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A history of public debt in Australia

Katrina Di Marco, Mitchell Pirie and Wilson Au-Yeung[1]

Understanding debt and its historical trends is important, as the level of debt provides one measure of the strength of public finances. Levels of public sector borrowing fluctuate in line with the economic cycle and the budget position. This paper briefly describes the various measures of debt and trends in government borrowing.

1 The authors are from the Budget Policy Division, the Australian Treasury. This article has benefited from the contributions and comments of Jason Allford, Derek Bazen, Jan Harris, Karen Incher, Luise McCulloch, Tony McDonald, Robert Seaton and Gene Tunny. Timothy McGuire provided research assistance. The views in this article are the views of the authors and not necessarily those of the Australian Treasury.

Introduction

Understanding debt and its historical trends is important, as the level of debt provides one measure of the strength of public finances. Governments' borrowings to finance a budget deficit are collectively referred to as public debt. Over time, government borrowings add to the stock of public debt, but may finance things such as purchases of assets.

This article provides a brief analysis of Australia's public debt. It describes the various ways of measuring public debt and what these measures tell us about the strength of the government's finances. The article summarises the history of Australia's public debt, for both the Australian and State governments.

Concepts of debt

Before analysing historical trends in Australia's public debt, it is important to understand the concepts of gross debt and net debt and what information they provide.

Gross debt

Gross debt represents a portion of the total liability a government owes to creditors. The International Monetary Fund (IMF) Government Finance Statistics (GFS) manual defines gross debt as:

> All liabilities that require payment or payments of interest and/or principal by the debtor to the creditor at a date or dates in the future. Thus, all liabilities in the GFS system are debt except for shares and other equity and financial derivatives [paragraph 7.142].

The main component of gross debt on the Australian Government's balance sheet is Commonwealth Government Securities (Treasury Bonds) outstanding.

While the gross debt measure provides information on government finances, it is only a partial indicator. Gross debt does not incorporate amounts that are owed to government by other parties. Also governments, like an individuals or businesses, hold assets which can be sold to meet their financial obligations. To capture the asset side of equation, net debt needs to be considered.

Net debt

Broadly speaking, net debt is equal to gross debt less a related pool of financial assets.[2] Table 1 gives a simple representation of the main components that are included and excluded from the Australian Government's net debt calculation.

Table 1: Components of net debt

What is in	
Liabilities (add to net debt)	**Assets (subtract from net debt)**
Government securities (that we have sold to others)	Cash and other deposits (including cash investments in Funds)
Loans and other borrowings	Debt securities that the Government owns (eg State and Territory Government bonds)
	HELP Loans
	IMF capital subscription
What is out	
Superannuation liability	Equities (eg shares held by the Future Fund)
	Non-financial assets

Source: The Australian Treasury

Net debt is the most commonly quoted and well-known measure of a government's financial strength. One of the reasons is that it is part of everyday life for businesses and households. Another reason is that, historically, it was the only available stock measure for governments who were recording financial information in a cash-based accounting system. Finally, it is a measure that is internationally comparable, given most OECD countries report on it.

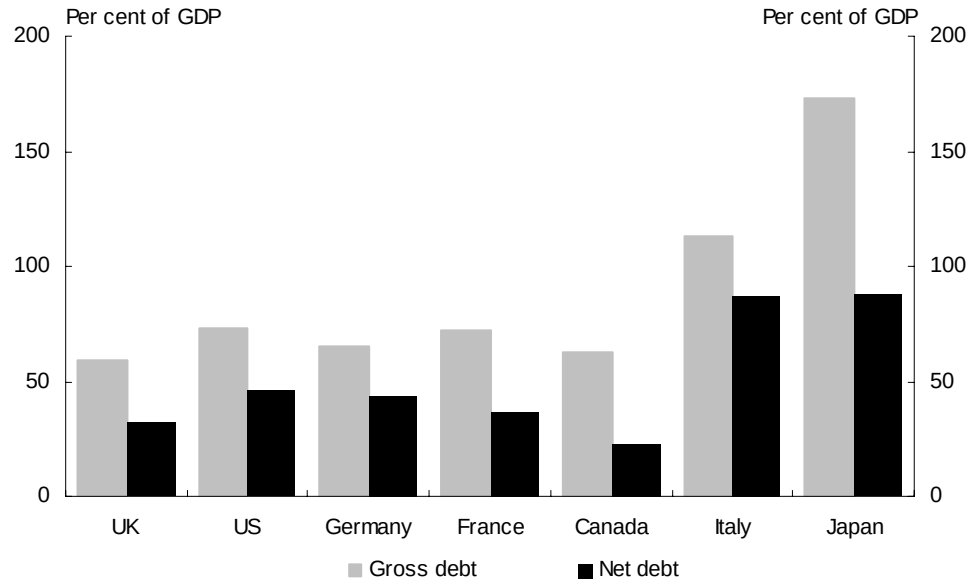
Compared with gross debt, net debt is a better measure of a government's overall indebtedness as it also captures the amount of debt owed to the government. Still, like gross debt, net debt is only a partial indicator of the government's financial strength, as not all government assets or liabilities are included. As an example, unfunded superannuation is not included in the calculation of net debt. On the other side of the ledger, the equity holdings of the Future Fund are also not included as an asset in the calculation of net debt.

International comparisons of net debt and gross debt

Chart 1 compares the gross debt and net debt position of the general government sector in the G-7 countries.

2 In terms of the Australian Government's balance sheet, net debt equals the sum of deposits held, advances received, government securities, loans and other borrowing, minus the sum of cash and deposits, advances paid, and investments, loans and placements.

Chart 1: G-7 countries' gross debt and net debt (2008)



Source: OECD *Economic Outlook 84*.

The case of Japan most clearly illustrates how only considering gross debt can result in a skewed interpretation of government finances. Using the gross debt measure, Japan, at 173 per cent of GDP, appears to have the highest debt level of the G7, well above the level of Italy. When the net debt measure is used, Japan and Italy have similar net debt- to-GDP ratios.

Similarly Canada, which has a comparable amount of gross debt to France, Germany and the US, has a significantly lower level of net debt than those countries.

The examples illustrate that care needs to be taken when using gross debt to compare across countries and over time.

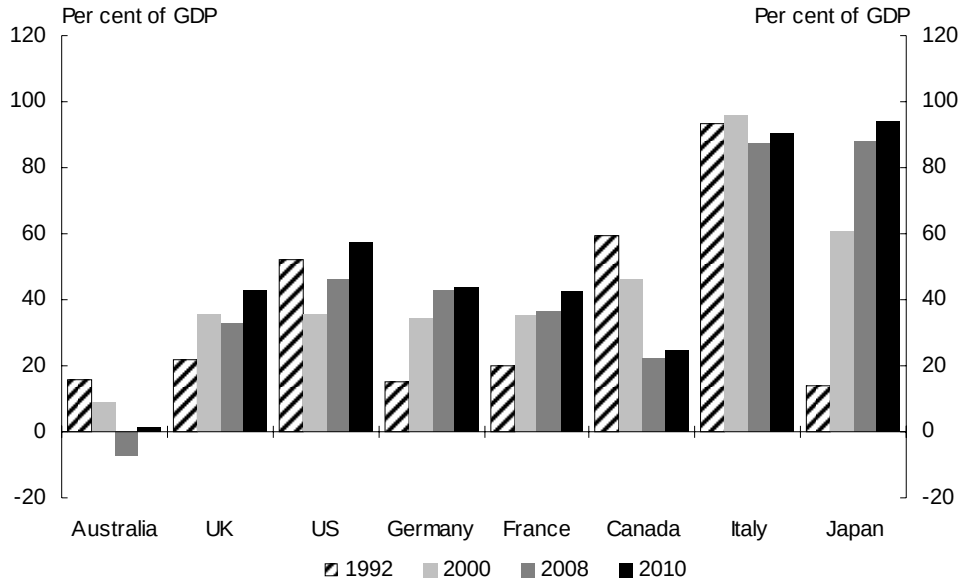
International comparisons of net debt over time

Australia has had historically low levels of net debt over the past two decades compared with the G-7 economies (Chart 2). In the early 1990s, Australia, along with the major economies, experienced an increase in net debt largely because of the global downturn. But in contrast to other economies, after 1995, Australia experienced a significant fall in its net debt.

In the period ahead, the net debt positions of the major OECD economies, including Australia, are again expected to grow as a result of the deteriorating global economic outlook and the need to introduce significant fiscal stimulus measures. The capacities of governments to respond to the deteriorating global economic outlook will be

different. These differences in capacity largely stem from differences in the initial strength of government finances and differences in the capacity of economies to grow.[3]

Chart 2: Australian and G-7 public sector net debt



Source: Australian Treasury and OECD *Economic Outlook 84* (November 2008). Net debt figures are from the OECD *Economic Outlook 84* except for Australia's 2010 figure which is the sum of the most recent forecasts for Australian, State and Territory general government sector net debt levels for financial year 2009-10.

Chart 2 reinforces Australia's relatively strong position with significantly lower levels of net debt projected in 2010 than the G-7 countries, even after introducing stimulus measures. Australia's projected net debt position, across all Government's is estimated to be 1 per cent of GDP compared with 48 per cent of GDP for the OECD.[4]

Other measures of financial position

Over time, the demand for greater public accountability has led governments to publish more comprehensive sets of fiscal data. This has resulted in a trend towards using accrual accounting measures. By introducing a balance sheet into the primary Budget documents from 1999-2000, the Australian Government has been able to measure net financial worth and net worth.

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3 These are factors that ratings agencies consider. For a useful summary see Moody's Special Comment, *How far can Aaa governments stretch their balance sheets?*, February 2009.

4 The OECD figure has not been updated from the OECD *Economic Outlook 84* published in November 2008. This figure is expected to be higher given the further deterioration of the global outlook and further stimulatory measures announced by governments.

- Net financial worth is defined as total financial assets less total liabilities.
- Net worth is defined as total assets less total liabilities.

Both measures are conceptually better than gross debt and net debt at capturing the Australian Government's financial strength, as they are more comprehensive.

The difference between the two measures is the inclusion of non-financial assets in net worth. Given concerns surrounding the valuation of non-financial assets and their liquidity in the face of adverse shocks, the Australian Government has decided to use net financial worth as its primary indicator of balance sheet sustainability.[5]

Trends in the level of public debt

Trends in public sector gross debt

Colonial gross debt (pre-Federation)

At different times in Australia's history, governments have had to borrow to fund cyclical revenue shortfalls or to finance large infrastructure projects.

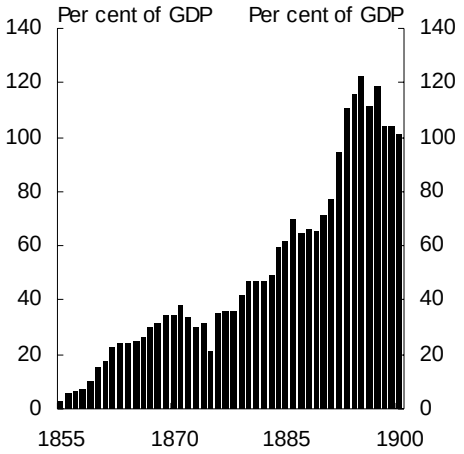
During the period 1850-1900 colonial governments played a central role in the construction of economic infrastructure. According to Butlin, Blanchard and Pincus (1982), between 1860 and 1900, public expenditure accounted for 40 per cent of domestic capital formation.

A large share of the capital expenditure was financed through borrowing, with gross debt rising from around 3 per cent of GDP in 1855 to around 100 per cent of GDP in 1900 (Chart 3). A very small stock of local capital meant that public borrowing, through the issuance of securities, was largely undertaken in London (Attard 2007). The securities that were issued, which were colloquially known as 'Colonial Consols', traded at yields well below comparable securities offered by the Australian private sector (Butlin, Blanchard and Pincus 1982).

Between 1856 and 1880, on average around 73 per cent of Australia's colonial debt was issued in London (Chart 4).

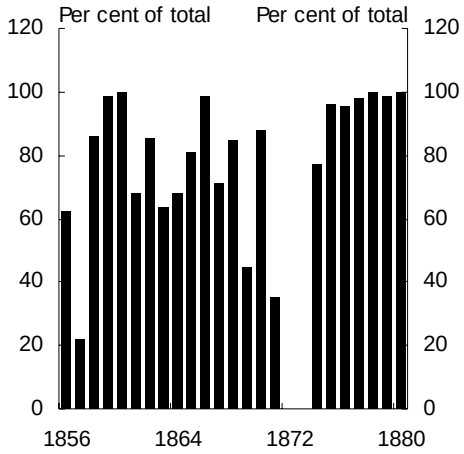
5 See the discussion in Budget Paper No. 1, *Budget Strategy and Outlook 2008-09*.

Chart 3: Gross debt



Source: *Australians - Historical Statistics* 1987.

Chart 4: Debt issued in London as a share of total Australia's colonial debt issued



Source: Attard 2007.

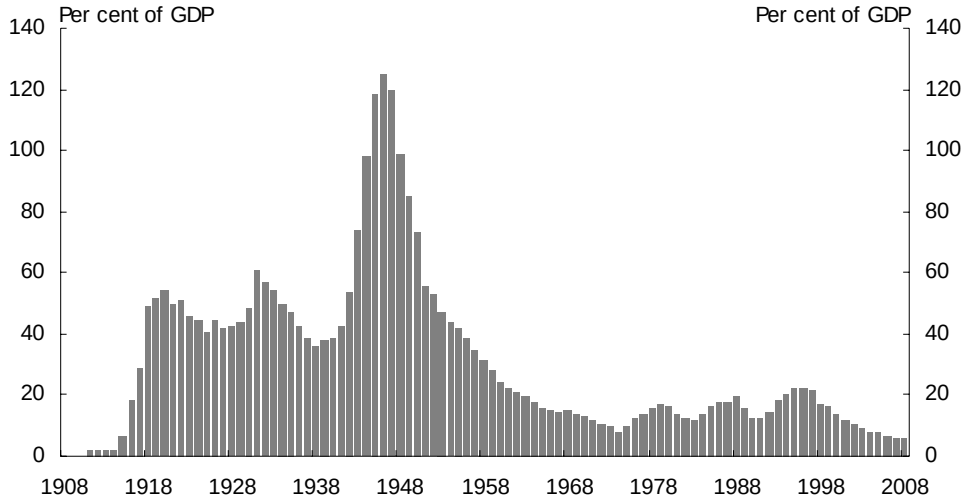
Australian Government gross debt

For the first decade following Federation, the Australian Government did not have any public debt as budget revenues exceeded outlays. The first debt recorded on the Australian Government's balance sheet was debt transferred from South Australia on 1 January 1911, when the administration of the Northern Territory and the Port Augusta to Oodnadatta railway was passed to the Australian Government (Australian Office of Financial Management (AOFM) 2003-04).

The first public bond issue in Australia was conducted in 1915 as part of financing the First World War (AOFM 2003-04). Foreign borrowing also played an important role in the raising of debt in the years prior to the Second World War (Box 1).

During the First World War, gross Australian Government debt increased from around 2.2 per cent of GDP to around 50 per cent of GDP (Chart 5), with around one-third of this increase met through loans issued in London (AOFM 2003-04). By comparison with the First World War, the financing requirements of the Second World War were met largely through domestic borrowing. Gross Australian Government debt increased from around 40 per cent of GDP in 1939 to around 120 per cent of GDP in 1945. During both wars, War Savings Certificates, targeted at retail investors, were the primary instruments used to raise funds.

Chart 5: Australian Government public debt (at 30 June)[6]



Source: Data from 1908 to 1982 are from Barnard *Source Papers in Economic History* 1986. Commonwealth Government Securities on issue is used for the period 1983-2008. For consistency reasons, GDP data for 1908 to 1982 are derived from *Source Papers in Economic History* 1986. GDP data for the period 1983 to 2008 are from the ABS *National Accounts*, cat. no. 5206.0.

Australian Government debt was progressively reduced after the Second World War and largely eliminated by the beginning of the 1970s. In the decade following the Second World War, relatively tight fiscal policy halted the growth in gross debt, while high inflation underpinned the sharp reduction in gross debt as a share of GDP. By 1974, gross debt had declined to around 8 per cent of GDP from a peak of around 120 per cent of GDP in 1946.

There were two further episodes of debt accumulation, and subsequent reduction, during the 1980s and early 1990s driven by periods of weak economic growth and associated budget deficits. From the mid-1990s, as the Australian Government's fiscal position improved, gross debt declined steadily as a share of GDP.

6 Care needs to be taken when making comparisons over time due to structural breaks in the series. These include the move from cash to accrual accounting and the change to market-to-market accounting for debt.

Box 1: Australian Government foreign currency debt

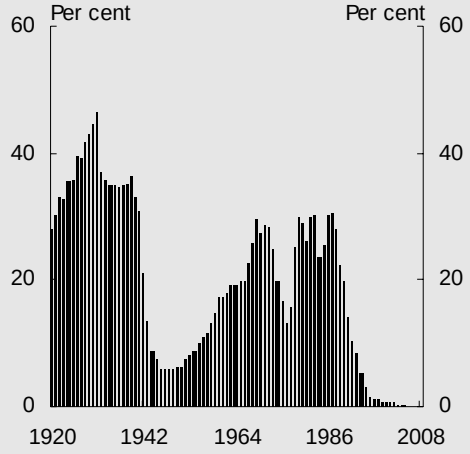
The Australian Government historically had a significant proportion of its debt denominated in foreign currencies, but foreign-denominated debt is now negligible (Chart A).

For the first 30 years after Federation, foreign currency debt made up around 35 per cent of total debt on issue. A large portion of this debt was financed from London. Between 1940 and 1950 the amount of foreign currency debt fell as domestic markets grew in size. After the Second World War, the value of foreign currency loans began to rise to finance balance of payment deficits (AOFM 2002-03).

The share of foreign currency borrowings of the Commonwealth Government Securities (CGS) portfolio remained around 30 per cent from 1970 until 1988. In 1988, the Government decided to concentrate debt issuance in domestic markets to maintain liquidity and efficiency.

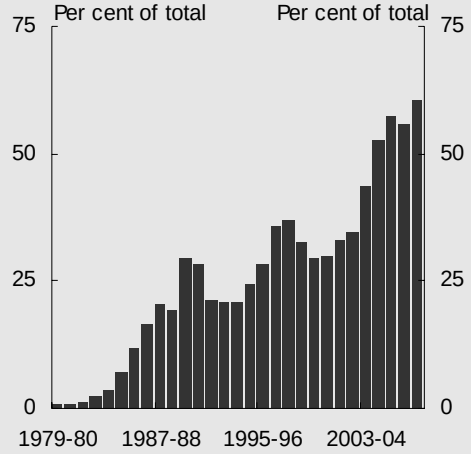
Capital account liberalisation has underpinned an increase in foreign holdings of Australian dollar-denominated CGS since the early 1980s (Chart B).

Chart A: Overseas loans (per cent of CGS portfolio)



Source: AOFM 2002-03 *Annual Report.*

Chart B: Foreign holdings (per cent of CGS portfolio)



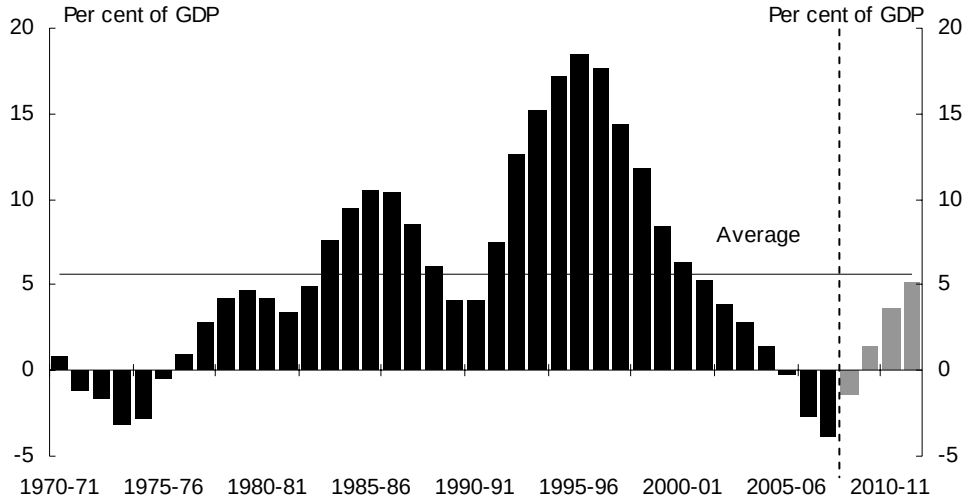
Source: RBA *Australian Economic Statistics*.

Trends in Australian Government net debt

There has only been a formal recording of net debt data for the Australian Government since 1988. The Treasury has developed a net debt series for 1972-88 to allow better comparison across time (Treasury 1996).

Chart 6 shows that the Australian Government has historically had a positive net debt position — that is, the value of debt liabilities has exceeded the value of debt assets. Since 1970-71, net debt has averaged 5.7 per cent of GDP, reaching a peak of 18.5 per cent in 1995-96, and a low of -3.8 per cent of GDP in 2007-08. Changes in net debt have largely been driven by changes in the government's budget position.[7] Especially in the 1990s, asset sales have also been a significant contributing factor (Box 2).

Chart 6: Australian Government net debt to GDP



Source: *Mid-Year Economic and Fiscal Outlook 2008-09* and *Updated Economic and Fiscal Outlook November 2008* and the Australian Treasury.

During the early 1970s net debt was mainly negative and reached lows of -3.1 per cent of GDP. During the first half of the 1970s budget surpluses averaged 1.7 per cent of GDP, while in the second half, there were budget deficits averaging around — 1.6 per cent of GDP. By 1979-80, net debt was around 4.7 per cent of GDP.

7 For a summary of trends in fiscal policy in Australia see Kennedy, Luu, Morling and Yeaman (2004) and Gruen and Sayegh (2005).

Net debt reached 10.4 per cent of GDP in 1985-86. It took only three years (from 1986-87 to 1989-90) to reduce net debt by around 6 percentage points of GDP. Across those same years, the underlying cash balance averaged around 0.6 per cent of GDP.

During this same period, the current account deficit was on the rise and reducing the Government's call on foreign capital was an important driver of fiscal policy (Kennedy, Luu, Morling and Yeaman 2004). As a result, in 1988, the government decided to concentrate its debt issuance in Australian dollars (Box 1). In 1987, 30 per cent of total borrowings were in foreign currencies. By 1990-91 it was around 21 per cent.

In the early 1990s recessions in many advanced economies caused a marked slowing in the world economy. The government implemented a more expansionary fiscal policy that was funded by borrowing. Net debt reached a peak of 18.5 per cent of GDP in 1995-96.

From 1995-96 onwards, the government undertook a program of fiscal consolidation (Kennedy, Luu, Morling and Yeaman 2004). The government also undertook significant sales of Public Trading Enterprises around this period (Box 2).

The combination of successive budget surpluses and asset sales led to the elimination of net debt. Net debt as a proportion of GDP gradually declined to its historical low of -3.8 per cent of GDP in 2007-08.

Box 2: Sale of major Commonwealth Publicly Traded Enterprises (PTEs)[8]

The Australian Government started a program of asset sales in 1987. These sales were largely conducted through trade sales (which involves a tendering process) or through public offerings of equity. The early asset sales were largely contained to property rather than PTEs. This changed in the early 1990s, with a marked increase in the sale proceeds from PTEs (Table A).

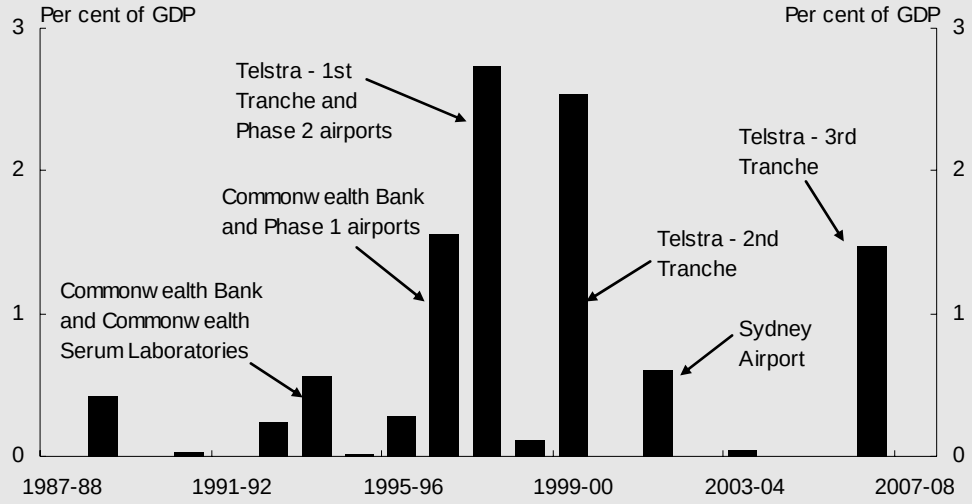
Table A: Major privatisations

Asset	Time	Sale Proceeds $m
Telstra	1997,1999, 2006	45,600
Commonw ealth Bank of Australia	1993,1996,1997	6,800
Airports	1997,1998,2002	8,301
Qantas	1993,1995	2,115

Source: Department of Finance and Deregulation website.

Cumulative budget surpluses and proceeds from the sale of major PTEs, contributed to reducing net debt to its low of -3.8 per cent of GDP in 2007-08 from its peak in 1995-96. Of this, PTE sales contributed around $61 billion, to reduce net debt. Chart A shows the proceeds of PTE sales as a share of GDP from 1987-88.

Chart A: Value of major PTE sales (per cent of GDP)



Source: Department of Finance and Deregulation website and author's calculations.

8 For an in-depth discussion on asset sales, readers are referred to the Reserve Bank Bulletin article 'Privatisation in Australia' (1997).

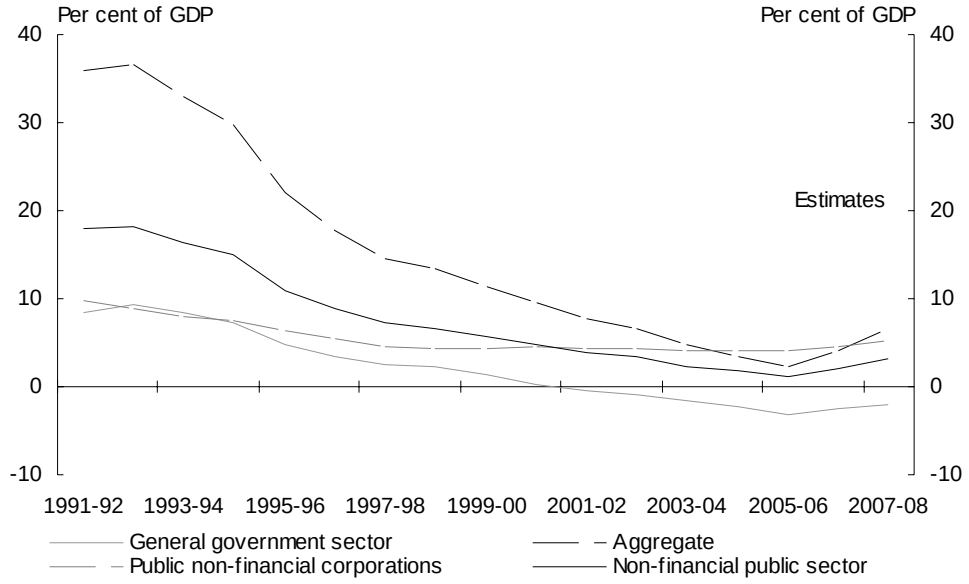
Recent trends in state net debt

The ratio of aggregate state net debt to GDP declined steadily from the early 1990s until 2006-07, as state governments adopted fiscal strategies to reduce debt levels primarily through expenditure restraint but also through revenue increases and asset sales. Chart 7 illustrates recent trends in aggregate state net debt-to-GDP ratios (Budget Paper No. 3 2008-09).

Since 1998-99 states have been running an aggregate general government sector positive net operating balance. This illustrates that state borrowing, in aggregate, has not been occurring to fund recurrent expenditure. State borrowing chiefly occurs in the public non-financial corporations sector, where it relates to infrastructure required by those government-owned corporations to deliver the services they provide.

From 2006-07 state- and local-level non-financial public sector net debt began trending upwards, primarily reflecting the financing of state government infrastructure projects, particularly by public non-financial corporations.

Chart 7: State net debt



Source: Budget Paper No. 3, *Australia's Federal Relations 2008-09.*

Conclusion

A government's balance sheet comprises both assets and liabilities. This article has demonstrated that only considering gross debt can result in an incomplete picture of public finances. By taking into account assets the public sector owns, a more accurate view of a government's ability to respond to economic conditions can be determined.

This article has shown that Australia has undergone several periods of debt accumulation, followed by periods of fiscal consolidation. Periods of strong economic growth following episodes of debt accumulation have helped support relatively quick improvements in the public sector's net debt position. Australia has a low level of net debt both historically and when compared with G-7 economies.

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Using evidence well

Joann Wilkie and Angelia Grant[1]

We all rely on evidence. All decisions are based on past experiences, theories and expectations. In a policymaking context, the use of evidence can be challenging: in some cases there may be a plethora of evidence, in others a dearth; evidence may be ambiguous, sometimes partly contradictory, or not directly applicable to the policy under consideration; and there may be time constraints that restrict the gathering of evidence. Using evidence well requires an understanding of how it is produced and used in the policymaking process.

1 The authors are from the Macroeconomic Policy Division, Australian Treasury. This article has benefited from comments and suggestions provided by Jenny Gordon, Andrew Leigh, Tony McDonald and Terry O'Brien. The views in this article are those of the authors and not necessarily those of the Australian Treasury.

Introduction

The Government has emphasised the importance it places on policy decisions being based on sound evidence. In April 2008, the Prime Minister, the Hon Kevin Rudd, emphasised the need for 'a robust, evidence-based policymaking process'.

Recognising that evidence is a vital input to the policymaking process is important. However, while using evidence can sometimes be straightforward, it can often be challenging. In some cases there may be a ready supply of good evidence. In other cases, evidence may be scant, uncertain or contested.

The purpose of this paper is to briefly examine some important issues related to producing and using evidence. A better understanding of the nature of evidence will ensure it is used well in the policymaking process.

Producing evidence

The first step in using evidence well is to understand what evidence is and how it is produced. The Macquarie Dictionary defines evidence as 'ground for belief; that which tends to prove or disprove something; proof'. That is, evidence is generated as an answer in response to a question or questions.

Having asked a question, a hypothesis is then put forward, proposing an answer. Researchers then search for evidence to prove or disprove the hypothesis. In addition to the question, which in the policymaking context is often defined by the Government, the production of evidence requires data, a theory on which to base a hypothesis that can be disproved and a methodology to test the hypothesis.

Evidence may come in all forms, including, for example, qualitative information from opinion surveys, structured interviews or focus groups. In this paper data is used to refer to the quantitative summaries of all forms of evidence. This is not to imply that only quantitative information matters, but there are some particular challenges to evaluating and testing qualitative evidence that are beyond the scope of this paper.[2]

The role of data

Of itself, data do not constitute evidence; data are merely numbers and can exist in abstract. For example, if we say that 'the unemployment rate in Australia was 4.3 per cent in October 2008' this is not in itself evidence of anything. If, however, we say that the Australian Bureau of Statistics' measure of the unemployment rate has

2 Those interested in issues relating to qualitative information are referred to Mays and Pope (1995).

fallen from 10 per cent in the early 1990s to 4.3 per cent in October 2008, then this may be evidence that unemployment has fallen and that it is easier to get a job in Australia.

A useful evidence base depends on good quality data (Gruen and Goldbloom 2008). Problems with data may mean that robust evidence cannot be developed. Appropriate data may not exist, or data sets may be incomplete or not available in time series. Data can also be unreliable in quality and one set of data can be incompatible with others. It may also not be possible to directly measure the concept that is to be tested, in which case a proxy may be used.

Data, in combination with theory, are used to develop evidence. Data are used to test hypotheses and therefore provide proof (or evidence) of a proposed theory. Knowing the sources and methods used to produce data is crucial when determining which data should be used to test hypotheses. Unemployment is a good example.

Unemployment is a lack of employment. It can only be measured once it has been defined (Marston and Watts 2003). To establish useable data on unemployment, statistical agencies, like the Australian Bureau of Statistics, conduct a sample survey based on a particular definition of the concept of unemployment. This definition involves identifying benchmark criteria such as age, and availability to work. It also involves making methodological assumptions, for example, about the validity of sample surveying. In assessing evidence, it is necessary to consider the definitions that have been applied in the collection of data as it may affect the conclusions drawn.

The role of theory

Data without a framework can only tell us that two sets of numbers (variables) are correlated. Theory provides a framework for how we perceive the world. It is theory that allows us to move beyond correlation to establish causation. That is, does a change in one variable cause the change in the second variable?

When data are used to test a hypothesis we can have more confidence in what the data reveal, that is, in the evidence, if the hypothesis is based in theory. As such, in using data to test hypotheses, the strength of the evidence is dependent not only on the quality of the data and the statistical methods used, but also on the robustness of the theory being used.

The theory being used will be robust when it has generated many hypotheses that have been rigorously tested over time with comprehensive and good quality data. In other cases, a lack of appropriate data or lack of time may mean that theories are less robust because they have not been subject to rigorous testing. It may also be the case that a theory has been subject to some testing, but has not yet been shown to be robust in all possible situations. For example, testing may show the theory to be good when

applied to European countries, but may not yet have been tested for Australia. If the situation in Australia mimics the European situation, then the theory may be considered to be more robust than where only limited testing has taken place.

Identifying a correlation in the data can lead to the exposition of a theory to explain the relationship between the data. For example, the Cobb-Douglas function, widely used by economists to represent aggregate production of goods and services in an economy was developed when Cobb and Douglas noticed a relationship in the data between labour, capital and shares of total output (Cobb and Douglas 1928).

Theory can also drive the production of data. For example, analysis of tax reform proposals often involves detailed, disaggregated analysis of the reform's distributional impacts (Carnahan 1998). While the conceptual framework for such analysis is reasonably straightforward, the data that is available may not be appropriate for testing the hypothesis of interest to the policymaker. Theories can provide a guide for the collection of more appropriate data.

The role of methodology

The quality of evidence is also highly dependent on the methodology used to collect data and test hypotheses. A great deal of judgement goes into the manner in which data is collected and hypotheses tested.

The quality of evidence will depend on the methodology used to test hypotheses (Leigh 2009). The most important issue for researchers to determine is how to treat the counterfactual (that is, what would happen in the absence of any policy action). Good evidence should be able to distinguish the change resulting from the policy intervention relative to what would have otherwise happened. Approaches that can be used by researchers include randomised trials, natural experiments, before and after studies, econometric analysis and correlation analysis.

The methodology selected by researchers should also take non-target variables into account. Theory plays a critical role here as it helps ensure that the outcome is caused by the policy intervention and not an unaccounted for factor. If non-target variables are not taken into account, policies can lead to unintended consequences. Methodologies that address these issues include economy-wide modelling, complex systems analysis and factor analysis.

Another important issue that can affect the quality of evidence is the variables researchers use to test their hypotheses. For example, the augmented Solow-Swan model assumes gross domestic product to be a function of physical and human capital, labour and the level of technology. In testing this theory it is difficult to determine how to measure the amount of physical and human capital, labour and technology within

an economy. It is also hard to capture the interaction of these variables. For example, technology affects the productivity of physical capital and labour.

It is also often difficult to measure outcomes or the factors that may be affecting them. For example, the health status of the population is dependent on a large number of factors, including bio-medical, lifestyle and socio-economic factors. Researchers have also tried to determine whether the level of resources in the health sector affects health. That is, do countries that spend more on health have better health outcomes? For policy purposes the interest would be in testing hypotheses about what types of expenditure make a difference to population health outcomes.

Such research has to use a number of proxies. For example, life expectancy is often used a measure of health status even though it only measures length of life and does not take into account the quality of life. Although there are some measures, such as the World Health Organisation's Health-Adjusted Life Expectancy, which attempt to capture quality of life, these indicators are not widely available in time series, which limits their use. As a result, many studies fall back on life expectancy, even though they know that it is not the best measure (Wilkie and Young 2009).

Using evidence

Establishing that a problem exists is the first task for evidence in the development of policy. Evidence is then used to determine whether the proposed remedy (or which of the proposed remedies) will be effective in addressing the problem without unintended consequences.

The stock of data available to policymakers in some areas is very large, and may in part be apparently contradictory. The key question is to determine whether this constitutes evidence. Using evidence well in the policymaking process requires an understanding of the limitations of evidence and how these influence the application of evidence in solving policy problems.

Framing the question

How a policy question is framed can affect the use of evidence. In the policymaking process, the policy objective often determines the question. However, in many cases, policy objectives may not be clear or they may have changed over time.

Framing the policy question is particularly important as it can broaden or narrow the evidence that is considered relevant. For example, illicit drug taking can be framed as a crime and justice problem, a health problem, or a social problem. By framing the issue in terms of crime and justice, relevant evidence and policy solutions will naturally focus on drug-related crime, enforcement, detention and rehabilitation. On the other

hand, where it is viewed as a health problem, evidence and policy solutions will focus more on health conditions that may predispose individuals to take drugs and on strategies to prevent and cure addiction. Alternatively, from a social perspective, evidence and policy solutions will focus on social conditions that may predispose individuals to take drugs and how to address disadvantage and social exclusion.

Another example of how framing a policy problem affects the evidence considered relevant is climate change. It can be framed as either an environmental or economic problem. By framing climate change as an environmental problem, the scientific evidence is the most relevant evidence. On the other hand, when Nicholas Stern framed climate change as an economic challenge, he took the scientific evidence as given and focused on the economic implications of climate change (Stern 2006).

Identifying relevant evidence

Identifying relevant evidence of high quality can be particularly important where there is a large body of evidence. Theory is the best guide to what evidence is relevant. A systematic approach may be required to select a manageable set of high-quality, reputable, relevant evidence (Leigh 2009).

One method of selecting evidence may be to use a hierarchy of research methods. Under this approach, studies are ranked according to the research methods used, for example studies using randomised trials are preferred to those using natural experiments. Further, studies using natural experiments are preferred to those using a before-after study.

There are a number of other factors that may be relevant when collecting or selecting evidence (Leigh 2009). Studies will be preferred if they are published in peer-reviewed journals. Other things being equal, studies that use Australian evidence may be more relevant than those using international evidence. More recently published studies will also be preferred. Studies that can be replicated will be preferred over those that cannot. And studies that directly address the policy question under consideration will also be given preference.

Being clear on what the evidence says

Most social science evidence is historically contingent, that is, it has been developed using quantitative and qualitative data collected about the past. As a result, data and evidence only records how variables have related in the past and how people have behaved in the past. There is no guarantee that things will be the same in the future.

The historical contingency of evidence also means that it is highly dependent on the circumstances that existed when the evidence was collected. That is, the evidence

reflects the institutional, policy and economic circumstances that prevailed over the period to which the evidence refers. Changes in circumstance can affect the interpretation of and weight placed on evidence. The fact that evidence primarily refers to the past, and that circumstances continually change, means that evidence needs to be regularly updated and reviewed. It also emphasises the importance of theory, which can be used to test whether underlying assumptions about behaviour have not changed over time.

The contingency of evidence on institutional, policy and economic circumstances is particularly relevant when assessing evidence drawn from overseas. For example, according to the OECD PISA data, Finland's students, on average, perform better than Australian students (OECD 2006). This could reflect superior education policy or other factors. Given the differences between Finland and Australia, can we be sure that Australian students would fare better if we adopted some of Finland's education policies, for example, starting school at age seven?

Care needs to be taken in interpreting evidence. In areas where evidence is contested, it is very easy to apply evidence where it is irrelevant, misinterpreted or overstated. For example, it is important to distinguish between whether there is no evidence of danger or evidence of no danger. If researchers cannot link an activity to a problem, then restricting the activity may still be appropriate for managing risk. On the other hand, if researchers prove that an activity does not cause a problem, then no policy response may be required.

Assessing the risks for policymaking

Policy decisions, like all decisions, require an assessment of risks. The evidence on which decisions are based is often ambiguous and not comprehensive. Evidence is about the past and policy is about the future: extrapolating what may happen in the future on the basis of evidence that describes the past is both difficult and uncertain.

As such, when assessing evidence it is necessary to determine its limits. What is the range for error? Is it possible that a policy will result in either large or small benefits? Or are there large costs if the evidence is misleading?

In determining the best way forward, it might be appropriate to commission an expert opinion on the evidence. However, in some cases, policy decisions may need to be made before there is time to improve the evidence base. In such cases, it is appropriate to use theory to guide policy decisions. Under these circumstances, policymakers may decide to manage the risks associated with inadequate evidence by adopting a 'no regrets' or 'no harm' policy stance.

Conclusion: how to use evidence well

Using evidence well to inform and influence policy decisions requires a good understanding of how framing a policy issue can affect the use of evidence. If a problem is framed too narrowly it can significantly affect the evidence that is considered relevant. Some problems, especially those that deal with complex systems (for example, the environment) or attitudinal and behavioural issues (for example, illegal drug taking or obesity) require a broad framework that allows for multiple causes and policy responses. Taking a broad or holistic perspective may also reduce the possibility of the implemented policy having unintended consequences. This highlights the importance of using theory to identify relevant evidence.

Knowing where evidence comes from is also particularly important in using evidence well. Understanding the theoretical basis and source and methodology of evidence can help us determine the weight that can be placed on evidence and where it can be appropriately used. It is also important to be clear about what the evidence does and does not tell us. For example, is there no evidence of danger or evidence of no danger?

In areas where there are evidence gaps or there is no consensus among available evidence it is appropriate to fall back on well-tested theory that has had widespread successful applications and partial indicators. Where evidence is sparse, it is particularly important to try to use multiple sources of evidence. The degree to which evidence is uncertain may determine the number or range of policy options proposed. In such cases, it may be appropriate to manage risks by advocating ‘no regrets’ or ‘no harm’ policy responses.

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What evidence should social policymakers use?

Andrew Leigh[1]

Policymakers seeking empirical evidence on social policy interventions often find themselves confronted with a mountain of academic studies that are potentially relevant to the question. Without some systematic way to sort through the evidence, there is a risk that analysts will become mired in the research, or simply cherry-pick those studies that support their prior beliefs. An alternative approach is to test each study against a hierarchy of research methods. This article discusses two hierarchies — one used by US medical researchers, and another used by UK social policymakers — and suggests one possible hierarchy for Australia. Naturally, such a hierarchy should not be the only tool used to assess research, and should be used in conjunction with other factors, such as the ranking of the journal in which a study is published. But used carefully, a hierarchy can help policymakers sort through a daunting body of research, and may also inform governments' decisions on how to evaluate social policy interventions.

1 The author is from Social Policy Division, the Australian Treasury. This article has benefited from comments and suggestions provided by Peta Furnell, Jenny Gordon, Angelia Grant, Harry Greenwell, Jason McDonald, Bronwyn Michael, Terry O'Brien, Hector Thompson, Leo Vance and Joann Wilkie. The views in this article are those of the author and not necessarily those of the Australian Treasury.

Introduction

Imagine a diligent policymaker decided that before providing advice on a particular social policy question, she was going to read all the relevant academic literature. Being a fast reader, she envisaged spending half an hour on each article that *Google Scholar* determined to be relevant to the question at hand. How long would this take?

Reading solidly for 40 hours a week, 52 weeks a year, it would take a policymaker 18 months to get through the 6,000 articles on 'early childhood intervention', four years to get through the 16,000 articles on 'teacher quality', or five years to get through the 20,000 articles on 'social housing'. Moreover, given that more articles are being written all the time, this probably underestimates the time that would need to be devoted to understanding even such narrowly defined topics as these.

Across the social sciences, the explosion of research over recent decades shows no signs of abating.[2] The ready availability of working papers, the creation of new journals, and the continued production of new books makes it harder than ever before for the consumers of research to keep up with the burgeoning supply.

With the exception of those who work in an extremely narrow field, it is now virtually impossible for policymakers to read everything that has been written on their topic. For those who are committed to the notion of 'evidence-based policymaking', this presents a considerable challenge. Good policymakers should consider theory, context and risk (see Wilkie and Grant, this issue). Then they must ask: what is the most efficient way to sift through the available evidence? With such an abundance of evidence, there is a risk that advocates will simply 'cherry-pick' the studies that suit their worldview, conveniently ignoring those that do not.[3]

In medicine, the generally accepted solution to this problem is to use what is known as an 'evidence hierarchy', by which evidence is ranked according to a set of methodological criteria. Doctors are then encouraged to give more weight to high-quality research, and less weight to low-quality research.

This article suggests that when it comes to interpreting impact evaluations, social policymakers may benefit from applying the same approach. Although there is more debate about appropriate methodologies in economics than there is in medicine, it is

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2 Indeed, just reading the 4,000 articles containing the phrase 'explosion of research' would take our hypothetical policymaker about a year.

3 The cost that a proliferation of low-quality evidence can impose is illustrated by John Donohue: 'Going from 10 great empirical studies a year to 200 constitutes great progress, but going from 100 worthless studies a year to 1,000 breeds an often well-deserved cynicism about the value of empirical research, even though the percentage of valuable studies has risen considerably.' (Donohue 2001, p 4).

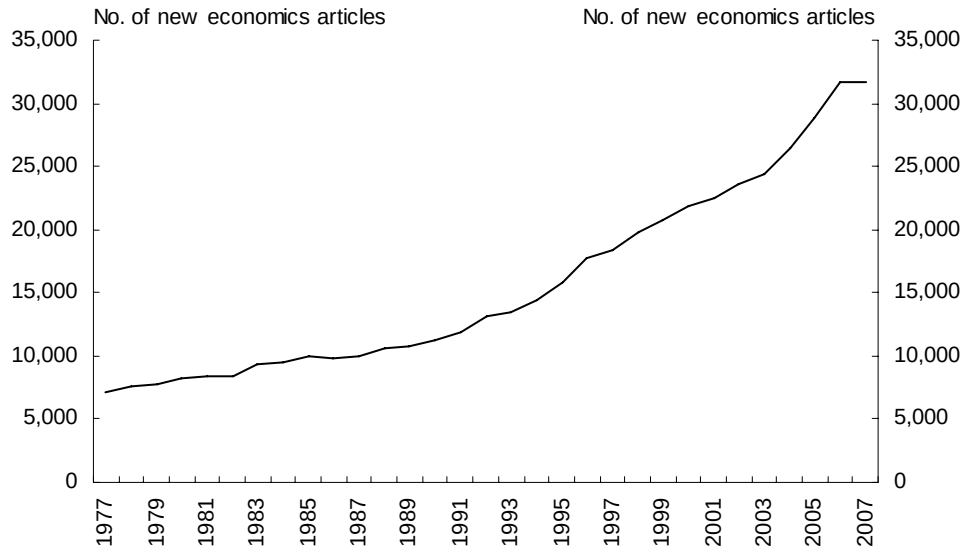
nonetheless possible to identify a set of broad principles that can help shape an appropriate evidence hierarchy for economic research. Where doubt still remains, journal rankings can also be instructive in assisting policymakers decide how to weight multiple pieces of evidence.

At the outset, a caveat is in order. Although process evaluations and qualitative evidence can also be important, this article will focus on impact evaluations using quantitative evidence. Furthermore, this article focuses solely on policymaking in the social policy field (including education, health, income support and crime). In fields such as defence policy and monetary policy, a different hierarchy may be appropriate.

Climbing the research mountain

A sense of the challenge facing policymakers can be gleaned from the Econlit database, which indexes new economic research. Figure 1 charts the number of new articles published in Econlit over a 30-year period. In 1977, there were 7,077 articles published in the database. In 2007, there were 31,633 new articles, more than four times as many. In part, this is due to an increase in the number of available journals. For example, the Berkeley Electronic Press has established 19 journals in business and economics in the last decade. This year, the American Economic Association has launched four new journals. With the growing acceptance of journals which publish only online, it is likely that the number of outlets will continue to increase.

Chart 1: A growing body of research[(a)]



Source: Author's calculations, based on year-by-year searches of www.econlit.org

If the sheer volume of research was not daunting enough, today's research is also more accessible than ever before. Given that most journals can be accessed electronically, one can no longer make the excuse that a highly pertinent article has been overlooked solely because a hard copy was not available in the library. In addition, many economics papers now receive wide circulation prior to being published in a peer-reviewed journal, which creates its own challenge for the consumers of academic research. Similar trends are evident in other social sciences, with the numbers of journals and articles rapidly increasing in sociology, education policy, political science and health policy.

How might a hierarchy look?

One way to sift through the available evidence is to devise an evidence hierarchy, borrowing from the approach commonly used by medical researchers. For example, a report from the US government 'Preventive Services Task Force' sets out a hierarchy that is routinely followed in the medical profession (see US Preventive Services Task Force 2008, Section 4).

Box 1: The US Government's evidence hierarchy for medical research

I: Properly powered and conducted randomised controlled trial (RCT); well conducted systematic review or meta-analysis of homogeneous RCTs

II-1: Well-designed controlled trial without randomisation

II-2: Well-designed cohort or case-control analytic study

II-3: Multiple time series with or without the intervention; dramatic results from uncontrolled experiments

III: Opinions of respected authorities, based on clinical experience; descriptive studies or case reports; reports of expert committees

In the social policy context, the UK Cabinet Office has sought to adapt the medical schema for the use of policymakers who are considering interventions that might assist vulnerable individuals.[4] They propose the hierarchy set out below.

Box 2: The UK Government's evidence hierarchy for policymakers

1. Systematic review — Synthesis of results from several studies

2. Randomised controlled trial — Population allocated randomly to groups

3. Quasi-experimental study — Similar populations compared

4. Pre-post study — Results compared before and after intervention

One feature that characterises both the US medical hierarchy and the UK social policy hierarchy is the precedence given to systematic reviews. Systematic reviews (also known as meta-analyses) allow researchers to quickly gain a sense of the preponderance of evidence on a particular topic, without having to read each of the studies in a field. This is particularly valuable if the literature is comprised of many well-designed studies with small sample sizes. Taken individually, these studies may reach divergent conclusions, but by aggregating them, it is often possible to get above the trees and see the shape of the forest. Another issue is that systematic reviews are only as good as the studies being aggregated (if the individual studies are flawed, then

4 Social Exclusion Task Force (2008). Although it is difficult to be sure of the impact that the UK hierarchy has had on the decision-making process, it has been widely discussed (as evidenced by the fact that a Google search on the title brings up over 20,000 hits). For a broad discussion of grading social policy evaluations, see Boruch and Rui (2008).

combining them will not solve the problem). Some systematic reviews address this issue by explicitly placing more emphasis on higher-quality studies.[5]

Another point to note is that the above hierarchies adopt a similar ranking of research types, putting randomised trials above natural experiments, which in turn are placed above before-after studies. Underlying this classification is the credibility of the *counterfactual* — what would have occurred in the absence of the intervention. In an ideal study, we would like to be able to compare the treatment group, who received the intervention, with a control group of individuals who did not receive the intervention.

In a randomised trial of a new pharmaceutical, participants are informed in advance that they will have a 50 per cent chance of receiving the new drug, and a 50 per cent chance of receiving a placebo (such as a sugar tablet). Typically, the study is set up in such a way that neither the participants nor the person administering the experiment is aware of who is in the treatment group and who is in the control group. This is known as a double-blind randomisation.

In a randomised policy trial, participants are almost always aware of whether they are in the treatment group or the control group. For example, in a 1999 randomised trial to evaluate the efficacy of the NSW Drug Court, individuals who were awaiting trial on a drug offence were randomly allocated either to a regular court, or to the new Drug Court (Lind et al. 2002). By matching participants to court records over the next year, the researchers were able to see whether the sentencing approach had an impact on recidivism. (It turned out that those who were assigned to the Drug Court were significantly less likely to commit a drug-related offence in the following year).

With a sufficiently large sample, assigning individuals to the treatment or control group by randomisation ensures that the two groups are evenly matched. With randomisation, the two groups should have similar observable characteristics (such as education or income), and similar unobservable characteristics (such as motivation or self-control). This is a major advantage over multiple regression approaches which make it possible to hold constant observable traits, but not unobservables. For this reason, randomised trials are known as the 'gold standard' in policy research, and have informed policymaking in areas as diverse as job training, driver education, school vouchers, financial assistance to ex-prisoners, welfare reform, health insurance and rental subsidies (for a discussion, see Leigh 2003, Farrelly 2008). Yet randomised policy trials remain relatively rare, with 24 medical randomised trials being conducted

5 See for example the work of the Campbell Collaboration (www.campbellcollaboration.org), which prepares systematic reviews in the areas of education, criminal justice and social welfare.

for each randomised policy trial (The Economist 2002). This may reflect a lack of familiarity with the technique, or a perception of randomised policy trials as being unethical, because those in the control group do not receive a potentially effective intervention.[6]

In the evidence hierarchy, natural experiments are the next category below randomised trials.[7] Also known as 'quasi-experiments', these approaches construct the counterfactual in various ways. 'Differences-in-differences' identifies a similar population that is not affected by the treatment, and tracks the outcomes of the treated and control groups over time. For example, suppose that a government decided to increase garbage collection fees in order to reduce landfill. In order to assess the impact of the change, we might compare the amount of garbage collected in two neighbouring areas — Town A (which is just inside the affected area) and Town B (just outside the affected area). With measures of the outcome measure (garbage volume) for two cities (treatment and control) in two time periods (before and after) one can estimate the policy impact by comparing the change over time in the control group with the change over time in the treatment group. Unlike a cross-sectional comparison (comparing Towns A and B after the policy change), differences-in-differences is able to account for persistent factors that might confound the analysis (Town A's residents might be more prone to littering). And unlike a before-after comparison (looking at Town A before and after the policy change), the strategy is able to account for other time-specific shocks (for example, there might be seasonal patterns of garbage disposal).

Another commonly-used natural experiment approach is regression discontinuity. This research method compares individuals who are very close to an arbitrary cutoff, such as an entry score or an eligibility threshold. Inherent in this strategy is that the closer one comes to the cutoff, the more similar those on either side are to one another. For example, suppose an individual must score 90 per cent to be admitted into a selective school. We would probably expect students scoring 50 per cent to be very different from students scoring 99 per cent (on both observable and unobservable characteristics). However, as we come closer to the cutoff, students are likely to be more similar. A regression discontinuity approach might compare those who scored 90 per cent with those who scored 89 per cent. Since only one point separates these individuals, it is plausible to imagine that it was only a matter of luck that one student scored above the threshold and the other below it. The assumption underlying regression discontinuity — that individuals who are very close to an arbitrary

6 On the issue of ethics, social policy evaluation has much to learn from medical evaluations, including public health randomised trials such as the NSW Head Injury Retrieval Trial.

7 Two recent review articles on quasi-experimental techniques, both written from an Australian perspective, are Cobb-Clark and Crossley (2003) and Borland, Tseng and Wilkins (2005).

threshold are likely to be alike — suggests that students who just fail to meet the cutoff might be a good control group for those who narrowly exceed the cutoff. In this example, one could use regression discontinuity to see whether students who attend a selective school eventually perform better on university entrance exams.[8]

Another set of natural experiments use multiple regression or matching approaches to control for observable differences between the treatment and control groups. For example, an evaluation of pre-school education programs in the UK (the Effective Provision of Pre-School Education project) compares the outcomes for children who were enrolled in pre-school with children who were not enrolled in pre-school, but who had similar observable characteristics.[9] The limitation of this strategy is that there may be unobservable traits about families who chose not to use pre-school programs. If these traits also affect child outcomes, then the matched control group will not constitute a valid counterfactual for the treatment group.

Before-after studies rank below systematic reviews, randomised trials and natural experiments. Implicit in a before-after study is that if the intervention did not take place, the outcomes in the after period would be precisely the same as they were before the intervention. Put another way, the counterfactual in a before-after study is what we observe before the intervention. This is a strong assumption, which will be violated if there are other factors affecting outcomes over time (such as rising productivity, other policy changes, or fluctuating economic cycles).

Lowest in the medical hierarchy (and not even rating a mention in the UK Cabinet Office's hierarchy) are expert opinions and descriptive case studies. From a policymaking perspective, this may include first-principles analyses, based purely upon theory; or anecdotes about the effectiveness of particular policies. Sometimes this evidence is all that is available; but the above hierarchies suggest that where possible, it should be supplemented by empirical findings.

Drawing this together, the following hierarchy might be used by social policymakers in Australia.

8 For a regression discontinuity study of this type, see Clark (2007).
9 For more information, see the EPPE website, at www.ioe.ac.uk/schools/ecpe/eppe/

Box 3: A possible evidence hierarchy for Australian policymakers

1. Systematic reviews (meta-analyses) of multiple randomised trials

2. High quality randomised trials

3. Systematic reviews (meta-analyses) of natural experiments and before-after studies

4. Natural experiments (quasi-experiments) using techniques such as differences-in-differences, regression discontinuity, matching, or multiple regression

5. Before-after (pre-post) studies

6. Expert opinion and theoretical conjecture

All else equal, studies should also be preferred if they are published in high-quality journals, if they use Australian data, if they are published more recently, and if they are more similar to the policy under consideration.

Other relevant considerations

The principal value of an evidence hierarchy is as a rule-of-thumb, which can help simplify the process of classifying a large body of empirical evidence. However, one limitation of an evidence hierarchy in the social sciences is that some methodologies are better-suited to answering different types of questions. In particular, while randomised policy trials are an effective way of testing the impact of an intervention on a small scale, randomisation is often unable to provide estimates of the 'general equilibrium' impact of a policy change. For example, the Moving to Opportunity rental assistance experiments in the US (Kling, Liebman and Katz 2007) were designed to test the impact on individuals of moving out of a high-poverty neighbourhood. As a randomised experiment, it has provided credible estimates of the impact of moving to a better neighbourhood. But because of the way the study was designed, it does not measure the impact of mobility on the families who are left behind. It is therefore possible that some of the gains for movers are offset by losses for the old friends and neighbours that they left behind.

Medical researchers are typically less concerned about general equilibrium effects. If a new pharmaceutical is effective in a small sample, then it will most likely 'scale up' to the full population. But economists are often concerned about spillover and scale effects, and in such cases, it may be valuable to be able to have evidence from both a randomised trial and a natural experiment. In other cases, randomisation may be

unfeasible — either for practical or ethical reasons — in which case, it is necessary to opt for other evaluation methods.[10]

What other factors should be borne in mind when assessing research evidence? All else equal, policymakers will typically give greater weight to more recent studies, to Australian studies, and to evaluations of policies that are most similar to those under consideration. Additionally, some may find it useful to refer to the 13-question checklist prepared by the UK Cabinet Office for evaluating randomised trials, natural experiments and qualitative studies.[11]

A final consideration in the case of published studies is that policymakers may also wish to give more weight to research that is published in more highly-ranked journals. Although journal rankings are not a perfect guide to the quality of an individual article, those studies that use rigorous methodologies are more likely to find their way into the best journals. One such ranking, compiled by Kalaitzidakis, Mamuneas, and Stengos (2003), ranks 159 journals using citation data from 1994-98, including three Australian journals, the *Economic Record* (58th), the *Australian Economic History Review* (82nd) and the *Australian Journal of Agricultural and Resource Economics* (103rd). (The citation database that they used omitted some Australian journals, including the *Australian Economic Review*, *Australian Economic Papers*, and *Economic Papers*.) While reasonable economists might disagree on the margins, most would concur that an article published in a top-20 journal should be given greater weight by policymakers than an unpublished working paper, or a study published in a journal ranked below 100. The full ranking is provided in the Appendix.

10 For an (in)famous example, see Smith and Pell (2003), who conduct a tongue-in-cheek systematic review of the evidence on parachute usage, and conclude that in the absence of any randomised trials, we should be wary of concluding that parachutes save lives.

11 This checklist is set out in Social Exclusion Task Force (2008, Appendix 3). In the case of qualitative evidence, see also Mays and Pope (1995) and Spencer et al. (2003).

Conclusion

On most topics, social policymakers cannot hope to thoroughly read all the available studies. The question therefore is not *whether* they should rank them, but *how* such a ranking should be done. This article suggests one possible ranking, which gives systematic reviews precedence over single studies; and ranks methodologies as: randomised trials, natural experiments, before-after studies, and expert opinion.[12]

Naturally, decision-making in the real world does not always allow the luxury of neatly sorting all the available research papers into a hierarchy. In some cases, policymakers must spread their attention across a broad range of issues, or rapidly arrive at a solution. Yet even in such cases, a hierarchy of evidence can be used as a rule of thumb, for example by helping to choose between two studies that arrive at different conclusions. In instances where decisions must be made in the absence of high-quality evidence, the use of a hierarchy may prompt more rigorous evaluation methodologies, laying the groundwork for a better evidence base.

A social policy evidence hierarchy is not only useful for consumers of research, but also for producers. Although randomised trials are generally acknowledged to be superior to before-after studies, it is the case in Australia (and in many other developed countries) that before-after studies are more common than randomised trials.

There is a natural human tendency in all of us to prefer empirical studies whose results accord with our prior beliefs. Using an evidence hierarchy can help avoid such selective use of research, and simplify the task of classifying large bodies of literature. Ultimately, this should help ensure that 'evidence-based policy' means identifying the best evidence where it is available, and using the most rigorous evaluation tools to improve the quality of the evidence base in the long-run.

12 One objection that might be made to this article is that it merely constitutes expert opinion, the lowest grade of evidence in the US Government's Evidence Hierarchy for Medical Research. Unfortunately, there are some practical difficulties standing in the way of a randomised trial of approaches to evidence (in which some policymakers agree to only rely upon randomised trials, others to rely only on natural experiments, and others to rely only on before-after studies).

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Appendix: A ranking of journals by Kalaitzidakis, Mamuneas, and Stengos (2003)

Rank	Journal
1	American Economic Review
2	Econometrica
3	Journal of Political Economy
4	Journal of Economic Theory
5	Quarterly Journal of Economics
6	Journal of Econometrics
7	Econometric Theory
8	Review of Economic Studies
9	Journal of Business and Economic Statistics
10	Journal of Monetary Economics
11	Games and Economic Behavior
12	Journal of Economic Perspectives
13	Review of Economics and Statistics
14	European Economic Review
15	International Economic Review
16	Economic Theory
17	Journal of Human Resources
18	Economic Journal
19	Journal of Public Economics
20	Journal of Economic Literature
21	Economics Letters
22	Journal of Applied Econometrics
23	Journal of Economic Dynamics and Control
24	Journal of Labor Economics
25	Journal of Environmental Economics
26	Rand Journal of Economics
27	Scandinavian Journal of Economics
28	Journal of Financial Economics
29	Oxford Bulletin of Economics and Statistics
30	Journal of International Economics
31	Journal of Mathematical Economics
32	Journal of Economic Behavior and Organization
33	Social Choice and Welfare
34	American Journal of Agricultural
35	International Journal of Game Theory
36	Economic Inquiry
37	World Bank Economic Review
38	Journal of Risk and Uncertainty
39	Journal of Development Economics
40	Land Economics

Rank	Journal
41	International Monetary Fund Staff Papers
42	Canadian Journal of Economics—Revue Canadienne d'Economique
43	Public Choice
44	Theory and Decision
45	Economica
46	Journal of Urban Economics
47	International Journal of Industrial Organization
48	Journal of Law Economics and Organization
49	Journal of Law and Economics
50	National Tax Journal
51	Journal of Industrial Economics
52	Journal of Economic History
53	Oxford Economic Papers
54	Journal of Comparative Economics
55	World Development
56	Southern Economic Journal
57	Explorations In Economic History
58	Economic Record
59	Journal of Banking and Finance
60	Contemporary Economic Policy
61	Journal of Population Economics
62	Journal of Financial and Quantitative Analysis
63	Journal of Institutional and Theoretical Economics
64	Applied Economics
65	Scottish Journal of Political Economy
66	Journal of Economics-Zeitschrift fur Volkwirtshaft und Socialpolitik
67	Journal of Macroeconomics
68	Review of Income and Wealth
69	Oxford Review of Economic Policy
70	Europe-Asia Studies
71	Journal of Health Economics
72	Regional Science and Urban Economics
73	Journal of Economics and Management Strategy
74	World Economy
75	Small Business Economics
76	Economic History Review
77	Cambridge Journal of Economics
78	World Bank Research Observer
79	Energy Journal
80	Weltwirtschaftliches Archiv
81	Kyklos
82	Australian Economic History Review

Rank	Journal
83	Ecological Economics
84	Review of Industrial Organization
85	Geneva Papers On Risk and Insurance
86	Journal of Transport Economics and Policy
87	Economics and Philosophy
88	Journal of Accounting and Economics
89	Resource and Energy Economics
90	Journal of the Japanese and International Economies
91	Journal of Agricultural and Resource Economics
92	Brookings Papers On Economic Activity
93	Economic Development and Cultural Change
94	Communist Economies and Economic Transformation
95	Journal of Regulatory Economics
96	Journal of Housing Economics
97	Manchester School
98	Economic Modelling
99	Journal of Policy Modeling
100	Developing Economies
101	Journal of Productivity Analysis
102	Canadian Journal of Agricultural Economics
103	Australian Journal of Agricultural and Resource Economics
104	Journal of Risk and Insurance
105	Japan and The World Economy
106	Review of Black Political Economy
107	Journal of Economic Psychology
108	Journal of Economic Issues
109	Economics of Education Review
110	Open Economies Review
111	Journal of Agricultural Economics
112	Journal of Economic Education
113	Journal of Post Keynesian Economics
114	Journal of Real Estate Finance and Economics
115	European Review of Agricultural Economics
116	Jahrbucher Fur Nationalokonomie
117	Journal of Evolutionary Economics
118	History of Political Economy
119	Food Policy
120	Real Estate Economics
121	Health Economics
122	Post-Soviet Affairs
123	China Economic Review
124	Insurance Mathematics and Economics

Rank	Journal
125	Review of Social Economy
126	Defence and Peace Economics
127	Bulletin of Indonesian Economic Studies
128	Revue Economique
129	Post-Soviet Geography and Economics
130	International Review of Law and Economics
131	Work Employment and Society
132	Economic Geography
133	Economics of Planning
134	Eastern European Economics
135	Journal of World Trade
136	Futures
137	Applied Economics Letters
138	Energy Economics
139	Journal of Developing Areas
140	Agricultural and Resource Economics Review
141	Hitotsubashi Journal of Economics
142	American Journal of Economics and Sociology
143	New England Economic Review
144	Economy and Society
145	Revue d'Etudes Comparatives Est-Ouest
146	Politicka Ekonomie
147	Japanese Economy
148	Betriebswirtschaftliche Forschung
149	Desarrollo Economico
150	Economic and Social Review
151	Economic Development Quarterly
152	Ekonomicky Casopis
153	Journal of Media Economics
154	Journal of Taxation
155	Nationalokonomisk Tidsskrift
156	Problems of Economic Transition
157	South African Journal of Economics
158	Tijdschrift Voor Economische en Management
159	Trimestre Economico

The importance of evidence for successful economic reform

Joann Wilkie and Angelia Grant[1]

Evidence is a vital input to the policymaking process. In addition to ensuring the formulation of good policy, evidence plays a significant role in successful implementation by gathering community support for policy change. Evidence demonstrates to the community the costs and benefits that can be expected from policy reform. Sound evidence of the net benefits of reform is crucial in the successful implementation of any reform program.

1 The authors are from the Macroeconomic Policy Division, Australian Treasury. This article has benefited from comments and suggestions provided by Jenny Gordon, Andrew Leigh, Tony McDonald and Terry O'Brien. The views in this article are those of the authors and not necessarily those of the Australian Treasury.

Introduction

Australia's economic reform experience to date has been remarkably successful. Living standards in Australia have increased since the 1980s relative to other industrial countries. In addition, reforms in Australia have not been reversed as in some other countries. A large part of this success is due to the strong public support for reform since the 1980s.

Although economic reform in Australia has resulted in significant net benefits, reform is not costless. The costs of reform tend to occur in the short term and can be concentrated on relatively small groups. On the other hand, the benefits of reform tend to materialise in the medium to long term and are widely spread across the economy. While the public may know how they will be affected by reform in the short term, the difference in the timing and distribution of costs and benefits mean make it difficult for them to determine how they will affected in the long term.

Providing evidence of the potential and actual net benefits of reform is crucial in maintaining public support for reform. Evidence of the costs associated with pre-reform policies can mobilise community and business groups bearing these costs to support reform. More broadly, evidence of the net benefits of reform can convince the public that reform has long term benefits.

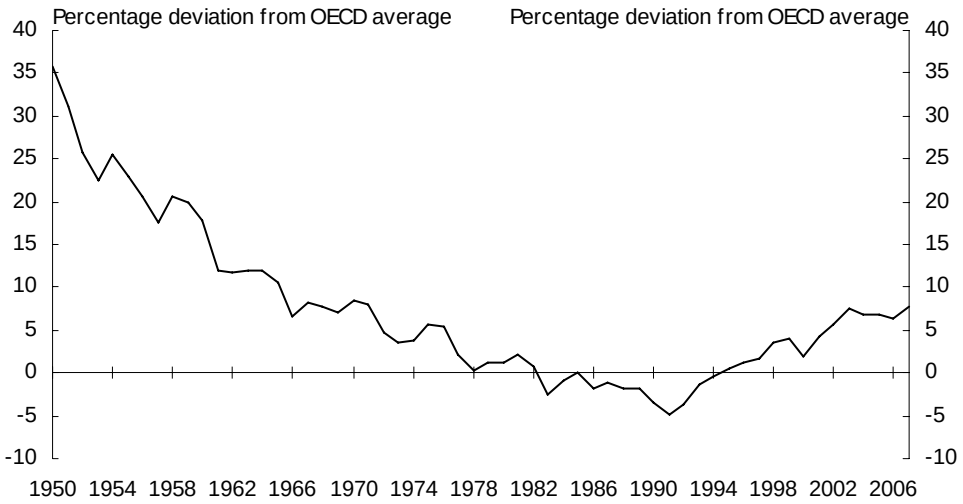
Ongoing reform is necessary to ensure continual improvements in living standards. But many of the reforms now facing Australia are particularly difficult — they involve multiple levels of government, complex environmental, economic and social systems, behavioural and attitudinal change and, in many cases, the benefits will materialise in the long term. Given the intractable nature of these problems, the extensive institutional change required and the timeframes involved, evidence of the net benefits of reform will be vital so as to gather strong, lasting public support for reform.

The purpose of this paper is to look at the critical role evidence played, and continues to play, in promoting the successful implementation of economic reforms in Australia. The first section of the paper provides an overview of Australia's economic reform experience since the 1980s. The second section examines the role of evidence in implementing these reforms. The third section looks at some of the lessons learned from the reform experience. The fourth section concludes.

Australia's economic reform experience since the 1980s

The wide-ranging macroeconomic and microeconomic reforms undertaken in Australia since the 1980s substantially improved the competitiveness, flexibility and resilience of the economy (OECD 2003). Living standards in Australia have risen substantially since the 1980s, reversing a sustained decline (Chart 1).

Chart 1: Difference between Australian and OECD average GDP per capita



Note: The chart includes all 30 OECD countries.
Source: Groningen Growth and Development Centre and The Conference Board (January 2008).

The economic reforms undertaken were broad-based, covering both macroeconomic and microeconomic policies and product, labour and financial markets.

The introduction of macroeconomic policies with a medium term focus improved Australia's economic stability. These included a medium-term fiscal framework and allowing an independent Reserve Bank to pursue an inflation target. Additional macroeconomic reforms were the floating of the exchange rate in 1983 and the relaxation of capital controls.

Good macroeconomic frameworks create a more resilient and predictable environment to underpin economic growth. In particular, low and stable inflation means that people's money is not losing its purchasing power. This allows them to better make long-range plans. Sustained low inflation is also self-reinforcing as businesses and individuals do not react precipitously to unexpected price signals when they are confident long-term inflation is under control. Low and stable inflation also means interest rates tend to be lower, encouraging investment to improve productivity and allowing businesses to prosper without excessive price volatility.

Microeconomic reforms were also implemented across the economy. For example, average tariffs have fallen steadily since the mid 1980s. In the late 1980s, and continuing into the 1990s, non-traded product markets were targeted for reform, notably in the areas of transport, communications and utilities. The removal of regulations restricting competition was expanded with National Competition Policy (NCP), which provided a comprehensive framework for economy-wide reform.

Since the early 1990s, Australia's economy has shown remarkable improvement. It is not possible to draw an explicit link between individual reforms and improved economic performance as their effects are interactive and attributions of causality to any particular element need to be drawn carefully. However, the timing of reforms and improvements in economic performance and living standards suggests that there is a link between economic reform and the productivity improvement that underpinned the strong growth in per capita incomes in the 1990s (Productivity Commission 2005).

Not only did NCP and other reforms contribute to the productivity surge of the 1990s, they also benefited individuals and businesses in a number of other ways (Productivity Commission 2005). Reforms significantly reduced the prices of goods and services such as milk, electricity and telecommunications. Households also benefited indirectly from lower prices for other goods and services made possible by cheaper infrastructure inputs from businesses. NCP also stimulated employment and wages, which further benefited individuals.

The competitive environment fostered by NCP and other reforms has also helped to improve service quality and reliability, and led to an expansion in the range of products and services available to consumers (Banks 2004). The expanded range of goods and services improves individual wellbeing. It increases the array of consumption possibilities people face and it enhances their ability to choose the life that they have reason to value (Henry 2004).

Most importantly, the benefits of NCP and related reforms have been spread across the community, including rural and regional Australia (Industry Commission 1996; Productivity Commission 2005). Modelling of productivity and price changes in key infrastructure sectors during the 1990s suggests a consequent increase in regional output (and thus income) in all but one of the 57 regions across Australia (Productivity Commission 2005).

The role of evidence in successful reform implementation

Opposition to reform is often due to complexities and uncertainties surrounding the costs and benefits of reforms and trade-offs between efficiency and equity

(OECD 2007a). Sound evidence on the net benefits of reform plays a crucial role in ensuring that the public has a clear understanding of costs of the pre-reform policy framework, the costs of implementing reform and the benefits of successful reform. Good evidence can also spur potential beneficiaries of reform to mobilise in support of reform.

The use of evidence

The Australian reform experience since the 1980s shows the importance of evidence in motivating support for reform. Its importance can be illustrated by using the examples of the tariff and competition policy reforms (Banks 2009).

In the area of tariff reform, quantifying the net benefits of reform played a particularly important role in convincing Australians to support reforms. It was in this area that the work of the academic economists, such as Max Corden, Victor Argy, Fred Argy, and Heinz Arndt, and the Productivity Commission and its predecessors was crucial. For example, modelling by the Commission in the late 1980s suggested that across-the-board tariff liberalisation and other microeconomic reforms could increase Australia's GDP by $16 billion, or $1,600 per household (1988 dollars) (Banks 2005).

The estimates of the net benefits of reform became part of the public debate and helped bolster public support. Of particular importance in convincing the public to support tariff reform were calls for reform from a broad spectrum of influential commentators, business groups, academics, politicians and public servants.

Evidence of the cost of *not* implementing reform also played an important role, especially where it mobilised business and community groups bearing the cost of the pre-reform policy framework to support reform. For example, the Commission's analysis of the costs borne by the mining and agricultural sectors as a consequence of manufacturing tariff protection spurred these two industries to support trade liberalisation (Banks 2005). Similarly, the Commission's analysis of the costs to the economy of inefficient government business enterprises in the utility sector helped to marshal business groups to support reform of government business enterprises.

The production of sound evidence also played a key role in the successful implementation of NCP. Evidence on the need for competition policy reform, the principles that should underpin reform and the net benefits of reform was generated progressively over the 1980s and 1990s through a range of reviews, policy discussion, analysis and learning (Productivity Commission 2005). This included the Hilmer Review, Industry Commission inquiries, work by government agencies such as the Economic Planning and Advisory Council, and work by privately funded think tanks, industry organisations and academics. The public dissemination of and debate about this evidence created a broad base of community support for reform.

For example, modelling by the Industry Commission (now the Productivity Commission) suggested that the implementation of NCP reforms could generate a net benefit equivalent to 5½ per cent of GDP (Banks 2004). Although this estimate was controversial at the time, it is consistent with economic outcomes following the implementation of NCP. In particular, the Productivity Commission estimates that the productivity and price changes actually observed in key infrastructure sectors in the 1990s — to which NCP and related reforms directly contributed — increased Australia's GDP by around 2.5 per cent (Productivity Commission 2005).

Evidence also played an important role in identifying those that might be negatively affected by reforms. This allowed the introduction of measures to assist people and businesses adjust to reforms.

Community values

During the reforms of the 1980s and early 1990s, there was broad community support for policy change that would reverse the perceived stagnation and decline of the economy, particularly relative to other developed countries (Kelly 2000). In a period with many reforms, people assumed a 'swings and roundabouts' view that they may lose from a particular reform, but gain more from many others.

However, following the recession in the early 1990s there has been a growing anti-reform sentiment, partly reflecting reform fatigue, a lack of awareness of the benefits of reform, concerns about the distribution of benefits, uncertainties and costs of reform (Kelly 2000). Similar sentiments have been roused in other developed economies, with the public's attention focused on the drawbacks of globalisation and market-based reform (OECD 2007b).

Findings from the Australian Social Attitudes Survey suggest that Australians hold a mixed view of the main elements of economic reform and its impact on the economy and society (Duncan, Leigh, Madden and Tynan 2004; Pusey and Turnbull 2005).

For example, protectionist policy measures continue to hold strong appeal in the community, even though average tariffs have fallen (Table 1). In the 2007 Australian Social Attitudes Survey, 50 per cent of Australians surveyed agreed that the Government should use tariffs and restrict imports to protect industry.

On the other hand, the majority of respondents like the benefits of free trade and place a high value on economic growth (Table 2). The views of the general community also contrast strongly with economists. In 1992, 92 per cent of Australian economists surveyed agreed that 'tariffs and import quotas usually reduced general economic welfare' (Anderson and Blandy 1992).

Table 1: Support for protection, 1995-96 to 2003, per cent

Australia should continue to use tariffs to protect its industry		
1996*	1998*	2003
59	57	58
(n = 1716)	(n = 1825)	(n = 1900)
Australia should limit the import of foreign products to protect its national economy		
1995#	1996*	2003
78	71	66
(n = 2294)	(n = 1765)	(n = 2098)

Source: #National Social Science Survey 1995; *Australian Election Study 1996, 1998 and The Australian Survey of Social Attitudes 2003.

Table 2: Attitudes to free trade, 2003, per cent

	Australians should use tariffs to protect industry	Australia should limit import of foreign products to protect the economy	Free trade leads to better products available in Australia
Agree	52	65	49
Neither agree nor disagree	25	19	28
Disagree	12	15	18
Don't choose	10	2	5
n	(2108)	(2142)	(2148)

Source: The Australian Survey of Social Attitudes 2003.

These results need to be taken seriously by policymakers. Research by the IMF and OECD shows that a lack of public support for reform is the main reason why industrial countries have failed to implement reform (IMF 2004; OECD 2007a; Høj et al. 2006). As evidence of the net benefits of reform can mobilise public support for reform, disseminating evidence on net benefits is crucial for the success of any reforms.

The lessons that can be learned

One of the key lessons learned from Australia's reform experience in the past quarter century is the need to remind people of the benefits of reform, so that they do not focus solely on costs. This is partly due to the differences in how people feel about costs and benefits: people feel losses more keenly than gains (Kahneman 2003). The fact that the benefits of reform are widely spread and are not always easily identifiable may help explain why people have become more averse to reform.

Another important lesson is to consider compensation and or transitional assistance that help people adjust to reform. The aversion to reform that developed in the late 1990s appears to relate particularly to the fear that reform will lead to a loss of income, job losses and negative impacts on communities (Henry 2008). While at the aggregate level, economic reform increased incomes and living standards and reduced unemployment both in city and country Australia, some individuals suffered in

adjusting to a more competitive and flexible economy. Future reform should also include measures to assist people adjust to the new arrangements.

As Australia's reform experience shows, providing evidence of the net benefits of reform can mobilise community support for reforms. For example, the Productivity Commission (2007) analysis of the potential benefits from implementing the National Reform Agenda. However, the mere existence of such evidence will not be enough if the momentum for future reforms is to be maintained. Strong leadership and a clear, persuasive reform narrative will also be required to promote the benefits of reform and persuade the public to support policy changes (Henry 2007). In addition, the public's willingness to trust those who are advocating policy reform may depend on the extent to which they are confident that assistance will be available to help them adjust.

It may be that the challenge facing governments in using evidence to persuade the public to support reform is more difficult today than it was a quarter of a century ago. The public are richer, may feel that they have more at risk than to gain from reforms, and fear that narrower reforms mean that the cost of one reform will not be offset by gains from others. This reluctance may be exacerbated by the fact that the benefits of many of the reforms being tackled by governments today could take decades to materialise. This is because these reforms involve multiple levels of government, complex environmental, economic and social systems, and require behavioural and attitudinal change.

Conclusion

Social attitudes towards economic reform are important, as successful implementation of reform relies upon community support for policy change.

There is evidence that the economic reforms undertaken since the 1980s have provided many wide-spread benefits. This includes macroeconomic benefits that have resulted in more stable economic growth and low and stable inflation. It also includes microeconomic benefits that have resulted in a greater amount of choice for consumers, lower prices and improved quality of services.

However, there are mixed views from the community surrounding economic reform. For example, protectionist policies continue to hold strong appeal, while most people still want the benefits of free trade and place a high value on economic growth.

This highlights the need for a clear, persuasive reform narrative. An awareness of the costs and benefits of reform, and the costs of not undertaking reform, are important. It also reminds policymakers of the need to take community views into account when designing policies. The costs of economic reform need to be recognised and arrangements to assist transition can be an important part of policy design.

Maintaining support for economic reform is important for Australia's future prosperity. Strong underlying economic fundamentals are vital for future economic growth and make it easier to deal with short term shocks.

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Why health matters for economic performance

Joann Wilkie and Adam Young[1]

Health is a key component of individual and social wellbeing. Furthermore, the health of a population is a key driver of labour and capital investment and consequent economic growth. Good health can lead to higher gross domestic product (GDP) per capita in the long run due to its impact on population; participation; and productivity. Health outcomes are primarily determined by bio-medical, lifestyle and socio-economic factors, but there is evidence that the level of health care resources also affects health outcomes. The efficiency with which health care resources are used will determine the extent to which health outcomes are enhanced. This article analyses health and its contribution to economic growth and provides a broad framework for the consideration of health care policies.

1 The authors are from the Macroeconomic Policy Division of the Australian Treasury. This article has benefited from comments and suggestions provided by Nathan Deutscher, Robert Montefiore Gardner, Angelia Grant and Tony McDonald. The views in this article are those of the authors and not necessarily those of the Australian Treasury.

Introduction

The ultimate goal of economic policy is to improve the wellbeing of individuals and the community. One element of wellbeing is standard of living or gross domestic product (GDP) per capita. GDP per capita can be increased as a result of the accumulation of physical and human capital, technological improvements, increases in the amount of labour available (either through an increase in the proportion of the population that is of working age or an increase in the number of people participating in the workforce), and improvements in productivity. In the long run, improvements in the standard of living depend almost entirely on a country's ability to increase productivity.

Economists have increasingly recognised that good health across the whole population significantly contributes to labour and human capital to achieve economic growth. Through higher participation and productivity, good health contributes to economic performance and is positive for individual wellbeing (Hsiao and Heller 2007; Bloom and Canning 2000). Good health enables individuals to participate in a range of activities and to engage socially with family and friends and their communities. Good health also allows individuals to be more productive physically and mentally by enabling them to learn more effectively and retain knowledge. Good health also reduces uncertainty, which allows individuals to plan for the whole of life.

The purpose of this paper is to discuss the contribution of health to GDP per capita and to consider how economic policy can affect health and thereby improve living standards. The first section of this paper looks at how health outcomes are measured. The second section considers why health matters for economic performance. The third section briefly compares the health sectors of OECD countries. The fourth section looks at how the delivery of health care services affects health outcomes. The final section concludes.

How do we measure population health status?

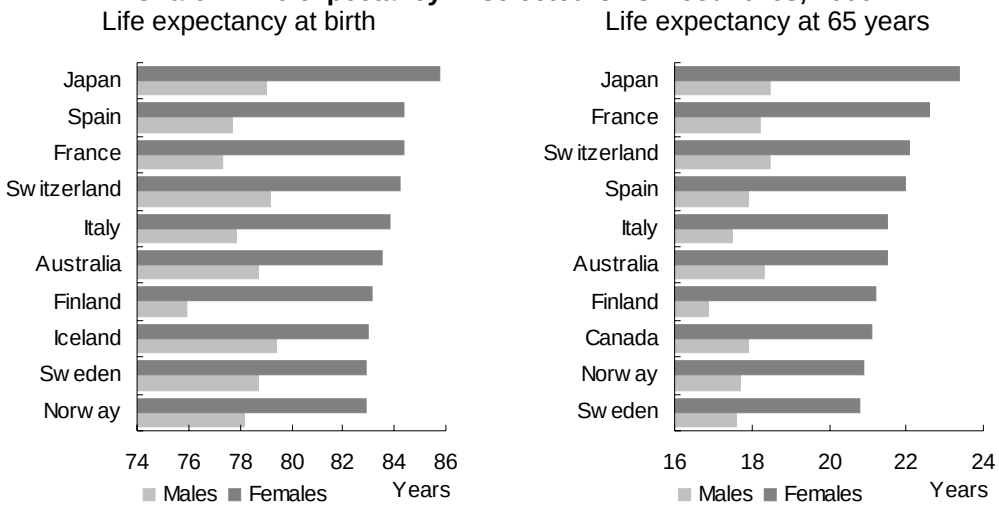
Broadly, health refers to physical, mental and social wellbeing, not merely to the absence of disease, disability and injury (AIHW 2008). Given the multi-faceted nature of health, measuring the population health status can be difficult.

Data are collected on a large range of factors that comprise overall health. For example, the incidence of disease, disability and injury, mortality rates, and the degree to which people's ability to live a normal life is affected by illness and disability. Comparisons of population health status across countries require summary measures. There are two broad types of summary indicator: raw mortality and longevity indicators; and indicators adjusted for morbidity and disability.

Raw mortality and longevity indicators

The most widely used summary indicator of population health is life expectancy (AIHW 2008). Life expectancy is the average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of a given period were to continue throughout the person's remaining lifetime. The most common measures are life expectancy at birth and 65 years. Australia has one of the highest life expectancies in the OECD, with life expectancy at birth around 84 years for females and 79 years for males, compared to an OECD average of 82 years and 76 years. In Australia, life expectancy at 65 years is around 22 years for females and 18 years for males, compared to an OECD average of 20 years and 17 years (Chart 1).

Chart 1: Life expectancy in selected OECD countries, 2006



Note: The chart shows the top ten OECD countries, ranked according to female life expectancy, for each indicator.
Source: OECD health data 2008.
Note: The chart shows the top ten OECD countries, ranked according to female life expectancy, for each indicator.

Other mortality and longevity indicators that are commonly used include premature mortality (the difference between life expectancy and actual years lived) and infant mortality. These indicators, along with life expectancy, are frequently used because they are widely available both across countries and over long periods of time.

Mortality and longevity indicators deliver broadly consistent messages on recent developments and the relative position of OECD countries (Jourmand et al. 2008). Progress in improving health outcomes, whether measured by life expectancy, premature mortality or infant mortality, has been substantial in all OECD countries. For example, life expectancy at birth has increased by almost 11 years on average in OECD countries between 1960 and 2006. The dispersion across countries has also narrowed substantially for most of these indicators. For example, the gap between the

highest and lowest life expectancy in the OECD was around 25 years in 1960 and only around 11 years in 2006.

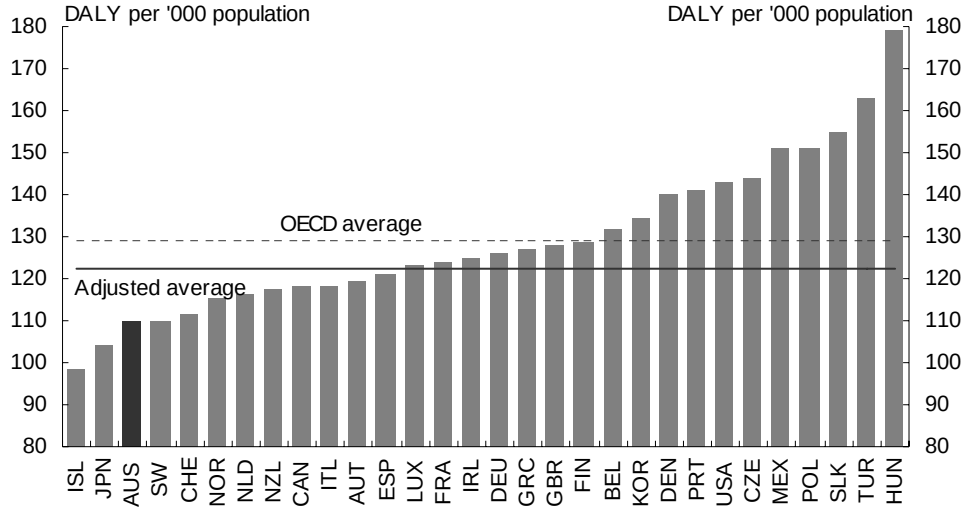
The main drawback of longevity indicators is that they do not measure quality of life, the burden of disease and injury, or disability. Other indicators have been developed that attempt to include morbidity and disability in measures of health status.

Mortality indicators adjusted for morbidity and disability

The Disability-Adjusted Life Year (DALY) was developed by the World Health Organisation (WHO) to provide a measure of potential life lost due to premature death plus the equivalent years of 'healthy' life lost due to poor health or disability (WHO 2008). One DALY can be thought of as one lost year of healthy life due to premature death, prolonged illness or disability, or a combination. The more DALYs, the greater the burden of disease, whether applied to an individual or a population. For example, the sum of DALYs across the Australian population measures the gap between current health status and an ideal health situation where the entire Australian population lives to an advanced age, free of disease and disability.

DALYs can be compared across countries by calculating the number of DALYs per 1,000 population (Chart 2). In 2002, Australia had one of the lowest DALYs per 1,000 population in the OECD, with 110 DALYs. The OECD average is around 130 DALYs.

Chart 2: Disability-Adjusted Life Year, OECD countries, 2002



Note: The adjusted average is the average of OECD countries excluding the Czech Republic, Mexico, Poland, the Slovak Republic, Turkey and Hungary. The excluded countries are those with 2006 GDP per capita below a purchasing power of US$23,000.
Source: World Health Organisation, Department of Measurement and Health Information, December 2004.

Another measure that adjusts for the quality of life is Health-adjusted Life Expectancy (HALE), also developed by WHO. HALE aims to summarise the number of years expected to be lived in full health. Australia had a HALE of 73 years in 2004, among the highest in the world (Table 1). Japan had the highest HALE of 75 years.

The DALY and HALE indicators attempt to quantify the quality of life of a population. Unfortunately, they are not widely available as a time-series across countries, which can limit their use in cross-country studies.

Table 1: Comparison of HALE, DALY and life expectancy indicators
Selected OECD countries

	HALE at birth 2004	Rank	DALYs 2002	Rank	LE at birth 2006	Rank	Average rank
Japan	75.0	1	104.3	2	82.4	1	1.3
Iceland	72.8	4	98.6	1	81.2	3	2.7
Switzerland	73.2	3	111.4	5	81.7	2	3.3
Australia	72.6	6	110.2	3	81.1	4	4.3
Sweden	73.3	2	110.2	4	80.8	8	4.7
Italy	72.7	5	118.1	10	80.9	7	7.3
Spain	72.6	7	120.8	12	81.1	5	8.0
Canada	72.0	8	118.1	9	80.4	10	9.0
Norway	72.0	10	115.3	6	79.9	12	9.3
France	72.0	9	123.8	14	80.9	6	9.7
OECD average	70.3	-	189.5	-	78.9	-	

Note: OECD countries have been selected on the basis of the top ten ranked according to the average of rankings for HALE, DALYs and life expectancy. The 'average rank' is shown in the final column.
Source: WHO, *World Health Report*, 2004; WHO, Department of Measurement and Health Information, 2004; OECD health data 2008.

Why health matters for economic performance

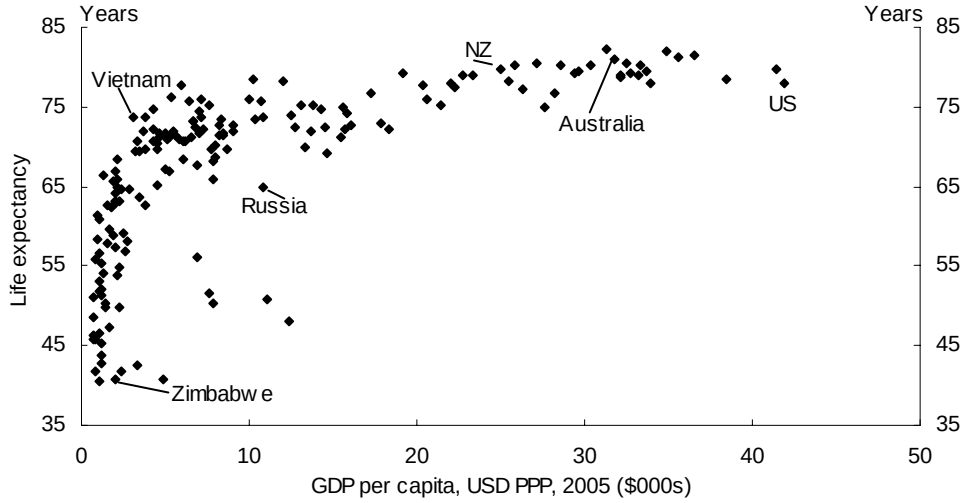
There is a high correlation between GDP per capita and population health status across countries (Chart 3), although the relationship is stronger below $US10,000. The causal relationship appears to work both ways. Higher GDP per capita can lead to better health outcomes, and better health outcomes can improve GDP per capita. Those countries whose citizens enjoy good health tend to be better educated, have higher incomes and greater wealth (Bloom and Canning 2000). These relationships are remarkably stable across time and are generally observed within all countries.

Higher GDP per capita can lead to better health outcomes

GDP per capita has been found to be a major determinant of health status (Jourmand et al. 2008; Afonso; St Aubyn 2006). Higher income can improve life expectancy because it facilitates access to health care, education, food, and housing, all of which contribute to better health outcomes (Jourmand et al. 2008; AIHW 2008).

Higher incomes can also lead to higher demand for health care services. Wealthier households have greater access to formal healthcare and education and because of this they often have greater knowledge of the services available, how to use them appropriately and are able to afford them. Parents who place a high value on future outcomes tend to invest heavily in their children's health and education, perpetuating a virtuous cycle.

Chart 3: Life expectancy at birth and GDP per capita, 2005



Source: United Nations Development Report 2007-08.

Better health outcomes can improve GDP per capita

While GDP per capita affects health outcomes, it is also well established that health can have a substantial influence on GDP per capita. This impact takes place through population, participation and productivity.

Population

To the extent that improved health outcomes lead to an increase in the proportion of the population that is of working age, they can lead to an increase in GDP per capita. The effect of improved health is dependant upon the development status of a country. For example, low income countries with high infant mortality rates and low life expectancy, will experience population growth as better health reduces the mortality rate and lengthens life. While this will initially increase the proportion of the young and old in the population, it can, over time, lead to an increase in the proportion of the population that is of working age. The increase in the working age population has the capacity to increase income, provided that new workers are absorbed into productive employment (Bloom and Canning 2000).

However, as incomes rise and the mortality rate falls, the fertility rate tends to decline. Of itself, this results in a slowing in population growth. For example, the fertility rate in the 50 least developed countries is currently around 4.63 children per woman of child bearing age, 2.75 for other low income countries and an average of 1.6 for developed OECD countries (United Nations 2007; Sleebos 2003). Falling fertility rates are associated with opportunities for the mother to work outside the home, further increasing participation (Bloom and Canning 2000; Arora 2001). While rising incomes and a reduction in the fertility rate can lead to an increase in participation, they also combine with a lengthening life expectancy, now well beyond the retirement age, to cause a demographic shift which can lead to an increase in the old age dependency ratio. Without improvements in productivity, this would lead to a decline in GDP per capita over the long term.

Participation

Health affects participation in a number of ways. Healthier people are more likely to participate in the workforce and less likely to be absent from work due to illness, either personally or within families (Bloom and Canning 2000).

In Australia, people with a disability have lower participation and higher unemployment rates than those without (Table 2). Those that report high levels of disability are also more likely to be engaged in part-time work, rather than full-time, than those who report no disability.

The impact of health outcomes on participation is also a result of the strong relationship between these outcomes and education (Becker 2007; Grossman 2004). Increased life expectancy increases the incentive to acquire education since the returns to investment in education increase over a longer working life. Good health also enables individuals to learn and retain knowledge. As a result, the stock of human capital increases. More educated workers are also more likely to participate in the work force. Continued good health also reduces uncertainty and allows for whole of life planning, allowing for the same incentives to apply for saving for a long and increasingly healthy retirement.

The link between health and education also runs both ways. There is also evidence that education affects health. Better-educated people are more likely to use health care services more effectively — they follow medical instructions better and are more likely to use the most up-to-date treatments — and so education leads to better health. Better educated people also tend to adopt healthier lifestyles. For example, in Australia those with post-school qualifications are more likely to have never smoked compared to those without post-school qualifications (AIHW 2008).

Deteriorating health can often lead to early retirement as sufferers become unable to practice their chosen career. Cai and Kalb (2007) find that health has a significant effect on the labour supply of older Australian males. Mental health is also a major determinant of participation of older workers (Mitchell and Anderson 1989).

Table 2: Disability and employment status, 2003
(Persons aged 15-64 years in households)

	Unemployed	Participation rate	Full-time employed	Part-time
	(per cent)		(as a percentage of total	
Profound core-activity limitation(a)	*13.9	15.2	50.3	49.2
Severe core-activity limitation(a)	9.5	35.8	51.5	48.5
Moderate core-activity limitation(a)	7.6	47.9	61.2	38.9
Mid core-activity limitation(a)	7.7	50.6	62.3	37.7
Schooling or employment restriction	11.5	44.9	57.6	42.4
No reported disability	5.0	80.6	70.9	29.1
Total	5.4	76.0	70.0	30.0

(a) Core activities comprise communication, mobility and self care.
Note 1: Data are drawn from the 2003 Survey of Disability, Ageing and Carers. Employment status may not match official population estimates as it is based on survey responses from households.
Note 2: The data are not adjusted for age.
* estimate has a relative standard error of 25 to 50 per cent and should be used with caution.
Source: ABS, 2004, *Disability, Ageing and Carers, Australia, 2003*, cat no. 4430.0.

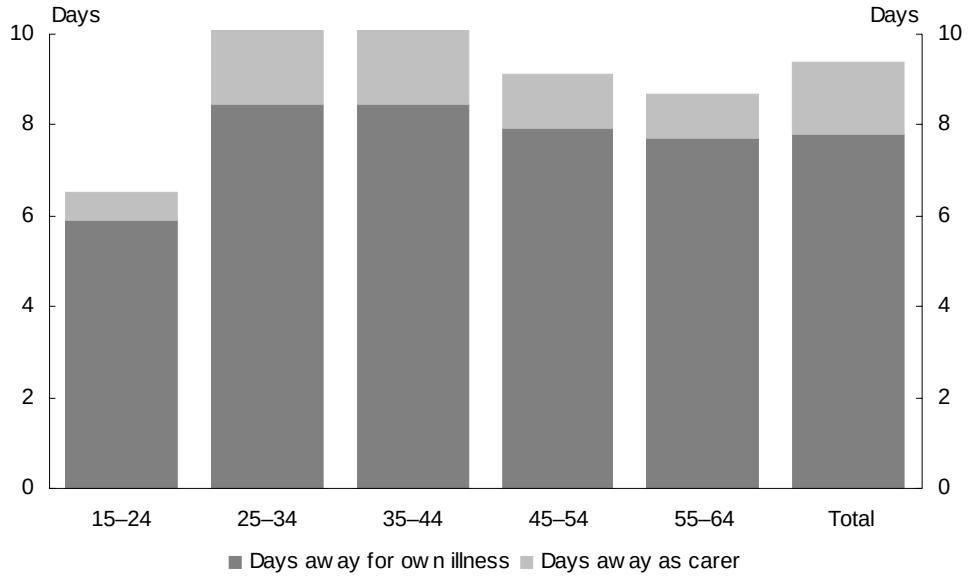
Productivity

Health has both direct and indirect effects on productivity. Good health contributes to productivity directly as healthier workers have more physical and mental energy and report less absenteeism to cope with health issues (Bloom and Canning 2000).

Worker absenteeism due to personal sickness or caring for others is a key reason for productivity loss in the workplace. Productivity losses can also occur through 'presenteeism', which is reduced productivity associated with employees attending work while ill and lacking the motivation or health to be fully productive (Productivity Commission 2006).

In Australia, the average worker takes around nine days leave (sick leave and carer's leave) per year (Chart 4). Those with long-term illnesses and disabilities are more likely to be absent from work due to illness and the length of absence is likely to be longer (Kidd et al. 2000).

Chart 4: Time off from work, average days per person per year, 2004-05



Source: ABS, 2006, National Health Survey, 2004-05, cat no 4364.0.

The role of the health care system

There are a large number of factors that determine the health outcomes of individuals and populations (AIHW 2008). Broadly these factors are: biomedical, such as blood pressure and cholesterol levels; socio-economic, such as income per capita, education attainment and pollution; and lifestyle, such as physical activity, diet and the consumption of tobacco and alcohol.

Because good health matters for individual wellbeing and economic growth, governments have an interest in improving health outcomes. However, governments are only able to indirectly affect the primary factors determining health outcomes. For example, preventative and public health programs may lead to behavioural change and reduce lifestyle risk factors related to tobacco and alcohol consumption and diet. Similarly, government policy that leads to broad socio-economic improvements, such as higher incomes and education attainment, may lead to better health outcomes.

The health care system itself also can also affect health outcomes (WHO 2000). Governments intervene extensively in the health care sector to finance and provide health services to try to address market failures, deal with information asymmetries, capture positive spillovers in health service provision and promote equity. Governments may be able to directly affect health outcomes by changing the level of

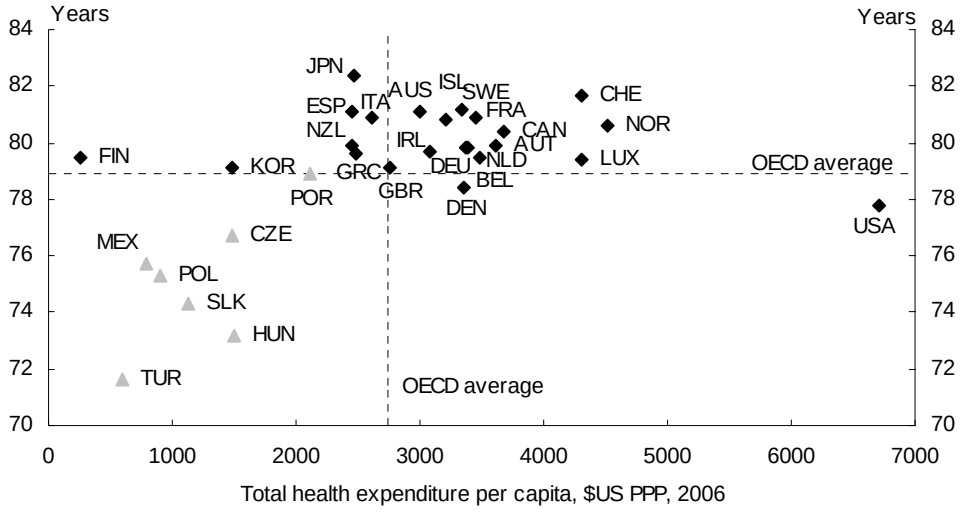
resources in the health care system. However, the extent to which increases in resources lead to improvements in health outcomes is not certain.

Health care resources and health outcomes

OECD countries' governments devote significant resources to health, with public expenditure on health averaging 6 per cent of GDP in 2005. Total expenditure on health care in OECD countries averaged 9 per cent of GDP in 2005. In Australia, total health expenditure ranged between 8 and 9 per cent of GDP over the last decade; around 70 per cent of which was public expenditure (AIHW 2008).

Health care resources and health outcomes in OECD countries vary markedly and countries with higher total health expenditure do not always achieve higher outcomes. Indeed, the lack of relationship between expenditure on health care and health outcomes for high-income countries is striking (Chart 5). The United States, for example, spends twice as much per person on health care as Germany and achieves inferior average health outcomes. Similarly, Australia and Japan achieve excellent average health outcomes, with a life expectancy of 81 to 82 years, but while Australia spends more than the OECD average, Japan spends less.

Chart 5: Life expectancy and total expenditure on health, OECD countries, 2006

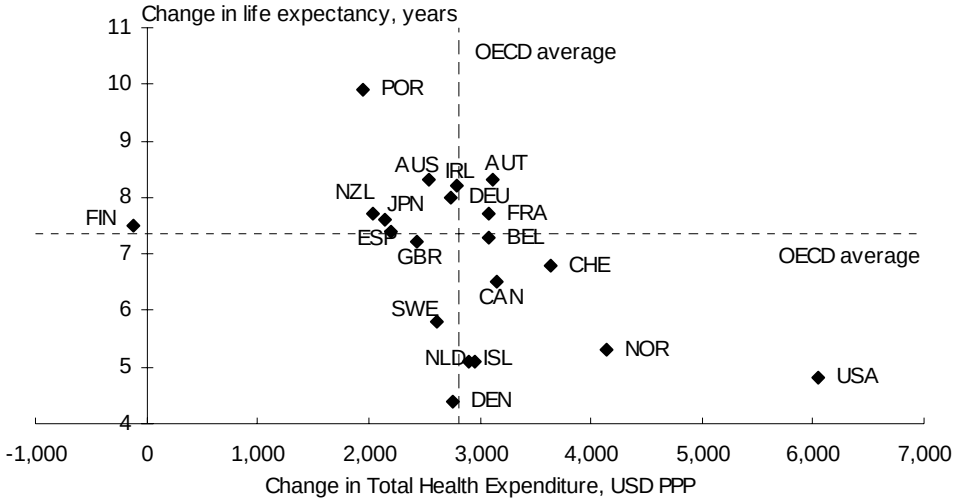


Note: Total health expenditure includes public and private expenditure on health. Triangles indicate countries with 2006 GDP per capita below a purchasing power of US$23,000.
Source: OECD health data 2008.

There also does not appear to be any significant relationship between changes in health expenditure and health outcomes over time (Chart 6). Some countries have achieved the same improvements in health with a smaller increase in resources devoted to health care. For example, life expectancy in Australia, Japan and France

improved by around eight years over the past 30 years. However, while Australia's total health expenditure per capita increased by around US$2,500 per person, expenditure in Japan increased by $US2,100 per person and expenditure in France increased by around US$3,000 per person. In the United States, where life expectancy increased by only five years, total health expenditure increased by around US$6,000 per person.

Chart 6: Changes in life expectancy and health expenditure, selected OECD countries, 1976-2006



Note: Data not available for Czech Republic, Greece, Hungary, Korea, Luxembourg, Mexico, Poland, Slovak Republic and Turkey.
Source: OECD health data 2008.

Evidence on the effects of health spending on health outcomes is mixed even when empirical studies attempt to control for lifestyle, socio-economic and bio-medical factors using more sophisticated methods.

Some empirical studies show that health care resources have a significant, large and positive effect on health outcomes in OECD countries (Jourmand et al. 2008, Berger and Messer 2002; Or 2000a and 2000b). Others studies show that an increase in health expenditure has only a small impact on health status (for example, Nixon and Ulmann 2006). Finally, there are studies that find that health expenditure has no significant impact on the population health status (for example, Self and Grabowski 2003).

The lack of consensus in the empirical evidence may be due to measurement problems, diminishing returns and institutional arrangements. Most empirical studies use raw mortality and longevity indicators because morbidity- and disability-adjusted indicators are not available in time series across countries. The use of raw mortality and longevity indicators may underestimate the impact of health care resources on health outcomes. This is particularly so since health spending in developed countries,

where significant gains in reducing mortality have already been made, is increasingly focusing on improving the quality of life — mitigating pain, developing palliative care units and reducing morbidity (for example hip replacements) (Fogel 2004).

The lack of consensus may also be due to diminishing returns to health expenditure. To the extent that health expenditures are subject to diminishing returns, increases in health expenditure may not lead to improvements in health outcomes. The magnitude of diminishing returns to health expenditure may be dependent on the stage of economic development, with diminishing returns being smaller in developing countries than in developed countries.

Health care outcomes and health sector institutions

Potentially the most important reason for the lack of consensus in the empirical studies is the variation in health sector institutions across countries. Institutional differences can lead to differences in the efficiency with which countries deploy health care resources. To the extent that health care resources are used inefficiently there may be little impact on health outcomes. However, institutions are seldom included as inputs to health status in empirical studies because institutions are difficult to measure, there is no consensus on the features that matter most and interaction effects matter almost as much as individual features (Jourmand et al. 2008).

Health sector institutions, and the impact these have on efficiency, are likely to have a significant impact on health outcomes. The extensive intervention of governments in health care systems means that they are able to influence institutional arrangements. This provides governments with another way to affect health outcomes.

Delivery of health care services and health outcomes

Broadly, health care systems provide and finance preventative, curative and palliative interventions directed at both individuals and populations (WHO 2000). The structure of the health care system is likely to be as important in determining health outcomes as the level of health care resources.

Efficiency and effectiveness

In particular, the efficiency and effectiveness of health spending is likely to be as important as the quantity in affecting health outcomes. Jourmand et al. (2008) show that some OECD countries could make significant gains in life expectancy by improving efficiency without increasing total health expenditure. While this research ranks Australia among the most efficient OECD countries, it is crucial that Australia continues to improve the efficiency and effectiveness of public spending on health.

In Australia, health care is financed and provided both by the private and public sectors and in the public sector there are different levels of government involved. As a result, ensuring that health expenditures are efficient and effective can be complicated. Measuring the performance of health services is particularly important in determining and monitoring cost-effectiveness. Rewarding health service providers for improvements in the quality of and access to health services will provide incentives to innovate and adopt effective practices.

Equity

Policymakers may also need to consider the impact on equity of increases in health expenditure. Most empirical studies test the impact of health spending on the average population health status, and are unable to indicate whether the gains in health outcomes will be spread evenly across the population or concentrated in smaller pockets of the population. In pursuing equity objectives, governments may want to ensure that it is the health outcomes of specific population groups that are improved. This may require a more targeted approach than a general increase in expenditure.

Sustainability

Policymakers must also consider the sustainability of health expenditures in the long term. Non-demographic factors, such as greater use of diagnostic techniques and the development of new medical treatments, have been (and are likely to continue to be) the key driver of health spending. Over the past two decades non-demographic factors contributed around three-quarters of the increase in Australian Government health spending (Australian Government 2007). Australian Government projections of the increase in health spending over the next four decades assume this trend will continue.

Community demand is also an ongoing driver of the growth in health expenditure. Demand for health services has expanded in response to increasing information about new medical technologies and expectations about medicine's ability to treat health conditions. As incomes increase, people are more willing to reduce their share of consumption devoted to goods and services to fund health care that increases their healthy life expectancy.

On the other hand, consumers may demand that governments subsidise access to expensive new medical technologies that offer only small incremental improvements over existing, cheaper treatments. Governments will need to keep a close watch on cost-effectiveness of treatments and services if they are to provide the best possible health outcomes on a sustainable basis.

Conclusion

Health is a key component of an individual's wellbeing as well as contributing significantly to the formation of human capital and labour market participation. As such, it contributes to economic growth and improves the standard of living. Health affects productivity and participation, particularly at the individual level.

Key non-medical determinants of health are income, education, pollution, consumption of tobacco and alcohol, and diet. Governments have little direct control over these factors. However, preventative and public health programs and policies that lead to improvements in income and education will improve health outcomes.

There is also evidence that increases in health care resources, which governments do have direct control over, can lead to improvements in the population health status. However, the evidence is mixed due to data and measurement issues. In addition, it does not necessarily follow that more should be spent on health — the efficiency, effectiveness, equity and sustainability of current health expenditure levels should be taken into account.

While improvements in the average population health status are welcome, there is no guarantee that any such improvement would be spread evenly over the population or accrue to smaller population groups. Where there are large disparities in life expectancies across population groups there is no guarantee that a general increase in health spending would increase the life expectancy of disadvantaged groups.

Efficiency improvements in the health sector could lead to an improvement in population health outcomes without an increase in health care spending. While it appears that Australia's health system is one of the more efficient in the OECD, improving the efficiency and effectiveness of public spending should be an ongoing endeavour.

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Key themes from Treasury's Business Liaison Program

Introduction

As part of Treasury's Business Liaison Program, staff met with around 25 businesses and a number of industry and government organisations in Sydney, Melbourne, Perth and Adelaide during February 2009. Additional teleconferences were conducted with retail sector contacts during December 2008 and January 2009.[1]

Treasury greatly appreciates the commitment of time and effort by the businesses, industry associations and government agencies that participate in the program.[2]

In general, trading conditions deteriorated significantly over the latter part of 2008 as global financial market conditions and associated uncertainty translated into weaker confidence and activity.[3]

Impact of the Economic Security Strategy

A positive impact from the Economic Security Strategy (ESS) was particularly evident among retailers of mid-value to lower value products. Supermarkets, retailers of lower value household items and hardware/home improvement businesses reported a significant spike in December sales. In contrast, retailers of higher end products and consumer durables reported weaker trading conditions. The consumer mood was summarised as being one of 'staying at home' and 'fleeing to value'.

Contacts felt that together with lower interest rates and lower petrol prices, the fiscal stimulus had helped to keep consumer confidence higher than it otherwise would be. There were also reports of improved trading conditions being sustained into January and early February, though several contacts considered the effects were beginning to fade.

According to a number of residential construction companies, real estate and lending firms, the First Home Owners Boost was having a strong impact on that market segment. What started as an initial surge in inquiries has begun to translate into loans

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1 A detailed explanation of the Treasury Business Liaison Program is provided in the Treasury *Economic Roundup*, Spring 2001.

2 This summary reflects the views and opinions of participants in the liaison program, which are not necessarily shared by Treasury. While Treasury's evaluation of the economic outlook is informed by findings from business liaison, a much wider range of information and data are utilised to ensure a rigorous assessment of the Australian economy.

3 This report focuses in more detail on the retail, construction and resources sectors. Additional meetings were held with representatives from the financial, manufacturing and rural sectors and the general themes arising are also reported. The program encompasses the full range of sectors and Treasury aims to meet with a broad cross-section of the business community over time. Companies are invited to register their interest in participating.

and approvals should follow. Beyond the first home buyers segment, indications are that the residential property remains very weak, reflecting both the legacy of higher interest rates and poor consumer sentiment.

Business credit

Access to credit and high borrowing costs remain a central concern for some businesses. In the commercial property sector, the supply of finance has been significantly constrained. More generally, the slowing growth in business lending also reflects weaker demand for credit as broader economic conditions translate into increased spare capacity and less investment. Some firms considered that they were being pressured by lenders to reduce their debt levels through a tightening of lending standards and higher borrowing costs. Concerns about cash flows and not being able to access credit are encouraging many firms to undertake cost-cutting programs in order to strengthen their cash reserves.

Sectoral activity

Looking beyond the impact of the ESS, underlying conditions in the retail sector remain subdued, with overall sales tracking flat to negative in the current financial year. However, this overall assessment masks shifts that are occurring in the composition of retail expenditure which some firms considered to have good opportunities for gaining market share. The additional stimulus of the *Nation Building and Jobs Plan* was more of a prospective than actual consideration in this liaison round, given the timing of its passage in mid-February. A relatively weak demand for consumer credit was evident as households consolidate their financial position.

As noted previously, the commercial property sector is particularly weak, and is experiencing credit constraints. Contacts report an overhang of unsold retail and office space is depressing prices and vacancy rates are also rising, compounding this effect. Increased public investment was expected to assist building and construction firms endure an otherwise difficult period.

The weakening global economy continues to depress output and prices in the Australian resources sector. Most companies were surprised at the pace of the turnaround and have sought to bunker down while the current storm subsides. The composition of the sector is changing as tighter financial market conditions have forced a number of resources companies to find new investment partners as a means of easing capital constraints. Most firms were cautiously optimistic of a recovery in late 2009 and into 2010, particularly given the strong economic stimulus being applied globally.

Those manufacturers contacted were also significantly exposed to prevailing global conditions, even though domestic conditions were comparatively robust.

Relatively speaking the rural sector appears to be reporting more robust trading conditions and confidence in the medium-term outlook than other sectors, although property prices have been depressed by global conditions.

Investment plans

Insofar as the majority of business investment relates to building and machinery and equipment, there is mounting evidence that a significant contraction is underway. Businesses continue to report delays in their discretionary capital expenditure with a clear trend towards reducing it from previous high levels. Several businesses reported expansion plans have been curtailed and refurbishment projects delayed pending more favourable conditions.

Major projects in the resources sector continue to provide a pocket of relative strength in business investment. Among the large projects already underway, Treasury liaison has revealed relatively minor examples of delays and cancellations. Those changes in plans that have been publicly announced relate to weakness in global demand and prices and some difficulties in obtaining external finance. There remains significant work in the investment pipeline that has already been committed and financed to underpin a continued contribution to growth from engineering construction. It would appear that prospective weakness in this area may be more in the medium term than the short-term, depending on the global economic recovery.

Employment and skills

Trends such as reduced operating hours and laying off staff have become apparent in past months, in contrast to earlier liaison rounds where firms had been aiming to keep employment levels relatively steady. The clear trend in the retail sector was toward engagement of casual staff, underlying a strategy of retaining flexibility in terms of trading hours and hours worked.

In the construction and resources sectors, employment intentions were more varied. In relation to major projects, given the momentum in activity and long project lives, firms were generally continuing to hire. That said, several firms reported actual and planned workforce reductions in light of diminishing operating conditions and scaled-back expansion plans.

While skills shortages had reduced considerably, a number of firms reported continued tightness in parts of the skilled labour market, and others expect tightness to re-emerge when growth resumes.

Prices and wages

The prices of business inputs are being affected by opposing forces. On the one hand slowing economic activity and easing capacity constraints are lowering costs. On the other hand, the significant currency depreciation has offset much of this effect for imported capital goods and consumer items.

Consumer prices are expected to be subject to similar forces, albeit with some delay. Retailers considered the currency effects were still to flow through to final prices, though tough trading conditions and competition for retail market share bode well for consumers.

Wage pressures were reported to have eased considerably.

Regional variations

The economic slowdown is affecting all regions, but the benefit of the resource-driven boom continues to be felt in Western Australia. Contacts report residual strength of the Western Australian economy on the back of major projects and despite strong net migration, skilled workers remain in strong demand. There are tentative signs the New South Wales economy has resumed growing, driven by retail trade and dwellings, albeit off a low base of activity.

William Watt: the great orator

John Hawkins[1]

William Watt was a protégé of Alfred Deakin and succeeded him as Australia's leading parliamentary orator. He served as Victorian Treasurer and Premier before moving to federal politics, where he rose to be Treasurer and handled the transition from war to peacetime economy. Watt was also Acting Prime Minister for over a year before clashes with Billy Hughes led him to resign. After a successful term as Speaker, he retired from politics with, to many eyes, promises unfulfilled.

Source: National Library of Australia.

1 At the time of writing, the author worked in Domestic Economy Division, the Australian Treasury. The views in this article are not necessarily those of the Australian Treasury.

Introduction

William Watt PC was renowned for his oratory. He 'had a remarkable command of language, a deep organ voice and formidable debating powers'.[2] One contemporary thought 'as a debater he could not be uninteresting; every sentence was epigrammatic'.[3] Combined with his prodigious energy, this ability saw the precocious Watt rise to high political office very young. His verbal dexterity could, however, sometimes be a weakness: 'his verbal skills gave him capacity for sarcasm and for this he was not liked'.[4] And sometimes his rhetorical flourishes obscured his meaning; as one newspaper commentator put it, 'ideas [become] camouflaged between sesquipedalian sentences'.[5] His brilliance and drive let him develop and bring forward great ideas but he sometimes lacked 'the political skill and patience necessary to see them through'.[6] Perhaps this is why despite a long stint as Acting Prime Minister he never grasped the top prize in his own right.[7]

As a rising star, Watt was lauded as 'tranquil of soul, restless of spirit … chafing like the sculptor to give shape to his thronging ideas' with great understanding and human sympathy'.[8] But towards the end of his political career he was described as 'a dark-visaged and glum-countenanced Victorian with a grim sense of humour'.[9]

Watt's life before politics

William Watt was born at Barfold, near Kyneton in Victoria, on 23 November 1871, the eleventh and youngest child of British immigrants. After his father's death in 1872 the family moved to Phillip Island and then North Melbourne. Billy (as he was then known) Watt attended Errol Street State School until 14 and later took evening classes at the Working Men's College in Accountancy, Grammar, Logic, Philosophy and Elocution. He further sharpened his rhetorical skills in the Australian Natives' Association and various debating societies, where he became something of a protégé of

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2 Edwards (1965, p 79). Similarly, his ministerial colleague Pearce (1951, p 145) describes him as 'one of the most effective debaters that the House of Representatives has ever had'. His speechwriter Baxter Cook (1958) praised his extempore abilities. His obituary was headed 'brilliant oratory remembered'; *The Age*, 14 September 1946, p 3. Clark (1987, p 103) called him 'the finest orator Australia had produced since Alfred Deakin'.

3 Cited by Dunstan (2006).

4 Dunstan (2006).

5 *The Sun*, 17 March 1918.

6 Dunstan (2006).

7 Alternatively, Weller (2007, p 46) opines that Watt was 'a decent if limited man, out of his depth' in the company of men as ruthless as Hughes.

8 *The Sun*, 17 March 1918 and Page (1963, p 58).

9 Ellis (1963, p 54).

Deakin.[10] He campaigned ardently for federation. He worked variously as a newsboy, ironmonger, tanner, clerk, accountant and eventually a partner in a hay and corn store.[11]

Premier and Treasurer of Victoria

Watt was elected for the Legislative Assembly seat of Melbourne North in October 1897, in his mid-twenties, defeating the Labour leader George Prendergast. While opposed to socialism, he stood for radical liberal reform and joined other Australian Natives' Association members known as the 'Young Australia' group. This group helped vote out Premier Turner in November 1899 and the incoming Premier Allan McLean invited Watt to become Postmaster-General. He was the only Melbourne member in cabinet and at 28, reputedly the youngest cabinet member in the Empire.[12] Watt was generally regarded as a capable minister but Prendergast regained the seat at the November 1900 election.

After two more defeats for the Assembly (and unsuccessfully running for the Senate as a Protectionist), he returned to the Assembly in October 1902 for the seat of Melbourne East, before switching to Essendon in June 1904. While out of parliament he had opened a real estate agency and helped his idol Alfred Deakin build a national liberal organisation.

Back in parliament he supported liberal causes such as reform of the Legislative Council, votes for women and factory legislation and sniped at Premier Bent. When John Murray became Premier in January 1909, Watt was appointed Treasurer and held the post almost uninterruptedly until June 1914. He was Acting Premier for six months in 1911 and was the driving force of the ministry at other times. In May 1912 he succeeded Murray as Premier. Notwithstanding opposition from the Council, the Murray-Watt governments established state secondary education, land taxation and preferential voting, expansion of irrigation and reorganisation of public services.

Watt made extensive use of statutory corporations, which bothered some of his supporters, either because they seemed socialistic or insufficiently accountable. Along with plans for a redistribution which would reduce the extra value given to rural electorates, it formed the reason, or pretext, for a revolt by country-based members, who sided with Labor in a vote which brought down the government. The Labor government lasted less than a fortnight before Watt formed a new administration.

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10 Watt (1944, p v) described himself as a 'hero worshipper' of Deakin.

11 Green (1969, p 59) suggests that in his teens Watt was part of the 'Bouverie St larrikin 'push''.

12 Anderson and Serle (1990) and *The Sun*, 17 March 1918.

Watt was heavily involved in negotiations about financial arrangements between the Commonwealth and States. He resisted the new Commonwealth Bank's encroachment on the activities of state banks.

Federal parliament

It was widely believed that Deakin had regarded Watt as his preferred successor.[13] But Joseph Cook was in the federal parliament and Watt was not when Deakin's fading powers forced him to step down. In early 1914, Watt accepted party requests and resigned the Premiership to stand for the blue-ribbon federal seat of Balaclava, defeating the Labor candidate John Curtin. While Watt won his seat, the government was defeated, and so Watt missed out on a ministry.

Watt muted partisan politicking in his support for World War I.[14] The failure of the conscription referendum and the Labor split led Watt to push for a national government, possibly based around the National Referendum Council of which Watt was joint secretary. Plans emerged to form a government combining the Liberals and dissident pro-conscription Labor members. Former Treasurers John Forrest and Joseph Cook and former Victorian Premier William Irvine from the Liberals all aspired to lead this government but Watt realised that Labor renegade Billy Hughes would need to be leader for the plan to succeed, and threatened to withdraw Victorian members from the Liberal Party.[15]

When the Nationalist Party government was formed in February 1917, Hughes preferred Watt as Treasurer but was obliged to give the post to Forrest. Watt served as Minister for Works and Railways.

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13 Anderson and Serle (1990); Dunstan (2006).

14 When a Labor pacifist, Frank Brennan, was accused of cowardice by Watt, Brennan challenged Watt to join him in enlisting for the War. Brennan duly attended a recruiting depot but Watt was nowhere to be seen. Watt's embarrassment was spared by the Labor Premier of NSW, Holman, claiming that Watt could render better service by staying in Australia. Evatt (1940, pp 362-4).

15 Initially he admired Hughes' 'forceful and dynamic leadership'; Murdoch (1996, pp 116-7). However, he became exasperated with him, exclaiming 'you can do nothing with the little devil. He won't listen to anybody'; J Hume Cook (1936, pp 53). He also had doubts about Forrest's abilities as Treasurer, but still decided it was his patriotic duty to join the government; J Hume Cook (1936, pp 197, 214).

Treasurer and Acting Prime Minister

Watt clashed repeatedly with Forrest in cabinet and demanded that Hughes do something.[16] After much discussion, Watt and Hughes' response to this problem was appointing Forrest a Lord.[17] Combined with Forrest's fading health, this saw Watt taking over as Acting Treasurer in February 1918 and he became Treasurer when Forrest resigned from the cabinet in March 1918.[18] In April, Hughes sailed to London, leaving Watt as Acting Prime Minister for the next 16 months.[19] This was a significant burden as Watt's own health was deteriorating. It was not helped by endless squabbles between Hughes and the cabinet back in Australia about who had ultimate authority to take decisions (including setting the direction of Australia's foreign policy) and the failure of both parties to inform the other of their actions, not helped by cables between the United Kingdom and Australia often taking over a day to arrive.

Neither Watt nor Hughes 'was particularly well-fitted for co-operative leadership'.[20] By December Watt was writing to Hughes that he was 'very sick of it. The sooner you return the better I will be pleased'. Watt intimated that he might quit, but Hughes turned on the charm, cabling 'the prospect of your retirement fills me with dismay'.[21] Hughes stayed away longer and things did not improve. By the time Hughes returned, Watt had to be persuaded to remain in the cabinet.

Watt had inherited a Treasurer's office (and Prime Minister's office) in some confusion but restored order.[22] His austere budget on 25 September 1918 heavily increased taxes to help pay for the war and he wanted Australia to be self-sufficient in funding, warning that reconstruction would absorb the finances of other countries once the war ended and it would be hard for Australian governments to borrow offshore.[23] He

16 Relations between the two were not helped by Watt stymieing Forrest's efforts to become Prime Minister when Hughes resigned after the failure of his second conscription referendum.

17 Browne (1946, p 133).

18 By now, Watt was truly part of the establishment. Clark (1987, p 103) comments 'the boy from Phillip Island has become a very fine bridge player in the drawing rooms of South Yarra'.

19 His is about the combined length of the Prime Ministerships of Watson, Reid, Page, Fadden, Forde and McEwen, all of whom are probably better remembered than Watt. As Acting Prime Minister Watt, as he had done as Victorian Premier, introduced preferential voting.

20 Anderson (1972, p 267).

21 Both quotations cited by Weller (2007, p 45).

22 Malcolm Shepherd, secretary of the Prime Minister's Department, wrote approvingly that 'he was the most methodical of all Prime Ministers'; cited by Weller (2007, p 39). See also Anderson and Serle (1990). Sawer (1956, p 172) says Watt 'showed a power of organisation of ideas and a promise of organisation of finance such as no Treasurer since Federation had exhibited'.

23 Hansard, 25 September 1918, p 6337.

foreshadowed plans, based on a similar scheme in New Zealand, for compulsory subscription to war loans based on means.[24] (This was abandoned with the armistice.) Watt pressed the Premiers to stop borrowing and reduce public works, abandoning former concerns for States' rights.

Watt budgeted for a deficit which would use up the accumulated revenue reserve, and so he needed to increase income taxes. In the event the sudden end to the war meant that customs revenues were higher than expected and military expenditure lower, leaving the budget close to balance.

Watt was keen on advice for reviving private industry after the war. A Board of Trade was established, comprising three ministers and two businessmen, along with a Bureau of Customs and Industry and an Institute of Science and Industry.[25]

In January 1919, he drafted an 'imposing scheme' for dealing with imperial war debts.[26] Much like he proposed the Australian government taking over management of the States' debt, he proposed an Empire Debt Commission to manage the debt of the Empire, arguing it would be able to borrow more cheaply than individual countries. However, he received little support in either the United Kingdom or the dominions.

In late 1918 a Royal Commission was established to investigate economies in government spending. Watt tried to reduce per capita payments to the States and established the Federal Council of Finance.[27]

Watt was criticised for retaining these austerity measures after the armistice. Watt's increase in land tax and limits on meat prices, and their retention after the war, gave impetus to the emergence of the Country Party. But this does not seem to have damaged Watt's political stocks too much. In August 1919 it was proposed that Watt replace Cook as deputy Prime Minister.[28] Watt declined the post due to ill health.

Watt's second budget was not presented by Watt himself, as he 'had been feeling the strain of administering the Commonwealth for so long'.[29] Instead the former Treasurer Alexander Poynton presented the budget to parliament on Watt's behalf on 8 October 1919, and it was not debated before the parliament was dissolved.

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24 'The Government has therefore decided to introduce legislation requiring all persons to subscribe to war loans in proportion to their means', Hansard, 25 September 1918, p 6336.
25 Hansard, 25 September 1918, p 6343.
26 Anderson (1972, p 245).
27 Its establishment had been proposed the day Watt was appointed Treasurer. It was to comprise the Treasurer, the Secretary of Treasury, two bankers and two representatives of other financial institutions; *The Argus*, 27 March 1918, p 8.
28 Murdoch (1968, p 378).
29 Smith (1933, p 221).

The United Kingdom had been tardy in paying for the wool clip but itself demanded payments of arrears. This gave Watt a reason to go to the United Kingdom, although he also wanted 'a break from the rigours of office'.[30] In April 1920 Watt sailed for England and now the roles were reversed, with Watt wanting more autonomy and Hughes back in Australia wanting to control him.[31] In June 1920 Watt resigned as Treasurer.[32]

His later career

After Watt returned from an oddly leisurely trip back, in October, he made a long and bitter speech on his reasons for resigning, but by then it seemed many had lost interest. After the 1922 election gave the Country Party the balance of power there were reportedly discussions between Country Party leader Earle Page and Watt about the latter heading a Coalition government, but they came to nothing.[33] Gradually Watt took less interest in politics and became a critic of Hughes, and his Treasurers Cook and Bruce. He attacked Bruce's budget and rarely attended party meetings but conferred with Page.[34] When Hughes was deposed in 1923 in favour of Bruce and Page, Watt was offered a term as Speaker, which he filled well until 1926.[35] After parliament moved to Canberra he attended less than half the time and rarely spoke. He crossed the floor sometimes, such as opposing abolition of per capita grants to the States.

As his interest in politics waned, he took up some chairmanships, such as Australian Farms and Dunlop Rubber, and served as a director of Qantas. He was also chairman of the Melbourne Cricket Ground trustees.

In 1918-19 Watt had been incapacitated for weeks with heart trouble and on medical advice he resigned his seat in July 1929. A stroke in 1937 partly disabled him. Watt had married Emily Seismann in April 1907 and they had five children, who all survived him when he passed away at his Toorak home on 13 September 1946.

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30 Anderson (1972, p 264).

31 Watt complained 'I was credentialed to London as a minister plenipotentiary, but upon my arrival had no greater powers than a messenger boy'. See also Weller (2007, pp 45-7).

32 Former Treasurer Higgs made a failed attempt to intermediate; Anderson (1972, p 324).

33 Smith (1933, p 246).

34 He criticised Bruce's budget for 'prodigal spending' and 'Micawber finance' and worried that concessions to business were creating a 'mendicant race'; *The Age*, 21 November 1922, p 9.

35 At the time of his appointment it was cynically suggested by his predecessor as 'the elevation of a gentleman they fear to a position where he cannot speak'; Sawer (1956, p 225). But Page (1963, p 58) regarded Watt as 'endowed with all the qualities necessary for a superb speaker … a complete knowledge of all parliamentary forms and precedents, a ready and balanced mind, and a facility for promptness and decision'. The long-serving Clerk of the House, Frank Green (1969, p 60), called Watt 'probably the best Speaker of the House we ever had'.

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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.

Budget Statement

Tax Expenditures Statement 2008

http://www.treasury.gov.au/contentitem.asp?NavId=&ContentID=1465

The Tax Expenditures Statement (TES) provides details of concessions, benefits, incentives and charges provided through the tax system (tax expenditures) to taxpayers by the Australian Government. The publication of information on the Australian Government's tax expenditures is a requirement under the *Charter of Budget Honesty Act 1998*.

This statement lists around 320 tax expenditures and, where possible, reports the estimated pecuniary value or order of magnitude of the benefit to taxpayers over an eight year period, from 2004-05 to 2011-12.

The tax expenditures in this statement reflect all announced policies applying up to the date of finalisation of the *Mid Year Economic and Fiscal Outlook 2008-09*.

Working Paper

http://www.treasury.gov.au/contentitem.asp?NavId=035&ContentID=1460

2008-02: An Exploration of Australian Petrol Demand: Unobservable Habits, Irreversibility, and Some Updated Estimates

Robert Breunig and Carol Gisz

This paper estimates a demand equation for petrol in Australia. It explores a methodological improvement to the standard dynamic demand model – a more general model which allows for slowly evolving, unobservable habits. If this habit formation model with unobserved stocks is correct, then standard estimation techniques produce inconsistent estimates.

This paper finds a short-run price elasticity of -0.1 to -0.14 and a long-run price elasticity of -0.2 to -0.3. Importantly, it finds that standard techniques are misleading about the precision of elasticity estimates and that the confidence interval around the long-run price elasticity is quite wide, with a 90% confidence interval of -0.02 to -0.38.

Results are very sensitive to the inclusion of time trends, which appear to be appropriate. The paper tests for price irreversibility and finds, in contrast to the US, almost no evidence that petrol responds differently to price increases and decreases.

Consultations

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

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

- Capital Gains Tax Relief for Transformation Arrangements
- Draft Legislation for the Small Business and General Business Tax Break
- An Australian Consumer Law: Fair Markets – Confident Consumers
- Exposure Draft Tax Agent Services (Transitional Provisions and Consequential Amendments) Bill 2009 and Explanatory Material
- Discussion Paper – Meaning of 'Understanding' in the Trade Practices Act 1974
- Australia's Future Tax 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 4, 2008

Towards a tax and transfer system of human scale

The smarter use of data

The economic costs of reducing greenhouse gas emissions: Understanding the Treasury modelling

Opening statement to the Senate Standing Committee on Economics

The macroeconomic implications of financial 'deleveraging'

Household saving in Australia

Harnessing the demand side: Australian consumer policy

Key themes from Treasury's Business Liaison Program

Alexander Poynton – the caretaker

Issue 3, 2008

Economic geography and economic performance in Australia

The resources boom and the two-speed economy

The Commission on Growth and Development and its implications for development in the Pacific

International comparison of industry productivity

How much of the variation in literacy and numeracy can be explained by school performance?

Fiscal space in the G-20

William Higgs: senator and 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.