing to inefficient capital allocation. Finally, it has had an ambiguous effect on firms' debt bias – a bias which could be addressed through an ACE.

How could and should the imputation system be reformed?

Reform of the imputation system would best be integrated within proposed reform of the taxation of savings. This proposed reform, moving to a dual income tax, is discussed in detail in Varela et al. (2020). In simple terms, a dual income tax system sets two tax rates on income: a series of progressive tax rates that apply to labour income and one flat rate applied to income from savings. In practice, if Australia eliminated the imputation system as part of a broader

package which introduced a dual income tax, then the *effective* tax rate on domestic dividends would be set equal to the *effective* tax rate on all other forms of savings. By eliminating differential tax treatment across different savings instruments, investors can invest exclusively based on their preferences for risk, return and liquidity. A dual income tax system is compatible with the introduction of an ACE.

Absent a complete overhaul of the taxation of savings, reform of the imputation system remains possible and desirable. As shown in Varela et al. (2020), the marginal effective tax rates on domestic shares are low relative to other forms of savings (savings accounts, foreign shares and investment properties); their taxation, in comparison to owner-occupied housing and superannuation, depends on the marginal income tax rate. Consequently, reducing the generosity of the imputation system would more closely align the post-tax return on investment from domestic shares with most other forms of savings. This would reduce but not eliminate the distortionary effects of differential taxation. It could also reduce the incentive for hybrid taxpayers to delay profit distribution.

Options for imputation system reform include:

- Elimination of imputation, with income taxed at the full corporate rate and then a standard discount applied to dividends at individuals' marginal income tax rate. In practice, this proposal would treat distributed profits like capital gains.[48] While it would help to better align the taxation of domestic shares with other savings instruments, the disadvantage is an ongoing incentive for hybrid taxpayers to delay profit distribution.
- Elimination of the imputation system, with income taxed at the full corporate rate and dividends taxed through the personal income tax at rates lower than other personal income. This is a similar approach to the standard discount (and would have the same effects).
- Elimination of imputation, with income taxed at the full corporate rate and partial taxation of dividends at one flat rate for all individuals (also referred to as a final withholding tax).[49] This approach would address both distortions by better aligning the taxation of domestic shares with other savings instruments and eliminating the incentive for hybrid taxpayers to delay profit distribution. While this would increase the rate of taxation for low income individuals in receipt of imputation credits, low income individuals are not necessarily low wealth (as discussed in Varela et al. 2020). Indeed, low income individuals holding domestic shares outside of superannuation are likely to be high wealth, implying that a flat tax would actually improve the progressivity of taxation.

Australia remains one of the few countries in the world which has retained an imputation system. Across the OECD, in addition to the three approaches described above, the other alternative is a classical system. Under a classical system, income is taxed at the full corporate rate, and then taxed at the full personal income tax rate when distributed as a dividend. Unless Australia lowered corporate and personal income tax rates, this is undesirable in the Australian context since it would increase the rate of taxation on dividends, relative to other savings instruments. A list of the approaches used by different OECD member countries can be found in OECD (2018, p. 58).

48 For example, if an individual with a 37c marginal income tax rate received a dividend equal to $100 and the discount applied to dividends was set at 50 percent, then she would pay: $100*.5=$50 *.37 = $18.50 in tax.

49 For example, if an individual with a 37c marginal income tax rate received a dividend equal to $100 and the flat rate was set at 10percent, then she would pay: $100*.10= $10.00.

4.2.3 Increase company data availability in order to conduct more research and better inform Australian policymaking

In TTPI's first report on the taxation of savings, proposed future areas of research were included as an appendix. By contrast, this report includes this as a main policy recommendation because data availability on companies is limited and restricted. The lack of data availability precludes analysis of several research questions and policy evaluations that would better inform Australian policy design on corporate income taxation. Our understanding is that efforts are being made to increase the availability of company tax data. These efforts should continue and be prioritised.

Potential future areas of research on corporate income taxation in Australia include:

Evaluate the magnitude of income shifting measures in Australia.

Income-shifting and the taxation of closely held businesses are interrelated and complex because of the variety of structures these businesses can employ to shift income and minimise taxation (corporate structures, trusts, income-splitting). Preliminary research by Johnson and Breunig (forthcoming) suggests that self-employed individuals' elasticity of taxable income is much higher than for wage and salary earners in Australia. This is due to the variety of mechanisms that business owners use to distribute income (see section 2.1.5). As a result, it is possible that changes in business owners' organisational form, in favour of incorporation, have contributed to the average stability of corporate income tax revenue. This is of particular interest since as the number of trusts has increased over time, so has the number of incorporated companies. Little is known about the magnitude of this issue or its cost to tax revenue. Further research would help inform policy design and integrity measures specifically for closely held businesses.

Compare and analyse the different taxation regimes possible for closely held businesses.

Many countries employ specific rules to counteract these businesses' attempts to circumvent their tax obligations. Some countries oblige business owners to distribute a specific amount of profits as labour income and tax further distributions (through dividends) at a much higher rate. Further research on these practices, combined with analysis of Australian data, could shed light on policy options for Australia to improve its integrity measures for closely held businesses.

Understanding the role non-tax factors play in the choice of organisational form

The older literature suggests that non-tax factors likely play a significant role in mitigating the efficiency losses caused by differential tax rates between the corporate and personal income tax systems. There could also be heterogeneity in the efficiency costs, depending on the mobility of firms (less mobile firms have more to gain from changing organisational form). Australian research could explore the extent to which non-tax factors influence the organisational choices of closely held businesses and whether these effects may differ by firm characteristics.

Impact of the introduction of the lower corporate income tax rate for smaller businesses.

The international academic literature shows that the existence of multiple corporate income tax rates encourages companies to subdivide into smaller companies to take advantage of the lower tax rate. In Australia, the definition of smaller companies is based on "aggregated turnover" which includes the turnover of connected entities and affiliates, thereby reducing the incentive to subdivide. To date, no literature has considered the impact of the lower corporate income tax rate or of this integrity provision on company subdivision.

Evaluate the impact that business investment tax incentives have had in Australia.

While studies show that these measures can stimulate investment, recent research also suggests such policies can be quite costly. To date, only one study (Rodgers and Hambur, 2018) has evaluated the impact of business tax incentives on investment in Australia. More research in this area will inform policy design.

Effectiveness of cash-flow taxes introduced in Australia.

While Australia has implemented two modified versions of cash-flow taxes, through the PRRT and Northern Territory, neither have been evaluated with respect to their effect on investment. An evaluation of these taxes will inform potential consideration of a CFT in future policy design debate.

4.3 Back to tax principles: A summary of the benefits of corporate income tax reform

Adequacy and resilience

Evidence suggests that for the near future the mining and financial sectors are likely to remain large and profitable and make the largest contributions to corporate tax revenue. However, their ability to fund some, most or all of expected future increases in expenditure is unknown. The design of the current tax system raises concerns about its capacity to meet future expenditure requirements. The reforms proposed in this report will contribute to the adequacy and resilience of Australia's corporate tax system.

Simplicity

By eliminating many problems associated with the current corporate income tax system, an ACE, combined with a review of hybrid business regulation and the imputation system, will greatly simplify the corporate income tax system.

Fairness

The existing system has generated a category of hybrid business owners that operate across both the personal and corporate income tax systems. The tax minimisation strategies only available to these types of businesses compromise the fairness of the existing tax system; a considered reform of the regulation governing these types of businesses would improve both.

Prosperity (efficiency)

The existing design of the corporate income tax system introduces seven problems that encourage tax minimisation and harm economic growth. An ACE reduces the severity of most of these problems, particularly if combined with reforms addressing hybrid business forms and the imputation system. These reforms will improve the allocation of real investment across the economy and lead to improved economic growth.

4.4 Current policy debates: what is the impact of i.) a decrease in the statutory corporate income tax rate or ii.) a business investment allowance/ accelerated depreciation?

Current policy debates in Australia have largely centred around two policy changes (which are not reform in and of themselves,): a decrease in the statutory corporate income tax rate and/or the introduction of an investment allowance. Proposals for the statutory corporate income tax rate have suggested reducing it from 30 percent to 25 percent.

Accelerated depreciation was enacted in the 2020 - 21 Commonwealth Budget and extended by the 2021 – 22 Commonwealth Budget, allowing firms with turnover or statutory and ordinary income below $5 billion to deduct the full cost of eligible capital assets of any value, and the cost of improvements to existing assets, purchased from 6 October 2020 until 30 June 2023. Mining companies, the medical products giant CSL, and the big four banks were excluded. Buildings were excluded from the list of eligible assets.

Table 12 and **Table 13** summarise the implications of a reduction in the statutory corporate income tax rate and the introduction of a temporary 100 percent accelerated depreciation policy (such as that introduced initially in October 2020). The tables show if and how these policies address the problems of the current corporate income tax system (identified in chapter two), as well as additional consequences of these changes.

The analysis presented in **Table 12** suggests that a reduction in the statutory corporate income tax rate will lessen some problems, exacerbate others, and retain the existing system largely as status quo. For example, while a decrease in the statutory rate will reduce the tax on the normal return to investment (spurring investment over the long run), it is likely to further encourage closely held businesses to employ trusts with corporate beneficiaries to minimise their tax burden. Both these outcomes will likely erode the company and personal income tax base. Little empirical evidence supports the view that a reduction in statutory corporate income tax rates spurs investment in the short run. Current investment conditions, in particular companies' high hurdle rates and the observed superabundance of capital, are likely to temper short run investment effects.

In conclusion:

- **Will a reduction in the statutory corporate income tax rate revolutionise the investment environment for corporate Australia?** Reducing the corporate income tax rate could improve long run investment. However, the problems which underlie the design of the current corporate income tax system are more systemic. In addition, a reduction will provide a windfall gain to existing equity shareholders.
- **Should the corporate income tax rate be reduced in isolation?** Ideally, no. The ideal policy change would redress the systemic problems of the corporate tax system. Simultaneous reforms that apply to SMEs and closely held businesses operating through trusts would also be required. Otherwise, a reduction in the statutory corporate income tax rate will increase integrity concerns.

Table 12 Implications of a reduction in the statutory corporate income tax rate

Problem	Consequence of policy change
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	The gap between the statutory corporate income tax rate and personal income tax system will widen. This will further incentivise businesses operating through trusts to distribute even more income to a corporate beneficiary. For example, if the rate decreased to 25 percent, trusts may elect to distribute income from the 32.5c tax bracket for an individual to a bucket company instead. Moreover, any income directed to a bucket company will pay the reduced corporate tax rate. Both results will erode the company and personal income tax base.
2. Debt bias	As the corporate tax rate is lowered (gets closer to zero), the difference in the cost of using debt, compared to equity, declines.
3. Taxing the normal return to investment	Investment distortion remains, but is slightly reduced because it reduces the tax wedge between the pre and post-tax return on investment.
4. High statutory corporate income tax rate	Reduces the incentive to shift debt to Australia, but this could still have no impact. The magnitude of this effect depends on the significance of the reduction. For example, a statutory corporate income tax rate set at 25 percent remains relatively high compared to other developed nations. Hence, Australia may still remain an attractive location to shift debt.
5. Variation in effective corporate tax rates	Effective corporate tax rates will decline, but the observed variation of those rates will remain.
6. Difference between economic and tax depreciation	No change as a result of the policy change.
Implications at the individual level	
Impact on shareholders' dividends	• Foreign shareholders who invested in Australia would benefit since the statutory corporate income tax rate functions as a withholding tax on their dividend payments. • Domestic shareholders, who invested abroad in foreign companies, would not be affected. • Domestic shareholders, receiving franked dividends from domestic companies, will pay more in personal income tax (or receive a smaller refund).
Impact on corporate bondholders' return on investment	No change
Additional implications	
Gap between the statutory corporate income tax rate for large and small businesses	This will depend on how the statutory corporate income tax rate for small businesses is managed and the magnitude of the reduction imposed. Any change to the statutory corporate income tax rate for large businesses will have to consider how the statutory rate for smaller businesses is managed.
Impact on aggregate investment	Theoretical and empirical evidence suggests investment will increase in the long run. However, the definition of "long run" is uncertain. Firms do not have to invest to benefit from the tax cut (unlike a policy like accelerated depreciation). Current investment conditions, in particular companies' high hurdle rates and the observed superabundance of capital, could temper any effects in the short to medium term.

Problem	Consequence of policy change
Corporate and personal income tax revenue (holding everything except the rate reduction constant)	• **Tax paid by corporations (not operating through trusts or partnerships).** The reduction in the corporate tax rate will reduce the tax payable by corporations on their taxable income. • **Tax paid by business operating through trusts or partnerships.** A reduction in the statutory corporate income tax rate will reduce the amount of tax payable by these businesses through the rate. However, it could also induce a reclassification of personal income towards corporate income, offsetting some of the reduction in corporate income tax payable (to the detriment of the personal income tax base). • **Tax paid by sole traders.** Could incentivise sole traders to incorporate. Depending on their income, this could influence the amount of tax paid and where it is accounted for (i.e. in the personal or corporate income tax account). • **Tax paid by domestic shareholders receiving franked dividends.** The amount of tax revenue collected from domestic shareholders who receive franked dividends remains the same, but the composition of tax payments – the share of tax paid by companies versus individuals – changes. Individuals must pay tax on the dividend at their marginal tax rate irrespective of a decrease in the statutory corporate income tax rate. As a result, a reduction in the corporate income tax rate decreases the franking credits allocated to individual shareholders and increases their share of the total personal income tax payable. Hence, the reduction in corporate tax revenue will be offset by an increase in personal income tax revenue by this subset of investors. See **Appendix E** for a numerical example. • **Tax paid by foreign shareholders who invested in Australia and received a dividend.** Corporate tax revenue will decrease by the amount of tax revenue lost to foreign investors who invest domestically (since the statutory corporate income tax is a withholding tax on their investment).

The results from the empirical literature and **Table 13** suggest that a temporary investment allowance functions largely as an investment stimulus measure. It marginally changes some of the problems of the existing corporate income tax system. The empirical evidence suggests that accelerated depreciation policies spur investment in the short run, but there is considerable uncertainty with respect to whether the investment represents new investment (that would not have occurred in the absence of the policy change) or an intertemporal shift of investment. Unlike a decrease in the statutory rate, accelerated depreciation does not impact all companies equally; it disproportionately impacts companies that invest in assets with long effective lives. As a result, in Australia, such a policy is likely to disproportionately benefit the mining industry (which was explicitly excluded from eligibility for the policy introduced in 2020).

In conclusion:

What is likely to be the impact of the investment allowance (designed as accelerated depreciation) introduced in 2020? The empirical evidence suggests that the full-expensing introduced in 2020 is likely to stimulate investment, at least in the short-run. However, both the short and long-run impacts of the policy will be difficult to evaluate since they were introduced during a global pandemic alongside other policies also influencing investment, such as loss carryback provisions.

Table 13 Implications of the introduction of a temporary investment allowance (accelerated depreciation of 100 percent)

Problem	Consequence of policy change
1. Gap between the statutory corporate income tax (CIT) rate and personal income tax (PIT) rates	No change
2. Debt bias	No change
3. Taxing the normal return to investment	No change
4. High statutory corporate income tax rate	No change
5. Variation in effective corporate tax rates	Reduces the effective tax rate for assets that have an effective life greater than one year.
6. Difference between economic and tax depreciation	Gap widened. By nature of the definition of the policy, accelerated depreciation widens the gap between tax and economic depreciation for all assets that have an effective life greater than one year.
Implications at the individual level	
Impact on shareholders' dividends	No change
Impact on corporate bondholders' return on investment	No change
Additional implications	
Gap between the statutory corporate income tax rate for large and small businesses	No change
Impact on aggregate investment	The empirical evidence suggests that investment would increase in the short run. However, it is uncertain whether the investment would represent new long run investment (that would not have occurred if the policy was not introduced) or an intertemporal shift of investment by companies. Unlike a reduction in the corporate income tax rate, companies have to invest to benefit from the policy. Current investment conditions, in particular companies' high hurdle rates and the observed superabundance of capital, could however temper any effects in the short to medium term.
Corporate and personal income tax revenue (holding everything except the rate reduction constant)	Corporate income tax revenue would decrease in the year the policy was introduced. The magnitude of the reduction would depend on the number of companies that elected to use the policy and the value of the assets in which they invested (higher value assets = greater reduction in tax revenue). Corporate income tax revenue would then increase when the policy was eliminated.
Disproportionate impact on certain types of firms	Policies like accelerated depreciation disproportionately benefit companies that invest in assets with long effective lives. This report suggested that a primary beneficiary of such a policy in Australia is likely to be the mining industry (however mining was excluded from the policy introduced in 2020). The desirability of introducing a policy which indirectly benefits one particular sector should be a policy consideration.

Appendix A: The normal return to investment and economic rents

1 What is the normal return to investment?

Businesses have costs. They must pay for inputs in their production processes, labour costs, financial costs, etc. The design of the corporate income tax system only allows companies to deduct some of their costs from their revenue for tax purposes. In particular, while the cost of servicing debt can be deducted from companies' taxable income, the cost of equity cannot. However, both bondholders (holding debt) and shareholders (holding stock) expect a return on their investment, which represents a cost to the firm. If firms cannot meet this minimal return (if they cannot meet the opportunity cost for the investor), investors invest elsewhere. This minimal return – the opportunity cost of investment – is referred to as the "normal return to investment". Generally, it is the return a company is required to earn to break even.

However, it is important to bear in mind that there is no universally accepted definition of "normal return" and that it can vary by firm. This is summarised by Reynolds and Neubig (2016):

"While there is no universally accepted meaning of the expressions normal and excess returns, a common thread in these references is the implicit agreement that a normal return should include a risk element. In the absence of a specific definition, the normal rate of return on equity is often linked to a risk- free rate of return or the interest an investor would receive from holding a long-term government bond. Investors are unlikely to consider this a fair measure for the opportunity cost of the next best alternative investment. Equally, a firm is not likely to consider this a fair return when returns are generated by active management and services provided."

2 What is economic rent?

Economic rent refers to excess profits, or profits that exceed the normal, risk-adjusted return to investment. Economic rents are also known as "pure" or "super" profits. There are different types of economic rents:

- **Mobile economic rents:** economic rents that can move locations. For example, if a firm develops a style of management that allows them to gain a competitive advantage and generate economic rents, it can be applied anywhere the world.
- **Immobile (or location-specific rents):** economic rents that arise because of a specific immobile advantage. For example, if a mining company opened a mine, then discovered that it was unexpectedly very rich in minerals that were easy to access, and a major highway was unexpectedly built right next to it, this particular mine would have lower transport costs, largely because of luck. These are economic rents that arise because of the specific location of the mine.

- **Quasi-rents:** economic rents that arise because of a temporary advantage. For example, if a company develops intellectual property which decreases their marginal cost of production, relative to a competitor, the firm will temporarily earn economic rents until competitors adopt this technology or develop their own. Quasi-rents are a subcategory of economic rents which can be mobile or immobile, depending on the circumstances.
- **Pure economic rents:** while quasi-economic rents are a category of rents, for the purposes of clarity, this text refers to economic rents, which are not quasi-rents, as pure economic rents. These can also be mobile or immobile, depending on the circumstances.

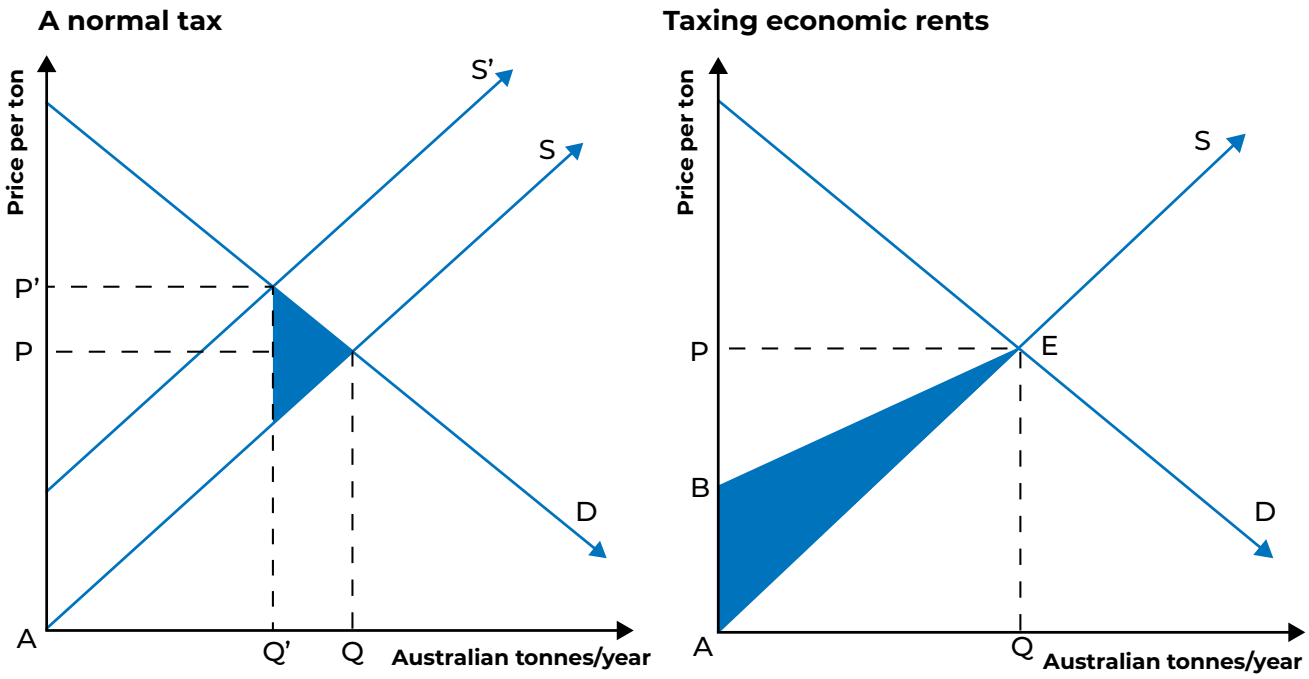
Economic rents are significant for the purposes of taxation since taxing them can be lucrative and non-distortionary (i.e. they do not change firm behaviour) under certain conditions. For example, **Figure 15** shows the difference between a normal tax (left panel), on a product, like apples, compared to a tax designed to only tax economic rents (right panel). In the absence of any tax, quantity Q at price P is produced. A tax is applied to the value of the apple (i.e. 10 percent), irrespective of the cost required to produce the apple. This shifts the supply curve from S to S' and creates a deadweight loss, represented by the shaded triangle. The tax reduces apple production (to Q') and increases the price (to P').

By contrast, a tax on economic rents, illustrated by the right-hand side panel, generates tax revenue (represented by the shaded triangle), but avoids a deadweight loss and does not affect price or quantity. The triangle APE represents the economic rents earned by producers that have different marginal costs of production. Different apple producers might have different marginal costs of production because of location-specific rents, like those described above. For example, an apple orchard could get lucky when a new highway is built alongside the property.

Low cost apple orchards are graphically represented closer to point A (in the panel on the right) and have a large distance between their position on the line AE and price P (i.e. large economic rents). At the other extreme are apple orchards which are operating at the margin, which break-even on their investment and do not produce any rent. High-cost apple orchards are located closer to point E on the AE line, with a very small distance (or no distance at all) between their position and price P. The economic rent tax, represented by the line BE, is non-distortionary because while a low-cost apple orchard pays a large percentage of its rent in tax, a marginal orchard not earning any rents is not taxed at all (and there is no deadweight loss). However, taxing economic rents is non-distortionary, in theory, only if they are immobile (and in practice, only if they can be precisely measured). For example, companies can shift economic rents to a lower taxed country in the short or long run (depending on the company).

Freebairn and Quiggin (2010) apply this example more specifically to the mining industry. They describe a low cost mine as one with "a combination of low exploration and mine-specific technology development costs and rich endowments of the desired mineral." These attributes are combined with other factors, such as proximity to infrastructure (like roads). In the mining industry, a royalty is designed as a normal tax (i.e. a tax applied to the mineral irrespective of the marginal cost of production). The next sections consider whether economic rents are present in Australia. This is followed by a discussion of some of the challenges of designing non-distortionary rent taxes.

Figure 15. A normal tax versus taxing economic rents



Note: The upward sloping supply curve represents the opportunity cost of labour, capital, and management inputs. Most service and manufacturing industries have a high dependence on economy-wide mobile labour, capital, management, and materials inputs (but not natural resources). As a result, their long run supply curves are nearly perfectly elastic. This is not the case for the mining sector, because of its high dependence on natural resource inputs.

Source: Adapted from Freebairn and Quiggin (2010)

3 Empirical evidence on economic rents

Location-specific economic rents in Australia (outside of the natural resource sector)

The evidence from Australia suggests that location-specific rents exist, though measuring their magnitude is challenging. A country's size and degree of isolation can result in location-specific economic rents. Larger economies have larger consumer, business and labour markets which can be more fully exploited (IFS Mirrlees, 2011). Dolman et al. (2007) note that productivity growth is lower in Australia compared to the United States and partially attribute this reduced growth to the country's geographic isolation. The relatively small population, combined with the vast distances between its largest cities, results in a relatively sparsely-settled country, compared to other developed economies. Australia's distance from other developed economies also contributes to higher transportation costs. These factors lessen competitive pressures and reduce the potential for economies of scale thereby contributing to the creation of economic rents.[50]

Personal preferences (or trade restrictions) further contribute to location-specific economic rents. If Australian products are preferred to imported goods (i.e. they are imperfect substitutes), Australian firms can charge a premium for their products without necessarily changing demand, generating economic rents. Non-tariff trade barriers, like regulation on imported food products, are another contributing factor. For example, in the banana industry, due to quarantine related reasons, an import ban is in effect on imported fresh bananas. Following the aftermath of cyclones in the northeast of Australia in 2006 and 2011, the domestic supply of bananas was restricted and resulted in significant increases in domestic banana prices far exceeding the world price. This generated important economic rents for domestic banana producers (Ko and Frijters, 2014).

50 These effects were also highlighted in the Henry Review.

Imperfect competition more generally can also give rise to economic rents. This is possible in sectors with a very limited number of participants. Recent research by De Loecker and Eeckhout (2018) calculate changes in firm mark-ups around the world using firm-level financial statements from the 1980s. The difference between variable costs and the margin of revenue is referred to as the mark-up. A lack of competition can result in higher prices and larger mark-ups. They find that globally, average firm mark-ups have increased by 0.52 points between 1980 and 2016. The change in Australia's mark-up aligns with the global average, increasing by 0.57 points. Mark-ups can have efficiency implications since higher prices discourage consumption and firms demand fewer factor variable inputs (labour).[51] Other researchers have also considered the growth in mark-ups and market power (Dixon and Lim 2017; Kurz 2017; Diez et al. 2017).

Mark-ups, induced by limited competition, can also be associated with high market concentration, seemingly prevalent in Australia. Defining market concentration as a sector where the top four firms hold more than one-third of the market share[52], Leigh and Triggs (2016) found that among 481 sectors about half were concentrated. In some industries, market share of the biggest four firms exceeded 80 percent. This was the case for: department stores, newspapers, banking, health insurance, supermarkets, domestic airlines, internet service providers, baby food, beer, and soft drinks. Comparing the Australian benchmarks to the US, they find that the US sectors are concentrated but slightly less than in Australia.

Market concentration also tends to be correlated with higher profitability. Using profitability as (an imperfect) proxy for the size of economic rents, the Grattan Institute found that profitability averaged about 20 percent higher in sectors in Australia where one or only a few firms dominated. Some of the sectors considered were natural monopolies (airports, ports, electricity distribution), while other sectors had important economies of scale (supermarkets, internet service providers) or were highly regulated (banking, gambling). Market concentration can however, occur for other reasons, including cases where an industry is failing and/or there is intense international competition.

The existence of economic rents could also potentially manifest through excessive compensation. Frijters and Foster (2015) found that 80 percent of the wealthiest Australians made their fortunes in property, mining, banking, superannuation, and finance; all industries associated with the generation of economic rents.

Location-specific economic rents from natural resources in Australia

Natural resources are the most easily understood source of location-specific economic rents.[53] In a perfectly competitive market, high prices would attract more companies into a sector, thereby increasing the supply of the good and driving down the price. In the mining sector however, barriers to entry are costly for firms both in terms of expensive capital (machinery) investment and restrictions imposed by the government. During the mining boom in the 2000s, China increased its demand for Australia's iron ore and coal. Coupled with rising commodities prices, this substantially increased the wealth of mining companies. Since the iron ore and coal deposits are physically in Australia, mining companies could not move elsewhere to take advantage of a lower corporate tax rate (capital was immobile). Combined, these factors produced economic rents.

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51 Mark-ups may not necessarily be indicative of market power. As defined, mark-ups are an increase in the margin of revenue relative to variable costs. However, if technological changes reduce the cost of variable inputs, but are accompanied by increased fixed costs, mark-ups will increase, but firm profits will not. In their 2017 paper, De Loecker and Eeckhout show that higher mark-ups are associated with a rise in profitability in the US.

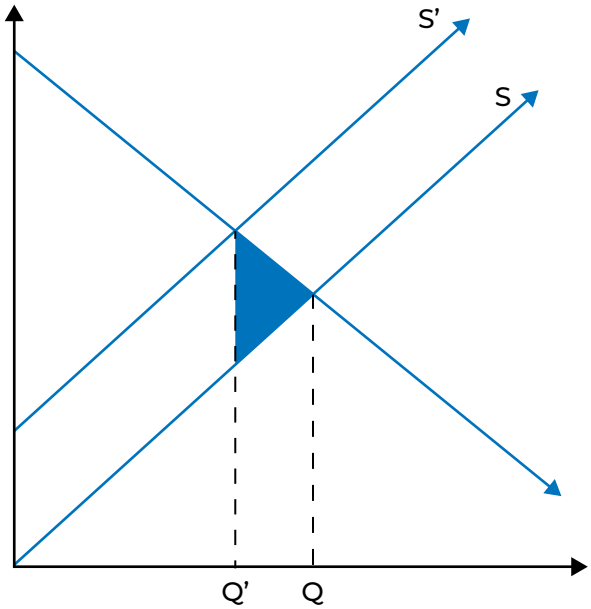
52 Company market share is defined by the company's share in the industry's total revenue.

53 An overview of how natural resources are taxed in Australia is provided in **Appendix C**.

However, theoretical and empirical evidence suggests taxing *all* rents is unwise. In particular, if natural resources were truly fixed in supply, their price would increase over time as the supply diminished. In practice the supply of natural resources has increased and real prices have declined. In other words, the demand for natural resources increased as a result of economic growth and population expansion, but the supply-curve shifted even farther outwards as a result of exploration, new discoveries, and cost-reducing extraction technologies (Freebairn 2015). Since the supply of natural resources like minerals can shift outwards with technological advancements, the PEA triangle represented in the right panel of **Figure 15** cannot entirely represent economic rents. Instead, while a portion of the PEA triangle represent economic rents, another portion represents quasi-rents.

Quasi-rents are temporary rents. For example, in the short run, new cost-saving technologies only benefit the firm or a limited number of firms that have developed them. This temporary and limited access gives rise to short run profits (quasi-rents). However, over time the technology spreads across the industry, eliminating the short run quasi-rents. Since the quasi-rents arise from the development of technology that uses mobile capital and labour, taxing them can affect the location and quantity of investment in the Australian mining sector. This occurs since the economic rent tax increases the pre-tax return on investment required for the mobile quasi-rents. Graphically, over the long run, reduced investment in cost-saving technology in Australia could result in a shift in the supply curve upwards to the left (see **Figure 16**), reducing output and creating a deadweight loss (shaded triangle). Alternatively, the supply curve could continue to shift out, but at a slower rate over time than it would have in the absence of the rent tax.

Figure 16. Taxing economic rents and quasi-rents over the long run



Source: Adapted from Freebairn and Quiggin (2010)

Economic rents and asset prices

Taxing economic rents and/or quasi-rents will also impact asset prices. A company's value – represented by the value of its stock price – is equal to the discounted present value of its future profits, which are determined by the rate of return on its investments. If a tax is imposed, part of the companies' future profits must be paid to the government (instead of investors). The introduction of a rent tax will have differential effects on firms earning economic rents and those operating on the margin. In the short run, for firms earning economic rents,

the government's tax is captured through a windfall loss to existing investors through a reduction in the stock price. This represents a transfer of wealth from stockholders to the government. It is important to note that a rent tax does not affect companies operating on the margin in the short, medium, or long run. However, these firms' existence is still important. Firms operating on the margin still contribute to economic growth and benefit the community through their employment of workers and payment of other taxes like payroll tax.

4 Policy implications of rent tax design

Will an increase in the user cost of capital change investment for firms with economic rents? The answer to this question depends on two factors: the presence of quasi-rents and opportunity cost. First, if firms earning economic rents also earn quasi-rents then an increase in the user-cost of capital could have long-term effects like those described in the previous section. Second, if a firm earns economic rents and quasi-rents are not present, the firm will continue to invest even in the presence of a rent tax insofar as the return on investment is greater than or equal to the opportunity cost of doing so. The rent-earning firm will continue to invest in Australia until the post-tax return on investment in mining in Australia just equals the post-tax, risk-adjusted return it could earn elsewhere.

Both of these factors will be influenced by the rate at which the economic rent tax rate is set. An economic rent tax rate set at a low (high) rate is less (more) likely to tax quasi-rents; it will also have less (more) influence on the opportunity cost of mining investment in Australia. These arguments, combined with the challenges of measuring economic rents, assessing their mobility, and differentiating them from quasi-rents, are some of the reasons experts suggest that a resource rent tax, if introduced, should be set at a rate less than 100 percent. For example, the Henry Review proposed a 40 percent rate (but it assumed a 25 percent company income tax rate). Freebairn (2015) also considers a range of revenue neutral economic rent tax rates which he estimates could vary from 22 to 67 percent.

5 Concluding remarks on economic rents

Existing evidence for the Australian context suggests that location-specific economic rents exist. The implications of imperfect competition and location-specific rents for corporate income taxation has been modelled by Treasury (Rimmer et al. 2014). Using a CGE model, the authors simulate the impact of a one percentage point reduction in the corporate income tax rate (from 30 percent to 29 percent) under three scenarios: (1) a perfectly competitive, small, and open economy (2) a small and open economy with sectors that generate economic rents and (3) the second scenario with added restrictions on capital mobility. Not surprisingly, the authors find that the (simulated) impact of a one percentage point reduction in the corporate income tax rate is tempered by the additional assumptions in the second and third scenarios. For example, they consider the welfare implications (deadweight loss) and find that the loss of one dollar in government revenue increases household welfare by $1.68 under the first scenario, but only by 56c and 34c under the second and third, respectively. The conclusions from this model suggest that in the presence of imperfectly mobile capital and economic rents, the welfare benefits from reducing the corporate income tax rate diminish. Corporate income taxation can still play a relevant revenue-raising role in Australia.

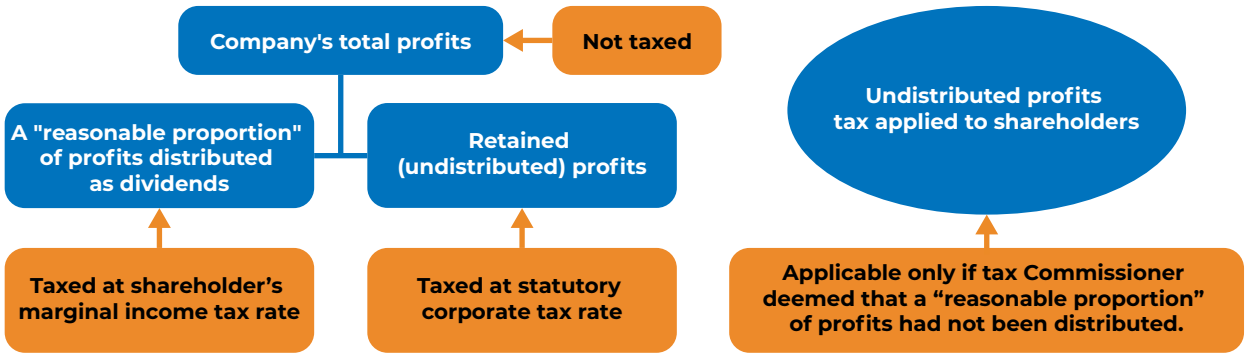
Appendix B: The history of corporate income taxation in Australia

Since its introduction at the federal level in 1915, corporate taxation has undergone a series of reforms enacted in response to changes in economic conditions (eg. international competitiveness), the design of other tax policies and rates, and political and revenue pressures. These reforms not only were affected through the statutory tax rate, but also through the definition of the tax base, depreciation allowances, tax concessions, the treatment of dividends, capital gains and fringe benefits, and differentiation by company size. This appendix reviews some of the most significant changes to the corporate taxation system in Australia, over four principal periods, from introduction in 1915 to present day. While it focuses on evolution of the corporate income tax system, changes occurring simultaneously to other parts of the broader tax system, specifically personal income tax, are also considered.

1915-1921: A corporate tax is born

With the impetus of the rising costs associated with Australia's involvement in the First World War, in 1915 the Commonwealth of Australia adopted its first federal income tax, which included corporate income taxation, through the Income Tax Assessment Act of 1915. Companies were taxed exclusively on undistributed profits, while shareholders were individually taxed on distributed profits in the form of dividends at their marginal tax rate (see **Figure 17**). The system operated as a dividend deduction system, excluding distributed profits (dividends) from a company's taxable income base. In the event that a company failed to distribute "a reasonable proportion" of its total profits to "members, shareholders, or debenture-holders" the law also established that the Commonwealth could directly tax each member or shareholder according to her proportional ownership (Australian Government, 1915). This part of the law was known as the undistributed profits tax and was introduced to account for companies where shareholders retained significant power in terms of the profit distribution policy applied (Oats 1999/2000). The idea behind the undistributed profits tax was that in the absence of a capital gains tax, companies had an incentive to retain earnings thereby minimising the tax burden of their shareholders by deferring their tax payment. The undistributed profits tax counteracted this incentive.

Figure 17. Company taxation under the dividend deduction system, 1915 - 21

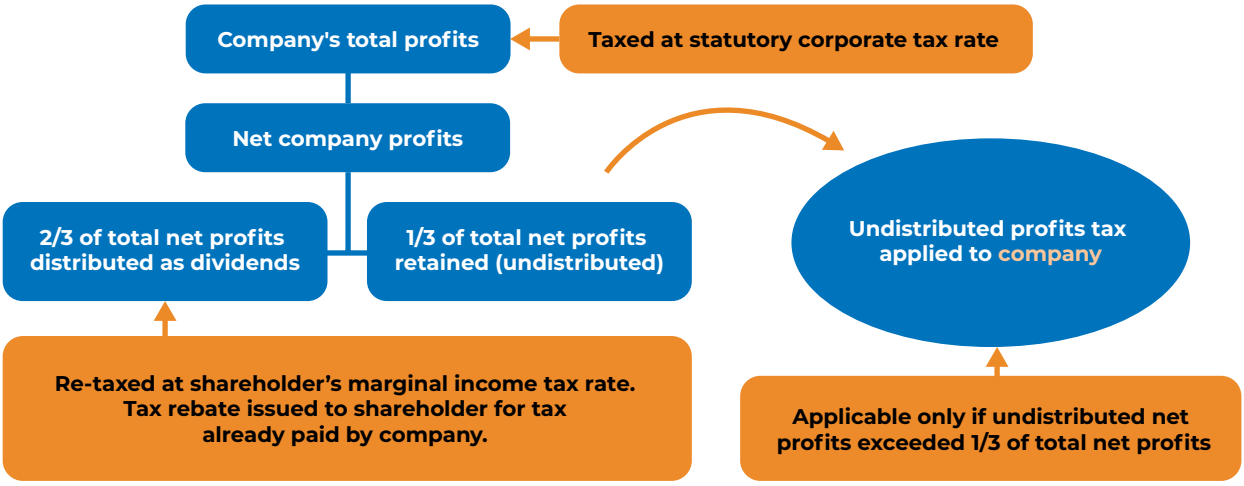


1922-1942: From dividend deduction to Australia's first imputation system

The establishment of a federal income tax was not without growing pains. Between 1915 and 1921, the Commonwealth enacted six[54] amendments to the initial Act which were subsequently repealed and replaced in 1922.[55] Over this period three changes directly impacted the taxation of corporate income. First, the definition of taxable corporate income broadened from *undistributed* profits to *total* profit. Second, in light of this new and broader income tax base, the dividend deduction system was replaced with an imputation system (see **Figure 18**). Under the imputation system, profits were first taxed at the corporate level and taxed again upon distribution to shareholders. In order to account for the double taxation the law allowed shareholders to deduct the proportionate amount of tax already paid by the company from personal income tax obligations for dividend payments received. In the event that an individual's marginal income tax rate was lower than the corporate tax rate, no rebate was issued for the difference.

The third modification related to the undistributed profits tax. Given the ambiguity associated with the Commonwealth's definition of failure to distribute "a reasonable proportion" of a company's total profits, this was modified to "two-thirds" of a company's taxable income. This implied that companies were entitled to a retention allowance equivalent to one-third of their net profits. In addition, while the total value of the undistributed profits tax was based on the value all shareholders would have paid if the profits had been distributed (based on each shareholder's marginal income tax rate and ownership share), the new law imposed this tax on the company instead of the shareholders.

Figure 18. Company taxation under the imputation system, 1922 - 42



In the late 1920s and early 1930s, calls to repeal the undistributed profits tax prompted a revision of the policy since firms believed it unduly interfered with their financial management. The 1932 Royal Commission on Taxation chaired by Sir David Ferguson undertook the review. The Commission proposed that the undistributed profits tax exclude public companies and only apply to private companies since those were the firms most likely to design their distribution policies as a function of their shareholders' tax burdens. In the case of public companies it was inferred that the greater quantity of shareholders and the associated public reporting duties sufficiently pressured them to adequately distribute profits. The Commission's proposal was also informed by experiences from the preceding decades. For example,

54 Income Tax Assessment Act (No. 2) 1915; Income Tax Assessment Act 1916; Income Tax Assessment Act (No. 2) 1916; Income Tax Assessment Act 1918; Income Tax Assessment Act 1921; Income Tax Assessment Act 1921 (No. 2).

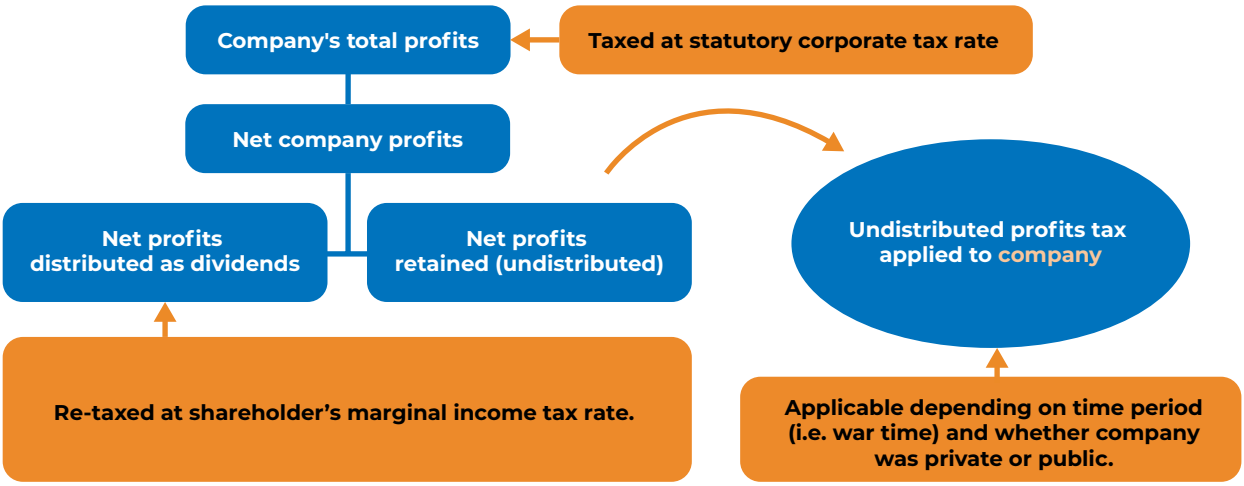
55 Income Tax Assessment Act 1922.

in contrast to private companies, publicly held companies had normally been able to provide acceptable evidence for the years where their retained profits had exceeded the permitted retention allowance. In 1934, the Ferguson Commission's proposal was adopted alongside provisions which allowed companies to carry forward distributions made in excess of the two-thirds provision for up to five years (Oats 1999/2000). These changes were included in the 1922 Act's successor, the Income Tax Assessment Act of 1936, which remains in effect albeit with many amendments.

1942 – 1986: World War II and the transition to a classical taxation system

In the 1940s, revenue pressures mounted with the Second World War. In response, two significant changes were made to the tax system. First, the corporate income tax system was changed to what is referred to in economic theory as a "classical" corporate taxation system; this remained in place until 1986. Under the classical system, corporate and individual income are treated separately for taxation purposes. In practical terms, the system continued to operate as it had previously but the tax rebate for the corporate tax paid on dividends received was eliminated. From 1942, shareholders could no longer deduct the taxes already paid by corporations, for dividends received, from their tax obligations. The second change during the 1940s was the reimposition of the undistributed profits tax on public companies alongside an additional war time tax on profits (the War Time Companies Tax Assessment Act). For private companies, the retention allowance was initially reduced from one-third to one-quarter and eventually removed completely, forcing them to pay the undistributed profits tax on all retained earnings; it was reinstated for private companies in 1948.

Figure 19. Company taxation under the classical system, 1942 - 86



1986 to present day: A transition to today's system

In the 1970s, tax evasion reached new heights following a series of court decisions which effectively constrained the legal definition of taxable income. In particular, the original definition of the Australian income tax base was based on English law which limited it to "trust and property concepts of income".[56] Capital receipts were excluded. To identify income, income from property "had to be derived and severed from the property, and income from personal exertion had to involve systematic, deliberate efforts to secure a profit".[57] Krever (1986) provides an extensive overview of the legal implications of this definition which perpetuated the use of tax avoidance schemes, but to provide one example: "The most common avoidance technique was the gift of appreciated property to a non-arm's length party (for example, a spouse) for resale, in which case the courts were willing to agree that the seller acquired the property with the purpose of accepting a gift, not with the dominant purpose of resale at a profit", thereby making the proceeds from the sale exempt from income tax.

Other challenges related to the design of tax policy also contributed to high levels of evasion during the 1970s and early 1980s. Income splitting, the proliferation of the use of trusts, the lack of a capital gains tax, the non-taxation of fringe benefits, increased exemptions and special concessions all contributed to the deterioration of the tax base and an increase in the reliance on the personal income tax for revenue (Hawke Draft White Paper, 1984). The absence of a comprehensive sales tax and the elimination of the vast majority of estate taxes further contributed to the diminishing tax base (Reinhardt and Steel 2006).

High marginal income tax rates (between 60 – 70 percent) applicable during the period further increased the value of employing these tax minimisation strategies for high income households. Compounding this were high rates of inflation pushing lower and middle income wage earners into higher tax brackets. While the company income tax as a percent of GDP declined, the individual income tax, as a share of GDP, peaked in the 1986-1987 financial year.

The increased dependence on wage and salary earners compromised the progressivity and fairness of the tax system since the wealthiest groups of taxpayers were predominant among those with more diversified sources of income. These groups also had the economic means to develop structures minimising their tax burdens. For example, without a capital gains tax, dividends remained taxed at the shareholder's marginal tax rate and the statutory corporate tax rate remained lower than the highest marginal taxpayer rate. This incentivised individuals to structure their income in companies and companies to retain profits. It also enabled shareholders to avoid taxation on capital gains realised from the sale of shares.

The tax avoidance schemes and revenue demands came to a head during the Hawke administration in the 1980s. During this period, a fringe benefits and capital gains tax were introduced, broadening the tax base and allowing for a reduction in the top individual income tax rate. The introduction of the capital gains tax eliminated the need for the undistributed profits tax. The classical system was replaced with an imputation system which ended the double taxation of dividends at the shareholder level.

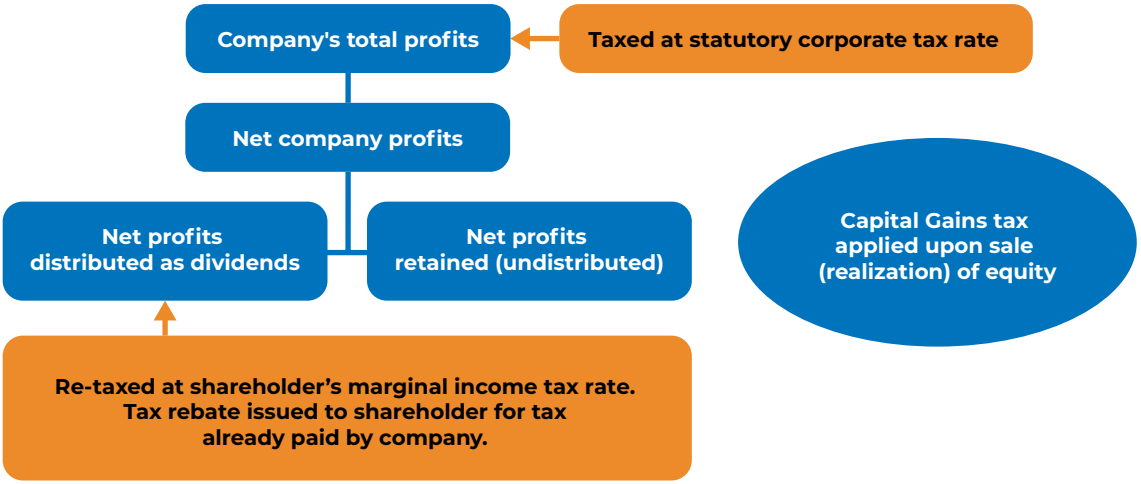
56 Krever (1986).

57 Ibid

The reduction in the top individual income tax rate accompanied an increase in the statutory corporate tax rate, unifying the individual and corporate tax systems between 1987 and 1989. The symmetry created by the unification also resulted in a neutral system which eliminated incentives between legal forms (incorporated vs. unincorporated). Unfortunately the symmetrical design of the tax system was shortlived. International competition among countries' statutory tax rates prompted a decrease in the statutory corporate tax rate in 1988/89. In the absence of political support to widen the tax base through other forms of taxation, like a broader sales tax, the lost revenue attributed to the statutory rate reduction had to be recouped through cuts to domestic investment incentives.

During the 1990s, the statutory corporate tax rate both increased and decreased. Changes in the rate were the result of conflicting factors which encouraged policymakers, on the one hand, to reduce the statutory rate to remain internationally competitive while, on the other hand, maintain or even increase the statutory rate to ensure revenue neutrality. The last reduction to the statutory corporate tax rate occurred during the 2001 – 2002 financial year. The rate was reduced to 30 percent and remains in effect for large companies. The imputation system implemented in the 1980s also changed in 2000. The 1980s system resembled that implemented in the first half of the 20th century. While rebates were offered to shareholders for the value of corporate tax paid, a shareholder could not cash-in the rebate in the event that her personal income tax liability was less than the corporate rate. In 2000, this policy was changed, allowing for the rebates to be cashed-in.

Figure 20. Company taxation with imputation and capital gains taxation, 1986 - present



The corporate income tax has been an enduring part of the Australian tax base since the Commonwealth's first income tax in 1915. While it has evolved since its introduction, it has historically been a significant source of government revenue since at least the 1950s, ranging from close to 2 percent to nearly 7 percent of GDP. For this same reason, it is unlikely to disappear as a source of tax revenue anytime soon. Historical evidence however shows that the design of the corporate income tax system influences both the effectiveness of the overall tax system and the sustainability of the tax system as a whole.

Appendix C: How are natural resources taxed in Australia?

1 State and territory taxation of natural resources (except petroleum)

Natural resources in Australia are primarily taxed at the state and territory level through royalties, a type of transaction tax. Two types of royalty rates apply: specific and ad-valorem. Specific rates are calculated as a flat rate (in AUD) per tonne of particular mineral produced. Ad-valorem rates are calculated as a percentage of the "royalty value". The royalty value is calculated using the price at which a given quantity of a mineral is first sold, minus any deductions. As an example of the heterogeneity of rates and policies applied by the states and territories, **Table 14** and **Table 15** show the royalty rates for iron ore and gold.

According to the interstate comparisons of royalty rates provided by Western Australia's Department of Treasury, the Northern Territory was the only regional jurisdiction to apply a profit tax (economic rent tax) instead of a royalty regime. The tax base was the difference between revenue and production costs, akin to a cash-flow tax (see chapter 4). However, as of 1 July 2019, the Northern Territory transitioned to a hybrid royalty scheme. The new policy requires companies to pay the greater of: (1) the existing 20 percent profits-based scheme or (2) a royalty based on their gross value of mineral production when its annual gross production revenue exceeds $500,000. The royalty is equal to 1 percent in the mine's first year, 2 percent in the second year, and 2.5 percent thereafter.

Table 14. Iron ore royalty rates, 2018-19

	WA	NSW	VIC	QLD	SA	TAS	ACT	NT
Royalty rate	Beneficiated: 5 percent Fines: 7.5 percent Lump: 7.5 percent	4.0 percent of the ex-mine value (value less allowable deductions)	2.75 percent of net market value	$1.25 per tonne plus 2.5 percent of value above $100 per tonne	5.0 percent of net market value	1.9 percent on net sales plus profit royalty up to maximum of 5.35 percent of net sales	n.a.	20 percent of net value of mine's production value
Royalty system	Ad-valorem	Ad-valorem	Ad-valorem	Hybrid	Ad-valorem	Hybrid		Profit

Notes: A discount of 20 percent is available if the mineral is processed in Queensland and the metal produced is at least 95 percent iron ore. New mines in SA may qualify for a concessional rate of 2.0 percent for the first five years. A 20 percent rebate is available for the production of the metal in Tasmania. In NT, the first $50,000 of net value is exempt; where it exceeds $50,000, the royalty otherwise payable is reduced by $10,000.

Source: Department of Treasury Western Australia

Table 15. Gold royalty rates, 2018-19

	WA	NSW	VIC	QLD	SA	TAS	ACT	NT
Royalty rate	2.5 percent of royalty value	4.0 percent of the ex-mine value (value less allowable deductions)	Nil	Variable rate (between 2.5 – 5 percent) depending on average metal prices	3.5 percent of net market value, if in a metal form, concentrates at 5.0 percent	1.9 percent on net sales plus profit royalty up to maximum of 5.35 percent of net sales	n.a.	20 percent of net value of mine's production
Royalty system	Ad-valorem	Ad-valorem		Ad-valorem	Ad-valorem	Hybrid		Profit

Notes: First 2,500 ounces(oz) produced by each project per annum in WA are exempt. Royalty value is calculated for each month by multiplying the total gold metal produced during that month by the average of the gold spot prices for the month in AUD. Producer are advised of applicable variable rate each quarter in QLD; no royalty is payable on the first $100,000 of gold produced per year in QLD. Prices below $600/oz attract the minimum rate in QLD; prices above $890/oz attract the maximum rate in QLD. New mines may qualify for a concessional rate of 2.0 percent for the first five years in SA. A 20 percent rebate is available for the production of the metal in Tasmania. In NT, the first $50,000 of net value is exempt; where it exceeds $50,000, the royalty otherwise payable is reduced by $10,000.

Source: Department of Treasury Western Australia

2 Commonwealth taxation of natural resources

In practice, natural resource taxation by the Commonwealth is circumscribed largely to offshore petroleum, with a few exceptions. The federal government retains the right to tax petroleum extracted onshore or offshore in Australian international waters. State royalty rates are presented in **Table 16** below. State royalties are however fully credited against petroleum taxes levied by the Commonwealth. The Commonwealth taxes petroleum using a resource rent tax that operates like a cash-flow tax (see **Appendix F** for a description). Taxable profit, as defined through the cash-flow tax, is taxed at 40 percent through the Petroleum Resource Rent Tax (PRRT).

Table 16. Petroleum state royalty rates, 2018-19

	WA	NSW	VIC	QLD	SA	TAS	ACT	NT
Royalty rate	10.0 percent or 12.5 percent at the well-head	10.0 percent at the well-head	10.0 percent at the well-head	10.0 percent at the well-head	10.0 percent at the well-head	12.0 percent at the well-head	n.a.	10.0 percent at the well-head
Royalty system	Ad-valorem	Ad-valorem	Ad-valorem	Ad-valorem	Ad-valorem	Ad-valorem		Ad-valorem

Notes: Exceptions apply in WA under the Barrow Island Royalty Variation Agreement Act 1985, which applies a royalty rate of 40 percent to resource rents (calculated on a similar basis to the Commonwealth's Petroleum Resource Rent Tax). In WA, a minimum rate of 5 percent applies to tight gas.

Source: Department of Treasury Western Australia

Appendix D: Calculating effective marginal and average corporate tax rates

Backward-looking macro studies calculate effective corporate tax rates by dividing total corporate taxes paid by gross operating surplus (GOS). According to the national accounts, GOS is defined as "operating surplus accruing to all enterprises, except unincorporated enterprises, from their operations in Australia." It is a measure of the value of production that remains after the value of intermediate consumption, compensation of employees, taxes and subsidies have been removed. The advantage of GOS is that the data are readily available. The computation however, rests on the assumption that GOS is an accurate representation of economic income of corporations. This assumption is contested and alternative denominators have been proposed. For example, the Australian Treasury adjusted GOS by several factors to calculate a separate measure of "corporate profit" more suited to the computation of effective tax rates.

Backward-looking micro models use financial statements from individual companies to derive taxes paid as a share of pre-tax profit or gross operating profit. These methods allow for a disaggregated calculation at the firm or sectoral level. They are subject to cyclical variation since losses carried forward after an economic downturn can result in reduced effective tax rates for a period. Tax rates calculated using backward looking micro methods represent the tax burden actually imposed on companies in a specific country. They capture the result of historical investment decisions made under potentially different tax conditions. For this reason, they may not necessarily be relevant for a firm's future investments. Forward looking models attempt to address this concern.

Forward-looking micro studies insert selected aspects of a tax system (i.e. statutory tax rates, treatment of depreciation, etc.) into a neoclassical investment model and use the model to assess the cost of capital imposed by the tax on a hypothetical investment project. These models cannot consider all of the complexities inherent within a tax system and rely on several assumptions made about firms' assets and liabilities. The interpretation of the effective tax rates also differs from those calculated in backward looking models. In backward looking models, the effective tax rates capture the total tax burden faced by firms. By contrast, in the micro forward looking model, the effective tax rates capture the effective marginal and average tax rate on a specific, hypothetical investment (King and Fullerton 1984; Devereux and Griffith 2003; P. Egger et al. 2009).

Appendix E: Australia's imputation system: how it works in practice

Australia's imputation system credits dividend recipients with the tax already paid by the company issuing a dividend. For example, a company with $100 in taxable profits would pay $30 in corporate income tax. Under a classical tax system, if the company distributes the $70 to a shareholder as a dividend, and the shareholder has a personal income tax rate of 45c, she will pay an additional $31.50 in tax on the $70 dividend received. This amounts to $61.50 in terms of total tax paid, as a share of pre-tax profit of $100, at the corporate and shareholder level.

By contrast, under an imputation system, domestic companies generate franking credits equal to the amount paid in corporate income tax. When companies pay dividends to shareholders, they also distribute franking credits. For example, using the same example as above, a shareholder would receive a dividend equal to $70 alongside a credit for $30 – known as a franking credit – for tax already paid by the company (**Table 17**). At a 45c marginal personal income tax rate, the shareholder would only pay an additional $15 in tax since she owed $45 dollars (45 percent of the value of the dividend and franking credits), but received a franking credit for $30. In this way, the corporate income tax acts as a withholding tax (a pre-payment of tax) for domestic shareholders.

An additional feature of Australia's imputation system is its refundability. If, for example, a shareholder had a 19c marginal personal income tax rate on a $70 dividend, she would receive an $11 refund since she owed only $19 in tax and received a franking credit equal to $30. If another company is the recipient of a franked dividend, as opposed to an individual shareholder, the value of the franking credit is credited to the recipient company's franking account. Only resident companies in Australia that pay Australian source income tax (as opposed to foreign sourced income tax) can generate franking credits and only resident shareholders can use them as a tax offset or credit.

Table 17. Tax payable on a $70 dividend issued from a resident Australian company to resident shareholders in Australia

	Resident shareholder with a 19c marginal income tax rate	Resident shareholder with a 45c marginal income tax rate
(a)Dividend issued	$70	$70
(b) Franking credits	$30	$30
(c) Gross income of shareholder	$100	$100
(d) Tax owed on dividend	$19	$45
(e) Tax owed minus franking offset or credit (e) = (d) – (b)	-$11	$15
(f) Refund issued	$11	0
(g) Tax owed	$0	$15
(h) After tax dividend (h) = (c) – (d)	$81	$55

Franking credits can be fully franked, partially franked or unfranked. Fully franked dividends imply that the corporation issuing the dividends has already paid the 30 percent Australian corporate tax rate. Partially franked dividends only offer partial offset or credit to shareholders for the 30 percent corporate tax owed. Unfranked dividends are dividends on which a company has not paid any Australian corporate income tax. Companies may retain any undistributed franking credits for future use. Since the value of the franking credits is not adjusted for inflation, their value depreciates over time, incentivising timely distribution.

Foreign shareholders are ineligible to use franking credits. Dividends paid by resident companies in Australia to foreign shareholders are subject to Australian dividend withholding tax equal to 30 percent (reductions to this percent can apply based on conditions stipulated in bilateral tax treaties). If dividends issued to a foreign investor are fully franked, there is no withholding tax because company tax has been prepaid prior to the dividend issue. Similarly, residents in Australia can receive a foreign tax credit for withholding tax paid on distributions received from portfolio investments in foreign companies (but no tax credit is received for corporate tax paid in the foreign country).

Table 18 and **Table 19** compare the after-tax dividends of resident shareholders in Australia with portfolio holdings in an Australian resident company and a foreign company. These tables assume that shareholders bear the incidence of both the corporate income tax and dividend taxation through lower after-tax dividends. This assumption is inconsistent with the incidence of corporate income taxation discussed in section 2.5. However, they are nonetheless presented since they assist the reader to step through how the imputation system works, in practice, from the starting point of corporate profits. Results that are consistent with section 2.5 are then discussed in **Tables 21 through 23**.

Shareholders bear the economic incidence of both corporate and dividend taxation

As can be seen in **Table 18** and **Table 19**, the after-tax dividend is always higher for resident Australian investors if they invest in resident companies in Australia. Even in a country with a considerably lower corporate income tax rate (10 percent in **Table 19**), the benefits from imputation result in a higher return for resident shareholders investing in resident Australian companies. In this way, the imputation system distorts investor behaviour, incentivising greater investment in a domestic portfolio.

Table 18. Tax payable on a dividend received by a resident Australian shareholder with a 45c marginal income tax rate from a resident Australian company and a foreign company in a country with a 30 percent statutory corporate income tax rate.

	Dividend issued by a foreign company to a resident Australian shareholder	Dividend issued by a resident Australian company to a resident Australian shareholder
(a) Taxable company income	$100	$100
(b) Australian corporate tax (30 percent)	$0	$30
(c) Foreign corporate tax (30 percent)	$30	$0
(d) After tax income paid as a dividend (d) = (a) – (b) or (c)	$70	$70
(e) Franking credits issued	$0	$30
(f) Gross income of shareholder	$70	$100
(g) Foreign withholding tax (10 percent)	$7	$0
(h) Foreign withholding tax credit	$7	$0
(i) Tax owed on dividend (i) = (f)* 0.45	$31.50	$45
(j) Tax owed minus foreign withholding tax credit (j) = (i) – (h)	$24.50	n.a.
(k) Tax owed minus franking credit offset or credit (k) = (i) – (e)	n.a	$15
(l) After tax dividend (l) = (f) - (j)	$38.50	$55

Table 19. Tax payable on a dividend received by a resident Australian shareholder with a 45c marginal income tax rate from a resident Australian company and a foreign company in a country with a 10 percent statutory corporate income tax rate.

	Dividend issued by a foreign company to a resident Australian shareholder	Dividend issued by a resident Australian company to a resident Australian shareholder
(a) Taxable company income	$100	$100
(b) Australian corporate tax (30 percent)	$0	$30
(c) Foreign corporate tax (10 percent)	$10	$0
(d) After tax income paid as a dividend (d) = (a) – (b) or (c)	$90	$70
(e) Franking credits issued	$0	$30
(f) Gross income of shareholder	$90	$100
(g) Foreign withholding tax (10 percent)	$9	$0
(h) Foreign withholding tax credit	$9	$0
(i) Tax owed on dividend (i) = (f)* 0.45	$40.50	$45
(j) Tax owed minus foreign withholding tax credit (j) = (i) – (h)	$31.50	n.a.
(k) Tax owed minus franking credit offset or credit (k) = (i) – (e)	n.a.	$15
(l) After tax dividend (l) = (f) – (g) - (j)	$49.50	$55

Similarly, **Table 20** compares the dividend taxation schemes in effect in the US and Australia. An American corporation that pays a dividend will have paid corporate income tax (21 percent) and the American shareholder to whom the dividend is paid will be taxed a second time but at a concessional rate (20 percent). The difference in the after-tax dividends relates to the higher corporate income tax in Australia, the inability for US residents to claim tax credit for corporate income tax paid, and the double taxation of dividends in the US. This last example shows how a relatively high corporate income tax rate discourages foreign investors from directly investing in resident Australian companies.

Table 20. Taxation on a fully franked dividend issued to a foreign shareholder (with a 20c marginal income tax rate in the country where she resides on dividend income) by a resident Australian company and a company resident in the foreign investor's country. The foreign country has a 21 percent company tax rate.

	Dividend issued by a foreign company to a resident shareholder in the foreign country	Dividend issued by a resident Australian company to a foreign shareholder
(a) Taxable company income	$100	$100
(b) Australian corporate tax (30 percent)	$0	$30
(c) Foreign corporate tax (21 percent)	$21	$0
(d) After tax income paid as a dividend (d) = (a) – (b) or (c)	$79	$70
(e) Franking credits issued	n.a.	$0
(f) Gross income of shareholder	$79	$70
(g) Foreign withholding tax (0 percent)	n.a.	$0
(h) Foreign withholding tax credit	n.a.	$0
(i) Foreign tax owed on dividend at 20 percent (i) = (f)* 0.20	$15.80	$14.00
(j) Foreign tax owed minus foreign withholding tax credit (j) = (i) – (h)	n.a.	$14.00
(k) After tax dividend (k) = (f) - (j)	$63.20	$56.00

Shareholders only bear the incidence of dividend taxation

Table 21, **Table 22**, and **Table 23** replicate the preceding three tables under the alternative assumption that shareholders only bear the incidence of dividend taxation (as opposed to both corporate income taxation and dividend taxation). This assumption is consistent with a small open economy where the return on investment is set globally and shareholders expect the same return on investment, irrespective of the corporate income tax rate in place in a country (see section 2.5 for a review). The conclusion from these tables is that while the imputation system does not impact returns to shareholders, investment levels will be influenced because of differences in corporate income tax rates in place in different countries. In these tables, the starting point is $100 of gross income to the shareholder. The amount of taxable company income to generate this payout to the shareholder will differ by the tax rate in the foreign country.

Table 21. Tax payable on a dividend received by a resident Australian shareholder with a 45c marginal income tax rate from a resident Australian company and a foreign company in a country with a 30 percent statutory corporate income tax rate

	Dividend issued by a foreign company to a resident Australian shareholder	Dividend issued by a resident Australian company to a resident Australian shareholder
(a) Taxable company income	$143	$100
(b) Australian corporate tax (30 percent)	$0	$30
(c) Foreign corporate tax (30 percent)	$43	$0
(d) After tax income paid as a dividend (d) = (a) – (b) or (c)	$100	$70
(e) Franking credits issued	$0	$30
(f) Gross income of shareholder	$100	$100
(g) Foreign withholding tax (10 percent)	$10	$0
(h) Foreign withholding tax credit	$10	$0
(i) Tax owed on dividend (i) = (f)* 0.45	$45	$45
(j) Tax owed minus foreign withholding tax credit (j) = (i) – (h)	$35	n.a.
(k) Tax owed minus franking credit offset or credit (k) = (i) – (e)	n.a	$15
(l) After tax dividend (l) = (f) - (i)	$55	$55

Table 22. Tax payable on a dividend received by a resident Australian shareholder with a 45c marginal income tax rate from a resident Australian company and a foreign company in a country with a 10 percent statutory corporate income tax rate.

	Dividend issued by a foreign company to a resident Australian shareholder	Dividend issued by a resident Australian company to a resident Australian shareholder
(a) Taxable company income	$111	$100
(b) Australian corporate tax (30 percent)	$0	$30
(c) Foreign corporate tax (10 percent)	$11	$0
(d) After tax income paid as a dividend (d) = (a) – (b) or (c)	$100	$70
(e) Franking credits issued	$0	$30
(f) Gross income of shareholder	$100	$100
(g) Foreign withholding tax (10 percent)	$10	$0
(h) Foreign withholding tax credit	$10	$0
(i) Tax owed on dividend (i) = (f)* 0.45	$45	$45
(j) Tax owed minus foreign withholding tax credit (j) = (i) – (h)	$35	n.a.
(k) Tax owed minus franking credit offset or credit (k) = (i) – (e)	n.a.	$15
(l) After tax dividend (l) = (f) – (g) - (j)	$55	$55

Table 23. Taxation on a fully franked dividend issued to a foreign shareholder (with a 20c marginal income tax rate in the country where she resides on dividend income) by a resident Australian company and a company resident in the foreign investor's country. The foreign country has a 21 percent company tax rate.

	Dividend issued by a foreign company to a resident shareholder in the foreign country	Dividend issued by a resident Australian company to a foreign shareholder
(a) Taxable company income	$127	$143
(b) Australian corporate tax (30 percent)	$0	$43
(c) Foreign corporate tax (21 percent)	$27	$0
(d) After tax income paid as a dividend (d) = (a) – (b) or (c)	$100	$100
(e) Franking credits issued	n.a.	$0
(f) Gross income of shareholder	$100	$100
(g) Foreign withholding tax (0 percent)	n.a.	$0
(h) Foreign withholding tax credit	n.a.	$0
(i) Foreign tax owed on dividend at 20 percent (i) = (f)* 0.20	$20	$20
(j) Foreign tax owed minus foreign withholding tax credit (j) = (i) – (h)	n.a.	$20
(k) After tax dividend (k) = (f) - (i)	$80	$80

Who are the winners and losers of the Australian imputation system?

Table 24 and **Table 25** show the value of the franking credits and final cash value of an Australian resident company generating $100 of pre-tax profits and paying company tax on those profits. That is, where the corporate tax rate is 30 percent, the company will pay a $70 fully-franked dividend issued to different investors. The examples assume a dividend payment equal to the after tax profits of the company. **Table 25** shows the impact of a five-percentage point reduction of the statutory corporate income tax rate from 30 percent to 25 percent. The computations assume that refundability remains intact as part of the imputation policy. There are four principal results:

- First, following a reduction in the statutory corporate income tax rate, the after-tax value of dividends issued to domestic shareholders remains constant, but increases for foreign investors. Since the statutory corporate income tax acts as a withholding of tax for foreign investors, a reduction in the statutory corporate income tax rate increases the value of the dividend.
- Second, the amount of tax revenue collected from domestic shareholders remains the same, but the composition of tax payments – the share of tax paid by companies versus individuals – changes. Individuals and superannuation funds must pay tax on the dividend at their marginal tax rate irrespective of a decrease in the statutory corporate income tax rate. As a result, a reduction in the corporate income tax rate decreases the franking credits allocated to such shareholders and increases their share of the total tax payable.
- Third, total Australian government revenue only decreases by the amount of tax revenue lost to foreign investors. In other words, reducing the statutory corporate income tax rate only benefits foreign investors to the detriment of Australian government tax revenue (if refundability is retained).
- Finally, the refundability of the imputation system most benefits domestic investors and superannuation funds with marginal income tax rates lower than 30 percent since they receive a refund for the difference between their marginal tax rate and the 30 percent statutory corporate income tax rate.

Table 24. The effect of issuing a $70 franked dividend to 7 different classes of investors at a 30 percent corporate income tax rate

	Foreign Investor	Domestic shareholder (marginal tax rate)					Superannuation fund	Australian Gov't tax revenue
(a) Company tax paid ($700*.3)				n.a.				$210.00
(b) Australian personal income tax rates	n.a.	0	19c	32.5c	37c	45c	15c	
(c) Australian tax owed @ marginal tax rate	$30*	$0	$19	$32.50	$37	$45	$15	
(d) Franking credits distributed	0	$30	$30	$30	$30	$30	$30	
(e) Tax owed by shareholder (e) = (c) – (d)	n.a.	-$30	-$11	$2.50	$7	$15	-$15	n.a.
(f) Tax refund issued to shareholder	$0	$30	$11	$0	$0	$0	$15	
(g) Value of dividend	$70	$100	$81	$67.50	$63	$55	$85	
(h) Value of dividend, post-personal income tax applied	n.a.	$100	$81	$67.50	$63	$55	$85	
(i) Australian gov't tax revenue	$30	$0	$19	$32.50	$37	$45	$15	$178.50

*The foreign shareholder does not have a marginal tax rate in Australia. However, on franked dividends issued to foreign shareholders, the corporate income tax rate applies.

Table 25. The effect of a 5-percentage point reduction in the statutory corporate income tax rate

	Foreign Investor	Domestic shareholder (marginal tax rate)					Superannuation fund	Australian Gov't tax revenue
(a) Company tax paid ($700*.25)				n.a.				$175.00
(b) Australian personal income tax rates	n.a.	0	19c	32.5c	37c	45c	15c	
(c) Australian tax owed @ marginal tax rate	$25*	$0	$19	$32.50	$37	$45	$15	
(d) Franking credits distributed	0	$25	$25	$25	$25	$25	$25	
(e) Tax owed by shareholder (e) = (c) – (d)	n.a.	-$25	-$6	$7.50	$12	$20	-$10	n.a.
(f) Tax refund issued to shareholder	$0	$25	$6	$0	$0	$0	$10	
(g) Value of dividend	$75	$100	$81	$67.50	$63	$55	$85	
(h) Value of dividend, post-personal income tax applied	n.a.	$100	$81	$67.50	$63	$55	$85	
(i) Australian gov't tax revenue	$25	$0	$19	$32.50	$37	$45	$15	$173.50

*The foreign shareholder does not have a marginal tax rate in Australia. However, on franked dividends issued to foreign shareholders, the corporate income tax rate applies.

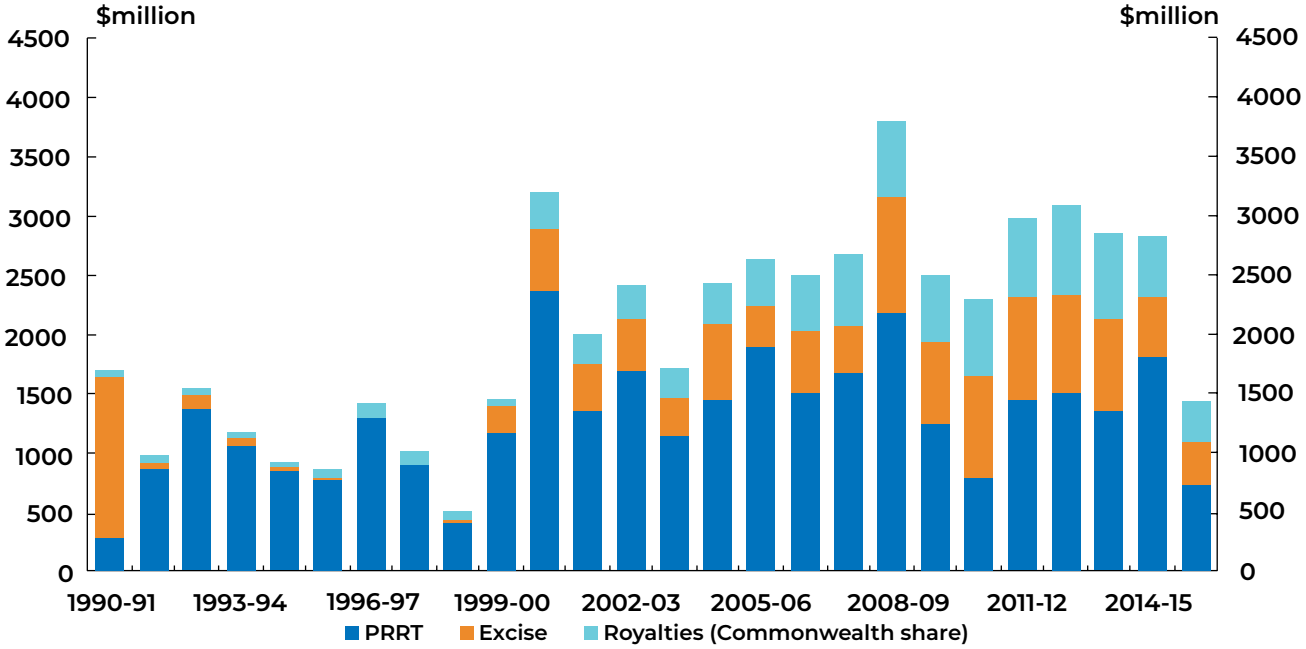
Appendix F: Australia's sectoral cash-flow taxes in practice

While no country has implemented a cash-flow tax at the national level, modified versions of a cash-flow tax have been achieved at the sectoral level. Two examples of a sectoral modified cash-flow tax are Australia's Petroleum Resource Rent Tax (PRRT) and the Northern Territory's Mineral Rent Tax. These are discussed below.

Petroleum resource rent tax (PRRT)

The PRRT has existed since 1988 and is levied by the Commonwealth on offshore petroleum. While it also applied to onshore petroleum from 2012, it was subsequently removed from the regime in 2019. While the Commonwealth's predominant source of natural resource tax revenue is derived from the PRRT, as shown by **Figure 21**, it also retains the right to revenue from excise taxes on onshore crude oil and condensate and the North West Shelf Project (a special offshore area, through a sharing arrangement made with Western Australia) and a special resource rent tax that is applied to Barrow Island (also shared between the Commonwealth and Western Australia). (Australian Government Petroleum Resource Rent Tax Review, 2017).

Figure 21. Historic Commonwealth Natural Resource Revenue



Source: Australian Government Petroleum Resource Rent Tax Review, 2017

The PRRT tax rate is set at 40 percent of a petroleum project's taxable profit. A project's boundaries are defined by the taxing point of sale. It operates as a modified sectoral cash-flow tax with an R-base. The cash-flow tax base is defined as the receipts minus expenditures for the activities required to get the natural resource to the taxing point. Expenditure includes capital investment in exploration, development, operating and closing down activities, but excludes financing costs. If closing-down expenditure cannot be deducted from positive receipts, then the company is eligible for a tax credit equal to 40 percent of excess expenditure. The tax credit is not uplifted over time.

As previously mentioned, a true cash-flow tax requires the Government to refund tax losses. In order to avoid this risk to the Government budget, the design of the tax was modified. Any expenditure exceeding receipts is carried forward and applied against an uplift rate. The choice of uplift rate is particularly important for two reasons: (1) if the uplift rate is set too low, it could discourage investment for projects with long lead times and large upfront investment costs and (2) if the uplift rate is set too high, the value of the losses compound over time and the government will never realise any tax revenue from the tax. In the case of the PRRT, the uplift rate varies by the type of expenditure and its timing in relation to the receipt of the associated production license (see **Table 23**). The uplift rates were also modified in 2019 following a Government review of the PRRT.

Table 26. Uplift rates associated with the PRRT

Type of expenditure	Uplift Rates prior to 1 July 2019	Uplift Rate for projects attributed a production license from 1 July 2019
Exploration expenditure incurred less than five years prior to receipt of the associated production license	Long-term bond rate (LTBR) + 15 percentage points	From 1 July 2019, exploration expenditure incurred prior to that date and less than five years prior to a production licence being applied for is subject to an uplift rate equal to the LTBR+5 percentage points. Exploration expenditure incurred on or after 1 July 2019 is subject for the ten years after the expenditure is incurred to an uplift rate equal to the LTBR+5 percentage points; and then an uplift rate equal to the GDP factor.
Exploration expenditure incurred more than 5 years prior to receipt of the associated production license	GDP deflator	No change for exploration expenditure incurred prior to 1 July 2019 and more than five years prior to a production licence being applied for, which continues to be subject to an uplift rate equal to the GDP factor. Exploration expenditure incurred on or after 1 July 2019 (Class 2 uplifted exploration expenditure) is subject to: for the ten years after the expenditure is incurred – an uplift rate equal to the LTBR+5 percentage points; and then – an uplift rate equal to the GDP factor.
Other general costs and creditable state and Commonwealth royalties and excises, incurred more than five years prior to application for a production licence	GDP factor	GDP factor
Other general costs and creditable state and Commonwealth royalties and excises, incurred less than five years prior to application for a production licence	LTBR + 5 percentage points	LTBR + 5 percentage points, for 10 years from the financial year in which a project first produces assessable petroleum receipts. Following this period only the LTBR will apply.

Bearing in mind the nuances associated with the PRRT, a petroleum project tax base is represented by:

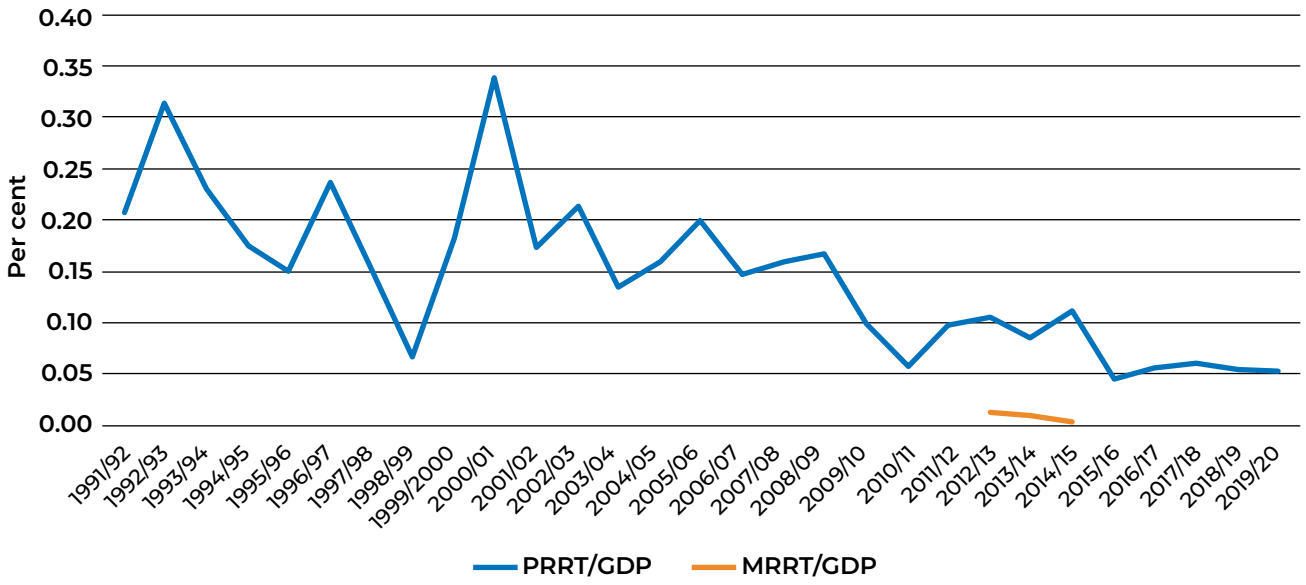
Petrolum project tax base (R based) =
(PR + SV + FAI) - (MAT + LAB + OTH) - (carried forward general costs of project) -
(carried forward exploration of company group prior to receipt of prod.licence) -
(carried forward exploration of company group up to 5 years after receipt of prod.licence)

Exploration losses, carried forward by the *company group* to which the *project* belongs, can be applied against losses incurred by the company group. General costs must however, be specific to the project. Prior to 1991, only project-specific exploration losses could be carried forward and applied against the project tax base. However, from 1991, legislation allowed for transferability of exploration expenditure across a company group. The intention of transferability of exploration losses was to increase the likelihood that the losses could actually be applied against positive receipts, thereby incentivising exploration. If the losses were ring-fenced to a particular project, the probability of their use declined, disincentivising exploration.

2019 Changes to the PRRT

Figure 22 shows that while PRRT revenue has always represented less than 1 percent of GDP, its share of revenue has declined over time. In addition, PRRT revenue is quite volatile. The downward trend in revenue collection is partly attributed to a decline in oil prices and production. Australia's oil reserves are relatively small (0.2 percent of world oil reserves) and its known remaining oil (crude oil, condensate and liquefied petroleum gas - LPG) has a production life estimated at about 14 years (Australian Government 2017). By contrast, conventional natural gas resources[58], like liquefied natural gas (LNG), and unconventional natural gas resources, like coal seam gas (CSG), shale gas, and tight gas, have increased. In addition, new projects earmarked for development will only increase the supply available. At current production rates, total identified gas reserves will last around 106 years. Investments in LNG have been so significant that Australia is one of the world's largest LNG exporters.

Figure 22. PRRT and MRRT tax revenue as a share of GDP, 1991 - 2020



Source: Final Budget Outcomes and Department of Parliamentary Library Research Note Number 20 (2000-01).

58 Conventional gas resources refer to gas extracted from formations using normal, standardised, simple, and less expensive technology. By contrast, unconventional gas resources are much more difficult and costly to extract because they require specialized technology (see Energy Education).

The changing landscape of the petroleum industry provided impetus for the Australian Government to commission a review of the PRRT in 2016. The Callaghan PRRT Review (2017) assessed the PRRT and showed how the petroleum and gas industry in Australia had transformed since the PRRT's introduction in 1988. Since LNG projects require a much longer upfront investment period, the generous uplift factors compounded over an even greater time-period, thereby prolonging the first period from which PRRT could be collected from a positive cash-flow. As a result, the first major change introduced to the PRRT was a significant reduction in the uplift factors (presented in column 3 of **Table 23**) from 1 July 2019.

A second major change introduced by the government following the review was the exclusion of onshore petroleum from the PRRT. As previously mentioned, onshore petroleum was originally excluded from the PRRT's scope of application and then included in 2012. Onshore petroleum was and remains subject to state and territory taxation. In the 2017 review, it was shown that onshore projects were unlikely to ever pay PRRT. However, their high exploration costs could be transferred to offshore projects owned by the same company group, thereby reducing the overall PRRT paid by the broader company group. As an integrity measure, onshore petroleum projects were subsequently excluded from the PRRT's application for the second time.

Success of the PRRT?

The success of the PRRT could be measured by different yardsticks. In terms of its previous and continued ability to raise revenue, its success is debatable. Generous uplift rates, lower commodity prices, changes to the tax design over time (the inclusion of onshore projects) and the overall industry transition towards LNG have contributed to the declining tax revenue raised from the PRRT (and a very complex system). It remains to be seen whether the 2019 modifications to the PRRT's design will increase tax revenue. Success as measured by sustainability receives similar marks. If an estimated 106 years of natural gas remain, the effectiveness of the 2019 policy changes to the PRRT and the results of the ongoing evaluation of transfer pricing for natural gas will ultimately shape its effectiveness as a sustainable revenue generating tax source.

From the perspective of businesses, the PRRT is a success. When the PRRT was initially introduced, businesses opposed it under the premise that its introduction would decrease investment. By 2017 however, that view had changed, and they believed that the current tax arrangements of the PRRT, by not taxing marginal investments, "…were instrumental in promoting the very large investment in the exploration and development of Australia's resources…" (Australian Government 2017). Arguably however, this view could be shaped by the relatively limited revenue raising implications that the PRRT has ultimately achieved, particularly in recent years.

Unfortunately, something similar could not be said about the Minerals Resource Rent Tax (MRRT) due to its short-lived and contested existence in Australia. The MRRT's failure points to another area of the PRRT's comparative advantage for implementation: jurisdictional authority. Onshore minerals (and petroleum and gas) are currently taxed using a combination of royalties and/or a rent tax (in the Northern Territory) levied by states and territories (see **Appendix C** for an overview). When the MRRT was introduced, it applied to iron ore and coal and state royalty payments could also be deducted from the MRRT tax owed. In response, states increased their royalty rates, thereby reducing federal tax revenue from the MRRT. Similarly, when the PRRT applied to onshore activities, state royalty payments could be deducted from federal PRRT obligations. However, since the PRRT also applies offshore, only the Commonwealth retains jurisdiction. In summary, part of the PRRT's relative success is due to the federal government's sole authority over the resources in question. As a result, the success of any future resource rent tax imposed on onshore resources, will fail without involvement of and engagement with the states and territories which retain jurisdiction over the resources in question.

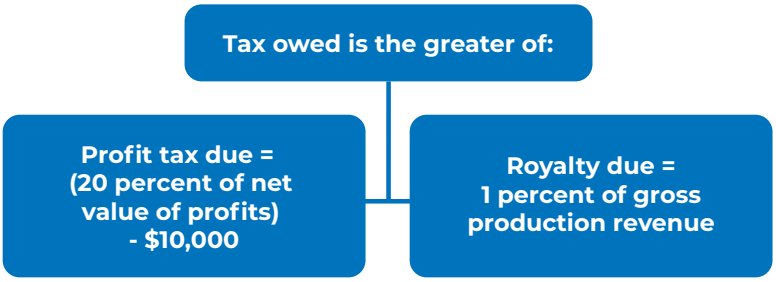
A territory-level modified CFT: the Northern Territory's Mineral Rent Tax

The Northern Territory was the only state or territory to exclusively impose a rent tax on minerals, instead of royalties, until the 2019-2020 fiscal year.[59] The original profits-based, cash-flow tax, applied at a 20 percent rate, irrespective of the mineral produced, and was subject to a $50,000 net value royalty threshold. The system existed since 1982 and the rate was only increased once, from 18 to 20 percent in 2010. Tax obligations were calculated at the project, as opposed to company, level.

In the 2019-2020 fiscal year, the Northern Territory shifted to a hybrid system that retains the profits-based cash-flow tax and imposes a minimum royalty. The new system was introduced in response to the territory's concerns about the sustainability of its tax revenue base.[60] While royalties influence investment on the margin, from the standpoint of tax revenue they are less volatile. By contrast, while rent-based taxes are more volatile, they adjust automatically during commodity booms, ensuring a greater share of economic rents are returned to the territory in tax revenue (relative to royalties). The need for a more stable revenue source engendered the impetus for the reform.

The new policy aimed to apply either the royalty or the profit tax (20 percent) and excluded small mines with gross production revenue less than $500,000. To determine whether the profit tax or royalty applies, the project must calculate its potential tax obligations using the two formulas presented in **Figure 23**. The project must pay the greater of the two values. Such a hybrid royalty-profit tax design effectively applies a profit tax to profitable investments and a royalty to less profitable mines above the specified threshold. The impact of these recent changes remains to be evaluated at a future date. Theory suggests marginal investments will be affected. The changes should also stabilise tax revenue to some degree. Tasmania and Queensland also have hybrid mineral taxation systems but the Northern Territory is the only to apply an either/or approach. Both Queensland and Tasmania always apply a royalty and *add* an additional profit tax if profits are greater than zero (see **Appendix C**).

Figure 23. Northern Territory's mineral taxation formula per mining project from the 2019 - 2020 fiscal year



Note: The royalty value increases to 2 percent of gross production revenue from the second year and 2.5 percent thereafter.

Source: Northern Territory Department of Treasury and Finance

59 There were however, prior to changes implemented in the 2019-2020 fiscal year, some selected mines that continued to operate under a value-based royalty system for historical reasons.

60 A discussion paper was issued by the Northern Territory's Department of Treasury and Finance in 2017. This was followed by a process of public consultation.

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Tax and Transfer Policy Institute

Crawford School of Public Policy
ANU College of Asia and the Pacific

Lennox Crossing, Canberra ACT 2601

E tax.policy@anu.edu.au
T +61 2 6125 9318