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September 2018

Online at <https://mpra.ub.uni-muenchen.de/89703/>

MPRA Paper No. 89703, posted 30 Oct 2018 08:44 UTC

Implementing corporate tax cuts at the expense of neutrality? A legal and optimisation analysis of fundamental reform in practice

Ann Kayis-Kumar*

Abstract

Governments and policy-makers are increasingly faced with the trade-off of protecting their tax revenue bases while maintaining their international competitiveness. This is exemplified by the international trend of jurisdictions reducing their headline corporate tax rates, which is often justified on the basis that these cuts will lead to improved efficiency and integrity outcomes. This article explores whether it is more efficient to implement corporate tax cuts or an alternative reform such as an economic rent tax which may better achieve the tax policy goals of efficiency and integrity.

In doing so, this article bridges the gap between applied legal research, economic theory and practical optimisation modelling. Specifically, this research presents a simulation analysis of the behavioural responses of a tax-minimising multinational enterprise to both existing and proposed tax regimes and compares efficiency and integrity outcomes upon implementing corporate tax cuts. This is complemented by a legal comparative analysis featuring case studies of an economic rent tax; namely, the Allowance for Corporate Equity (ACE) as introduced in Belgium and Italy. These case studies will focus on the political hurdles to implementing and sustaining these reforms, which will highlight key lessons learnt from the implementation of the ACE in practice.

Key words: Tax neutrality, Corporate tax reform, Allowance for Corporate Equity

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1. BACKGROUND

The advent of the global digital economy has heightened opportunities for aggressive tax planning by multinational enterprises (MNEs) and has spurred harmful tax competition between governments. Governments and policy-makers are increasingly faced with the trade-off of increased international competitiveness to encourage investment from MNEs with the need to protect their tax revenue bases.

Recently, prominent members of the G20 have signalled their intention to eventually reduce their headline corporate tax rates; this is exemplified by the US and the UK, who are both now targeting reductions to their corporate income tax (CIT) rates; to possibly as low as 15 per cent.¹

There is a perception that cross-border anti-avoidance rules such as thin capitalisation and transfer pricing rules effectively protect the tax revenue base from aggressive tax planning behaviour in the cross-border intercompany context. However, the ability of these rules to restrict tax deductibility is often conflated with their ability to attain efficiency and integrity outcomes. Previous research by the author has demonstrated that these rules do not eliminate tax-induced distortions, which would be required to attain efficiency. On the other hand, economic rent taxation is generally considered in the economic literature to be an appropriate mechanism to eliminate tax-induced distortions.

Given the tension commonly experienced by policy-makers between lowering the headline rate of CIT as opposed to implementing economic rent taxes, this article compares the efficiency and integrity outcomes between these two reform approaches.

Academics and commentators such as De Mooij and Ederveen highlight the normative value in the argument for ‘a neutral tax treatment of incomes earned in different legal forms’.² Previous research by the author has examined the conceptual case for why it might be appropriate and feasible to restrict the tax deductibility of cross-border intercompany interest, dividends, royalties and lease payments given their mobility and fungibility.³ As such, it is arguably preferable for MNEs to be subject to economic rent taxation, as is attained through reform proposals such as the allowance for corporate equity (ACE), in this context.

Even though the cross-border issue cannot be isolated from the rest of the tax system,⁴ the focus of this article is the cross-border dimension because distortions in tax laws are highly problematic in this context. For example, the phenomenon of thin capitalisation arises from the decisions of revenue authorities to create a tax-induced cross-border debt

¹ See, for example, Mike Lane, ‘Autumn Statement 2016: The Impact on Multinationals’ (2016) 1333 *Tax Journal* 10.

² Ruud A de Mooij and Sjeff Ederveen, ‘Corporate Tax Elasticities: A Reader’s Guide to Empirical Findings’ (2008) 24(4) *Oxford Review of Economic Policy* 680, 696.

³ Ann Kayis-Kumar, ‘International Tax Planning by Multinationals: Simulating a Tax-Minimising Intercompany Response to the OECD’s Recommendation on BEPS Action 4’ (2016) 31(2) *Australian Tax Forum* 363; Ann Kayis-Kumar, ‘Taxing Cross-Border Intercompany Transactions: Are Financing Activities Fungible?’ (2015) 30(3) *Australian Tax Forum* 627.

⁴ Harry Grubert and Rosanne Altshuler, ‘Corporate Taxes in the World Economy: Reforming the Taxation of Cross-Border Income’ in John Diamond and George Zodrow (eds), *Fundamental Tax Reform: Issues, Choices, and Implications* (MIT Press, 2008) 319, 319-321.

bias, which presents opportunities for tax base erosion.⁵ The tax-induced cross-border debt bias incentivises behavioural responses to take advantage of the international classification differences between debt and equity,⁶ and distorts MNEs' corporate financing decisions.

2. AGGRESSIVE TAX PLANNING AND THE NEUTRAL TAX TREATMENT OF INCOMES

A central thread in the literature concerning MNEs' aggressive tax planning behaviour is that the opportunities for these behaviours are created by governments and policy-makers themselves through the design of tax rules.⁷ This article assumes that where a tax-minimising MNE has the opportunity to benefit from tax planning given the design of tax rules (including transfer pricing, thin capitalisation and debt/equity rules), it will adjust its behaviour accordingly. This could involve, for example, maximising overall deductions in higher-tax jurisdictions to minimise the group-wide tax liability and, in turn, the MNE's overall net profit after tax. This highlights that there is an urgent imperative for tax rules impacting cross-border intercompany transactions to be designed such that efficiency and integrity outcomes are both prioritised and attained.

Accordingly, section 2.1 below highlights the policy challenge presented by tax-minimising behaviours by MNEs and how international tax competition may have the unintended consequence of encouraging aggressive tax planning. This is followed by an analysis in section 2.2 of the challenge presented by the existence of economic inefficiencies – or tax-induced distortions – in the tax treatment of cross-border intercompany activities, which of themselves give rise to tax planning opportunities for MNEs. Finally, section 2.3 observes that, given the trade-off between international competitiveness and tax revenue base protection, it is arguably more efficient – and, in turn, more effective – to instead align the tax treatment of cross-border intercompany transactions to eliminate the incentive for tax planning behaviours.

2.1 Profit shifting: aggressive tax planning and international tax competition

Despite criticisms of aggressive tax planning behaviour by MNEs, the philosophical framework of free market capitalism appears to justify this behaviour.⁸ This is exemplified in the 'efficiency' argument, which is oft-cited by MNEs as a justification for utilising tax havens on the basis that tax-minimising behaviour can encourage greater investment by MNEs. While the economic literature espouses that the profit motive ensures that resources are being allocated efficiently, this reasoning hinges on the simplifying theoretical assumptions that firms operate in free and competitive markets. Yet, these underlying theoretical assumptions do not exist in the current global financial system. Only the largest MNEs are best positioned to exploit differences in

⁵ Ann Kayis-Kumar, 'Thin Capitalisation Rules: A Second-Best Solution to the Cross-Border Debt Bias?' (2015) 30(2) *Australian Tax Forum* 299; see also Dean Hanlon, 'Thin Capitalisation Legislation and the Australia/United States Double Tax Convention: Can They Work Together?' (2000) 3(1) *Journal of Australian Taxation* 4.

⁶ Mihir A Desai, Testimony before the US Senate Committee on Finance and the US House Committee on Ways and Means (13 July 2011) 4, available at: <http://www.finance.senate.gov/imo/media/doc/DesaiTestimonyFinal.pdf>.

⁷ Philipp Genschel and Peter Schwarz, 'Tax Competition: A Literature Review' (2011) 9(2) *Socio-Economic Review* 339, 364.

⁸ The profit motive provides the justification for internalising benefits while externalising costs, which includes the minimisation of taxation.

jurisdictions' tax systems to minimise their tax liability. This process of tax arbitrage does not improve productivity nor does it constitute 'true' innovation.⁹

Using intercompany transactions, MNEs can shift intercompany expenses to, and intercompany income from, source countries to minimise tax payable with relative ease.¹⁰ De Mooij and Ederveen¹¹ note the empirical evidence on profit shifting yielding the largest corporate tax base elasticities. However, the scale of the problem is considered to be even more significant with academics including Seto positing that '... an unknown but presumably significant number of companies use aggressive intercompany pricing to reduce their overall tax liabilities and get away with doing so'.¹²

Given the significance afforded to the design of rules countering aggressive tax planning behaviour by MNEs, it is necessary to consider the impacts of changing these rules, as detailed in the empirical literature. Keen has observed that, even though both multilateral cooperation and unilateral anti-avoidance rules may reduce MNEs' propensity to engage in profit shifting, this will likely also increase competitive pressure on foreign direct investments. So, if MNEs in high-tax jurisdictions are rendered unable to engage in profit shifting there may be a greater incidence of relocating production to other jurisdictions.¹³ This is tested through the simulation analysis conducted in section 4 below.

2.2 Base erosion: tax neutrality theories and cross-border intercompany transactions

A central premise of this article is that wherever possible tax-induced reductions in economic efficiency ought to be minimised. This is in line with the tax neutrality principle, which states that tax systems should strive to be neutral such that decisions are made on their economic merits, rather than for tax reasons. This is particularly problematic because economic inefficiencies – or tax-induced distortions – in the tax treatment of cross-border intercompany activities give rise to tax planning opportunities for MNEs. As such, there is an urgent imperative for a tax treatment of cross-border intercompany transactions with a strong conceptual basis.

However, the international tax literature often does not consider the fungibility of passive or highly mobile income in the cross-border intercompany context. This translates to a lack of funding neutrality in the design and evaluation of cross-border tax rules.

This is arguably at odds with a central goal of economics and the economic analysis of law; namely, efficiency optimisation.¹⁴ Admittedly, when applied in the tax law context,

⁹ Michael Porter and Mark Kramer, 'Creating Shared Value' (2011) 89(1/2) *Harvard Business Review* 62.

¹⁰ The OECD has noted '...the relative ease with which MNE groups can allocate capital to lowly taxed minimal functional entities (MFEs). This capital can then be invested in assets used within the MNE group, creating base eroding payments to these MFEs': see further OECD, *Public Discussion Draft, BEPS Actions 8, 9 and 10: Discussion Draft on Revisions to Chapter I of the Transfer Pricing Guidelines (Including Risk, Recharacterisation and Special Measures)*, 1 December 2014 – 6 February 2015 (OECD, 2014) 38. For completeness, residence issues are beyond the scope of this article.

¹¹ De Mooij and Ederveen, above n 2, 683-684.

¹² Theodore P Seto, 'Four Principles of Optimal Tax System Design' (Legal Studies Paper No 2008-36, Loyola Law School, March 2013) 5-6.

¹³ Genschel and Schwarz, above n 7, 364.

¹⁴ See, for example, Alex Raskolnikov, 'Accepting the Limits of Tax Law and Economics' (2013) 98(3) *Cornell Law Review* 523, 551; Lena Hiort af Ornäs Leijon, 'Tax policy, economic efficiency and the

the unique complexity of the tax optimisation problem renders the task of designing the optimal tax system immensely difficult compared to other areas of law such as competition policy, corporate law and securities regulation.¹⁵ There are three key challenges that give rise to this unique complexity.¹⁶ First, taxation inevitably gives rise to inefficiencies and some taxpayers' inefficient responses to taxation cannot be fully deterred by legal rules (the 'undeterrability problem'). Second, it is impossible to fully resolve both the undeterrability problem and the 'redistribution problem'; however, it is in theory possible to reach a compromise which balances the benefits of redistribution with the inevitable costs of tax-induced distortions. Third, there exists a fundamental disconnect between actual tax regimes and the design of optimal tax rules.

These issues are dramatically amplified in the cross-border setting, where the existing system is 'so far from the optimal income tax baseline that the effort to reference it would be decidedly doomed'.¹⁷ Raskolnikov notes that there is no optimal rule for allocating interest expense by MNEs, nor is there an optimal theory of international taxation, corporate tax or capital income taxation.¹⁸ This sentiment is echoed by Weisbach, who makes the following two critiques: '[s]tandard optimal tax models do not even have firms ... Neutralities, the standard tool of international tax policy, are not helpful'.¹⁹

In this context, this article makes two additional critiques. First, the literature does not consider 'optimised' behavioural responses by MNEs in the limited context of tax minimisation; nor does it anticipate how policy-makers could respond to those behavioural responses. Second, the tax neutrality theories that have been introduced as criteria for achieving economic efficiency at the international level have limited usefulness in the context of designing tax rules targeting base erosion by MNEs.²⁰

As such, it is meaningful to consider economic efficiency benchmark criteria for company taxation and apply those principles to the cross-border setting. Specifically, Warren provides a synthesis of neutrality criteria for company taxation, as extracted in Fig. 1 below.²¹

principle of neutrality from a legal and economic perspective' (Uppsala Faculty of Law, Working Paper 2015:2) 17.

¹⁵ Raskolnikov, above n 14, 524-525.

¹⁶ Ibid 525-527.

¹⁷ Ibid 551.

¹⁸ Ibid.

¹⁹ David A Weisbach, 'The Use of Neutralities in International Tax Policy' (University of Chicago Coase-Sandor Institute for Law & Economics Research Paper No 697, 18 August 2014) 14-19.

²⁰ Grubert and Altshuler, above n 4, 331-333; see further Michael J Graetz, 'Taxing International Income: Inadequate Principles, Outdated Concepts, and Unsatisfactory Policies' (2001) 54(3) *Tax Law Review* 261, 280-282, who observes that increasing worldwide welfare does not necessarily increase national welfare in the case of international tax policy, thereby supporting national welfare, rather than worldwide efficiency, as a policy goal; see also Daniel Shaviro, 'Why Worldwide Welfare as a Normative Standard in US Tax Policy?' (2007) 60(3) *Tax Law Review* 155, 164-165, who contends that, even if worldwide welfare improves national welfare by encouraging cooperative behaviour, unobserved defections should improve national welfare.

²¹ Neil Warren, 'Modelling the Economic Outcomes from TVM: Is It Practical and Meaningful?' in Yuri Grbich and Neil Warren (eds), *Tax Value Method Consultative Conference, 23-24 July 2001* (Australian Tax Research Foundation, 2001), 197-215.

Fig. 1: Economic Efficiency Benchmark Criteria

<i>Economic efficiency</i>	
<i>Criteria</i>	<i>Description</i>
<i>Funding neutrality</i>	<i>Does not distort the decision on how to fund a business (eg debt vs equity)</i>
<i>Risk neutrality</i>	<i>Permits risk offset and adjustment</i>
<i>Business structure neutrality</i>	<i>Incorporated and unincorporated companies treated similarly</i>
<i>Net income neutrality</i>	<i>Neutral in its treatment of different income and expenditure sources and asset and liability types</i>
<i>Payout neutrality</i>	<i>Neutral between dividends and retentions; and neutral in its impact on financial innovation (bifurcation vs aggregation)</i>
<i>Taxpayer neutrality</i>	<i>Incentives to different groups should result in the same outcome for individuals, whatever structure is invested in</i>
<i>Capital import/export neutrality</i>	<i>Benefit to resident and offshore investors should be similar</i>
<i>Institutional neutrality</i>	<i>No prejudice or favour by government to sectors or groups (and if so, any market intervention should be efficiently targeted, transparent and costed)</i>

Source: Warren (2001)

Cross-referencing Warren's conceptual framework with Raskolnikov's earlier critique, one key aspect that remains missing from the international neutrality debate is that of 'funding neutrality' (listed as criterion 1 in the above Fig. 1).²²

In addition to the challenges presented by the complexity of cross-border intercompany transactions, these funding options are often economically equivalent (or 'fungible') but are subject to disparate tax treatments. For example, the cost of debt financing is deductible whereas the cost of equity financing is not deductible. This is particularly problematic because such non-neutral tax treatments present opportunities for base erosion. However, fundamental reforms that aim to equalise the tax treatment across debt and equity financing do exist; for example, the Allowance for Corporate Equity

²² Funding neutrality is arguably a subset of 'capital ownership neutrality', which has a broad focus on '... the welfare impact of the importance of ownership to productivity in the design of international tax systems. This emphasis on ownership effects is consistent with the modern theory of foreign direct investment, which is based on a transaction-cost approach under which the market advantages of multinational firms arise from the benefits of joint ownership of assets across locations': James R Hines, Jr, 'Reconsidering the Taxation of Foreign Income' (2009) 62(2) *Tax Law Review* 269, 279.

(ACE) as introduced in Belgium and Italy, which is the focus of the legal analysis²³ in section 3 and the modelling in section 4.

2.3 Implementing corporate tax cuts at the expense of funding neutrality: the trade-off between international competitiveness and base protection

Governments and policy-makers are increasingly faced with the trade-off of increased international competitiveness to encourage investment from MNEs with the need to protect their tax revenue bases. Tax competition is often considered a force that drives down corporate income taxes across countries in a ‘race to the bottom’.²⁴ This is a product of reactionary policies and the outcome of a reduced revenue take is reduced scope for fiscal stimulus due to tightened budget constraints.

The central argument of this article is that tax-induced behavioural distortions (or inefficiencies) create profound problems for governments and policy-makers²⁵ and so should not be overlooked when enacting tax reforms such as corporate tax cuts.

The Organisation for Economic Co-operation and Development (OECD) is currently considering best practice approaches to designing rules to prevent base erosion and profit shifting (BEPS) by MNEs. However, the OECD makes a distinction between combating BEPS and reducing distortions between the tax treatment of various methods of financing.²⁶

Yet, it is the decision of the revenue authorities to create distortions which actually results in these tax base erosion opportunities.²⁷ Rather than merely addressing the behavioural symptoms of these distortions, such as debt shifting via excessive interest deductions,²⁸ it is arguably more effective to instead align the tax treatment of cross-border intercompany transactions to eliminate the tax incentive for said tax planning behaviour. Accordingly, the behaviourally distortive effects of tax rules should be of primary concern regardless of one’s normative perspective and policy-makers concerned about tax planning need to consider the efficiency of the lines they draw. For example, while reducing the headline CIT rate may in turn reduce the magnitude of allowable debt deductions, eliminating the debt distortion requires more than reductions to corporate tax rates.

²³ The rationale grounding this analysis is that tax policy developments can be better understood when legal analysis is synthesised with economic and political science analysis, thereby providing a more nuanced understanding of the underlying purpose, scope and timing of reforms.

²⁴ Marta Božina Beroš and Marin Beroš, ‘Fairness through Regulation? Reflections on a Cosmopolitan Approach to Global Finance’ (2013) 7(1) *The Journal of Philosophical Economics* 2; Genschel and Schwarz, above n 7.

²⁵ Distortive effects are not merely inefficient; they also affect fairness and administrability: Seto, above n 12, 3.

²⁶ It is clear that both the OECD’s BEPS project and the thin capitalisation rules’ *raison d’être* are primarily concerned with protecting national tax revenue bases. ‘In discussing fixed ratio rules it is important to note that in some cases these tests were also introduced to play a wider tax policy role rather than with a focus on combating base erosion and profit shifting. For example, a number of countries introduced such rules specifically to reduce existing distortions between the tax treatment of debt and equity’: OECD, *BEPS Action 4: Interest Deductions and Other Financial Payments: Public Discussion Draft, 18 December 2014-6 February 2015* (OECD, 2014) 47.

²⁷ Hanlon, above n 5.

²⁸ Previous work by the author conceptualises the cross-border debt bias as the ‘disease’ and the behavioural response of MNEs of engaging in debt shifting or thin capitalisation as merely the ‘symptom’: Kayis-Kumar, ‘Thin Capitalisation Rules’, above n 5.

Indeed, an ACE such as that introduced in Belgium and Italy presents a more robust approach to eliminating the debt distortion. These reforms are examined in turn in section 3 below.

3. CASE STUDIES OF ACE-VARIANTS: TO IMPLEMENT CORPORATE TAX CUTS OR INTRODUCE AN ACE-VARIANT?

As highlighted in the previous section, there is a marked tension commonly experienced by policy-makers between either lowering the CIT rate (coupled with base broadening measures) or implementing an economic rent tax such as the ACE (which is often associated with a reduction in tax revenue).²⁹ Further, leading commentators observe that, where a jurisdiction has repealed its ACE-variant, this was not brought about by any fundamental problem with the theoretical ACE,³⁰ nor any technical flaw in the ACE system.³¹ Rather, the abolition of these ACE-variants was simply in line with the dominant trend of reducing headline corporate income tax rates in the context of ‘tax-rate cut-cum-base broadening’.³²

There has generally been bipartisan support for a target of lowering CIT rates in the face of increasing international tax competition, largely prompted by the forces of globalisation as countries pursue highly mobile capital investments made by large MNEs.³³

However, the theory of capital income taxation in a small open economy, which concludes that the tax incidence for small open economies is shifted entirely to the domestic factors of production such as labour and land, assumes perfect capital mobility.³⁴

It remains unclear who ultimately bears the burden of corporate taxes, with Menezes observing that:³⁵

The argument for a reduction in the corporate tax rate was predicated in part in the simple theory of tax incidence expounded above. There are, however, several reasons why labour might not bear most of the burden of corporate taxes. Indeed, the issue of who effectively bears the burden of corporate income tax is yet to be resolved.

²⁹ Daniel Shaviro, ‘Should Corporate Tax Reform Efforts Emphasize an “Allowance for Corporate Equity” (ACE)?’, 3; available at: http://www.law.nyu.edu/sites/default/files/ECM_PRO_068214.pdf.

³⁰ Alexander D Klemm, ‘Allowances for Corporate Equity in Practice’ (IMF Working Paper WP/06/259, November 2006).

³¹ Michael Keen and John King, ‘The Croatian Profit Tax: An ACE in Practice’ (2002) 23(3) *Fiscal Studies* 401, 417.

³² *Ibid.*

³³ John Diamond, George Zodrow and Robert Carroll, ‘Macroeconomic Effects of Lower Corporate Income Tax Rates Recently Enacted Abroad’ (Ernst & Young Report, Prepared for the Reforming America’s Taxes Equitably (RATE) Coalition, March 2013) 18.

³⁴ Theoretically, it is also suboptimal for a small open economy faced with perfect capital mobility to levy a source-based tax on the normal return to capital: Peter Birch Sørensen and Shane Matthew Johnson, ‘Taxing Capital Income: Options for Reform in Australia’ in Melbourne Institute (ed), *Australia’s Future Tax and Transfer Policy Conference, Proceedings of a Conference* (Melbourne Institute of Applied Economic and Social Research, 2010) 179, 187.

³⁵ Flavio M Menezes, ‘The Business Tax Reform Agenda’ (2012) 31(1) *Economic Papers* 3, 4.

While this article does not purport to enter this debate, given the global trend of lowering CIT rates it is instructive to briefly earmark the six reasons set out below against said reform.³⁶

First, the home bias persists, capital markets are not perfect³⁷ and a CIT rate reduction in the host country only transfers tax revenues to countries that tax their MNEs on their worldwide income but allow foreign tax credits for the corporate taxes paid at source, thereby failing to change both the effective tax burden and the investment behaviour of MNEs.³⁸

Second, the empirical evidence on the actual corporate tax burden borne by wages remains unclear, with the literature strongly questioning the theoretical suggestion that the tax incidence for small open economies is shifted entirely to the domestic factors of production such as labour and land. Further, reducing the CIT rate does not result in immediate flow-on benefits to workers in the form of extra capital, higher productivity and wages.³⁹

Third, since the CIT is levied on both normal returns to capital and rents, a reduction in the headline CIT rate will necessarily reduce the tax on economic rents; thereby reducing the tax on investment that would occur in any event.⁴⁰

Fourth, reducing the CIT rate will disproportionately benefit larger, more profitable firms, with no impact on already loss-making firms.

Fifth, the emerging literature focusing on the real economic effects of CIT rate changes shows that while CIT rate increases uniformly reduce employment and income, CIT rate reductions are ineffectual in boosting economic activity⁴¹ except when implemented during recessions.⁴²

Sixth, further reductions to the CIT rate will widen the wedge between the highest personal income tax bracket and the CIT rate, implying that further reductions in the CIT rate should not be made in isolation from changes in personal income tax because this presents a further deviation from business structure neutrality.⁴³

These factors create considerable uncertainty regarding the benefits of CIT reductions.

Further, it is noteworthy that the CIT system has the highest efficiency costs among Australia's federal taxes, with the efficiency losses resulting from taxing normal returns

³⁶ Further, it is arguable that simply lowering the headline CIT rate does not constitute tax reform *per se*.

³⁷ Kalok Chan, Vicentiu Covrig and Lilian Ng, 'What Determines the Domestic Bias and Foreign Bias? Evidence from Mutual Fund Equity Allocations Worldwide' (2005) 60(3) *Journal of Finance* 1495; Menezes, above n 35, 4.

³⁸ So, in order to protect the domestic corporate tax base, many countries implement thin capitalisation rules, transfer pricing rules, controlled foreign corporation (CFC) rules and additional anti-avoidance tax rules: OECD, *Tax Policy Reform and Economic Growth*, OECD Tax Policy Studies No 20 (OECD Publishing, 2010) 54.

³⁹ Menezes, above n 35, 4, and references cited therein.

⁴⁰ Menezes, above n 35, 4.

⁴¹ Alexander Ljungqvist and Michael Smolyansky, 'To Cut or Not to Cut? On the Impact of Corporate Taxes on Employment and Income' (NBER Working Paper No 20753, National Bureau of Economic Research, December 2014) 31-32, and references cited therein.

⁴² *Ibid* 8.

⁴³ Menezes, above n 35, 5.

likely to be above 40 per cent.⁴⁴ On the other hand, taxing only economic rents results in no deadweight loss. However, as observed by Ganghof, ‘[t]he result was not only neoliberalism by surprise⁴⁵ but also neoliberalism by default ...interactions of economic, partisan and institutional factors may lock countries into rather inefficient tax structures, at least temporarily’.⁴⁶ Accordingly, it is imperative to increase the efficiency of business taxation, where possible.

In this context, there are many reform proposals addressing the business taxation distortion, including the ACE, Cash flow tax, Comprehensive Business Income Tax (CBIT), dual income tax (DIT) and Residence-based shareholder tax.⁴⁷ Specifically, this article’s focus is the distortion between debt and equity financing. Of various fundamental reform proposals only the ACE has been experimented with in practice, so this is the focus of this article.

The ACE maintains the current deductibility of actual interest payments and adds a notional return on equity to be deductible against corporate profits, at the risk-free nominal⁴⁸ interest rate.⁴⁹

The ACE has garnered substantial support from leading academics since its theoretical inception and is experiencing increased interest from policy-makers internationally.⁵⁰ In terms of its historical development, the ACE originated in the 1970s with the basic economic idea contained in the report of the Meade Committee,⁵¹ which proposed alternatives to the UK tax system. This was followed by research published by leading commentators Boadway and Bruce,⁵² and was further elaborated in detail by the IFS Capital Taxes Group,⁵³ and Devereux and Freeman.⁵⁴

⁴⁴ Australia’s Future Tax System Review Panel (Dr Ken Henry, chair), *Australia’s Future Tax System: Report to the Treasurer* (December 2009) (Henry Review); Menezes, above n 35, 5.

⁴⁵ Susan C Stokes, *Mandates and Democracy: Neoliberalism by Surprise in Latin America* (Cambridge University Press, 2001).

⁴⁶ Steffen Ganghof, ‘The Politics of Tax Structure’ (MPIfG Working Paper 06/1, Max Planck Institute for the Study of Societies, January 2006) 26-27.

⁴⁷ See Peter B Sørensen, ‘Can Capital Income Taxes Survive? And Should They?’ (2007) 53(2) *CESifo Economic Studies* 172, 218, Table 4.

⁴⁸ That is, ‘calculated by reference to a normal commercial rate of interest, fixed by the government’: see further, Malcolm Gammie, ‘Corporate Tax Harmonization, An “ACE” Proposal: Harmonizing European Corporate Taxation through an Allowance for Corporate Equity’ (1991) 31(8) *European Taxation* 238.

⁴⁹ Ruud A de Mooij and Michael P Devereux, ‘An Applied Analysis of ACE and CBIT Reforms in the EU’ (2011) 18(1) *International Tax and Public Finance* 93, 96.

⁵⁰ Christian Keuschnigg, ‘The Design of Capital Income Taxation: Reflections on the Mirrlees Review’ (2011) 32(3) *Fiscal Studies* 437; Gammie, above n 48; Michael P Devereux and Peter B Sørensen, ‘The Corporate Income Tax: International Trends and Options for Fundamental Reform’ (European Commission Economic Paper 264, December 2006).

⁵¹ Institute for Fiscal Studies, *The Structure and Reform of Direct Taxation: Report of a Committee chaired by Professor J E Meade* (George Allen & Unwin, 1978).

⁵² Robin Boadway and Neil Bruce, ‘A General Proposition on the Design of a Neutral Business Tax’ (1984) 24(2) *Journal of Public Economics* 231.

⁵³ Institute for Fiscal Studies, *Equity for Companies: A Corporation Tax for the 1990s*, Fourth report of the IFS Capital Taxes Group, Commentary No 26 (Chameleon Press, 1991), available at: <http://www.ifs.org.uk/comms/comm26.pdf>.

⁵⁴ Michael Devereux and Harold Freeman, ‘A General Neutral Profits Tax’ (1991) 12(3) *Fiscal Studies* 1.

The literature has predominantly focused on economic concepts, despite recognising the relevance and importance of law, accountancy and politics.⁵⁵ Further, the ACE literature currently has a corporate tax neutrality focus grounded in the economics paradigm. Importantly, ACE-based reforms have great potential from an anti-avoidance law perspective, which is especially pertinent for international company tax purposes.⁵⁶ Further, simulations by de Mooij and Devereux show that even with the inclusion of tax havens, which halve the positive welfare effect of implementing a revenue-neutral ACE in high-tax countries, a European ACE still raises welfare. De Mooij and Devereux observe that the benefits of a more efficient tax system in terms of both investment and financial structure significantly outweigh the negative spillovers *vis-à-vis* profit shifting.⁵⁷

The original objectives and perceived benefits of the ACE include encouraging domestic investment and employment, and achieving tax neutrality by granting tax relief for equity financing. In principle, many leading commentators, policy-makers and corporations support the ACE. However, implementing and sustaining fundamental reform of the corporate income tax system is difficult. Accordingly, it is necessary to consider how an ACE eventuates in practice. De Mooij and Devereux observe that the Belgian and Italian ACE-variants are the closest to the theoretical ACE.⁵⁸ As such, these two jurisdictions are the focus of this article.

3.1 Applied literature analysing ACE-variants

The majority of the English-language ACE literature provides a distinct focus on economic modelling rather than engaging in any legal analysis.⁵⁹ One exception is an OECD report providing a descriptive exposition with detailed reference to particular amendments and developments, yet there remains a gap in relation to a critical analysis geared at suggesting design improvements for similar reforms in the future.⁶⁰

A recent contribution in this area has been the comparative analysis of the Belgian and Italian ACE-variants by Zangari,⁶¹ who presents the case for why the design of the Italian ACE-variant allows for a more robust reform than the Belgian NID; namely, due to its anti-avoidance framework. However, Zangari provides a comparison between the

⁵⁵ Alan Auerbach, Michael Devereux and Helen Simpson, 'Taxing Corporate Income', in Stuart Adam, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles and James M Poterba (eds), *Dimensions of Tax Design: The Mirrlees Review, Vol 1* (Oxford University Press, 2010) 837; see also Keuschnigg, above n 50; see further, Graeme Cooper, 'Implementing an Allowance for Corporate Equity' (2012) 27(2) *Australian Tax Forum* 241.

⁵⁶ S Bond, 'Company Tax Issues' (Presentation delivered to The Institute for Fiscal Studies, 2006).

⁵⁷ De Mooij and Devereux, above n 49, 115.

⁵⁸ Ruud de Mooij and Michael Devereux, 'Alternative Systems of Business Tax in Europe: An Applied Analysis of ACE and CBIT Reforms' (European Union Taxation Papers, Working Paper No 17, 2009).

⁵⁹ Alessandra Staderini, 'Tax Reforms to Unfluence Corporate Financial Policy: The Case of the Italian Business Tax Reform of 1997-98' (Banca D'Italia Working Paper No 423, November 2001); Silvia Giannini, 'Le riforme italiane nella tassazione di impresa negli anni '90 in una prospettiva europea' (Paper presented at Seminario di Economia Pubblica Istituto di Economia e Finanza, Università Cattolica del Sacro Cuore, 22 February 2001); Filippo Oropallo and Valentino Parisi, 'Will Italy's Tax Reform Reduce The Corporate Tax Burden? A Microsimulation Analysis' (SIEP Working Paper No 403, May 2005); Daniela Federici and Valentino Parisi, 'Corporate Taxation and Exports' (MPRA Paper No 41012, 3 September 2012).

⁶⁰ OECD, *Action Plan on Base Erosion and Profit Shifting* (OECD Publishing, 2013).

⁶¹ Ernesto Zangari, 'Addressing the Debt Bias: A Comparison between the Belgian and the Italian ACE Systems' (European Commission Taxation Papers, Working Paper No 44, July 2014) 49.

technical aspects of these ACE-variants in practice, rather than in-depth comparative legal analysis. Accordingly, there remains scope in the literature to provide a more thorough comparative analysis, with an emphasis on legislative drafting and the underlying policy intentions for amendments over time.

As such, sections 3.2 and 3.3 below analyse the Belgian and Italian ACE-variant experiences, with a focus on the political hurdles to implementing and sustaining these reforms.

3.2 Belgium's ACE-variant

The Belgian corporate tax system is considered a classical double taxation system, modified by an exemption for dividends from qualifying participations held by corporate shareholders and a reduced rate for dividends from participations held by individual shareholders.⁶² Tax practitioners have long considered Belgium an interesting jurisdiction for various tax-planning and structuring purposes.⁶³

Even prior to the introduction of the Notional Interest Deduction (NID),⁶⁴ dividends could be received nearly tax-free, interest paid on loans taken out to acquire shares was tax-deductible and capital gains on shares were generally tax-exempt.⁶⁵ The NID (otherwise known as the '*Intérêts notionnels et déduction fiscales pour capital à risque*', '*Notionele Interestaftrek*' or 'Capital Risk Deduction') was introduced in 2005 to encourage equity financing following two key pressures; first, pressure from the European Commission to abandon the Belgian coordination centre regime,⁶⁶ and second, pressure resulting from the expansion of the European Union to countries with lower corporate tax rates, such as Cyprus, Latvia, Lithuania, and Hungary, which emphasised the need for Belgium to strengthen its position on the international tax map.

3.2.1 The Belgian NID: political hurdles to implementation

When initially introduced in Belgium, leading commentators observed that Belgium's NID reform was very close to the pure version of the ACE,⁶⁷ with the Parliamentary focus appearing to be the tax neutrality property of the NID to overcome the debt-equity

⁶² Jan Široký, 'There are several factors, which influence the actual range of the corporate tax: the relation between the personal income tax and the corporate income tax' (2006) 5, available at: http://kvf.vse.cz/storage/1168944278_sb_siroky.pdf.

⁶³ Howard Liebman, 'International Tax Planning: Belgium Is Taking Steps to Enhance Its Attractiveness', Jones Day Commentary (July 2005), available at: <http://www.jonesday.com/international-tax-planning-belgium-is-taking-steps-to-enhance-its-attractiveness-07-26-2005/>.

⁶⁴ *Loi du 22 juin 2005 instaurant une déduction fiscale pour capital à risque – Wet tot invoering van een belastingaftrek voor risicokapitaal van 22 juni 2005* [Law introducing an allowance for corporate equity of 22 June 2005], published in Belgian Official Gazette of 30 June 2005, p 30077 (*Notionele Interestaftrek, Belgisch Staatsblad / Loi instaurant une déduction fiscal pour capital à risqué, Moniteur Belge*).

⁶⁵ Liebman, above n 63.

⁶⁶ Marc Quaghebeur, 'Belgium Targets Risk Capital Deduction Abuses' (2007) 48 *Tax Notes International* 627. Belgium introduced this regime in 1982, which aimed at providing MNEs with a tax-effective vehicle to coordinate and centralise their management and financial services in so-called 'coordination centres'.

⁶⁷ Marcel Gérard, 'Belgium Moves to Dual Allowance for Corporate Equity' (2006) 46(4) *European Taxation* 156; André Decoster, Marcel Gerard and Christian Valenduc, 'A Decade of Tax Cuts', in Etienne de Callataÿ and Françoise Thys-Clément (eds), *The Return of the Deficit: Public Finance in Belgium over 2000-2010* (Leuven University Press, 2012) 95, 111-112.

distortion.⁶⁸ The originating explanatory notes⁶⁹ detail the political, philosophical, economic and tax policy rationales for implementing the Belgium ACE-variant, and the anticipated impact of this reform.

However, it is also important to recognise that Belgium did not have wide political support for the NID reform; indeed, the green and socialist parties opposed the NID, which was criticised as being used as ‘a weapon in the election campaign of 2004’.⁷⁰ Further, the rationale of highlighting the urgency of the NID in light of the dramatic decline in investment in Belgium was criticised in the parliamentary debates as a rushed and underhanded political strategy.⁷¹ Despite ongoing political debate for over one year, which resulted in limitations to the NID, there were only two parliamentary sittings, which was criticised as resulting in insufficient debate on the broader reform of corporate income tax.⁷² This was considered especially problematic by opposition parties, who made comparisons to the reform processes in neighbouring countries such as the Netherlands.⁷³

Nonetheless, the parliamentary debates indicate that a large majority of the committee subscribed to the philosophy underpinning the reform, with the proposal receiving generally positive feedback and unconditional approval by the VLD (the Flemish liberal party).⁷⁴ However, the design parameters had mixed reviews; some parliamentarians believing the design was too generous and others considering it inadequate. Finance Minister Didier Reynders interpreted this as indicating that the Bill was balanced,⁷⁵ and earmarked an evaluation period to identify areas for improvement.⁷⁶ At its inception, this Bill was touted as a pioneer in tackling tax discrimination between debt and equity finance.⁷⁷

However, there has been much scepticism about the real motivation for implementing this reform, as observed by the National Bank of Belgium:⁷⁸

The memorandum put to the Parliament stresses the neutrality property of the reform because it enables corporate income tax to overcome the well-known debt equity bias. It ends by indicating that the reform also provides an alternative for financial companies using the coordination centre regime. Most would argue – rightly – that of the two motivations the second was the more important and the neutrality properties are more a consequence of the reform than its main policy motivation.

⁶⁸ Decoster, Gerard and Valenduc, above n 67, 112.

⁶⁹ *Loi du 22 juin 2005 instaurant une déduction fiscale pour capital à risque – Wet tot invoering van een belastingaftrek voor risicokapitaal van 22 juni 2005* (Belgium) [Law introducing an allowance for corporate equity of 22 June 2005], 30 June 2005, 30077.

⁷⁰ *Chambre des Représentants de Belgique, Compte Rendu Intégral avec Compte Rendu Analytique Traduit des Interventions – Belgische Kamer van Volksvertegenwoordigers, Integraal Verslag met Vertaald Beknopt Verslag van de Toespraken* (Belgium) [House of Representatives, Full Report with a Summary Record of Translated Interventions], 22 June 2005, 59 [15.02].

⁷¹ *Ibid* [15.12].

⁷² *Ibid* 59-60 [15.12].

⁷³ *Ibid* 61 [15.20].

⁷⁴ *Ibid* 53 [15.01].

⁷⁵ *Ibid* 53-54 [15.01].

⁷⁶ *Ibid* 58 [15.01].

⁷⁷ *Ibid* 58-59 [15.01].

⁷⁸ Decoster, Gerard and Valenduc, above n 67, 112.

When it was introduced, Finance Minister Didier Reynders and Prime Minister Guy Verhofstadt organised roadshows in Asia, the United States, and India to promote the NID and explain that the deduction reduced the corporate income tax rate from 33.99 per cent to about 26 per cent.⁷⁹ They were accompanied by representatives of some banks and tax advisory firms who explained how the NID could be used for group finance companies and treasury centres, for acquisition structures, and for post-acquisition restructuring.⁸⁰ Subsequently, many MNEs moved their corporate treasury centres to Belgium.⁸¹

It is important to recognise the context to these statements. Even though the official tax rate has fallen over 7 per cent in three years, the effective tax rate at the time was over 21 per cent – higher than the EU average, as noted in the explanatory materials.⁸² The extrinsic materials also indicate that parliamentarians made reference to the Forbes suggestion that Belgium had the third highest marginal tax rate in the world; cited as support for the proposition that Belgium's tax rates were high and corporate investment and economic stimulus was in need of bolstering (taking into account considerations of economics and taxation). Further, the parliamentary debates refer to the high unemployment rate as an economic problem with the NID presented as a strategy to lowering corporate tax and giving the Belgian economy a new impetus.⁸³

Budgetary issues generally tend to pose one of the most significant political hurdles to implementing fundamental tax reform. Even though the budgetary cost of the NID was a significant issue, the government mentioned that it expected a EUR 58 million return on the NID reform.⁸⁴ This was despite the revenue cost of EUR 566 million, which was largely accepted by parliament, with budgetary compensation measures and savings provisions (including abolishing corporate tax credits and opting-in to the NID at the expense of opting-out of 'investment reserve' provisions) amounting to EUR 400 million. The extrinsic materials make reference to the following 10-point benefits of the NID, anticipating that the NID would: (i) incentivise equity finance thereby encouraging investment; (ii) facilitate employment; (iii) stimulate financing; (iv) reduce bankruptcy risk thereby improving credit ratings; (v) anchor investments in Belgium thereby reducing relocation risk; (vi) stimulate the establishment of new companies; (vii) ensure consistency with EU guidelines thereby providing the necessary legal certainty; (viii) facilitate an attractive investment climate; (ix) improve Belgium's competitiveness,⁸⁵ and (x) facilitate private corporations' investment in construction and property through equity finance.⁸⁶

The parliamentary debates highlight the criticisms in the design of the NID. For example, one of the major obstacles to the implementation of the NID was contained in Article 9, which barred companies from distributing the portion of their profits that corresponds to the NID deduction by way of a dividend unless they retained an amount equal to the amount of the NID deduction for a period of at least four years. In the

⁷⁹ Quaghebeur, above n 66.

⁸⁰ Quaghebeur, above n 66.

⁸¹ Marc Quaghebeur, 'Belgium Removes Obstacle to Risk Capital Deduction', *Worldwide Tax Daily* 229-3 (30 November 2005).

⁸² *Chambre des Représentants de Belgique*, above n 70, 62 [15.20].

⁸³ *Ibid* 60-61 [15.19]-[15.20].

⁸⁴ *Ibid* 53 [15.01].

⁸⁵ *Ibid* 55 [15.02].

⁸⁶ *Ibid* 59 [15.02].

extrinsic materials prepared in June 2005, one of the key anti-abuse mechanisms contained in Article 9 was reduced to three years following concerns that a period of four years would make equity less appealing than debt finance and could undermine the effectiveness of the NID. Even though the design was the subject of passionate political debate⁸⁷ and was ultimately a compromise, the parliament considered that Article 9 should be further relaxed in subsequent legislative amendments.⁸⁸ Nonetheless, this provision was amended even before the commencement date of the NID, with Belgian Prime Minister Guy Verhofstadt delivering a public announcement on 17 November 2005 that this obstacle to the NID would be lifted.⁸⁹ While this revision arguably aligned the NID more closely to its theoretical underpinnings in the ACE, it is largely an administrative issue rather than one of tax policy design which encourages the use of equity financing at the risk of making the system more vulnerable to abuse from aggressive tax planning. The key criticism was that the NID was largely agreed to in principle, but the provisions and administrative aspects were unnecessary to the point that it was criticised as largely missing its objectives in practice.⁹⁰ This highlights how translating ACE theory into practice through a robust tax reform design is one of its most challenging aspects, as anticipated by the wider ACE literature⁹¹ and as experienced by jurisdictions in the past.⁹²

Separately, there was political opposition to the limited scope of the NID, which some parliamentarians argued ought to be extended to personal income tax.⁹³ This reflects the ACE literature, which anticipates that one key challenge in designing and implementing ACE reform is that it does not operate as a backstop to the personal income tax system.⁹⁴ Even though leading commentators have suggested that tax neutrality cannot be achieved unless there is a personal-level ACE,⁹⁵ the domestic shareholder position is less relevant in a small, open economy where the marginal investor is likely to be a foreign investor.⁹⁶ While it is difficult to pinpoint the non-resident investor as the marginal investor, it is plausible for a small, open economy like Belgium.⁹⁷

3.2.2 *The Belgian NID: subsequent amendments and economic, political and administrative issues*

The NID has been continually amended by the Belgian parliament since its introduction in 2005, culminating in the continued reduction in the NID rate and the abolition of carry-forwards further limiting the scope of the NID. These two legislative changes have taken the NID further away from its original legislative purpose and underlying ACE

⁸⁷ Parliamentary reports show dialogue such as ‘Mr. Bogaert, I suggest that you take the sequel to the market stand, because you are very good at selling apples that look like pears’. Ibid 57 [15.02].

⁸⁸ Ibid 69 [15.52].

⁸⁹ Quaghebeur, above n 81.

⁹⁰ *Chambre des Représentants de Belgique*, above n 70, 64 [15.20].

⁹¹ John Isaac, ‘A Comment on the Viability of the Allowance for Corporate Equity’ (1997) 18(3) *Fiscal Studies* 303.

⁹² The ACE-variant adopted in Brazil is more akin to a system of dividend deductibility; see further, Klemm, above n 30, 24.

⁹³ *Chambre des Représentants de Belgique*, above n 70, 58 [15.11].

⁹⁴ OECD, *Reforming Corporate Income Tax*, OECD Observer: Policy Brief (2008).

⁹⁵ OECD, *Fundamental Reform of Corporate Income Tax*, OECD Tax Policy Studies No 16 (OECD Publishing, 2007) 88, 139.

⁹⁶ Business Tax Working Group (Chris Jordan, chair), *Discussion Paper* (August 2012) 21, available at: https://static.treasury.gov.au/uploads/sites/1/2017/06/BTWG_discussion_paper_2012.pdf.

⁹⁷ Belgium has been recently described as a small, open economy by economists; see, for example, Philip Du Caju, François Rycx and Ilan Tojerow, ‘Wage Structure Effects of International Trade in a Small Open Economy: The Case of Belgium’ (2012) 148(2) *Review of World Economics* 297.

principles. First, reducing the tax deduction provided for equity financing risks eliminating the neutrality properties of the ACE and simply providing a sweetener for equity financing;⁹⁸ and second, abolishing carry-forwards exacerbates the asymmetric treatment of profits and losses.⁹⁹

However, when considering any subsequent legislative amendments to the NID reform, a holistic understanding of the political landscape is an imperative starting point. From 2007, Belgium was confronted by an ongoing political crisis at federal level.¹⁰⁰ During that time, the outgoing conservative/socialist government continued to handle current affairs, and in October 2007, following much political pressure, decided to conduct an investigation into alleged abuses by Belgian companies and Belgian banks of the NID.¹⁰¹

A key political issue in practice is that the NID is thought to benefit the larger MNEs more so than small and medium enterprises (SMEs). This is because the larger MNEs are able to put substantial amounts of equity capital into their treasury arms or internal finance companies thereby eroding their corporate tax base.¹⁰² This challenges whether the NID is genuinely beneficial for the domestic economy or whether it presents a tax break for the most profitable MNEs who are able to tax plan and bypass anti-avoidance rules and maintain very low effective tax rates. However, leading practitioners and economists observe that the NID also benefit SMEs by incentivising business capitalisation and thereby protecting businesses during the global financial crisis (GFC).¹⁰³ Further, it is arguable that this is an obvious feature of the NID which is why it was such an attractive investment reform to begin with. Some legal practitioners have observed that ‘the purpose of introducing the notional interest deduction was just to make Belgium fiscally attractive to foreign investors and to offer a credible and competitive alternative for the coordination centres whose system was condemned by the European authorities’.¹⁰⁴ Indeed, it is arguable that since the NID resulted in substantial investment by both local and overseas MNEs, it thereby encouraged a larger capital base, which ensured that those companies were well-positioned to withstand the GFC because of their capital buffers.

Nonetheless, the pressure from lobby groups and media sentiment that MNEs were unfairly advantaged by the NID remains substantial. By way of background, SMEs and

⁹⁸ The Mirrlees Review recommended that the normal rate of return be utilised; see further, Auerbach, Devereux and Simpson, above n 55; Rachel Griffith, James R Hines, Jr and Peter Birch Sørensen, ‘International Capital Taxation’, in Stuart Adam, Tim Besley, Richard Blundell, Stephen Bond, Robert Chote, Malcolm Gammie, Paul Johnson, Gareth Myles and James M Poterba (eds), *Dimensions of Tax Design: The Mirrlees Review, Vol 1* (Oxford University Press, 2010) 914.

⁹⁹ Stephen R Bond and Michael P Devereux, ‘On the Design of a Neutral Business Tax under Uncertainty’ (1995) 58(1) *Journal of Public Economics* 57.

¹⁰⁰ Marc Hooghe, ‘The Political Crisis in Belgium (2007-2011): A Federal System without Federal Loyalty’ (2012) 48(1) *Representation* 131.

¹⁰¹ Quaghebeur, above n 66.

¹⁰² Projet de Loi-Programme, Chambre des Représentants de Belgique, 24 February 2012, Doc 53 2081/001, 95, available at: <http://www.lachambre.be/FLWB/pdf/53/2081/53K2081001.pdf>.

¹⁰³ F-X G [François-Xavier Giot], ‘Renforcer le système des intérêts notionnels’, *L’avenir* (online) (2 February 2013), available at: http://www.lavenir.net/article/detail.aspx?articleid=DMF20130202_00263523.

¹⁰⁴ N Thémelin, ‘The only consequence of the announcement effects of notional interest: the legal uncertainty’, Afschrift news report (19 September 2013), available at: http://www.afschrift.be/en/the-only-consequence-of-the-announcement-effects-of-notional-interest-the-legal-uncertainty.html?cmp_id=8&news_id=2325 (accessed 11 December 2013).

MNEs currently have an average tax rate of approximately 34 per cent and 5 per cent respectively. This has resulted in industry lobby groups such as Le Syndicat des Indépendants & des PME calling for reform to the NID to 'reconcile the existing blatant discrimination between hundreds of small SMEs that pay 3-4 times more taxes than multinational companies'.¹⁰⁵

Political concerns regarding aggressive tax planning led to the broadening of Belgium's thin capitalisation rule, which specifically targets inter-company loans with a 5:1 debt to equity ratio limitation. Further, subsequent explanatory notes¹⁰⁶ reveal a link between the reduced scope of the NID and the increased incidence of thin capitalisation rules in Belgium. The relationship between reducing the scope of the ACE-variant and the increased implementation of thin capitalisation rules in Belgium suggests an inversely proportional relationship between these two reforms which has not been addressed in the English-language literature. Future research by the author will explore this aspect in further detail.

This presents arguably the most substantial hurdle to implementing and sustaining ACE-based reform; it is politically very difficult to quantify (and therefore justify) the benefit of the NID and very easy to point to the loss of revenue; for example, in Belgium EUR 3-4 billion is claimed in NID deductions annually. However, in an increasingly globalising economy with capital mobility there is no certainty that regulatory tightening will prevent a loss of revenue. Belgium's thin capitalisation rules are relatively lenient. Even so, many MNEs are now moving out of Belgium as a result of the overall regulatory tightening including *inter alia* tightening thin capitalisation rules, increasing interest withholding tax rates, tightening anti-abuse rules and levying capital gains tax on shares.

So, even though MNEs were subject to relatively low effective tax rates under the NID reform it is conceivable that this at least incentivised businesses to operate from, and develop in, Belgium – this influx in inbound investment may have, in turn, had a multiplier effect.

Nonetheless, the most significant political pressure point and media criticism of Belgium's NID is in relation to its cross-border impact; specifically, the tax avoidance opportunities that it presents for MNEs. However, policy-makers are unable to deliver targeted reform in the cross-border context due to EU anti-discrimination law. This exemplifies the impact that politics has on tax policy developments and practice, most recently culminating in the European Court of Justice determining on 4 July 2013 that the NID rules and in particular the refusal to apply the NID to a foreign permanent establishment's net assets violates the freedom of establishment.¹⁰⁷ It goes without saying that this resulted in the Council of Ministers resolving to amend the legislative provisions within three months of the judgment of the European Court of Justice.

¹⁰⁵ 'Intérêts notionnels: le SDI plaide pour un système plus "fair-play"', *Le Soir* (online) (5 July 2013), available at: <http://www.lesoir.be/275803/article/actualite/fil-info/fil-info-belgique/2013-07-05/interets-notionnels-sdi-plaide-pour-un-systeme-plus-fair-play> (author translation) (accessed 11 December 2013).

¹⁰⁶ *La Chambre des représentants de Belgique – Belgische Kamer van volksvertegenwoordigers* [Senate Explanatory Notes], *Project de Loi-Programme du 24 février 2012 – Ontwerp van Programmawet van 24 februari 2012* (n° 53-2081/001), Art 139, 94-98 (Belgium).

¹⁰⁷ *Argenta Spaarbank NV* (C-350/11) case law of the European Court of Justice of 4 July 2013.

Over the past few years, there has been increased media pressure and pressure from all sides of politics to abolish the NID. This resulted in the NID becoming a ‘hot topic’ at the 2014 Federal election.¹⁰⁸

Media reports indicated that political parties such as the Christian democratic party *Centre démocrate humaniste* (CDH) promised to abolish the NID as part of their election campaigns.¹⁰⁹

The gain for public finances would be reinvested without waiting for the new term in a decrease of 10 per cent of the corporate tax rate, benefiting all, whether SMEs, TPE or independent ... This reform that we can carry out without delay ... deleting a liberal but also socialist mismanagement ... Notional interest for everybody, right now: SME, SOHO and independent.

It goes without saying that the tax policy uncertainty from first implementing, then modifying, phasing down, and now considering the abolition of the NID erodes business confidence. Leading practitioners agree that abolishing the NID will diminish the attractiveness of Belgium as a destination for inbound investment.¹¹⁰

It is therefore true that the notional interest deduction has allowed many companies to reduce their taxable result, but that is precisely the goal that is pursued, with full knowledge of the facts, by the political parties that were at the origin of the construction and of which some criticize the construction heavily today ... This constant legal uncertainty incites some companies to seek calmer climes, sometimes by establishing themselves at just a few miles from our borders, this to the detriment of competitiveness, the economy and the image of Belgium on the international stage. This is of course regrettable.

The fate of the Belgian NID remains unclear, with the reform surviving the 2014 Federal election despite talks of its abolition. Meanwhile ACE-variants have been the subject of other European governments’ reviews of comprehensive corporate taxation reform options, with Switzerland characterising their potential ACE-variant also as a ‘notional interest deduction’.¹¹¹

3.3 Italy’s ACE-variants

Prior to 1997, the Italian corporate income tax system, which was designed as a full imputation system,¹¹² had not been subject to major reforms for nearly three decades. However, by 2004, Italy transitioned from an imputation system to a classical system, with a participation exemption regime introduced to mitigate double taxation of

¹⁰⁸ Thémelin, above n 104.

¹⁰⁹ ‘Le cdH veut supprimer les intérêts notionnels pour baisser sans attendre l’impôt’, *Le Vif* (online) (31 August 2013), available at: <http://www.levif.be/info/actualite/belgique/le-cdh-veut-supprimer-les-interets-notionnels-pour-baisser-sans-attendre-l-impot/article-4000387901382.htm> (author translation).

¹¹⁰ Thémelin, above n 104.

¹¹¹ Regarding Switzerland, see: PwC, ‘The impact of Swiss Corporate Tax Reform III (CTR III)’ (Position paper of PwC Switzerland, May 2015); the Swiss Federal Council recently removed the NID measure from the CTR III reform package. PwC opines that it ought to be reintroduced in the course of the parliamentary debate. See also, for example, in relation to Sweden: Linklaters, ‘Proposed new tax regime for cost of capital’ (12 June 2014), available at: <http://www.linklaters.com/News/LatestNews/2014/Pages/Proposed-new-tax-regime-cost-capital.aspx>.

¹¹² Lothar Lammensen and Robert Schwager, *The Effective Tax Burden of Companies in European Regions: An International Comparison*, ZEW Economic Studies Vol 28 (Springer, 2006) 75.

corporate profits.¹¹³ Italy's move away from an imputation system is in line with many other EU member countries.

Italy provides a unique and interesting case study because it implemented two ACE-variants under two different corporate-shareholder tax systems. The first was the ACE-variant operating in Italy from 1998-2001 termed the Dual Income Tax (Italian DIT). Although inspired by the Nordic DIT, Italy's DIT was very different as it only affected capital income. This has leading commentators describing it as "the most confusing name".¹¹⁴ Companies were liable to pay the statutory corporate income tax rate on above-normal profits; with the normal return on capital subject to a reduced tax rate fixed by the government; a nominal return on capital calculated by reference to the average interest rate on bonds plus a risk premium.

The second is the new ACE implemented in 2012, termed the *Aiuto alla Crescita Economica* (Italian ACE). Leading commentators observe that the Italian ACE shares the main characteristics of the theoretical ACE.¹¹⁵ The Italian tax system also has elements of a Comprehensive Business Income Tax (CBIT) due to the local business tax, the IRAP, and also because of the limit to the deductibility of interest, in force since 2008. Accordingly, the Italian corporate income tax system can be characterised as combination of a partial ACE and a partial CBIT, thereby mitigating the debt-equity distortion from both directions.

3.3.1 *The Italian DIT: political hurdles to implementation*

An understanding of Italy's political dynamics is imperative in assessing tax policy reforms. Originating from a context of taxpayer discontent and widespread tax planning and tax evasion, the then centre-left government introduced the Italian DIT as part of its 'Visco' reforms. The relevant extrinsic materials detail that the Italian DIT was introduced to encourage greater neutrality in corporate financing decisions and facilitate competitiveness by making Italy an attractive investment destination.¹¹⁶

3.3.2 *The Italian DIT: subsequent amendments and economic, political and administrative issues*

Revenue neutrality concerns resulted in two key restrictions being placed on the original DIT which reduced its initial effectiveness.¹¹⁷ First, the opportunity cost of equity finance was not deductible from taxable income, rather it was taxed at a reduced rate;

¹¹³ 'Effective for tax periods starting on or after 1 January 2004, Italy applies a classical system of taxation of corporate profits. The former imputation system is abolished and replaced by a 95% participation exemption for corporate shareholders and a 60% exemption for individual shareholders who hold the participation in a business capacity. Individual shareholders not holding the participation in a business capacity are also entitled to the 60% exemption if they own more than 2% of the voting power or 5% of the capital in listed companies, or more than 20% of the voting power or 25% of the capital in other companies (substantial participation). Otherwise, dividends derived by individuals are subject to a final withholding tax at a rate of 12.5%'; see further, A Uricchio, 'Italian Individual Taxation' (Lecture, University of Bari, 2014) 18; available at: https://nanopdf.com/download/italian-individual-taxation_pdf.

¹¹⁴ Klemm, above n 30, 7.

¹¹⁵ Antonella Caiumi, Lorenzo Di Biagio and Marco Rinaldi, 'Corporation Tax in Italy: Evidence from Tax Return Data' (2013), available at: https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=IIPF69&paper_id=460.

¹¹⁶ Luigi Bernardi, 'Some Issues on the Italian Tax Reforms and the European Tax Environment: Introductory Remarks' (Società Italiana di Economia Pubblica, Working Paper No 457, September 2005).

¹¹⁷ Staderini, above n 59.

and second, only post-reform equity is considered in the Italian DIT deduction calculations under an incremental approach (similarly to the Belgian NID).

While leading academics observed that over time, the second restriction would not be problematic in the long term, the short-term political repercussions were significant. The Italian DIT was criticised as largely benefiting large and profitable firms, who were more likely to issue new equity, while companies in the South and SMEs were less likely to issue equity, despite their higher cost of debt.¹¹⁸ This runs contrary to ACE theory, which anticipates that the ACE would increase the tax burdens on the most profitable firms and encourage innovation by SMEs by lowering the tax burden on marginal projects.

One of the key legislative amendments that aligned the Italian DIT more closely to the original ACE was the recognition by parliament that both personal and corporate income tax may need to be reformed in tandem to prevent inefficiencies in the type of organisational form. This culminated in the reorganisation of the personal income tax in order to facilitate the capitalisation of companies.

In any event, it is arguable that the technical and social teething process suggests that the transition to the Italian DIT had not been completed, with the Senate stenographic report indicating:¹¹⁹

We have also further strengthened the tools to support new investments, through the extension and improvement of the Visco reforms, and the extension and acceleration of the Dual Income Tax ... its complexity both from a technical point of view and from a social impact, required a long preparation ... 2000, therefore, should reap the benefits of this long preparatory phase.

The Italian DIT was a restricted version of the standard ACE, subject to ‘an excess of changes’¹²⁰ and complicated interactions with other taxes, resulting in leading academics observing that this rendered both theoretical and empirical analysis difficult.¹²¹

It is noteworthy that this reform package was not fully completed due to the change of the government’s coalition following elections in 2001, which resulted in the repeal of the Italian DIT in favour of a single-rate corporate tax scheme. Leading commentators have observed that, interestingly, the abolition of the Italian DIT resulted in a higher tax burden for most companies.¹²² Further, administrative issues surrounding the continued ‘reform of the reform’ resulted in a detrimental level of uncertainty which stunted

¹¹⁸ Alessandro Santoro, ‘Ex-post Evaluation of Tax Reforms: The Case of the Italian Partial Ace’, 2005 (unpublished paper, University of Milano-Bicocca).

¹¹⁹ Senate of the Republic of Italy, Senate Public Meeting 702a, Stenographic Report, 3 November 1999, 5-6; available at:

http://www.senato.it/japp/bgt/showdoc/frame.jsp?tipodoc=Resaula&leg=13&id=00005402&part=doc_dc-allegatob_rs:1-gentit_dcddd4236e4237-intervento_giaretta&parse=no&stampa=si&toc=no.

¹²⁰ P Bosi and M C Guerra, ‘Lezione 1: Scienza delle finanze II – CLEP’ (2006); available at: <https://slideplayer.it/slide/570656/>.

¹²¹ Klemm, above n 30, 6-9.

¹²² Oropallo and Parisi, above n 59.

growth, with leading commentators highlighting the ‘need for stability and completion of reforms for greater coherence and rationality of the system’.¹²³

3.3.3 *The Italian ACE: political hurdles to implementation*

Parliamentary transcripts provide detailed insights into the political spectrum and background rationales for why the Italian ACE was implemented in the midst of a recession.¹²⁴ Specifically, parliamentarians from centrist parties observed in the explanatory materials that ‘today’s speakers clearly witness the change in the political phase, which led to the opening of scenarios that seemed unthinkable just a few months ago’.¹²⁵ There is specific reference to the fact that the new reforms such as the Italian ACE are ‘owing to the heterogeneity of the coalition forces supporting it ... the Decree-Law is only justified in light of this particular political and institutional framework’.¹²⁶

This political solidarity culminating in the legislative reform under pressure of a ‘very dangerous’ economic situation appears to have resulted in a renewed confidence in the Italian financial markets; ‘the political stability provided by the new government has had a positive impact on the financial markets with a reduction in the order of 200 points on the yield spread between Italian government bonds and German ones’.¹²⁷

The Italian ACE¹²⁸ was introduced to stimulate the capitalisation of companies by reducing tax on income from capital funding risk; reduce the imbalance in the tax treatment between companies that are financed with debt and companies that are financed with equity, thereby strengthening the capital structure of Italian companies; and to encourage, more generally, the growth of the Italian economy.¹²⁹

However, the Italian ACE was not implemented without political opposition. Parliamentarians from opposition parties such as Il Popolo della Libertà (Christian democrat party launched by Silvio Berlusconi) commented that the national and international press were talking about the Italian situation in alarmist terms and observed that ‘real growth in Italy is likely to be negative for a long time’.¹³⁰ The Italian ACE was also strongly opposed by regionalist minority parties such as Lega Nord

¹²³ Bosi and Guerra, above n 120.

¹²⁴ International Monetary Fund, ‘Italy: 2013 Article IV Consultation’ (IMF Country Report No 13/298, September 2013), available at: <http://www.imf.org/external/pubs/ft/scr/2013/cr13298.pdf>.

¹²⁵ Bulletin of the Legislature, The Referral - Commissions V and VI Finance, Budget and Treasury; Examination and Referral, 8 December 2011, 68; available at: http://translate.googleusercontent.com/translate_c?act=url&depth=1&hl=en&ie=UTF8&prev=_t&rurl=translate.google.com.au&sl=auto&tl=en&u=http://documenti.camera.it/leg16/resoconti/commissioni/bollettini/html/2011/12/08/0506/comunic.htm&usg=ALkJrhgaCPDv5kkzf9KDiH88kWjR8JErnA#data.20111208.com0506.bollettino.sede00010.tit00010 (author translation).

¹²⁶ *Ibid* 5.

¹²⁷ *Ibid* 75.

¹²⁸ Decree-Law December 6, 2011, n. 201, containing urgent measures for growth, equity and consolidation of the public finances; Law 214/2011 (22 December 2011) and Decree by the Ministry of Economy and Finance dated 14 March 2012; presented by the Government on 5 December 2011; official gazette 19 March 2012.

¹²⁹ Cortellazzo & Soatto, ‘Aiuto alla Crescita Economica (ACE): incentivo alla patrimonializzazione delle imprese’ (2012) 13(1) *C & D Informa*, available at:

<http://www.cortellazzo-soatto.it/Appfondimenti/TemieContributi/AiutoallaCrescitaEconomicaACEincentivoall.aspx>.

¹³⁰ Commissions V and VI Finance, Budget and Treasury, above n 125, 63.

Piemont, who believed that this reform would further depress growth, especially in their electoral areas in the North.¹³¹

As originally drafted, the Italian ACE evokes the Italian DIT in some respects. A substantial improvement on the Italian ACE is that, while the Italian DIT incentivised capitalisation by applying a reduced rate to the portion of profit identified by the notional return on capital, the Italian ACE provides a tax deduction in respect of the notional return on new equity. Further, the Italian ACE was introduced with retroactive effect, or to also apply for the whole of 2011. This ensured the Italian ACE was more closely aligned to the original ACE principles,¹³² directly and immediately allowing deductions for equity financing and not providing an upper limit to the increases in equity financing.¹³³ Importantly, the Italian ACE also applies to corporations, individual firms and limited partnerships, the inclusion of which promotes neutrality in organisational form.¹³⁴

3.3.4 *The Italian ACE: subsequent amendments and economic, political and administrative issues*

While the Italian ACE is still in a relatively early stage, commentators praise the reform as a comprehensive package consistent with preventing MNEs from under-capitalising their Italian operations.¹³⁵ Indeed, the introduction of the Italian ACE has not led to the modification of Italian rules on the deductibility of interest. Currently interest barrier rules are in place instead of thin capitalisation rules, whereby the limitation of interest deductibility is now based on an operating income test, rather than debt-to-equity ratios.

An equally promising development was announced in October 2013, with the government releasing a list of measures it intends to implement to make Italy more attractive for foreign investors and to strengthen business conditions. Most relevant is Measure 19, which proposes the introduction of the ‘super ACE’, which targets companies intending to go public. Although there is currently little detail surrounding this proposal, the government has announced that the ‘approach would be the same used in the current ACE, which enhances a company’s cost-effectiveness and “transparency” after listing’.¹³⁶ It will be very interesting to observe whether this reform is implemented and, if so, whether in practice it more closely aligns the Italian ACE to the original ACE principles.

Operationally, the new benefit results in a deduction from the total income of an amount corresponding to the notional return of new equity. This return, for the first three years of application of the rule (2011-2013) is fixed at 3 per cent; however, since 2014 the rate which is determined by decree of the Minister of Economy and Finance had increased to 4.75 per cent for the period ending 31 December 2016. This took into

¹³¹ Commissions V and VI Finance, Budget and Treasury, above n 125, 75.

¹³² See further, IFS Capital Taxes Group (Malcolm Gammie, chair), ‘Equity for Companies: A Corporation Tax for the 1990s’ (IFS Commentary No 26, Institute for Fiscal Studies, London, April 1991).

¹³³ Cortellazzo & Soatto, above n 129.

¹³⁴ See further Paolo Panteghini, Maria Laura Parisi and Francesca Pighetti, ‘Italy’s ACE Tax and Its Effect on a Firm’s Leverage’ (Economics Ejournal Discussion Paper No 2012-31, 2 June 2012), available at: <http://www.economics-ejournal.org/economics/discussionpapers/2012-31>.

¹³⁵ Assonime, ‘La disciplina dell’ACE (aiuto alla crescita economica)’ (Direct Taxation, Circular No 17, 7 June 2012).

¹³⁶ Government of Italy, ‘Destinazione Italia: A Plan to Attract Foreign Direct Investment in Italy’ (19 September 2013) 18, available at: <http://destinazioneitalia.gov.it/wp-content/uploads/2013/10/destinazioneitaliaEnglishVersion.pdf>.

account the average financial returns of public bonds,¹³⁷ and there was the option of the notional return being increased by a further percentage point to more closely align with the risk-free nominal return. However, the 10-year Italian government bond yield has declined considerably in the past five years. Currently 10-year Italian government bonds are returning approximately 2 per cent, down from 6.5 per cent in 2012. While this is an improvement on the record low of 1.05 per cent in August 2016, it provides the context for the recent amendments to the Italian ACE. Specifically, the recently enacted *Finance Act 2017*¹³⁸ has implemented two key changes; first, it partially amends the legislation to reduce the rate of the notional return to 2.3 per cent for the tax period ending on 31 December 2017; and second, it subjects SMEs to the same calculation method as that designed for corporations. The former more closely aligns the Italian ACE rate to the market's risk-free nominal return. The latter ensures neutrality of tax treatment in the context of various legal forms, consistent with the criteria of business structure neutrality. Accordingly, it will be interesting to continue observing the developments to the Italian ACE, particularly since the recent reduction in the Italian ACE rate has coincided with a corporate tax cut from 27.5 per cent to 24 per cent.

This relationship between implementing corporate tax cuts while reducing the scope of policies that aim to eliminate funding neutrality is the focus of the modelling in the next section. Specifically, section 4 adopts a modelling approach to evaluate the extent to which the tax policy goals of efficiency and integrity are effectively attained through the implementation of corporate tax cuts or whether an ACE-variant better achieves these policy goals.

4. OPTIMISATION MODELLING: DO HIGH-TAX JURISDICTIONS BENEFIT FROM CORPORATE TAX CUTS?

This section introduces the model used to simulate a tax-minimising multinational enterprise's behavioural responses. It also expands the literature by simulating cross-border intercompany tax planning strategies in responses to both current and proposed tax laws; in particular, the existence (and abolition) of ACE-variants and implementation of corporate tax cuts.

4.1 Developing the Multinational Tax Planning (MTP) model

In an increasingly globalising economy with capital mobility, a lack of transparency makes it very difficult to observe how an MNE structures its internal affairs in a tax-optimal manner. This gives policy-makers little information on the size and scope of the problem, which in turn makes targeting tax-minimisation techniques even more challenging.¹³⁹ Given the importance of tax revenue base protection, this presents a particularly pressing issue for capital importing jurisdictions such as Australia.

However, previous research by the author observes that the challenge presented by this 'invisibility' of cross-border intercompany transactions may be bypassed by

¹³⁷ Cortellazzo & Soatto, above n 129.

¹³⁸ *Gazzetta Ufficiale, Bilancio di previsione dello Stato per l'anno finanziario 2017 e bilancio pluriennale per il triennio 2017-2019* (Art. 67, L. 11 dicembre 2016, n. 232) 11 December 2016, 16G00242 (Italy) (Finance Act 2017), available at: <http://www.gazzettaufficiale.it/eli/id/2016/12/21/16G00242/sg>.

¹³⁹ Kevin S Markle and Douglas A Shackelford, 'Cross-Country Comparisons of the Effects of Leverage, Intangible Assets, and Tax Havens on Corporate Income Taxes' (2012) 65(3) *Tax Law Review* 415, 417-432.

conceptualising MNEs' funding decisions as a linear optimisation problem.¹⁴⁰ Specifically, the Multinational Tax Planning model (MTP model) was introduced by the author in previous research and its application to this article is outlined in Annexure 1.¹⁴¹ The MTP model utilises linear programming to simulate the cross-border intercompany tax planning responses of an MNE to both existing and proposed tax regimes.

Even though the literature suggests that international tax planning decisions can be approximated as an optimisation problem,¹⁴² the use of mathematical optimisation remains largely unexplored in the international tax planning context.

Yet mathematical optimisation is one of the most powerful and widely-used quantitative techniques for making optimal decisions. It is possible to utilise mathematical optimisation in the international tax planning context by formulating the tax minimisation objective (described as the 'objective function', 'Z'), which is determined based on the relationship between the 'decision variables' (denoted as 'x₁', etc below) and the 'cost' to be optimised (whether through minimisation or maximisation, where c₁, c₂, ... c_n are constants).

This can be expressed as follows:¹⁴³

$$\text{Minimise (or Maximise): } Z = c_1x_1 + c_2x_2 + \dots + c_nx_n$$

Once the objective function has been formulated, the 'constraints' – which set out the limitations – need to be determined. Applied in the context of observing how an MNE may structure its internal affairs in a tax-minimising manner, the linear programming problem expresses the 'objective function' as minimising the total tax payable for the MNE. The 'decision variables' represents the profit in each jurisdiction in which the MNE has a subsidiary and the 'constants' are those respective jurisdictions' corporate income tax rates.

Further, given that the focus of this article is on 'pure' profit shifting by a tax-minimising MNE through intercompany financing, the 'constraints' consist of, first, the flows from intercompany transactions that can increase or decrease the profit figures for each jurisdiction (the 'primary constraints'), and second, the tax laws applicable to the MNE, which can be fine-tuned to particular jurisdictions' specific tax rules (the 'secondary constraints').

Previous work by the author has focused on modelling the tax-minimising behavioural responses of MNEs to changes in interest limitation rules; specifically, thin capitalisation rules and the OECD's recommendation for a fixed ratio rule. This article

¹⁴⁰ Kayis-Kumar, 'International Tax Planning by Multinationals', above n 3.

¹⁴¹ Ibid; see also Ann Kayis-Kumar, 'What's BEPS Got to Do with It? Exploring the Effectiveness of Thin Capitalisation Rules' (2016) 14(2) *eJournal of Tax Research* 359.

¹⁴² Jaroslav Brada and Tomáš Buus, 'Detection of Possible Tax-Evasive Transfer Pricing in Multinational Enterprises' (2009) 4(2) *European Financial and Accounting Journal* 65; see also M A Vasarhelyi and D Moon, 'Optimizing Tax Allocation among Countries in the Multinational Entity: A Tale of Many Contingencies' (Presentation delivered at the TTN Taxation Seminar New York 2011, Morgan Lewis Bockius LLP, New York, 16 May 2011) 6.

¹⁴³ P Sankara Iyer, *Operations Research* (Tata McGraw-Hill, 2008) 3.

builds on this previous work by simulating a tax-minimising MNE's behavioural response to introducing an ACE and/or reducing corporate income tax rates, and compares the respective integrity outcomes of both reforms.

4.2 Comparing the impact of corporate tax cuts coupled with reducing the scope of ACE-variants in Belgium and Italy

In an increasingly globalising and internationally competitive business environment, governments are under considerable pressure to lower their headline CIT rates. Belgium and Italy are no exception and there has been much political pressure to lower their CIT headline rates.¹⁴⁴ The justification is that Belgium and Italy will be able to collect more tax revenue by being more regionally and internationally competitive. However, it is important to concede that the economic rent portion of funds may escape tax.

This model's ability to isolate and observe the behaviour of pure profits facilitates an objective assessment of whether, *ceteris paribus*, a reduced CIT headline rate in Belgium or Italy can benefit the taxing jurisdiction, using the change in global Total Tax Payable (TTP) as proxy for this measure. The proxy for MNE tax-aggressiveness is when the Net Profit Before Tax (NPBT) booked in the taxing jurisdiction (either Belgium or Italy) is between 0–20 out of a total of 100 (where 100 is the least tax-aggressive).

For completeness, it is necessary to acknowledge that modelling generally involves a trade-off between realism in scope and simplicity to facilitate meaningful analysis. So, the results extracted below may not necessarily reflect the only behavioural responses suited to each variation. Rather, these figures simply reflect optimised TTP results which are based on simplified assumptions to present an abstraction of reality. This does not make the observations any less meaningful, since the purpose of model building is to learn about relations between variables.

In relation to the Belgian subsidiary, even if the ACE-variant is abolished the TTP falls only marginally. Upon the implementation of CIT rate cuts the Effective Tax Rate (ETR) in the taxing jurisdiction falls only marginally for the most tax-aggressive MNEs to a flat 24.7 per cent.

On the other hand, for the Italian subsidiary even upon abolition of the ACE-variant the tax revenue base is protected by the existence of the Italian fixed ratio rule. In relation to CIT rate cuts, the TTP remains at an ETR of 27.8 per cent for the majority of increments of tax-aggressiveness until a reduction in the Italian CIT rate to 25.1 per cent. From that point onwards there is no longer an additional incentive for profit shifting behaviour and TTP falls to a flat ETR of 25.1 per cent for all levels of tax-aggression, as shown in the below Table 1.

However, an unintended consequence is that for the relatively less tax-aggressive MNEs a reduction in the CIT rate in place of an ACE-variant results in significantly lower TTP, as illustrated in the below Table 1. In other words, if Belgium and Italy were to abolish

¹⁴⁴ Belgium's headline corporate income tax rate was reduced from 33.99 per cent to 29.58 per cent on 29 December 2017: *Loi portant réforme de l'impôt des sociétés* (Belgium) [Corporate Income Tax Reform Act of 29 December 2017]. Similarly, in Italy, the 2017 Budget approved on 15 October 2016 a reduction to the headline rate from 27.5 per cent to 24 per cent: J Politi, 'Italy's Renzi unveils spending plans in 2017 budget' *Financial Times* (16 October 2016); available at: <https://www.ft.com/content/473a99b0-9336-11e6-a80e-bcd69f323a8b>.

their ACE-variants and instead synchronise their CIT rate cuts with the US then a reduction in their CIT rates to below 24.7 per cent and 25.1 per cent respectively would simply forfeit tax revenue from economic rents.

Specifically, where these variations are modelled with NPBT increments between 0–100, the ETR ranges between 25.2–32.3 per cent and 27.8–29.5 per cent for Belgium and Italy respectively, thereby simply enabling relatively less tax-aggressive MNEs to further reduce their TTP. This is shown in Table 1 below.

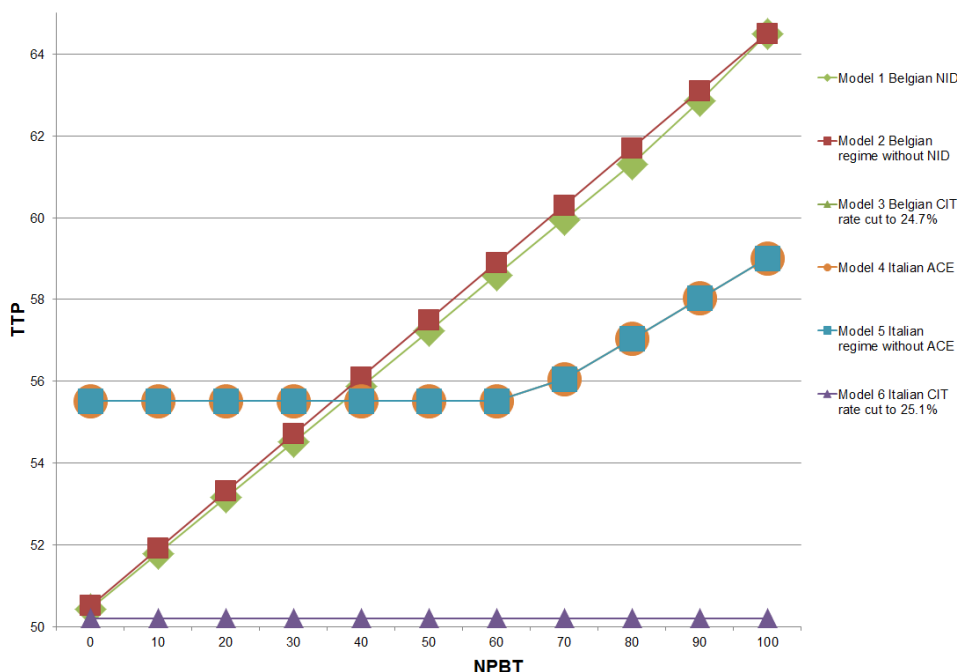
Table 1: Results of Modelling a Headline CIT Rate Cut on the Belgian and Italian Subsidiaries' ETRs

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>
	<i>Belgian</i>	<i>Belgian</i>	<i>Belgian</i>	<i>Italian</i>	<i>Italian</i>	<i>Italian</i>
	<i>NID</i>	<i>regime</i>	<i>CIT rate</i>	<i>ACE</i>	<i>regime</i>	<i>CIT rate</i>
		<i>without</i>	<i>cut to</i>		<i>without</i>	<i>cut to</i>
<i>NPBT</i>		<i>NID</i>	<i>24.7%</i>		<i>ACE</i>	<i>25.1%</i>
0	25.2%	25.3%	24.7%	27.8%	27.8%	25.1%
10	25.9%	26.0%	24.7%	27.8%	27.8%	25.1%
20	26.6%	26.7%	24.7%	27.8%	27.8%	25.1%
30	27.3%	27.4%	24.7%	27.8%	27.8%	25.1%
40	27.9%	28.1%	24.7%	27.8%	27.8%	25.1%
50	28.6%	28.8%	24.7%	27.8%	27.8%	25.1%
60	29.3%	29.5%	24.7%	27.8%	27.8%	25.1%
70	30.0%	30.2%	24.7%	28.0%	28.0%	25.1%
80	30.7%	30.9%	24.7%	28.5%	28.5%	25.1%
90	31.4%	31.6%	24.7%	29.0%	29.0%	25.1%
100	32.3%	32.3%	24.7%	29.5%	29.5%	25.1%

Further, assuming that immobile economic rents will also be taxed at a reduced rate, the findings of this study suggest that a reduction in the CIT rate significantly below 25 per cent will result in, at best, no difference in the tax benefit and at worst, a reduced tax benefit to the taxing jurisdictions.

For completeness, it should be noted that this study does not attempt to model investment behaviour over time in response to global tax changes. Rather, it observes that pure profits do not shift and economic rents are forfeited from a CIT rate reduction in place of an ACE-variant under both the Belgian and Italian regimes. Further, these results also suggest that a combination of an ACE-variant combined with a mechanism similar to a fixed ratio rule may present a more effective tax revenue base protection measure. This is the subject of further research by the author.

Fig. 2: Results of Modelling a Headline CIT Rate Cut on the Belgian and Italian Subsidiaries



It goes without saying that international tax competition issues cannot be eliminated. However, the findings of this model question whether jurisdictions such as Belgium and Italy would benefit from coordinated multilateral reductions to their CIT rates. This model assumes that coordination would only occur between higher-tax jurisdictions; that is, the Belgian and Italian subsidiaries, and the US. The findings are that while TTP behaves in the way illustrated by the above Fig. 2, the most tax-aggressive MNE never nominates to place any NPBT into the Belgian and Italian subsidiaries; rather it channels its profit shifting into the very lowest taxing jurisdictions available to it, ie, specifically, in the context of this model, to Singapore and Hong Kong. This indicates that Belgium and Italy would not be the ‘winners’ from a coordinated multilateral corporate tax cut.

5. CONCLUSION

This article approaches the extensive literature exploring MNEs’ aggressive tax planning behaviour from a novel perspective by exploring the tension commonly experienced by policy-makers between lowering the headline CIT rate as opposed to implementing tax reforms which aim to reduce economic distortions such as ACE-variants. In doing so, through a comparative legal analysis of the Belgian and Italian ACE-variants in section 3, this article identifies four key recurring trade-offs that present political challenges to the implementation of such fundamental reforms: first, the trade-off between revenue neutrality and ACE system integrity; second, the trade-off between implementing an ACE (at the expense of tax revenue) as opposed to reducing the headline corporate income tax rate; third, on a domestic level, that politically the ACE is perceived to benefit MNEs disproportionately more so than

SMEs, and fourth, on an international level, that there is a trade-off between the desire to make inbound investment more attractive and the risk of base erosion from aggressive tax planning by MNEs.

Since economic distortions are likely to increase incentives for tax-induced behaviours, in particular, aggressive tax planning, there is an urgent imperative for tax rules impacting cross-border intercompany transactions to be designed such that efficiency and integrity outcomes are both prioritised and attained. Through an optimisation modelling approach in section 4, this article demonstrates that simply implementing corporate tax cuts will not necessarily achieve these outcomes. This gives rise to the following two observations. First, this article demonstrates that simply implementing corporate tax cuts will not achieve efficiency and integrity outcomes. Specifically, relatively less tax-aggressive MNEs will likely be indifferent to a unilateral corporate tax cut. This is particularly problematic because if Belgium and Italy were to reduce their corporate tax rates to the thresholds modelled in this article (namely, below 24.7 per cent and 25.1 per cent respectively) they would simply be forfeiting tax revenue from economic rents without impacting MNEs' profit shifting behaviours. This is a timely finding given Italy's corporate tax rate was cut in January 2017 to 24 per cent. This unintended consequence is contrary to the underlying policy objective of implementing corporate tax cuts, namely, to bolster foreign investment.

Second, the most tax-aggressive MNEs will likely be indifferent to a multilateral corporate tax cut by higher taxing jurisdictions. This is because these MNEs never nominate to shift any profits into the higher taxing jurisdictions, instead channelling profits into the very lowest taxing jurisdictions available. As such, Belgium and Italy would not be the 'winners' from a coordinated multilateral corporate tax cut.

Ultimately, it is hoped that this research will present a platform for further discussion on the tax treatment of cross-border intercompany transactions, and facilitate the development of design improvements to cross-border tax policy and reforms.

ANNEXURE 1

Determining the objective function

It is possible to represent the optimisation problem formulaically. This entails a two-step approach; first, defining and applying the objective function; and second, defining and applying the constraints.¹⁴⁵

The general optimisation problem is the minimisation of the objective function by adjusting the design variables and at the same time satisfying the constraints. Since this model is only concerned with the intercompany activities conducted to minimise tax, the only relevant constraints relate to these intercompany transactions, rather than extending to 'real' economic activities.

¹⁴⁵ Importantly, the term 'constraints' when used in this context is distinct and separate from the 'positive constraint' of revenue neutrality and the 'normative constraints' of satisfying legislative objectives and attaining stability.

In the present analysis, the objective function is the minimisation of total tax payable (T) for the corporate group.¹⁴⁶ The modelling will occur in two concurrent iterations: first, Belgium ('Co B') and second, Italy ('Co I'). The headline corporate income tax rates are 33 per cent and 24 per cent, respectively.

$$\text{Minimise: } T = \sum_{i=1}^n NPBT_{i,n+1} \times t_i \quad (1)$$

Since this model is only concerned with the intercompany activities conducted to minimise tax, the only relevant constraints relate to these intercompany transactions, rather than extending to 'real' economic activities.

Accordingly, this optimisation problem is subject to four 'primary constraints'. Each constraint relates to one of the four categories of fungible intercompany funding that constitute the focus of this article: namely, debt financing, equity financing, licencing and finance leasing (D_{ij} , E_{ij} , L_{ij} and F_{ij} , respectively).¹⁴⁷ These can be characterised as the underlying capital amounts (C_{ij}). The 'flow' (W_i) or remuneration derived therefrom constitutes interest, dividends, royalties and finance lease payments (I_i , V_i , R_i and P_i , respectively).

This is formulated as follows for each constraint:

$$W_i = \sum_{i=1, i \neq j}^n C_{ij} \times r_{ij}^C \quad (2)$$

In other words, the 'flow' or remuneration (W_i) is received by company i , where C_{ij} is the underlying capital provided by company i to company j , at a cost of capital of r_{ij}^C . Given the fungibility between these intercompany funding activities, the rate of return is uniform. For ease of reference, this cost of capital (r) is set at 10 per cent in the baseline iteration.

As a consequence, this model assumes that an increase in the profitability of the MNE does not generate shareholder pressure to increase the rate of return on equity (in the form of increased dividends on intercompany equity financing). However, this shareholder pressure is more likely to arise in a widely-held company rather than a wholly-owned subsidiary that prioritises global tax-minimisation. On the other hand, the latter situation applies to the model developed by this study. Nonetheless, the model is designed so that r can later be adjusted to simulate the impact of tax rules which directly influence the particular cost of capital, enabling a more complex analysis of MNE behaviour in future iterations.

For completeness, there are three key qualifications to this characterisation that certain types of debt, equity, licencing and leasing are 'fungible'. First, this analysis is confined

¹⁴⁶ While this is a reasonable objective for a US-based MNE, if the MNE were Australian-owned then the objective function may have instead been the minimisation of foreign taxes; see further, Catherine Ikin and Alfred Tran, 'Corporate Tax Strategy in the Australian Dividend Imputation System' (2013) 28(3) *Australian Tax Forum* 523.

¹⁴⁷ For completeness, in the context of leases, this model focuses on finance leases only and this iteration does not contemplate the impact of depreciation.

to ‘pure’ profit shifting, as opposed to applying in the context of real economic flows. For example, dealings with relatively immobile assets such as land are beyond the scope of this characterisation. Second, fungibility does not apply to all classes of intercompany debt, equity, licencing and leasing – only those that are economically equivalent. In this context, it is instructive to contrast a financing lease payment with an operating lease payment, whereby the former would be reasonably characterised as economically equivalent to interest. Third, this model assumes that it will be possible for the MNE to switch between methods of financing upon changes to tax laws. However, this may not be possible in all cases, particularly where doing so would give rise to potentially adverse tax implications and other costs.

Further, this optimisation problem can be remodelled by layering secondary constraints (which can also be conceptualised as limitations or parameters) that reflect the tax laws applicable to each reform variation, as detailed below.

Overlaying the ‘secondary constraints’

This section delineates concurrent and/or alternative tax rules which constitute the ‘secondary constraints’, to simulate the impact of various rules on MNEs’ tax planning behaviour.

These parameters make it possible to address the question of what the most likely behavioural responses would be to alternative types and rates of tax being levied on otherwise fungible intercompany activities. This enables a more complex analysis to be conducted which also highlights the breadth of the problem, which is that the literature has thus far been too focused on modification of one parameter at a time.

These parameters are as follows:¹⁴⁸

- thin capitalisation rules;
- withholding taxes; and,
- foreign tax credits.

For completeness, parameters such as transfer pricing rules and the CFC regime are beyond the scope of this iteration of the model. Instead, subsequent research by the author will build in these additional complexities.

Further, two additional assumptions are made by this study. First, this model assumes that MNEs can relocate almost instantly and free of transaction cost. This assumption is used for simplicity and is in line with the approach adopted in the OECD’s BEPS project.¹⁴⁹ Second, as with the OECD’s BEPS project,¹⁵⁰ industry- or sector-specific features are beyond the scope of this iteration of the model.

¹⁴⁸ For completeness, parameters such as the transfer pricing rules and the CFC regime are beyond scope.

¹⁴⁹ See further, Jörg Hülshorst, Maximilian Tenberge, Svetlana Kuzmina, Alexander Hoß and Andreas Westermaier, ‘Germany - Transfer Pricing Implications of Action 4 under the OECD’s BEPS Initiative’ (2016) 23(2) *International Transfer Pricing Journal* 128, 131.

¹⁵⁰ Moreover, the formula of fixed cap does not match best with every sector and firm. That is why the Action 4 report recognizes the need to develop suitable and specific rules that address BEPS risks in banking and insurance industries. Although it does make sense to respect the specific features of banking and insurance industries, other industries might also claim the special treatments from the BEPS project. It is

Thin capitalisation rules

Belgium's regime adopts a 5:1 debt-to-equity ratio under their general thin capitalisation rules applicable to intercompany loans. This can be expressed algorithmically as follows:

$$D_{ij} - 1.5 \times E_{ij} \leq 0$$

With the above algorithm, it is possible to target both or either inbound and outbound investment.

On the other hand, Italy utilises the fixed ratio approach with a benchmark ratio currently set at 30 per cent. This can be expressed algorithmically as follows:

$$|I_i + P_i| \leq (BFR\% \times NPBT_{i,t+1})$$

Despite the complexities arising in the calculation of the EBITDA, this study makes the simplifying assumption that *NPBT* is effectively equivalent to EBITDA.

Withholding taxes

Unlike most of the other parameters built into the model, withholding tax rates are beyond the unilateral control of governments. Each tax treaty – and, by extension, each withholding tax rate within each treaty – is the result of a distinct and separate bilateral negotiation process. Since withholding tax rates cannot be unilaterally increased (although they can be unilaterally decreased) without renegotiation of the bilateral arrangements, this parameter can be conceptualised as a 'supernational parameter'.

Specific withholding tax rates apply for each of the types of intercompany flows examined in this model.

Table 2 and Table 3 below indicate the withholding tax rates for each type of intercompany funding applicable for each jurisdiction (with notation in the second column representing a flow from country 'j' to country 'i', given the notation of the underlying transfer would be 'ij').

not realistic to design the specific rules for every firm, industry or sector': Reuven S Avi-Yonah and Haiyan Xu, 'Evaluating BEPS: A Reconsideration of the Benefits Principle and Proposal for UN Oversight' (2016) 6(2) *Harvard Business Law Review* 185, 217.

Table 2: Overview of Withholding Tax Rates in Belgium

<i>Withholding tax rates</i>					
		<i>Interest</i>	<i>Dividends</i>	<i>Royalties</i>	<i>Lease payments</i>
<i>Belgium</i>	<i>U, B</i> ¹⁵¹	0/15%□	0/5/15%●	0%	0/15%
	<i>B, U</i>	0/15%	0/5/15%●	0%	0/15%
	<i>S, B</i> ¹⁵²	5%◇	0%	3/5%◆	5%
	<i>B, S</i>	5%	5/15%●	5%	5%

Key: ◇ government authorities/ financial institutions are afforded a withholding tax exemption; □ interest on certain 'portfolio debt' obligations are exempt from withholding tax; ◆ withholding tax exemption applies to interest paid in relation to either a sale on credit of goods, merchandise or services, or a sale on credit of industrial, commercial or scientific equipment; ● higher withholding rates apply if there is a lower level of participation.

Table 3: Overview of Withholding Tax Rates in Italy

<i>Withholding tax rates</i>					
		<i>Interest</i>	<i>Dividends</i>	<i>Royalties</i>	<i>Lease payments</i>
<i>Italy</i>	<i>U, I</i> ¹⁵³	0/10%◇◆	5/15%●	0/5/8% ¹⁵⁴	0/10%◇◆
	<i>I, U</i>	0/10%◇◆	5/15%●	0/5/8% ¹⁵⁵	0/10%◇◆
	<i>S, I</i> ¹⁵⁶	12.5%◇	0%	15/20% ¹⁵⁷	12.5%
	<i>I, S</i>	0/12.5%◇	10%	15/20%	0/12.5%◇

Key: ◇ government authorities/ financial institutions are afforded a withholding tax exemption; □ interest on certain 'portfolio debt' obligations are exempt from withholding tax; ◆ withholding tax exemption applies to interest paid in relation to either a sale on credit of goods, merchandise or services, or a sale on credit of industrial, commercial or scientific equipment; ● higher withholding rates apply if there is a lower level of participation.

¹⁵¹ See *Convention between the Government of the United States of America and the Government of the Kingdom of Belgium for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with respect to Taxes on Income*, signed 27 November 2006 (entered into force 28 December 2007).

¹⁵² See *Agreement between the Government of the Republic of Singapore and the Government of the Kingdom of Belgium for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with respect to Taxes on Income*, signed 6 November 2006 (entered into force 27 November 2008).

¹⁵³ See *Convention between the Government of the United States of America and the Government of the Italian Republic for the Avoidance of Double Taxation with respect to Taxes on Income and the Prevention of Fraud or Fiscal Evasion*, signed 25 August 1991 (entered into force 16 December 2009).

¹⁵⁴ Francesco Avella, 'Italy: Treaty Withholding Rates Table' (1 February 2016), IBFD Country Analyses, Individual Taxation, section 7.4.1.5.

¹⁵⁵ For completeness, the 0 per cent rate applies to royalties for copyrights of literary, artistic or scientific works (excluding royalties for computer software, motion pictures, films, tapes or other means of reproduction used for radio or television broadcasting). The 5 per cent rate applies to royalties for the use of, or the right to use, computer software or industrial, commercial or scientific equipment. In all other cases, the 8 per cent rate is imposed on the gross amount of the royalties: *ibid.*

¹⁵⁶ See *Agreement between the Government of the Republic of Singapore and the Government of the Italian Republic for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with respect to Taxes on Income*, signed 29 January 1977 (entered into force 12 January 1979).

¹⁵⁷ The lower 15 per cent rate applies to copyright royalties: see Avella, above n 154.

For completeness, in

Table 2 and Table 3 where one form of intercompany funding may be subject to varying rates of withholding tax, the rate used by the model is highlighted in bold.

Further, this iteration of the model does not make a distinction between portfolio and non-portfolio dividends.¹⁵⁸ These rules are nuanced and jurisdiction specific, whereas this iteration of the model aims to provide a general expression of the current tax rules influencing cross-border tax planning decisions. Similarly, this study acknowledges that various other rules may apply; for example, non-portfolio dividends received by a resident company from a foreign-resident country may be exempt or non-assessable non-exempt income. However, this level of detail is beyond the scope of this iteration of the model. The ultimate issue of repatriation is also not considered, given the short-term nature of this single-period iteration of the model. For the purposes of the optimisation model, the existence of withholding tax gives rise to a potentially increased T . This necessitates a modification to the objective function, as follows:

$$\text{Minimise: } T = \dots + (D_{ij} \times r_{ji}^{WHT^I} + E_{ij} \times r_{ji}^{WHT^V} + L_{ij} \times r_{ji}^{WHT^R} + F_{ij} \times r_{ji}^{WHT^P})$$

where r_{ij}^{WHT} represents the potential marginal increase in TTP , which is a function of the rates of return (r , assumed to be 10 per cent in the baseline iteration for all types of funding) multiplied by the respective ‘relative value’ for each decision variable (denoted as WHT , with each ‘relative value’ shown in

Table 2 and Table 3 above).

A run-time test indicates that the MNE will funnel all funds through a combination of the decision variable with the lowest withholding tax rate and the jurisdiction with the lowest corporate income tax rate. This can be further validated by a two-fold analysis: first, anecdotal evidence from leading tax practitioners suggests that this reflects MNEs’

¹⁵⁸ An area for further research is to consider the ultimate flow through to the final shareholder in the model, which would require distinguishing portfolio and non-portfolio dividends – whereas this model assumes that an MNE engages in tax planning in relation to its non-portfolio dividends. As Daurer and Krever have noted:

An important principle of tax design is that taxes should have a minimal impact on business decisions and with this in mind, tax treaties commonly distinguish between small passive investments in local companies (known as ‘portfolio’ investments, as they are assumed to be part of the foreign shareholder’s investment portfolio) and more substantial (non-portfolio) direct investments in a local operating company ... [T]reaties may set two caps on dividend income with a higher rate allowed on dividends paid to portfolio shareholders and a lower rate allowed on dividends paid to non-portfolio shareholders. The provisions setting out the dual caps for portfolio and non-portfolio investors provide the only instance in which the UN model treaty is more favourable to the capital exporting nation than the OECD model treaty. Under the OECD model, the capital importing country will be required to use the lower withholding tax rate when the investor has a 25 per cent or greater interest in the company paying dividends. Under the UN model, the capital importing country must apply the lower rate when dividends are paid to investors with only 10 per cent or greater interests in a local company.

Veronika Daurer and Richard Krever, ‘Choosing between the UN and OECD Tax Policy Models: An African Case Study’ (2014) 22(1) *African Journal of International and Comparative Law* 1, 15.

behaviour; second, from the perspective of the MNE as a group, withholding taxes increase the cost of capital of the funding type by the amount of the tax rate withheld.¹⁵⁹

This relationship can be expressed as follows:

$$r^{WHT} = r (1 + \tau)$$

where r^{WHT} is the cost of capital following the imposition of withholding taxes, r is the rate of return prior to the imposition of withholding taxes and τ is the withholding tax rate.

Foreign tax credits

To avoid double taxation, foreign income may be exempt from tax under the relevant jurisdiction's foreign tax credit (FTC) regime. Each jurisdiction unilaterally controls its FTC system, rendering this a parameter.

It is noteworthy that FTC systems and rates differ markedly between jurisdictions. In order to convert the FTC regime into an algorithmic expression, it is instructive to first articulate the operation of this system. The FTC is limited to the domestic tax liability that would be due on the foreign source income.¹⁶⁰ Specifically, a jurisdiction's FTC is the lower of: (A) the amount of tax attributable to the foreign source income; or (B) the actual amount of foreign tax paid.

In other words, if the amount of tax attributable to the foreign source income (A) exceeds the actual amount of foreign tax paid (B), then T will increase by the difference: namely, $A - B$. If, however, the actual amount of foreign tax paid (B) exceeds the amount of tax attributable to the foreign source income (A), then T will remain unchanged, because there will be no increase to domestic tax liability.

For the purposes of the optimisation model, FTC can be built into the objective function with the addition of the following notation:

$$\begin{aligned} \text{Minimise: } T = \dots + \sum_j \sum_{\substack{k \\ i \neq j}} (D_{ijk} + E_{ijk} + L_{ijk} + F_{ijk}) (r_{ijk} \times r_{ijk}^{FTC} \\ - r_{ijk} \times r_{kji}^{WHT}) \end{aligned}$$

where ijk represents the inclusion of all three jurisdictions, r_{ijk} is the initial rate of return (assuming the 'tax attributable' is calculated on the gross-up, this is the same as

¹⁵⁹ European Commission, 'The Economic Impact of the Commission Recommendation on Withholding Tax Relief Procedures and the FISCO Proposals' (European Commission Staff Working Document, 24 June 2009) 44.

¹⁶⁰ 'Essentially, the foreign tax credit is limited to the US tax liability that would be due on the foreign source income': Review of Business Taxation (John Ralph, chair), *An International Perspective: Discussion Paper, Examining How Other Countries Approach Business Taxation* (December 1998) 107 ('International Taxation').

the initial rate of return of 10 per cent), r_{ijk}^{FTC} represents the amount of tax attributable to the foreign source income and r_{kji}^{WHT} represents the actual amount of foreign tax paid.

Both Belgium and Italy provide some level of relief from double taxation of foreign source income. Belgium's FTC¹⁶¹ is limited to a lump-sum amount equal to 15/85 of the amount of the net foreign source income, with a separate calculation applying to interest withholding tax, with it too capped at 15 per cent. On the other hand, Italy's FTC is calculated on a country-by-country basis.¹⁶² However, for simplicity, none of these nuances are included in the initial iterations of the optimisation model.

¹⁶¹ Called the QFIE system (“*quotité forfaitaire d’impôt étrangers*”): Patrick A A Vanhaute, *Belgium in International Tax Planning* (IBFD Publications, 2nd ed, 2008) 91-92, 159.

¹⁶² See further, Avella, above n 154.

Superannuation and economic inequality among older Australians: evidence from HILDA

Helen Hodgson¹ and Alan Tapper^{2*}

Abstract

This article seeks to identify the effect that the current superannuation system has on economic inequality in later life. The analysis uses income and wealth data from the Household Income and Labour Dynamics in Australia (HILDA) survey, collected between 2002 and 2014, to examine wealth inequality, which includes the balance of a superannuation accumulation account, and income inequality, which includes private pension income. The main findings are that inequality in superannuation holdings is considerably higher than wealth inequality among older Australians and that inequality increases with age, but overall the age pension and home ownership have had a moderating effect on income and wealth inequality over this period.

Key words: Economic inequality; superannuation; income distribution; wealth distribution

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* Research assistance and data analysis in this article was provided by Dr Ha Nguyen, Research Fellow, Bankwest Curtin Economics Centre, Curtin University. The research reported in this publication is funded by the Bankwest Curtin Economics Centre under a project entitled 'Age, income, wealth and inequality in Australia: evidence from HILDA'. Data and preliminary findings have been previously reported in a research note: Helen Hodgson, Alan Tapper and Ha Nguyen, 'Inequality in Later Life: The Superannuation Effect', Research Report No. 11/18, Bankwest Curtin Economics Centre (BCEC), Curtin University, 2018. This article uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government, Department of Social Services (DSS), and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this article, however, are those of the authors and should not be attributed to BCEC, DSS or the Melbourne Institute.

1. INTRODUCTION

This article examines the extent of economic inequality among Australians over 55 years of age, and seeks to identify the effect, if any, that the current superannuation system is having on economic inequality in later life. It examines inequality by reference to wealth, which includes the balance of a superannuation accumulation account, and by reference to income, which includes private pension income. It uses income and wealth data from the Household Income and Labour Dynamics in Australia (HILDA) survey, collected between 2002 and 2014.

Economic inequality encompasses income inequality and wealth inequality. Income inequality refers to the distribution of income across a given population. Wealth inequality is a measure of the distribution of net worth across a population. Wealth is concentrated among older age groups as it represents surplus earnings accumulated during working life. However, a significant proportion of this wealth is locked into non-productive assets and so older Australians are frequently ‘asset rich but income poor’.

Superannuation is represented in both income and wealth distributions. Superannuation accumulation funds form part of the wealth data. However, if the purpose of superannuation is to support a person in their retirement (Financial System Inquiry Panel, 2014), the asset must be converted to an income flow as an annuity or pension, and this income flow will appear in the income distribution data.

The retirement income system in Australia is built on three pillars: the Age Pension; the Superannuation Guarantee; and other retirement savings. Saving through the superannuation system, whether mandatory or voluntary, is supported by tax concessions. Recent debate has highlighted the unequal distribution of superannuation, and the consequential unequal distribution of tax concessions (Australian Treasury, 2015b, p. 90; Daley & Coates, 2015).

Government policy in a number of areas will need to address the aging of the population: the age dependency ratio (the ratio of those age 65 and over to those aged 15 to 64) is expected to decrease from 4.5 in 2014-15 to 2.7 in 2054-55 (Australian Treasury, 2015a). The extent of inequality among older Australians is important in designing policy in a number of core areas, including the age pension; health and aged care; housing; and—most importantly for this article—superannuation.

A recent report by the Organisation for Economic Co-operation and Development (OECD, 2017), *Preventing Ageing Unequally*, highlights concern that modern economies are tending to increase economic inequality in general and amongst the elderly in particular. The report (OECD, 2017, p. 15) says:

“Ageing unequally” refers to inequality that develops throughout the life course and materialises in old age. It is often the result of specific episodes during people’s lives that tend to cumulate their detrimental effects on health and income at old age. Ageing unequally is not a new phenomenon, but while the current generation of older people is experiencing higher incomes and lower poverty risks than previous ones in most countries, the younger generations are likely to face again higher inequality in old age. They are expected to live longer, but have been experiencing more unstable labour market conditions and widening inequalities in the distribution of earnings and household income.

The present study can be seen in this context as part of the necessary monitoring of inequality trends amongst the older population. It provides some benchmark data against which future trends can be measured.

This article proceeds as follows. Section 2 discusses the state of economic inequality in Australia in recent years. Section 3 reviews the development of the superannuation system, identifying the significant reforms and when they occurred. Section 4 sets out the methodology we used in our examination of the effect of superannuation on inequality among older Australians. Section 5 details our findings. Finally in section 6 we present our general conclusions and identify the implications of our analysis on the development of retirement income policy.

2. INEQUALITY IN AUSTRALIA

It is generally understood that income and wealth are each related to age but the two trajectories are importantly different. Income generally peaks in mid-life and falls in later life. Wealth rises with age more slowly than income and levels off or falls less sharply in later life. A typical life-cycle moves from an asset poor but income rich phase in early life to an income poor but asset rich phase in later life, with an income rich and asset rich phase in mid-life. The joint effect can be thought of as age-related economic well-being.

There has been much recent debate over economic inequality trends globally (Keeley, 2015; Piketty, 2014). The Australian data show that neither income nor wealth inequality overall is increasing in the period since 2000, although there does seem to be an increasing share of income and wealth at the top percentile level (Fenna & Tapper, 2015; Leigh, 2013; Wilkins, 2015 and OECD data (OECD.Stat)). However, there has been little analysis of trends in inequality among older Australians as a subset of the population. Two very different questions arise here. One, are older Australians more or less economically equal than the general population? Two, is the trend amongst the older population tending to decrease or increase inequality? The second question is especially apposite given that the Australian superannuation system is shaping retirement wealth and incomes as it progressively evolves. These two questions are the focus of this article.

3. THE DEVELOPMENT OF THE SUPERANNUATION SYSTEM

Australia's retirement income system is often described as being based on three pillars (Australia's Future Tax System Review Panel (Henry Review), 2009). However, the World Bank framework takes a broader policy perspective, identifying five tiers (World Bank, 2008):

1. a basic income safety net in retirement;
2. contributory pensions;
3. mandatory retirement savings schemes;
4. self-provision, which may be encouraged through tax concessions; and
5. a non-financial fourth pillar that includes housing and social services including health and aged care.

This extended framework acknowledges the importance of housing and social services in maintaining well-being into retirement.

The three pillars formalised in the Australian retirement income system are the basic income safety net, mandatory retirement savings, and self-provision. Contributory pensions were rejected as a policy option in Australia in the first half of last century. In 1972 the Hancock Inquiry recommended the introduction of earnings-related supplementary contributions to the age pension that could raise the pension to levels of around 30% of average weekly earnings (AWE) (National Superannuation Committee of Inquiry, 1976), but this proposal was rejected by the Fraser government. Accordingly the age pension is funded through general revenue and is not calculated by reference to pre-retirement income, occupation or contributions. In the Australian system self-provision is encouraged through voluntary additions to the mandatory level of superannuation.

Superannuation in Australia is often described as a maturing system. It has long been a feature of the Australian retirement income system, with schemes for white collar, public sector, and self-employed workers having been in place for many years; however by 1986 less than 40% of employees had superannuation coverage (Australian Treasury, 2001). Superannuation has been supported as a savings retirement vehicle through the federal income taxation system since its introduction in 1915. The *Income Tax Assessment Act 1915* allowed tax deductions for superannuation contributions paid by employers in respect of employees, and exempted the earnings of a superannuation fund, to the extent those earnings supported pension payments.

Employees paid under award agreements were included in award-based schemes from 1987 following the Accord Mark II agreement under which the unions deferred 3% of cost of living wage increases into superannuation: the precursor of the Superannuation Guarantee. The mandatory superannuation guarantee based on a proportion of employee earnings dates from only 1993, when it was introduced to provide ‘an equitable and attractive retirement income arrangement for ordinary Australians’ (Keating, 1991), with superannuation savings encouraged through favourable tax treatment. Notably, Keating did not envisage the mandatory superannuation as replacing the age pension, but a supplement that would maintain retirement income at around 30% of AWE.

Superannuation guarantee contributions were initially set at 3%, increasing to 9% by 2002. The first generation of workers to have had access to the superannuation guarantee for their entire working life will not begin to retire until around 2040. Accordingly a person who retired in 2002 will have been subject to the superannuation guarantee for nine years, at rates below 9% whereas a person who retired in 2014 will have accumulated significantly higher superannuation guarantee entitlements as they will have been covered for 21 years and contributions for half of that time will have been at 9%.

The next significant reform was in 2007. The ‘Simpler Super’ changes (*Tax Laws Amendment (Simplified Superannuation) Act 2007*) saw the exemption of pensions paid from superannuation fund earnings to a person over 60 and the introduction of generous contribution caps to replace reasonable benefit limits encourages contributions at a rate higher than that required to provide a comfortable level of income in retirement.

Contributions to, and investment earnings of, superannuation funds have been taxed at a flat 15% rate since 1988. The tax rate applied to contributions is applied to

contributions from sources that have not been taxed, notably superannuation guarantee contributions and other voluntary contributions directly from salary (salary sacrifice contributions). As these contributions are taxed at a flat rate of 15%, where a person is paying a marginal tax rate that is over 15%, there is a tax advantage in diverting income into superannuation. However the second tax expenditure, 15% on the earnings of superannuation funds, creates a potentially greater opportunity to exploit the difference between personal marginal tax rates and the concessional tax rate paid by the superannuation fund. This arbitrage is increased when the fund goes into retirement phase as the earnings on assets set aside to provide a pension are exempt from income tax under section 295-385 of the *Income Tax Assessment Act 1997*.

Superannuation funds are used to support the 'self-provision' retirement income pillar, allowing members to make contributions from other forms of savings. The concessional rate of tax creates incentives to use superannuation as an investment vehicle, an outcome that is specifically encouraged by the policy, but also encourages the use of superannuation accounts as a form of wealth creation rather than as a retirement product.

Clearly some limitation on savings is an important part of superannuation policy. Prior to 2007 this was achieved by the application of reasonable benefit limits, which restricted the amount that could be withdrawn from superannuation at tax preferred rates. The reforms in 2007 simplified the system by removing maximum withdrawal limits but imposing caps on the amount that can be contributed to superannuation. However these caps were very generous, particularly in respect of non-concessional contributions (voluntary, post-tax contributions). This further encouraged the use of superannuation funds as a form of tax preferred savings.

In this context, concern has been expressed regarding the tax expenditures associated with the current superannuation savings regime (Australian Council of Social Service (ACOSS), 2012; Australian Treasury, 2015b, p. 90; Daley & Coates, 2015). In 2015 it was estimated that more than half of the superannuation tax expenditures were received by the wealthiest 20% of Australians who have a greater capacity to save into superannuation (Daley & Coates, 2015).

The most recent reforms, introduced with effect from 1 July 2017 (*Treasury Laws Amendment (Fair and Sustainable Superannuation) Act 2016*), addressed the escalating tax expenditures by reducing the contribution caps, and limiting the amount that can be held tax free in retirement phase. These reforms were introduced after 2014, and therefore are not reflected in the data analysed in this article.

A key element of the superannuation guarantee system is portability of benefits, in contrast to earlier schemes that were linked to employer support. This encourages savings in accumulation type schemes, as opposed to defined benefit schemes. In 1982 82% of superannuation funds were defined benefit funds, but by 2000 that percentage had dropped to 14%, with 86% being accumulation funds (Australian Treasury, 2001).

An accumulation fund is defined as 'a superannuation fund where your retirement benefit depends on the money put in by you and your employers and the investment return generated by the fund'.³ A member account in an accumulation scheme is recognised as an investment asset that is accessible after a condition of access has been

³ See Australian Securities and Investments Commission (ASIC), 'Glossary – accumulation fund', <https://www.moneysmart.gov.au/glossary/a/accumulation-fund>.

met, generally at retirement, death or upon reaching age 65. A retiree may draw on this as a lump sum or use it to generate an income stream as a pension or annuity.

A minority of retirees are entitled to a pension from a defined benefit scheme, which is 'a super fund where your retirement benefits are calculated by a predetermined formula. Retirement benefits are usually calculated using your average salary over the last few years before you retire and the number of years you worked in the company or public service...'.⁴ These retirees are likely to be either former public sector workers and/or older retirees who were a member of a defined benefit fund before the changes consequential on the introduction of the superannuation guarantee.

For the purposes of this study, which is examining wealth and income inequality, this raises questions over the relationship between superannuation as an asset and the resulting income stream. Superannuation as an asset is a factor in wealth inequality, but as an income stream it is reflected in income inequality. This limitation is also noted by the OECD when discussing the high income inequality rate among the elderly in Australia (OECD, 2017, p. 249).

4. METHODOLOGY

The article identifies and examines trends in inequality from 2002 to 2014 amongst Australians over the age of 55, using the Gini index and the P75:P25 ratio. The Gini index or Gini coefficient is an index of the inequality among values of a frequency distribution. A Gini coefficient of zero represents perfect equality, while a Gini coefficient of one represents perfect inequality. The P75:P25 ratio compares wealth or income at the 75th percentile with wealth or income at the 25th percentile of the population (with the 75th being the wealthier/richer). Both the Gini coefficient and the P75:P25 ratio can be applied to give an indication of the inequality of the distribution of wealth or income.

The wealth module of the HILDA survey is released every four years, with data appearing in waves 2, 6, 10 and 14, collected in 2002, 2006, 2010 and 2014. The time period examined in this article is based on these data waves. The sample size is 36,848 observations over the four waves. For this analysis older Australians are grouped by age in five age bands: 55–59, 60–64, 65–69, 70–74, 75–79 and 80 and over. The resulting sample sizes are considered to be adequate for the level of analysis undertaken.

All monetary data used in the analysis are adjusted to the consumer price index (CPI) in 2014 dollars. Where the data is household data it has been equivalised for household size using the modified OECD equivalence scales which assign a value of 1 to the household head, 0.5 to each additional adult member of the household and 0.3 to each child (aged under 15).

The analysis uses both cross-sectional analysis and panel data to examine trends. The cross-sectional data provides a snapshot of the wealth and income of the participants at the time of the survey, and is used to examine changes across the survey population between each survey wave. Cross-sectional analysis is used to examine trends between age groups across the four waves of data.

⁴ See ASIC, 'Glossary – defined benefit fund', <https://www.moneySMART.gov.au/glossary/d/defined-benefit-fund>.

HILDA panel data also allows analysis of changes between cohorts over time. As shown in Table 1, the panels are selected on the basis of their age at the commencement of the survey, but all reached retirement age during the period under review.

Table 1: Selection of Panels for Analysis

	2002	2006	2010	2014
Panel 1	50–53	54–57	58–61	62–65
Panel 2	54–57	58–61	62–65	66–69
Panel 3	58–61	62–65	66–69	70–73
Panel 4	62–65	66–69	70–73	74–77
Panel 5	66–69	70–73	74–77	78–81

Source: HILDA 2002–2014

Panel data analysis is used to observe financial trends by following the panel of participants through the four waves of data, and comparing them to the data for other panels at the same age.

5. FINDINGS

5.1 Wealth inequality

In the HILDA survey, net wealth is calculated as: the sum of (a) monetary wealth in bank accounts, superannuation, cash investments, shares, trust funds, and the cash-in value of life insurance policies, and (b) non-financial assets including the family home, other property, business assets, collectables, and vehicles, minus (c) debts comprising home debt, other property debt, credit card debt, HECS debt, other personal debt, loans from friends or relatives, and business debt.

The first stage of analysis is based on cross-sectional analysis, and examines the wealth of the participants in each data wave who were in the specified age group.

Our first finding (see Table 2) is that wealth inequality among Australians aged over 55 is lower than that for the general population.

Table 2: Equivalent Household Net Wealth Distribution by Age, HILDA 2002–2014, Gini Coefficients

Age Cohort		55–59	60–64	65–69	70–74	75–79	80 and over	All households
Data Wave	2002	0.57	0.57	0.55	0.52	0.51	0.55	0.60
	2006	0.52	0.56	0.58	0.57	0.50	0.51	0.60
	2010	0.50	0.56	0.56	0.52	0.58	0.49	0.60
	2014	0.51	0.56	0.54	0.58	0.57	0.52	0.61
	Average	0.53	0.56	0.56	0.55	0.54	0.52	0.60

Source: HILDA 2002–2014

In each of the older age groups there is some fluctuation in the figures over the four waves, with no clear trend emerging. However, wealth is consistently more equally distributed among the over-55s than among the general population.

Chart 1 and Table 3, using the P75:P25 ratio, show that the spread of wealth has narrowed over the four waves of the survey in these age groups between 2002 and 2014. However, the trend over this period is generally U-shaped. Generally speaking, inequality fell after 2002 and rose after 2010. The lowest ratio was generally in either 2006 or 2010, with the exception of the 60–64 age group in which the ratio fell between 2010 and 2014 to the same level as in 2006, and the 70–74 age group in which the ratio rose consistently over this period. There is no clear reason that can be linked to the superannuation system that might explain this U-shaped pattern.

Chart 1: Household Net Wealth P75:P25 Ratio by Age: HILDA 2002–2014

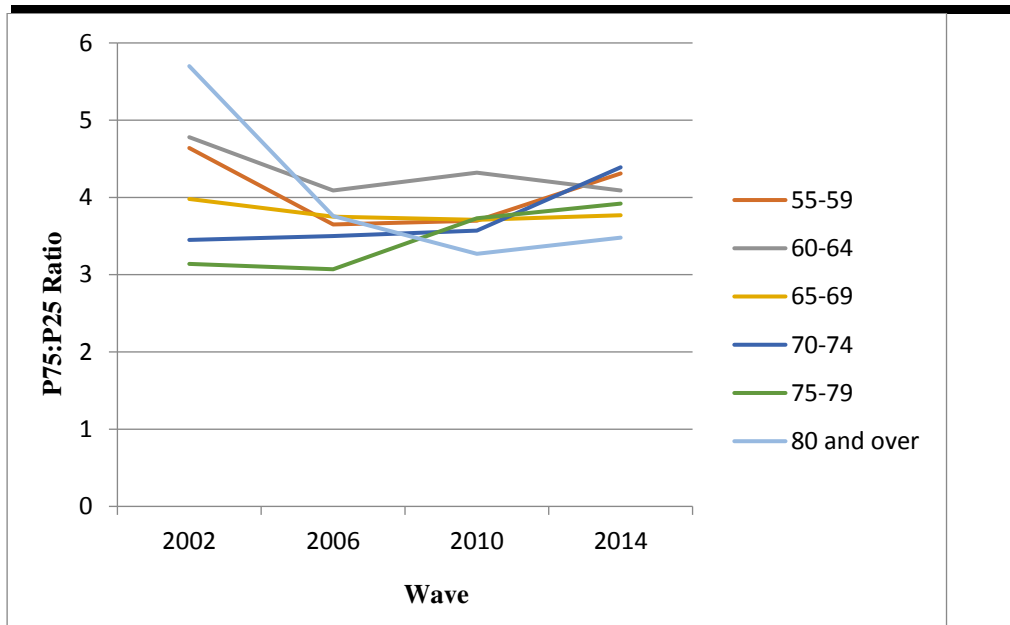


Table 3: Distribution of Household Equivalent Net Wealth by Age, 2002–2014, HILDA, P75:P25 Ratios

	Age Cohort	55–59	60–64	65–69	70–74	75–79	80 and over
Data Wave	2002	4.64	4.78	3.98	3.45	3.14	5.70
	2006	3.65	4.09	3.75	3.50	3.07	3.76
	2010	3.70	4.32	3.71	3.57	3.73	3.27
	2014	4.31	4.09	3.77	4.39	3.92	3.48

Source: HILDA 2002–2014

5.1.1 Superannuation

The relevant HILDA variables identify superannuation holdings as a component of household net worth. For superannuation holdings to be valued as an asset the superannuation must either be held as an accumulation account or the capital value of the retirement income stream must be able to be determined, as in a case where an annuity has been purchased. However, it is problematic to determine the capital value of a defined benefit scheme as such a scheme provides an income stream for life, based on factors determined at the time of retirement. Accordingly, the value of defined benefits will not be included in the wealth data.

Table 4 shows the Gini coefficients for superannuation holdings among people aged 55 and over.

Table 4: Distribution of Household Equivalent Superannuation by Age, HILDA 2002–2014, Gini Coefficients

	Age Cohort	55–59	60–64	65–69	70–74	75–79	80 and over
Data Wave	2002	0.67	0.72	0.81	0.87	0.90	0.89
	2006	0.67	0.68	0.76	0.81	0.87	0.89
	2010	0.61	0.71	0.75	0.79	0.88	0.90
	2014	0.59	0.68	0.73	0.78	0.85	0.91

Source: HILDA 2002–2014

Consistent with other analysis (Clare, 2014), we see that superannuation holdings are unequally distributed and that this inequality increases with age. However, there is also a reduction in inequality over time within each age group, with the exception of households with head aged 80 and over.

In these age groups, superannuation holdings are more unequal than wealth in general, as can be seen in Table 5. (Here the net wealth and superannuation figures are non-equivalised, and hence the Gini coefficients are slightly higher than those shown in Tables 2 and 3.)

Table 5: Comparison of Net Wealth Distribution with Superannuation Distribution by Age, HILDA 2002–2014, Gini Coefficients

	Age Cohort	55–59		60–64		65–69		70–74		75–79		80 and over	
	Asset	Super	Wealth	Super	Wealth	Super	Wealth	Super	Wealth	Super	Wealth	Super	Wealth
Data Wave	2002	0.67	0.57	0.72	0.57	0.81	0.55	0.87	0.52	0.90	0.51	0.89	0.55
	2006	0.67	0.52	0.68	0.56	0.76	0.58	0.81	0.57	0.87	0.5	0.89	0.51
	2010	0.61	0.5	0.71	0.56	0.75	0.56	0.79	0.52	0.88	0.58	0.9	0.49
	2014	0.59	0.51	0.68	0.56	0.73	0.54	0.78	0.58	0.85	0.57	0.91	0.52

Source: HILDA 2002–2014

The finding that inequality in superannuation holdings is related to age in each wave is consistent with the maturing of the superannuation system outlined in the introduction. Older cohorts of retirees are likely to fall into one of two groups: in most cases they would have no superannuation coverage before the introduction of the superannuation guarantee in 1993, but a minority would have been a member of a pre-existing scheme. This dichotomy would result in higher levels of superannuation inequality among older age groups.

The cross-sectional analysis also shows that inequality declined in each age group up to age 80 over the period from 2002 to 2014. This finding is also consistent with the maturing of the superannuation system as successive waves have accrued larger superannuation accounts through the application of the superannuation guarantee for longer periods of time.

As shown in Table 6, the proportion of assets held in superannuation by each age group has increased considerably between data waves. Each wave shows that holdings decrease with age, consistent with retired people drawing down on their superannuation in retirement. However, the proportion of wealth held in superannuation by each age group has increased between each wave, consistent with savings being directed to superannuation prior to retirement.

Table 6: Proportion of Assets held in Superannuation by Age, HILDA 2002–2014

Data Wave	Age Group	55–59	60–64	65–74	70–74
	2002		22%	17%	12%
2006		26%	22%	14%	11%
2010		27%	25%	17%	11%
2014		33%	28%	22%	17%

Source: HILDA 2002–2014

Although superannuation is increasing over time as a proportion of assets, it is still distributed more unequally than total wealth within the same age group, as was shown in Table 5. Therefore, we conclude that other assets must have a moderating effect on wealth inequality.

5.1.2 Panel data analysis: superannuation

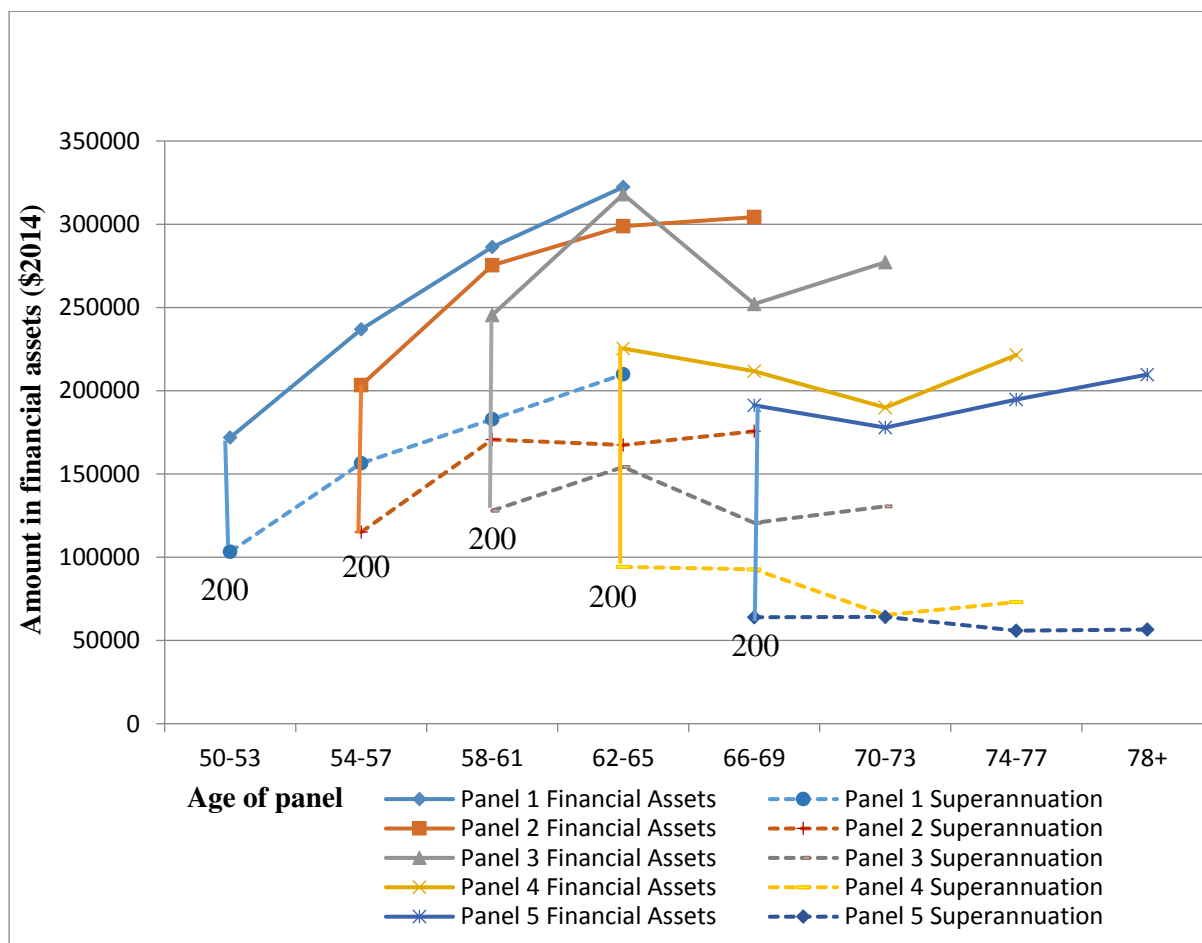
Panel data analysis was used to examine financial asset holdings in more detail. Table 1 provides details of the panels which were based on age in each wave of data. The panel analysis in Chart 2 shows several trends.

The median balance held in superannuation is higher in the younger age groups, consistent with the maturation of the superannuation system. Superannuation balances decrease in the older age groups, consistent with withdrawals during retirement. However, the median balance of all financial assets, including superannuation, showed a similar increasing trend across panels. This is consistent with other research findings that older Australians are net savers (Cassells et al., 2015).

Panel 3, those aged 58–61 in 2002, showed a higher level of financial assets in 2006, but also recorded a decline between 2006 and 2010, which corresponds to reaching retirement age (ages 62–65 for most workers) during the Global Financial Crisis.

The panel data also show that the trend to reduce balances around the time of retirement is less pronounced in younger age panels: the median asset balance for panel 2 has levelled off when the age group reaches retirement age (ages 65–69).

Chart 2: Trends in Financial Assets by Panel, HILDA 2002–2014



Source: HILDA 2002–2014

5.1.3 The home

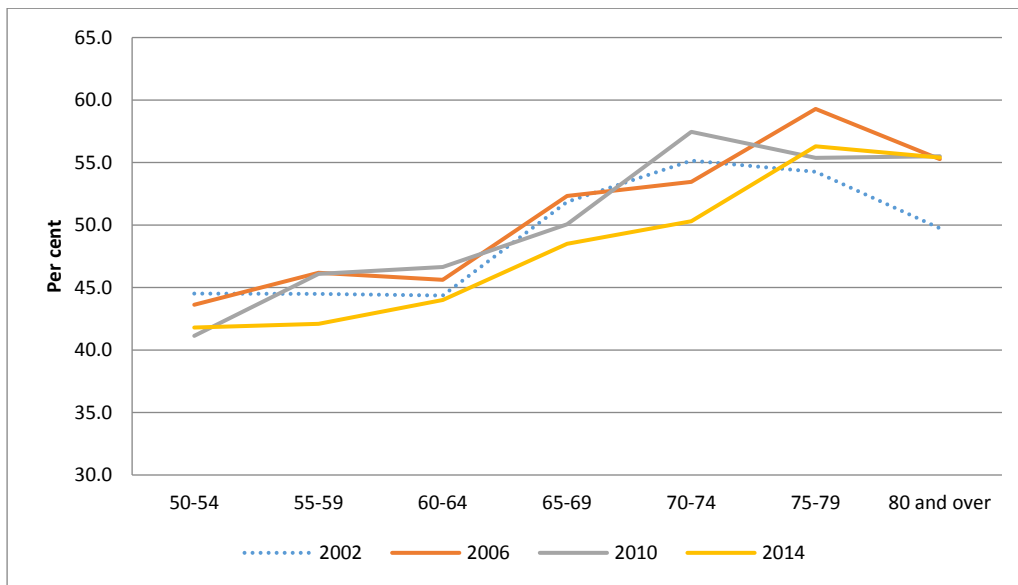
Given that the level of inequality in superannuation holdings significantly exceeds the overall Gini coefficient, the data were then re-examined to identify other asset holdings that may have an equalising effect in later life.

HILDA identifies the home as an asset separately from investment properties, and mortgages on the home are also recorded separately from mortgages on other property. The data in this analysis is based on the home and excludes investment properties. The net value of the home is the market value reduced by the mortgage attributable to the home.

Consistent with the literature (Dockery et al., 2015, p. 58; Productivity Commission, 2015b), we found that the most valuable asset held by most older Australians is the home. Home ownership levels among Australians aged 65 and over were 85.5% in 2014 (Australian Bureau of Statistics (ABS), 2015). Chart 3 shows that the net value of residential property increases as a proportion of net wealth until around age 70, at which

stage it levels off or decreases slightly. This reflects the reduction in housing debt among older age groups and the increased value of residential property relative to more liquid assets that will be consumed first in retirement.

Chart 3: Net Value of the Home as a Per cent of Net Wealth by Age, HILDA 2002–2014



Source: HILDA 2002–2014

Table 7 shows the Gini coefficients for equivalent net housing assets by age. In general these are below the Gini scores for equivalent net wealth by age, as can be seen by comparing them with the findings in Table 8.

Table 7: Distribution of Equivalent Net Wealth in the Home by Age, HILDA 2002–2014, Gini Coefficients

	55–59	60–64	65–69	70–74	75–79	80 and over
2002	0.52	0.48	0.50	0.47	0.48	0.58
2006	0.47	0.48	0.44	0.51	0.47	0.53
2010	0.48	0.48	0.48	0.43	0.51	0.49
2014	0.53	0.51	0.46	0.48	0.44	0.49
Average	0.50	0.49	0.47	0.47	0.47	0.52
Average for equivalent net wealth	0.53	0.56	0.56	0.55	0.54	0.54

Source: HILDA 2002–2014

Table 8: Comparison of Equivalent Net Wealth by Age with Equivalent Net Wealth in the Home by Age, HILDA 2002–2014, Gini Coefficients

		55–59		60–64		65–69	
		Home	Wealth	Home	Wealth	Home	Wealth
Data Wave	2002	0.52	0.57	0.48	0.57	0.50	0.55
	2006	0.47	0.52	0.48	0.56	0.44	0.58
	2010	0.48	0.5	0.48	0.56	0.48	0.56
	2014	0.53	0.51	0.51	0.56	0.46	0.54
		70–74		75–79		80 and over	
		Home	Wealth	Home	Wealth	Home	Wealth
Data Wave	2002	0.47	0.52	0.48	0.51	0.58	0.55
	2006	0.51	0.57	0.47	0.5	0.53	0.51
	2010	0.43	0.52	0.51	0.58	0.49	0.49
	2014	0.48	0.58	0.44	0.57	0.49	0.52

Source: HILDA 2002–2014

ABS data (see Table 9) show that over this period the Residential Property Housing Index grew at a substantially faster rate than CPI and the increase in house prices was widespread despite regional variations in timing.

Table 9: Increase in Residential Property House Index, ABS

Increase from June quarters	2002–06	2006–10	2010–14
Increase in Residential Property House Index: 8 capital cities	31%	35%	11%
CPI	12%	11%	10%

Source: (ABS, *Consumer Price Index*, Cat. 6401.0; *Residential Property Price Indexes*, Cat. 6416.0)

Accordingly, the net value of residential housing moderated the unequal distribution of other assets, including superannuation accounts due to the high rates of home ownership in this age group and the widespread growth in the value of residential housing over this period.

It must be noted that non-home owners have not benefited from this increase in the value of housing; and changes in debt ratios of home owners will also be reflected in net asset values. These factors would be reflected in inequality measures.

5.2 Income inequality

Turning to income inequality, we find that disposable income inequality is higher among older Australians than among the general population. Disposable income is private income plus government cash transfers minus income taxes.

Based on the cross-sectional data we examined HILDA disposable income data from 2002 to 2014. Table 10 shows the Gini coefficient for equivalent disposable income across all age groups from age 55.

Table 10: Equivalent Disposable Income Distribution by Age, HILDA 2002–2014, Gini Coefficients

	Age	55–59	60–64	65–69	70–74	75–79	80 and over	Total population aged 55 and over
Data Wave	2002	0.38	0.38	0.39	0.34	0.29	0.35	0.34
	2006	0.37	0.42	0.45	0.42	0.31	0.30	0.34
	2010	0.32	0.35	0.43	0.42	0.28	0.30	0.33
	2014	0.32	0.42	0.39	0.39	0.33	0.37	0.33
	Average 2002-2014	0.35	0.39	0.42	0.39	0.30	0.33	0.34

Source: HILDA 2002–2014

There is some change in inequality in the lower age groups which is difficult to explain by reference to policy changes. It is likely that this is related to the number of people in the sample that describe themselves as retired at each point in time. After retirement income declines significantly as employment income decreases and is only partially substituted by pension and investment income, therefore the difference in income between retired and employed respondents would be reflected in higher levels of inequality.⁵

⁵ Wilkins (2018, p. 33) comments on:

...the high level of [disposable income] inequality among people aged 65 and over, and more particularly, the large increase in inequality between 2003 and 2008. Since 2008, the Gini coefficient for this age group has remained in excess of 0.34. Later retirement could potentially explain some of this rise, since a growing minority of the age group is not retired (and therefore receiving higher incomes). However, it may also be that growth in the number of retirees with significant superannuation holdings and other assets has increased inequality among this age group.

This valuable study was received too late to be fully considered here.

Table 11: Proportion of Respondents Retired in Each Wave by Age, HILDA 2002–2014

	Age	55–59	60–64	65–69	70–74	75–79	80 and over
Data Wave	2002	31%	58%	79%	89%	93%	93%
	2006	25%	50%	78%	84%	92%	93%
	2010	19%	41%	73%	89%	90%	94%
	2014	19%	38%	69%	87%	93%	95%

Source: HILDA 2002–2014

Table 11 shows a trend to deferred retirement, with fewer respondents taking retirement before age 65. Reasons for this would include the financial uncertainty created during the Global Financial Crisis, the increase in pension eligibility age for women and proposals to increase the pension eligibility age for men, although this change does not affect men born before 1956.

We note that the findings in relation to disposable income do not take account of social transfers in kind, such as public expenditures on health and housing, or consumption taxes. The ABS measure of final income is more comprehensive: ‘household private income plus social assistance benefits in cash (e.g., age and disability support pensions, Family Tax Benefit) and social transfers in kind less income taxes and taxes on production (e.g., GST and taxes on alcohol and cigarettes)’.⁶ This is particularly significant in relation to older Australians as the value of government expenditure on health care received increases with age (Tapper & Phillimore, 2014).

Table 12 shows the Gini coefficient for final income using ABS data. This is not directly comparable to the HILDA data, but it does show a lower level of income inequality by comparison with disposable income. In the older age groups this reduction of inequality is quite noteworthy. The trend over time is towards increased equality.

⁶ ABS, *Household Income and Wealth*, Australia, Cat. 6523.

Table 12: Distribution of Equivalent Final Income by Age, Gini coefficients, 2003–04 and 2009–10, ABS

	All households	55–64	65–74	75+	Trend with Age
2003–04	0.24	0.30	0.21	0.16	More equal
2009–10	0.23	0.28	0.17	0.13	More Equal
Trend over time	More Equal	More Equal	More Equal	More Equal	

Source: ABS (2012, microdata and calculations therefrom)

The next stage of the inequality analysis examines the P75:P25 ratio to determine whether income is more evenly distributed across the population. In Table 13 the HILDA data are segmented into age groups. The trends can be examined over time and by age.

Table 13: Equivalent Disposable Income Inequality Ratio: P75:P25, HILDA 2002–2014

	55–59	60–64	65–69	70–74	75–79	80+	Trend across age
2002	2.62	2.76	2.29	1.93	2.05	1.79	More equal
2006	2.31	2.53	2.39	1.99	1.90	1.87	More equal
2010	2.00	2.33	2.30	1.95	1.76	1.88	More equal
2014	2.11	2.48	2.17	2.02	1.94	1.78	More Equal
Trend Across time	More equal	More equal	More equal	Less equal	More equal	Flat	

Source: HILDA 2002–2014

Overall, there are two trends evident in Table 13. Firstly, in each wave the P75:P25 ratio tends to decrease with age after age 60, although in 2002 there is an increase in the ratio between 70–74 year olds and 75–79 year olds. Secondly, within most age groups the P75:P25 ratio declined between 2002 and 2014. There was some volatility, with age groups other than 65–69 and over 80s reaching the lowest ratio in 2010 and moving upward to 2014, but with the exception of the 70–74 age group the overall trend is downward.

5.2.1 Public transfers

Although there are significant differences in salary and wage income, public transfers, in particular the Age Pension, tend to reduce inequality after Australians have retired. As income from salary and wages decreases as a proportion of total income, income from transfer payments increases. As shown in Table 14, in each wave the income received from transfer payments increased with age as a proportion of equivalent gross income.

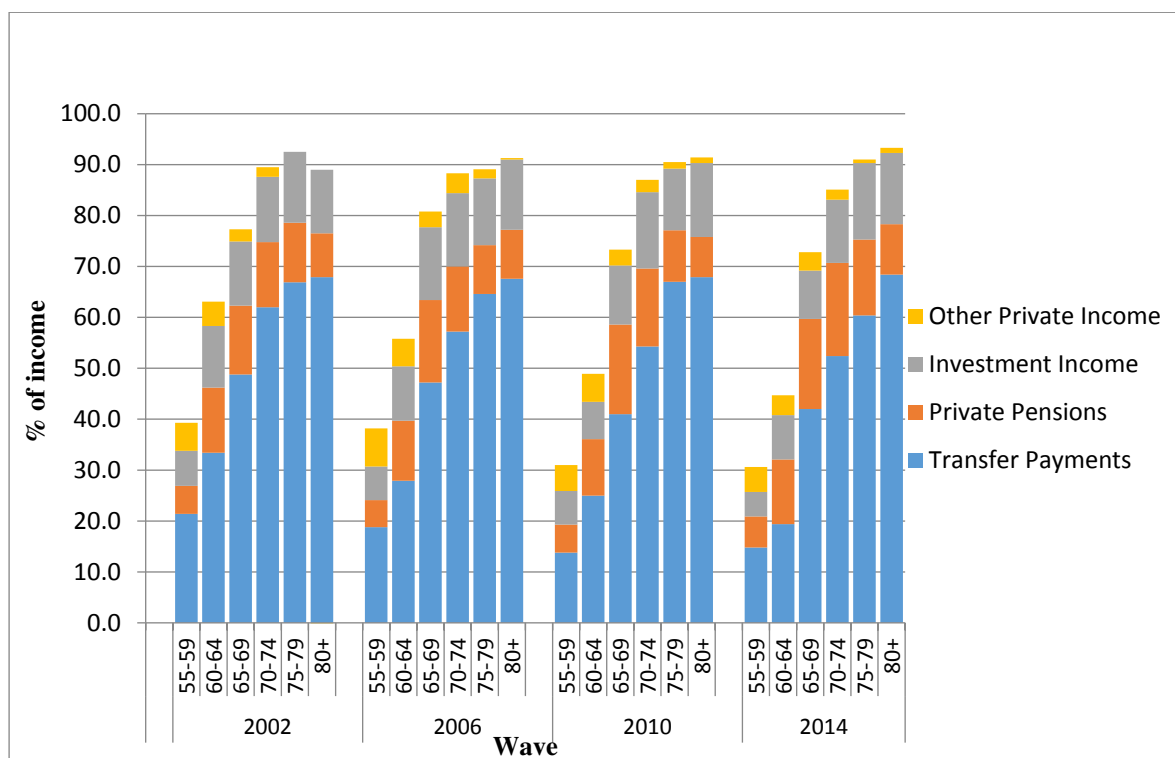
Table 14: Fraction of Disposable Income from Public Transfers by Age and Wave, HILDA 2002–2014

Year	Age Groups					
	55–59	60–64	65–69	70–74	75–79	80+
2002	21.4	33.4	48.8	62.0	66.9	67.9
2006	18.8	27.9	47.2	57.2	64.6	67.6
2010	13.8	25.0	41.0	54.3	67.0	67.9
2014	14.8	19.4	42.0	52.4	60.4	68.4

Source: HILDA, 2002–2014

Chart 4 illustrates the proportion of gross (pre-tax) income that is made up of private pension income and investment income relative to transfer payments. In all waves the proportion of investment income remains relatively stable. Private pension income is generally highest in the 65–69 age group, although in the 2014 wave there is a small increase from 17.7% to 18.3% in the 70–74 age group.

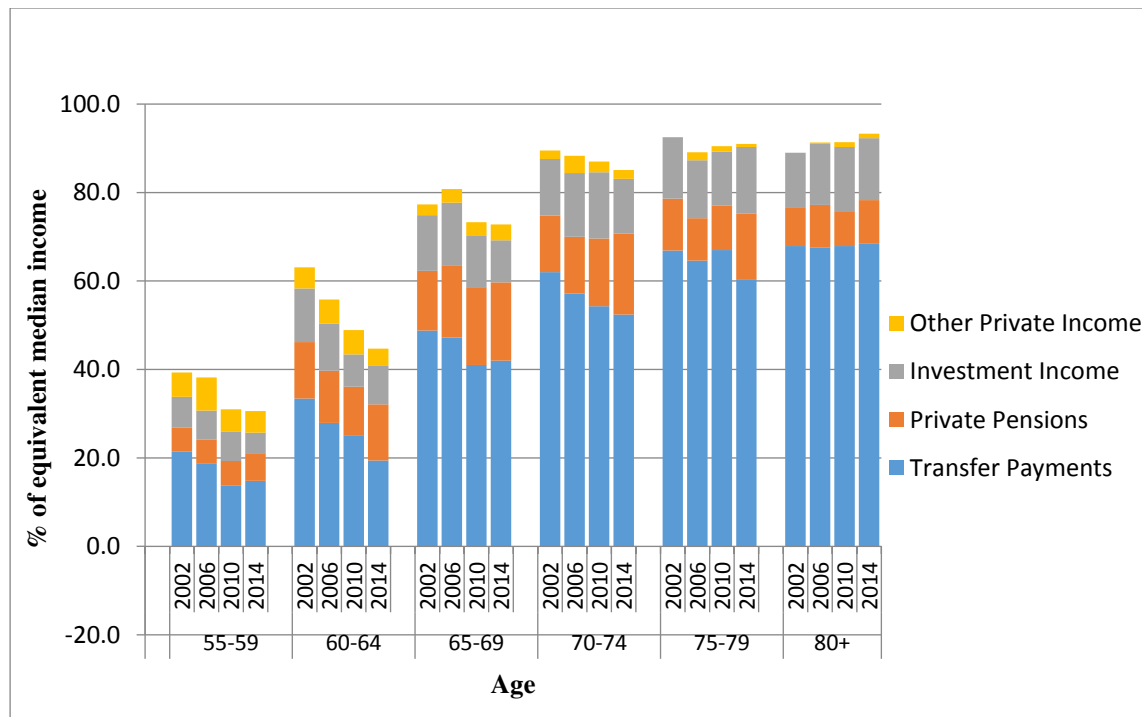
Chart 4: Sources of Gross Income (Excluding Salary and Wages) in each Wave by Age, HILDA 2002–2014



Source: HILDA, 2002–2014

Comparing age groups across the four waves, Chart 5 shows the proportion of income from transfer payments has generally decreased in each wave as a proportion of equivalent gross income in each age group up to the 75–79 year age group. The proportion of income from transfer payments is highest and most stable in the 80 years and over age group, with a relatively small overall decline in the 75–79 age group. The overall trend is down despite some fluctuation between 2006 and 2010 in the 75–79 age group and between 2010 and 2014 in the 55–59 and the 65–69 year age groups.

Chart 5: Sources of Gross Income (Excluding Salary and Wages) by Age, HILDA 2002–2014



Source: HILDA, 2002–2014

Our analysis shows that the provision of the Age Pension has an equalising effect on the income of older Australians. The other two pillars of the retirement income system, private pensions and investments, contribute less than 30% of income in retirement for Australians aged 55. It must be noted that income classified as private pension income in the HILDA survey is defined more broadly than superannuation pensions, as it also includes payments received from workers compensation or disability insurance. Such payments are usually only payable until the recipient reaches age pension age at age 65.

Among people aged 65 and over, the proportion of income reported from private pensions has increased over the duration of the study. There is a reduction in the proportion of income received from private pensions between 2002 and 2006 in the 75–79 age group; and between 2006 and 2010 in the 80+ age group; however the trend is an increase between 2002 and 2014 in every age group. The age groups to receive the highest proportion of income from private pensions were the two middle age groups. The 65–69 age group received the highest proportion from 2002 to 2010, but in the 2014 data wave the 70–74 age group received a slightly higher proportion.

5.3 The top quintile

Analysis by the Association of Superannuation Funds of Australia (ASFA) (Clare, 2015) shows that a small number of people have very high levels of superannuation savings. There is also evidence that more than half of superannuation tax expenditures are received by the wealthiest 20% of households (Daley & Coates, 2015) and that the

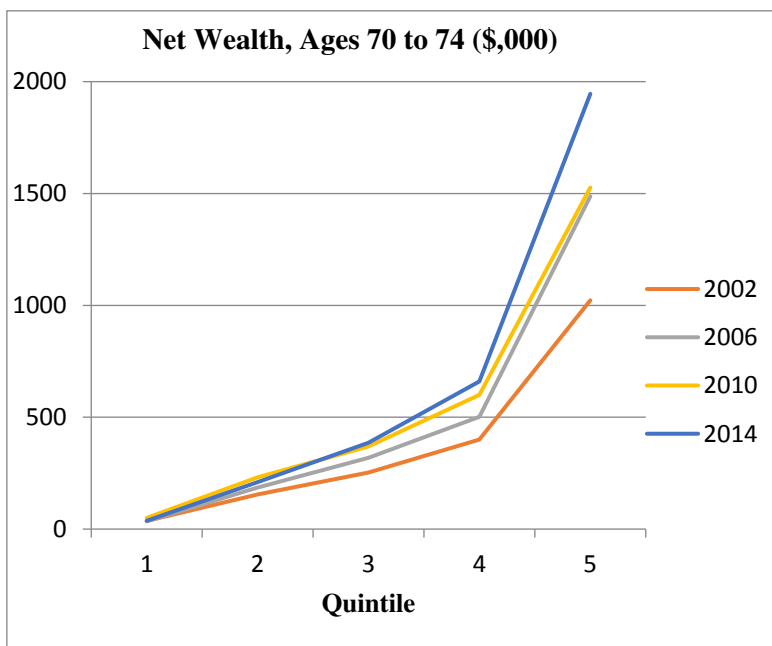
wealthiest 20% of Australian households own 75% of total household savings, including 68% of superannuation assets (Cassells et al., 2015). Accordingly, the final analysis returns to the original question: what is the extent of inequality among older Australians, and what effect, if any, has the current superannuation system had on economic inequality between 2002 and 2014?

Our analysis shows that superannuation is becoming slightly more equal, and that the effect of housing and the age pension provide a protective effect.

Quintile analysis was applied to test this finding (see Charts 6 and 7 below). When mean wealth and disposable income are plotted against quintiles in the older age groups, the mean wealth and disposable income increase slightly across the first four quintiles, consistent with the protective effects conferred by relatively high home ownership levels and targeted access to the age pension. However, in the top quintile mean wealth and disposable income increase dramatically.

The data also show that mean wealth and disposable income decrease with age: there is a reduction in both. For example in 2014 the mean income in the top quartile was 3.34 times the mean income of the middle income for people aged 60–64, but this reduced to 3.26 for people aged over 80. The difference in net wealth is more significant at 4.57 times for 60–64 year olds, down to 3.97 times for people aged over 80.

Chart 6: Quintile Analysis of Net Wealth for Certain Age Groups, HILDA, 2002-2014



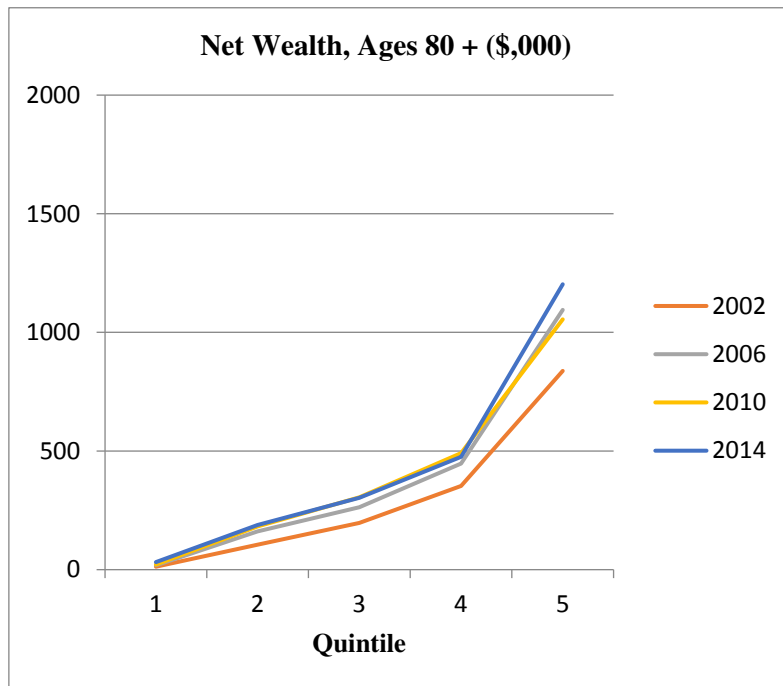
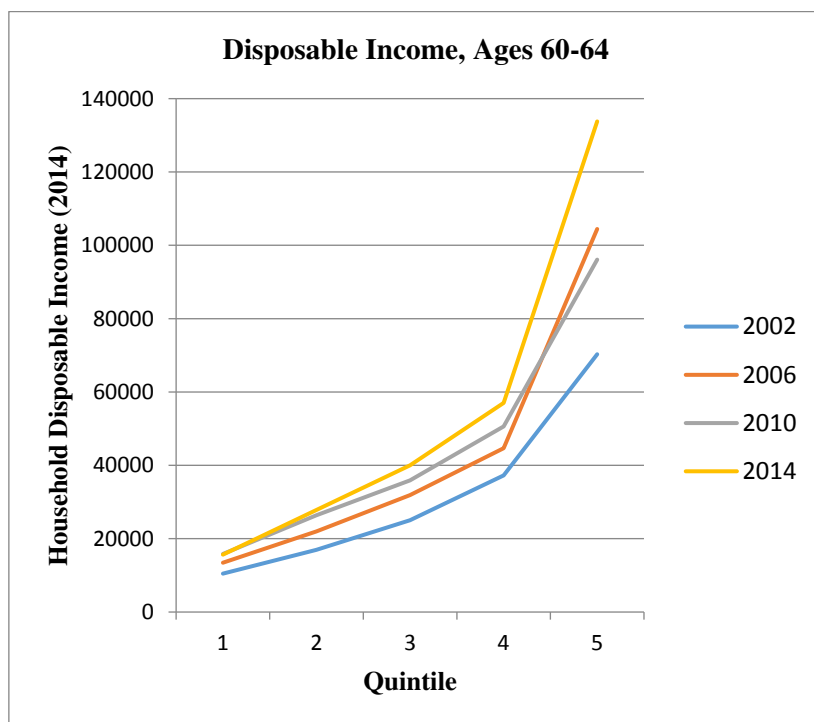
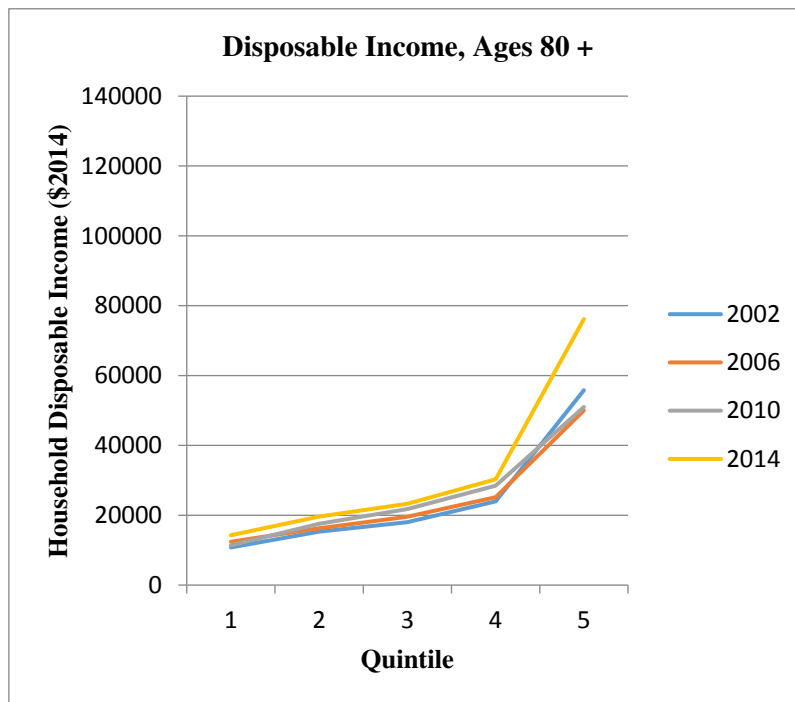
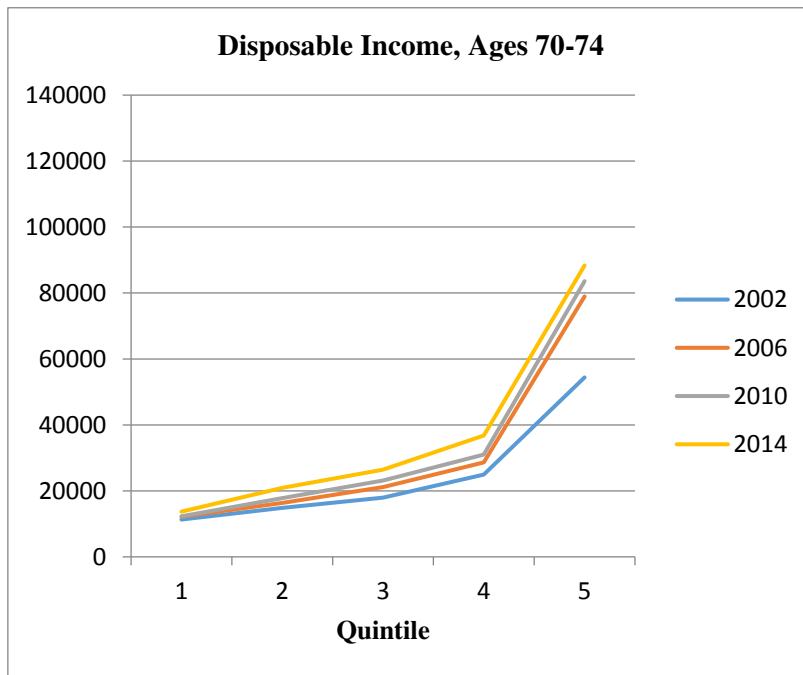


Chart 7: Quintile Analysis of Disposable Income for Certain Age Groups, HILDA, 2002-2014





Source: HILDA 2002–2014

6. CONCLUSIONS AND POLICY IMPLICATIONS

Our examination of the HILDA data shows that trends in income and wealth inequality among older Australians have not changed significantly between 2002 and 2014. There has been some volatility in trends in inequality, which is likely to be attributable to prevailing global economic conditions that have affected the value of and return on investments that form the basis of superannuation investment portfolios, and for this reason it has not been possible to discern any changes in trends that can be directly related to the 2007 changes to superannuation policy.

We have also noted that despite the overall levels of inequality among older Australians being stable, there is a significant disparity in wealth and income between the top 20% of the population and the remaining 80% of the population across all age groups, and this disparity is increasing.

However inequality in superannuation holdings is considerably higher than wealth inequality among older Australians, and that inequality increases with age. This is consistent with the maturing superannuation system for three reasons:

- the inequality in superannuation between the 40% of employees with superannuation coverage and those without coverage prior to the introduction of the superannuation guarantee would have persisted until retirement.
- following retirement, as people draw on their superannuation accounts, those with lower balances will exhaust those balances more quickly, which would exacerbate the existing inequality; and
- the data used to measure wealth inequality recognises the value of superannuation is an asset, which is more appropriate for accumulation funds than defined benefit funds. As noted earlier, pre-1986 superannuation funds were more likely to be defined benefit funds which would not be reflected in the data.

As discussed in section 3, wealth inequality amongst the elderly is moderated by home ownership. This has important policy implications as there is evidence that home ownership rates are falling significantly among younger Australians (Wilkins, 2017, p. 89). Levels of indebtedness are also increasing among Australians approaching retirement (Productivity Commission, 2015b, p. 75), with superannuation being accessed to retire that debt on retirement (Productivity Commission, 2015a, p. 46). As fewer Australians enter retirement owning a home, non-home owners will need to apply accumulated superannuation to the provision of housing, which will dilute the equalising effect of the superannuation system.

Our study also shows that disposable income inequality among older Australians is higher than across the general population, but this is moderated by direct and indirect transfers. Older Australians are major beneficiaries of income support through the age pension in addition to health and aged care programs, which are not measured specifically in this study.

6.1 Research limitations

There are three limitations to note here.

First, as the inequality measures used are the Gini coefficient and the P75:P25 ratio, our findings are not informative about the outliers: the top 5% and the lowest 5% of the population. Regardless of whether the superannuation changes are reducing inequality among the population as a whole, policy measures need to address the circumstances of those in most need.

Second, the data spanned the period of the Global Financial Crisis (2007-2009). To the extent that superannuation balances are affected by changes in the value of investments, this external shock will be reflected in the data. As growth in superannuation balances is a combination of investment growth and mandatory contributions, we have not been able to control for this factor.

Third, the relationship between wealth inequality and income inequality is complex, and out of scope of this research. We do not know how closely the two forms of material well-being are correlated at the household level (OECD, 2017, p. 249). Superannuation assets are identified as wealth, but the purpose of superannuation is to support the conversion of this asset to an income stream. This relationship cannot be identified in the HILDA modules used in this project.

6.2 Policy implications

This study shows that as people age, reliance on the age pension becomes more universal (Chart 5), consistently making up more than 60% of the income of people over the age of 75. As access to the age pension becomes more tightly means tested, there is some concern among older Australians that access to the age pension will not be maintained, either through increased means testing or decreased rates of payment. This study addresses the period to 2014, so our data does not take account of the changes to means testing of the age pension that have occurred since that date, specifically the 2017 changes to the thresholds and taper rates; or the more targeted 2015 changes to the assessment of certain private pensions. However, it does reinforce the importance of the age pension as the first pillar of the retirement income system.

Our conclusion is that inequality is not increasing among older Australians, although the top 20% continues to hold a disproportionate share of both wealth and income. However, this takes account not only of the well-recognised three pillars of age pension, superannuation guarantee and voluntary savings, with tax preferences if saved into superannuation. It is also a function of housing and social services, which are incorporated in the extended World Bank framework. Threats to any of these will affect levels of inequality.

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