
Statistics, productivity and reform*

Introduction

As often happens, I was asked to provide a preliminary title for this address well in advance of it being written. The preliminary title I chose seemed a safe bet, giving me enough room to cover whatever I might decide to say consistent with the conference theme. Once having prepared my remarks, however, I saw no reason to change it. Productivity is central to living standards in both our countries; reform is central to realising our productivity potential; and advancing both is often crucially dependent on statistical evidence.

In what follows, I will explore those important inter-relationships. With your particular interests in mind, I will also give a bit more attention to the statistical side of things than I might otherwise do.

The why's and wherefores of 'productivity'

The (relatively) recently elected governments of both New Zealand and Australia, though of different political hues, from the outset placed 'productivity' at the centre of the policy stage. In New Zealand, as you know, a Taskforce has been established to advise the Government on the policies needed to close the income/productivity gap with Australia by 2025. The Government has also just announced the creation of a 'New Zealand Productivity Commission', akin to the organisation of the same name that I lead in Australia, to advise it on policies and reforms to promote productivity and income growth.

Meanwhile, the Australian Government has set the bar higher. The Prime Minister has recently set an aspirational goal of 2 per cent labour productivity growth for our economy into the future. The third 'Intergenerational Report' has illustrated what that could mean: if productivity growth increased to an average of 2 per cent per annum over the next 40 years, the economy would be over 15 per cent larger, with GDP per person around \$16,000 higher, than otherwise. But such a growth rate would be one-quarter higher than the average experienced over the past 40 years.

The elevation of 'productivity' in government policy discourse is a welcome development, given its importance to income growth and living standards over the

* Keynote presentation, *The Official Statistics 'Forum 2010'*, Wellington, New Zealand, 24 March 2010. (Co-authored with Don Brunner.)

long term; for, as Professor Krugman has famously put it, in the long term productivity “is almost everything”. However, the concept itself is not always well understood. Nor is it well-measured at an economy-wide level. And there is some contention about what government policies might best serve to promote it.

Krugman’s aphorism, though perhaps a revelation to some, would be accepted as a truism by most economists, relating as it does to the productivity of *labour*. Value added per hour worked — the technical definition of labour productivity — obviously accounts for a large proportion of income per person or household. And, equally, its growth economy-wide makes a large contribution to the growth in average incomes of society at large, assuming little change in labour force participation and the terms of trade (important provisos, to which I return).

Labour productivity is the most commonly used productivity measure mainly because it is relatively easy to comprehend and to compute. For example, a rough estimate for an economy can be obtained by dividing GDP by official estimates of total hours worked. And, once expressed in purchasing power parity terms, comparisons across countries can be readily made on this basis. However, despite its title, labour productivity is not necessarily a good indicator of how productively labour is employed over time or across countries. It hides the role, and indeed the expense, of capital accumulation in increasing outputs, as well as the proportion of the population actually employed.

Multifactor productivity, on the other hand, is a measure of the output obtained from a ‘unit bundle’ of both capital and labour — which entails complex techniques for measuring and aggregating capital services and then combining these with hours worked. However, MFP growth is a better indicator of improvements in productive efficiency, as it reflects economic growth, in value-adding terms, above and beyond that resulting from increased primary inputs. As such, MFP growth is generally (though not necessarily) lower than labour productivity growth. However, MFP growth contributes to *sustained* per capita income growth, as it increases the amount of final goods and services produced from any given amount of labour and capital. Over the past few decades, MFP growth has accounted for just over 35 per cent of GDP growth (in the ‘market sector’) in both Australia and New Zealand.

This brings me to the (by now, obvious) point that productivity is best considered in policy terms as a means to an end — higher incomes for the populace — not as an end in itself. And, of course, while raising incomes makes for higher material standards of living, this too is only important to the extent that it enhances societal *wellbeing*. (Wealth gained by squandering environmental assets, for example, may make citizens worse off, particularly citizens of the future.)

In this broader context, the French President asked Joseph Stiglitz, Amartya Sen and Jean Paul Fitoussi to identify the limits of GDP as an indicator of economic and social progress (‘Commission on the Measurement of Economic Performance and Social Progress’). In its report last year, the Stiglitz Commission re-stated the limitations and biases inherent in GDP metrics, and suggested that the time was ripe for measurement systems to shift emphasis from economic production to sustainability and wellbeing. The report did not dismiss GDP and production measures, but rather argued for the development of a broad statistical system to capture as many of the dimensions of wellbeing as possible. (Of course, recognising the different dimensions of well-being is one thing, measuring them is another.)

All that said, the relationship between income and wellbeing has held pretty well as a first approximation in most circumstances. In other words, although wellbeing has numerous dimensions, *per capita* income growth and its distribution have proven central to families’ current and future consumption, and the ability of governments to fund social services and support creative endeavours.

Moreover, in what is (hopefully) the aftermath of the Global Financial Crisis, the income generated from productivity growth assumes particular importance — to help service debts accumulating from fiscal deficits, as well as to offset the effects on aggregate demand of the withdrawal of stimulatory public spending. Over the longer term, ongoing pressures related to globalisation, demographic ageing and environmental sustainability will remain, as imperatives for the governments of our two countries to do what they can to ensure that productivity growth realises its potential.

Some trans-Tasman comparisons (and conundrums)

In its recent report, the 2025 Taskforce shone the spotlight on a gap of around 35 per cent in GDP per capita between Australia and New Zealand. That gap, which developed gradually from the mid 1970s, was also reflected in differing levels of economy-wide labour productivity, as reported by the New Zealand Treasury in 2008. The trans-Tasman disparity in labour productivity seems to have emerged in two phases:

- First, economy-wide labour productivity (\$US PPP basis) in New Zealand was at about the same level in the mid 1980s as it had been in the mid 1960s, while in Australia it rose by some 40 per cent over that period.
- Second, through the 1990s, New Zealand economy-wide labour productivity increased by some 15 per cent, whereas in Australia it rose by around 30 per

cent. Outside these two periods, labour productivity growth rates have been similar in our two countries.

These data also imply average annual growth rates in (\$US PPP) labour productivity since the late 1970s of around 1.7 per cent in Australia and 0.7 per cent in NZ.

It should be noted that this information on our respective labour productivity levels over time are based on data released by the Conference Board and Groningen Growth and Development Centre (Groningen) just this year. It differs significantly from what was in the NZ Treasury 2008 publication. The difference results from major downward revisions by Groningen to estimated hours worked in New Zealand, giving rise to a much higher relative level of labour productivity. The older series indicated a gap of around 40 per cent in PPP labour productivity levels in 2007, whereas the most recent data suggest the gap was more like 15 per cent.

Moreover, it is significant that productivity growth (using both multifactor and labour metrics) in the ‘measured’ or ‘market’ sector of New Zealand’s economy — as opposed to the economy as a whole — has been quite similar over the past 30 years to that in Australia, with MFP actually growing slightly faster in New Zealand.

This raises something of a conundrum, and further analysis will be important in helping to inform policy directions.

The ‘missing’ sector matters

One explanation, at least in part, would seem to be the larger size of the government sector in New Zealand than in Australia, combined with national accounting practices that essentially define away that sector’s productivity growth — equating the value of its output with the value of its inputs (mainly salaries).

Using Groningen data along with ABS and SNZ data on productivity and hours worked, suggests very significant growth in the labour share of the non-measured sector in New Zealand relative to that in Australia since the late 1970s. Together with the zero (or near zero) labour productivity growth recorded in the non-measured sector, this in itself will drive a wedge between economy-wide measures of labour productivity in our two countries. However, a lack of good quality and consistent time series data covering the period since the late 1970s precludes accurate estimates of the size of this effect. But a threshold issue is to establish the extent to which the accounting conventions for the non-measured sector may be biasing measures of aggregate productivity growth. To answer this,

we need to develop much more sophisticated productivity indicators for the non-measured sector, particularly for government services.

In any case, given their magnitude, improvements in the cost-effectiveness of government services would yield significant gains in Australia as well as in New Zealand. Although, under current methodologies, efficiency improvements in the government sector might not show up directly in official statistics, with general government outlays at around 37 per cent of GDP in Australia and 42 per cent in New Zealand, even modest improvements matter. Establishing and operationalising robust measures of performance in the public sector would again seem central to the task of identifying where to access these potential gains.

As many here will know, the UK National Statistician commissioned Sir Tony Atkinson in 2003 to conduct an independent review of the measurement of government inputs and outputs in the context of National Accounts. The UK Centre for the Measurement of Government Activity was launched within the Office for National Statistics two years later to take forward the ‘Atkinson agenda’.

Since then, it has developed new methods to measure inputs and outputs in the provision of certain public services — notably in healthcare and education, where outputs are based on quality adjusted activity measures. Outputs are also measured directly in adult social care, social security administration and public order and safety, though not quality adjusted. (The ‘outputs=inputs’ convention is still used for the rest of government services.) The estimates are described as ‘experimental’ in recognition of many difficulties still to be resolved. Nevertheless, the progress made in the UK is to be commended, and we should be pursuing similar programs in our own countries.

Indeed, I am aware that Statistics New Zealand has just released the results of a study into the feasibility of measuring government sector productivity in New Zealand, and the ABS is also taking an interest in such developments.

Further, Australia’s federal structure, though often derided for alleged administrative inefficiencies, has enabled a comprehensive process of benchmarking to be developed in my country that encompasses indicators of the efficiency and effectiveness (including equity) of about a dozen government service areas. Over time, the Review has brought about considerable improvements in administrative data on government services and, more importantly, contributed to improvements in service provision itself, on a ‘follow the leader’ logic.

Returning to the apparent difference in GDP per capita, there is a range of potential causes beyond the relative size and roles of the public sector and its influence on labour productivity. These include differences in the rate of capital investment

(higher in Australia), a higher ratio of hours worked per capita in Australia, and changes in the PPP exchange rates between our two countries.

The ‘Australian Story’

Clearly, if we are to understand the reasons for differences in productivity performance between our two countries, we need first to have a good understanding of what is happening *within* each country, and why. That is obviously no easy matter, and continues to be the subject of debate (and some confusion) in Australia itself. The reason for this is not hard to find, as Australia’s productivity growth has been on something of a rollercoaster ride during the past two decades.

Through the 1990s productivity cycle, MFP growth surged to an all-time high, averaging 2.1 per cent a year, more than double our long-term average rate of 0.8 per cent. The reasons for this productivity ‘surge’ were hotly debated at the time. However, analysis by the Productivity Commission ruled out most of the ‘usual suspects’ such as recovery from recession, higher workforce skills, or special technological advances, leaving the structured reform program of the latter part of the 1980s and the 1990s as the prime candidate. That program was very wide-ranging. It encompassed changes to monetary and fiscal policies, capital markets, industry assistance, taxation, government enterprises, regulation, labour markets and industrial relations, and innovation and training. These changes produced greater economic flexibility, improved efficiency and a more outward looking, opportunity-focussed business culture. That they also yielded significant productivity dividends should therefore not have come as a surprise!

Following the upswing of the 1990s, MFP growth in Australia returned to only a little above the long-term average through the next productivity cycle to 2003-04. Such a decline could have been expected, as the ‘easy’ gains from the earlier economic reforms subsided. However, developments in MFP growth since then *have* been a surprise and the cause of some concern in Australia. Annual MFP growth over the most recent cycle, 2003-04 to 2007-08, has actually averaged *minus* 0.2 per cent, with poor MFP growth being recorded in all years. (In the most recent year, 2008-09, MFP fell by 2.7 per cent.)

Like the story about the man who drowned crossing a stream with an average depth of 6 inches, or the old joke about being comfortable on average with one foot in the oven and one in an ice bucket, aggregate data frequently hide differences in the constituent parts, which can confound interpretation or be misleading. The first step in better understanding aggregate performance, therefore, is to disaggregate.

A tale of three sectors

Recent research directed at this by the Productivity Commission, using various official and other data sources, has determined that much of the decline in Australia's MFP growth between the last two cycles can be accounted for by developments in three sectors: agriculture, forestry and fishing; mining; and electricity, gas, water and waste services.

The first of these, agriculture, has suffered from recurring drought years over the past decade, with 2003 being the most notable. Mining, on the other hand, has experienced a decline in the quality and accessibility of some key resources, and from supply constraints in the face of rapid growth in demand from China — driving production up its short-term cost curve. Additionally, lags between large capital expenditures to meet demand and the associated output coming on stream — typically of up to three years later — have further depressed measured productivity growth in the interim.

The productivity of energy, water and waste services has also suffered from the drought, together with strong growth in demand. Output in water treatment and supply has been severely impacted by a lack of rain and by the introduction of associated demand management initiatives. This has resulted in a drop in measured output, in concert with major new capital expenditures designed to increase water supply (for example new desalination plants) or to better manage existing water resources (re-cycling and conservation capital). The output associated with much of this new capital, as with mining, is yet to come on-stream, but it is also more demanding of economic resources (including energy).

Electricity generation (particularly hydro) has also been negatively affected by the drought and this, together with major new capital expenditures resulting from strong growth in demand for electricity, has dragged down productivity growth. Another, as yet unquantified, consideration is the impact of Australia's renewable energy targets on MFP growth, given the higher cost of wind and solar energy production compared with more traditional sources.

(This also points to the challenges for traditionally *measured* productivity growth inherent in the drive for low-carbon emission energy generation. What will happen to measured MFP as the pursuit of environmental objectives leads to more capital intensive production technologies, but no greater measured output? What will happen to the correctly conceived *concept* of multifactor productivity growth? Merely to pose these questions is to warn of some of the problems when setting future targets based on past performance using traditional methodologies for measurement.)

Removing the three industry sectors from the market sector data, average annual MFP growth in Australia rises to 0.8 per cent (the long term average), compared with *minus* 0.2 per cent for the full market sector.

Improving productivity statistics

The point in all this is not that the official productivity estimates are ‘wrong’. Nevertheless, our analysis has highlighted some issues in productivity estimation methodology that are not helpful to interpretation. Some of these could be addressed relatively easily, whereas others present difficult challenges, both from methodological and data perspectives.

For example, the issue of lags between capital expenditures and the associated additional output, such as for major mining investments, could be addressed through estimates of these lags being incorporated into the timing of the capitalisation of investment expenditures in the productivity accounts. Also, the centring of estimates of capital within an accounting year, rather than at its beginning, would provide more consistent productivity accounting.

More difficult, but no less important, are the challenges associated with getting better measures of inputs and outputs. For example, much of the measure of output in the water industry is based on the volume of water consumed, but that water is not accounted for as an input — either intermediate or primary. So when a lack of rain constrains consumption, and therefore measured output, there is no offsetting reduction in water inputs — so measured productivity automatically falls.

Disaggregated data have helped to identify specific areas of low productivity growth in Australia’s economy. From there, a closer look at what has been happening to inputs and outputs in those sectors has taken us further towards a proper understanding of the ultimate causes, and a better appreciation therefore of the potential for policy to make a difference to aggregate outcomes. New Zealand has to date not presented official estimates of productivity growth at the industry level (either in labour, or multifactor terms). This inhibits comparable analysis of your productivity performance — though I understand that such estimates will become available shortly.

That said, the New Zealand Treasury paper from 2008, to which I referred, did provide an approximation to recent average annual labour productivity growth by industry using ‘output’ per ‘job’ as a proxy. On that basis, the poorer performing industries (negative average annual LP growth) included: primary; construction; wholesale trade; and hospitality. Of these, construction was the stand-out, with productivity declining by 3.1 per cent a year. However, of the 13 industry sectors

listed, it had the 6th highest output growth at 4.1 per cent and by far the highest jobs growth at 7.4 per cent. This industry would therefore seem worthy of closer examination with the benefit of better data (as would the ‘primary’ sector, with annual labour productivity growth estimated to be around minus 1.2% per cent).

This is a further reminder of the point I made at the start. Productivity is important only because of its link to incomes and living standards. Australia’s recent poor productivity performance has in part been the flipside of an export boom originating in the mining sector. While that has seen costs rise, prices have risen much more, generating historically high growth in national income. If productivity had been the only motivator for policy, interventions to raise it might have ‘killed the goose’! The more appropriate course for policy in Australia is to free up the supply-side of our economy to enable it to respond more effectively to opportunities on the demand-side (which incidentally will promote productivity anyway).

Statistical foundations of Australia’s major reform breakthroughs

Good data and the analytical tools necessary to their proper interpretation are fundamental to effective policy analysis. There have been some notable examples in Australia of the public policy benefits to be had from quantitative analysis based on relevant and robust statistics.

As in New Zealand, tariff reform was a threshold challenge for structural reform generally in Australia. Our own ‘breakthrough’, in the face of entrenched opposition, rested heavily on the Industries Assistance Commission’s ability to demonstrate that there were substantial economy-wide costs from the existing protection regime.

Key to this were the use of ‘effective rates of assistance’ methodology and, later, ‘general equilibrium’ modelling, developed through the IMPACT project. Both these IAC initiatives relied heavily on access to quality industry data. In particular, the policy modelling exercise focussed attention on the need for statistical information that traced the input-output linkages between industry, final consumers, investment and foreign trade. This created momentum for the maintenance and upgrading of input-output tables in Australia. Prior to the IMPACT project, the ABS had been publishing such tables 5 years apart, with their release not occurring until 8 years after the reference period. The new demands led to the ABS enhancing its methodology and providing input-output tables annually.

In the mid 1990s, a more disaggregated version of the earlier ORANI model of the Australian economy was employed by the Industry Commission — the successor to the IAC — to estimate the long-term economic and financial impacts of proposed

National Competition Policy (NCP) reforms. The headline estimate, that the reforms could raise Australia's GDP by 5.5 per cent, was generally accepted as providing a compelling case for their adoption. At the same time, that report also provided estimates of the additional government revenues that would accrue from the reforms. These revenue estimates formed the basis for 'competition payments' by the Australian Government to the States and Territories for satisfactory progress in implementing their reform commitments. Those payments in turn proved crucial to the States and Territories agreeing to the reforms and to them actually implementing them.

During the reform implementation process, there was a backlash from rural and regional Australia that threatened to de-rail key NCP reforms. An inquiry by the Productivity Commission — which had replaced the Industry Commission in 1998 — drew on a range of data and analysis to assess the impacts of NCP on jobs and economic activity in 'the Bush'. This included further GE modelling calibrated to provide results by 57 regions. This work demonstrated that, taking the reforms as a whole, most regions were actually benefiting overall from NCP — which proved instrumental in turning the politics around and enabling the reform program to proceed.

There is now broad (though perhaps not universal) agreement that the NCP reforms delivered stronger economic growth in Australia through the 1990s and into the 2000s, and contributed to the resilience of our economy more recently. But, as noted, any tendency towards complacency (or reform fatigue) has been overtaken by the realisation that in the years ahead Australia faces some further major challenges to its hard won prosperity, not least being the fiscal pressures stemming from the ageing of our population and the GFC itself.

In February 2006 the Council of Australian Governments (COAG) agreed to pursue an ambitious new National Reform Agenda (NRA). That agenda embraces not only additional competition and regulatory reforms, but also a 'human capital' stream covering health, education and training, and work incentives. In December 2006, the Commission released a major commissioned research paper demonstrating that the *gross* benefits from reforms in the areas identified were potentially very large, with *net* benefits potentially rivalling those from the early NCP wave of reform — depending on the specific policy programs and reforms adopted *and* their costs. This analysis has been credited with ensuring support across governments for the development and implementation of the new reform program.

The need for good input-output data has been further reinforced in the last decade by the use of CGE modelling for analyses of the impact of both the NCP and the NRA. This led to the accelerated compilation of input-output tables for 2001-02 and

an upgrading of the treatment of transportation services. It is also leading currently to a renewed interest in official data for regional economies by input-output classification, and the greater integration of Australian public finance information with input-output data.

The more recent NRA analysis by the Commission also brought into relief the relative weakness of existing data bases in social and environmental policy areas, relative to economic or financial data systems. If we are to get good policy and successful reform in those important ‘non-economic’ domains, the statistical underpinnings will need to improve greatly. Let me illustrate with a few examples that draw on the Productivity Commission’s recent work.

Illuminating the ‘Not-for-profit’ sector

In January, the Commission completed a report at the Government’s request into the ‘not-for-profit’ sector. This sector comprises a very large and diverse array of organisations established for a community purpose, encompassing both market-based activities (like sports and education services) and non-market activities such as charities and religious organisations. In both cases, these organisations provide services that can have significant net benefits to society, the extent of which is affected by government regulation, taxation and administrative arrangements. We were therefore asked what government could do to enhance the sector’s performance and we were also asked to assess the sector’s contribution and advise on how this might be better measured in the future.

Measuring the ‘contribution’ of the sector turned out to be a challenge. It was reasonably achievable for market-based activities and also to an extent for ‘volunteering’, based on a purpose designed official (ABS Satellite Account) survey. The sample size was small relative to the diversity of the sector, however, so only limited disaggregation was possible. This made the identification of trends particularly challenging — yet it was in these that the interesting stories lay. (Such as why volunteering was growing as a whole, but falling in community services).

Many in the sector believe that their contribution goes well beyond that captured by economic activity measures — into building social capital and community connections and endowments (such as through protecting the environment), and advocating for peoples’ rights. Yet there is little data that can be drawn on to back such claims (as indeed applies to the good works of organisations in the market sector).. National data sets are being improved, but *longitudinal* data is needed to support analysis of trends and the potential contribution of NFP activities (and

government policies) to outcomes bearing on these broader aspects of community wellbeing.

The study set out a measurement framework to guide the development of indicators that NFP organisations could use in evaluation of their activities. It also proposed the establishment of a Centre for Community Service Effectiveness, as a mechanism to share evaluations, improve their quality, and draw together the evidence as it accumulates.

Evaluation is expensive, which is one reason why there is a lack of it. There is, nevertheless, considerable reporting on government-funded services occurring for performance monitoring purposes. This reporting imposes a considerable burden on NFPs. Lack of consistency in measures having to be reported adds to the cost for organisations involved in multiple programs. It also limits the value of administrative data sets, even if they are made available to researchers. Agreement on data standards, data sharing, and linkages to longitudinal data collections, emerged as important areas for getting greater benefit out of the funding already going to data collection. The size of the sector (at least 4 per cent of GDP) and its relatively rapid growth, suggests that, at the very least, statistics about its inputs and outputs should be compiled on a regular basis, as occurs for other sectors.

Improving hospital performance through (data-intensive) funding

As noted, population ageing has crystallised the importance of securing a more cost-effective health sector. The past decade alone (even before any pronounced demographic shift) has seen the sector's share of Australia's GDP rise from 7½ to 9 per cent. As a proportion of State budgets, health/hospitals dwarf all other spending categories. Hospital costs are expected to rise particularly steeply in future (old people use them a lot more). They have accordingly been identified as a priority for reform — both in their own right and, importantly, in terms of their interaction with other parts of what is a highly interconnected health system.

A recent Australian Government proposal for hospital reform would centralise funding responsibility, while introducing stronger 'pricing' signals into funding of public hospitals, providing them with funding commensurate with the nature and volume of their activity, and with financial incentives to improve their efficiency. It is therefore greatly reliant on information relating to what hospitals do, who they treat, the quality of that treatment and what it costs (or should cost).

This in turn presents two main implementation challenges:

- putting in place a nationally consistent approach to the classification and costing of hospital services, and
- assessing the extent of any adjustments to those prices to allow for the range of issues indicated by the government (eg, access in regional areas, clinical safety, services to Indigenous Australians).

The extent of the ambition here becomes apparent when considering where we are at currently with respect to activity-based funding. The fact is that Australia does not have a standardised approach across States and Territories to the classification of admitted inpatient services. Those jurisdictions that have moved to activity-based funding of their (largely) urban-based public hospitals, do not have a consistent approach to what is included and excluded from the relevant costs for a particular admitted inpatient episode – which is particularly important in dealing with some of the fixed costs of hospitals. Moreover, there are deficiencies in the quantity and quality of information on emergency department and outpatient services, in terms of both what is provided and the respective costs.

In November 2008, COAG recognised these deficiencies and agreed on a number of steps (and funding) to remedy them. However, establishing robust, nationally consistent, activity-based prices will be some years off.

Extensive data improvement will need to be complemented by further analysis and judgements, to adjust the derived nationally efficient prices to the level of funding provided to individual or small groups of hospitals for the range of services they offer, and the relative difficulty of treating their patient population. A recent study by the Productivity Commission into the performance of public and private hospitals in Australia, published in late 2009, found:

- significant differences in the costs of providing public hospital services across jurisdictions, with costs generally higher for smaller hospitals and those in outer regional and remote areas;
- greater ‘complexity’ of cases — measured by such things as co-morbidities of patients, their socioeconomic status and use of intensive care — was found to reduce a hospital’s best practice target efficiency; but
- an indicator of hospital quality (risk adjusted mortality) was in practice not found to have any influence on hospital efficiency — perhaps reflecting offsetting dimensions that seeking to deliver higher quality care may require greater inputs, and that hospitals with higher rates of infection also consume more hospital resources.

It seems clear that the task of the ‘independent umpire’ in this proposed regime would be a formidable one. The ability to secure much better data would be an absolute precondition for its success. Analysis such as that undertaken recently by the Commission, drawing on the base of improved data, will also be necessary to deliver the most appropriate funding to local hospitals.

Overcoming Indigenous disadvantage (and poor data)

If there were ever a case of policy failure for want of adequate statistics, it is in the important area of Indigenous policy. Over the past four decades, a period which can be characterised as taking a more ‘contemporary’ policy approach, there have been many policy initiatives and there have been substantial financial outlays. But the lamentable fact is that the circumstances of Indigenous people appear in many respects not to have advanced and in some important respects they appear to have deteriorated.

However, we don’t know this for sure. That is for the same reason that we don’t really know for sure which of many policy initiatives across the country have been successful and which failures — lack of data.

When the first edition of the path-breaking series of reports to COAG *Overcoming Indigenous Disadvantage* was produced in 2003, all seven identified ‘strategic areas’ for policy action had major gaps and deficiencies in key indicators. For example, an understanding of the state of play in relation to ‘early school engagement’ could not rely on having basic data on school attendance. In the intervening years, this specific deficiency and various others have been remedied, with a new commitment by all Australian Governments to collect the statistics needed to assess whether their policies are actually achieving better outcomes. However, in presenting the fourth report in the series to a special COAG meeting in Darwin last year, I was obliged to report that the data would still not allow conclusions as to whether things had improved for half of the 49 indicators. Moreover, this included at least two of six indicators specifically singled out for improvement by COAG itself.

Among them is arguably the most fundamental indicator of Indigenous disadvantage, life expectancy. The life expectancy gap between Indigenous and other Australian males, as measured in official statistics, declined from 20 years in the 2003 OID report to 12 years in the 2009 report. However, this apparently dramatic improvement was entirely due to more accurate mortality data and better methodologies. It has required some effort to ensure that the public and policy makers understand that while the gap, though unacceptable, is not as large in

absolute terms as we thought — which is indeed good news — we cannot be confident that there has been a *trend* improvement. (This is not a criticism of our statistical agencies. Rather, it illustrates the difficulty of the task.)

When it comes to the ‘pointy end’, of evaluating specific policies and proposals, the main problem *ex post* has been lack of preparation *ex ante*, to ensure the data needed for robust evaluations, especially ‘baseline’ data.

However, as noted, improvements are now in train in a range of areas. One where the Productivity Commission is again closely involved is the collection of information nationally on expenditure related to government services to Indigenous people. Knowing what resources are being directed to Indigenous people is obviously a pretty important prerequisite for evaluating its cost effectiveness. However, existing official statistics (such as the GFS framework) have a number of limitations in this area, including lack of alignment with policy areas, poor data quality at disaggregated levels and simply lack of identification as to where the money goes. Administrative collections across jurisdictions can provide richer data, but there is often a mismatch of frameworks and definitions.

Achieving better environmental outcomes through better data

The pursuit of ‘sustainability’ in all of its dimensions — economic, social and, especially, environmental — is crucially dependent on data. Ensuring that future generations are no worse off in those (interconnected) domains requires good information about the state of play now and over time, as well as of the forces and relationships that influence outcomes.

There is an old saying within policy circles that when policies are being formulated “what doesn’t get measured doesn’t count”. There is much truth in this and we have all seen examples — from the deregulation of gambling to the destruction of old growth forests. By the same token, the political backlash that can occur once poor outcomes become manifest, can sometimes lead to bad policy in the opposite direction, effectively imputing infinite values to benefits or costs, in place of the previously imputed zeroes! The common reflex to ‘ban’ things, for example, is generally based on a lack of appreciation that there are *both* costs and benefits associated with most activities that people engage in, and that their relative magnitudes will typically vary. (That is not to say that bans are *never* justified.)

Policy errors in both directions can be averted (or at least reduced) where there is scope to assess the nature and magnitude of both the costs and benefits of a policy or program based on relevant data of reasonable quality. Unfortunately, that is not

currently where we find ourselves, even on the most pressing environmental policy issues.

One example is that important resource, historically undervalued in Australia, water. The Productivity Commission has just finalised a report on market mechanisms to increase the availability of water for ‘the environment’ from the Murray-Darling Basin (covering five jurisdictions and a land mass larger than New Zealand). For many years, any such need — even when recognised — was subjugated to the prior claims of agriculture. That may have worked out satisfactorily when water was more plentiful and industry demands on it were smaller, but that is demonstrably not the situation we now face.

Billions of dollars have been ear-marked from taxpayer funds for ‘water buybacks’ for the purpose of restoring and sustaining key environmental assets. The problem we face at this stage though, is that no-one yet knows how much extra water each ‘icon site’ will need to restore it to good ‘environmental health’. Nor do scientists yet know much about how wildlife and trees will respond to different levels, frequency and duration of watering. Responses are also likely to vary across sub-catchments. All this makes it very difficult to assess whether the benefits to society of more environmental water will exceed the social costs of reduced agricultural production.

Understanding the threats to the Great Barrier Reef resulting from coastal production activity polluting the lagoon, faced similar informational lacunae, when the Commission was asked to review the situation and propose a way forward back in 2003. As a consequence of that review, there is now a well-funded program to collect data about soil erosion on pastoral leases and about chemical discharges from coastal cultivation of sugar and vegetables. An adaptive management strategy is now in place, backed up by rigorous monitoring and R&D. This, of course, was neither cheap nor easy to do.

But the standout environmental policy problem with respect to data deficiencies is ‘Greenhouse’. Putting aside the ongoing controversy about the threshold scientific question of what warming is occurring and its anthropomorphic origins, there are major data obstacles in the way of effective policy responses — both in relation to mitigation and adaptation.

The most pervasive uncertainty relates to the potential impacts of climate change and its associated economic implications. This requires not only good science and projections (with error bands more explicit than has sometimes been the case), but also valuation of both market and non-market impacts. There are also still major uncertainties about the costs of action to reduce carbon emissions. In Australia,

estimates range from close to zero (McKinsey) to as much as 10 per cent of GDP (Allen Consulting), with official estimates in between. A useful first step to better understanding an economy's mitigation potential would be to extend the input-output statistical system to include key environmental flows and to incorporate this extended accounting framework in economic modelling frameworks. As the pressure of human activity on the environment increases and as our understanding of the feedback links between the two systems evolves, we can expect increased public policy pressure to model and report on the implications of environmental changes on the economy and vice versa.

Mitigation policy also needs to consider the international context, including the potential for carbon leakage. To this end, two roles have been signalled for the Productivity Commission under draft legislation to establish the so-called 'Carbon Pollution Reduction Scheme' (based on a 'cap-and-trade' approach, as in New Zealand). One relates to assessing industry claims about the impact of the CPRS on their activities; the other is directed at estimating effective carbon prices in major economies as part of a five-year review of all assistance for emissions-intensive, trade-exposed industries. Both tasks would benefit from the improvements to input-output data just mentioned. Estimating effective carbon prices (including equivalent 'shadow' prices where non-price mechanisms are used) will be particularly difficult, as it requires consideration of international policies in circumstances where there is little internationally comparable data.

Some implications

Hopefully by now I have done enough to support my main point that good evidence based on good statistics is fundamental to good public policy; and that, notwithstanding the notable achievements of our independent statutory agencies in building a robust body of official statistics, we continue to face debilitating data gaps in priority policy areas.

At this point, you might naturally expect me to make a plea for more resourcing of statistical agencies and for data provision generally. I won't disappoint you — this, clearly, is an issue. In Australia, we have seen fairly blunt razors and annual 'efficiency' deductions being applied to budgets across the public sector over a long period of time. In practice, these have arguably cut deepest into the sector's informational and research capabilities — functions generally seen as politically more dispensable when 'push comes to shove'.

But it must also be said that good data doesn't come cheaply. The onus is on statistical agencies, and those who depend on what they do, to demonstrate the

value of their collections and the case for maintaining and extending them. Data is not of value for its own sake. Its costs need to be justified by the benefits it provides to society, relative to the benefits obtainable from alternative uses of taxpayers' money. That applies to existing collections as much as to potential new ones.

There are a number of dimensions to this. One is the importance of making existing data as accessible as possible to potential users. This has pricing and 'confidentiality' aspects. Both have been 'battlegrounds' in Australia, with the former ultimately being resolved in part through the technological development of (almost) zero marginal cost electronic delivery. The latter battle is ongoing. While some progress has been made, there would appear to be considerably more scope to allow researchers access to unit record and other data vital to many areas of public policy analysis, without official statistical agencies compromising their statutory duty to protect the privacy of individuals.

But the more important and difficult challenge is to ensure that data is not only accessible and of high quality (the latter a given, of course, for the ABS and SNZ!) but that it best meets the needs of society, and of public policy in particular. More than this, it should also be evolving such as to anticipate the needs of the future, given the leads and lags involved in its collection.

It is therefore of crucial importance for the contribution and perceived performance of official statistical agencies that they have well-developed mechanisms and forums for understanding both the current and emerging issues that call for their services. They also need to be seeking feedback on the utility of existing collections.

By the same token, statistical agencies should not be expected to go it alone in this, or be required to *divine* the demand for what they supply. What is needed to bring out the best in our official and other data systems is a policy-making environment that contains intelligent, proactive and demanding users of statistics. In other words, an environment that values evidence, and that seeks it out and actually *uses* it in addressing policy questions.

In Australia, we have seen greater recognition of the importance of data emerge in recent years as a by-product of COAG's National Reform Agenda and a shift to performance-based funding of the States and Territories by the Commonwealth. This has provided a focus for prioritising data collection, to enable assessments of whether agreed outcomes and targets are being achieved in a variety of areas of service delivery. It is also creating demands for better statistics to assess impacts across socio-economic and other population groupings, as well as by region.

My own organisation, the Productivity Commission, is closely involved in these developments. Indeed, along with its direct predecessors — the Industry Commission and IAC — it has played an instrumental role on the statistical ‘demand side’ over many years.

The Commission’s role is to provide independent advice to governments on complex or contentious policy matters, where there is much at stake for the community in ‘getting it right’. Extensive public consultation and in-depth analysis of evidence have been its hallmarks. Evidence-based advice of course depends on having access to robust data and, as noted, such data have not always been found ‘on the shelf’. The Commission has accordingly forged strong links with data providers over the years, dating back to the first push for better input-output data in the late 1960s.

The Commission’s relationship with the ABS has been of special importance. For many years, there has been an ‘outposted officer’ of the Bureau installed at the Commission itself, which has proven invaluable in helping staff access data and in facilitating liaison on more complex statistical issues as they arise. Commission research staff have also, on occasion, in effect worked as officers of the ABS, as a means of overcoming some of the confidentiality constraints referred to earlier. And the most senior people from both organisations meet periodically to discuss emerging priorities and other strategic matters.

Our experience hopefully may presage how things will evolve in New Zealand with the establishment of your own Productivity Commission. The statistics fraternity should see this as a promising development, not only for the enhanced capacity for evidence-based policy analysis and advice in New Zealand, but also for the consequently greater recognition of, and support for, the vital role that official statistics must play now and into the future.