

Australia's Older and Wealthier Future

An ageing population need not lead to lower living standards, but it does raise issues of intergenerational equity argues
Ross Guest

There are signs that people are beginning to see the truth about the macroeconomic costs of population ageing. The truth is that the costs will be modest and will be swamped by several factors that will ensure rising living standards over the coming decades. A number of recent studies have suggested as much. In the Autumn 2004 issue of *Agenda*, Creina Day and Steve Dowrick¹ come to this view by extending the arguments put forward by myself and Ian McDonald.² These are Australian studies but a similar message for other countries is to be found in highly readable books such as *The Demographic Dividend* (2002) and *The Overselling of Population Ageing* (2000).³

In this article I will try to explain why the macroeconomic costs of population ageing in Australia over the next few decades will be modest and why there is not a strong case for government

policies that aim to either increase fertility or increase national saving on account of population ageing. I will also argue that we need to broaden future intergenerational reports (IGR) to include an explicit model of intergenerational equity.

Population ageing

Population ageing can be illustrated by the familiar time series in Figures 1 and 2. Figure 1 shows the youth dependency ratio steadily falling and the old age dependency ratio steadily rising from 1971 to 2051, with the rate of increase in old age dependency noticeably gathering pace at around 2010. This is also the point at which there is a

Ross Guest is a Professor of Economics and Director, Graduate School of Management, Griffith Business School, Griffith University.

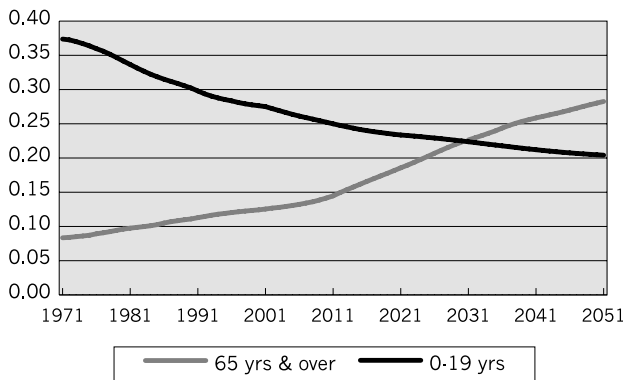
slight slowing in the decline in youth dependency. The net effect of these two dependency ratios is reflected in the ratio of the working age population to the total population (Figure 2).

As an indicator of the number of potential workers to the number of consumers, this ratio is a very rough indicator of the economic burden of population ageing. It can be improved by adjusting it for various factors, one of which is the different consumption needs of young and old people, with old people having considerably higher consumption needs due to their higher medical expenses. This is illustrated by the 'adjusted' series in Figure 2, using typical consumption weights of 0.72 and 1.27 for young and old people respectively.⁴ It could be further refined by using productivity-weighted employment instead of the working age population by adjusting the latter for age-specific labour force participation rates and an index of age-specific productivity levels.⁵ The adjusted ratio is known as

Future reductions in the proportion of the population of working age will lead to a reduction in labour supply relative to demand, which will in turn raise wage rates. This is likely to increase labour market participation rates.

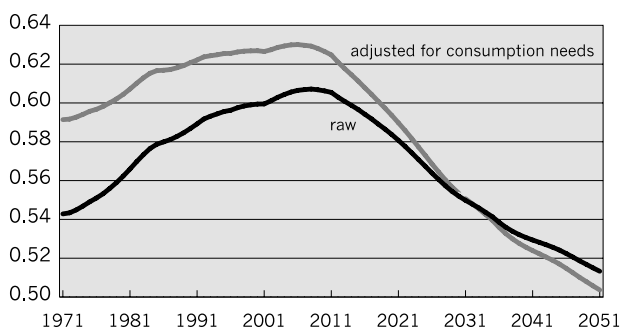
Figure 1: Dependency ratios

Ratios to total population



Data source: Ausstats

Figure 2: Ratio of working age population to total population



Data source: Ausstats

the support ratio⁶ and for most developed countries exhibits a hump-shaped pattern like that shown in Figure 2 for the post-war period, projected to 2050.

For Australia the hump in the support ratio peaks in the period 2000-2010. This indicates that Australia is currently enjoying a demographic dividend from the falling post-war fertility rate. The decline in the support ratio over the next few decades represents the unwinding of the reductions in total dependency that occurred in the early phase of the transition from a high to a low fertility rate. The popular discourse on population ageing focuses on this decline, drawing inferences about the effect on living standards, national saving and tax rates required to finance social expenditure.

Why the macroeconomic costs of ageing will be modest

Most analyses of the macroeconomic effects of population ageing adopt simple extrapolations of past trends in key variables like labour force participation rates (LFPRs) and total factor productivity. The IGR does this and it is not a bad assumption for variables where there is no strong evidence to the contrary.

However, there are reasons to expect labour force participation rates to increase substantially for women and older workers as pointed out by several leading researchers⁷ and two of Treasury's own economists.⁸ This will occur because of the huge improvements in educational attainments of women, and changes that are already underway with regard to social attitudes to older workers and the removal of impediments that make it difficult for older people to remain in the workforce (witness recent changes to superannuation rules). Also, future reductions in the proportion of the population of working age will lead to a reduction

in labour supply relative to demand, which will in turn raise wage rates. This is likely to increase LFPRs, especially of older workers if they choose to delay their retirement as an optimal response to higher wages.⁹ The LFPRs of older workers are also likely to increase simply because they are living longer, healthier lives and because work is less physically demanding.

Then there is the effect of population ageing on productivity growth. This is a crucial yet controversial link. It is crucial because almost all of the long run growth in living standards results from productivity growth. It is controversial because population ageing, to the extent that it is caused by lower fertility, can in theory have both positive and negative effects on productivity growth. Negative effects can be due to: (i) less innovation because slower population growth reduces the gains from economies of scale and because a smaller share of young people in the population implies a loss of 'dynamism' in the labour force; (ii) less human capital accumulation and therefore a lower growth rate of labour productivity.¹⁰

On the other hand, positive effects can occur if: (i) parents with fewer children tend to spend more on education per child, which raises human capital accumulation;¹¹ (ii) slower labour force growth implies a higher relative price of labour and therefore greater incentive to innovate through capital investment; (iii) diseconomies of higher population growth, through congestion for example, reduce labour productivity growth.

The weight of empirical evidence suggests that positive effects outweigh the negative effects—that is, slower population (and labour force) growth boosts productivity growth.¹² So what should we conclude about productivity growth for Australia in the face of population ageing over the coming decades? Over the past three decades, Australia's labour productivity growth rate has averaged 1.75% per annum on Treasury's estimates.¹³ It seems reasonable to conclude, on the basis of the evidence and arguments presented above, that over the next few decades slower labour force and population growth will not reduce this growth rate substantially and may even boost it. Let us be conservative—perhaps pessimistic—and assume labour productivity growth of 1.5% per annum

on average over the foreseeable future. This is the assumption that Ian McDonald and I have adopted in our studies.¹⁴ We have also assumed that LFPRs will remain at their current levels—an extremely conservative assumption given the discussion above. Our calculations show that living standards will be around 80% higher in 50 years time than they are today. In the absence of population ageing living standards would be more than 100% higher in 50 years time. Hence the cost of population ageing in terms of living standards over 50 years is about 20%, but this is 20% of a level that is twice as high as it is today.

These results largely reflect the power of compound growth in labour productivity but there is a bit more to it than that. To see this, note that average living standards are the product of four variables: (i) the consumption share of GDP; (ii) GDP per worker; (iii) the aggregate worker to population ratio; and (iv) a weight that reflects how the consumption needs of the population change as the population gets older. If we multiply all these variables together we get average living standards. So how does population ageing affect these variables and therefore living standards?

The cost of population ageing in terms of living standards over 50 years is about 20%, but this is 20% of a level that is twice as high as it is today.

Population ageing lowers living standards through variables (iii) and (iv). The first of these is a dependency effect which is reflected in a lower worker to population ratio, which in turn is the net effect of a lower share of young people and a greater share of older people in the total population; the second is a consumption needs effect—that is, an older population has higher consumption needs. Against this, population ageing tends to raise living standards through variable (i) and, probably, through variable (ii). The first of these is the effect of a more slowly growing workforce. Fewer new workers mean less demand for capital to equip the new workforce. For example, fewer new workers in the office means fewer personal computers are required. This

means less of the nation's output must be set aside for investment and therefore more is available for consumption. The effect working through labour productivity, variable (ii), is positive to the extent that productivity is boosted by population ageing, which it probably is, although this is a more controversial argument as discussed above. Of all these effects the dependency effect is the strongest and produces a net drag on living standards from an ageing population.

The popular perception is that the costs of population ageing would be alleviated if women were to have more babies. But in fact, if we increased fertility the costs of demographic change would be higher, not lower, for the next 30 years or so, until the higher birth cohorts arrive in the labour force.

However, these effects are swamped by the boost to living standards from the power of compound growth in labour productivity, variable (ii), that is due to technological progress and will occur irrespective of population ageing. In fact, far from requiring our conservative assumption of 1.5% annual growth in labour productivity to maintain living standards in the face of population ageing, it would require only 0.3% annual growth in labour productivity to outweigh the net negative effect arising from the other sources. In summary, if productivity growth continues at anything like its historical trend, the positive effect on living standards will far outweigh any negative effect from population ageing.

Why policy responses directed at the fertility rate or the national saving rate are misplaced

Is there a case for welfare policies that aim to boost the fertility rate, such as the baby bonus policies of both the Government and the ALP?

The popular perception is that the costs of population ageing would be alleviated if women were to have more babies. But in fact, if we increased fertility the costs of demographic

change would be higher, not lower, for the next 30 years or so, until the higher birth cohorts arrive in the labour force. The Treasurer, Mr Costello, has himself made this observation.¹⁵ So the question then is whether lower living standards over the next 30 years are worth the payoff of higher living standards thereafter when the higher birth rate cohorts reach the labour force. Recall the compounding effect of labour productivity growth. If living standards grow at a conservative 1.5% per annum, people in 30 years time will have living standards that are 56% higher than those alive today.

This question can be rephrased: is there a case on intergenerational equity grounds for reducing the welfare of the current generation to boost the welfare of future generations who would be 56% better off anyway? No, one might argue, provided that people *feel* better off as their consumption rises. Just because people in the future will have a higher level of consumption doesn't necessarily mean they will feel better off and therefore their higher consumption should not be discounted by policy-makers today. They may not feel better off because their reference level of consumption, which is the consumption of everyone else in their neighbourhood, country and overseas, has also risen. This is a question of intergenerational equity and social choice that goes to the heart of the debate about the policy response to population ageing. It is perhaps time to develop an intergenerational social contract that specifically addresses these questions (more on that below).

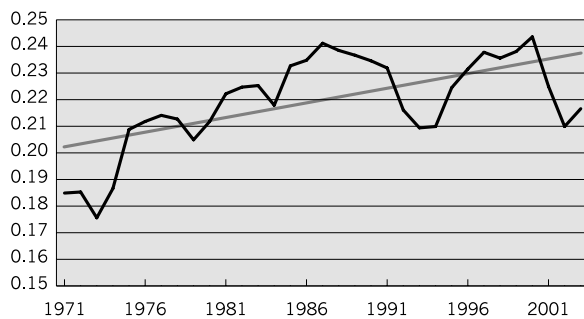
The same question of intergenerational equity arises in deciding how to distribute the tax burden of population ageing over time and therefore over generations. The view taken in New Zealand is to smooth the tax burden evenly across present and future generations by establishing the New Zealand Superannuation Fund. The idea is to raise taxes today in order to generate budget surpluses which are deposited into the Fund and are available to finance the higher cost of ageing tomorrow. The efficiency argument in favour of doing this is that smoothing taxes over time minimises the social costs that arise from varying tax rates. The case for doing this on equity grounds is less clear however. One could argue for a tax-tilting approach, whereby the average tax rate is

tilted gently upward over time, on the basis that future taxpayers will have a greater capacity to pay and therefore should bear a greater tax burden.

Would rising tax rates lead to a taxpayer revolt or intergenerational disharmony? On the IGR's calculations the demographically-induced rise in average tax rate over the next 40 years is 5%. Given the pessimistic assumptions behind this number it can be regarded as an upper limit of plausible outcomes. Let us put a rise of this magnitude into historical perspective. Figure 3 shows total Commonwealth taxation as a share of GDP from 1971 to 2003. Removing the cyclical swings due to recessions and booms, the trend line shows that the average tax rate has increased by 4% over the last 32 years. Over this time average living standards have increased by about 70%. This suggests that very gradual rises in tax rates in the context of rising real after-tax incomes are not a recipe for a taxpayer revolt. Certainly, taxpayers get annoyed about bracket creep, but perhaps this is because it is seen as a trick by politicians in order to pay for phoney tax cuts and provide funds to buy out sectional interests. The reaction might be different if bracket creep was presented as part of an intergenerational contract to be used specifically to offset the costs of population ageing while still allowing after-tax incomes to rise, albeit not as fast as they would have otherwise. Having said that, bracket creep would not be the best way of achieving such a social contract.

Policies designed to boost the national saving rate, such as increases in compulsory superannuation or rises in taxes, can be critiqued along similar lines. The case for raising saving now in order to smooth out consumption and saving

Figure 3: Commonwealth taxes to GDP, ratio



Data source: Ausstats

over time should be made according to an explicit view of intergenerational equity.

A broader framework for future intergenerational reports

We need, therefore, a broader framework for future intergenerational reports that includes an explicit model of intergenerational equity. A model of intergenerational equity would allow judgements about the appropriate degree of tax tilting and tax smoothing.¹⁶

Removing the cyclical swings due to recessions and booms, the trend line shows that the average tax rate has increased by 4% over the last 32 years. Over this time average living standards have increased by about 70%.

Tax tilting refers to the path of average tax rates over time. The path can be upward-sloping, downward-sloping or flat. An upward-sloping path means that future generations bear the greater burden and a downward-sloping path means that current generations bear the greater burden. A flat path means that present and future generations share the tax burden of population ageing equally. The latter seems to be the dominant view among policy makers and commentators, though it is rarely expressed in terms of a coherent view of intergenerational equity. For example, the IGR states (p.15) one of the objectives of the Government's medium term fiscal strategy as 'not increasing the overall tax burden from its 1996-97 level'. This seems to advocate a flat path of tax rates in the long run.

An evaluation of the notion of tax tilting involves more than simply judgements about whether increasing levels of consumption per capita constitute improvements in subjective well-being. There are deeper philosophical questions. For example, people's capacities to derive well-being from a given level of consumption are not the same. Nobel prize-winner Amartya Sen argues that a person in poor health or with a physical handicap requires more consumption of health services to

An economically efficient distribution of the tax burden over time is one that minimises the distortionary effects of taxation on economic activity—in particular, the work disincentive effects of taxation.

achieve a given level of ‘functioning’ than does a healthy person; or, equivalently, achieves less well-being from a given level of consumption.¹⁷ It would follow that because older people tend to have worse health outcomes than younger people, they would tend to have less capacity for well-being from a given level of consumption, and require greater health expenditures (defining these as consumption expenditures) in order to achieve given ‘functionings’.

Such a view has implications for the distribution of the tax burden of population ageing over time. If we want to achieve a more equal distribution of functionings then we would shift the tax burden towards the present when there is a lower proportion of older people and away from the future when there is a higher proportion of older people. This would be consistent with Sen’s view of social justice and also with that of John Rawls.¹⁸ However, a Benthamite, following the philosophy of Jeremy Bentham,¹⁹ would argue for maximising aggregate well-being over time. This is achieved not by giving more to people who need more to achieve a given level of well-being, but rather the reverse; that is, giving more to people who can derive more well-being from a given level of consumption. According to this view, we would shift the tax burden toward the future when there is a higher proportion of older people who are less ‘efficient’ at generating well-being.

These considerations of equity have to be weighed against the efficiency argument for tax smoothing. An economically efficient distribution of the tax burden over time is one that minimises the distortionary effects of taxation on economic activity—in particular, the work disincentive effects of taxation. The IGR does not discuss the concept of tax smoothing but it is implicit in the stated objective of ‘a reasonable degree of stability in the overall tax burden’.²⁰

The fundamental point is that Treasury is in the business of making judgements about intergenerational equity. These judgements are implicit in its decisions about how to distribute the tax burden from population ageing over time. So far, Treasury has been coy about making such judgements explicitly. It is important, however, for intergenerational harmony and policy consistency that a view about intergenerational equity be incorporated explicitly into future intergenerational reports.

Endnotes

- ¹ C. Day and S. Dowrick, ‘Ageing Economics: Human Capital, Productivity and Fertility’, *Agenda* 11:1 (Autumn 2004), pp.3-20.
 - ² See R. Guest and I.M. McDonald, ‘Would a Decrease in Fertility be a Threat to Living Standards in Australia?’, *Australian Economic Review* 35:1 (2002), pp.29-44; see also R. Guest and I.M. McDonald, ‘Ageing, Immigration and Optimal National Saving in Australia’, *Economic Record* 77:237 (2001), pp.117-134.
 - ³ D. Bloom, D. Canning and J. Sevilla, *The Demographic Dividend* (California: Rand, 2002); E. Gee and G. Gutman (eds), *The Overselling of Population Ageing* (Ontario: Oxford University Press, 2000).
- For a more rigorous theoretical treatment of the impact of demographic change on living standards see, for example, D. Weil, ‘Why Has Fertility Fallen Below Replacement in Industrial Nations, and Will it Last?’, *American Economic Review Papers and Proceedings* (May 1999), pp.251-255; see also D.W. Elmendorf and L.M. Sheiner, ‘Should America Save for its Old Age?: Fiscal Policy, Population Ageing and National Saving’, *Journal of Economic Perspectives* 14: 3 (2000), pp.57-74.
- ⁴ These weights were used in the seminal article by Cutler et al. on the macroeconomic costs of population ageing. D.M. Cutler, J.M. Poterba, L.M. Sheiner, and L.H. Summers, ‘An Aging Society: Opportunity or Challenge?’, *Brookings Papers on Economic Activity* 1 (1990), pp.1-74.
 - ⁵ R. Guest and I.M. McDonald, ‘Ageing, Immigration and Optimal National Saving in Australia’ (see n.2).
 - ⁶ D.M. Cutler et al., ‘An Aging Society’.
 - ⁷ S. Dowrick, and P. McDonald, ‘Comments on Intergenerational Report’, *mimeo* (Canberra: Australian National University, 2002); and R. Guest and I.M. McDonald, ‘Would a Decrease in Fertility be a Threat to Living Standards in Australia?’ (see n.2).

- ⁸ D. Gruen and M. Garbutt, 'The Output Implications of Higher Labour Force Participation', *Treasury Working Paper 2003-02* (Canberra: Commonwealth of Australia, 2003).
- ⁹ Richard Disney, *Can We Afford to Grow Older?* (Cambridge, Massachusetts: The MIT Press, 1998).
- ¹⁰ G. Steinman, A. Prskawetz and G. Feichtinger, 'A Model of Escape From the Malthusian Trap', *Journal of Population Economics* 11 (1998), pp.535-550.
- ¹¹ C. Day and S. Dowrick, 'Ageing Economics', (see n.1).
- ¹² For multi-country studies that find such a relationship, see B. Bernanke and R. Gurkaynak, 'Is Growth Exogenous? Taking Mankiw, Romer and Weil Seriously', *NBER Macroeconomics Annual* (2001), pp.11-57; see also O. Galor and Z. Hyoungsoo, 'Fertility, Income Distribution and Economic Growth: Theory and Cross-Country Evidence', *Japan and the World Economy* 9 (1997), pp.197-229; and A. Ahituv, 'Be Fruitful or Multiply: On the Interplay Between Fertility and Economic Development', *Journal of Population Economics* 14 (2001), pp.51-71. For a study that finds no long run relationship between the fertility rate and the output growth rate using time series data for the United States, see G. Hondroyannis and E. Papapetrou, 'Fertility Choice and Economic Growth: Empirical Evidence from the U.S.', *I.A.E.R.* 5:1 (1999), pp.108-120.
- ¹³ D. Gruen and M. Garbutt, 'The Output Implications of Higher Labour Force Participation' (see n.8).
- ¹⁴ For example, our 2001 and 2002 studies respectively: R. Guest and I.M. McDonald, 'Ageing, Immigration and Optimal National Saving in Australia'; and R. Guest and I.M. McDonald 'Would a Decrease in Fertility be a Threat to Living Standards in Australia?' (see n.2).
- ¹⁵ Reported in the *Australian Financial Review* (16 December 2002), p.4.
- ¹⁶ For a discussion of these two concepts see A. Ghosh, 'Intertemporal Smoothing and the Government Budget Surplus: Canada and the United States', *Journal of Money, Credit and Banking* 27:4 (1995), pp.1033-1045.
- ¹⁷ See, for example, A. Sen, *On Economic Inequality* (Oxford: Oxford University Press, 1997).
- ¹⁸ J. Rawls, *A Theory of Justice* (Cambridge, Massachusetts: Harvard University Press, 1971).
- ¹⁹ J. Bentham, *An Introduction to the Principles of Morals and Legislation* (Oxford: Clarendon Press, 1907).
- ²⁰ Australian Government, 'Intergenerational Report 2002-2003', *2002-2003 Budget Paper No. 5* (Canberra: Commonwealth of Australia, 2002), p.2.

QUADRANT and POLICY

— SPECIAL NEW SUBSCRIBER OFFER! —

Quadrant is Australia's leading intellectual magazine, and is published 10 times a year.

Policy, now in its 20th year of publication, is Australia's *only* quarterly magazine that explores the world of ideas and public policy from a broadly classical liberal perspective.

SPECIAL OFFER! **Policy** and **Quadrant** are now offering a joint subscription rate of **\$89*** if you subscribe to both for a year.

To take advantage of this offer you can

- subscribe online at www.policymagazine.com
- use the subscription card in the middle of this magazine
- contact The Centre for Independent Studies:
PO Box 92, St Leonards, NSW 1590
p: 02 9438 4377 • f: 02 9439 7310 • e: policy@cis.org.au

* This offer is in Australian dollars and is only available to Australian subscribers.

