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Roundup

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Fiscal policy and the current environment

Dr Ken Henry AC[1]
Secretary to the Treasury

The following post-Budget address was delivered to the Australian Business Economists on 18 May 2010.

Introduction

Thank you for the invitation to address you today. This is number ten.

When I last spoke to this group, almost a year ago to the day, Australia was still very much in the midst of a pronounced global downturn.

What a difference a year makes. As we can see from Chart 1, we are emerging from the global downturn considerably faster than we expected in last year's Budget.

Chart 1: Real GDP projection
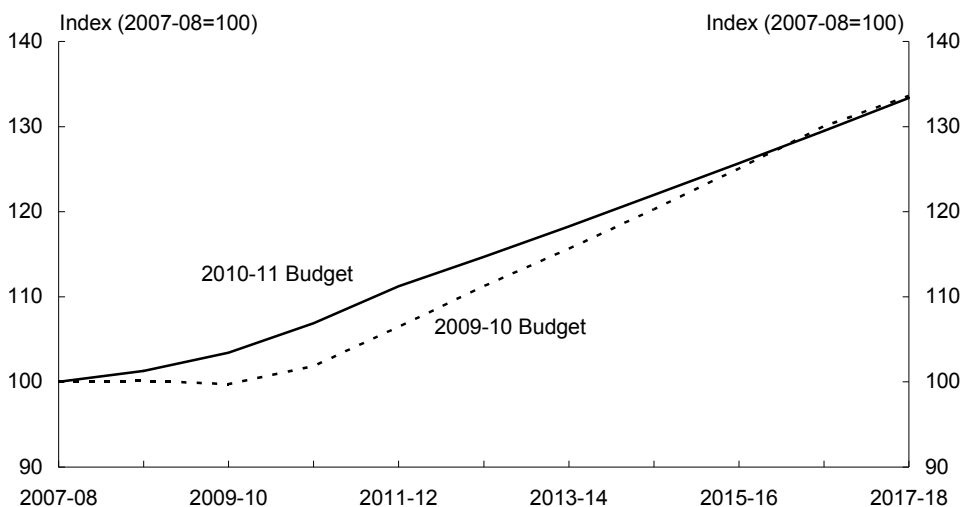
Source: ABS cat. no. 5206.0 and Treasury.

Those of you who were here last year will remember that I spent some time justifying the 2009-10 Budget growth projections against claims that they predicted a period of unprecedented growth and were, therefore, too optimistic.

As the chart shows, we now consider that we were not optimistic enough in the short-run. Of course, that faster short-term growth necessarily implies some moderation in the medium-term growth projections.

Notwithstanding this positive picture, downside risks remain — as recent events in Greece, and Europe more broadly, demonstrate.

That said, the framing of this Budget had a sense of *déjà vu* about it. Australia again faces pre-crisis opportunities and challenges of a near full employment economy and a strong terms of trade driven by high non-rural commodity prices. Tax reform, on which I will say more later, has also been added to the mix.

As you can see from Chart 2, the terms of trade rose sharply from June 2003 onwards. While the terms of trade fell back during the global downturn, they remained well above the long-run average and are now expected to rise again.

Chart 2: Terms of trade

Index (2007-08=100)

Index (2007-08=100)

1960-61 to 2002-03 average

2003-04 to 2008-09

Forecasts
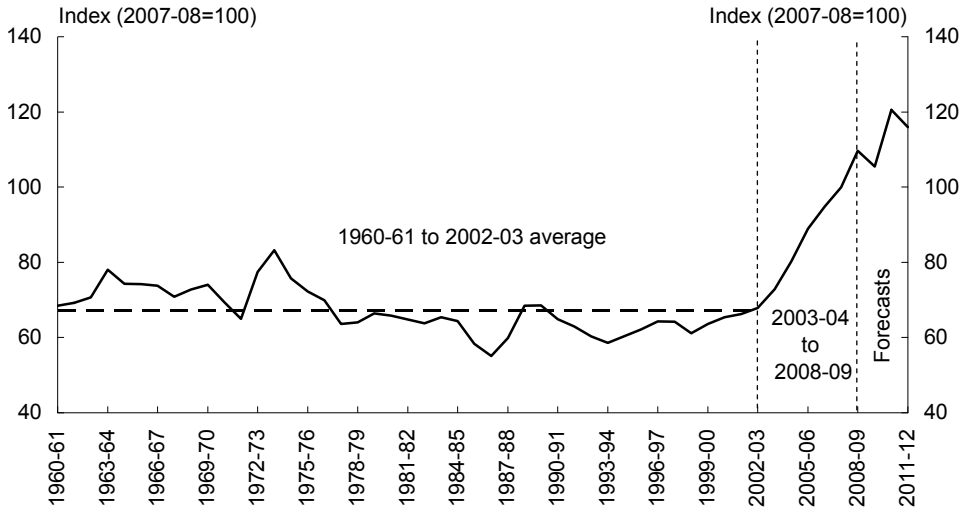
Source: ABS cat. no. 5206.0 and Treasury.

I have spoken a number of times, including to this audience, about the opportunities and challenges associated with a mining sector boom.

At the risk of ruining a perfectly good expression, the net outcome of the so-called resource movement and spending effects associated with an increase in the terms of trade, is a 'three speed economy':

1.   the mining and mining-related sectors grow strongly;

2.   other trade-exposed sectors (like many parts of manufacturing) grow more slowly; and

3.   non-traded sectors grow at a rate somewhere between those two, depending upon the relative strengths of negative supply and positive demand shocks.

In order to balance demand and supply in the non-traded sectors, there will also be an appreciation of the real exchange rate. That is to say, there has to be an appreciation of the nominal exchange rate and/or a period of time during which domestic inflation exceeds the average inflation rate of our trading partners.

In recent years, these three speeds have been observed in the Australian economy. Chart 3 shows indices of output shares for selected industries. Mining and

mining-related sectors have grown strongly, while the services sector — which is largely non-traded — has grown moderately. Manufacturing — which is trade-exposed — has broadly held its ground in absolute terms, but declined relative to the other sectors.

As I have noted on other occasions, according to the Stolper-Samuelson effect, since mining activity is relatively capital-intensive, once the resource movement effect has run its course, all industries, ironically, employ less capital-intensive production techniques and, for that reason, labour productivity is lower. Capital productivity, on the other hand, is higher. If that higher capital productivity attracts capital inflow from abroad, then the internal reallocation of resources from manufacturing to mining is magnified.

Chart 3: Output shares by selected industry
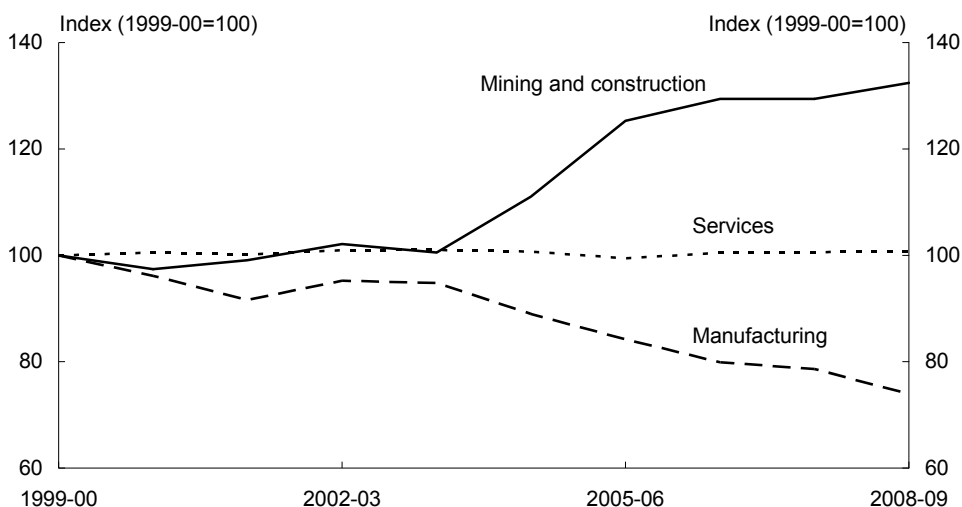
Source: ABS cat. no. 5204.0 and Treasury.

Will the high terms of trade be sustained?

Given its structural implications, there is considerable interest in knowing for how long the high terms of trade, and underlying export prices, are likely to be sustained.

There are at least three relevant considerations that inform how we think about the medium-term trajectory of the terms of trade. The first of these is the global supply response to high commodity prices, the second is the long-term trend of commodity prices, and the third concerns the industrial development of China and India.

Global supply response

First, let's look at the global supply response. Higher demand and higher prices induce a supply response, albeit with a time lag. As you can see from Chart 4, between 2002 and 2008 global iron ore production doubled while both coal and bauxite production increased by around 40 per cent. The five years prior to 2002 showed stagnant or only modest growth.

Chart 4: Global production of selected commodities
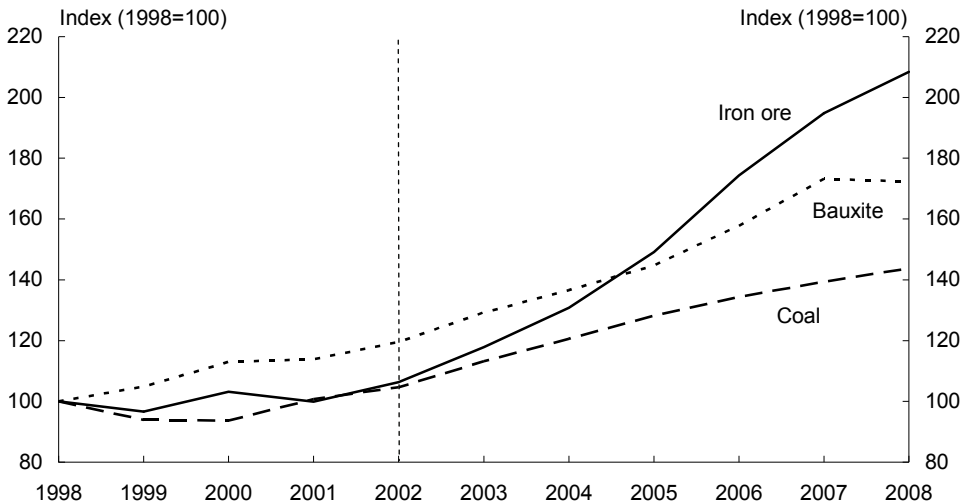
Source: British Geological Survey, *World mineral production* (various years) and Treasury.

Sustained periods of strong prices and strengthened long-run price expectations can be expected to generate even stronger mining exploration and investment responses over time. They can also drive a reassessment of the size of global mineral reserves that are recoverable at a commercially viable rate. And technological improvements will continue to place downward pressure on extraction costs.

Thus, the long-run supply curve can be expected to be considerably flatter than the short-run supply curve. Some of the short-run increase in prices should, therefore, be temporary — which is why the budget forecasts are predicated on the terms of trade declining by some 20 per cent over time.

Long-term trend in real prices — Prebisch-Singer hypothesis

The second consideration is the apparent long-term trend in commodity prices. In the decades leading up to the 2000s, the price of most non-fuel commodities showed a trend decline over time. In its 2006 *World Economic Outlook*, the IMF estimated that for the last half of the 20th century, non-fuel commodity prices had been falling on average

relative to consumer prices at the rate of about 1.6 per cent per annum. This trend is consistent with the Prebisch-Singer hypothesis.

Proponents of the hypothesis point to trend lines such as Chart 5, which show that the long-term price trend for aluminium (on the left) and for copper (on the right) has been downward sloping over the past century.

Chart 5: Trend in real price of aluminium and copper, 1911 to 2001
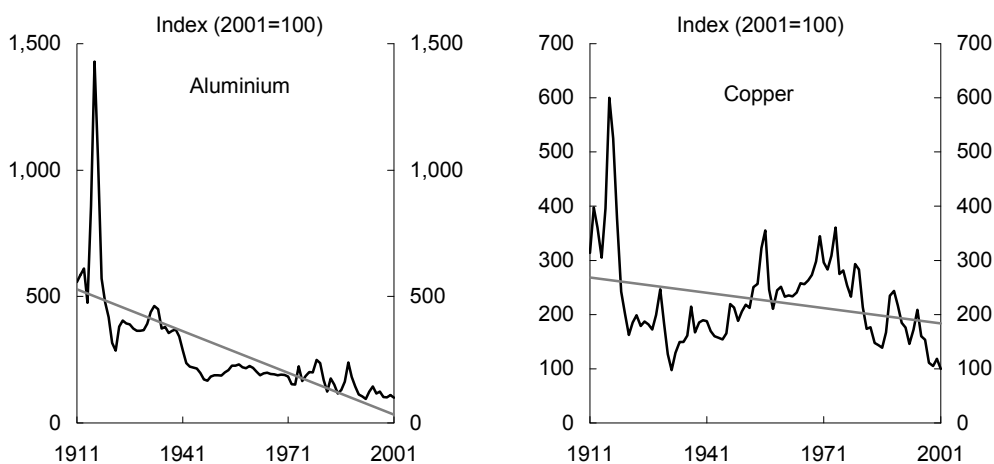
Source: US Geological Survey (Data Series 140) and Treasury.

However, observed trends are sensitive to the commodity selected and the choice of time period. Thus, Chart 6 shows that in the period between 1930 and 1970, rather than a downward price trend, the copper price trended quite sharply upward, possibly reflecting the increased demand for manufacturing inputs during post-war development as well as the use of copper wire in telecommunications.

Chart 6: Trend in real price of copper, 1930 to 1970
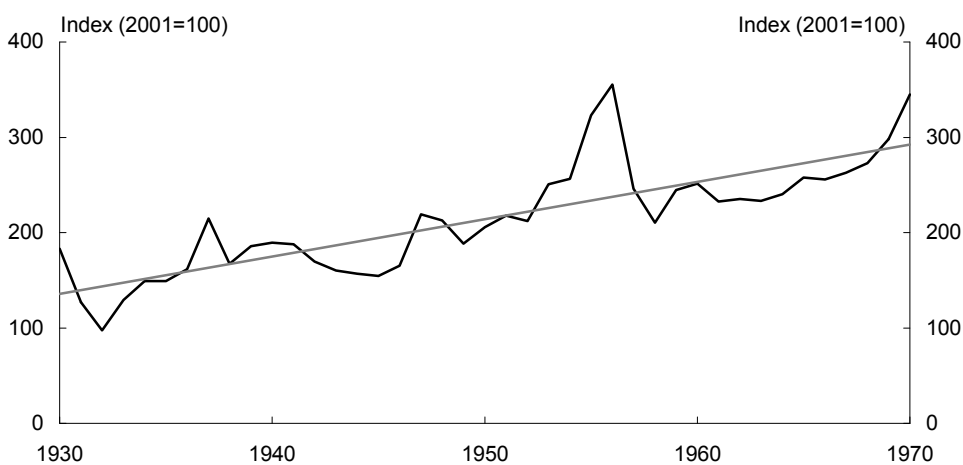
Source: US Geological Survey (Data Series 140) and Treasury.

Also, we cannot simply dismiss opposing theories that argue that relative commodity prices will trend upwards over time as non-renewable resources are depleted and as the marginal cost of extraction increases as producers are pushed towards the more marginal deposits. 'Peak oil' is the best known of these theories.

Strong and growing world demand — sustained by the development of China and India

The third consideration when thinking about the future of commodity prices is the influence of rapidly industrialising countries like China and India. As you would know, China and, to a lesser extent India, have enjoyed a marked catch-up in per capita incomes to more developed countries. This catch-up has been a major source of growth in demand for Australia's mineral exports. But both countries still have a long way to go.

We should not be surprised if China and India do catch-up. If we take a look at very long-run cross-country comparisons, it is the current situation that is historically unusual. And when I say 'long run' we are talking about centuries. GDP and population estimates constructed by the late Angus Maddison, a pioneer in the field of economic history, are enlightening. Using his estimates, Chart 7 shows shares of world GDP for a group of selected countries.

Chart 7: Share of world GDP, 1-2003AD
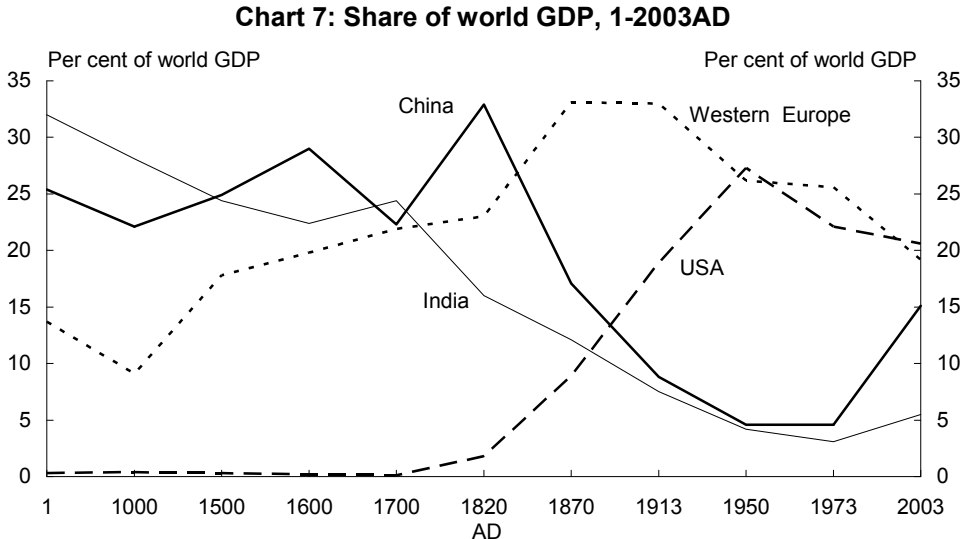
Source: Maddison, A 2007, *Contours of the World Economy 1-2030AD*, Oxford University Press.

For the first 1,700 to 1,800 of the 2,000 years shown, China and India's share of world GDP may have been greater than that of western Europe and the US. Two or three centuries ago, their share of world GDP began to decline as the industrial revolution took hold in the west. Only in the last four decades has China and India's share of

world GDP rebounded strongly. Both have the potential to revert to something close to pre-18th century GDP shares in coming decades.

That is not to say that the catch-up of China and India is certain — only that it is certainly possible.

Another important point to note is that looking at aggregate GDP figures tells only part of the commodity demand growth story. Other important factors include the structure of economic activity, a country's stage of development and the types of commodities used to support these activities.

The IMF's 2006 *World Economic Outlook* concluded that the consumption of metals typically grows with income until incomes reach about $15,000 to $20,000 per capita (in PPP-adjusted US dollars) as countries go through a period of industrialisation and infrastructure building. At higher incomes, growth typically becomes more 'services driven' and the growth in the use of metals per capita tends to stagnate.

Chart 8 plots the consumption of copper and steel per capita (the vertical axis) against real GDP per capita (the horizontal axis) for selected countries. Note that measured 'consumption' in this case includes metals used to produce goods for export. For advanced countries like the US and Japan, the consumption of copper and steel per capita has stagnated as real GDP has grown. The major exception to this trend is South Korea, where steel consumption has continued to grow because industrial production and construction is a dominant part of their economy.

**Chart 8: Consumption of copper and steel per capita
against real GDP per capita, 1974-2004**
Real GDP per capita ('000s PPP-adj USD)
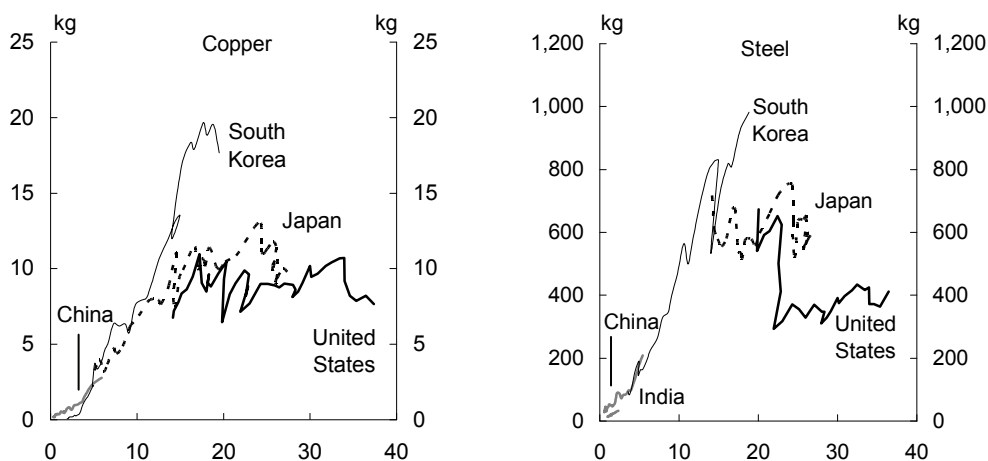
Note: Steel consumption data for all countries are for 1974-2004 except for India (1980-2004). For US and Japan, copper consumption data are 1960-2005, 1965-2005 for South Korea and 1962-2005 for China. India's per capita consumption of copper is less than 1kg.
Source: IMF, Steel Statistics Yearbooks and Treasury.

GDP per capita (in PPP-adjusted US dollars) for China and India were at around $8,000 and $3,000 respectively in 2009. So the potential for substantial catch-up by China and India in non-rural commodity consumption is high.

Policy implications

Taking these three considerations together, we have at least reasonable grounds for believing that strong world demand for Australian commodities and a high terms of trade will be sustained for some time, accepting that the duration of the period of elevated terms of trade is subject to a high degree of uncertainty.

What, then, are the policy implications?

Dutch disease

Structural change in the economy is most obviously desirable to take full advantage of the income gains from high export prices. Allowing, rather than impeding, workers and investors to take advantage of improved returns to their labour and capital should be welfare enhancing.

However, there have been longstanding concerns, as far back as I can remember, about Australia becoming simply a 'quarry to the world'. These concerns around specialisation and de-industrialisation have been pejoratively labelled 'Dutch disease', a term coined by *The Economist* magazine in 1977 in discussing the adverse effect on the Dutch economy of North Sea oil and gas.[2]

The typical Dutch disease concern is that a radical contraction in manufacturing leads to a hollowing-out of the economy in respect of skills, value-adding and know-how, and the loss of a sector that might generate significant spillover benefits for the rest of the economy. There is a related concern about the risks of an undiversified economy.

In respect of Australia, these concerns may, at times, be a little overstated.

The evidence of lost positive spillovers from an expansion in Australia's minerals sector is not obvious. Mining exploration and production in Australia is highly skilled. It generates its own positive spillovers. For example, there are Australian firms that develop software for geological exploration and the modelling of mine operations. Potentially, as the world's mineral production is pushed towards more marginal

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2 'The Dutch disease', *The Economist*, vol. 265, pp 82-83, 1977. This phenomenon is also known as the 'Gregory effect' due to the work of Australian economist Robert Gregory; Gregory, R 1976, 'Some implications of the growth of the mineral sector', *Australian Journal of Agricultural Economics*, vol. 20, no. 2, pp 71–91.

deposits that are more costly or difficult to extract, Australia's comparative advantage in mining services will become even more valuable.

Even if there was hard evidence of relatively greater spillovers elsewhere, the appropriate policy response might be to target such spillovers directly, as governments do with assistance for research and development.

In addition, there is strong cross-country evidence that human capital accumulation and mineral resource abundance are positively correlated.[3] An explanation for this is that the governments of resource-rich countries have invested resource revenues in education as a means of sustaining long-term returns to the population. Of course, in order to do so, they need adequate resource revenues.

We have reason to be suspicious of sectoral doomsday predictions. In the last four decades, numerous predictions have been made of large scale unemployment and the death of manufacturing — decrying deregulation, tariff cuts and mineral booms.[4] I remember, too, being told in the mid-1980s, how the gold mining industry would not survive the removal of its complete exemption from income tax, and how taxing windfall profits from gold mining would destroy thousands of jobs. The dire predictions of the past have not eventuated and it is unlikely that similar predictions today will fare any better.

Fiscal policy

So how does fiscal policy fit in the current environment?

Ideally, we would want fiscal policy settings that work well for different terms of trade scenarios. But the appropriate fiscal policy response to a terms of trade shock generally depends on its extent and duration. That is to say, whether the terms of trade shock is considered permanent or temporary might affect how we think about the government component of the spending effect.

If the commodity cycle is synchronised with the macroeconomic cycle, then the spending of a tax revenue windfall would amount to pro-cyclical fiscal policy. In an economy operating at close to full capacity, some amount of private sector activity would be crowded out — through higher factor prices, higher interest rates or an even higher nominal exchange rate.

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3 Stijn, JP 2006, 'Natural resource abundance and human capital accumulation', *World Development*, 34(6), June 2006, pp 1060-1083.

4 Incidentally, tariff reductions and mineral booms share similar macroeconomic properties: Gregory (1976) ibid.

Increased expenditures in response to a temporary revenue surge risk a structural deterioration in the fiscal position unless the higher level of spending can be reversed quickly once the boom is over.

In general, though, the automatic stabilisers — that is, those parts of revenue and government expenditures that move with the economic cycle — should be allowed to operate freely. I note that the IMF, in reflecting on the global downturn, has suggested there is scope for countries around the world to adopt instruments — including well designed taxes — that enhance automatic stabilisation.[5]

In this regard, a switch from royalties to rent-based charges or taxes applying to mining profits makes sense, as rent taxes are more responsive to the economic cycle. Having a relatively volatile and counter-cyclical rent tax residing with the Commonwealth, with the States having access to a relatively stable revenue stream to support public infrastructure spending in a downturn, also makes sense from a macroeconomic perspective.

And allowing the budget balance to improve during periods of strong growth supports monetary policy and helps to provide the necessary fiscal space to run deficits during periods of weak growth.

All of this is pretty obvious to students of macroeconomics. But its implementation is not as easy as it might sound. It can be difficult to build big surpluses during the years when the 'rivers of gold' are flowing. There will be pressure to spend. Governing budget surpluses at such times can be especially difficult.

But it is not impossible either, as evidenced by Chile, where counter-cyclical fiscal policy is written into law.[6] Chile is much more reliant on commodity exports even than Australia. In mid-2008, Chilean authorities resisted pressure to spend the soaring receipts from high copper prices. When copper prices dived as the global downturn hit, the Chilean authorities were able to increase spending sharply, financing a large fiscal stimulus with assets acquired from copper receipts.

As was the case here, the stimulus moderated the downturn.

For reasons given earlier, since it is likely that a substantial part of the increased income flowing from our elevated terms of trade will be sustained for some time, the persistent accumulation of surpluses in our case would likely be quite prolonged.

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5   Blanchard, O, Dell'Ariccia, G and Mauro, P 2010, 'Rethinking Macroeconomic Policy', *IMF Staff Position Note*, February 2010.

6   Frankel, J 2010, 'The Natural Resource Curse: A Survey', *NBER Working Paper Series,* March 2010.

Persistent budget surpluses imply tax rates that are structurally higher than they need to be to finance current spending. And taxes can affect long run growth. The size of the tax-induced welfare loss depends on the choice of tax base and its structure.

If high inefficient taxes are maintained and a structural surplus is depleted through higher spending, there is the potential for a second set of deadweight costs — on the spending side. Especially as an economy approaches full capacity, it is important to keep in mind that the case for a government spending initiative has to confront both the opportunity cost of the proposed initiative — whether there is an alternative initiative of higher quality — and the cost of holding tax rates higher than they might otherwise be.

Sovereign wealth funds

There has been some debate over whether Australia should have a sovereign wealth fund as part of its fiscal policy. Since the term 'sovereign wealth fund' can mean different things to different people, I will define a sovereign wealth fund as a fund set up by the governing authorities in response to the tax revenue raised from the extraction and sale of non-renewable natural resources, with one or more of the following objectives:

•   revenue stabilisation (shielding the budget from revenue volatility);

•   saving for the future (consumption smoothing);

•   imposing discipline on current government expenditures; or

•   investing abroad to sterilise large foreign exchange inflows to limit the extent of nominal exchange rate appreciation.

Depending on what the key objectives are, these funds are typically called stabilisation or savings funds.

I don't want to pre-empt a debate on these matters. But I will make a few observations.

First, if the revenue surge is regarded as likely to be long-lived, the alternative of tax cuts — permitting the private sector to make its own saving and investment decisions — should always be considered first.

Second, of the various objectives, the proposition that a sovereign wealth fund can be used to impose discipline on government spending is most problematic. Sovereign wealth funds that have been in place around the world have not been as effective in imposing spending discipline as many seem to believe. IMF research has found that there is no statistical evidence that such funds impose any effective expenditure

restraint.[7] Even if rules are put in place to restrict access to the fund, in the absence of liquidity constraints, a government that wants to finance an increase in current spending can borrow against the security of the fund. Money is, after all, fungible.

Third, stabilisation, consumption smoothing and exchange rate sterilisation are not dependent upon having a sovereign wealth fund. That is to say, these objectives could just as well be achieved within the context of the overall budget strategy.

Fiscal stabilisation can be achieved without drawing on a sovereign wealth fund, as demonstrated in Australia's response to the global financial crisis and international recession.

Consumption smoothing can alternatively be achieved in the Australian context by investments in human capital and high quality public infrastructure or through contributions to individuals' superannuation accounts.

And a country experiencing large gross flows, both inward and outward, of both equity and debt, doesn't have to take an explicit decision to invest the proceeds of fiscal surpluses in foreign assets in order that those surpluses put downward pressure on the nominal exchange rate. That is, using budget surpluses to repay debt, or even to purchase another financial asset domestically, would have the same effect.

Resource rent tax

So where does a resource super profits tax (RSPT) fit in this picture?

Australia is fortunate to have an abundance of natural resources. These natural resources are assets belonging to all Australians, including Australians not yet born. Where we undercharge for the exploitation of these resources the wealth of current and future Australians is eroded. At present, the charging is effected by a plethora of distorting excises and royalties levied by the Commonwealth, State and Territory governments. In general, royalty adjustments have not kept pace with the value of our resources. Yet there are also many mining projects that are close to being unprofitable but which nevertheless make substantial royalty payments to State governments.

A better designed, more efficient, approach to charging for the exploitation of Australia's natural resources should be able to raise more revenue — that is, get a better return for the community — while still attracting more investment. That, after all, is what would make it tax 'reform' rather than just a change in the level of taxes.

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7 Davis, J, Ossowki, R, Daniel, J, and Barnett, S 2001, 'Stabilisation and Savings Funds for Nonrenewable Resources, Experience and Fiscal Policy Implications', Occasional Paper 205, IMF, 2001.

The Tax Review Panel (the Panel) recommended that the current royalty-based charging arrangements should be replaced with a resource rent-based tax. The Panel's preferred approach is based on the Allowance for Corporate Capital (ACC), which was proposed by Boadway and Bruce (1984), and is well known to public finance people.

The ACC is part of a small family of taxes which tax only economic rent. Unlike royalties, which tax gross receipts, the ACC, by taxing only economic rents, or supernormal profit, does not distort production and investment decisions. Further, because it is a tax on rents, it should have no impact on prices.[8]

The ACC recommended by the Panel, and subsequently accepted by the Government in the form of the RSPT, would represent world's best practice in charging for the exploitation of non-renewable natural resources.

I know that some of you would have found some of the commentary surrounding the Government's proposal a little confusing. And its theoretical basis would not be familiar to all of you. So I'll spend just a few minutes on that topic. In passing, I should note, however, that some financial market economists obviously do 'get it' — Michael Blythe and his team from the Commonwealth Bank of Australia (CBA) in particular. If you haven't had a look at their very clear presentation of the issues, then I would encourage you to do so.[9]

In concept, the point of departure for the RSPT is the pure Brown tax.

The Brown tax is a pure rent tax, in which investments can be expensed, or written off immediately and a refund provided for the tax value of any negative cash flow — in this way the government effectively finances a share of the investment equal to the tax rate. The government receives the same share of all future net cash inflows. Hence, the government is, effectively, a silent partner in the investment, sharing in costs, risks and returns.

By expensing capital and taxing cash receipts the Brown tax effectively taxes a share of the present value of the project. So, a project that has a positive net present value before tax, that is a project earning economic rents, will remain worthwhile after tax, providing the tax rate is less than 100 per cent.

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8   The ACC, like the Brown tax is a source-based tax. While a source-based tax on economic rents does not distort real investment decisions at the intensive margin, it may affect the location decisions of multinational firms earning firm-specific (and hence mobile) rents.

9   'From China with love, the 2010/11 Budget', see http://www.commbank.com.au/business/campaigns/federal-budget/2010-Federal-Budget-Economic-Analysis.pdf

For a marginal investment — that is, a project with a present value of zero before tax — the present value after tax is still zero. The Brown tax does not tax marginal projects that earn the risk adjusted required return. In respect of infra-marginal projects, it only taxes a share of the returns above what is required in order for the investment to take place.

But the Panel did not recommend a Brown tax. Instead, we recommended the ACC. I will not go into the reasons for this today. All I want to do is demonstrate that the two taxes are equivalent, highlighting that an ACC with refundability of the tax value of losses in the event of project failure and an uplift equal to the bond rate is also a neutral tax on economic rent or supernormal profit.

Under the ACC, instead of allowing investment to be immediately expensed, as under the Brown tax, the deduction or tax credit is deferred to a later period. This can be done by allowing losses to be carried forward, allowing assets to be depreciated over time or some combination of both.

However, the deferred tax credit needs to be indexed to ensure its real value is not eroded over time. This begs the question: what is the appropriate indexation, allowance or uplift rate?

The answer to that question depends upon the refundability of losses. In order to preserve neutrality of the ACC with respect to risk taking, which is important given the risky nature of exploration and resource investments, the Panel recommended that the tax value of any losses (including the net value of any undepreciated capital) be refunded when a project closes. That is, the Panel recommended full-loss offset.

Now, among public finance people, it has been long understood that, given a full-loss offset, the appropriate allowance, or uplift, rate for carrying forward unutilised losses (or un-depreciated assets) is the before-tax risk-free rate of return.[10] A proxy for the risk-free rate of return is the rate applying to government bonds. As noted by economists George Fane and Ben Smith from the Australian National University, in 1986:

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10 At least, since Fane, G and Smith, B 1986, 'Resource rent tax' in Trengove, CD (ed.), *Australian Energy Policy in the 1980s,* Centre of Policy Studies, George Allen and Unwin, Sydney; Fane, G 1987, 'Neutral taxation under uncertainty' *Journal of Public Economics,* vol. 33, pp 95-105; and Bond, SR and Devereux, MP 1995, 'On the design of a neutral business tax under uncertainty' *Journal of Public Economics* 58, pp 57-71.

> 'This is true even if the risk characteristics of the project are such that investors will only undertake it if the expected return on equity is far above the government bond rate'.[11]

Some of the reactions to the proposed RSPT have suggested that the government bond rate is too low; that it does not reflect the return required due to the riskiness of resource investments; that it does not represent a threshold against which to measure rents; and even that it is inconsistent with basic financial market theory such as the Capital Asset Pricing Model. All of these statements are incorrect.

The source of the confusion seems to be an interpretation of the RSPT as the petroleum resource rent tax (PRRT) with no loading on the government bond rate. The PRRT has a 5 per cent loading in excess of the bond rate for most capital expenditure. So, on that interpretation of the RSPT, it looks much less generous than the existing PRRT. But the interpretation is misguided. The RSPT has a very different structure from the PRRT, most notably in its treatment of losses. Abstracting from the treatment of exploration losses, the RSPT is equivalent to a PRRT that provides a loading in excess of the bond rate *at least as large* as the project-specific risk premium — whether that risk premium is 5 per cent, 10 per cent, or even 50 per cent.

By the way, the PRRT provides a loading in excess of the bond rate, not because it is trying to define a measure of supernormal profit or rent, but instead, to compensate investors for the risk they may not be able to utilise their tax credits.

Under the ACC, on the other hand, by not providing immediate expensing, but guaranteeing full loss offset, the government is effectively giving the investor a second asset, a guaranteed tax credit that will be paid, with certainty, at some future date. The investor therefore holds two assets:

•   a 60 per cent share in a risky resource project; and

•   a risk-free asset in the form of a tax credit, with a government guaranteed present value of 40 per cent of the initial investment.

We can compare this with the Brown tax, under which the investor holds:

•   a 60 per cent share in a risky resource project; and

•   cash equal to the 40 per cent refund from the immediate expensing of the initial investment.

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11 Fane and Smith, 1986, ibid, p 216.

Or with the PRRT, under which the investor holds:

• a 60 per cent share in a risky resource project; and

• a risky asset, in the form of a contingent tax credit for carry forward undeducted expenditure that evaporates if the investment earns insufficient income.

Another way of looking at the tax credit is that it is effectively the same as the government giving resource companies a government bond equal to 40 per cent of the investment costs, but with one difference: unlike a traditional government bond, payment occurs when the project makes a profit or, if the project is unsuccessful, when the project closes.

To understand why the Panel considered the bond rate appropriate, it is useful to consider the two assets separately.

The appropriate rate of return for a resource project will include an appropriate risk premium, say 9 per cent. With a risk free rate of 6 per cent, the required rate of return is 15 per cent.

The required rate of return for the resource project is not, however, the appropriate discount rate for measuring the net present value of the guaranteed tax credit. The appropriate discount rate for the tax credit is the risk-free rate, because, unlike the PRRT, the tax credit is certain.

To ensure investors are neutral between holding the tax credit or another risk-free asset, the appropriate rate of return on the credit (or the uplift rate) is, therefore, the risk-free rate, for which the government bond rate is a proxy.

In effect, as highlighted recently by Michael Blythe's team at the Commonwealth Bank, if a business decides to hold onto the implicit loan to the government, its weighted average cost of capital (WACC) will fall, as the riskiness of its investment portfolio will have been reduced. Of course, if the business decides to cash out the tax credit and invest in other risky projects, its WACC may not fall.

Given refundability of tax losses, an uplift rate higher than the bond rate would over-compensate for the delay in the government guaranteed tax credit. This would be equivalent to the government issuing an alternative debt instrument at the same price as normal government bonds, but paying a higher rate of interest. Aside from creating instability in financial markets, this would generate a significant subsidy for investment in the mining sector and, ironically, create incentives to delay resource production.

To understand why production might be delayed, if the uplift rate were set, say, 5 percentage points higher than the government bond rate, this would represent a subsidy of $20 million per year, for an investment of $1 billion, of which $600 million is at risk. The subsidy would continue to accrue until resource companies decided to produce and generate income, effectively redeeming their implicit government bond. An uplift rate higher than the bond rate would therefore provide an incentive to delay production to maximise the value of the subsidy — which could be as large as $330 billion for every $1 billion invested.[12]

With an uplift rate 5 percentage points above the bond rate, a project that was marginal before tax — that is, a project with zero net present value — could generate a taxpayer funded return of 33 per cent in rents.

The RSPT has important economic effects. By rebating royalties, providing a generous exploration rebate, and financing a cut in the company income tax rate, it reduces significantly several of the features of the present tax system that act to discourage mining investment. The RSPT itself, being a neutral tax, should have little impact on mining investment. Overall then, mining investment is encouraged.

The cut in the company income tax rate has other consequences. Importantly, it encourages all companies to choose more capital-intensive production techniques — supporting stronger growth in real wages by offsetting at least some of the loss of labour productivity due to higher terms of trade.

What happens to the overall pattern of production though, depends critically upon whether, as more capital and labour are drawn into the Australian economy, our total capital-labour ratio rises or falls. And that, of course, depends upon the relative strengths of foreign investment and net immigration in the decades ahead — topics for another day.

Thank you.

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12 The present value of an infinite income stream of $20 million a year discounted at the risk-free rate — assumed to be 6 per cent.

The Australian financial system — emerging from the global financial crisis

Dr Ken Henry AC
Secretary to the Treasury

Address to the Count Financial Conference, Canberra, 15 March 2010.

Good morning, and thank you for giving me the opportunity to speak and share my thoughts on Australia's financial system as we emerge from the global financial crisis.

As a central policy agency, Treasury needs to ensure that the long-term challenges facing Australia are not sidelined by the more immediate and urgent issues.

And Australia is facing some significant challenges.

The Government's third Intergenerational Report highlighted some of the challenges in relation to demographic change and an ageing population; economic infrastructure; and climate change.

To help us meet these challenges, we need a safe and efficient financial system. A safe and efficient financial system is also important from a wellbeing perspective, given the role the financial sector plays in people's lives. The financial system:

- facilitates payments;

- supports Australians so that they can invest and save for retirement;

- enables households to save for, and purchase, housing; and

- ensures that capital is allocated efficiently, supporting investment in essential infrastructure.

We also need a safe and efficient financial system because our financial institutions play an essential role in funding the gap between our domestic investment and national saving. Our institutions need the confidence of foreign investors that they will service what they borrow.

So a safe and efficient financial system is very much about the wellbeing of the Australian community as a whole.

The question policy advisers must consider continually is whether the current financial system adequately services all aspects of the community.

For Australia's financial system to be both efficient and safe, it is important that we have competition between providers of financial services, and a sound prudential regulatory framework.

The global financial crisis was the most fundamental dislocation in global financial markets in our lifetimes. While the stability of banking sectors around the world has been very much the focus in the past 18 months, the crisis has also raised concerns about weakened competition in many jurisdictions. Australia's financial system has

been more resilient than others but, like other countries, Australia has experienced a change in the competitive dynamics of our banking sector as a result of the crisis.

So I would like to spend some time today talking about the competitive dynamics in the banking sector, as well as the international enhancements to financial regulation that are being considered and implemented in response to the global financial crisis.

But first, I would like to reflect on the performance of the Australian financial system over the course of the global financial crisis.

The Australian financial system

As I'm sure you are all aware, the strength of our financial system, particularly the banking sector, has been an important factor in cushioning Australia from the impact of the global financial crisis.

Australia's financial system continued to function well throughout the global financial crisis. Overall, Australia's institutions remained profitable and well-capitalised, and this allowed them to continue to lend throughout the crisis. Even so, intermediated credit from the banking sector became more expensive and subject to tighter conditions.

Some borrowers, particularly large- and medium-sized businesses, were able to raise funds from equity and debt capital markets to supplement their bank funding. Other businesses, which don't have access to these financing alternatives, have been most affected by the tightening in conditions for intermediated credit.

The strength of our banking sector reflects a number of factors, including:

• the fact that, in contrast to many of their overseas counterparts, Australian institutions entered the crisis with relatively low exposure to high-risk assets;

• the strength of equity markets, which allowed banks to raise large amounts of equity in 2009;

• the quality of our financial regulatory system; and

• the timely action by the Reserve Bank of Australia (RBA) and the Australian Government in response to the global financial crisis. In particular, the monetary and fiscal stimulus played a key role in supporting the Australian economy. The Government also introduced guarantees to support Australian institutions' access to funds.

Credit flows over of the course of the global financial crisis

At the height of the crisis in 2008, there were concerns that the extreme dislocation in financial markets would mean that Australian institutions would have to ration credit.

But this did not occur to any great extent.

Housing credit continued to grow over the course of the global financial crisis, supported by historically low interest rates, the Government's First Home Owners Boost and lenders' continued appetite for mortgage assets.

In fact, as you can see from this chart (Chart 1), total housing credit grew by 8.2 per cent over 2009.

Chart 1: Credit by sector
Year-ended percentage change
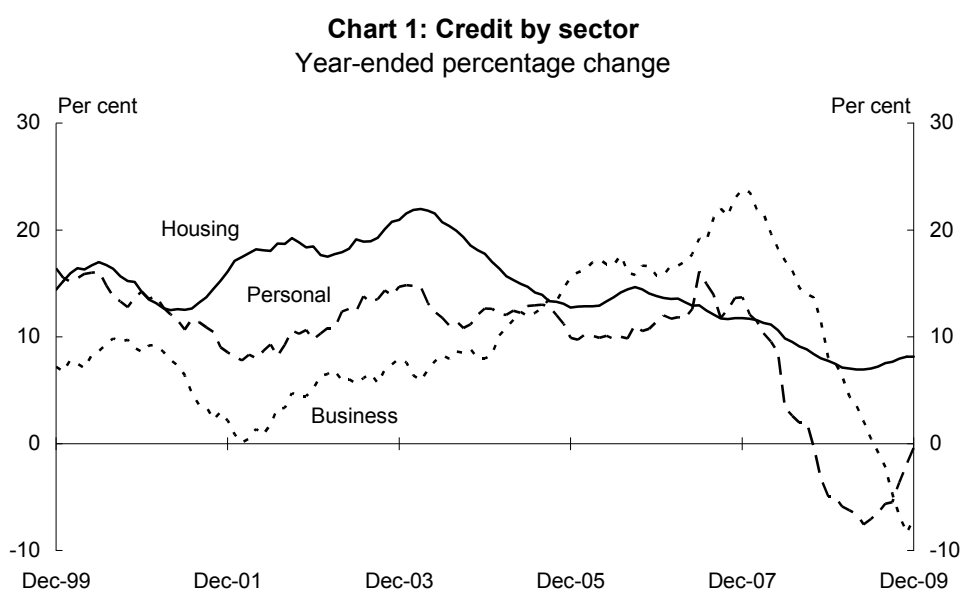
Source: RBA Financial Aggregates.

Credit flows to businesses, though, have fallen. However, taking into account other sources of financing — that is, intermediated credit, equity, and non-intermediated debt such as corporate bonds — businesses' net stock of external funding increased over 2009.

As the price of intermediated credit increased, businesses elected to diversify their funding. This compares favourably with the experience of the early 1990s where the fall in intermediated credit was not fully offset by increases in non-intermediated debt and equity issuance.

Chart 2: Bank lending to large and small businesses
Year-ended percentage change
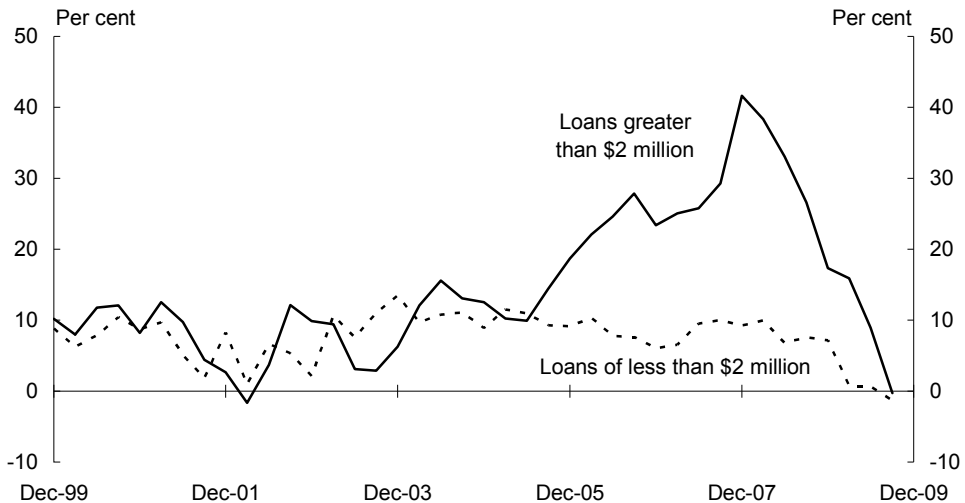
Source: RBA Statistical Tables.

Small business credit has fallen, as shown in this chart (Chart 2).

Challenges in the post-global financial environment

It is fair to say that the global financial crisis itself is now behind us. While there is a risk of further adverse shocks in global financial markets, the period of extreme dislocation has now passed.

The Government's recent announcement of the removal of the Guarantee Scheme for Large Deposits and Wholesale Funding from 31 March 2010 is a further positive indication that Australia's financial system is on an upturn.

At the current time, there are two key issues at the forefront of the policy agenda for the Australian financial system. The first concerns the competitive dynamics of the banking sector. And the second concerns the implementation of international enhancements to financial regulation and supervisory practices.

Competition in banking

Recent trends in the banking sector

Some recent trends in the banking sector have raised concerns about the competitive dynamics of the sector following the global financial crisis.

• The banking sector has become more concentrated since the onset of the crisis.

- While all of Australia's financial institutions have experienced a drop in profits as a result of the crisis, the fall has generally been more pronounced for smaller institutions.

- The major banks' net interest margins increased over the crisis.

The major banks' market share of most products increased over the course of the crisis. This chart (Chart 3) shows that the share of owner-occupier housing loan approvals for the five largest banks — the majors plus St George — increased from around 60 per cent before the onset of the financial market turbulence in mid-2007 to around 82 per cent.

Chart 3: Share of owner-occupier loan approvals
By lender, seasonally adjusted
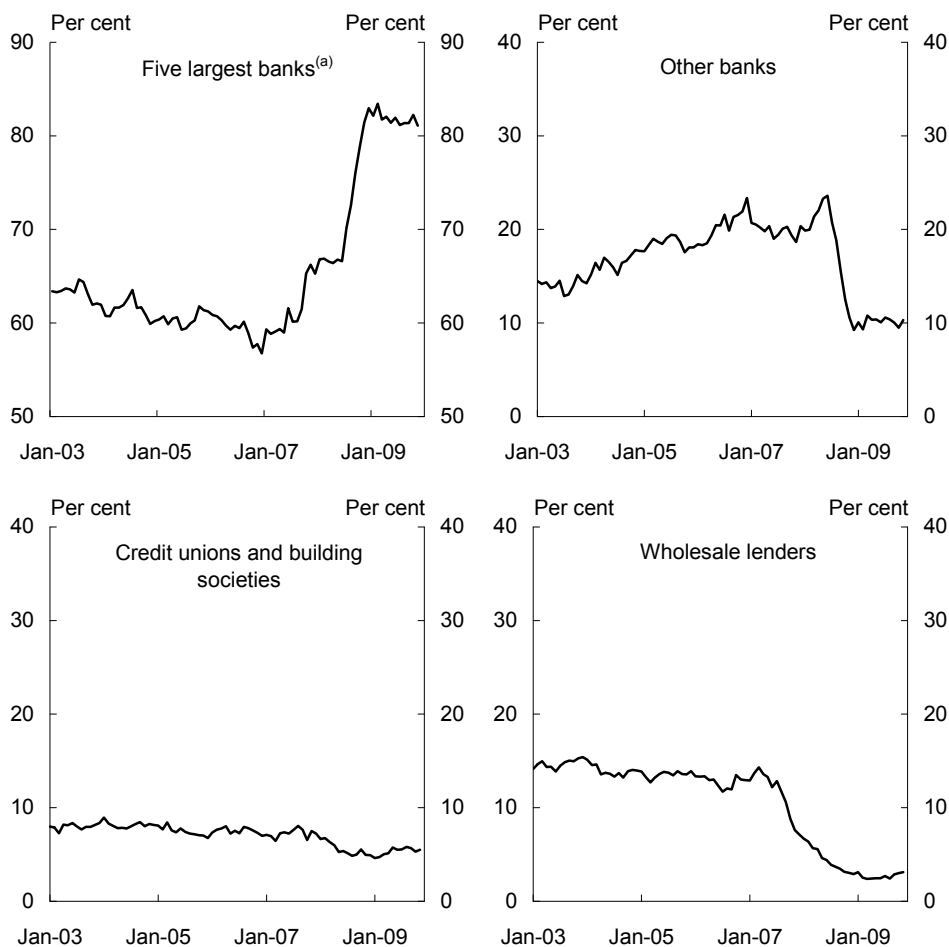
(a) Includes BankWest from December 2008.
Sources: Australian Bureau of Statistics (ABS) and the Australian Prudential Regulation Authority (APRA).

A significant driver of the consolidation of market share has been firms exiting from the market, or scaling back operations.

In particular, the closure of securitisation markets and constraints in other funding markets has forced some smaller players to exit or scale back lending.

As well, some foreign banks withdrew or scaled back their operations in Australia, reflecting adverse conditions in their home markets.

Increases in impairment levels, especially in business lending portfolios, have also forced some players to significantly scale back their operations.

The increase in market share is also partly a consequence of mergers in the banking sector. The major acquisitions over this period were, of course, the takeover of BankWest by the Commonwealth Bank of Australia and the takeover of St George by Westpac.

I would note that both of these acquisitions were cleared by the Australian Competition and Consumer Commission.

I would now like to turn to profitability.

Rates of return on equity have fallen across most categories of financial institutions. However, the fall has been greatest for the category of 'other domestic banks', which includes all of the Australian incorporated mid-tier banks.

These smaller domestic banks have experienced proportionally larger asset impairment than the majors as a result of the crisis. This partly reflects the nature of their strong regional presence which makes them more susceptible to downturns in specific regions. Smaller banks have also experienced a tightening of interest margins relative to the major banks.

Net interest margins represent the difference between the rate of interest banks and other intermediaries charge borrowers and the rate of interest they pay on their deposits and other types of funding. Where competition is increasing, it can be expected that net interest margins will fall, all else being equal.

In Australia, one of the clearest, long-term economy-wide benefits of the deregulation of the financial system has been sustained downward pressure on net interest margins (Chart 4). These have halved since 1995; in part, due to competition from non-prudentially regulated lenders and new bank entrants.

Chart 4: Major banks' net interest margins[a]
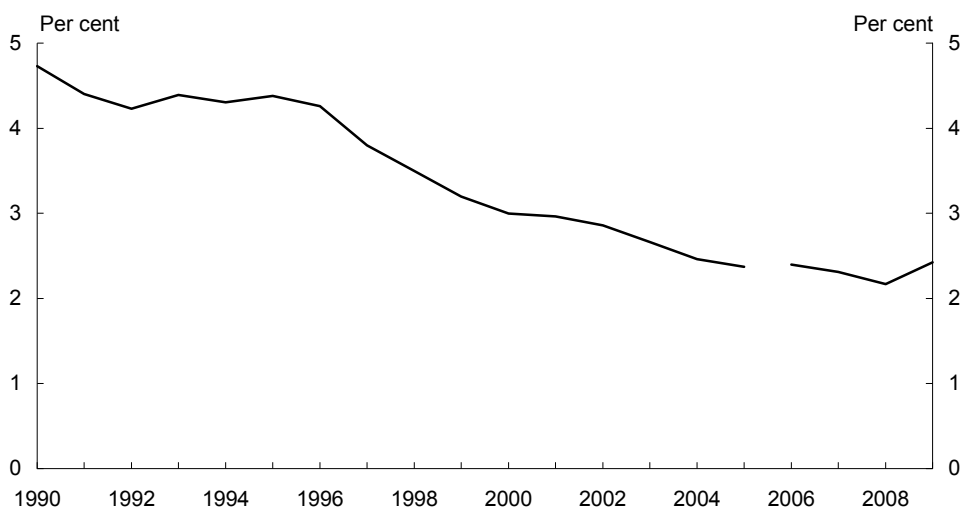
(a) Annual net interest income as a per cent of average interest-earning assets, Australian operations. Includes St George from 1993 and Bankwest in 2009. From 2006 data are on an International Financial Reporting Standards basis; prior years are on an Australian Generally Accepted Accounting Principles basis.
Source: RBA.

By the end of 2009, the major banks' net interest margins had increased to be about 20-25 basis points higher than pre-crisis.

Impact of recent trends on the competitive dynamics of the sector

While it is difficult to be definitive, especially because interest rate margins will be affected by changes in perceptions of risk, the evidence suggests some diminution of competitive pressures over the past couple of years. Any weakening in competitive pressures would naturally be of concern to policymakers as well as customers.

However, notwithstanding the funding difficulties faced by some participants, there is evidence of some continued competitive pressures on interest rates, especially for mortgages. For example, a significant number of smaller lenders, including mutual credit unions and building societies, are offering standard variable mortgages at rates of up to one per cent less than the majors.

And as global financial markets continue to recover, we expect to see competitive pressures in the banking sector rebuild.

In particular, smaller institutions can be expected to be in a position to increase their competitive influence over time as securitisation markets recover, supported by the Government's direct investment in residential mortgage-backed securities.

Further, some smaller domestic institutions that have been forced to scale back lending can be expected to become stronger competitive forces as their balance sheets recover.

Foreign banks will also be able to re-establish their presence in Australia as conditions in their home markets stabilise, although this could be a protracted process, depending on the pace of the global recovery.

It is these smaller players that have generated the most significant competitive pressure in Australia's banking sector. They have helped significantly in creating a strong competitive dynamic.

So that consumers might have access to a highly innovative and dynamic banking sector and pay lowest possible prices for banking products, it is important that we see a return of this competitive dynamic.

We are seeing some early signs of this occurring. Some of the smaller financial institutions have recommenced mortgage lending. You may have also noticed that, as part of recent profit announcements, some smaller players are now looking to actively expand their presence.

We in the Treasury will continue to monitor this recovery closely. As financial markets continue to recover, the benefits should be passed on to customers.

Having said that, we do not expect a return to the conditions that existed immediately before the crisis.

The abundance of liquidity and exuberance in global financial markets clearly meant that the price of risk was unsustainable and did not adequately reflect inherent credit risks.

With global risk expected to be priced more sustainably in future, these conditions are unlikely to return. Lenders with business models that rely on very low cost credit are likely to experience significant ongoing pressure.

The Government has taken steps to support competition.

For example, the Government's investment in residential mortgage-backed securities is supporting competition from smaller lenders at a time when securitisation markets remain affected from the fallout of the global financial crisis. This initiative continues to play an important role in promoting the market's recovery and investor confidence.

The cessation of guarantee schemes worldwide will also facilitate the return of more normal competitive market dynamics.

Economies of scale in banking

A sustained recovery in financial markets means that the smaller institutions will be in a position to increase their market share.

However, the significant economies of scale that exist for a range of banking operations mean that, in the longer term, we are likely to see continued consolidation in the sector.

One example of these economies is that in raising funds in wholesale funding markets, larger institutions are able to issue significantly larger volumes at better prices.

There are also economies of scale in risk-pooling, distribution and branch networks, staff training, computer systems, and advertising.

Economies of scale can benefit consumers by lowering the average cost of bank products. But it is important that consolidation does not lead to lessened competition. There are important safeguards under legislation, implemented by the Treasurer and Australian Competition and Consumer Commission, to prevent this from occurring.

Market contestability

Measures of market concentration are not enough, in themselves, to assess fully the level of competition in a given market.

It is well recognised that competition can exist even in markets with a small number of major suppliers, particularly where there are a number of smaller players or where barriers to entry are low enough for new entrants to pose a credible threat of competition.

Such markets are said to be 'contestable'.

Notwithstanding some recent increase in concentration, Australians continue to be served by a wide range of financial service providers.

The Australian banking market is currently serviced by 54 banks, 108 credit unions, 11 building societies and a number of non-deposit-taking lenders. There are currently around 110 providers of over 2,070 mortgage products.

According to the OECD, 'even though concentration in housing loans has recently increased, the market is still contestable as non-Australian banks account for 30 per cent of business credit'.[1]

Moreover, Australia's experience since the 1990s suggests that smaller players can compete successfully with the major banks provided they have the opportunity to raise funds at competitive prices and/or provide products and services not already provided by the majors.

Waves of consolidation in the banking sector have occurred in the past. This chart (Chart 5) shows that increases in the major banks' market share have been followed by noticeable declines during the 1980s, 1990s and 2000s.

Chart 5: Major banks' share of total resident authorised deposit-taking institution assets[a]
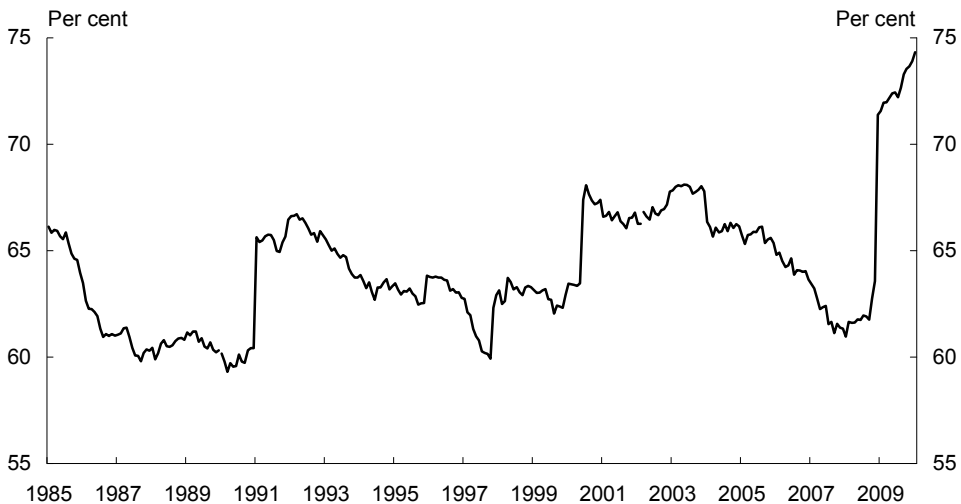
(a) Includes BankWest and St George from December 2008. Series break in January 1990 and March 2002 due to change in reporting requirements. Data prior to January 1990 also include non-resident assets.
Source: RBA and APRA.

This is one indicator that our market is contestable even with a small number of large players, Australia.

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1   OECD 2010, *Australia: Towards a Seamless National Economy*, OECD Reviews of Regulatory Reform, p 42.

International financial regulation enhancements

As Australia emerges from the global financial crisis, there is a second area that poses challenges. This is the implementation of international financial regulation changes — a high priority for the G20.

The global financial crisis demonstrated severe weaknesses in financial regulation in some markets. In particular, it exposed insufficient capital, too little attention to liquidity and adverse incentives for the executives of some institutions that encouraged inappropriate risk-taking. It also highlighted weaknesses in accounting standards.

The G20, the Basel Committee on Banking Supervision, the Financial Stability Board and the International Monetary Fund are the key international bodies that are developing rules and regulations designed to create a more robustly regulated global financial system.

The Basel Committee on Banking Supervision released proposals for consultation in December 2009. These focused on tightening up institutions' capital and liquid asset holding requirements.

These proposals require institutions to hold higher quality capital predominately in the form of ordinary equity, which is genuinely loss absorbing. There would also be limits on the amount of hybrid capital that institutions can hold to meet their capital requirements.

Other proposals involve the introduction of counter-cyclical capital buffers and a supplementary leverage ratio.

Strengthened liquidity rules would require institutions to hold more and higher-quality liquid assets to survive a longer period of severe market stress. These measures would make banking systems more stable and less exposed to external shocks.

The international regulatory bodies are carefully considering the exact design and detail of these proposals.

The Australian Government and regulators are active in international fora, pushing to ensure that the new rules take into account domestic circumstances across G20 economies, including Australia.

International bodies are taking time to ensure that the new rules achieve the right balance between financial system stability and the costs associated with greater regulation.

In particular, a quantitative impact assessment study is being undertaken in regard to the proposals to strengthen capital and liquidity standards in order to calibrate the new regulatory standards.

Details of the new international capital and liquidity standards are expected to be finalised by the end of 2010, with implementation phased in from 2011. There will also be transition periods after that to minimise unintended consequences.

The Australian financial system demonstrated extraordinary resilience over the course of the crisis. However, it would not be fair to say that Australia was unaffected. We should not pretend either that Australian institutions — while highly-rated and well-capitalised — are invulnerable to every conceivable adverse international market development.

The credit crunch exposed the fact that both the amount of liquid assets and the types of liquid assets held by financial institutions were insufficient.

Hence, while we have demonstrated strength during the global financial crisis, there are still areas where regulation could be improved.

Further, if Australia fails to implement regulations consistent with those implemented internationally, there could be a risk of Australian institutions being viewed as comparatively more risky by wholesale investors.

That said, Australian regulators need to exercise discretion to ensure that regulation is appropriately tailored to take account of Australia's circumstances while remaining consistent with internationally agreed reforms. It is important that we get the balance right between enhanced financial system stability and the costs that would be associated with greater regulation.

Conclusion

Australia's banking sector is in a sound position to continue to support growth in the economy and to meet the challenges Australia will face over the coming decades.

As the economy and financial markets recover, we want to see competitive pressures in the sector increasing.

Given the financial system's key role in the economy, we cannot be complacent. It is important that we continue to monitor the competitive dynamics of the banking sector closely and continue to empower consumers.

In addition, the global financial crisis has given us the opportunity to strengthen our financial regulation further to safeguard against future financial crises, whilst also making sure that regulation is appropriate.

Our priority is to ensure that the sector is well positioned to harness future opportunities, offer a wide range of competitively-priced products to consumers, as well as to withstand any future shocks.

Thank you.

The value of the environment

Dr Ken Henry AC
Secretary to the Treasury

Address to the Environment Business Australia Forum, 4 March 2010

Introduction

Thank you for inviting me to speak here today.

Many of you would have first-hand experience of complementing traditional commercial reporting with social and environmental assessments. Governments also, from time to time, produce reports in these three dimensions. Today, I'd like to run through some of the thinking contained in the Government's most recent contribution in this space: the 2010 Intergenerational Report.

I'm going to focus on the dimension that has received the least attention historically; environmental sustainability.

Broadly, sustainability is concerned with ensuring that the wellbeing of future generations is at least as high as that of the current generation. The Intergenerational Report discusses how the wellbeing of a generation depends in large part on the overall 'stock' of resources that is inherited from previous generations. This stock includes commercial, social, human and environmental resources.

The contribution of environmental resources to wellbeing is broad-ranging. And it has both instrumental and constitutive features. In both ways, we are enriched by its existence. The environment sustains life, supports our physical and mental health and provides psychic enjoyment. Constitutively, Australia's unique biodiversity is integral to our cultural identity. Instrumentally, the environment supports the consumption of market products as an input to production. These inputs include the ecosystem services that generate soil fertility, provide protection from erosion and support tourism.

In intergenerational reporting, a discussion of the environment is especially relevant because, provided it is maintained, the environment is likely to offer even greater benefits for future generations. It is very likely that improvements in our material wealth and our understanding of the environment will enhance our appreciation and enjoyment of the environment over time. And technology developments could generate opportunities for a more sophisticated use of the environment as an input to production. There seems to be great scope, for example, for developing new or improved food crops, medicines and industrial products from our biological diversity.

But this is all a qualitative assessment. A quantitative assessment would be useful. However, as outlined in the Intergenerational Report, it is very difficult to quantify the environment's contribution to wellbeing.

Even so, it is highly significant that there is a renewed global focus on the valuation of intangible contributors to wellbeing, prompted in part by the Report by the

Commission on the Measurement of Economic Performance and Social Progress, led by Joseph Stiglitz, Amartya Sen and Jean Paul Fitoussi.[1]

Valuation difficulties are not unique to environmental contributors to wellbeing. As Stiglitz, Sen and Fitoussi have pointed out, there are considerable difficulties even in measuring the value of market consumption and wealth. But in a world with readily available market measures of things like income and employment, the lack of similarly accepted measures of the value of the environment creates the risk that government policies and project approval processes will fail to get the balance right.

It is important, therefore, that we invest appropriately in techniques for estimating the value of the environment.

Currently available techniques fall into two broad categories: valuation that relies on views in the population, and valuation through reference to 'experts'.

Valuation by the population: revealed preference

One way to estimate the value of the environment is to consider the population's actual behaviour — their 'revealed preferences', in economic jargon.

For environmental assets that are owned and tradable in functioning markets, such as private land and mineral rights, the asset prices that are revealed when people trade can provide some measure of value.

Even though only a subset of the environment is owned and traded in functioning markets, the value of this subset represents a significant share of the total value of Australia's commercial assets. The national balance sheet produced by the ABS only includes assets over which ownership rights are enforced and from which economic benefits may be derived by their owner. As shown in Chart 1, some natural assets that meet these criteria — including mineral deposits, certain land, and various natural forestry and farm assets — represent more than a third of Australia's total commercial assets.

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1   Stiglitz, J, Sen, A, and Fitoussi, J 2009, *Report by the Commission on the Measurement of Economic Performance and Social Progress*, www.stiglitz-sen-fitoussi.fr.

Chart 1: Estimated commercial value of subset of natural assets
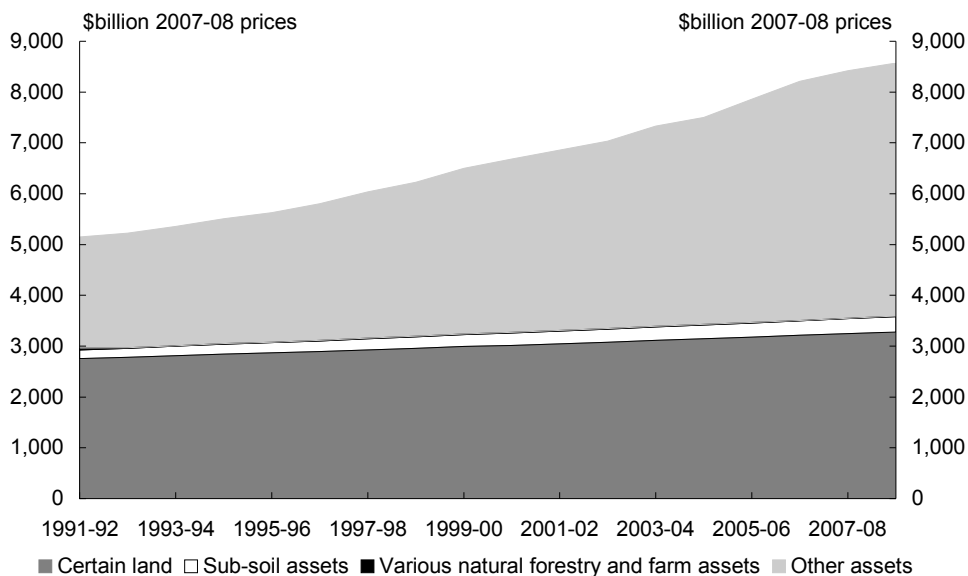
Source: ABS cat. no. 5204-18 and Treasury.

A couple of things to note about the chart.

The commercial value of assets other than natural assets has grown strongly in recent decades, mainly in the categories of dwellings, other construction, machinery and equipment and financial assets. But the commercial value of our land (in this case, land in private hands or owned by government business enterprises) has also grown significantly and remains the largest category of asset. Embedded in these land values would be the commercial value of ecosystem services that support agricultural productivity (offset to some degree by the perceived costs to agricultural productivity from what are considered pests and weeds).

The value of Australia's mineral deposits has also grown over time despite ongoing extraction, reflecting price increases, upgrades in the status of known reserves driven by price and technology changes, and new discoveries.

The commercial value of natural forestry and farm assets seems low by comparison. This category includes: standing timber in plantations and native forests where logging is allowed; fruit trees, dairy cows and breeding stock; and current crops, aquaculture and livestock. The category would capture little of the commercial value to future generations of plants and animals: much of this value would be embedded in the value of land, and some may be captured in intellectual property assets. The category also does not capture the commercial value of animals that are harvested from the wild.

There are also important natural assets, like water and wild fish, whose commercial value is not captured in the national balance sheet. Establishing the commercial value of water is difficult given that prices are only available for some forms of water supply. Estimating the commercial value of wild fish may be more achievable, with the New Zealand statistical agency taking the lead in this area. They have estimated the commercial value of wild fish by analysing prices revealed in New Zealand's system of transferable fishing quotas.[2]

For environmental assets that are not privately owned and traded in functioning markets, prices in related markets can sometimes be used to infer value. For example, the prices of houses that are similar other than with respect to aircraft noise have been compared to yield an estimate of the negative value (cost) of such noise.[3] Estimates of this sort can be helpful in assessing development proposals. In principle, the technique could also be used to 'unpack' the various types of commercial value embedded in land prices. For example, if we compared the price of parcels of rural land that are similar except for the presence of windbreaks, or if we compared the price of suburban blocks that are similar except for the proximity to parks and nature reserves, we might be able to estimate the commercial value of these environmental services.

These 'revealed preference' techniques have the advantage of being connected with people's decisions to actually part with their money.

The Office of Best Practice Regulation advises Australian Government agencies that revealed preference valuation is potentially credible.

That said, there are a number of problems with relying on asset prices to indicate value — even if we are limiting ourselves to commercial value.

Asset prices reflect perceived benefits. Because of perception errors, to which I will refer in a moment, perceived benefits are not the same as real benefits.

Asset prices reflect the anticipation of both certain and contingent benefits (with the component of the price relating to the latter referred to as option value). But if property rights are insecure, not only will rapid over-exploitation be encouraged, but prices will not reflect distant anticipated benefits. There is also debate about whether the extent to which individuals discount future benefits is in their objective interests. And, of course, benefits that are not anticipated are not reflected in prices.

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2 Statistics New Zealand, 2008, *Fish Monetary Stock Account 1996 – 2007*, www.stats.govt.nz/publications/businessperformanceenergyandagriculture/fish-monetary-stock-account-1996-2007.aspx.
3 Holsman, A and Aleksandric, V 1977, 'Aircraft noise and the residential land market in Sydney', *Australian Geographer*, 13, pp 401-408.

Asset prices reflect benefits that are specific to the owner. But benefits that are provided to others, be they adjacent landholders or the community at large, now and in the future, will not be reflected fully in asset prices.

And asset prices only indicate the anticipated, owner-specific benefits perceived by participants in recent trading. The benefits to incumbent owners who don't choose to engage in trade may be higher than the prices observed in recent trades. Reference to prices from recent trades could understate the value of the entire stock of the asset class. The extent to which prices indicate value is further muted if property rights are inflexible and trade is restricted.

For these reasons, other techniques for estimating environmental value are necessary.

Valuation by the population: stated preference

An alternative technique is simply to ask people about their willingness to pay for the environment. An advantage of so-called 'stated preference techniques' is that respondents can be asked about the benefits they derive from an environmental asset that they do not privately own. This allows for the generation of estimates of value beyond owner-specific value.

A recent example of estimating value through surveys is a study into the valuation of Victoria's river red gum and East Gippsland forests.[4] Victorians living both in and outside of these regions were asked to choose among several scenarios. Scenarios involved paying various amounts over twenty years in order to achieve different areas of protected forests, different numbers of parrots, owls, potoroos, native fish including Murray cod, and different numbers of campsites. The approach, appropriately called choice modelling, provided enough information to derive monetary estimates of the non-use value to Victorians of incremental changes in forest area, animal numbers and campsite numbers.

As an example of the post-survey valuations possible through choice modelling, the survey response can be used to infer that setting aside 500 more hectares of healthy river red gum forest as a nature conservation reserve rather than production forest — yielding 10 additional breeding pairs of parrots, 5 per cent more of pre-European numbers of Murray cod, and 2 more camping sites — would generate non-use value

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4   Bennett, J, Dumsday, R, Lloyd, C, and Kragt, M 2007, *Non-use Values of Victorian Public Land: Case Studies of River Red Gum and East Gippsland Forests*, Prepared for the Victorian Environmental Assessment Council, http://www.veac.vic.gov.au/documents/VEAC_Final_CM_report_1_June_07.pdf.

for Victorians of $6.5 million a year for 20 years.[5] In concept, comparing this valuation with the opportunity cost of reduced timber harvesting or grazing would yield an estimate of the net impact on community wellbeing from the hypothetical land use change.[6]

However, there are significant problems with relying on surveys to estimate the value of the environment. Many of these problems — such as respondents being unrepresentative, and replies being affected by differing understanding, financial circumstances and strategic approaches among respondents — have been recognised for a long time and there is a lengthy literature on survey technique and design that deals with methods to manage these problems.

Today I'll touch on a more fundamental problem with relying on surveys for estimating environmental value; a problem that we are only now grappling with, at least in the economics profession.

Our understanding of the problem comes largely from Daniel Kahneman, a recent Nobel Prize winner for his work in behavioural economics.[7] He argues that, while our tendency to rely heavily on intuition when making decisions generally serves us well, it nonetheless leads to frequent predictable mistakes.

We make mistakes when undertaking market transactions, which casts doubt on our ability to rely on market prices to indicate value. But we make these mistakes even more when answering surveys: as less is riding on our survey responses, we are more likely to resort to quick intuition rather than reasoning, which requires time and effort.

Kahneman outlines various types of mistakes from our heavy reliance on intuition. For example, we tend to put different value estimates on the same scenario depending on the nature and order of surrounding questions, whether the scenario is cast as a loss or a gain, and how risks within the scenario are cast.

The value estimates we assign to scenarios with different dimensions are often peculiar. For example, survey respondents might, on average, be willing to pay more to save all blue whales than they would be prepared to pay to save all whales of all species, even though the latter obviously includes the former. The value estimates we

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5   As I'll discuss valuation by experts shortly, it is worth noting that choice modelling, and this study in particular, relies heavily on expert scientific opinion for survey design and the analysis of the survey results.

6   This estimate would not capture 'indirect use benefits' from the change, such as improved water filtration.

7   Kahneman, D 2002, 'Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice', Lecture upon receipt of the Prize in Economic Sciences in Memory of Alfred Nobel, http://nobelprize.org/nobel_prizes/economics/laureates/2002/kahneman-lecture.html.

assign to scenarios that differ in scale can also be peculiar. For instance, a study found that the amount households would be willing to pay to save migratory birds from drowning was unaffected by whether the number of birds saved was 2,000, 20,000 or 200,000.[8]

Kahneman argues that the key driver of decision-making in these survey responses is the emotion that is evoked by the questioning. Losses are felt more heavily than gains, the idea of blue whales evokes a richer mental image than the idea of whales in general, and the idea of drowning birds probably conjures up an image of only one bird — a single bird drowning or being saved from drowning — irrespective of the actual number of birds at risk (2,000, 20,000 or 200,000). Numbers in the thousands are so large that the human mind 'cheats' with a simple prototype heuristic that neglects scope.

Policy makers need to exercise great care, therefore, in relying on such survey results when shaping environmental programs.

Valuation by experts

The opinions on the value of the environment of those deemed to be experts can be useful since they should have a better understanding than the general population of the workings of the environment and of the likelihood of certain environmental developments. Some experts may also be well placed to predict future benefits offered by the environment.

Kahneman puts the case in this way: some people — being more intelligent, having a stronger grasp of concepts like probability, and deriving unusual enjoyment in thinking — can be less susceptible to intuitive mistakes, and more likely to review intuitive decisions with reasoning, than the rest of us. If these people operate in positions where they are considered experts, then these skills might be further honed through repeated consideration of problems of a certain type.

The time and analytical tools an expert has to analyse the value of the environment, compared to the necessarily constrained time that a respondent has to peruse and answer a survey, can also lead to a more information-rich valuation.

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8   Desvousges, WH, Johnson, F, Dunford, R, Hudson, S, Wilson, K, and Boyle, K 1993, cited in Kahneman, D, 2002, 'Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice', Lecture upon receipt of the Prize in Economic Sciences in Memory of Alfred Nobel, http://nobelprize.org/nobel_prizes/economics/laureates/2002/kahneman-lecture.html.

For instance, experts have at their disposal various tools for considering uncertainty, which is especially important in environmental valuation. These tools include: sensitivity analysis, which involves asking what the outcome would be if parameters differed from the central estimates; break-even analysis, which involves asking what the uncertain parameters would need to be to achieve a given outcome; and real options analysis, which involves staging decision-making so as to coincide with expected information developments.

Expert valuation is a key component of Victoria's BushTender program, where the Victorian Government purchases environmental services from private land managers through a competitive tender process. In order to allocate an overall budget into separate funding pools for the purchase of distinct environmental services, experts have been called on to estimate the relative values of the various environmental services. A similar approach and reliance on expert opinion underpins the Australian Government's Environmental Stewardship program.

The benefits of expert assessment of the value of the environment shouldn't be overstated, however.

Kahneman makes the qualification that the quality of the opinions of experts depends heavily on whether they are given the time and space to think, and he cautions that sometimes reasoning is used simply to reinforce original bias or intuition.

There's also the issue of bias in the selection of experts — specifically, a risk of governments selecting experts whose values align with their own, and whose views can therefore be 'trusted'.

And it is important to keep in mind that a little learning can be a dangerous thing. Experts are experts only in the specific area in which they have demonstrated expertise — even if they have strong opinions on matters in which they are not expert. Expert opinion is not the same thing as the untested and uninformed opinion of an expert.

These qualifications might seem a bit pedantic. But the risks of an abuse of process due to improper reliance on the opinion of an expert is especially high in politically contentious debate on environmental matters. It is very important not to confuse the utilisation of expert opinion on environmental values with the more common appeal to illegitimate or inappropriate authority that characterises a lot of debate about politically contentious environmental issues.

As a personal aside, I recall a recent example of the latter, which involved one of our sub-national governments asking a panel of grassland ecologists to offer advice on the difficult ethical question of whether it is more humane to kill a kangaroo than it is to

relocate it. Ethics, too, requires expertise — and it is an expertise that should not be assumed to be positively correlated with scientific training.

Even where the expertise is real or relevant, policy makers should exercise caution, especially in areas of complexity.

As Stiglitz, Sen and Fitoussi point out, anyone's overall assessment of a complex situation is inherently subjective, difficult to compare with the assessment of others, and usually difficult to replicate.

By the way, we in the Treasury, who are often called on by governments to offer such assessments are very aware of the risks in claiming too much, and of the need to ensure that the evidence is relevant and the judgements transparent.

A technique with the grandiose name of multi-criteria analysis illustrates some of the pitfalls. This technique involves an expert scoring the various impacts of a proposal, then weighting these scores according to the relative desirability of the impacts, to come up with an overall quantitative assessment. Where a proposal includes environmental impacts, such multi-criteria analysis essentially reflects the expert's subjective valuation of the environment.

Recent examples include multi-criteria analyses of options for meeting the future water needs of Far North Queensland, options for routing the pipeline for diverting Goulburn River water to Melbourne, and options to reduce the run-off to the Great Barrier Reef of nutrients, pesticides and sediments from agricultural land. While these are worthy areas of expert consideration, putting numbers on what are essentially qualitative assessments gives a false impression of scientific certainty, particularly since the number produced by one multi-criteria analysis cannot be replicated or compared with the number produced by another. Multi-criteria analysis might also allow preconceived conclusions and the influence of consulted stakeholders to be embedded in the approach, without this being readily detected and subject to scrutiny.[9]

Information provision

While there are problems with estimating the value of the environment through revealed preference techniques, stated preference techniques and a reliance on experts, our ability to arrive at a sound estimate of the value of the environment is helped by

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9   See Dobes, L, and Bennett, J 2009, 'Multi-criteria analysis: "good enough" for government work?' *Agenda (ANU College of Business and Economics)*, 16 (3), pp 7-29, http://epress.anu.edu.au/agenda/016/03/pdf/whole.pdf.

the fact that, at least in some instances, the techniques can be mutually supporting. The key to this mutual support is the sharing of information between experts and the wider population.

Experts can provide the population with an improved understanding of the state of the environment and its workings. This can improve the capacity of the population to make well informed decisions in both the marketplace and constructed surveys. Even if some of the details of the workings of the environment cannot be readily passed on to the population at large, the communication process is important for building trust in experts, and in building confidence that issues are subject to robust scrutiny.

The information flows should not be all the one way. Experts can learn about the preferences of the population; something which might better direct their analysis.

Much of the communication from experts to the population involves communicating the physical state of the environment rather than value estimates. Physical and value estimates should be related.

But the relationship might not be obvious. A value measurement of the environment, such as the estimated value of a particular type of native habitat, could rise — due to preference changes, technology developments or increased scarcity — even though the corresponding physical measurement, such as the remnant area of the habitat, could decline.

The presentation of physical measures of the environment to allow others to form their own subjective views about the value of the environment and its contribution to our wellbeing is an approach endorsed by Stiglitz, Sen and Fitoussi. They have suggested, in particular, that countries present a dashboard of indicators showing changes in various environmental resources, with some indication of the proximity to dangerous levels of environmental damage.

As an example, the Government's 2010 Intergenerational Report presents two indicators of our physical environment that are of great concern — threatened and extinct species and changes in the composition of Australia's vegetation cover since European settlement. These indicators draw on the much more extensive reporting on environmental statistics in the Government's periodic State of the Environment.

Conclusion

So where does this leave us? We have various techniques for estimating the value of the environment, each with its advantages but also significant disadvantages, each offering prospects for further progress. We have the potential for experts to improve the environmental understanding of the wider population, and for experts to gain a better understanding of what matters to the wider population. We can bring together the various estimates of the environment's value from the population and from experts. We've made a start. But it's only a start. Much more needs to be done if we are to be able to say that the wellbeing of future generations is not to be threatened by poor valuation of the environment.

An overview of transport investment and government policy

Mr Jim Murphy
Executive Director, Markets Group

Address to Urban Transport World Australia Forum 2010, 23 February 2010.

Introduction

I've been asked to provide an overview of transport infrastructure investment and Australian Government policy.

First, I'd like to consider a threshold question. Why should governments, Commonwealth and state, act to improve the quality, adequacy and efficiency of Australia's transport infrastructure?

Transport infrastructure and productivity growth

Transport infrastructure supports economic growth by reducing costs to business through faster, more efficient roads, rail and ports. More efficient freight networks and export infrastructure mean Australian businesses will have better access to global business. Fewer costs improve the competitiveness of Australian businesses.

Investment in faster, safer and more reliable transport systems means our cities are better places to live. Less traffic on our roads helps reduce travel times and costs. This means individuals have greater access to education, health and other services and also benefit from more employment opportunities as the mobility of labour is raised.

In the Australian context, the OECD has noted that past investment in Australia's roads has been associated with higher GDP, relative to other types of investment. Similarly, investment in Australia's rail network has gone hand-in-hand, in the past, with higher aggregate output levels in comparison to other types of investment.

However, governments must act to improve the quality, adequacy and efficiency of our transport infrastructure so that it can continue supporting productivity growth into the future. As highlighted by the Government's third Intergenerational Report, our current transport infrastructure will be subject to ever increasing levels of demand.

This growing level of demand is most likely to result from:

- population growth;

- demographic change and an ageing population;

- greater urbanisation; and

- climate change.

The third Intergenerational Report, cities and transport infrastructure

Australia is one of the most urbanised countries in the world. The United Nations estimates that over 88 per cent of Australians live in urban areas. Of course, this includes urban centres outside Australia's major capital cities, such as Wollongong, the Gold Coast and Geelong. By 2020, this is forecast to grow to over 90 per cent of Australia's total population.

In terms of economic activity, Australia's major capital cities account for at least 65 per cent of GDP. Australia's three largest cities — Sydney, Melbourne and Brisbane — contribute over 50 per cent of GDP. The implications are clear — Australia's cities and urban centres are a key driver of national productivity growth.

Investment in our cities is needed so that they can continue to support productivity growth. Indeed, failure to invest in our cities may prove very costly — constraining future economic growth. In an urban context, traffic congestion is a clear example where failure to undertake reform will constrain future economic growth.

The Bureau of Infrastructure, Transport and Regional Economics has forecast that the cost of doing nothing about congestion in Australia's capital cities is around $12.9 billion in 2010. Along with a growing population, this cost is estimated to rise to around $20 billion per year by 2020. I don't need to tell anyone living in Sydney, Melbourne or Brisbane that congestion costs are real and substantial.

As well as time costs, they include traffic delays, increased greenhouse gas emissions, higher vehicle running costs, more road accidents and reduced family and leisure time. Easing demand on our roads is also important to address Australia's growing freight task. By 2019, the national freight task will have almost doubled from 1999 levels to almost 60 billion tonne-kilometres per year.

As an export-orientated economy, our national freight networks and international gateways are critical to the timely movement of goods on our roads and through our ports. More efficient freight networks and export infrastructure are needed so that Australian businesses have better access to global markets.

Investment in our transport infrastructure, urban and regional, is needed so that people and goods can move from one point to another in an efficient way. This is one reason why investment in urban transport networks is important — directly shaping how well our cities function. Well-targeted and efficient infrastructure investment in our cities and towns, complemented by integrated infrastructure planning, can offer potentially high economic and social benefits.

In large part, this is due to some of the inherent characteristics that higher density areas possess. For example, governments can deliver a greater number of services to a larger number of people at lower cost. Finally, cities also create economies of scale and density for infrastructure. Generally speaking, cities require less fixed infrastructure, per person, relative to rural areas. For example, a metropolitan train services more people over fewer kilometres of track than a train travelling through regional and rural Australia.

However, as I noted earlier, greater population density and rising demand can eventually result in significant congestion costs. At a certain point, these costs will offset the benefits of the economies of scale.

The infrastructure investment task

I've already outlined some of the most important drivers that will affect future demand for economic infrastructure. Population growth, demographic change, increased urbanisation, and climate change. These will be challenges for decades to come and our economy is still operating below capacity.

But the Government is already focussed on ensuring our transport infrastructure has the capacity to support increased demand as the recovery takes hold and also support our growing population into the future. A significant proportion of the Government's stimulus was geared towards addressing these capacity constraints that were always expected to return. Something like 70 per cent of the stimulus is in nation-building infrastructure — including in road, rail and ports.

The Government has committed to continue its focus on: firstly, prioritising its infrastructure spending decisions carefully. Secondly, focusing on demand and supply-side reforms to encourage better, more efficient utilisation of existing transport infrastructure. Thirdly, encouraging the private sector to play a key role in the development, delivery and operation of Australia's transport infrastructure.

Further, we need to be smart when it comes to planning our future infrastructure. Careful, strategic planning is required otherwise we risk exacerbating existing problems. We also need to ensure that public and private sector investment is directed to those projects that deliver the greatest economic and social benefits. The Government has established Infrastructure Australia to conduct this sort of analysis.

Building more and more roads is not, however, always the answer. In most major Australian cities, the cheapest supply-side options have already been taken. Acquiring more land for urban roads, building new bridges or digging new tunnels can be an expensive way to meet our future needs. And in highly developed cities like Sydney, Melbourne and Brisbane such options may no longer be feasible. Even where

expanding road capacity is affordable, there is still a question of how many additional roads and increased traffic flows are sustainable.

In addition, there is some evidence from cities in the United States that the extension of most major urban roads induces a proportional increase in traffic — that is, new users on the roads.

A framework for government action

I have already touched on how governments can act to address Australia's current and future infrastructure needs through: direct investment, demand and supply-side regulatory reform and private sector investment. In addressing the topic of infrastructure investment and government policy, I will consider each one in turn, including:

• how the Australian Government prioritises transport projects for Commonwealth funding and, in particular, Infrastructure Australia's role in advising the Government;

• how government reform can make Australia's existing infrastructure more efficient; and

• Infrastructure Australia's work in creating a national public-private partnership market.

Direct investment in transport infrastructure

Infrastructure Australia

In the 2009-10 Budget, the Government allocated $8.5 billion to building new transport infrastructure across the states and territories. The selection of these projects involved a careful assessment of the benefits associated with each project. Infrastructure Australia (or IA) advised the Government on projects that could be suitable for funding in the 2009-10 Budget. These projects were shovel ready and, at the same time, met a range of criteria set down by IA.

IA is a critical part of the institutional structures and decision-making frameworks the Government has put in place to support its infrastructure agenda. And its role is designed to help governments select those infrastructure investments with the highest economic and social returns. Established as an independent statutory body by the Government in 2008, it was set up solely for the purpose of driving the development of

a long-term, coordinated national approach to infrastructure development and delivery.

As part of a national audit of transport, communications, energy, and water infrastructure, IA identified seven themes to guide investment in Australia's infrastructure. Today, I will just outline those three that are most relevant to us.

• increasing public transport capacity in our cities;

• developing more effective ports and associated land transport systems to more efficiently cope with imports and exports; and

• development of our rail networks so that more freight can be moved by rail.

Based on a published methodology, and working with the project proponents, IA assessed and prioritised proposals based on whether they supported one of IA's seven themes for action, addressed a relevant theme and were of national significance.

Eligible projects also needed to meet the assessment criteria set down in legislation. These include:

• How well the project meets Australia's nation-building policy goals to support economic growth, protect the environment and promote social inclusion?

• How does the project contribute to Australia's economic success?

• Whether high quality project governance structures are in place to ensure that the project can be successfully delivered?

IA applies rigorous cost-benefit analysis to the assessment and prioritisation of project proposals. Using a cost-benefit analysis means IA can determine a benefit-cost ratio through which most benefits and costs, including environmental, are monetised. This approach means each project is measured based on an objective economic assessment of the project. This includes identifying the level of marginal, or additional, benefit a project will deliver compared to its marginal economic cost. Every infrastructure project funded out of the Government's Building Australia Fund in the 2009-10 Budget was recommended by IA.

Going forward, the Government will continue to draw on IA's advice in prioritising infrastructure spending. This is particularly important given the impact the global financial crisis has had on Government finances.

Strategic planning and major cities

The third aspect relates to strategic planning in Australia's major cities. The Prime Minister has said:

> 'If the Commonwealth is to foot any significant part of the urban infrastructure bill — the Commonwealth will legitimately expect to have confidence in the integrity of the strategic planning in our major cities.'

Transparent, long-term plans for growth are needed to support high quality urban development. And to support this, the Prime Minister has proposed the development of national criteria to evaluate the future strategic plans for Australia's major cities. The Government will then link infrastructure funding to compliance with these criteria.

This will affect the allocation of Government funding to states and territories to build transport infrastructure in our major cities. Eight criteria were proposed; but three are particularly relevant for the Government and its investment in urban transport infrastructure into the future.

• Whether credible plans to reduce greenhouse gas emissions have been implemented. This includes practical improvements in public transport infrastructure.

• Whether provision has been made for building and upgrading nationally significant infrastructure like transport corridors, inter-modal connections and communications and utilities networks.

• Whether an effective framework for private sector investment and innovation in urban infrastructure is in place.

Of course, a key part of this new approach will be Commonwealth-state arrangements to jointly assess how states and territories have performed against these criteria and how performance can be improved. To this end, the Commonwealth is committing to more fully developing the criteria and guidelines in consultation with state and territory governments and the Australian Local Government Association through the Council of Australian Governments (or COAG).

Making existing infrastructure more efficient

The way governments decide to spend money and invest in urban infrastructure is important in expanding the productive capacity of the economy. While the

Government established IA for this purpose, it's not the only way governments can drive good policy outcomes. Investment is only one part of the infrastructure story.

Regulatory reform is needed to promote the better, more efficient use of our existing stock of transport infrastructure. This is necessary for the economic benefits associated with existing infrastructure to be fully realised. The Government's micro-economic reform agenda is one way it is acting to help achieve this outcome.

As part of its reform agenda, the Government is working with state and territory governments to streamline regulations applying to the nation's transport sector. These reforms were long overdue. Altogether, they have the potential to boost national income by as much as $2.4 billion a year. They will reduce transport costs for business and help lift national productivity without compromising safety.

In 2009, COAG agreed to implement national regulation for rail and maritime safety, and heavy vehicles. The Australian Maritime Safety Authority will become the national safety regulator for all commercial shipping in Australian waters. A national rail safety regulatory system will be established, with South Australia hosting the national regulator. A single national heavy vehicle regulator will be established to regulate all vehicles over 4.5 gross tonnes. Better assessment of risk and more efficient allocation of resources through a national scheme will improve the safety of these key transport sectors.

COAG has also commissioned the next stage of research needed to move towards more efficient heavy vehicle charging under the COAG Road Reform Plan. All up, these national arrangements are intended to remove inefficiencies that are caused by inconsistent jurisdictional requirements and reduce the compliance burden for business. This will help reduce transport costs more generally, benefiting both businesses and consumers alike.

The governments of Australia are working together to put in place a seamless national economy — an outcome that will lift national productivity and allow transport operators to get products onto supermarket shelves and our exports to market at the lowest cost.

In addition to regulatory reform, cost-reflective user pricing can be a tool for governments to change user behaviour and demand for scarce resources, such as road space.

Research suggests that the costs of road congestion will continue to grow as demand for scarce road space grows. The costs of congestion are multiple, and include longer travel times, higher levels of air pollution and increased greenhouse gas emissions.

The different charges levied on road users, such as fuel tax, motor vehicle stamp duties, registration and insurance arrangements and the possibility of user charges, such as congestion charging, are within the scope of the Review of Australia's Future Tax System.

You will understand that I cannot comment on what the Review has found on these issues, nor on what the Government's response might be.

A role for the private sector – PPPs and a national market

The National PPP Policy and Guidelines

I would like to take the opportunity now to say something about the role of the private sector in infrastructure provision and how governments and IA can facilitate this. It is worth pointing out that IA's role is not simply confined to making recommendations to Government about its spending decisions.

IA is also playing an instrumental role in the creation of a national public-private partnership (or PPP) market. A large part of this role involves direct engagement with the Infrastructure Working Group. This group was established under COAG and includes representatives from the Commonwealth, and states and territories who meet regularly to progress its PPP agenda. This includes the development of the National PPP Policy and Guidelines and fostering a competitive national PPP market. This means both IA and COAG are working to advance the Government's agenda to create greater competition and drive down costs in infrastructure markets through greater private sector participation.

The benefits of this policy are clear. Governments achieve better value for money because PPPs help facilitate better, more optimal risk transfer, management synergies, increased innovation, more efficient asset utilisation and integrated whole-of-life asset management. IA is supporting the creation of a national PPP market through the development of National PPP Policy and Guidelines and creating awareness around a pipeline of PPP projects.

Developed in consultation with state and territory governments, and endorsed by COAG on 29 November 2008, the Guidelines are an important milestone in the development of a national PPP market because they seek to consolidate the PPP guidance material of individual Australian jurisdictions to provide a unified national framework. The Guidelines are extremely comprehensive. They cover for instance: project assessment, affordability and procurement strategies. The Government is strongly committed to these Guidelines because of the real and tangible benefits they offer state and territory governments in their infrastructure procurement.

In addition to the National PPP Policy and Guidelines, and as part of its wider efforts to foster greater national consistency in the procurement of social and economic infrastructure using the PPP model, IA has worked with states and territories to develop commercial principles for infrastructure delivery.

IA has developed two sets of commercial principles. The first set of principles apply to social infrastructure and are included as part of the Guidelines I mentioned earlier. These principles set out the Commonwealth and state and territory governments' current preferred commercial principles for social infrastructure PPPs.

In general, these principles apply to core services and accommodation projects where government payments are based on the availability of the infrastructure, and the facility reverts to government ownership, at no cost, at the end of the concession term. Building on the Guidelines, these principles are intended to achieve a consistent and efficient risk allocation framework for the delivery of social infrastructure PPPs across jurisdictions.

To this end, jurisdictions have agreed that these principles replace existing standard commercial principle guidance material for social infrastructure projects that currently apply at a jurisdictional level.

In addition, IA is working on a set of commercial principles for economic infrastructure projects. As many of you are already aware, economic infrastructure projects generally includes those projects where the private sector party bears the market, or demand-side, risk and revenues are often derived from third parties. This is different from a social infrastructure project where government retains the demand risk, traditionally through an availability-based payment mechanism. Common examples include toll roads, ports and car parking facilities.

The draft commercial principles for economic infrastructure are under development but, similar to the commercial principles for social infrastructure, they are intended to apply to the Commonwealth and state and territory governments so as to achieve a consistent and efficient risk allocation framework for the delivery of economic infrastructure PPPs across jurisdictions.

Early feedback suggests that these Guidelines, complemented by the commercial principles for social and economic infrastructure, have been helpful in educating potential private sector participants in Australia's PPP market.

Greater consistency and more transparency surrounding the PPP model and its use across jurisdictions is an important way to lower transaction costs for potential market participants while, at the same time, building greater awareness and confidence in the processes governments apply to PPP procurement.

Conclusion

In conclusion, governments have a leading role in the development and delivery of nation building transport infrastructure. The Commonwealth and state and territory governments each has a role to play through direct investment and regulatory reform, along with continuing to encourage, and partner with, private sector investors in transport infrastructure markets.

Each role is extremely important. Direct investment in infrastructure delivery is essential but the benefits of such investment depend on the selection of those projects that can deliver the greatest social and economic benefits and effective regulatory frameworks.

Transparent and robust decision-making processes and project analysis are needed to support this outcome. Appropriate institutional structures are vital. In this context, the establishment of IA represents an important change in the institutional architecture that underpins and informs Government decision-making and the prioritisation of its spending decisions.

Going forward, IA will also be important in articulating an integrated national infrastructure agenda that complements efforts by state and territory governments to develop long-term strategic plans for Australia's capital cities.

Acting together, the public and private sectors have an important role in improving and expanding the quality, adequacy and efficiency of Australia's transport infrastructure. Greater private sector participation in infrastructure development is essential.

Working through COAG and IA, the Government will continue to focus on identifying practical and specific measures — like the National PPP Policy and Guidelines — that will help attract more private sector participation into the infrastructure market. This will, over time, build greater confidence and certainty in the Australian PPP market. The benefits of this policy are clear — increased competition and greater value for money.

The need to sustain future productivity growth so as to support rising living standards over time is one of the primary responsibilities of government. Governments must continue to act through direct investment and regulatory reform to drive a well-functioning and competitive market for transport infrastructure.

China: growth, urbanisation and mineral resource demand

Jin Liu and Tony McDonald[1]

Over recent decades, China has experienced rapid economic growth and a related sharp increase in its rate of urbanisation. The speed of this transition, along with the sheer size of China's population, has resulted in China being an increasingly significant driver of global growth and mineral resource demand over the past decade.

This paper analyses trends in China's growth, urbanisation and mineral resource demand. It compares China's experience in recent decades with that of other Asian emerging economies over the past half-century. It also seeks to put the recent surge in Chinese growth and urbanisation in a longer-term perspective.

It concludes that, since the convergence of China's level of economic activity and urbanisation with those of more developed countries is far from complete, China will continue to be a major source of demand for mineral resources for some time to come.

Introduction

Under the leadership of Deng Xiaoping, at the end of the 1970s China embarked upon a series of economic reforms aimed at opening up the economy to competitive forces. In the three decades since, China has experienced high and sustained economic growth. Over the same period, China has seen a rapid increase in the proportion of its citizens living in cities.

The effect of these related trends, along with the sheer size of China's population, has had a significant impact on the world economy generally, and demand for mineral resources in particular.

This paper analyses trends in China's growth, urbanisation and mineral resource demand. It compares China's experience in recent decades with that of other Asian emerging economies. It also seeks to put the recent surge in Chinese growth and urbanisation in a longer-term perspective.

China's economic convergence

Over the past three decades the Chinese economy has maintained an average of around 10 per cent annual growth rate, equivalent to doubling in size every eight years. This has been a period of rapid economic convergence for China, with its real GDP per capita rising from below 4 per cent of that of the United States in 1980 to 18 per cent in 2009 (Chart 1).

Chart 1: Economic convergence
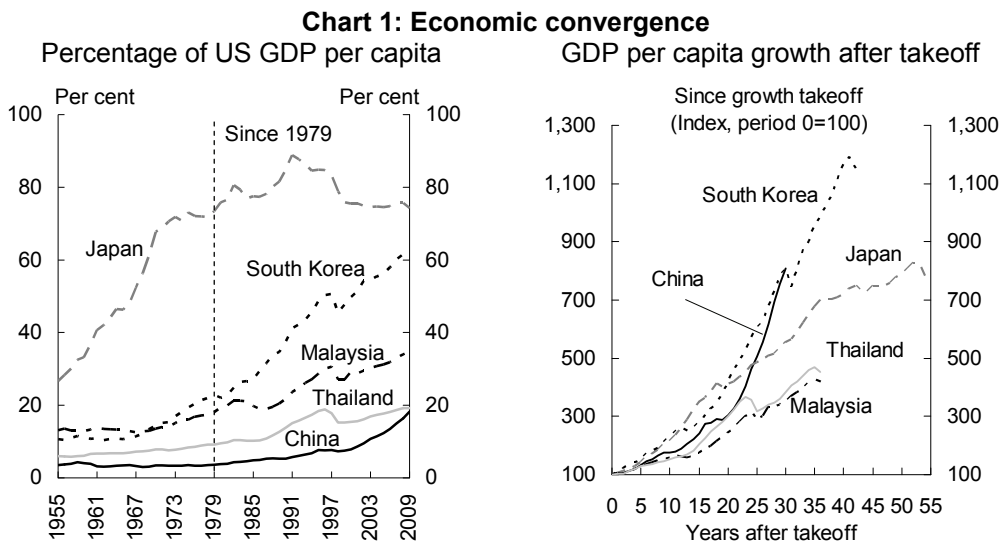
Note: GDP per capita is in purchasing power parity (PPP) terms. Growth takeoff is assumed to occur in 1955 for Japan, 1967 for South Korea, 1973 for Malaysia and Thailand, and 1979 for China.
Source: The Conference Board Total Economy Database and Treasury.

While China's economic convergence has been very rapid, it is broadly in line with the pace of expansions in South Korea from 1967 and Japan from 1955 (Chart 1). In part, the speed of China's economic convergence reflects the fact that it started its expansion from a significantly lower base than many other Asian economies. For example, in 1955 Japan's real GDP per capita was around 27 per cent that of the United States, higher than China's relative level of 18 per cent in 2009. Further, as the global frontiers of income and productivity continue to be extended over time, the latecomers (such as China) can move more rapidly than their predecessors (Garnaut 2006).

Even after three decades of strong growth, China's level of real GDP per capita is still well below that of several recently industrialised economies, such as Malaysia and South Korea, suggesting that there is significant remaining potential for economic convergence. For that potential to be realised, policy settings and institutional arrangements will need to be supportive of growth, with further reforms needed to address remaining barriers to growth. Further, the path of economic convergence is rarely smooth — as illustrated by the impact of the Asian Financial Crisis in the late 1990s.

A longer-term perspective also suggests the potential for further economic convergence by China. It is estimated that three hundred years ago China's GDP per capita was similar to that of Japan and around 60 per cent of that of Western Europe. For most of the past three hundred years China has experienced economic divergence, as Western Europe grew while China's real GDP per capita was stable or fell. The speed of China's convergence is illustrated by nearly half of this divergence being recovered in the past three decades (Chart 2).

Chart 2: Economic divergence and convergence, 1700-2010

Percentage of Europe GDP per capita | Share of world GDP
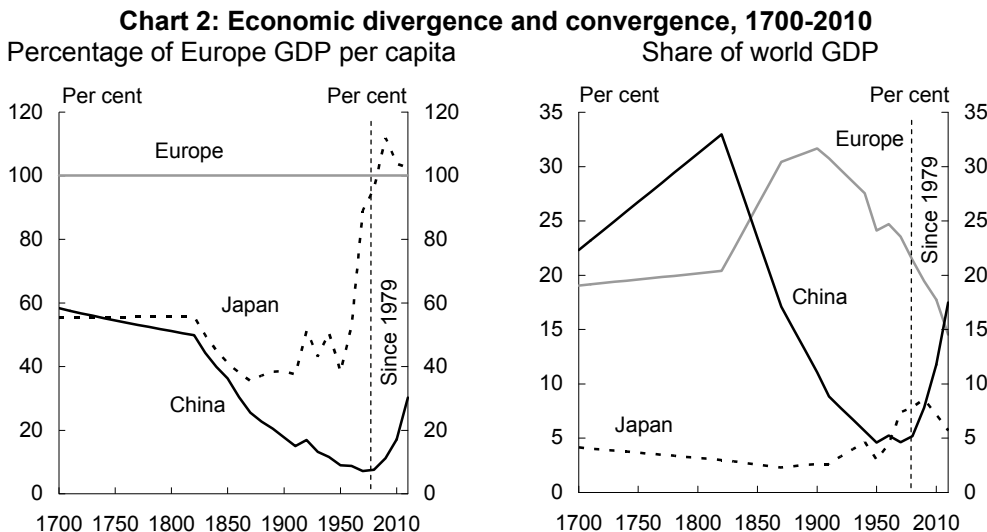
Note: Europe is Western Europe. GDP measured by 1990 PPP-adjusted international dollars.
Source: Maddison 2007, The Conference Board Total Economy Database and Treasury.

A similar pattern is evident in China's share of world GDP. Two hundred years ago, China accounted for over 30 per cent of world GDP, declining to around 5 per cent by 1980, with around half of that decline reversed over the past three decades (Chart 2).

The sheer size of China's population means that its economic convergence has had a significantly greater impact on world economic activity than that of other Asian economies. In 2010 China's population of 1.35 billion people is eleven times larger than that of Japan (127 million) and 28 times larger than that of South Korea.

The combined effect of China's large population and rapid economic convergence has seen it move from the 12th largest economy in the world in 1980 with GDP of 9 per cent of that of the United States, to now be the second largest economy in the world, equivalent to about 60 per cent of the size of the United States (Table 1). By 2015, China's GDP is projected by the IMF to be nearly the largest economy in the world at over 90 per cent of the size of the United States' economy.

Table 1: Ranked world largest economy (PPP US$ billions)

Ranking	1980		% US	Ranking	2009		% US
1	United States	2,788	100	1	United States	14,256	100
2	Japan	1,040	37	**2**	**China**	**8,765**	**61**
3	Germany	758	27	3	Japan	4,159	29
4	France	535	19	4	India	3,526	25
5	Italy	507	18	5	Germany	2,806	20
6	United Kingdom	486	17	6	United Kingdom	2,139	15
7	Brazil	444	16	7	France	2,108	15
8	Mexico	333	12	8	Brazil	2,013	14
9	India	277	10	9	Italy	1,740	12
10	Spain	272	10	10	Mexico	1,466	10
…	…	…	…	…	…	…	…
12	**China**	**248**	**9**	…	…	…	…
16	Australia	149	5	16	Australia	851	6

Note: Gross domestic product based on purchasing-power-parity (PPP) valuation of US$ GDP.
Source: IMF and Treasury.

This impact is also reflected in China's contribution to world economic growth in the past decade (Chart 3). Over the past decade (2000 to 2009) the world economy grew by 36 per cent. Despite only representing about 7 per cent of the world economy at the start of the decade, China contributed 9½ percentage points, or around 26 per cent of world growth over this time. If China had grown at the same pace as the rest of the world, average annual world growth would have been around 1 percentage point lower than it was over the past decade (that is, 3 per cent rather than 4 per cent).

Chart 3: Contributions to world real GDP growth
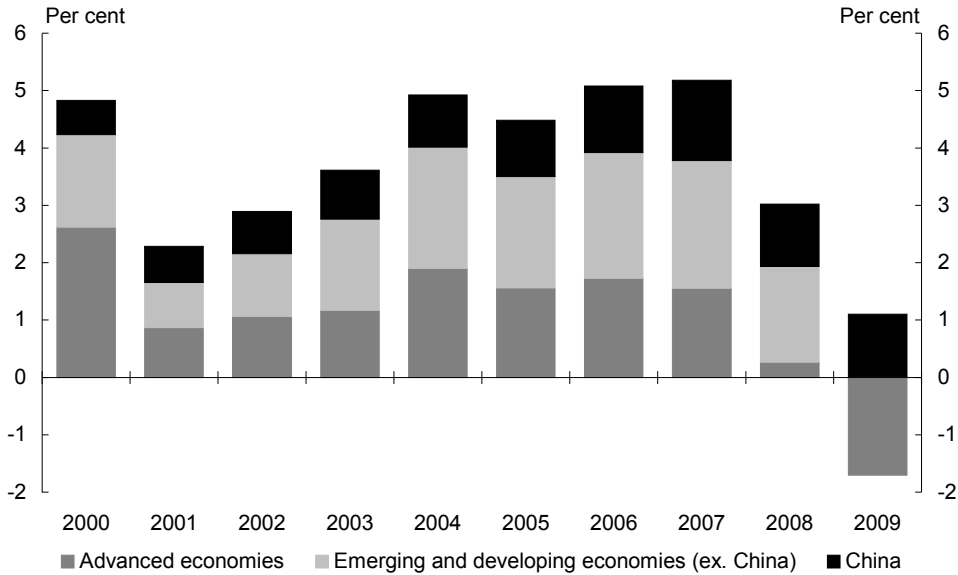
Source: IMF and Treasury.

China's urbanisation convergence

China's rapid economic convergence has coincided with rapid urbanisation. Since 1979 (the beginning of the reform period), the share of China's population living in urban areas has increased by 27 percentage points, from 19 per cent to 46 per cent in 2009 (Chart 4).

Chart 4: Urbanisation and GDP per capita in China

Source: United Nations, IMF and Treasury.

Nearly all middle-income countries have an urbanisation rate of at least 50 per cent, and all high income countries have an urbanisation rate above 70 per cent (Commission on Growth and Development, 2009). While the correlation betwe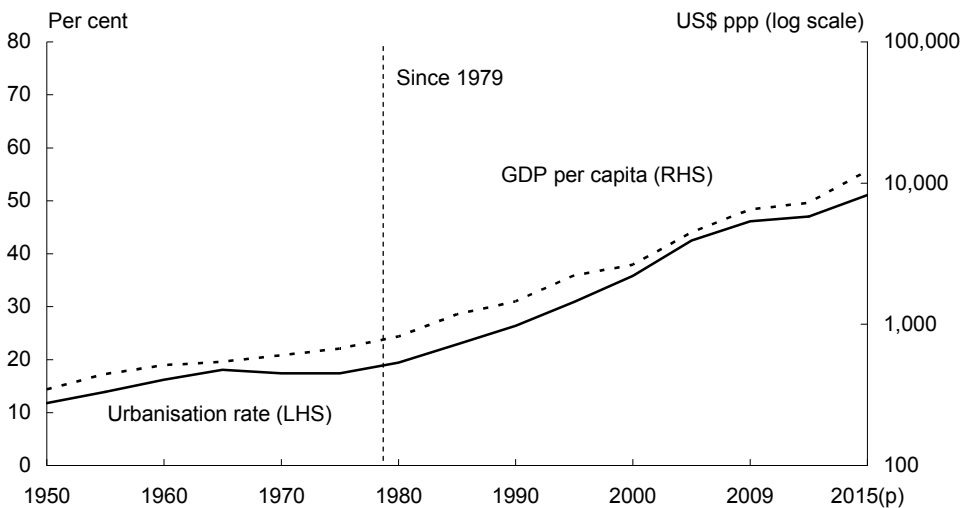en economic growth and urbanisation is clear, the direction of causality is not. That is, does economic growth cause urbanisation or does urbanisation cause economic growth? The most likely answer, at least in China's case, is that the causality runs in both directions — that is, a little bit of both.

Economic reforms from the end of the 1970s set in train a process of industrialisation, capital deepening and productivity improvements that increased the demand for labour in urban areas, with workers attracted to cities by higher wages (Zhang and Song 2003). At the same time, productivity improvements in the agricultural sector, combined with a shortage of arable land meant that a significant amount of labour could move from rural areas without a reduction in agricultural production (Cai 2003). Urbanisation also contributes to economic growth through more rapid productivity growth in cities (Commission on Growth and Development 2009).

The relationship between economic growth and urbanisation is non-linear. The higher the level of GDP per capita, the smaller is the increase in the urbanisation rate for a given increase in GDP per capita. The relationship between China's urbanisation rate and GDP per capita is similar to that of Japan, but somewhat below that of Western European countries (Chart 5).

Chart 5: Relationship between income and urbanisation, 1700-2009
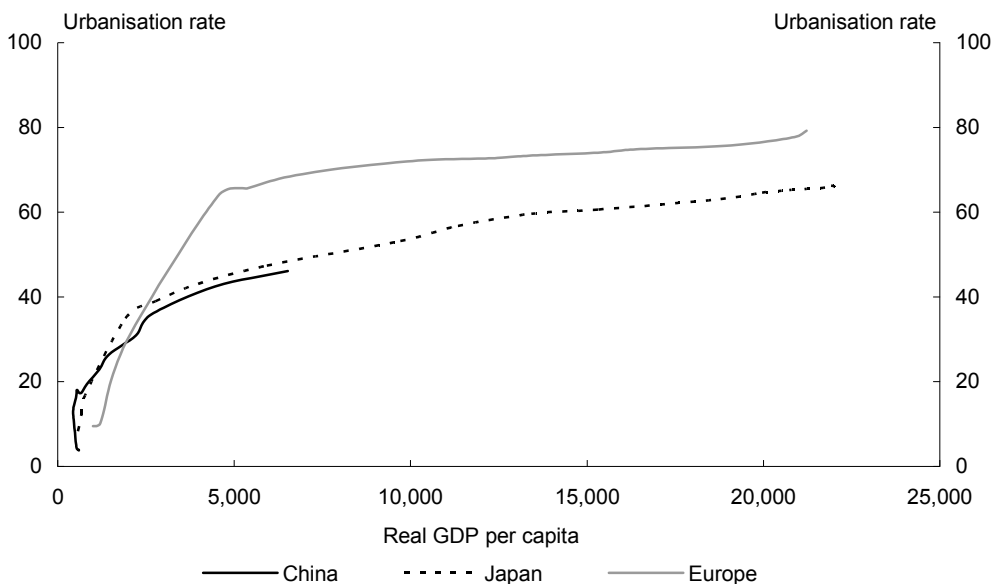
Note: GDP per capita was measured by 1990 PPP-adjusted international dollars. Europe is Western Europe.
Source: United Nations, The Conference Board Total Economy Database, Maddison 2007 and Treasury.

China's rapid economic growth since 1979 has coincided with rapid growth in urbanisation, with the pace of urbanisation surpassing that of other Asian economies, with the exception of South Korea (Chart 6). In part, this reflects China's lower urbanisation rate when it commenced economic reform. Indeed, the level of China's urbanisation today was achieved by Japan, South Korea and Malaysia in 1965, 1975 and 1985 respectively (Chart 6). This suggests that there is significant scope for further increases in China's urbanisation over coming decades, with the United Nations projecting that China's urbanisation rate will reach 51 per cent in 2015 and 73 per cent in 2050.

Chart 6: Urbanisation convergence
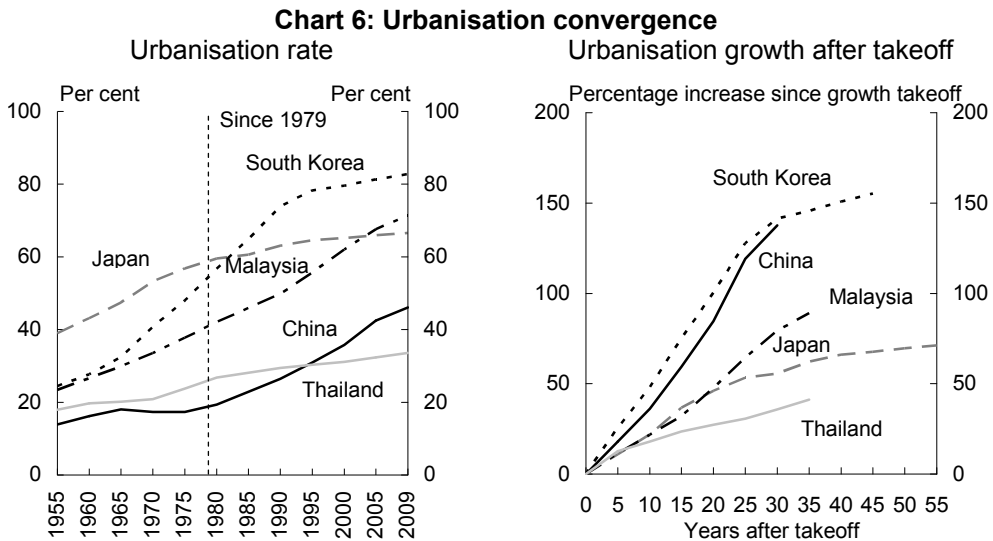
Note: The comparisons between countries need to be made with caution as national statistical agencies reporting to the UN often use different definitions for 'urban'. See United Nations (2007).
Source: United Nations, IMF and Treasury.

Again, a longer-term perspective also supports the view that China's urbanisation convergence is far from complete. Three hundred years ago most of the world's population lived in rural areas. The urbanisation rate started to increase at the start of the 19th century in Western Europe, accelerating in the first half of the 20th century, before starting to plateau in the second half of the 20th century, with Japan following a similar, but more muted, pattern before an acceleration in urbanisation coincided with its economic take-off from the 1950s to the 1980s (Chart 7).

In contrast, China's increased urbanisation has occurred more rapidly. China's urbanisation rate in 1900 of around 4.5 per cent was about the same as that in 1700 (4 per cent). While the urbanisation rate had increased to 12 per cent by 1950, this was similar to the rate that Western Europe and Japan had achieved by 1800. The urbanisation rate in China has more than doubled since economic reforms began in the late 1970s (Chart 7).

Chart 7: Urbanisation rate
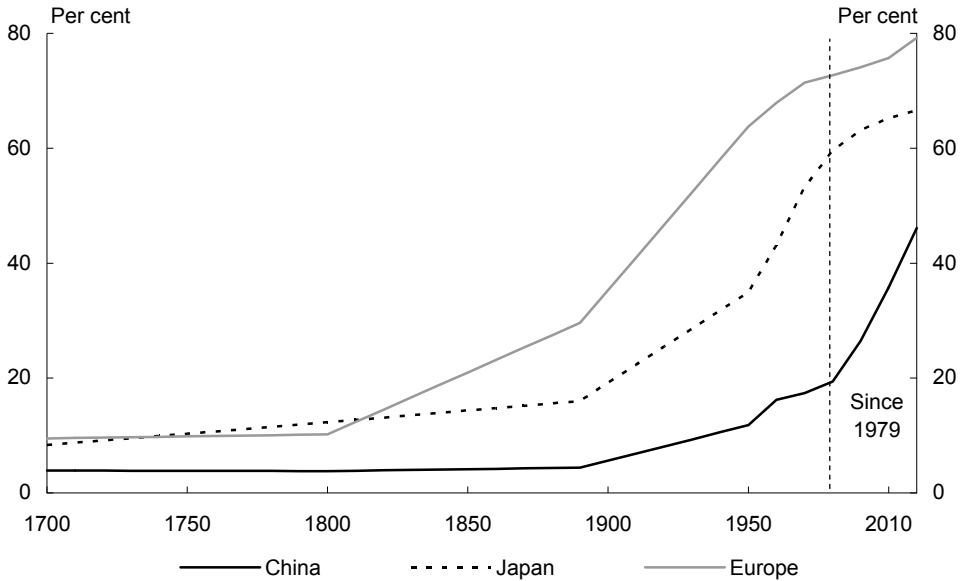
Note: Europe is Western Europe.
Source: United Nations, Maddison 2007 and Treasury.

The combination of China's large population and its growing urbanisation means that China has the world's largest urban population, with over 630 million urban citizens today.

While China's share of the world's population is decreasing, its share of the world's urban population is increasing (Chart 8). China's share of the world's total population has fallen from 22 per cent in 1980 to around 20 per cent today, its share of the world's urban population has risen from 11 per cent to 18 per cent over the same period. By 2050 China's share of the world's total population is projected to drop by a further 5 percentage points to 15 per cent, but its share of the world's urban population is projected to fall only slightly to 17 per cent (United Nations 2010).

Chart 8: China's share of urban and total population in the world

Per cent — Per cent

Share of total population
in the world

Since 1979

Share of urban population
in the world

1950 1960 1970 1980 1990 2000 2009 2015(p)
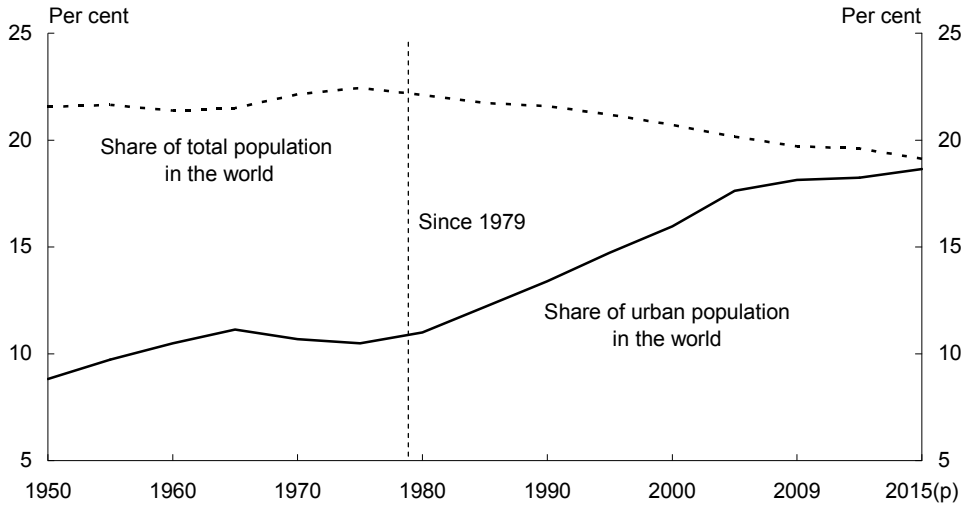
Source: United Nations and Treasury.

China's urbanisation has also seen a shift in the average size of its cities, as well as their number. In 1980, 77 per cent of China's urban population lived in cities with a population of less than 1 million people with only 6 per cent in cities of more than 5 million people. By 2015, the proportion of the urban population living in cities of more than 5 million people in China is projected to more than double to 15 per cent, with the proportion in cities of less than 1 million people falling to 60 per cent (Chart 9).

Chart 9: Share of urban population by sized-cities

1980   2015

Per cent — Per cent   Per cent — Per cent

< 1m   1m to 5m   > 5m   < 1m   1m to 5m   > 5m
■ China ■ Europe ■ Japan   ■ China ■ Europe ■ Japan
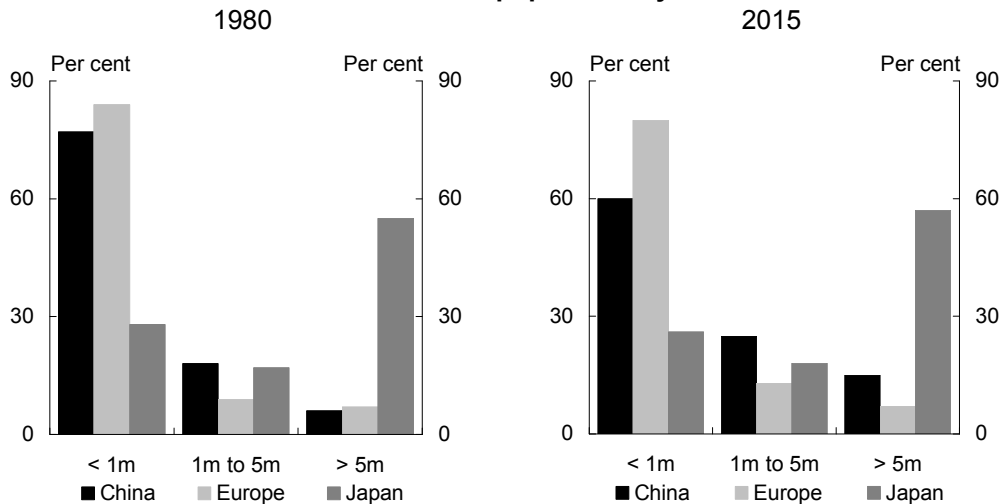
Note: Europe is Western Europe. m is million.
Source: United Nations and Treasury.

In addition, from 1980 to 2015 the number of cities in China is projected to increase more than five-fold, compared to the two-fold increase over this period for the world as a whole (Chart 10). One third of the growth in cities in the world over this period is projected to be in China. By 2015, China is projected to have 106 cities with more than one million people.

Chart 10: Number of agglomerations
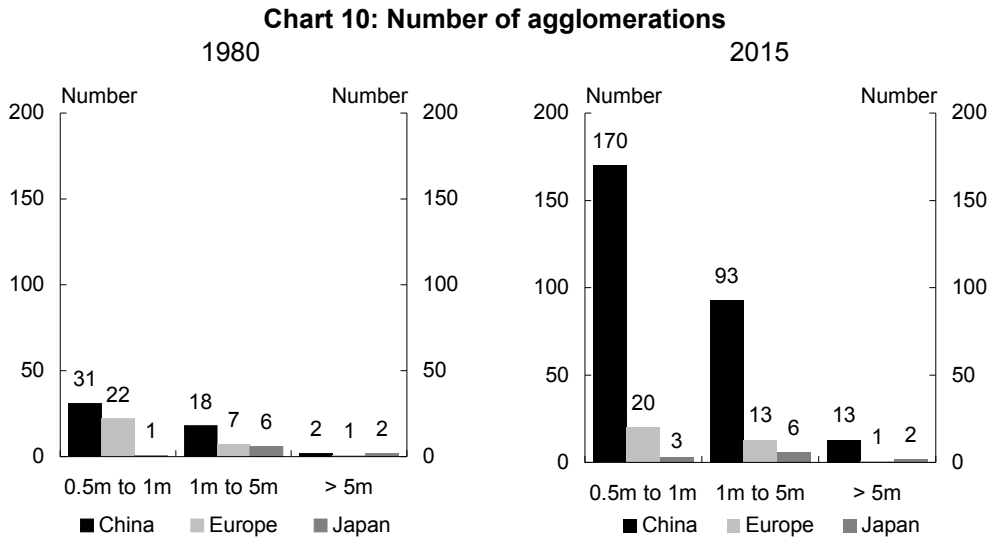
Note: Europe is Western Europe. m is million. Data on cities with less than 500,000 people are not available.
Source: United Nations and Treasury.

China's demand for mineral resources

China's economic and urbanisation convergence has had a significant impact on its demand for mineral resources.

The consumption of metals typically grows together with income until real GDP per capita reaches about $15,000–$20,000 per capita in 2005 purchasing power parity adjusted US dollars, as countries go through a period of industrialisation and infrastructure construction (IMF 2006).

Chart 11 shows the relationship between steel consumption per capita and real GDP per capita for selected countries. While China's steel consumption has increased sharply over recent decades, in line with its rapid economic convergence, it is still a considerable distance from the point where further increases in GDP per capita no longer increase steel consumption per person. This suggests that should China's economic and urbanisation convergence continue at its current pace, it is likely to continue to add significantly to global demand for steel for some time to come.

Chart 11: Steel consumption per capita vs real GDP per capita, 1974-2008
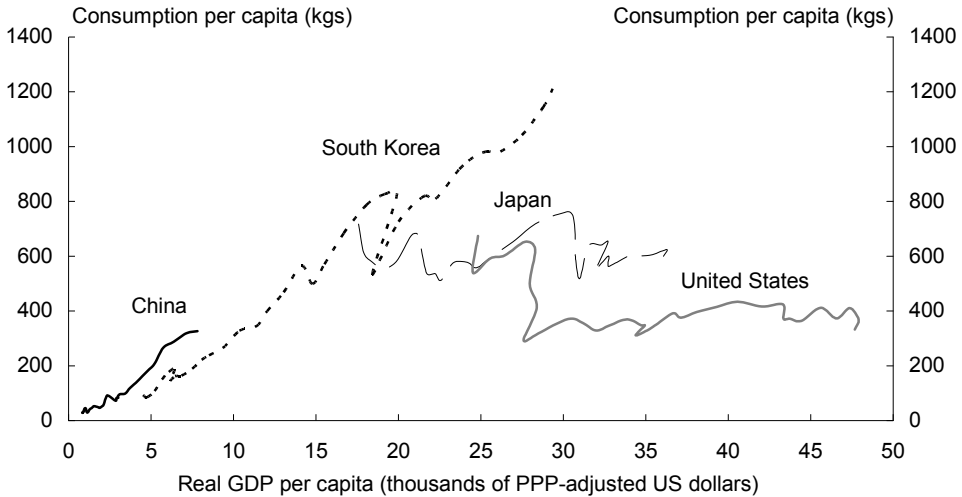
Source: IMF, The Conference Board Total Economy Database, Steel Statistical Yearbooks and Treasury.

The increase in China's demand for mineral resources associated with its urbanisation and industrialisation, combined with the sheer size of its population, has meant that China has been the dominant contributor to growth in mineral resource demand over the past decade. Despite its per capita consumption of mineral commodities still being relatively low compared with advanced economies, China is now the largest market in the world for aluminium, steel and copper (Chart 12).

Chart 12: Aluminium, finished steel and copper consumption

Aluminium: consumption per capita

Aluminium: share of world total

Finished steel: consumption per capita

Finished steel: share of world total

Copper: consumption per capita

Copper: share of world total
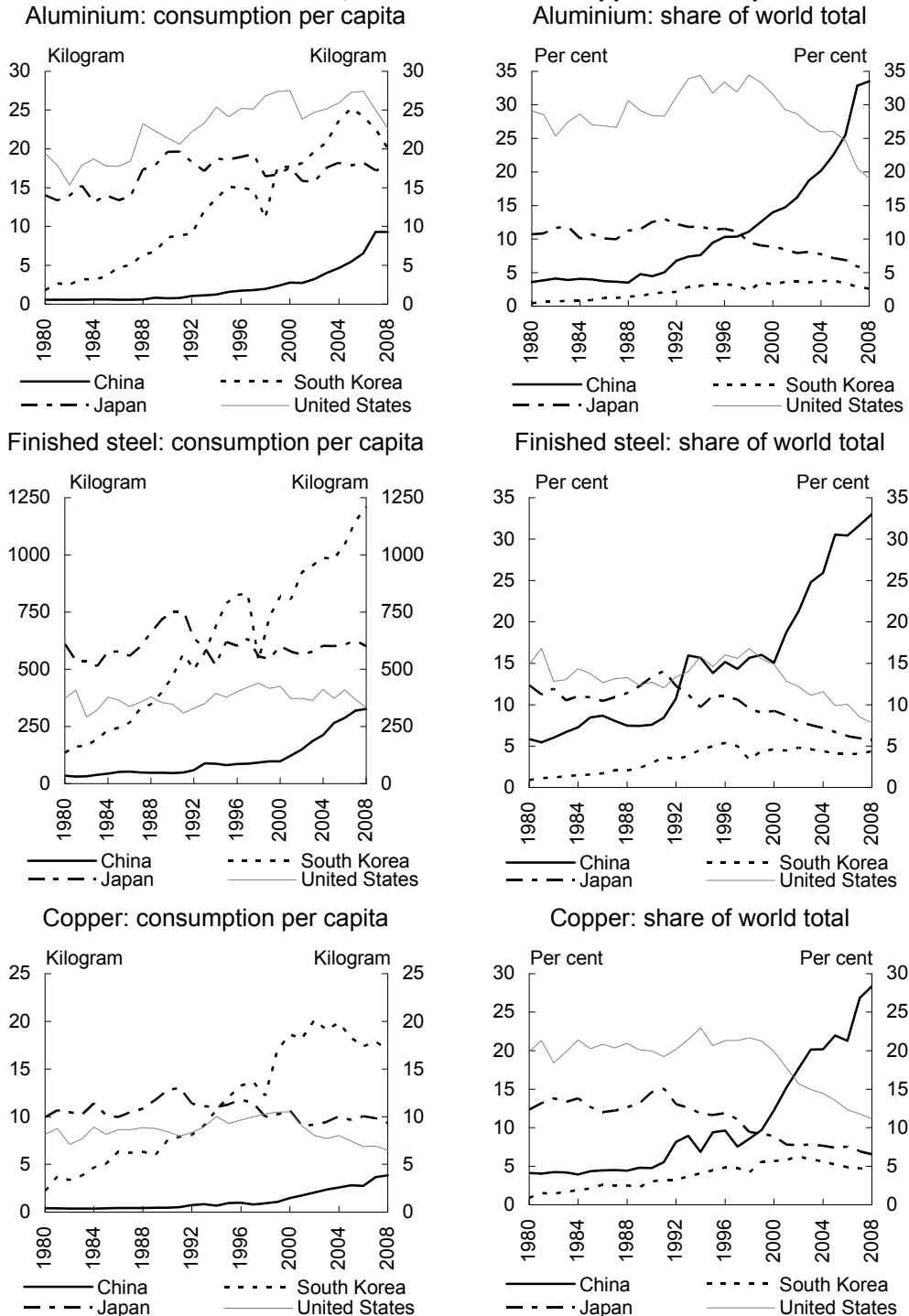
Source: ABARE, Steel Statistics Yearbooks and Australian Government (2010).

Implications for Australia

Australia has an abundance of mineral resources. For many minerals, Australia's resource reserves rank highly by world standards and their indicative life is considerable (Australian Government 2010). This means that the boost to global demand for mineral resources from China's economic and urbanisation convergence has significant implications for Australia.

The surge in global demand for mineral resources over the past decade, driven in particular by demand from China, has resulted in strong growth in world prices for these resources (Grant et al 2005). The growing importance of China's demand for mineral resources is also reflected in it becoming an increasingly important destination for Australia's exports. Over the past decade, China's share of Australia's merchandise exports increased more than four-fold, from 5 per cent to over 20 per cent (Chart 13). The IMF projects that by 2015 China will receive around one third of Australia's merchandise exports (Sun 2010).

Chart 13: Australia's merchandise export destinations
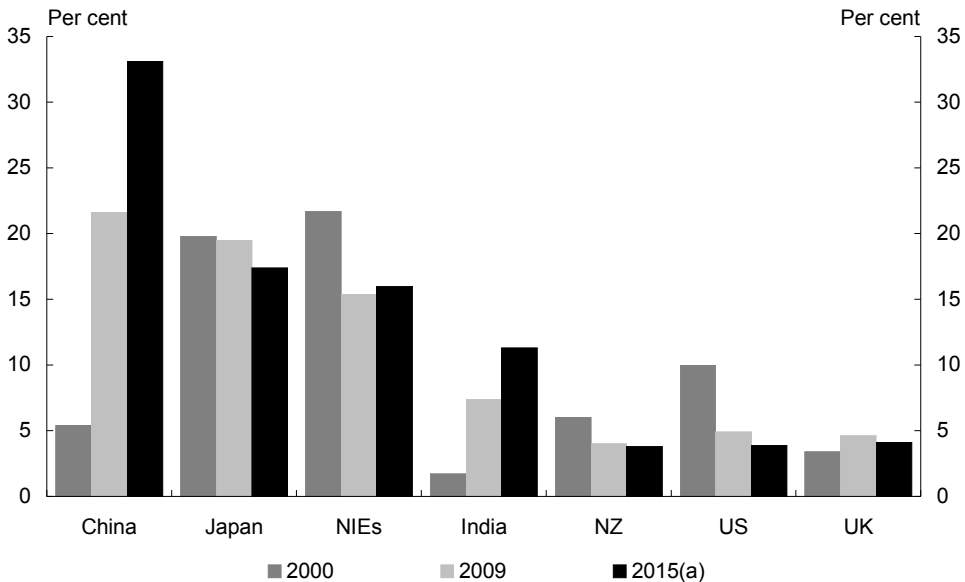
Note: (a) is projection. NIEs include South Korea, Taiwan, Singapore and Hong Kong.
Source: Sun 2010, ABS cat. no. 5432.0 and Treasury.

The potential for further economic and urbanisation convergence in China, along with prospect of strong growth in other large emerging and developing economies, suggest that global demand for Australia's mineral resources is likely to continue to grow strongly over coming decades.

This creates an opportunity for an improvement in the wellbeing of all Australians. With these opportunities, however, come a number of challenges for the economy. Statement 4 of the 2010-11 Budget discussed these challenges and optimal policy responses in detail. It concluded that with sound policy settings, particularly directed at the flexible and efficient allocation of labour and capital, continued strong demand for Australia's mineral resources will increase national income and allow a better distribution of the benefits of resource wealth across the community (Australian Government 2010).

Conclusion

Over recent decades, China has experienced rapid economic growth and a related sharp increase in its rate of urbanisation. The speed of this transition, along with the sheer size of China's population, has resulted in China being an increasingly significant driver of global growth and mineral resource demand over the past decade.

There are good reasons to believe that the convergence of China's level of economic activity and urbanisation with those of more developed countries is far from complete, and that China will therefore continue to be a major source of demand for mineral resources for some time to come.

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Tax expenditure considerations for owner-occupied housing

Audrey E Pulo[1]

This article examines the government tax expenditures related to owner-occupied housing, particularly as they compare to non-owner-occupied housing, and discusses the issues involved in modelling and analysing these expenditures. The approach used considers various aspects of owner-occupied housing, including capital gains, imputed rent, interest deductions, capital works deductions and miscellaneous deductions.

Introduction

This article examines the government tax expenditures related to owner-occupied housing, particularly as they compare to non-owner-occupied housing, and discusses the issues involved in modelling and analysing these expenditures. It is generally accepted that the indirect housing assistance provided to owner-occupiers is a significant component of total Australian Government tax expenditures, which is the key motivation for this study.

The capital gains tax main residence exemption has for the first time been reported[2] in the 2009 annual Tax Expenditures Statement (TES) and is estimated to be around $14 billion in the 2009-10 financial year.[3] Although the complexity and sensitivity make it difficult to estimate the indirect housing tax expenditures, modelling these expenditures with the purpose of quantifying them is nevertheless important in guiding and evaluating policy decisions in this area.

Indirect housing assistance for owner-occupiers

Tax concessions for owner-occupied housing fall into two broad categories, those relating to capital gains and those relating to income tax.

The main residence exemption from capital gains tax (CGT) means that the capital gains of owner-occupied dwellings may be tax-free.[4] This is effectively a 100 per cent CGT discount. However, the CGT discount for individuals (currently at 50 per cent) means that even in the absence of the main residence exemption, owner-occupiers would only be liable for tax on the discounted capital gain of the dwelling, not the full capital gain.[5]

As owner-occupiers do not pay rent, the consumption of owner-occupied housing is not subject to income tax considerations. The owner-occupier's notional imputed rent income is not taxable. If the owner-occupied dwelling was instead rented to someone other than the owner-occupier, the rental income would be taxed at the owner's

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2   The tax expenditures are presented in Tables E4 *Capital gains tax main residence exemption* and E5 *Capital gains tax main residence exemption — discount component* and are identified as modified and new tax expenditures in Appendix B of the *2009 Tax Expenditure Statement*.

3   The estimates reported are based on the second of three different benchmarks outlined in *Appendix C: Alternative estimates for owner-occupied housing*, *2009 Tax Expenditures Statement*, January 2010. Tax expenditure estimates for owner-occupied housing have only been previously presented in an appendix of the *2008 Tax Expenditure Statement*.

4   Deriving rental income from a main residence may have capital gains tax implications.

5   This is one example of the issues involved in sequencing different components of the overall tax expenditure and raises questions regarding the choice of an appropriate benchmark and its components, which this article will attempt to address.

marginal tax rate. By effectively renting their dwelling to themselves, the owner-occupier avoids paying tax on the imputed rent they would be paying to themselves. Currently in Australia imputed rent is not taxed,[6] and expenses related to earning imputed rent and capital gain, such as mortgage interest payments, are not deductible by owner-occupiers.[7]

Most countries in the OECD do not tax capital gains on principal residences, with the main exceptions being Japan and the United States (OECD 2006). The United States allow for home mortgage interest deductions, while maintaining the tax free status of imputed rent. Countries such as the Netherlands and Switzerland tax imputed rent, but allow for mortgage interest deductions as expenses that are necessary to 'earn' the imputed rent. The standard justification for allowing mortgage deductibility is to encourage home ownership.

Benchmark considerations and tax expenditures

Tax expenditures are one method of estimating the impact of taxation policies, and are reported extensively in the TES, under the *Charter of Budget Honesty Act 1998*. They measure the assistance provided to taxpayers due to the various tax concessions, relative to a benchmark. As such, they can only be interpreted with respect to that particular benchmark, and furthermore, they are not necessarily indicative of the expected tax revenues from changes to the policy. This is because they do not take into account the effects of taxpayer behavioural responses that arise from changes in policy. Thus, the choice of a suitable benchmark is an important aspect of determining tax expenditures and can be a difficult exercise.

Tenure and tax neutral benchmarks

Two useful concepts used in the literature for guiding housing benchmark design are tenure neutrality and tax neutrality (Flood and Yates 1987, 1989). These go beyond the typical benchmark approach of simply considering a taxation system in which the concessions are completely removed. A tenure neutral benchmark ensures that all owners (and consumers) of housing receive the same tax treatment, irrespective of their status as owner-occupiers or otherwise. A tax neutral benchmark ensures that the tax treatment of housing investments is the same as other non-housing investments, for example, shares or savings, and the tax treatment of housing consumption is the same as other non-housing consumption.

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6 Imputed rent was included in the Australian Federal income tax base from 1915 to 1923.

7 In fact, deductions for mortgage interest repayment were available as a subsidy to first home owners, for the first 5 years of the loan, available on loans taken out between 1 July 1982 and 30 September 1983 (DHC, 1987).

Tenure neutral benchmarks have the advantage of allowing the impact of concessions afforded to a tenure group to be directly assessed, relative to the situation where no tenure type is advantaged over any other. The tenure neutral benchmark also has the advantage of being more flexible to policy environments that change over time, since it is primarily concerned with maintaining identical treatments of tenures. This makes tenure neutrality a particularly useful construct for evaluating the tax expenditures on owner-occupied housing in the context of all types of housing, and as such it forms the basis of the benchmarks used in this study.

Tax neutral benchmarks are best suited to evaluating the impact of expenditures on concessions in the housing market, relative to other areas of the economy. For example, to determine the impact of the main residence CGT exemption compared to investment in the share market or in commercial property. This is useful when considering investment in rental housing, since these investors are also free to instead utilise other forms of investment. However owner-occupied housing, which forms approximately two-thirds of all Australian households,[8] is often chosen for reasons beside pure financial investment, such as housing stability, security of tenure and the prospect of 'free' housing consumption once the dwelling is owned outright. Thus, a tax neutral benchmark is less appropriate for this study, although tax neutrality is still useful as a guiding principle.

For the purpose of this study three different benchmarks are considered against which the tax expenditures for owner-occupied housing are measured and analysed.

Investor benchmark

The first benchmark considered in this article is the tax treatment afforded to individuals who are producing and consuming non-owner-occupied housing, that is, the situation involving investors and renters. This investor benchmark formalises the notion that owner-occupiers are simultaneously both producers of housing (through their ownership of the dwelling) and consumers of housing (through their residence in the dwelling). Using this benchmark the owner-occupier may be considered to be two separate entities, a housing producer (landlord) and housing consumer (tenant).

The rationale behind using this tax benchmark in analysing the tax expenditure is the inherently equitable nature of a tenure-neutral treatment. By treating owner-occupiers and other consumers of housing in the same manner, it is ensured that all consumers of housing are subjected to the same tax treatment. This allows meaningful evaluations of the tax concessions afforded to one group compared to the other.

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8 Australian Bureau of Statistics 2007, *Australian Social Trends — Housing 2007*, ABS cat. no. 4102.0.

There are three main features of this benchmark.

- The capital gain on owner-occupied housing is subject to the 50 per cent CGT discount for individuals (or the indexation method of assessing capital gains for properties acquired before 21 September 1999).

- Since the owner-occupier-as-tenant and the owner-occupier-as-landlord are considered separately, imputed rent is treated identically to ordinary rental income — that is, it is taxed at the owner-occupier's marginal income tax rate.

- Since imputed rent is deemed to be taxable for this benchmark, expenses incurred in generating that rental income can also be claimed as deductions. This includes the provision for the negative gearing of owner-occupied housing, where these deductions exceed the imputed rental income and can then be used to offset any assessable income. The main source of deductible expenditure, for income tax purposes, is the interest on mortgage repayments. Other deductions may include, for example, capital works deductions for major capital improvements. However, the amounts claimed in such deductions cannot then be included in reducing the cost base of the property for capital gains purposes.

Table 1 presents the tax expenditure estimates against the investor benchmark that were modelled in this study. Years 2005-06 to 2007-08 are based on historical data from a variety of sources, and years 2008-09 onwards are forward projections based on assumptions that are consistent with historical rates. An overview of the methodology used to obtain these estimates is presented in Appendix A.

Table 1: Tax expenditure estimates, including imputed rent and full deductions[9]

	2005-06 $m	2006-07 $m	2007-08 $m	2008-09 $m	2009-10 $m	2010-11 $m	2011-12 $m	2012-13 $m
Tax								
1 Tax on capital gains	39,500	38,500	40,000	31,000	31,500	31,500	31,000	30,000
2 Tax on imputed rent	19,000	19,500	21,000	22,500	23,500	24,500	26,500	27,500
Sub-total	58,500	58,000	61,000	53,500	55,000	56,000	57,500	57,500
Less offsets								
3 50% discount on capital gains	-22,000	-21,500	-22,000	-17,000	-17,000	-17,000	-17,000	-16,500
Sub-total	-22,000	-21,500	-22,000	-17,000	-17,000	-17,000	-17,000	-16,500
4 Interest deductions	-6,000	-6,000	-6,500	-6,500	-7,000	-7,000	-7,500	-7,500
5 Other deductions	-10,500	-10,500	-11,000	-11,000	-11,500	-12,000	-12,500	-13,500
Sub-total	-16,500	-16,500	-17,500	-17,500	-18,500	-19,000	-20,000	-21,000
Total tax expenditures	**20,000**	**20,000**	**21,500**	**19,000**	**19,500**	**20,000**	**20,500**	**20,000**

These results confirm the expectation that the tax expenditures on owner-occupied housing, as it relates to investor housing, are indeed significant: $19.5 billion in 2009-10 and projected to be $20 billion in 2012-13. The falls in tax expenditures after 2007-08 are due to personal income tax cuts introduced in those years.[10] At first glance one may expect the 50 per cent discount on capital gains to be half that of the tax on the capital gains. However, the discount is larger than this due to the progressive nature of the personal income tax system in Australia. Further insights into this effect on the 50 per cent CGT discount for individuals are discussed in the next section.

No imputed rent and no deductions benchmark

The treatment of imputed rent in the investor benchmark can be problematic, due to the paradoxical nature of imputed rent: tenure-neutrality suggests that imputed rent should be taxed identically to ordinary rental income, whereas the mutuality principle suggests that taxpayers' internal transactions (the paying of rent to themselves) should not be taxed.

The second benchmark thus removes both imputed rent and any deductions for associated expenses such as mortgage interest payments and other housing deductions, leaving only capital gains considerations. This is similar to the situation of a holiday-home owner[11] who does not rent out the dwelling, and is therefore not

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9   The tax expenditure estimates presented in this table are based on the tax estimated for that income year and not on assessment, which is typically lagged by approximately one year.

10 This occurs despite a continuing rise in median house prices during this time.

11 The main difference between this benchmark and that of a holiday-home owner is that a holiday-home owner can offset the cost base by the cost of rates, insurance, land tax, maintenance and mortgage interest. The second benchmark considered in this article does not include these offsets.

eligible to claim any deductions (but is generally ineligible to claim the main residence exemption).[12]

From the expenditures against this benchmark, shown in Table 2, a decrease in the total tax expenditure from $18 billion in 2007-08 to a projected $13.5 billion in 2012-13 is observed and is once again due to the personal income tax cuts after 2007-08. The key difference between the total tax expenditures for the investor benchmark in Table 1 and the benchmark in Table 2 is driven by the net value of imputed rent and the total deductions. The similarity in magnitude of the imputed rent and associated deductions in the investor benchmark causes them to largely cancel each other, leaving a residual amount of imputed rent which contributes to the total tax expenditure.

The no imputed rent and no deductions benchmark is used in Tables E4 and E5 of the 2009 TES, since it is consistent with the tax expenditure methodology specified in Appendix A.2.1 of the 2009 TES which excludes income from dealings with one's self.

Table 2: Tax expenditure estimates excluding imputed rent and deductions[13]

	2005-06 $m	2006-07 $m	2007-08 $m	2008-09 $m	2009-10 $m	2010-11 $m	2011-12 $m	2012-13 $m
Tax								
1 Tax on capital gains	39,500	38,500	40,000	31,000	31,500	31,500	31,000	30,000
2 Tax on imputed rent	0	0	0	0	0	0	0	0
Sub-total	39,500	38,500	40,000	31,000	31,500	31,500	31,000	30,000
Less offsets								
3 50% discount on capital gains	-22,000	-21,500	-22,000	-17,000	-17,500	-17,000	-17,000	-16,500
Sub-total	-22,000	-21,500	-22,000	-17,000	-17,500	-17,000	-17,000	-16,500
4 Interest deductions	0	0	0	0	0	0	0	0
5 Other deductions	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0
Total tax expenditures	**17,500**	**17,000**	**18,000**	**14,000**	**14,000**	**14,500**	**14,000**	**13,500**

No imputed rent and partial deductions benchmark

The third benchmark examined in this study is an attempt to combine the different characteristics of the first two benchmarks. The second benchmark removed the eligibility for deductions on the basis that they were associated with imputed rental income, which was not to be taxed. However, this neglects the fact that the owner still receives income in the form of capital gains, even though this is not actually received until realisation when the housing is sold. Thus, it is still possible to make a case for

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12 Or, equivalently, rents out the holiday-home to family or relatives, or for a token amount of rent, as described in *Taxation Ruling* IT 2167.

13 The tax expenditure estimates presented in this table are based on the tax estimated for that income year and not on assessment, which is typically lagged by approximately one year.

allowing deductions in the presence of (expected) capital gains while imputed rent is untaxed. This is because deductions are generally allowed against relevant expenses incidental to capital investments as long as the investment is made with the intention of receiving capital gains. So, the third benchmark continues the non-taxation of imputed rent on mutuality grounds, but allows partial deductions of related expenses in recognition of the capital nature of owner-occupied housing.[14]

An initial expectation might be that the level of deductibility should be based on the ratio of imputed rent to capital gains. However, the amount of capital gains are unknown, and may indeed be a capital loss upon realisation. Furthermore, a pro-rated partial deduction is inconsistent with the concept of tax neutrality, since other capital investments, such as shares, do not have such a system of partial pro-rated deductions. Thus, this benchmark assumes a flat rate of 50 per cent applied to the eligible deductions of the investor benchmark.

Table 3: Tax expenditure estimates excluding imputed rent but including partial deductions[15]

	2005-06 $m	2006-07 $m	2007-08 $m	2008-09 $m	2009-10 $m	2010-11 $m	2011-12 $m	2012-13 $m
Tax								
1 Tax on capital gains	39,500	38,500	40,000	31,000	31,500	31,000	31,000	30,000
2 Tax on imputed rent	0	0	0	0	0	0	0	0
Sub-total	39,500	38,500	40,000	31,000	31,500	31,000	31,000	30,000
Less offsets								
3 50% discount on capital gains	-22,000	-21,500	-22,000	-17,000	-17,500	-17,000	-17,000	-16,500
Sub-total	-22,000	-21,500	-22,000	-17,000	-17,500	-17,000	-17,000	-16,500
4 Interest deductions	-3,000	-3,000	-3,000	-3,000	-3,000	-3,500	-3,500	-3,500
5 Other deductions	-5,000	-5,000	-5,000	-5,000	-5,500	-5,500	-6,000	-6,000
Sub-total	-8,000	-8,000	-8,000	-8,000	-8,500	-9,000	-9,500	-9,500
Total tax expenditures	**9,500**	**9,000**	**10,000**	**6,000**	**5,500**	**5,000**	**4,500**	**4,000**

Results for the tax expenditures against the third benchmark are presented in Table 3. Since there is no expenditure on imputed rent, the negative expenditure on deductions instead cancels some of the expenditure on capital gains. As a result, the total tax expenditures are still significant (projected to be $4 billion in 2012-13), but are considerably smaller when compared against the investor benchmark and the second benchmark.

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14 As explained earlier in footnote 11, the holiday home tax considerations would imply that for benchmark three the remaining 50 per cent of the deductibility would offset the cost base in calculating the capital gain. However, for simplicity, the third benchmark does not include this offset in the analysis.

15 The tax expenditure estimates presented in this table are based on the tax estimated for that income year and not on assessment, which is typically lagged by approximately one year.

Comparing the total deductions in Table 3 to that for the investor benchmark in Table 1 confirms that the values for the deductions in the third benchmark are approximately half the magnitude of those presented in Table 1. The reason why this difference is slightly more than 50 per cent, rather than exactly 50 per cent, is due to the progressive personal income tax system in Australia.

The third benchmark may strike a useful balance between the competing interests of tenure neutrality and the mutuality principle.

Visual construct of tax expenditure benchmarks for owner-occupied housing.

After presenting the three benchmarks against which the tax expenditures for owner occupied housing are determined, it is useful to provide a comparison of their analytical frameworks.

Figure 1 illustrates the concepts behind the three different benchmarks diagrammatically. One horizontal axis represents the level of imputed rent taxation, while the other represents the level of deductions allowed. Where there is full tenure neutrality (the investor benchmark), expenditures are high because imputed rent is fully taxed and deductions fully allowed, leaving mostly capital gains tax. Where the mutuality principle holds (the second benchmark), expenditures are also high because not only is imputed rent not taxed, but associated deductions are unavailable, again leaving capital gains tax. The third benchmark lies in between these two measures, where imputed rent is not taxed, but partial deductions are available.

Figure 1: Concept illustration of tax expenditure benchmarks
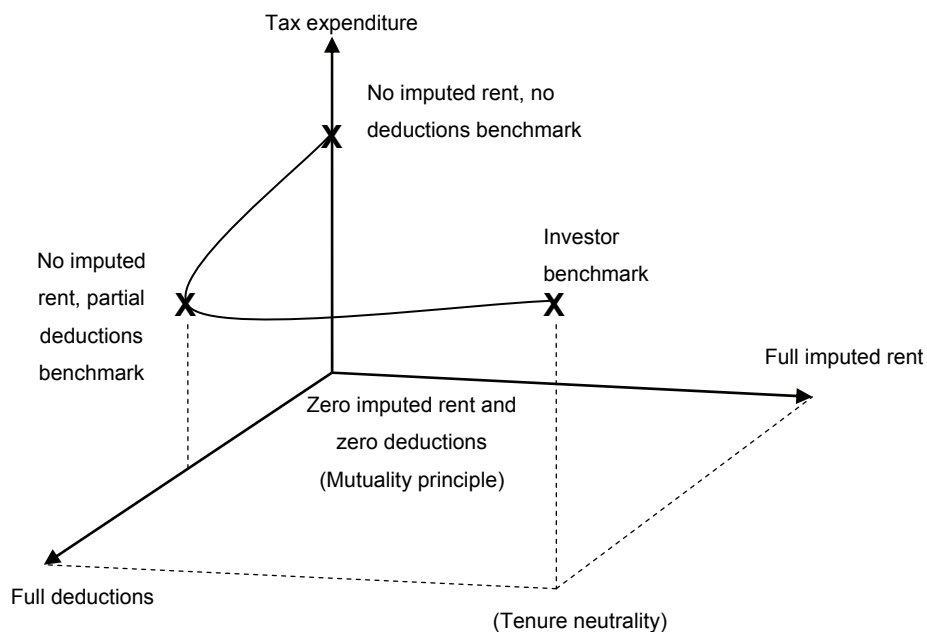
Insights into the impact of capital gains tax discount on owner-occupied housing

In an analysis which examines the tax expenditures related to owner-occupied capital gains, a number of insights into the nature of the capital gains discount may be observed. A discussion of these is presented to provide a better understanding of the implications of the capital gains tax discount on owner-occupied housing.

Capital gains tax discount and the main residence exemption

The interplay between the main residence CGT exemption and the CGT discount for individuals warrants further examination. As mentioned earlier, the main residence exemption can effectively provide a 100 per cent CGT discount, whereas the CGT discount for individuals is currently 50 per cent. The tax expenditure for the full 100 per cent discount of the main residence exemption for owner-occupiers is shown at item 1 in Tables 1 to 3.

However if this expenditure is considered in isolation, neglecting the effect of the discount for individuals, then the impact of the main residence exemption on the tax expenditures will be overstated. The reason for this is the subtle observation that *in the presence of the discount for individuals*, the main residence exemption is, in fact, not a 100 per cent discount. Rather, it discounts the remaining capital gains after the discount for individuals has been applied. Thus, of the full capital gains realised on an

owner-occupied dwelling, the 'first' 50 per cent is discounted due to the discount for individuals, while the 'remaining' 50 per cent is discounted due to the main residence exemption, resulting in the overall 100 per cent discount. This is the reason for including item 3 in Tables 1 to 3; it is the part of the overall capital gains tax expenditures of item 1 which is attributable to the 50 per cent discount for individuals.

Thus, the true impact of the main residence exemption on tax expenditures, relative to these benchmarks that include the CGT discount for individuals, is found by adding items 1 and 3 in Tables 1 to 3. In terms of the TES (2009), the measure at item 3 for the second benchmark has been reported separately in Table E5 'Capital gains tax main residence exemption — discount component' of the 2009 TES.

Possible effects of the capital gains tax discount on deductions

Similarly, the tax expenditures on mortgage interest and other deductions, shown at items 4 and 5 in Tables 1 and 3, are the full expenditures in the absence of the CGT discount for individuals. These non-capital-gains related deductions are influenced by the CGT discount for individuals because the marginal tax rate of taxpayers in receipt of capital gains has the potential to be lowered with the discounted capital gain, compared to the full capital gain.

As an example, consider the case of an owner-occupied dwelling owned by a single owner with a taxable income of $45,000 in 2006-07. If the dwelling was sold in 2006-07 after being purchased seven years prior, for the median house prices of approximately $421,500 and $216,500 respectively, then the capital gain is $205,000 in nominal terms. The discounted capital gain of $102,500 would be taxed at a marginal tax rate of 40 per cent, whereas the full capital gain would be taxed at a marginal tax rate of 45 per cent. In this case, the effect of the CGT discount for individuals has been to reduce the marginal tax rate at which loan interest and other deductions occur.

This phenomenon is interesting because it illustrates the fact that the CGT discount for individuals can have effects that extend beyond the realm of taxing capital gains. This occurs despite the relatively small percentage of owner-occupiers receiving capital gains in each financial year. Although this effect is small when compared to the total tax expenditures in this study, it is not insignificant: the modelling shows that in 2009-10 (relative to the investor benchmark), approximately $300 million of the non-deductibility of loan interest and other payments by owner-occupiers can be attributed to the CGT discount for individuals.

Conclusion

This article has presented a study of Australian government tax expenditures that relate to owner-occupied housing as it compares to other forms of housing. In particular, the analysis includes the tax concessions of the main residence CGT exemption, 50 per cent CGT discount for individuals, imputed rent, mortgage interest deductions, capital works deductions and other deductions.

The tax expenditures have been presented relative to three different benchmarks; the tenure-neutral investor benchmark, the mutuality-preserving benchmark, and a hybrid benchmark featuring no imputed rent and partial deductions.

Considerable effort has been expended to model these expenditures, which has allowed them to be quantified for the first time in the TES 2009. The expectation of significant expenditures is confirmed against all three benchmarks, with total expenditures of approximately $14 billion forecast for 2009-10 as reported in Table E4 in the *2009 Tax Expenditures Statement*. For context, the total tax expenditures on funded superannuation in 2009-10 is approximately $22.3 billion, as reported in Table D1 of the TES 2009

 The effects of capital gains concessions appear to be more significant than the other concessions discussed; in particular the 50 per cent CGT discount for individuals is shown to affect non-CGT tax expenditures.

APPENDIX A

Model implementation and technical overview

The tax expenditure results presented in this article are based on assumptions that are consistent with historical growth rates. The overall expenditures are found by first estimating the following three components:

• capital gains tax on realisation for owner-occupiers;

• income tax on the imputed rent of owner-occupiers on an accrual basis; and

• income tax deductibility for expenses relating to generating imputed rent, specifically mortgage interest repayment deductions and 'other deductions' on an accrual basis.

The reliability of the tax expenditure estimates is only as good as the original source data that is used. The estimates are sensitive to small changes in assumptions and input data, and their reliability has not been quantified.

Estimating capital gain

The capital gain realised by an individual is approximated by taking the difference between the nominal median housing prices in the year of sale and the year of purchase.[16] Total capital gains are determined by multiplying the individual's capital gains by the turnover of the owner-occupied housing stock.[17]

In each financial year the housing stock is distributed according to the holding distribution in Table A1, which shows the percentage of housing stock that has been held for each holding length up to 26 years. This distribution is derived from the HILDA survey, in which owner-occupiers are asked how long they have lived in their current dwelling.[18] The model makes the assumption that the dwellings sold in any time period are a random sample of the entire housing stock, that is, housing turnover follows the same holding distribution. This allows the yearly turnover to be treated as a collection of cohorts, each of whom purchased their dwelling in a different year. This

16 Ideally the mean housing prices should be used in calculating the capital gains, but this data is unavailable. In fact, using median house prices rather than the mean is expected to understate the capital gains if it is assumed that the entire spectrum of the housing price distribution grows at a constant rate over time.
17 The modelling of the turnover rate is based on the ABS cat. no. 5609.0 – Housing Finance, Australia.
18 Housing, Income and Labour Dynamics data Waves A, B, C, D, E and F.

in turn allows the capital gain of each cohort to be determined from the median house prices in the years of purchase and sale.

Table A1: Housing duration and alterations and additions profile assumptions

Housing duration profile for owner occupied households		Alterations and additions profile for owner occupied households	
Percentage of owner occupied household sellers		**Percentage of owner occupied households that undertake alterations and additions**	
Main residence holding period		**Main residence holding period**	
	per cent		**per cent**
1	2.8%	1	3.5%
2	6.4%	2	8.9%
3	8.3%	3	11.9%
4	8.6%	4	12.5%
5	7.8%	5	10.8%
6	6.8%	6	9.2%
7	5.9%	7	7.8%
8	5.3%	8	6.8%
9	4.7%	9	6.5%
10	4.0%	10	6.9%
11	3.5%	11	7.8%
12	3.1%	12	8.7%
13	2.8%	13	8.1%
14	2.5%	14	6.5%
15	2.5%	15	4.6%
16	2.5%	16	4.1%
17	2.4%	17	4.5%
18	2.0%	18	4.1%
19	1.6%	19	4.0%
20	1.3%	20	4.1%
21	1.2%	21	4.3%
22	1.1%	22	4.7%
23	1.2%	23	4.5%
24	1.1%	24	3.6%
25	1.0%	25	2.4%
26	0.7%	26	1.2%
Total	**91.0%**	**Weighted average**	**8.0%**

Some dwellings have undergone major capital works, that is, alterations and additions. Table A1 shows the percentage of owner-occupied dwellings that undertake such improvements, based on the holding length of the main residence. This data is derived from the Housing Expenditures Survey (HES).[19] For those dwellings that have undergone improvements, the average cost of an alteration or addition (based on ABS housing finance data[20]) is added to the cost base of the dwelling. Although alterations and additions have been included in modelling the tax expenditures of owner-occupied housing, it does not significantly impact the magnitude of the estimate. In fact, it is estimated to affect the total tax expenditure by approximately $1 billion in each of the years 2005-06 to 2012-13.

The expenditure estimates presented in this study are particularly sensitive to owner-occupied housing turnover rates and the housing duration profile.

Sometimes cohorts have aggregate capital losses, particularly when the median house price between a pair of years has fallen or when dwellings that have been held for short periods undergo improvements (which may effectively increase their cost price above the median house price for that year). These capital losses may be offset against future capital gains of the homeowner (that is, upon the sale of a successive dwelling). The model assumes that such homeowners purchase another dwelling for owner-occupation, and that this next dwelling will be held for a length of time determined by the holding distribution in Table A1.[21] Thus, aggregate capital losses are distributed into the future years of that cohort. This process is repeated until all aggregate capital losses have either been offset against subsequent capital gains or else registered as potential future capital gains offsets.[22]

The tax liability of a cohort's capital gain is determined by using the applicable average marginal tax rate, as described below in the section 'Tax rate treatment'.

Capital works considerations

For dwellings that are used to earn income, expenses on major capital works are eligible for capital works deductions. These deductions are distributed over multiple years, being either 4 per cent of the capital works expenses per year over 25 years, or 2.5 per cent of the capital works expenses per year over 40 years, depending on when the capital works were performed, up to a maximum of the total nominal value of the

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19 Housing Expenditure Survey 2003-04.
20 ABS cat. no. 5609.0 – Housing Finance, Australia, April 2008.
21 This neglects owner-occupiers who cease being owner-occupiers following the sale of their dwelling.
22 This corresponds to a negative tax expenditure on owner-occupied capital gains tax in unknown future years.

capital works. Thus, for dwellings that undertake improvements, the cumulative capital works deductions are removed from the CGT cost base of the dwelling.

Tax rate treatment

In order to compute the tax liability of additional assessable income or the tax deductibility of deductible expenses, an appropriate marginal tax rate is required. However, owner-occupiers in different situations will have different marginal tax rates, the most obvious example being that owner-occupiers who receive capital gains after selling their dwelling will typically be in a higher marginal tax bracket.

This problem is addressed through the use of *average marginal tax rates* (AMTR) for the owner-occupiers in various situations. Table A2 shows the 24 different owner-occupier situations considered, based on whether the dwelling is owned individually or jointly by a couple ('Joint ownership'), is mortgaged or owned outright ('Housing mortgage'), has been sold in that financial year or not ('Selling'), has been improved or not ('Alterations and additions'), and if so, if a loan was used to fund the improvements ('Mortgage for alterations and additions'). Each of these situations has a different level of additional assessable income and deductions.

- Joint ownership: Dwellings that are jointly owned by a couple have the feature that additional income and deductions can be split equally between the two joint owners. This has the potential to lower their joint tax liability, since each may face a lower marginal tax rate than if one of them faced the full additional income and deductions.

- Housing mortgage: Dwellings that have a mortgage can claim deductions for mortgage interest repayments.

- Selling: Dwellings that have been sold in a financial year are subject to additional assessable income of the discounted capital gain they make.

- Alterations and additions: Dwellings that have had improvements can claim capital works deductions. Furthermore, such dwellings that are also being sold must adjust their CGT cost base by the cost of their improvements, less any capital works deductions that have previously been claimed prior to selling.

- Mortgage for alterations and additions: Dwellings that have borrowed funds for improvements can claim deductions for the associated interest repayments.

In the investor benchmark, all the situations also have imputed rent as additional income and the miscellaneous other deductions related to rental income. These are not present in the second benchmark. Deductions for the depreciation of assets that are

associated with owner-occupied dwellings are implicitly taken into account in the miscellaneous other deductions.

The overall average marginal tax rate for each of capital gains, imputed rent, mortgage interest deductions and other deductions are then obtained by taking the weighted average of the AMTRs for the appropriate situations, where the weights are proportional to the number of owner-occupiers in each situation.[23]

Table A2: Situations for determining average marginal tax rates

	Joint ownership	Housing mortgage	Selling	Alterations and additions	Mortgage for alterations and additions
1	Y	Y	Y	Y	Y
2	Y	Y	Y	Y	N
3	Y	Y	Y	N	
4	Y	Y	N	Y	Y
5	Y	Y	N	Y	N
6	Y	Y	N	N	
7	Y	N	Y	Y	Y
8	Y	N	Y	Y	N
9	Y	N	Y	N	
10	Y	N	N	Y	Y
11	Y	N	N	Y	N
12	Y	N	N	N	
13	N	Y	Y	Y	Y
14	N	Y	Y	Y	N
15	N	Y	Y	N	
16	N	Y	N	Y	Y
17	N	Y	N	Y	N
18	N	Y	N	N	
19	N	N	Y	Y	Y
20	N	N	Y	Y	N
21	N	N	Y	N	
22	N	N	N	Y	Y
23	N	N	N	Y	N
24	N	N	N	N	

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23 For example, the AMTR for capital gains is the weighted average of the AMTRs for situations 1-3, 7-9, 13-15 and 19-21 (that is, the situations where 'Selling' is 'Y'), whereas the AMTR for imputed rent uses all the situations, since they are all subject to taxation of imputed rent in the investor benchmark.

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Disparities in average rates of company tax across industries

Peter Greagg, Dean Parham and Pero Stojanovski[1]

The effect of company tax arrangements across Australian industries has received relatively little attention.

This article finds evidence that average tax rates vary considerably across industries. The evidence is found to be reasonably robust with external validation used to confirm results.

The average tax rate is found to be relatively high in the finance and insurance industry and relatively low in the most capital-intensive industries, such as electricity, gas and water, and mining.

Variations in average tax rates across industries would be expected to have an impact on the way investment is allocated across industries, potentially with a negative impact on productivity and growth. Changes to the company tax rate would be expected to have differing impacts across industries arising from the variations in average tax rates.

This analysis updates the version released on 24 May 2010.[2]

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1   The authors are from Business Tax Division, the Australian Treasury. This article has benefited from comments and suggestions provided by Paul McMahon and Shane Johnson. The views in this article are those of the authors and not necessarily those of the Australian Treasury.

2   See the Appendix for further details.

Introduction

Whether company tax affects industries differently in Australia has received little attention. Perhaps the application of a single statutory corporate tax rate to all companies has led to an assumption that corporate tax is neutral in its treatment of income across industries.

Recent times have seen advocacy in support of a reduction in the corporate tax rate — a lower rate is usually considered to raise the *quantity* of investment.

This article raises the possibility that the corporate tax system might impact differentially across industries — some sectors facing little apparent impact from company tax while others face a relatively big impact. These disparities in tax treatment may distort the allocation or *quality* of investment, and thereby the economy's performance. Usually, more investment also means more growth in output and productivity. Capital deepening can raise labour productivity and certain types of capital can lift multifactor productivity through efficiency spillovers and externalities — for example, machinery with new embodied technologies.

Recent OECD work (see Vartia 2008) suggests that the benefits of a reduction in the corporate tax rate may result from a rise in the *quality* of investment because of a better allocation of a given quantum.

A number of factors have an important influence on the allocation of investment. Potentially, differences in average tax rates across industries could encourage resources into less-productive investments in tax-favoured industries at the expense of more-productive investments in less-favoured industries. If this occurred, it would detract from economic growth.

Tax disparities could also influence the way in which the economy may respond to a lowering of the corporate tax rate. The effects of a tax cut in industries with an already low average tax rate would be less than those in industries with relatively high average rates.

Accordingly, the issue of how company tax arrangements affect different industries could potentially influence the quality of investment as well as how the economy may respond to a cut in the company tax rate.

Industry contributions to corporate tax

In order to examine the impact of the tax system on different sectors there are a number of approaches that can be used.

In this paper we use the so-called backward looking approach. That is, analysis is based on actual company tax return data from prior years.

Corporate tax data is sourced from the ATO's *Taxation Statistics 2007-08*, and covers the period from 1995-96 until 2007-08. Total corporate tax collections have increased over this period. The structure of industry contributions has also been changing over this period. The most notable change being the increase in the relative contribution from the finance and insurance industry.

For the 2007-08 financial year, the finance and insurance industry accounted for about 40 per cent of total corporate tax collections. This is not an isolated result — the industry has accounted for an average 38 per cent of corporate tax collections for the whole period. The significant contribution of this industry to corporate tax collections, together with its continued growth, raised its profile throughout these investigations.[3]

Over the same period, the electricity, gas and water (EG&W), mining, construction, and communication services industries together accounted for less than 20 per cent of corporate tax collections on average. The most noteworthy of these industries are EG&W and mining.

The EG&W industry contributed a mere 0.3 per cent of corporate tax collections in 2007-08 — with the industry's contribution over the period being relatively stable at 0.3 per cent. The relative size, level of state ownership and low contribution to corporate tax collections all warranted a closer examination.

The mining industry's contribution to total corporate tax collections has gradually increased over time. In 2007-08 it accounted for 14 per cent of corporate tax; whereas the average for the whole period was 9 per cent. This result is surprising given that the mining boom was well underway in the latter part of this period. A possible explanation could be that the company income tax base is different from economic income. For example, rising prices may have spurred higher investment resulting in increased depreciation deductions. Also, tax collections at the Commonwealth level may be adversely influenced by state royalty payments.

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3   This trend and the relative importance of the finance and insurance industry for revenue collections has also been observed in the United States and United Kingdom (Auerbach, Devereux and Simpson 2007).

Measurement of an average tax rate

Industry contributions to total corporate tax collections provide some insight into whether or not an industry's contribution to the total is disproportionate to income earned.

Greater insight can be gleaned by comparing each industry's tax collections with a measure of its corporate income. A common measure of corporate income is gross operating surplus (GOS).

Chart 1: 2007-08 industry shares of GOS and corporate tax collections
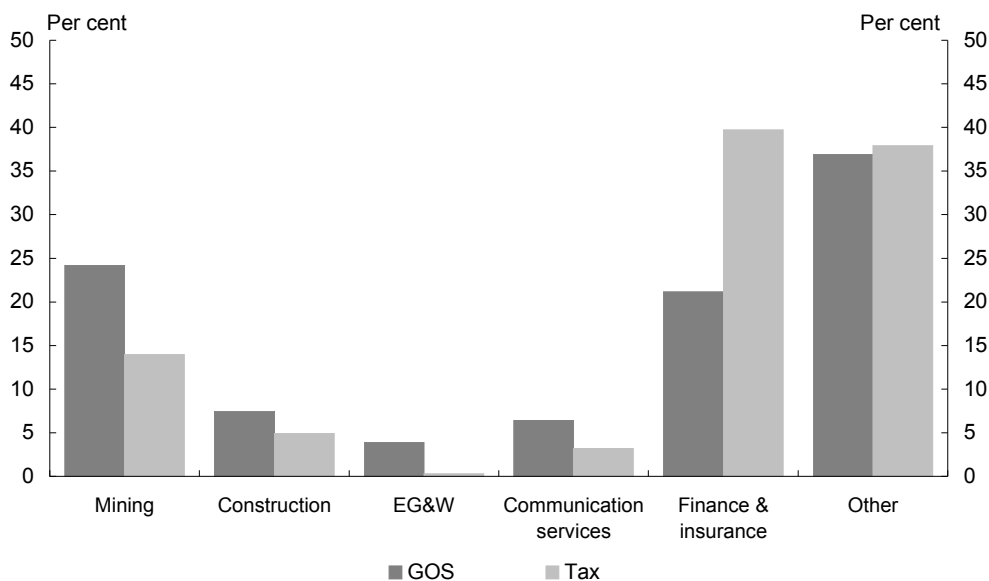
Source: Australian Bureau of Statistics cat. no. 5204.0, Treasury Estimates and ATO *Taxation Statistics 2007-08*.

While Chart 1 is for the 2007-08 year, it is also representative of the whole period.

With the exception of the finance and insurance industry, all industries pay a less than proportionate amount of tax, relative to their contributions towards GOS. The standout industries are mining and EG&W — the latter is of particular note with a contribution of 0.3 per cent to corporate tax collections for the 2007-08 financial year, but 4 per cent of corporate GOS.

Corporate tax collections are highly reliant on the finance and insurance industry. In 2007-08, the industry contribution to total GOS was 21 per cent, while the industry provided about 40 per cent of total tax.

These results raise some questions regarding the operation of corporate tax arrangements, including the measurement of income.

Chart 1 implies a difference in average tax rates (ATRs) across industries. There is an important distinction between statutory and average tax rates. The two differ due to differences between taxable income and GOS as a measure of income. At the industry level, this results from the differing impact of general tax provisions as a consequence of the industry's characteristics as well as industry-specific taxation measures.

GOS is a commonly used measure of corporate income, however it excludes some components that are included in taxable income. A better measure of corporate income should be similar to the conceptual base upon which income tax is levied. This paper uses the income measure derivation by Clark, Pridmore and Stoney (2007) — termed 'net operating income'. This measure of income adjusts for the excluded components of GOS.

GOS is a measure of the surplus from the production of goods and services available for distribution to those that hold a claim to corporations (ABS 2000). However, GOS is not the most appropriate measure of a corporate income tax base as it excludes income unrelated to production — such as property income, land and natural resource rents, net interest receipts, and capital gains or losses — which rightly forms part of company income and profits. In addition, GOS excludes depreciation whereas the corporate income tax base allows a deduction for depreciation — for tax purposes, depreciation is calculated at historical cost.[4]

Data is sourced from the Australian Bureau of Statistics (ABS) and the Australian Taxation Office (ATO), starting from GOS. Adjustments are made to GOS to add:

- depreciation;

- net property income of the corporate sector,

    - in particular, debt-servicing interest expenses, interest receipts, and land and natural resource rents;

- holding gains or losses in trading stock and realised capital gains and losses in the assets and liabilities of the corporate sector; and

- the part of the income from financial intermediation excluded from GOS.

In relation to the last point, the national accounting framework decomposes interest payments and receipts into the payment of a pure interest flow and the payment of an imputed service charge (see ABS 2000). This imputed service charge is included in the

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4   The Australian Bureau of Statistics measures depreciation as the real change in value of an asset for a period.

calculation of GOS alongside any explicit charges imposed by lending institutions. In contrast, the full amounts of net interest payments are recognised for accounting and taxation purposes.

For the purposes of the analysis, ATR estimates are presented and interpreted relative to the average ATR for all industries. It is recognised that estimates of ATRs may be subject to inaccuracies in the measurement of some variables. However, the objective of this paper is to investigate whether the corporate tax system impacts differently across industries, rather than focusing on the actual levels of average corporate tax rates.

There is greater uncertainty about the accuracy in measurement of industry ATRs than of an aggregate ATR. There is a reasonable level of certainty in relation to the totals of these variables. However, the need to distribute these variables across industries introduces the possibility of a misallocation error that does not exist at the aggregate level.

Estimates of average tax rates for industries

The pattern of corporate tax could have just as important implications for Australia's economic performance as the aggregate level of corporate tax. Industry estimates of ATRs highlight that it is not only the *level* of corporate tax that matters but also the *pattern* in which corporate tax operates — specifically, the uneven way in which tax applies to different companies in different parts of the economy (see Chart 2).

Chart 2: Average industry ATR deviations from the mean
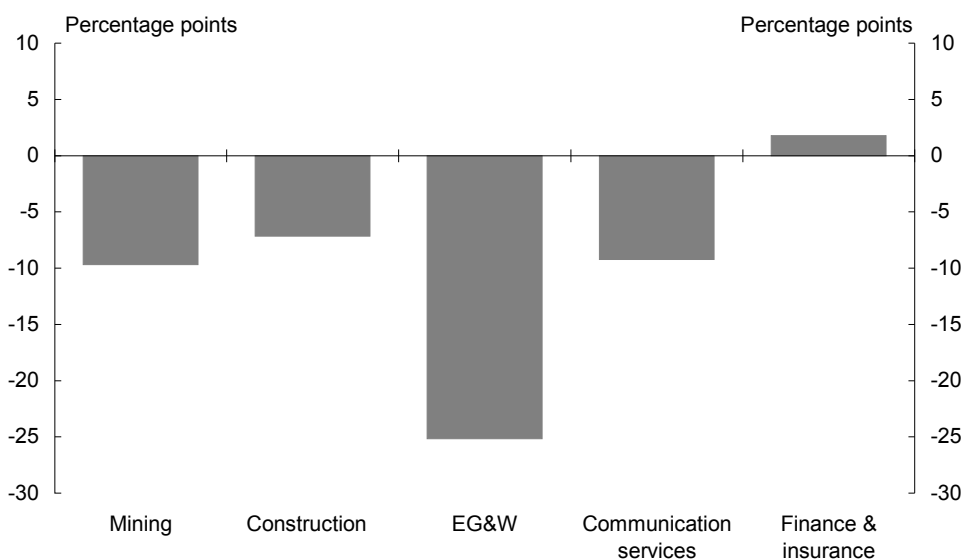
Source: ABS, Treasury Estimates and ATO *Taxation Statistics* (various).

Chart 2 presents average industry ATRs as a deviation from the industry-wide ATR for the period 1995-96 to 2007-08.

The ATR of the finance and insurance industry is above the industry-wide average, consistent with its strong contribution to total corporate tax. The high ATR may relate to the high level of domestic ownership within the industry, coupled with its implications arising from the imputation system.[5] Furthermore, its rapid growth is consistent with high profitability. Another factor contributing to its high ATR could be the absence of industry-specific tax breaks, or little opportunities for large depreciation deductions.

Relative to other industries, the ATRs of the EG&W and mining industries are below average, and very much so in the case of EG&W. ATRs are also below average in construction, and communication services.

Further investigations of the calculation of net operating income and taxation data reveal several issues that may account for some of the disparity in ATRs, the most prominent being the influence of reconciliation items.[6] The mining and EG&W industries have an above-average level of reconciliation items.

Industry comparisons highlight the correlation between capital intensive industries — such as EG&W, construction, mining, and communication services — and below-average ATRs. While not conclusive, there is evidence that generous depreciation allowances may be a factor. In addition, these industries have an above-average reliance on debt versus equity finance. Sørenson and Johnson (2009) demonstrate that average marginal tax rates are strongly negative when debt financing is used as opposed to equity financing.

The EG&W industry is of particular interest because its measured ATR is so low. This appears to be due to a combination of general and industry-specific factors. Examples include the generous treatment of some assets for tax purposes and high usage of interest deductions. These features, coupled with large tax losses and large deductions for the decline in value of depreciating assets, have all contributed to the low ATR of the industry.[7]

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5 Some argue that the imputation system encourages domestic firms to pay tax as investors value fully franked dividends.

6 Reconciliation items are the differences between accounting profits and taxable income and include capital gains and losses, franking credits, deductions for loss of asset value, R&D tax concessions and tax losses.

7 Another possible explanation is the degree of state ownership within the industry. A sensitivity analysis using private sector data still demonstrates an ATR with the largest deviation from the industry-wide average.

Contrary to expectations, the mining industry's ATR appears to be relatively low. Mining's proportional contribution to corporate tax collections has steadily risen since the boom conditions beginning around 2003-04. Similar to EG&W, the industry receives generous deductions for the decline in value of depreciating assets, including the immediate expensing of exploration expenditure, certain infrastructure expenses, and site rehabilitation. The industry draws an above-average advantage from such provisions through its capital intensity. These factors result in large deductions, allowing such firms to reduce their taxable income below their actual economic income.

External validation of the evidence

As mentioned, there are uncertainties about the accuracy of the derived ATRs. Given the importance of the measured dispersion of ATRs to the possible implications, additional and independent evidence was pursued to confirm the existence of disparities in ATRs across industries.

Three sources of external validation were examined. The first of these measures uses data from the Bloomberg Professional service for publicly listed companies for the 2006-07 financial year. Relative ATRs are well below average for the mining and EG&W industries, while construction, and communication services are now above-average, as is finance and insurance.

Markle and Shackelford (2009) estimate the ATRs of publicly listed firms from their annual reports for the period 2003 to 2007. All industries have below-average ATRs, except for finance and insurance. The mining industry ATR is notable for its large deviation from the average. EG&W and communication services are not included in their calculations.[8]

An ATR figure was also calculated using ATO *Taxation Statistics* profit data. These estimates give a similar set of results to those above. On this measure, mining, and especially the EG&W industry, have low ATRs relative to the industry average. Interestingly, finance and insurance is also below average, while construction and communication services are above average. It is worth noting that these above-average measures are also above the statutory tax rate of 30 per cent, reflecting the differences between this measure and taxable income.

These additional sources of industry specific ATRs confirm the main analysis in this paper — that is, the corporate tax system impacts differently across industries, with a significant variance in ATRs.

8　An updated version of this paper continues to show a dispersion of ATRs across industries.

Implications

Australia's corporate tax system operates in a more complex and uneven fashion than is widely understood.

In particular, consideration of the average impact of the corporate tax system is not the only issue, as this paper shows that there is a large variation in ATRs across industries.

Disparities in ATRs across industries would tend to distort the allocation of investment. More investment in a low-tax industry would be at the expense of worthwhile investment in other industries. This would result in over-investment in the tax advantaged industry at the same time as under-investment in the other industries.

For example, it is possible that the low ATRs in EG&W have contributed to poor productivity performance in the industry.[9] Multifactor productivity has declined since 2000 on the back of more rapid growth in inputs of labour and capital, combined with slower growth in output. The acceleration of investment growth in the industry has been strong in both non-dwelling construction, and machinery and equipment (ABS 2007).

There is an important distinction between 'average levels' of tax burden and 'disparities' in average tax rates across industries and asset types. They have different implications for economic performance.

Arguments in favour of lower tax rates refer to average levels. It is argued that a lower general level of tax would bring benefits such as more investment, capital deepening, higher labour productivity and higher wages. But does this mean that low ATRs at least in a few industries could be a good thing for economic performance? The short answer is 'No'.

There may well be capital deepening, increased labour productivity, and higher wages in the low-tax industry. But the more important question is whether there would be even more capital deepening and even higher productivity and wages, in aggregate, if the allocation of investment was not distorted by tax disparities. Unless 'by chance' the marginal efficiency of capital was highest in the tax advantaged industry, the disparity would lead to an inferior performance outcome.

The findings of this article imply that the performance response to a lowering of the statutory tax rate may be more modest than previously thought — at least in some major sectors of the economy. To illustrate, the relatively low ATR of the EG&W industry would signify that any reduction of the statutory tax rate would make little

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9   The level of government ownership and heavy regulation are other possible reasons.

difference to the average burden of taxation. Similarly, the relatively low ATRs of other major capital-intensive industries — mining, construction, and communication services — signify that their responsiveness to changes in the statutory tax rate will be below the average, all other things equal.[10]

An industry with an above-average burden of taxation — such as finance and insurance — would suggest a relatively high response to statutory tax rate changes, all other things being equal. However, other features of the industry — its regulation and its high use of the imputation system by domestic firms — complicate the picture by limiting in different ways the potential responsiveness of foreign and domestic firms to changes in the statutory rate.

The disparities in average rates of corporate tax could be having adverse incentive and resource allocation effects which, if addressed, could have beneficial effects on long term growth and productivity performance in the Australian economy. If a reduction in disparities in ATRs were judged to be worth addressing, it could be achieved by broadening the tax base through a review of deductions, concessions, allowances, and loss offset provisions — particularly with respect to better aligning economic depreciation and tax depreciation. Alternatively, lowering the statutory corporate tax rate could also reduce the significance of disparities across companies.

Inter-industry tax differentials could also be significantly reduced by moving the tax system to a business level expenditure tax, such as the Allowance for Corporate Equity (ACE), as proposed for Australia by Sørenson and Johnson (2009). Under this approach, debt and equity are treated consistently, and the timing of deductions and allowances becomes less important.

Clear implications for the imputation system do not emerge from the paper and its findings. Its effect on reducing the disparity in effective taxation of debt and equity was a rationale for its introduction. To the extent that it achieves this, it likely serves to reduce the bias in favour of capital-intensive industries.[11] On the other hand, imputation reduces the cost of capital to domestic firms and, where used intensively, such as in finance and insurance, may restrict the investment response of foreign firms and capital to changes in statutory tax rates.

While examining the ATRs of the mining industry, it became apparent that the corporate tax system was limited in its ability to capture increases in resource rents.

10 This is true to the extent that these backward looking ATRs are good predictors of future ones.
11 Where there are higher levels of foreign ownership, such as for the mining and EG&W industries, regardless of the imputation system, there is a significant bias between debt and equity.

Conclusions

Average corporate tax rates differ substantially across industries. Although the information base does not permit precise estimates, it is clear that the most capital-intensive industries are favoured through generous deductions and concessions associated with investment in capital. This is demonstrated by the relatively low ATRs of the EG&W, mining, construction, and communication services industries. In addition, the mining industry is further favoured by industry-specific measures, such as the ability to expense immediately some expenditure that would normally be considered to be of a capital nature.

Similarly, the EG&W industry has been able to make more use of tax deductions and adjustments through its high use of debt finance, generous depreciation provisions, deductions for write-downs in asset values and substantial tax adjustments in some years.

The relatively high average tax rate, income and profits of the finance and insurance industry, are the main reasons this industry is a major contributor to corporate tax collections.

The usual argument for lowering corporate tax rates is that current rates are holding back the *quantity* of investment and therefore growth in productivity and living standards. This paper points to another argument, average tax rates differ markedly across different industries. This elevates the importance of the effects on resource allocation in considerations of the current system and possible reforms to it. Improvements in the *quality* of investment involve a better allocation of a given *quantity*. Addressing the dispersion of ATRs across industries would bring gains in productivity and living standards.

In order to achieve a reduction in the disparity in average tax rates, a viable option would be to broaden the tax base through a review of deductions, concessions and allowances — particularly with respect to better aligning economic depreciation and tax depreciation. Alternatively, a cut in the corporate tax rate would also reduce average rate disparities. Another option could be to tax corporate income on an expenditure basis, such as an ACE.

APPENDIX A

The ATO's *Taxation Statistics 2007-08* annual release is a key data source for this paper.

It provides the detailed taxation statistics for the income year 2007-08. Each release also provides updated estimates for prior year outcomes. The publication notes, '[t]he statistics in these chapters are not necessarily complete and will continue to change as data from 2008 tax returns and schedules processed after 31 October 2009 is included'.

The ABS data used in this paper is also subject to continued revision. This revision of previously released outcomes has been noted by a number of commentators (see Stone and Wardrop 2002).

As a consequence of these ongoing revisions to prior year outcomes, research using and reporting these outcomes for particular years are necessarily reported as correct at the time of publication.

This version of the analysis uses updated data to that in the version released on 24 May 2010. For example, that version used *Taxation Statistics 2004-05*, whereas *Taxation Statistics 2007-08* is used here.

As a consequence of the addition and revision of data, some ATR estimates have changed at the margin.

However, it is important to note that these changes do not alter the analysis — that is, the company tax system has a varied impact across industries.

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Key themes from Treasury's Business Liaison Program

As part of Treasury's Business Liaison Program, staff held discussions with 11 organisations by telephone during May 2010. Treasury greatly appreciates the commitment of time and effort by the organisations that participate in the program.

Demand was supporting the mining sector, and the outlook for the property sector had improved. However, business conditions in the retail sector remained subdued.

Trading conditions

Strong demand was again evident in the resources sector.

There was a robust outlook for coal exports, driven by future demand. Demand from China remained strong and is rebounding across other key markets. Overall, coal demand was exceeding contracted quantities.

Exports of motor vehicles remained solid, and the recovery is proceeding steadily despite the unwinding of tax incentives. The outlook for the property sector had improved with good prospects for residential and industrial property investment, while non-residential private construction had not fallen as much as expected.

Retailers were experiencing a range of factors that were affecting the timing of recovery in the sector. Chief among these were the withdrawal of stimulus, warmer than expected weather and fuel prices. Further, high levels of consumer confidence had not translated into sales, with consumers continuing to display some frugality. Customers had shifted from credit to debit cards, preferring to draw on their savings.

Slow clearance rates for winter stock meant retailers did not expect to extract the full margin on the sale of goods in the near term.

Business credit and investment

Contacts reported investment activity which tended to reflect current conditions and the business outlook.

Retailers reported that capital expenditure had been wound back or delayed in line with the decline in spending, although some re-developments were proceeding where completion was anticipated in time for a retail recovery.

The situation was similar on the funding side, where many liaison contacts were drawing from existing cash reserves and debt facilities, and future cash flows, to fund capital expenditure. For others, it was noted that the availability of credit had improved. By contrast, many retailers were still experiencing financing constraints.

Capacity issues

Liaison contacts had not experienced significant skills shortages since the last round. On the export front, there were signs that some bottlenecks could affect capacity.

Employment and skills

Trading conditions had impacted the utilisation of labour. Slower sales in the retail sector had seen a reduction in the use of casual staff, although there had been no real shift in permanent employment. Contacts in other sectors had managed their staff so as to maintain their workforce during the GFC. This included substituting training for production days, where production had been temporarily reduced.

Prices and wages

The outlook for mineral resources prices continued to be positive, in line with demand-side expectations. Metallurgical coal prices were expected to increase in the short run, and hold up at high levels due to supply constraints, while gold prices were increasing. In line with the subdued sales conditions, there were signs that retailers were reviewing leasing costs.

James Scullin: depression treasurer

John Hawkins[1]

James Scullin had the misfortune to become Prime Minister two days before the Wall Street Crash. In the midst of the Great Depression, he had to take over as Treasurer for some months while Theodore attempted to clear his name of corruption allegations. Scullin presented a budget devised by Theodore but then left Joe Lyons as Acting Treasurer while he journeyed to Europe. On his return he reappointed Theodore as Treasurer, a contributing factor to the downfall of Scullin's Government. While supportive of Theodore's proto-Keynesian ideas, Scullin was forced by political realities to agree to the contractionary 'Premiers Plan'.
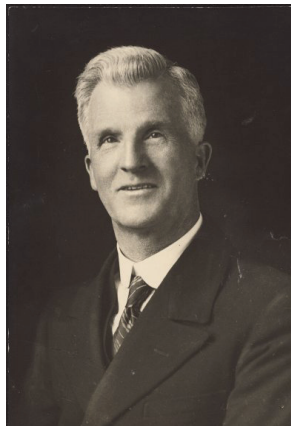
Source: National Library of Australia.

Introduction

James Scullin PC was unusual in becoming Prime Minister with no ministerial experience. His great misfortune was to become Prime Minister just as the Great Depression struck. A second misfortune was losing his Treasurer to a financial scandal at a crucial time. But history has judged Scullin's handling of the Depression harshly.[2] According to Gough Whitlam, 'it is the convention to regard JH Scullin as a mere orator who found himself thrust into an economic catastrophe completely beyond him and who let Australia and his party just drift deeper into disaster.'[3] During his brief term as Prime Minister, stress turned his dark hair white. Never as physically robust as contemporaries such as Lang and Theodore, he felt the strains of office keenly.[4]

A successor as Treasurer, who worked for Scullin, Casey recalls 'a shy, gentle, frail, kindly, religious man'.[5] The son of one of his ministers described Scullin as an 'honourable, nice, trustworthy, absolute gentleman and a scholar — all the things that make for a bad politician'.[6]

Scullin was admired for his debating skills.[7] He placed great store in education and literature.[8] He was credited by some with 'considerable gifts of intelligence'.[9] In Scullin (1927), he traced the history of workers' exploitation and the labour movement.

A biographer remarks that 'his knowledge of economics was substantial by the time he reached parliament in 1910, and had been so for some time. It is doubtful that he had a grasp of the theory of the subject, being in all probability unaware of the ideas of Ricardo, Adam Smith, Say, John Stuart Mill etc … rather he built up a substantial knowledge of the *details* of the subject and his expertise in the field of taxation and ability to grasp the principles behind financial legislation were well-known'.[10] However, Scullin had a low view of economists, whom he saw as unworldly, and free

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2 A poll of historians rated him Australia's second-worst Prime Minister (after William McMahon); Walker and Koutsoukis (2001).

3 Whitlam's foreword to Young (1971, p ix).

4 An accident in his youth had necessitated the removal of a kidney; Colegrove (1967, pp 3-4). In 1929 he had to spend two months in bed.

5 Casey (1973). Menzies (1967, p 119) said of Scullin 'his integrity was absolute.' Clark (1987, p 200) calls him 'a gentle spirit'. His typist recalled a 'loveable man in his gentleness'; Notes by Crisp, NLA MS 5243/20/211.

6 Niall Brennan, in Laughren (1994).

7 Even his political rival Bruce called him 'a first class debater'; Edwards (1965, p 445).

8 He collected a sufficiently extensive library that he was able to supply a substantial number of books to the House of Commons library to replace their Australiana collection when it was destroyed by bombing during World War II; Colegrove (1967, p 1).

9 *The Economist*, 19 October 1929, p 706.

10 Colegrove (1967, p 1). Sir Leslie Melville's (1993, p 6) recollection, however, is that Scullin had no understanding of the economic problems during the Depression.

traders, and on coming to office abandoned the plan to establish a Bureau of Economic Research and closed the Development and Migration Commission.[11]

Early career and entry into politics

James Henry Scullin was born on 18 September 1876 at Trawalla, Victoria, the son of working class Irish immigrants. After a succession of manual jobs, he ran a grocer's shop from 1900 to 1910. He married Sarah McNamara, a dressmaker also of Irish ancestry, in November 1907. They had no children, but it was a happy marriage and Scullin relaxed by accompanying Sarah's piano playing on his violin.

After joining the Labor Party in 1903, by 1906 Scullin was Labor's candidate in Ballarat — running unsuccessfully against the Prime Minister Alfred Deakin.[12] He won the seat of Corangamite in 1910, but lost it in 1913. Until 1921 he edited a Labor daily, the *Ballarat Evening Echo*, writing most of the editorials, many on economic themes.

In 1922 he won the seat of Yarra, which he held to 1949. Upon returning to Parliament he established a reputation for authority on taxation and economic matters. In 1927 he gave a series of speeches attacking the Government's economic policy, stressing dangers in the trade balance and the build-up of foreign and government debt.[13]

Scullin's skill in debate soon caught the attention of his colleagues and in 1926 Scullin was elected to the executive of the parliamentary party. He acted as leader in the House when Charlton and the assistant leader Anstey were both ill in July 1926. In 1927 Scullin became deputy leader, and he beat Theodore to become Labor leader in April 1928. He gained eight seats at the 1928 election. When Bruce called a poll in October 1929, Scullin led Labor to what was then its greatest victory.[14] But the opposition still controlled the Senate.[15]

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11 Castles (1997, p 28). Millmow (2004, p 148).

12 Scullin was assisted in his campaign by visiting English Labour MP Ramsey McDonald; Molony (2000, p 143). Around twenty five years later they met again in London as Prime Ministers of their respective countries; Crisp and Atkinson (1971); Buchanan (1940, p 5).

13 His arguments were similar to those developed by Edward Shann (1927); Robertson (1988). He decried the extent of capital inflow as 'financial imperialism gone mad' and drew parallels with the period before the 1890s depression; Molony (2000, p 145). Menzies (1967, p 119) refers to Scullin achieving 'a considerable grasp of such a complex and difficult matter as taxation.'

14 His platform included reforming the Commonwealth Bank, expanding public works and introducing unemployment insurance. His arrival in Canberra after the election was greeted by cheering crowds and a band playing 'See the conquering hero comes', showing a triumphalism that Scullin himself did not share; Colegrove (1967, pp 17-18).

15 Some of Scullin's colleagues, notably the radical Anstey, advocated a double dissolution, but by the time it was realised that the obstructive Senate was leaving Labor in office but not in

Scullin as Prime Minister

Scullin was sworn in as Prime Minister two days before the Wall Street Crash signalled the onset of the Great Depression. He appointed his deputy Theodore as Treasurer. Neither Scullin nor any of his ministers had any previous federal ministerial experience, although Theodore and Lyons had been state premiers.

At cabinet's second meeting Scullin called for proposals for public works to lower unemployment. Other early actions included raising tariffs, abandoning the Gold Standard and increasing social security payments. Scullin wanted, however, to await the return of prosperity before implementing many Labor reforms.

In October/November 1930, caucus voted to require the Commonwealth Bank to provide credit for public works, but the Bank's chairman Robert Gibson refused. So powerful was Gibson that some called him 'more definitely Prime Minister of Australia than Mr Scullin'.[16]

In June 1930, Scullin invited the Bank of England to send out an adviser, apparently without reference to either cabinet or caucus. Sir Otto Niemeyer, the Bank of England's emissary, was seen by many as a 'receiver' appointed by the British banks.[17] Niemeyer did not form an admiring view of Australia or its financial prospects.[18]

Scullin's tenure as Treasurer

Theodore resigned as Treasurer just before the 1930 Budget. Scullin took over as Treasurer, with Lyons as Assistant Treasurer. Scullin started his budget speech by referring to the 'severe economic disturbances at present prevailing in nearly all countries', which were leading to the 'derangement of government finance'. Australia faced falling commodity prices, surging import volumes and a drying up of the large amounts of capital inflow to which she had become accustomed as the 'opinion in Great Britain that Australia was overborrowing' became more widespread. [19]

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power, Scullin thought calling a third election in three years in the midst of the Depression would be a mistake, and was keen to make his trip to London; Colegrove (1967, pp 60-68).

16 Denning (1937, pp 72-3). Schedvin (1970, p 85) comments 'more than any other individual, Gibson determined the course of economic policy during the Depression … a man of exceptional administrative capacity and business acumen, but, with his limited economic and financial knowledge, it was a tragedy that he was able to influence policy to such an extent'.

17 Niemeyer had a distinguished career, finishing first in the 1906 civil service entrance exam ahead of Keynes (and thereby forcing Keynes to join the Indian Office rather than Treasury).

18 See Niemeyer's (1930) account of his trip.

19 *Hansard*, 9 July 1930, p 3889.

The immediate response to the trade problem was to raise tariffs dramatically and take other measures to cut imports. In the medium term it was hoped that increased manufacturing output would replace some of the imported goods. However in the short term, the resultant reduction in customs revenue made the budget deficit worse.

Scullin proclaimed that 'the balancing of the budget is an essential step for the restoration of the credit of Australia'.[20] Accordingly he aimed at a surplus, funding increased spending by higher income tax and postal charges and a new sales tax. At the Melbourne Premiers' Conference, Scullin subscribed to Niemeyer's plan to cut wages and government spending and balance budgets.[21] Lang repudiated the Melbourne Agreement and won the New South Wales election, raising the pressure.

Scullin made two serious political mistakes. He controversially renewed Gibson's term as Commonwealth Bank chairman in mid-1930 (despite assuring caucus they would be consulted before any such decision).[22] And he decided to attend the Imperial Conference in London himself, removing himself from the domestic political scene for over four months.[23] He left Lyons as Acting Treasurer and Fenton as Acting Prime Minister, and they struggled to contain the dissatisfaction within the left wing of caucus about the Melbourne Agreement.

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20 *Hansard*, 9 July 1930, p 3892.

21 Cabinet agreed to balance the budget on 20 August 1930 and this was reaffirmed at a meeting under Fenton and Lyons on 5 September which Gibson attended.

22 Cabinet minutes for 4 August 1930 support Scullin's claim that cabinet agreed although the matter was questioned at a cabinet meeting on 6 September; Crisp papers, NLA MS 5243/20/156. Anstey, who was at the meeting, disputed this claim and Beasley, who had been absent, complained of not being consulted. *Hansard* 29 April 1931, p 1369 and 5 May 1931, pp 1609-12. Other sources suggest Theodore opposed the reappointment; Green (1959, p 31). Theodore distanced himself from the decision in a contemporary speech; 'No doubt Mr Scullin had good reason for not changing the chairman at that time. I do not know the reason.'; *Sydney Morning Herald*, 17 January 1931, p 17.

23 Scullin believed his attendance at the Conference could help increase inter-colonial trade, he could help arrange a loan to tide Australia over the balance of payments difficulties, he could improve the reputation of Australian companies in London and he wanted to pursue the King to appoint an Australian-born Governor-General, and these goals outweighed the misgivings he had about leaving Australia at such a crucial juncture; Colegrove (1967, pp 78-81). Denning (1937, p 180) suggests Scullin was 'cracking under the strain' and partly went for a respite. McMullin (1991, p 163) called the trip a 'convalescent voyage'.

The fall of the Scullin Government

Soon after he returned from London in January 1931, Scullin persuaded caucus to reinstate Theodore as Treasurer.[24] After much conflict (see the table and commentary on the 'battle of the plans' in the essay in this series on Theodore), the Premiers' Conference of May-June 1931 agreed to cut all adjustable government spending. This 'Premiers Plan', reluctantly supported by Scullin and Theodore, was strongly influenced by Niemeyer and Gibson. By this time unemployment was over 30 per cent.

Lyons and some supporters left the Labor Party and soon aligned with the opposition to form the United Australia Party. A group of Lang supporters also split off from Labor and now held the balance of power. In December 1931 they brought down the Scullin government. At the subsequent election, Labor was reduced to 14 seats.[25]

Elder statesman

Scullin carried on as opposition leader. He emphasised banking reform, making this the centrepiece of his 1934 campaign, where he won back nine seats but was still well short of a majority.[26] In October 1935, his health failing, Scullin resigned as leader, and was replaced by John Curtin. He was very quiet for the next couple of years, although he served on a caucus committee which examined Labor's monetary policy. Once Labor was back in office, he did not seek a cabinet position, although he could probably have got one.[27] He occupied an office between Curtin and Chifley and both respected his advice. Kim Beazley Senior asked Scullin about writing his memoirs of the Depression but Scullin declined, saying 'it nearly killed me to live through it'.[28]

Scullin did useful committee work on uniform taxation and the 'pay-as-you-earn' system of income tax collection.[29] A dying Curtin asked Scullin to convince Chifley to stand as leader.[30] Scullin was active in the 1946 campaign and Chifley entrusted him with some tasks. But he was ill from May 1947 until he retired in December 1949. He died on 28 January 1953.

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24 The caucus vote was close; 24-19; C Hughes (1976, p 82). This was a controversial move but it is not obvious what was a better alternative. Scullin's health would probably have not stood up to him continuing to be both Treasurer and Prime Minister. According to Hart (1970, p 43), Lyons did not want the job.

25 Winning an election during the Depression would have been difficult even if Scullin's party had stayed united. As Head (1978, p 14) notes, 'there were thirteen state and federal elections during the years 1929 to 1933, and in twelve cases the government was overturned'.

26 Scullin's opponent in his own seat was a young Harold Holt, later to become Treasurer and Prime Minister himself.

27 This is the view of his biographer Robertson (1988).

28 Beazley (1966).

29 The Scullin papers in the National Library show that taxation remained a subject of special interest to him in the 1940s.

30 Alan Reid, *Bulletin*, 5 February 1980, p 38.

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What's new on the Treasury website

The Treasury's website, www.treasury.gov.au, includes past issues of the *Economic Roundup*. Some of the other items posted on the website since the previous issue of *Roundup* that may be of interest to readers are listed in the following section.

Working Papers

Child Care Availability, Quality and Affordability: Are Local Problems Related to Maternal Labour Supply?

Robert Breunig and Xiaodong Gong

http://www.treasury.gov.au/contentitem.asp?NavId=049&ContentID=1781

This paper examines whether subjective responses to survey questions about child care availability, quality, and cost, aggregated at the local geographical level, have any explanatory power in models of workforce participation and labour supply. This paper finds that married women who live in areas with more reports of lack of availability, low quality, or costly childcare work less than women in areas with fewer reported difficulties with child care. The paper finds this effect on both the hours of labour supplied and on the part-time/full-time choice.

How Responsive is Female Labour Supply to Child Care Costs — New Australian Estimates

Xiaodong Gong , Robert Breunig and Anthony King

http://www.treasury.gov.au/contentitem.asp?NavId=049&ContentID=1782

The degree of responsiveness of Australian women's labour supply to child care cost has been a matter of some debate. There is a view that the level of responsiveness is very low or negligible, running counter to international and anecdotal evidence. This paper reviews the Australian and international literature on labour supply and child care, and provides improved Australian estimates of labour supply elasticities and child care demand elasticities with respect to gross child care price.

This paper finds that the limited literature in Australia has suffered from measurement error problems stemming in large part from shortcomings with data on child care price and child care usage. This paper uses detailed child care data from three recent waves of the Household, Income and Labour Dynamics in Australia (HILDA) Survey (covering the period 2005 to 2007) to address these problems. This paper extends the standard labour supply and child care model to allow for separate effects of different child care prices for children in different age ranges and calculates regional child care prices based upon child-level information. The salient finding is that child care prices do have statistically significant effects on mothers' labour supply and child care demand. The new estimates are in line with international findings, and their robustness is supported by a validation exercise involving an alternative technique and an earlier time period.

Publications

2010 Costing of Election Commitments Guidelines

http://www.treasury.gov.au/contentitem.asp?NavId=035&ContentID=1831

The Charter of Budget Honesty Act 1998 (the Charter) outlines arrangements under which the Secretaries to the Departments of the Treasury and of Finance and Deregulation may be requested to cost Government and Opposition election commitments during the caretaker period for a general election.

This document aims to inform those requesting policy costings of the general methodology that is to be applied, what information will need to be supplied upon requesting a policy costing, and what will be produced.

Portfolio Budget Statements 2010-11

http://treasury.gov.au/contentitem.asp?NavId=035&ContentID=1791

The purpose of the 2010-11 Portfolio Budget Statements (PBS) is to inform Senators and Members of Parliament of the proposed allocation of resources to government outcomes by agencies within the portfolio. Agencies receive resources from the annual appropriations acts, special appropriations (including standing appropriations and special accounts), and revenue from other sources.

A key role of the PBS is to facilitate the understanding of proposed annual appropriations in Appropriation Bills No. 1 and No. 2 2010-11. In this sense the PBS are Budget related papers and are declared by the Appropriation Acts to be 'relevant documents' to the interpretation of the Acts according to section 15AB of the Acts Interpretation Act 1901.

The PBS provides information, explanation and justification to enable Parliament to understand the purpose of each outcome proposed in the Bills.

2010-11 Commonwealth Budget

http://www.treasury.gov.au/contentitem.asp?NavId=035&ContentID=1807

2010-11 Commonwealth Budget website includes the following papers: Budget Speech, Budget Strategy and Outlook, Budget Measures, Federal Financial Relations and Agency Resourcing.

Two Budget Overviews were released with the 2010-11 Budget: Budget Overview; and A National Health and Hospitals Network for Australia's Future.

Australia's Future Tax System

http://www.treasury.gov.au/contentitem.asp?NavId=035&ContentID=1405

On 13 May 2008 the Australian Government announced the review of Australia's tax system. The review was tasked with looking at the current tax system and make recommendations to position Australia to deal with the demographic, social, economic and environmental challenges of the 21st century.

The review encompassed Australian Government and State taxes, except the GST, and interactions with the transfer system.

The final report was released by the Review Panel on 2 May 2010.

The Government's response entitled Fairer, Stronger, Simpler: Tax Plan for Our Future is located at **http://www.futuretax.gov.au**.

Speeches

Forecasting in the Eye of the Storm — Address by Dr David Gruen to the NSW Economic Society

http://treasury.gov.au/contentitem.asp?NavId=008&ContentID=1828

This address, entitled 'Forecasting in the Eye of the Storm', was delivered by Dr David Gruen, Executive Director (Domestic), Macroeconomic Group, to the NSW Economic Society on Friday 4 June 2010.

Cross-Country Analysis of Economic Growth and Fiscal Stimulus — Statement by Dr David Gruen to the Senate Economics Legislation Committee

http://treasury.gov.au/contentitem.asp?NavId=008&ContentID=1822

This statement, entitled 'Cross-Country Analysis of Economic Growth and Fiscal Stimulus', was tabled by Dr David Gruen, Executive Director (Domestic), Macroeconomic Group, at Senate Estimates for the Senate Economics Legislation Committee on 2 June 2010.

Housing Supply and Affordability — Address by Dr Steven Kennedy to the Towards a National Urban Policy Summit

http://treasury.gov.au/contentitem.asp?NavId=008&ContentID=1818

This speech, entitled 'Housing Supply and Affordability', was given by Dr Steven Kennedy, General Manager, Infrastructure, Competition and Consumer Division, Markets Group, to the Council of Capital City Lord Mayors' Towards a National Urban Policy Summit on 27 May 2010.

Consultations

http://treasury.gov.au/content/consultations.asp?ContentID=1013&titl=Reviews,%20 Inquiries%20%26%20Consultations

Treasury conducts many consultations on behalf of the Government. The following consultations are open for public comment:

• Consultation Paper — Review of Elections in the Income Tax Law

• Exposure Draft — Tax Laws Amendment (2010 Measures No. 5) Bill 2010: Extending CGT exemption for certain compulsory acquisitions

• Discussion Paper — Improvements to Running Balance Accounts and Related Provisions

• Issues Paper — Ticket Scalping: Ticket onselling and consumers

• Consultation Paper — Native Title, Indigenous Economic Development and Tax

• Review of Australia's Superannuation System

Sources of economic data

The following table provides sources for key economic data. Australian Bureau of Statistics (ABS) data can be obtained over the internet at http://www.abs.gov.au. The Reserve Bank of Australia information is available at http://www.rba.gov.au. Similarly, OECD information is available at http://www.oecd.org. Information on individual economies is also available via the IMF at http://www.imf.org.

International economy	
Output, current account balance, interest rates and consumer price inflation	OECD Main Economic Indicators

National accounts	
Components of GDP, contributions to change in GDP	ABS cat. no. 5206.0

Incomes, costs and prices	
Real household income	ABS cat. nos. 5204.0 and 5206.0
Wages, labour costs and company income	ABS cat. nos. 5204.0, 5206.0, 5676.0 and 6345.0
Prices	ABS cat. nos. 6401.0 and 5206.0
Labour market	ABS cat. no. 6202.0

External sector	
Australia's current account, external liabilities and income flows	ABS cat. nos. 5368.0, 5302.0 and 5206.0

Past editions of *Economic Roundup*

A full index to articles published in *Economic Roundup* was included in the Spring 2006 edition. Details of articles published in recent editions are listed below:

Issue 1, 2010

Changing taxes for changing times

The economic outlook and challenges for the Australian economy

Australia's current account deficit in a global imbalances context

New estimates of the relationship between female labour supply and the cost, availability, and quality of child care

Managing manna from below: sovereign wealth funds and extractive industries in the Pacific

Key themes from Treasury's Business Liaison Program

Ted Theodore: the proto-Keynesian

Issue 4, 2009

New paradigms to measure progress

Fiscal policy: more than just a national budget

What have we learnt? The Great Depression in Australia from the perspective of today

Key themes from Treasury's Business Liaison Program

Earle Page: an active treasurer

Copies of these articles are available from the Treasury. Written requests should be sent to Manager, Domestic Economy Division, The Treasury, Langton Crescent, Parkes, ACT, 2600. Telephone requests should be directed to Mr Chris McLennan on 02 6263 2756. Copies may be downloaded from the Treasury web site http://www.treasury.gov.au.