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The Australian Retirement Income System: Comparisons with and Lessons for the United States

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Abstract

Australia has an atypical retirement income system: it comprises a flat-rate, non-contributory, affluence-tested age pension, and a mandatory, defined contribution accumulation plan to which employers must contribute 9.25% (moving to 12%) of wages on behalf of their employees. We briefly compare the Australian and US economies and demographies, and then describe the Australian arrangements and assess its economic efficiency and efficacy in delivering retirement support. We focus especially on the means testing of the first pillar in Australia and the mandated membership of pre-funded private pension plans. We conclude by considering insights for the evolution of the US pension reform debate as demographic change unfolds.

KEYWORDS: Social Security, Pensions, Means testing

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Typical retirement income systems across the developed world comprise multiple pillars with (1) some form of welfare poverty alleviation payment, sometimes part of a non-age related welfare policy; (2) an unfunded, pay-as-you-go, defined benefit (DB), earnings-related, income replacement scheme, which requires contributions and a substantial vesting period; and (3) income-tax preferred voluntary retirement saving, with the tax break contingent on these savings being preserved to some specified access age. While parametric settings vary widely, this basic structure is widely deployed, and it is also being adopted by newly maturing economies such as Korea, or emerging ones such as Thailand.

By contrast, the Australian structure comprises a non-contributory tax-free[1] pension payment available at a given age, generous enough to provide a modest standard of living when combined with ownership of a dwelling, and means-tested to exclude the affluent; a mandatory tax preferred Defined Contribution (DC) plan for employees, with substantial employer contributions; and voluntary, tax-preferred (often workplace-based) contributions.

This chapter provides a partial account of the design and operation of the Australian retirement income system, with a view to emphasising the lessons for US institutions. To establish how the countries are comparable we begin with some relevant facts and figures about the economies and demographies of the two countries. We then describe Australian policy and practice, with special emphasis on its two most important elements – the Age Pension and mandatory pre-funded Superannuation. We also discuss the role and interpretation of incentives in the Australian structure, and suggest that this structure has incentive effects which are less distortionary in a modern mixed economy than a more conventional structure. As an aside, we provide some information about how public sector employee plans have evolved in this environment.

Australia and the US: Demography and Economy

Australia and the US are vastly different countries. Australia is a small open economy with a population of about 23 million people, slightly smaller than Texas (Figure 1). The US population is 14 times larger. Adjusted for purchasing power parity, Australia's GDP was $1 trillion (USD) in 2012, just over 6% of the US figure. In 2012, net government debt stood at 12% of GDP in Australia; the US figure was 84% of GDP. The Australian budget deficit was about 3.5% of GDP, while the US government budget deficit was about 9.3% of GDP.

FIGURE 1 HERE

When we adjust for population size, the countries resemble each other more closely. Average per capita income, adjusted for purchasing power parity, is slightly higher in the US but of the same order, at approximately $52,000 (USD), compared to Australia's $44,000. Median incomes are also slightly higher in the US, as is income inequality (Figure 2).

FIGURE 2 HERE

In spite of these differences, the fundamentals relevant to retirement provision are reasonably similar. Australia and the US have similar age structures. On average, Australians live longer and have fewer children than Americans, but higher migration rates and gentler fertility declines mean Australia's current and projected age structure is similar to that of the US.

FIGURE 3 HERE (ALTERNTATIVELY, GROUP ALL THREE FIGURES 1-3 ON ONE PAGE ABOUT HERE)

The Australian Retirement Income System Structure

A much-used framework for retirement provision posits three "pillars" of old age support.[2] The first pillar operates as a non-contributory transfer program, which means it can pay benefits to all.[3] The second pillar offers payments related to pre-retirement labour income, on some mandatory basis – typically, some proportion of wages or salary, paid either by employer, employee, or both. The third pillar comprises voluntary retirement saving. This structure is depicted in Figure 4, in which the Australian and US structures are highlighted.[4] A detailed comparison of the Australian and US retirement income parameters is provided in Table A1, in the appendix.

The Age Pension. The mainstay of Australian government retirement provision is the Age Pension, first introduced in 1909. This flat rate benefit is potentially available to all, regardless of work history, subject to access age and residency requirements. It operates as a means-tested support payment. It is not tested to target the destitute but rather to exclude the affluent. Almost 80% of the age-eligible population receive some Age Pension payment, and 50% receive a full Age Pension, in sharp contrast to the US means-tested programs (see section on Comparative Retirement Outcomes, below).

Means test withdrawal rates, based on both income and asset tests, were incorporated into the Age Pension at its inception. Since the late 1960s, they have undergone repeated modification and reform. The means tests are comprehensively defined, although the asset test excludes owner-occupied housing.[5]

FIGURE4 HERE

Currently, the income taper rate (or benefit reduction rate) is set at 50% for income over a certain threshold. The asset taper reduces the Age Pension amount by $1.50 (AUD) per fortnight, for every $1,000 over a threshold that differs by family status and homeownership.

The Age Pension is financed from general revenue and (including a related disability pension) costs approximately 3.6% of GDP (see section on Comparative Retirement Outcomes, below). A full Age Pension benefit is equivalent to 27.7% of male average full time earnings for single pensioners and 41.3% for couples. Net replacement rates (the comparison of net income before and after retirement) are relatively high because no income tax is payable on the Age Pension. [6]

This benefit level is indexed to the greater of the increase in male average earnings, the consumer price index (CPI), and a pension and beneficiary living cost index (PBI).[7] As a result, the Age Pension keeps up with wages in the rest of the economy, and by implication with standards of living. The eligibility age is currently 65 but will increase to age 67 between 2017 and 2023 (Australian Government 2009).[8]

Compulsory saving: The Superannuation Guarantee. Australia also mandates significant employer contributions to DC pension funds, known as Superannuation Funds. This "Superannuation Guarantee" corresponds to Government-based income replacement policies such as US Social Security. While tax-preferred, it does not generate government liabilities.

In essence, the Superannuation Guarantee guarantees only that the employer will contribute 9.25% of wages to a Superannuation fund of the employee's choice; this rate is set to rise to 12% over the next several years. Fees and a fund tax is payable on these contributions, so the net contribution to the account is probably closer to 7%, increasing to a little less than 10%. Some 90% of Australian employees are now covered by the Superannuation system, about double the level of coverage seen at the time mandatory arrangements were introduced in the late 1980s (Australian Bureau of Statistics, 1999, 2011).

Employees may choose to have the contributions deposited into an account with a range of investment options, managed by any open fund, although "choice of fund" is not

much exercised. All DC funds offer an investment menu and all must nominate a low-management-cost default, known as *MySuper* (which may be age-based), for those (the large majority) who do not actively engage with their Superannuation fund. Many people have also set up and self-manage their own Superannuation funds, which must comply with various reporting and auditing requirements overseen by the tax authority.

Benefits from Superannuation savings can be accessed as early as age 55, the statutory preservation age, which is rising to 60 for those born after June 1964. The form of retirement benefits is not mandated, and these are often taken as lump sums, although there has been a recent trend towards phased withdrawal type income streams (account-based pensions or annuities). At present, very few lifetime annuities are purchased (Bateman and Piggott 2011).

The lack of policy structure around drawdowns is seen by many as a major flaw in the Australian policy. The Australian Treasury estimated that a fully mature Superannuation guarantee after 40 years contributions, along with the means-tested Age Pension, can be expected to deliver a retirement replacement rate of around 90% for a worker with median male earnings and 78% for a worker with average weekly earnings (Gallagher, 2012; see section 4 for OECD analysis and US comparisons). But for these outcomes to be realised, retirement income products must be purchased. In practice, the annuity market is very thin, the product range is limited, and there is little in the way of regulatory structure to support its development. In addition, average accumulation balances at retirement are currently relatively small, around $100,000 (AUD) for women and $200,000 for men in 2011-12 (Clare, 2014).[9]

How the Superannuation Guarantee was introduced. A brief history of the Superannuation Guarantee may be of interest from a political economy perspective[10]. Until the 1990s, Australians relied mainly on the Age Pension for retirement income provision. Tax

breaks for voluntary Superannuation (the third pillar) were introduced in 1915 and subsequently strengthened in 1936. Nevertheless, preservation and coverage were low. By the mid-1980s, only about one third of workers in the private sector and fewer than half of all workers were covered by Superannuation.

Unlike many other OECD countries, a government-provided earnings- or employment-related retirement income scheme has never been introduced in Australia, despite several attempts to do so. Draft legislation for such a plan was developed in 1939, but the outbreak of war meant that it was never introduced into Parliament. In the 1970s, a Government-commissioned report recommended a more or less standard social security plan, but a change of Government in 1975 meant the report was never acted upon.

In the early 1980s, an era when centralised wage fixing still existed in Australia, a Labor Government found itself committed to maintaining real wages in the face of an economy with significant excess demand and the threat of a wage-price spiral. This was resolved by granting an increase equal to the inflation rate of 6%, with half being put into industry-based Superannuation funds. Following the introduction of "Productivity Award Superannuation", coverage increased markedly. This was particularly true for workers in private sector industries dominated by women, casual, and part-time workers, such as the retail industry, where coverage increased from 24% in 1986 to 82% in 1993 (Australian Bureau of Statistics, 1999, 2011).

But, a contribution system built into the national wage award structure, which was itself being dismantled, was costly and difficult to enforce. In 1991, an attempt supported by government and the unions to increase contributions by a further 3% was rejected by the Australian industrial court. The government response was to introduce legislation that would enshrine what is now known as the Superannuation Guarantee. Starting in 1992, it required employers to make contributions on behalf of their employees into an approved

Superannuation fund, with contribution rates phased to increase to 9% by 2002. In 2012 the government initiated a phased increase in the mandatory contribution rate to 12%.

Voluntary retirement saving. The first and second pillars of Australia's retirement income system are supplemented by voluntary long-term savings that include Superannuation, property, shares, managed investments, and homeownership. The last is the most important non-Superannuation asset for most Australians: net equity in home ownership in 2009/10 was worth 40% of household wealth and over 80% of retirees are owner-occupiers (mostly with no mortgage) (Australian Bureau of Statistics, 2011).

Voluntary contributions fall under the same policy structures as mandatory contributions. Voluntary contributions from employees or employers result in about one-third of Superannuation fund members enjoying contribution rates of over 9% of earnings (Australian Bureau of Statistics, 2009).

Structure and function of the Superannuation industry. The Superannuation industry comprises a range of Fund categories, ranging from public sector employee funds through "industry" funds, institutionally close to the union movement, corporate and retail funds, and Self-Managed Superannuation funds (SMSFs). Except for SMSFs, Superannuation funds are managed by a board of trustees. Their operations are overseen by the Australian Prudential Regulatory Authority (APRA) which provides prudential oversight for banks, insurance companies, and Superannuation funds,

Overall, administration costs and charges have tended to be slightly higher than in the US. This may be because of more complex taxation and other arrangements which have been "grandfathered" with policy change. High fees may also reflect a lack of competition, given, for example, that the mandatory contributions are made not "into the account" but "from the employer," which generates less cost competition to service providers. On latest available

figures, average overall fees are about 0.97% of managed assets (Cooper, 2010) compared to 0.93% in the US (Deloitte, 2009).

Comparative retirement outcomes

The structure and parameters of a retirement income system are influential for retirement outcomes for individuals and government budgets, even if causality is difficult to tease out. In the following, we look at the profile of older people in Australia and the US in relation to poverty alleviation and income replacement from pensions and other sources.

As noted above, Australia's first pillar is more prominent than in other countries, and certainly in comparison to the US. While 78% of the Australian population age 65 and over relies on the targeted Aged Pension, in the US only 7% are eligible to receive Old-age Supplemental Security Income (SSI; Figure 5A). The value of the Australian Age Pension is also higher: approximately 29% of average earnings, compared to 18% for the US SSI (Figure 5B). Pension eligibility and generosity arrangements are reflected in elderly poverty rates. Based on a poverty line at 40% of the population-wide median income,[11] poverty rates in Australia are significantly lower than in the US – around 5% of people aged 65+ are below the poverty threshold, less than half of the US rate (Figure 5C).

Comparing income replacement outcomes is also instructive. While Australian and US workers with average earnings are estimated to pay similar taxes and Social Security contributions, taxes are higher for US pensioners (Figure 6A, which shows income tax and social contributions rates for average workers compared with non-working pensioners with pension amounts at the two different levels).

Most of the older US population relies on Social Security for income. Coverage for private pension schemes is about half of the rates seen in Australia where membership is compulsory (Figure 6B). So future net replacement rates may be lower for US pensioners.

Using mandatory schemes only the OECD (2013) calculates net replacement rates for hypothetical full-career workers with average earnings to be 68% in Australia and 47% for those in the US. Replacement rates for those on low incomes are higher, but much more so in Australia, which has a more progressive pension structure (Figure 6C).

Older peoples' standards of living depend on a number of factors. For example, homeownership can result in lower reported rates of poverty if rent is imputed in the calculation of income. The level of homeownership is slightly higher in Australia than the US, with 84% of people age 65 and above owning their homes, compared to 81% in the US (Figure 7A). The average older Australian has a greater reliance on capital income (which includes private pensions) than is true for older Americans, who source more of their household income from work (Figure 7B). In recent history, the US has had much higher mature age labour force participation rates than Australia. Nevertheless, the participation rate in Australia has been increasing at a faster rate than is the case in the US – in part due to increases in the pension access age for Australian women. Australian men between age 55 and 64 now have higher participation rates than their American equivalents (Figure 7C).

FIGURE 5, 6, 7 GROUPED ON ONE PAGE ABOUT HERE

A final comparison relates to public expenditure on old age pensions. The cost of age-related public pensions as a proportion of GDP is considerably lower in Australia than the US – 3.6% versus 4.8% of GDP. Official projections from the US Congressional Budget Office and the Australian Treasury suggest that as population ageing affects both countries and spending increases, these relative differences will remain. By 2050, fiscal spending is expected to reach 4.9% of GDP in Australia and 6% in the US (Figure 8). Much of this difference in public spending comes back to the structural differences between the two retirement income systems. That is, Australia's Age Pension scheme is much larger and more

important than SSI in the US but more modest than US Social Security, while Australia's second pillar is run as a funded DC scheme independent of government.[12]

FIGURE 8 HERE

Means-testing and incentives[13]

Retirement income transfers have the potential to distort incentives at two different points: when tax to fund the transfer is levied and when the transfer itself is received. Both need to be considered when analyzing the economic efficiency of tax-funded transfers.[14] In addition to evaluating effective marginal tax rates (EMTRs) of those being taxed to finance transfers and those eligible to receive them, a complete analysis must include dynamic inter-temporal effects. That is, the promise of transfers in retirement can affect labour supply and savings decisions in working life. Greater entitlement to retirement income, whether or not it is targeted, will have an impact on labour supply and savings rates since the same standard of living can be maintained with less work and saving.

So how can an analysis of effective marginal tax rates (EMTRs) help with understanding the incentive effects of targeted retirement income transfers? The most commonly cited examples are the large EMTRs affecting those on the margin of eligibility. For example, the financial incentives created by the retirement income system and related to EMTRs have been shown empirically to have an effect on labour force participation and retirement decisions (Gruber and Wise, 1999; OECD, 2011). Since efficiency costs increase disproportionately with EMTRs, their assessment is an obvious focus for analysis. But EMTRs need to be balanced against other related explicit taxes in the economy.

To understand the tradeoffs between EMTRs, the proportion of the population affected, and other explicit taxes it is instructive to compare a universal social pension with one that is targeted. The targeted pension will result in high EMTRs for those on the margin

of eligibility whose pension is withdrawn but will not affect the wider population in the way that a universal pension will. The proportion of the population that is on the margin of eligibility and the level of their EMTR will depend on the level of benefit, the scope of resources being means-tested, and importantly, the taper rate at which the pension is withdrawn. For example, lower taper rates will mean that a greater proportion of the population is affected but their EMTRs will be lower.[15] Yet having lower taper rates (and EMTRs), or zero taper rates in the case of a universal pension, means that the cost of the program and the resulting revenue requirement requires higher tax rates in the rest of the economy. If the tax burden falls on workers who already pay high taxes then the lower EMTR for those receiving transfers may be outweighed by high marginal tax rates on employment. Efficiency will therefore depend on an appropriate tradeoff between EMTRs of targeted schemes and the tax burden of alternative programs.

Over recent decades, the analysis of means testing has received a boost from new analytical literature on optimal taxation. Since the 1980s, the received wisdom has been that it is inefficient to tax capital since it distorts saving and investment decisions (for example Judd 1985). But more recently this outcome has been challenged.In particular, the advantages of leaving capital income untaxed may not materialize if markets are incomplete or there are liquidity constraints – for example, losses from taxing capital must be weighed against the losses suffered by constrained individuals from taxing labour *instead* of capital.

Erosa and Gervais (2002) show that it may be optimal to impose a positive tax on capital income. This is because an individuals' optimal consumption-work plan can vary over the life-cycle, and governments pursuing economic efficiency as a goal would therefore want to make use of age-based consumption and labour income tax rates. If these are not available, then capital taxes may be efficient. In a well-known paper, Conesa *et al.* (2009) use an OLG model to estimate optimal capital and labour income tax rates in the US. The model assumes

that individuals face permanent productivity differences and uninsurable idiosyncratic income shocks, which the authors conclude leads to an optimal capital income tax rate of 36 percent. Since true age-based consumption and labour-income tax rates are politically impractical, the positive capital income tax rate acts as a second best solution.

In the present context, however, the most important implication of this research is that means testing now can be rationalized on economic efficiency grounds. That is, a retirement income transfer with a means test on capital income or assets can act as a tax on capital. In fact, such a means test is better targeted than a standard capital income tax since it is effectively an age-based tax, directly addressing the complementarity between retirement saving and retirement leisure.

So far as we are aware, no country has drawn on the age based tax literature (e.g., Alvarez et al 1992, Erosa and Gervais 2002) to inform the construction of means test withdrawal rates. Indeed, there are variations of taper that could be investigated, including rates that depend on the value of assets and age of benefit recipient. The literature itself is deficient in this field. To take just one example, to the authors' knowledge, no study has investigated economic effects of non-linear taper rates.

Some research suggests that economic efficiency is better served by withdrawal rates which are quite significant. An early study by Sefton et al (2008), focused on the UK pension system, suggested a "desirable" withdrawal rate of about 40%. Kumru and Piggott (2010), using an overlapping generations model incorporating liquidity constraints and stochastic wages, found efficiency improvements from even higher taper rates. These findings contrast with the partial equilibrium analysis of high taper rates examined in isolation from interactions with the economy as a whole and its taxation system, which typically suggest that lower taper rates are welfare-improving. Hence the research agenda is lengthy.

Compulsory participation?

Mandating retirement saving can be justified by appeal to economic efficiency on two grounds. First, if retirement transfers are to be provided to less well-off households in retirement, then some form of mandatory saving will offset free-riding behaviour induced by the transfer (Hayek 1960). Second, there is much evidence that people under-save for retirement, relative to what would be predicted by a standard life-cycle model as optimal. Behavioural economics and finance attribute departures from this benchmark not only to lack of competence, but to inertia, confusion, short-termism, and lack of self-control (Mitchell and Utkus 2003). In such circumstances, mandating contributions can be seen as efficiency-improving.[16] Mandatory contributions were successfully implemented in Australia in part because no mandatory contributory pension plan had been previously in place. Where a contributory earnings-related social security system already operates, mandating savings is a more problematic option.

In many countries, enrolment in an earnings-related pension offered by an employer is not mandatory, which affects coverage. An international comparison of private pension coverage shows that countries with voluntary enrolment into private pensions have consistently lower levels of participation (Figure 9A).

In place of mandating savings, policymakers are increasingly seeking to use inertia and procrastination by developing defaults related to enrolment and other choice parameters. Some countries such as New Zealand have found success in auto-enrolment, where a new employee is automatically enrolled to contribute to a private pension unless they actively opt-out. In the UK, auto-enrolment for occupational pensions was proposed in 2008 and recently implemented. Johnson et al. (2010) submitted a further series of recommendations aimed at

making auto-enrolment work in the UK, including changes to eligibility thresholds, portability, and flexibility around re-enrolment. There have also been recent calls in the UK to introduce auto-escalation policies, where the rate of contribution increases over time or is contingent on a future pay-rise.

Some employers in the US are also beginning to use such strategies (Figure 9B). These have been shown to work well in the US setting. Madrian and Shea (2001) found that 401(k) enrolment was significantly higher under auto-enrolment, and that defaults related to contribution rates and investment mix had a substantial influence on changing saving patterns.

FIGURE 9 HERE

Defaults in Australia focus on fund and portfolio choice. A 2010 review of the Superannuation Guarantee (Cooper, 2010) recommended that each fund develop a default investment portfolio. This recommendation was made in the context of compulsory enrolment for all employees, and a minimum contribution as a percentage of wages.

Table 1 shows how a range of countries position policy with regard to choice, within a context where membership of a DC plan is either mandatory or effectively so. Minimum contributions are therefore also mandatory. However, there is considerable variation in the extent of suggestion and persuasion with regard to fund allocation, choice of provider, and benefit. Interestingly, none of these countries promotes taking advice through default settings.

TABLE 1 HERE

Defaults are now seen as a policy instrument. But because individual circumstances vary so much, standard defaults can be crude and sometimes mis-calibrated. In principle, the Australian model allows defaults to be determined on an individual basis, taking wealth,

salary, age, and other information held by the pension fund into account, although in practice, only age is taken into account within a fund's default settings. Auto-enrolment, auto-investment, auto-escalation of contributions, and auto-annuitisation, are all possible design settings that should be considered when designing and evaluating a well-structured DC pension plan. For the private sector, these are also important human resource management strategies (Mercer, 2013).

Public Employee pensions.

For a substantial minority of Australian workers, the Superannuation Guarantee had no immediate consequence, because they were already members of a public employee pension plan. In the US, solvency issues have become critical in many state plans and a source of fiscal stress at the state level (Novy-Marx and Rauh, 2012). In some countries, particularly emerging economies such as India and China, rapidly aging populations have exacerbated the issue of financing civil service pensions, which are sometimes seen as a source of fiscal stress on their own.

Public sector pensions in Australia are unusual: currently all new members of public sector schemes (except the judiciary and the military) are enrolled in defined contribution plans. While many countries still offer final salary schemes to public sector workers, over the past 20 years Australia has transitioned these from unfunded or partially funded DB to fully funded DC schemes. Admittedly, legacy costs are large, totaling about 15% of GDP. However, projections see these declining over time (Bateman and Piggott 2011b).

A recent comparison of Australian and US sub-sovereign pension credit risk commends the switch of Australian states and territories to the more predictable and less risky DC plans (Moody's, 2013). Australia also adopted more conservative discount rate assumptions tied to government bond rates. Such policies have contributed to the fact that,

according to Moody's, all Australian states (and the Northern Territory) have the highest available credit ratings of AAA or AA1, compared to only 29 or 60% of US states.

Bateman and Piggott (2011) argue that the introduction of the Superannuation Guarantee in the private sector provided the impetus for reform of public sector pensions. It is part of a long term trend of private and public sector workers becoming subject to similar policies: as the framework for Superannuation Guarantee developed, it was natural that workers from both sectors were subject to it.

The main remaining challenge for public sector Superannuation funds in Australia is dealing with the unfunded liabilities of the now-closed pay-as-you-go schemes across the Commonwealth, State, and Territory governments (Bateman and Piggott, 2011). This challenge is being addressed via legislation stipulating regular contributions that will see a gradual fall in unfunded liabilities. In addition, specific funds have been established to finance future liabilities that will come due at a time period when population ageing is likely to place significant pressure on government budgets. For example, the Commonwealth government established the Future Fund in early 2006. Sometimes referred to as Australia's 'sovereign wealth fund', the Future Fund is expressly devoted to financing previously unfunded Superannuation liabilities of Commonwealth government employees (including defence personnel). The arms-length Future Fund was started with contributions from budget surpluses as well as large asset sales, particularly the sale of the previously government-owned telecommunication company, Telstra.

Conclusion

This chapter has outlined Australia's somewhat idiosyncratic system of retirement provision, with its means-tested, flat-rate Age Pension along with mandatory, pre-funded income replacement. We have also related that structure to the US experience. We speculate

that some limited means testing of Social Security might be possible, reducing the system's unfunded liabilities. Although the structure is unusual, Australia is not alone in having a means-tested social pension at the heart of its retirement structure: Denmark is another. Canada moved some distance towards this structure by legislating a tax claw-back of its basic pension, payable by the affluent; this is a possible implementation mechanism which would leave social security entitlements intact.

Mandatory pre-funded pension contributions seem a more difficult reform to implement in an environment which already delivers graduated Social Security benefits. Defaults appear to be expanding 401(k) plan membership in the US. It may be possible to contemplate an initiative such as the UK's by mandating auto-enrolment, at some acceptable contribution rate. Changes in private sector pension provision may make reforms of public sector pensions more palatable.

[1] In practice Age Pension payments are counted in assessable income but the senior and pensioners tax offset means that it is effectively tax-free

[2] The idea of 'three pillars' originated in the seminal World Bank publication 'Averting the Old Age Crisis' (World Bank, 1994), and has also been used in OECD analysis (e.g., OECD, 2013).

[3] It may only be available subject to a means test, since its function is to ensure the elderly are adequately provided for.

[4] The discussion of Australia's retirement income system draws on Bateman and Piggott (2011a) and Bateman (2011).

[5] An Age Service Pension is available to veterans. It is paid on the grounds of age or invalidity, and to eligible partners, widows and widowers. Benefit level is the same as the Age pension and the means test also applies. The access age is 60.

[6] Recipients of the Age Pension also gain access to other benefits such as subsidised medication and assistance with rent.

[7] Announcements made in the 2014 Australian Government budget foreshadow a future change in indexation of benefits to prices only. This would undermine the relative importance of the Age Pension in Australia. Projections presented in this chapter assume the Age Pension retains its' long term value relative to wages.

[8] Age Pension access age for women increased from 60 to age 65 by 2014. Subsequent increases to age 67 will apply to both males and females. Announcements made in the 2014 Australian Government budget foreshadow a future rise in the Age Pension access age to 70.

[9] The Superannuation Guarantee has not yet fully matures – the initial 9% contribution target was phased in, and applied from 2002.

[10] See Bateman and Piggott (1997, 1998) for a detailed discussion of the historical evolution of the Australian system.

[11] A poverty line at 40% of population-wide median income approximates the relevant poverty threshold used by the US government while allowing for comparability across countries. In 2010, the official US poverty thresholds for households with one and two older people were 36% and 45% of median (unequivalised) income, respectively (authors' calculations based on OECD, 2014, and US census data).

[12] Note that the comparison of expenditure does not include tax expenditures. In both cases spending on disability pensions are included.

[13] This material draws heavily on Piggott *et al*. (2009).

[14] For a discussion of links between redistribution and incentives see Robalino *et al*. (2008).

[15] This point was first made by Blinder and Rosen (1985). Sefton *et al.* (2008) makes the same point in the context of means-tested pensions in the UK.

[16] While Strotz did not explicitly mention retirement saving, he understood clearly the role of commitment devices: "We are often willing even to pay a price to pre-commit future actions (and to avoid temptation)."

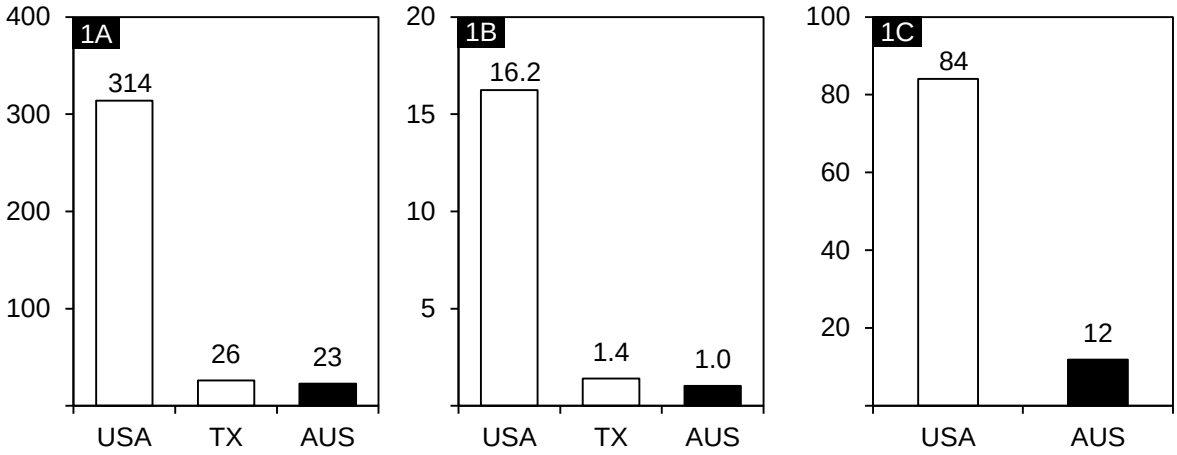

Figure 1. Comparison of population, economy, and government budget: (1A) Total population, 2012 (millions); (1B) GDP, 2012 (USD, PPP, trillions); (1C) Government debt, 2012 (% of GDP). *Source*: OECD (2014); IMF (2014)

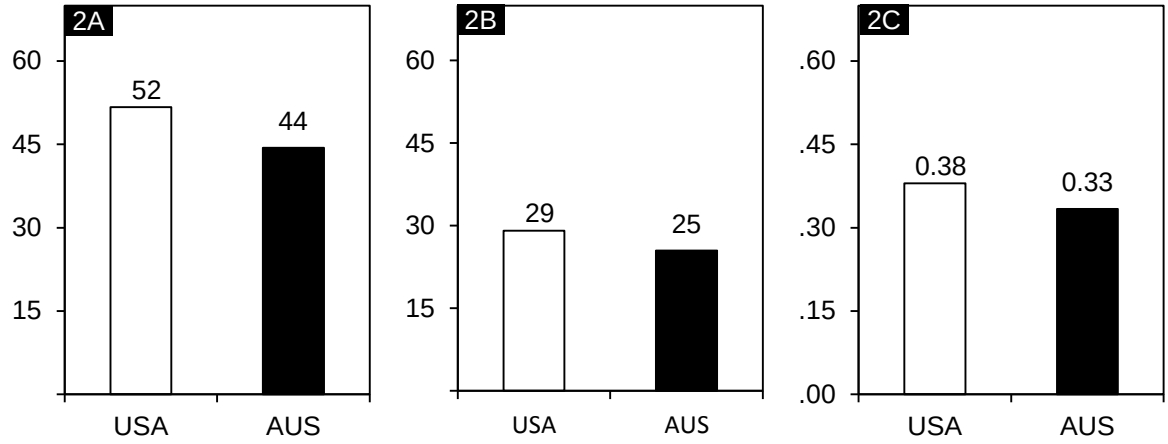

Figure 2. Comparison of population incomes: (2A) GDP per head, 2012 (USD, PPP, thousands); (2B) Median income, 2010 (USD, PPP, thousands); (2C) Disposable income inequality, 2010 (Gini) *Source*: OECD (2014)

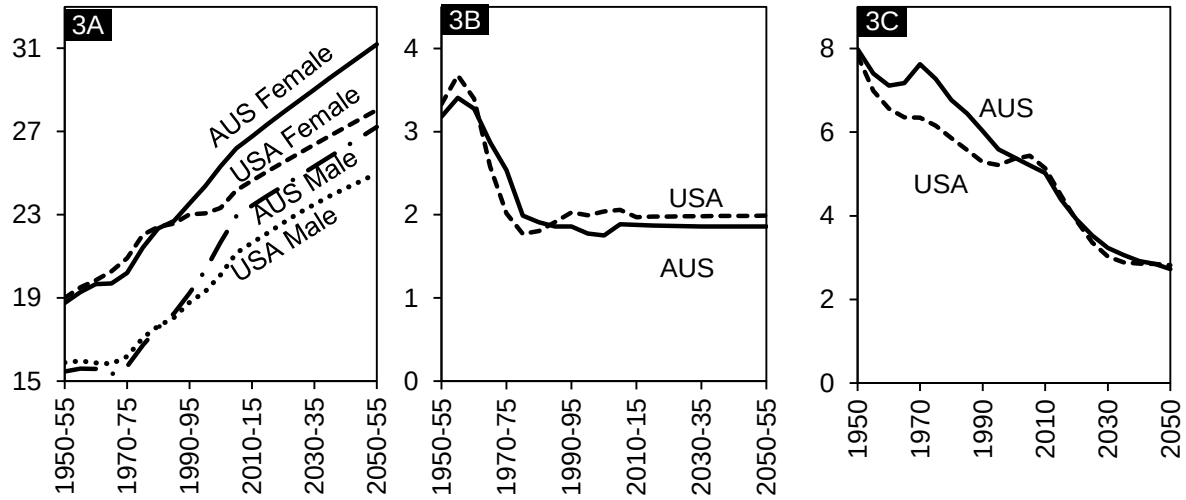

Figure 3. Comparison of demography: (3A) Life expectancy at age 60 (average years remaining); (3B) Total Fertility Rate (No. of children per woman); (3C) Support ratio (age 15-64 / 65+). *Source*: UN (2013)

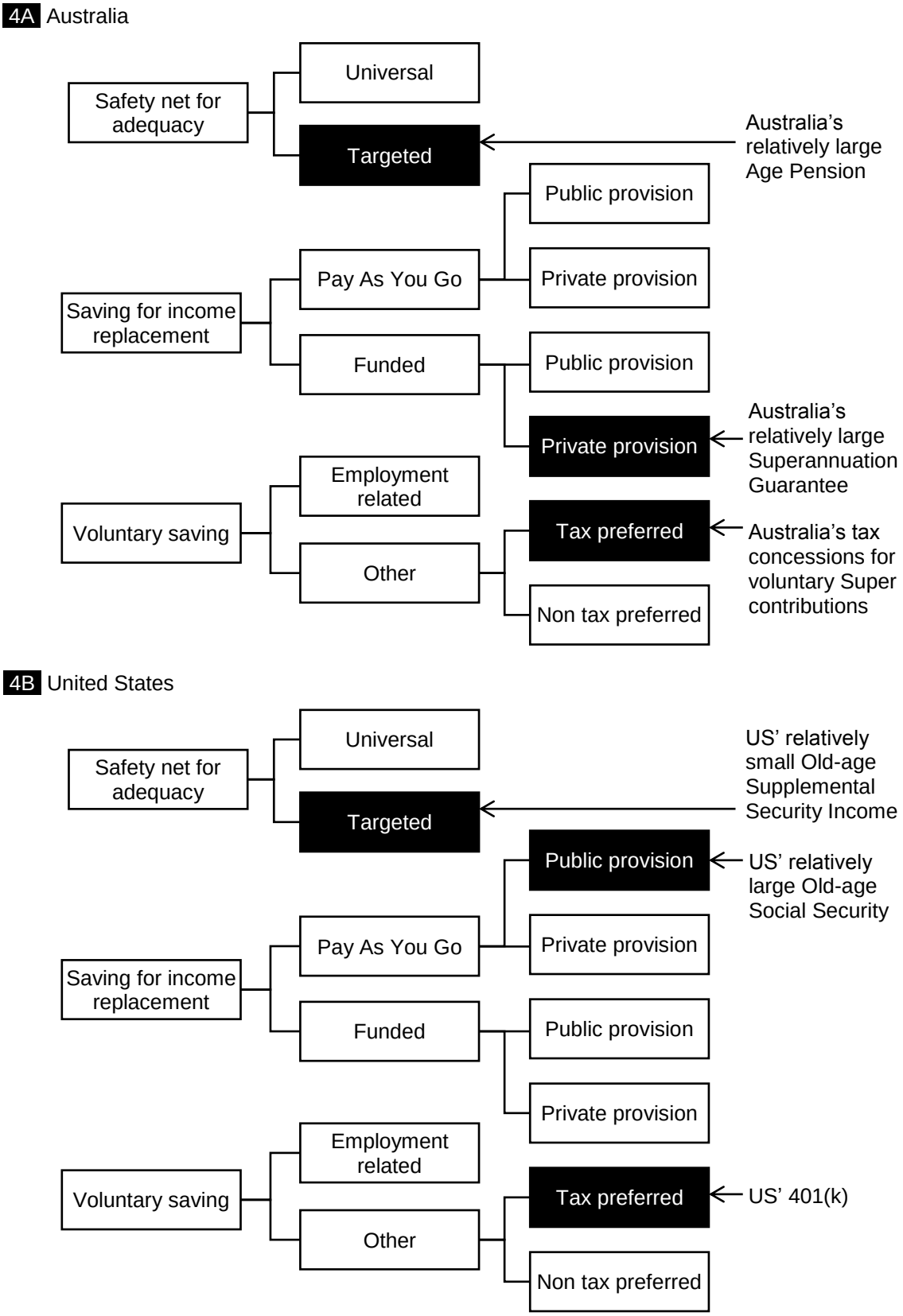

Figure 4. Comparison of pension system structure. *Source*: Adapted by authors

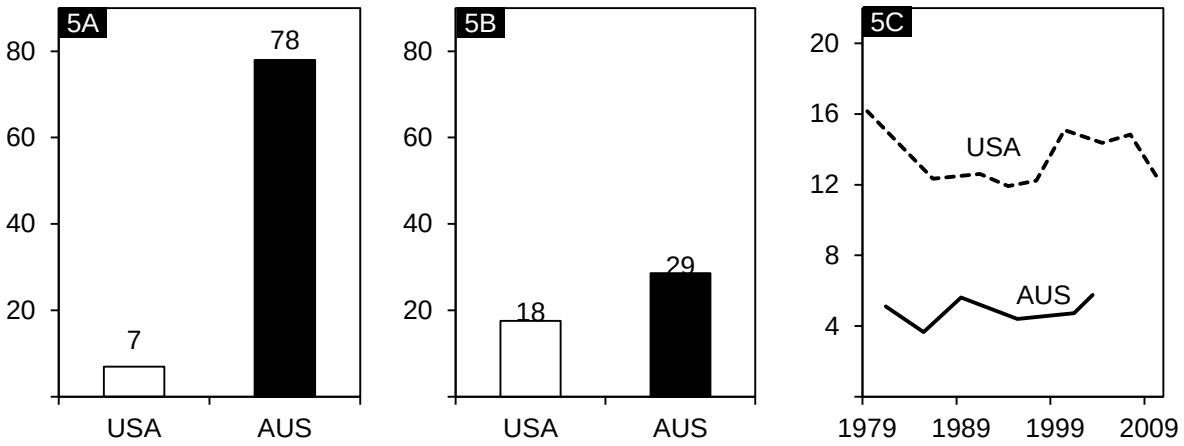

Figure 5. Comparison of targeting and poverty: (5A) Coverage of targeted pension (% of those aged 65+); (5B) Value of targeted pension scheme (% of average earnings); (5C) Old age poverty (ages 65+, % below 40% of population median income). *Source*: OECD (2013); LIS (2014). *Note*: More recent comparable data for old-age poverty in Australia is unavailable but it is worth noting that the value of the Age Pension was increased considerably in 2009.

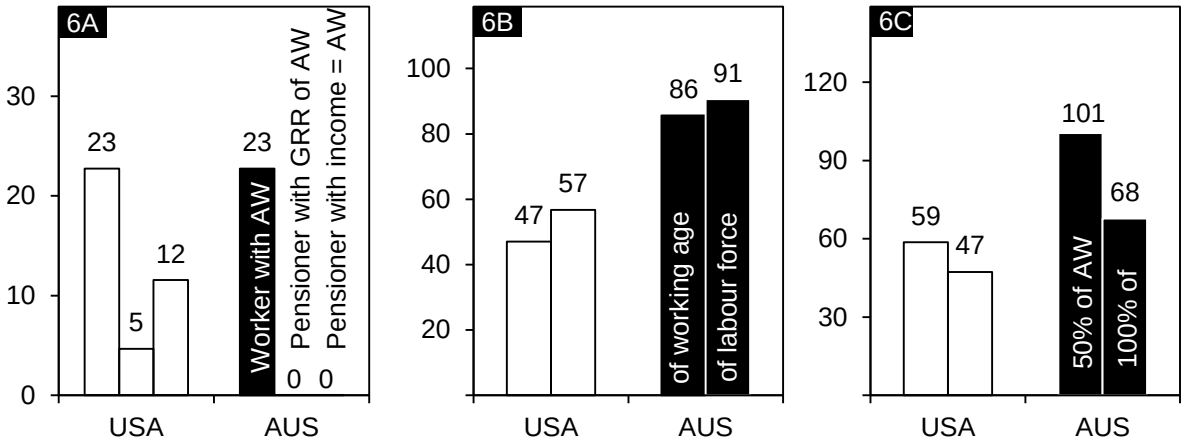

Figure 6. Comparison of income replacement: (6A) Income tax and contributions for workers and pensioners (% of income); (6B) Coverage of private pensions (%); (6C) Net replacement rate for worker on 50% and 100% of average wage (in %). *Source*: OECD (2013). *Note:* AW denotes average wage. GRR denotes gross replacement rate.

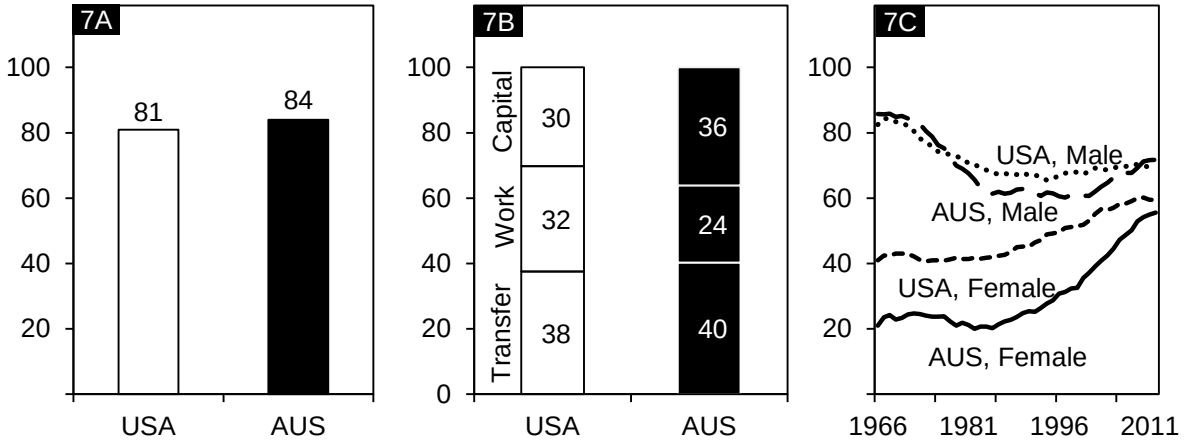

Figure 7. Comparison of alternate sources of income: (7A) Home ownership for ages 65+, 2011 (%); (7B) Income sources for ages 65+, late 2000s (%); (7C) Labor force participation for ages 55-64, 1966-2012. *Source*: OECD (2013, 2014).

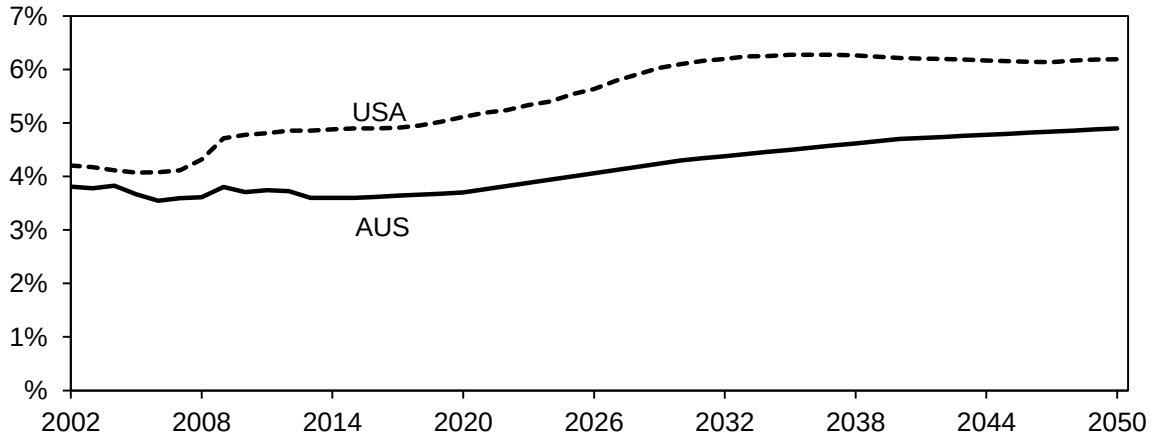

Figure 8. Comparison of fiscal projections: Central government expenditure on age-related pensions, 2002-2050 (% of GDP). *Source*: Australian Treasury (2010); CBO (2013)

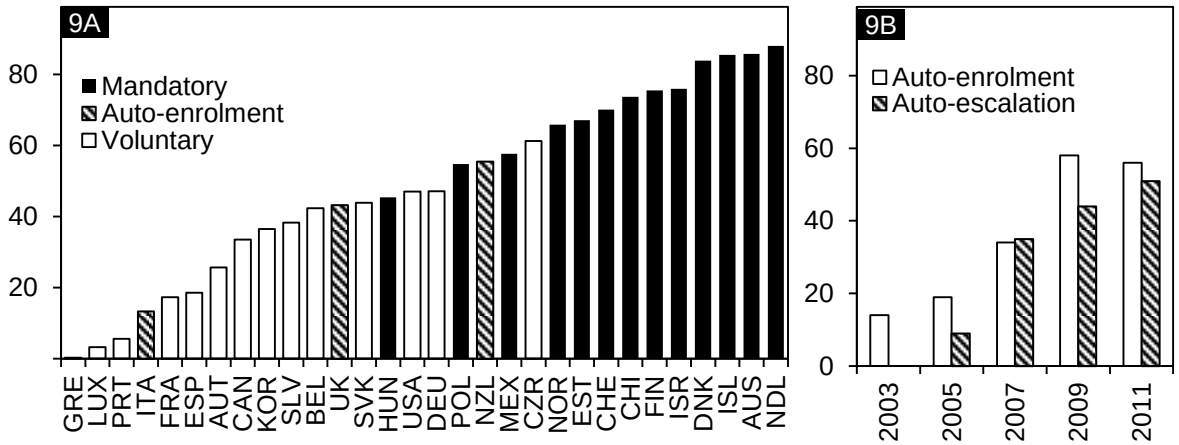

Figure 9. Comparison of coverage rates of private pensions: (9A) Proportion of working age population covered by private pensions, by enrolment type, 2011 (%); (9B) Proportion of US employers offering auto-enrolment (and auto-escalation), 2003-2011 . *Source*: UN (2013); Bernartzi and Thaler (2013). *Note*: The UK introduced automatic enrolment after the data for 9A was collected; 9B data may over-estimate rates given focus on larger plans / employers.

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Appendix

Table A1. Comparison of pension system parameters, 2013-14

	Australia (AUD)			United States (USD)		
Pillar	**First Pillar**	**Second Pillar**	**Third Pillar**	**First Pillar**	**Second Pillar**	**Third Pillar**
Scheme	Age Pension	Super-annuation Guarantee	Voluntary Superannuation	Old-age Supplemental Security Income	Old-age Social Security Pension	401(k) as described below (DB workplace schemes not described)
Established	1909	1992	1850s	1972	1935	1978
Residence	Yes (min 10 years)	No	No	Yes	Yes	Yes
Access age w/o penalty	65 (67 by 2023)	60	60	65	66 (67 by 2027)	59.5
Early access with penalty	No	Yes	Yes	No	Yes	Yes
Coverage	Means-tested (lower amount of income and asset test)	Mandated contributions for employed aged 18-75 with earnings > $0.45k / month	Voluntary	Means-tested (meets income and asset tests)	Mandated for employed and self employed	Voluntary
Income test	$4k/$7.1k annualised free area for singles/couples, then 50% taper	-	-	$0.78k-$1k annualised free area then 50% taper on earned income; 100% taper on unearned income (e.g. pension)	-	-
Asset test	$197k-422k free area depends on cohabitation / tenure / illness, then annualised taper of $40 per $1k assets	-	-	Must have below $2k / $3k for singles / couples of unindexed liquid asset	-	-
Funding regime	General taxation	Individual funded accounts plus government co-contribution for low income earners	Individual funded accounts plus government co-contribution for low income earners	General taxation	Social insurance pay-roll tax	Individual funded accounts
Contribution level	-	9.25% (employer contribution) of earnings (12% by 2019)	Voluntary	-	12.4% (half employee, half employer) of earnings up to $113,700	Voluntary

Benefit	$19.5k / $29.5k single / couple annualised	Mostly DC, depends on accumulation; Choice of account-based pension, annuity, or lump sum	Mostly DC, depends on accumulation; Choice of account-based pension, annuity, or lump sum	$8.6k / $13k single/couple annualised; can be topped up by states	DB, on avg. 35 highest years of earnings; min 10 years contrib.; implicit annualised max of USD31k	DC, depends on accumulation; Choice of account-based pension, annuity, or lump sum
Spouse / survivor	Different rates for single/couple	-	-	Different rates for single/couple	Spouse gets higher of 50% of wage earner or own benefit	-
Indexation of reference amount	Wages	-	-	Prices	Wages	-
Indexation of benefit in payment	Wages	-	-	Prices	Prices	-
Other benefits / features	Pension supplement, rent allowance, concession card	Vested, portable	Vested, portable	Can be eligible for other benefits	-	Vested, portable
Taxation	Tax exempt	Contributions and investment income taxed at 15%, benefits tax free after age 60	Can elect to have contributions and investment income taxed at 15%, benefits tax free after age 60	Tax exempt	Singles with income $25k-$34k taxed on up to 50% of benefits; income $34K+ up to 85% of benefits	Depends on plan offer of pre-tax annual contribution of $17.5k or post-tax, or combination; investment income tax-deferred

Source: Authors' compilation. *Note*: Announcements made in the 2014 Australian Government budget foreshadow a future rise in the Australian Age Pension access age to 70 and indexation of benefit level to prices;

Table 1. Choice in defined contribution schemes in OECD countries, 2013

	No soft or hard compulsion[a]	Default	Tax preference only	Mandated / highly restricted choice
Enrolment				AUS, CHI, DNK (ATP), DNK (OCCUP), EST, ISR, MEX, NOR[j], POL, SVK, SWE (PPM)
Contribution				AUS, CHI, DNK (ATP), DNK (OCCUP), EST, ISR, MEX, NOR, POL, SVK, SWE (PPM)
Allocation	SVK	AUS, CHI, DNK (Occup.)[e], MEX, EST, NOR, SWE (PPM)		DNK (ATP), ISR, POL
Provider	CHI, EST, SVK	AUS, POL, MEX, ISR		DNK (ATP), DNK (Occup.), NOR, SWE (PPM)
Advice	AUS, CHI, DNK (ATP), DNK (OCCUP), EST, ISR, MEX, NOR1, POL, SVK, SWE (PPM)			
Retirement phase[b]	CHI[c], MEX[h]			AUS[d], DNK (ATP), DNK (OCCUP), EST, ISR, NOR, POL, SVK, SWE (PPM)
Benefit	AUS, MEX[i], SVK[k]	DNK (Occup.)[e]		DNK (ATP), CHI[l], EST[f], ISR[g], NOR[f], POL, SWE (PPM)

Source: Authors' compilation of various sources. Notes: [a] Only actuarial adjustment; [b] For retirement decisions, the existence of a minimum age represents a mandated choice. Country notes: [c] Requires a DC benefit of at least 80% of the maximum targeted benefit and a replacement rate of at least 70%; [d] Tax incentive to delay until 60 until 2024, then mandated to no earlier than 60; [e] Choice with respect to allocation and benefit can differ by scheme and is decided when first becoming a member, but annuities are often the default option; [f] Choice among types of annuities; [g] Once annuity is purchased up to a certain level, left over funds can be taken as lump sum; [h] Members may retire at any age if the accumulated capital in their account allows them to buy an annuity that is at least 30% higher than the minimum guaranteed pension. In this case, the member does not have to complete the 1,250 weeks of contributions; [i] Choice is between phased withdrawal or annuity. Lumps sum can be taken only if 1,250 weeks of contributions is not reached; [j] Employer must pay minimum contribution; employee may contribute but does not have to; [k] Annuity or phased withdrawal. No lump sum. [l] Chile allows restricted choice of phased withdrawal, price indexed life annuity or a combination of withdrawals and immediate or deferred annuity, while lump sums are allowed for funds beyond those required to provide a specified level of pension.