EDUCATION AND THE ECONOMY

Address to the

Association of School Bursars and Administrators
2003 Annual Conference

Hotel Grand Chancellor

Hobart, Tasmania

15 September 2003

by

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The past decade has in most respects been a good one for the Australian economy, both by our own historical standards and by comparison with the countries against whom we are accustomed to benchmarking ourselves.

The most commonly-used summary indicator of economic performance, real gross domestic product (GDP), is not without its faults – in particular, it omits a number of activities to which a market value cannot be readily attributed (in particular, work done in homes and by volunteers); it generally fails to take account of resource depletion and other environmental consequences of economic activity; and it abstracts from issues such as the distribution of income, employment and wealth. Nevertheless, it is the only measure we have which has been produced in a consistent fashion in different countries over a long period of time. And most of the alternatives to it which have been suggested, such as the so-called 'Genuine Progress Indicator', are at least as ideologically loaded as GDP is alleged to be. So, provided we remember that GDP is not (and wasn't designed to be) a measure of welfare, it provides the best measure we have for making summary comparisons of economic performance over time and across countries.

Measured in this way, Australia's economy grew at an average annual rate of 3.8% over the decade ended 2002[1]. This represents a distinct step-up from the previous decade, during which economic growth averaged 3.3% per annum, which was in turn an improvement on the 2.9% per annum rate recorded during the ten years ended 1982. It is the best ten-year performance since the decade ended 1972, when the post-war immigration program and 'baby boom' were at their peak, and Australia's mining and energy sectors were expanding rapidly as major new discoveries were brought into production, resulting in a growth rate of 5.3% per annum.

Australia's performance over the past decade is even more impressive when proper allowance is made for the on-going slowdown in the rate of population growth. Australia's population grew at an average annual rate of just 1.1% per annum over the ten years ended 2002, half the rate of the decade ended 1972 (and the decade before that).

In per capita terms, Australia's real GDP has grown at an average annual rate of 2.6% over the past ten years. That compares with 1.9% over the ten years ended 1992, and 1.6% over the ten years ended 1982. Significantly, it is slightly better than the 2.5% per annum rate of per capita real GDP growth recorded over the two decades ended 1972 – the so-called 'Golden Era' of Australian economic growth[2].

Australia's growth performance has not only been strong by historical standards: it has also been remarkably steady by historical standards.

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[1] To facilitate international comparisons, the figures quoted in this and subsequent paragraphs are calculated from the international database published by the Groningen Growth and Development Centre at the University of Groningen in the Netherlands with support from the Conference Board (see http://www.eco.rug.nl/ggdc/index-dseries.html#top). As a result, the figures quoted may differ slightly from those calculated from data published by the Australian Bureau of Statistics and other national statistical agencies.

[2] Australian real per capita GDP growth averaged 2.0% over the ten years ended 1962, and 3.0% over the ten years ended 1972.

There have thus far been only two quarter of negative GDP growth during this period (September quarter 1993, and December 2000 in the aftermath of the introduction of the New Tax System in 2000). This is the longest period without at least two quarters of negative growth since the beginning of the quarterly GDP series in 1959: there were, for example, ten such quarters in the decade ended 1972, including three in a row in 1965-66. Indeed, based on annual data, it seems probable that the past ten years is the first decade without at least two consecutive quarters of negative growth since Federation.

More formally, the standard deviation[3] of Australia's annual per capita GDP growth rate has been only 0.9% over the past ten years, compared with between 1.7 and 2.2 % over the four preceding decades. Although it would be quite foolish to proclaim that the business cycle is dead, Australia has managed to avoid the more extreme episodes of boom and bust which punctuated the first ninety years of our existence as an independent nation.

Australia's economic performance during the past ten years has also been impressive by international standards. Only three OECD countries – Ireland, Finland and (by 0.03 of a percentage point per annum) Norway – recorded faster real per capita GDP growth than Australia over the past ten years. Australia's per capita growth rate exceeded that of the United States by more than ½ percentage point per annum.

The past decade has been the first in at least fifty years during which Australia's per capita GDP growth has exceeded that of Australia's 'peer group', the OECD. Even during the so-called 'Golden Era', Australia's per capita GDP growth rate was a full 1 percentage point below the OECD average. By contrast, over the past decade Australia's per capita growth rate has been almost a percentage point above the OECD average.

One final aspect of Australia's recent economic experience which is important to note in this context is the change in our 'terms of trade' – the ratio of the average price of our exports to the average price of our imports, or, as Reserve Bank Governor Ian Macfarlane has called it, 'the buying power of our exports'[4]. For most of the first ninety years since Federation this ratio trended down, reflecting the seemingly inexorable fact that the prices of our exports, which were mostly made up of commodities, either fell faster or rose by less than the prices of our imports, which were mostly made up of manufactured goods. In effect, this represented a long-term decline in Australians' capacity to acquire goods and services from the rest of the world: and it was one of the reasons for the long-term decline in our exchange rate (another, particularly from the early 1970s until the early 1990s, was our tendency to have higher inflation than most other Western economies).

Over the past fifteen years, however, this trend seems to have been broken: the prices of exports have, in foreign currency terms, continued to fall: but the prices of the things which we import have fallen even faster, so our 'terms of trade' have actually trended upwards.

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[3] A formal statistical measure of volatility.

[4] Ian Macfarlane, 'Notes for a Talk to Business Council of Australia Annual Dinner', 8 July 2003, p. 4; available at www.rba.gov.au/Speeches/sp_gov_080703.pdf. The Federal Treasury also analysed this issue in some detail in 2002-03 Budget Paper No. 1, Statement No. 4.

In effect, manufactured goods – including high-technology products (for which Australia is almost wholly reliant on imports) and motor vehicles – have taken on many of the characteristics of commodities. That is, their production is regarded as 'strategic' by governments and hence often exempted from market discipline; they are as a result typically in over-supply; and so their prices tended to fluctuate cyclically around a declining trend. Partly through good luck, but partly as a result of having (for the most part) resisted the temptation to 'pick winners' as an economic development strategy, this trend has worked to Australia's advantage.

This combination of faster per capita growth than most of our peer group combined with the reversal in the long-term downtrend in the relative value of the products we exchange with the rest of the world has had a striking consequence. Australia's seemingly inexorable slide down the international ladder of Western (and more recently other) countries ranked by per capita GDP – widely used as a very crude proxy for living standards – has been arrested and reversed. Between 1950 and 1990, Australia's 'ranking' slipped from 5th to 15th. More than half of this decline, incidentally, occurred during the so-called 'Golden Era' from the 1950s through the early 1970s when Australians thought they were doing well but the rest of the OECD was actually growing one-third faster, on average, than we were in real per capita terms. Since 1990, however, Australia has improved its position to 8th among OECD countries.

According to the OECD's most recent survey of the Australian economy, Australia's economic performance 'owes much to a good combination of prudent, medium-term oriented fiscal and monetary policies, and far-reaching reforms to labour, product and financial markets in the past two decades'[5].

In a talk to the Business Council's Annual Dinner in July this year, the Governor of the Reserve Bank[6] identified seven major reforms over the past twenty years as having been crucial to improving Australia's economic performance:

- the floating of the exchange rate;
- the non-inflationary financing of budget deficits through the auctioning of government debt (ie, rather than 'printing money');
- the evolution of a monetary policy framework based on an independent central bank (ie, one free of political intervention in the setting of interest rates) operating an inflation-targeting regime;
- the move toward a more disciplined fiscal policy;
- labour market deregulation;
- the opening up of the economy to international influences, through the reduction of tariffs and the abolition of controls on (international) capital movements; and
- competition policy applied to the private and government sector, and significant privatization of the latter.

[5] OECD, *Economic Surveys: Australia*, Paris, 2003, p. 22.
[6] Ian Macfarlane, *op. cit.*, p. 3.

Reforms such as these have contributed in at least three ways to enhancing Australia's economic performance.

First, the combination of lower inflation, greater exposure to domestic and foreign competition, and de-regulation have both spurred and allowed firms to achieve higher rates of productivity growth through various forms of innovation and re-organization. Australia's productivity performance, however defined, has improved significantly over the past decade. Indeed a study by two economists at the US Federal Reserve identified Australia as one of only six out of 17 OECD countries in which productivity growth had accelerated in the 1990s compared with the 1980s; and of these, only Ireland and the Nordic countries achieved faster productivity growth in the 1990s than Australia[7]. The consensus emerging from numerous studies of the improvement in Australia's productivity performance attributes it largely to economic reforms[8].

Second, the enhanced credibility of Australia's monetary and fiscal policy-making institutions has given Australia more scope to absorb shocks such as the Asian crisis or the more recent slow-down in the global economy – for example, by allowing the exchange rate to depreciate to an extent that would not have been feasible in earlier times for fear of its inflationary consequences.

Third, the significant decline in interest rates which has accompanied the decline in inflation, the improvement in Australia's public finances and the enhanced credibility of the Reserve Bank has, together with the faster real rate of growth in wage and salary incomes which has been made possible by faster productivity growth, substantially enlarged the borrowing capacity of Australian households.

That has been largely responsible for the rapid increase in residential property prices over the past five years that has, in turn, helped to sustain the strong growth in household spending which has been a key point of difference between Australia's economic experience and that of many other countries since the collapse of the late 1990s sharemarket boom.

You will surely have noticed that the 'conventional wisdom' regarding the reasons for Australia's good economic performance over the past decade ascribes no role to education.

In a narrow statistical sense this is almost certainly correct. Over the ten years to 2002, the 'gross product' of the education sector grew at an average annual rate of only 2.0% per annum, a slower pace than for any other sector of the Australian economy except electricity, gas and water. Education's share of overall GDP shrank by nearly a full percentage point, from 5.2% to 4.3%, during this period.

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[7] Christopher Gust and Jaime Marquez, 'Productivity Developments Abroad', *Federal Reserve Bulletin* Vol. 86, No. 10, 2000, pp. 665-81.

[8] See, for example, Productivity Commission, *Microeconomic Reforms and Australian Productivity: Exploring the Links*, Commission Research Paper, Ausinfo, Canberra, November 1999; David Gruen and Glenn Stevens, 'Australian Macroeconomic Performance and Policies in the 1990s', in David Gruen and Sona Shrestha (eds.), *The Australian Economy in the* 1990s, Reserve Bank of Australia, Sydney, 2000; and Dean Parham, Paul Roberts and Haishun Sun, *Information Technology and Australia's Productivity Surge*, Productivity Commission Staff Research Paper, Ausinfo, Canberra, October 2001.

This partly reflects government funding constraints. Over the ten years to the 2001-02 financial year, government spending on education[9] fell from 4.3% of GDP to 3.8%, a decline of 0.5 percentage point. Private sector spending on education rose over this period from 1.3% to 1.6% of GDP, not enough to offset the decline in government spending.

However, it may also be relevant that the education sector has been somewhat sheltered from reforms such as deregulation and competition policy which have acted as a spur to innovation and growth in other areas of the Australian economy.

In one area where the education sector has enjoyed greater discretion in 'product design, pricing and marketing', it has achieved very rapid growth. 'Exports of education-related travel services', which comprises expenditures such as tuition fees and living expenses incurred by foreign students living in Australia, have for the last three financial years exceeded $4bn per annum, a more than three-fold increase from a decade earlier. The delivery of educational services to foreign students living outside Australia, for example through distance education or overseas campuses, provides a further $200mn of export income annually. Total 'education exports' are now worth more to Australia's balance of payments than (for example) wool. In compiling the GDP statistics the non-tuition expenditures incurred by foreign students in Australia are credited to the property services, retail, and other sectors rather than to the education sector.

This is, of course, a very narrow view of the role of education. What is also striking is that the 'conventional wisdom' does not attribute any broader role to education in the improvement in Australia's economic performance over the past decade.

That would be appear to be inconsistent with the generally accepted view among economists that the accumulation of what they call 'human capital' – whether through formal education and training, on-the-job experience, or in other ways – is an important source of long-term economic growth. This idea can be traced back at least as far as Adam Smith; but it has assumed a central role in the 'new' or 'endogenous' growth models developed in the past two decades, which emphasize the creation and implementation of new ideas as a key driver of productivity growth[10].

In these models, education contributes to increased productivity and economic growth in several ways:

- by increasing the skills and abilities of individual workers;
- by raising the flexibility of workplace teams;

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[9] The measure of 'government spending on education' used here is the sum of general government final consumption and gross fixed capital expenditure on education as reported in Tables 43 and 63 of the annual national accounts (ABS 5204.0). This gives slightly higher totals than those reported in the ABS government finance publications (for example ABS 4203.0), largely because the latter includes depreciation provisions as an expense.

[10] These models owe much to the work of Paul Romer, now at the Stanford University School of Business. A non-technical summary of his ideas is at www.stanford.edu/~promer/Econgro.htm. Another good reference is Xavier Sala-i-Martin, *15 Years of New Growth Economics: What Have We Learnt*, June 2002; available at www.econ.upf.es/deehome/what/wpapers/postscripts/620.pdf.

- by allowing for more rapid utilization and transmission of new skills and production technologies; and
- by fostering the creation of knowledge, ideas and technological innovation.

A considerable amount of work has been undertaken in order to quantify the linkages between education and economic growth[11]. This has not been as easy a task as it may appear, because of the difficulties in measuring 'education', and because of the need to control for other factors which influence economic growth. Insofar as it is possible to distil a consensus from this research regarding the linkages between school education and growth, two conclusions stand out.

First, at least for OECD countries, there is a positive association between educational attainment and economic growth. Each additional year of schooling in the adult population boosts long-run economic growth by between ¼ and ¾ percentage points per annum, or by anywhere between 6 and 19% in total. The Australian National University's Professor Steve Dowrick suggests a figure of 8%[12].

Second, the *quality* of schooling is at least as important as the *quantity* (as measured by, for example, years of attainment), if not more so. There appears to be a significant positive correlation between proxies for quality such as test scores (especially for maths and science) and economic growth[13].

So why has education apparently not made any discernible contribution to the improvement in Australia's economic performance over the past decade? The answer, unfortunately, seems to be that there has not been any discernible improvement in Australia's educational outcomes – at least insofar as they impact on productivity growth – during this period.

For example, the Chairman of the Productivity Commission, Gary Banks, noted in a speech in August that 'there appears to have been no significant acceleration in workforce skills in the 1990s'[14]. The OECD, in a cross-country study of the sources of economic growth published earlier this year, concluded that 'skill upgrading has played, at best, a modest role in GDP growth per employed person' in Australia (and also in the US, Canada, the Netherlands and New Zealand'[15].

Evidence on the extent to which Australian educational outcomes have improved over the past decade is mixed.

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[11] See, for example, Robert Barro, 'Education and Economic Growth', OECD 2003, available at www.oecd.org/dataoecd/5/49/1825455.pdf; and Steve Dowrick, 'The Contribution of Innovation and Education to Economic Growth', Paper presented to the Melbourne Institute Economic and Social Outlook Conference *Towards Opportunity and Prosperity*, April 4-5 2002; available at www1.ecom.unimelb.edu.au/iaesrwww/conf/top2002/pdffiles/DowrickSteve5A.pdf

[12] Dowrick, *op. cit.*, p. 20.

[13] Barro, *op. cit.*, pp. 23-25; Eric Hanushek, *The Long Run Importance of School Quality*, Education Next, 2002; available at www.educationnext.org/200023/10.html.

[14] Gary Banks, 'Australia's Economic Miracle', address to the Forum on Post-Graduate Economics, National Institute of Economics and Business, Australian National University, Canberra, 1 August 2003; available at www.pc.gov.au/research/speeches/cs20030801/cs20030801.pdf. See also P. Barnes and S. Kennard, 'Skills and Australia's Productivity Surge', *Productivity Commission Staff Research Paper*, Ausinfo, Canberra, October 2002.

[15] OECD, *The Sources of Economic Growth*, Paris, 2003, p. 37.

The proportion of the population aged 25-64 with post-secondary qualifications rose from around 45% in the early 1990s to over 54% in 2002; the proportion with bachelor degrees or higher rose from around 11% to over 20%. This is relatively high by international standards. That said, the (thus far uncontested) assertion by former Tasmania and Melbourne University Vice-Chancellor Alan Gilbert that none of Australia's universities would now rank in the world's top 100 suggests that we cannot necessarily assume that there has been a commensurate increase in the 'quality' of the skills possessed by this cohort of the Australian workforce.

The proportion of the 15-64 year old population without at least an upper-secondary education remained little changed at around 35%; this is also fairly high by international standards. And after rising sharply during the 1980s, student retention rates to year 12 have declined for most of the past decade. On the other hand, there does seem to be some evidence that the literacy and numeracy performance of Australian secondary school students now ranks above the OECD average (though not above that of students in the more advanced Asian countries)[16].

As the OECD noted in its most recent survey of the Australian economy, there are 'typically long lags between policy action to improve the education system and economic performance'[17]; it may therefore be that improvements in educational attainment are yet to be fully reflected in workforce skills. However it is also possible that there are mis-matches between the skills imparted by educational institutions and those required in the workplace.

Whatever the explanation for the apparently minor role played by education in Australia's good economic performance over the past decade, education will almost certainly need to make a much larger contribution in coming decades if that performance is to be sustained, particularly in view of the impact that demographic change will have on the principal drivers of economic growth.

A useful framework for thinking about the impact of demographic change on economic growth has been set out by Dr Ken Henry, Secretary to the Australian Treasury, in a series of speeches over the past twelve months[18]. In this framework, GDP growth is analysed as the product of four drivers:

- population growth;
- the change in the proportion of the population which is employed, which is in turn driven by changes in the participation rate (the proportion of the population in the labour force) and the unemployment rate (the proportion of the labour force which is employed);
- changes in average hours worked; and
- changes in output per hour worked (ie, productivity).

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[16] J. Lokan, L. Greenwood and J. Cresswell, *How Literate are Australian Students?*, Australian Council for Educational Research, Melbourne, 2001.

[17] OECD, *Economic Surveys:* Australia, Paris, 2003, p. 90

[18] See, for example, Ken Henry, Address to the Melbourne Institute's 40th Anniversary Dinner, 7 February 2003, available at www.treasury.gov.au/documents/547/PDF/2003_02.pdf; or *Economic Prospects and Policy Challenges*, Address to Australian Business Economists, 20 May 2003, available at www.treasury.gov.au/documents/639/PDF/Australian%20Business%20Economists.pdf.

Under the assumptions used by the Treasury in compiling the *Inter-generational Report* produced as part of last year's Budget Papers[19], this framework shows that Australia's economic growth rate will gradually slow from the 3.6% per annum recorded during the 1990s to 3% per annum during the current decade and to less than 2% per annum during the following two decades.

This is of course partly the result of the inevitable slowdown in population growth. But per capita GDP growth will also slow, from an average of just under 2½% per annum during the 1990s to just over 1¼% per annum from 2010 onwards. This would represent the slowest rate of improvement in this measure of Australian living standards since the 1930s.

In passing, note that a higher rate of immigration than the 135,000 per annum assumed in these projections would boost population and hence GDP growth, and may well be desirable for these and other reasons: but it would have little material impact on per capita GDP growth.

The decline in projected per capita GDP growth is the result of, first, a significant turnaround in the 'employment ratio', reflecting an assumption that as an increasing proportion of the population moves into age brackets in which labour force participation is much lower, the overall labour force participation will as a result also decline; and second, the assumption that the rate of productivity growth will slip back from 2¼% per annum to 1¾% per annum.

It follows from this framework that if we want to achieve better outcomes than those implied with 1% real per capita GDP growth beyond the end of the current decade, there are (in broad terms) two feasible sets strategies for doing so:

- first, to reduce the rate at which participation in the labour force declines as the population ages; and
- second, to sustain productivity growth at a faster rate than 1¾% per annum.

For example, if we could halve the rate at which labour force participation declines whilst maintaining productivity growth at 2¼% per annum, then per capita real GDP growth could be kept at around 2% per annum in the decades beyond the current one, only slightly below the rate we attained during the 1990s. And while the difference between 1 and 2% per annum per capita GDP growth might seem small, it actually amounts to a difference of almost 24% in the *level* of per capita income by the year 2030.

Education could play an important role in achieving both strategies.

First, there is a clear association between age, educational attainment and labour force participation[20]. In particular, male workers with upper-secondary or post-secondary education are much less likely to drop out of the work force once they turn 55 than those who have failed to complete year 12.

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[19] Commonwealth Treasury, *Inter-generational Report*, 2002-03 Budget Paper No. 5, Ausinfo, Canberra, May 2002.

[20] David Headley and Steven Kennedy, 'Educational Attainment and Labour Force Participation in Australia', in Commonwealth Treasury, *Economic Roundup*, Winter 2003, Canberra.

This suggests that efforts to improve access to 'life-long learning', and to formal education at older ages, could play an important role in ameliorating the adverse economic consequences of population ageing.

Among all age groups, those who have completed schooling to year 12 have higher labour force participation rates than those who have not. Hence, a further increase in retention rates to year 12 could be expected to have a positive effect on overall labour force participation and hence on economic growth.

Second, there ought to be greater potential for education to contribute to sustaining productivity growth over the next decade and beyond than appears to have occurred over the past decade.

Certainly there is ample scope for further productivity growth: despite the acceleration in the *rate* of productivity growth over the past decade, the *level* of Australian productivity is still more than 18% below the US level (compared with 24% in 1990).

But, although, as the OECD argues, 'previous structural reforms are likely to continue bearing their fruits for some years'[21], it is likely that the biggest pay-offs from the reforms of the past two decades have already been realized. The 'economic reform agenda' still has plenty of items on it[22], but their implementation appears to face more formidable political obstacles than hitherto, and the magnitude of the potential dividends from these reforms seems less certain.

Hence it would seem almost unarguable that sustaining productivity growth at better than 2% per annum will be more dependent on improving work force skills than turned out to have been required over the past decade. That imperative will be all the greater to the extent that jobs embodying limited requirements for intellectual capital or skills are increasingly concentrated in countries with large supplies of low-cost labour.

From a different perspective, it is neither likely nor particularly desirable that household spending funded in part from gains in personal wealth associated with rising residential property prices will contribute as much to the growth rate of GDP as they have done over the past five years, now that the secular decline in interest rates associated with the fall in inflation since the early 1990s has largely been capitalized into property prices, and the household saving rate has become negative. Rather, it seems likely that sustaining strong rates of economic growth will require greater contributions from business investment and exports than have been required over the recent past. Again, the potential for education to make a significant contribution in this respect seems to be obvious.

It would be easy for me to conclude these remarks with a call for an increase in government spending on education.

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[21] OECD, *op. cit.*, p. 22.

[22] See, for example, Commonwealth Treasury, 'Statement 4: Sustaining Growth in Australia's Living Standards', 2003-04 Budget Paper No. 1, *Budget Strategy and Outlook*, Canberra, 2003, pp. 4-29 to 4-32.

Appropriately-directed increases in public spending on education almost certainly would have a positive impact on longer-term economic growth. In that context, I note that spending on education is projected to increase from 7.1% of total Commonwealth Government expenses in 2001-02 to 7.7% by 2006-07, reversing the decline which has taken place since 1996-97.

However, calls for increased government spending on education also have to recognize the reluctance of Australians to pay higher levels of taxation themselves (as distinct, perhaps, from their willingness to agree that *other* Australians should pay higher taxes).

Such calls also need to recognize that health, aged care, pensions and (regrettably) defence are likely to absorb increasing shares of government budgets. Hence, it is also important to find ways of attracting additional private sector resources into education, something which the Government's proposed tertiary education reforms, appropriately in my view, are seeking to do. It is also important to remember that there is no straight-forward correlation between quantity of inputs to education and quality of outputs.

Australia's economy has performed remarkably well both by our own historical and by international standards over the past decade, without, it would seem, any notable contribution from education. However historical and international experience strongly suggests that we would be unwise to assume that we can continue in that vein. Education will almost certainly be more important to Australia's economic performance over the next two decades than it has been over the past one.