UNIVERSITIES AUSTRALIA

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# A PRODUCTIVE COUNTRY

## The contribution of Australian universities to national productivity

September 2011

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# A PRODUCTIVE COUNTRY

*"The universities too, will need much more money and nurture if Australia is to compete with foreign rivals … If Australia is to compete in anything other than iron ore, it will need a highly educated workforce."*

*The Economist*, 28 May 2011

## Executive Summary

Australian universities are in a key position to increase Australia's long-term productivity and workforce participation. Universities contribute strongly to economic activity in the short-term, medium-term and long-term.

Workforce participation is improving, and higher education can help this further. Australia's productivity, however, is stagnant. With their focus on human capital development and knowledge creation, universities have the greatest potential in Australia to provide significant and sustained stimulus to national productivity growth.

Universities also have one of the highest multiplier impacts for new spending and have long queues of rigorously attested projects awaiting support. Their endeavours are across all states and territories, avoiding "patchwork economy" concerns.

The full and sustained implementation of the Bradley Review's vision would add some 5.6% to national productivity levels by 2040 and 6.4% to Australia's GDP. This payoff is significantly higher than other productivity enhancing initiatives, such as the 2% GDP payoff from the $36 billion National Broadband Network, and the 0.07% GDP payoff from the Henry Tax Reform proposals.

The Government's recent investments in higher education enable universities to 'tread water' but do not enable them to move forward even further. With reduced international student revenue growth and limits on fee flexibility, some negative trends will persist, including:

- restricted growth in research;
- lesser graduate attainment;
- reduced academic career incentives;
- deferral of investment in facilities; and
- decreasing student engagement.

Real productivity growth through universities can only occur by reversing these trends through additional national investment, along with continuous improvement in the way universities operate.

The efforts of universities in continuous improvement and reform have been instrumental in restraining costs now for almost two decades. The principle of reciprocal responsibility is also fully accepted for the future too, though with mutuality emphasised.

Costing analysis shows that a 33% per student funding deficiency exists for domestic undergraduate students if present standards of university performance are to be sustained. The Bradley Review recommended an immediate per student funding public increase of 10%. If this were matched by a 10% increase in the student contribution, and universities worked on improving internal productivity in key areas, then the additional funding per student needed to sustain the university contribution to productivity could be met at modest cost to the public budget.

The current Higher Education Base Funding Review could further consider what is needed in the longer-term to meet even more ambitious global performance objectives and deliver greater contributions still to national productivity growth.

Australia's goal of a world class university system requires the Government to commit this investment or more, complemented by universities' continuing commitment to on-going reform and innovation in educational activity.

Funding universities to world class levels is a realistic allocation of public budgets. It is partnered by an already substantial private contribution and repays the public investment many times over. It can generate the future revenues needed for the growing health, welfare, national security, roads and other needs of the nation.

The pay-off to the overall government budget from what universities contribute to the economy through national productivity enhancement and work participation would grow steadily after a few short years of net cost to budget reaching an annual gain of $28.6 billion in 2040.

The cumulative net benefit to the public purse from the Bradley reforms taken forward over the period 2010-2040 would be a projected $325.5 billion. This is the public funding needed for Australia's major needs of the future.

The evidence suggests that increasing the level of government investment in universities in this way would be well supported by Australians. This support is underestimated by decision-makers and commentators, because higher education continues to simply achieve without the headlines and delivers much more beyond economics.

By harnessing the full potential of our universities' contribution, Australia has the opportunity to be recognised as "the productive country" – a policy that reaps benefits now and can do even more for the generations to come.

# Productivity determines our standard of living

*"Productivity may not be everything but in the long run it is almost everything".*

Paul Krugman, Nobel Laureate[1]

Productivity and participation[2] together determine the material standard of living generated from our population. With overall high rates of participation and productivity, Australia enjoys a relatively high standard of living. This may change, and must be continually managed to be maintained and enhanced.

## Participation rates have increased, but productivity growth is falling

Australia's participation rates have been steadily increasing over recent years. Universities are a major contributor to this increase, with university educated workers – especially women[3] – having much lower unemployment rates and much higher participation rates than workers who have not been university educated.

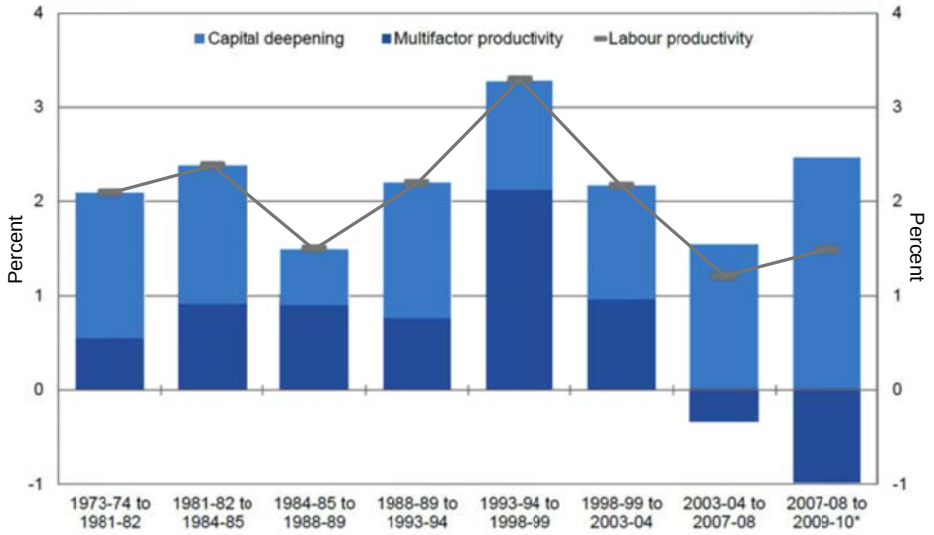
Australia's productivity, however, is not as positive, with major reductions in growth over recent years. To reverse this trend, Australia needs to make optimum use of our country's total resources and invest in long-term, high-return productivity measures.

Universities are a major source of productivity growth, and, given the right support can be a major driver of the productivity boost that Australia needs. Improving productivity depends upon how smart we are and how well we organise ourselves.

Productivity in Australia is being propped up through more physical capital investment per worker (sometimes referred to as 'capital deepening'). The percentage of capital investment has risen substantially over past levels and still remains high. However there is an offsetting visible decline in the payoff gained from better utilisation of our resources (or 'multi-factor productivity').

## We must get more from our country's resources

Treasury Secretary Dr Martin Parkinson has observed that multi-factor productivity is negative for the first time in thirty years, as shown in Chart 1. It demonstrates that since 2003, productivity gains have only been achieved through capital deepening rather than by working better (multi-factor productivity). Essentially, working smarter is the best revenge.




* Denotes incomplete cycle

**Chart 1: Australian Labour Productivity Growth and Sources[4]**

Reserve Bank Governor Glenn Stevens has echoed this observation and concern.

*"So everything comes back to productivity. It always does. It has been observed before that past periods of apparently easy affluence, conferred by favourable international conditions, probably lessened the sharpness of our focus on productivity. Conversely, the will to reform was probably most powerful when the terms of trade reached a long-term low in the mid-1980s. Those reforms ushered in a period of strong productivity growth.*

*The thing that Australia has perhaps rarely done, but that would, if we could manage it, really capitalise on or recent good fortune, would be to lift productivity performance while the terms of trade are high. The income results of that would over time, provide the most secure base for strong increases in living standards. That sort of an environment would be one in which the cautious consumer might feel inclined towards well-based optimism, and reopen the purse strings".*

Glenn Stevens, Reserve Bank Governor, July 2011[5]

The minerals export boom has allowed Australia to rely on mining revenue to boost economic measures, but in the long-term, we need to invest in other areas to ensure broad-based productivity growth.

Even the minerals boom itself needs skills. As Tom Karmel's[6] analysis of the first decade of the current mining boom has shown, the skills needed are as much or more those of university trained workers as they are technical or unskilled workers too (Chart 2). Professionals demand rose 64% versus 7% for labourers.

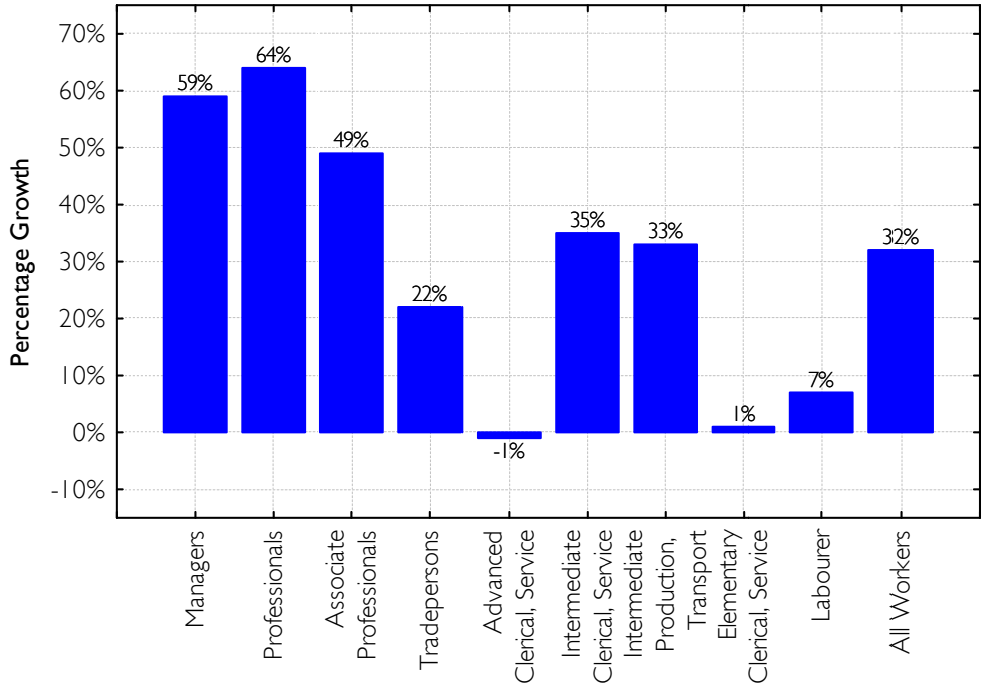



Chart 2: Employment Patterns for the WA Mining Boom 1996-2007

## Recent productivity reforms generate only modest returns

Australia has sought further reforms to generate productivity returns. Yet recent productivity-enhancing initiatives and proposals, according to standardised estimates based on publicly available evaluations, each provide modest increases in the nation's GDP (see Table 1).

| Initiative | % increase in GDP |
|---|---|
| **The Australia-Indonesia Free Trade Agreement** | 0.02% |
| **A Single National Workplace Relations System** | 0.05% |
| **The Bracks Motor Vehicle Reform Package** | 0.06% |
| **The Henry Review Taxation Package** | 0.07% |
| **Increased Super Guarantee (from 9% to12%)** | 0.33% |
| **The National Broadband Network** | 2.00% |
| **The COAG Human Capital Reform Agenda (health and schools)** | 3.00% |

Table 1: GDP Increases from Reform Initiatives[7]

These initiatives are valuable and together they do assist. But they can be supplemented by a much larger single payoff through higher education. If budgets are truly constrained then some re-prioritisation to favour high return activity would be wise in the public interest. University support would be pre-eminent by that test, since they promise over 6% GDP increase.

## Universities are the route toward productivity growth

The increases listed above are much smaller than those to be gained from the investment in universities recommended by the *Review of Australian Higher Education: Final Report* (the

Bradley Review) which have been estimated at an impressive 6.4% in real GDP[8]. The higher education payoffs are also spread uniformly across the nation, which averts the problems of a 'two-speed' or a 'patchwork' economy. No area misses out, and gains are achieved at low total cost with few dislocations.

Industry leaders are now also turning to the capacities of the Australian workforce as a critical response to this challenge.

> *"Australia is increasingly reliant on an innovative, educated and capable workforce to maintain a strong economic and global standing."*
>
> Heather Ridout, Australian Industry Group Chief Executive, June 2011[9]

The *Economist* has summarised the situation neatly in its recent survey of Australia:

> *"The universities too, will need much more money and nurture if Australia is to compete with foreign rivals… If Australia is to compete in anything other than iron ore, it will need a highly educated workforce. Linked with this is the problem of productivity. Having surged in the 1990s, multifactor productivity growth stopped around the end of the century."*
>
> The *Economist*, May 2011[10]

*The Economist* recognises Australia as a country facing strong exchange rates and an associated patchwork economy, for which expansion of higher education is a suitable and advisable response. Expansion without investment to match it, however, puts at risk the high quality of university education we enjoy at present.

## Investment in universities drives productivity

> *"If people want to talk about productivity improvement, the best thing we can do is educate our workforce"*
>
> Minister Chris Evans, 3 July 2011[11]

> *"What we need to do is to deal with the foundations of lifting productivity. And what's that all about? Well most particularly, it's about the training and the education of our workforce and our people."*
>
> Wayne Swan, Federal Treasurer, 1 June 2011[12]

One of the best ways to ensure and enhance Australia's current and long-term living standards is for the government to invest in universities. In the short-term, especially in the face of global economic uncertainty, universities can protect and stimulate the economy. In times of economic downturn, universities provide productive employment and ensure that citizens are in a better position to contribute to the economy as growth picks up.

Additionally, universities already have a robust, fully detailed and government-evaluated queue of infrastructure and research projects. If these as yet unfunded projects were

implemented, they could, in simple terms, be seen as 'shovel-ready' options for increased economic activity almost immediately should it be required.

Two such queues of fully-defined and rigorously tested projects are to be found as follows:

- the National Health and Medical Research Council (NHMRC) and the Australian Research Council (ARC) have research projects that they have extensively evaluated through peer review and which have been deemed worthy of funding, but present funds cannot accommodate. In expressing concern over possible cuts to the NHMRC in early 2011, the public showed the value it places upon such research. The current ARC funding rate is down to 26% of applications and many more with good ideas and credentials are nevertheless simply discouraged from even applying, especially young budding scholars; and
- the Education Investment Fund (EIF) established by the government has likewise evaluated a wide array of fully documented university infrastructure projects for research and teaching facilities and ranked them for government consideration. The available budget falls well short of the many projects deemed worthy by the EIF evaluation process. The current EIF funding rate is down to 19% of applications and like activities such as Co-operative Research Centres are even lower.

Former Opposition Leader Malcolm Turnbull has emphasised the importance of such investment:

> *"The medical research sector employs about 35,000 Australians. An estimated 15,000 researchers in this field have earned PhDs, an indication of the level of investment already made by previous Governments in this field… Their work not only brings material benefits to the quality of life of all Australians, but delivers significantly to our national economy.*
>
> *The Garvan Institute's chairman, Mr Bill Ferris AC, recently said that researchers estimate that the direct costs from obesity to diabetes and cardiovascular related illnesses to the health care system alone is around $10 billion a year.*
>
> *So cutting money out of medical research will only cost future Governments much more down the road as they face increased health care costs."*
>
> Malcolm Turnbull, Former Opposition Leader, 2011[13]

Similarly, according to Prime Minister Julia Gillard these investments are crucially important:

> *"This major investment will also stimulate economic activity in the short term, while expanding productivity in the medium to long term."*
>
> Julia Gillard, Minister for Education, 12 May 2009[14]

As Access Economics has pointed out, this type of spending on education has the highest value-added" benefit of any industry sector (0.94). This means that a dollar of spending has a 94% Australian impact without leakage. The impact is also principally concentrated upon employment, representing one of the strongest stimulus spending options per public dollar, as shown in Table 2.

| Sector | Multiplier |
|---|---|
| **Education** | **0.94** |
| Retail trade | 0.90 |
| Accommodation, cafes and restaurants | 0.85 |
| Dairy cattle | 0.84 |
| Iron and steel | 0.82 |
| Textile products | 0.73 |
| Electronic equipment | 0.72 |
| Air and space transport | 0.67 |
| Petroleum and coal products | 0.47 |

**Table 2: Value-Added Impact for Spending 2009**[15]

To generate a budget return to surplus in the medium-term, investment in universities is equally critical. Modelling studies have shown that investment in our universities right now, in line with the Bradley review recommendations, will rise to return an estimated $28.6 billion annual net revenue gain for the public purse by 2040. This is a major contribution to Australian fiscal sustainability. It is the best source of reliable revenue with which to provide for growth in health, welfare and defence requirements into Australia's future[16].

Australia has recently shown valuable bi-partisanship in the early reception given to new social policy reform possibilities, especially disability support and aged care. For such schemes to be delivered, the public revenues that a more educated population can generate are essential.

Over the period 2010 to 2040, we can estimate using standard economic modelling of the kind deployed by Treasury and the Productivity Commission that the Bradley reforms and their extension to matching average OECD support standards for higher education can generate for Australia a total cumulative increase in public revenues over costs to the public purse of $325.5 billion dollars[17].

In the long-term, investment in universities can substantially underpin sustained fiscal and productivity recovery for Australia, though compromising quality could jeopardise this recovery. Funding universities does not simply represent payments to please interest groups. It benefits all Australians. If it can be leveraged further by reforms to enhance the payoff, then the benefits are even greater.

There are a number of ways to document this prospect. In each case, the evidence makes the point clear - investment in universities is almost the optimal means whereby Australia's long term productivity may be improved.

Most simply, an enormous government investment return is projected from the Bradley reforms, as previously stated and illustrated further in Chart 3. Higher education is clearly an investment, it is not pure consumption[18].

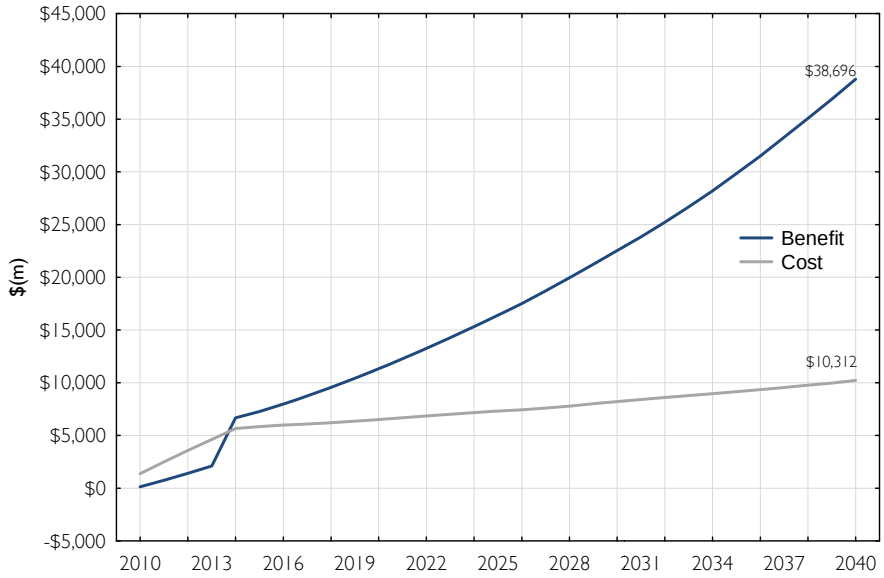



**Chart 3: Bradley reform fiscal cost versus fiscal benefit**[19]

The rates of return on investment in higher education are an overall average of 15% for education, and 25% for research. These estimates of rates of return come from a 'meta-analysis' of the literature across many studies, and are summarised in KPMG Econtech's report for Universities Australia[20]. They do not rely upon the assumptions and methods of any single study or analysis, but instead represent a wider "consensus" of results.

Compare this to the rates of return from the North West Shelf resources project (Australia's biggest operating resources investment to date) which are estimated at 10% (for the domestic gas supply component) and 20% (for the international LNG supply component)[21]. For Australian business investment generally, the average internal rate of return is 10%[22].

It is clear that higher education ranks very well financially, and also has benefits well beyond the economic, extending substantially into social progress, culture and environmental sustainability.

Further, the potential impact of funding the Bradley reforms, including the base funding improvements recommended, shows the increasing benefit over time in labour productivity changes. Chart 4 shows the labour productivity contribution of teaching and of research, and if further added together show a total contribution.

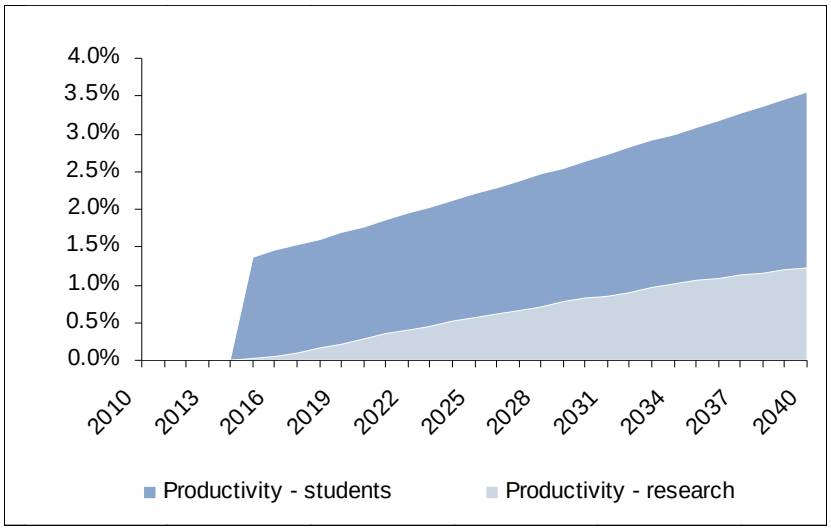



**Chart 4: Productivity change for students and research for the Reform scenario (% deviations from baseline)** [23]

University employees contribute strongly to Australia's national economy and living standards. The skills of the one million students that are educated annually, and the research and innovation that is an everyday part of the work of a university exert a major influence on outcomes, as demonstrated in Chart 5.

Universities Australia (through KPMG Econtech) found that the payoff is impressive for the modest spending increments envisaged by Bradley. Chart 5 shows that there is a large productivity gain, which raises living standards by a conservatively estimated 5.8% in 2040, including via a productivity enhancement of 5.6%.

The productivity gains come from people who undertake higher education becoming more proficient in professional skills acquired e.g. surgeons or researchers or engineers, but also in possessing enhanced individual intellectual skills in using logic and evidence e.g. public servants, as well as enhanced generic skills such as communication, teamwork, problem solving, planning, creativity and managing change so important in administration and management.

Students themselves overwhelmingly acknowledge these gains in employability skills in their evaluations of their preparation[24] even though some employers seek further improvements. A combination of better resourcing and further improvement in education methods can deliver even more in this direction.

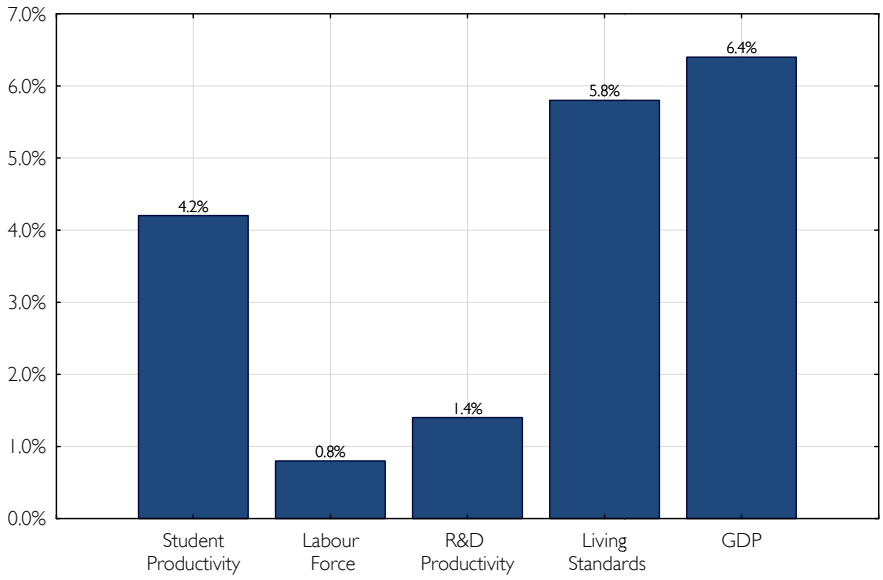



**Chart 5: Higher Education Reform Impact on Living Standards in 2040 (deviation from baseline)**[25]

The payoff on the qualifications side is the most direct and easy to recognise, as is seen further in Chart 6, which shows both the participation benefit and the productivity benefit of further education qualifications. All tertiary qualifications pay off on average with enhanced workforce participation, but higher qualifications carry an additional major productivity premium.

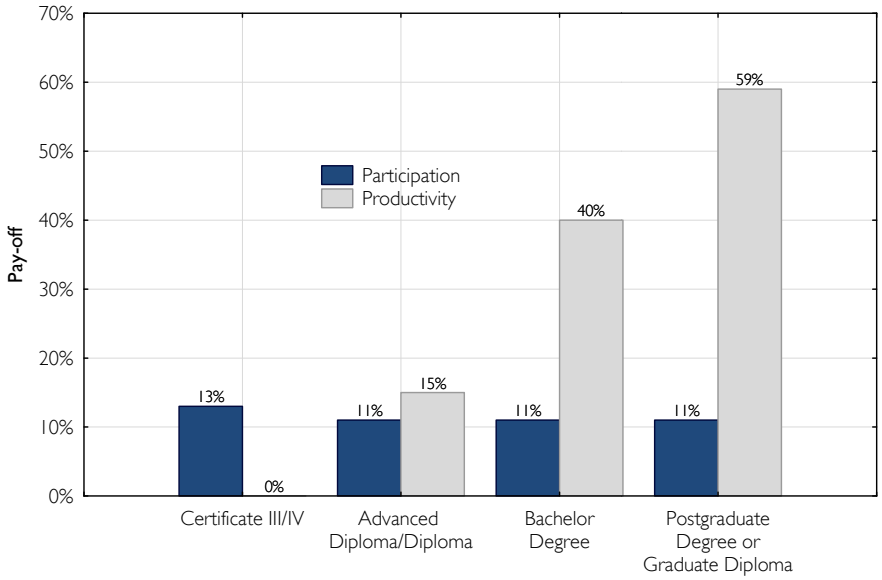



**Chart 6: Pay-offs from tertiary qualifications compared to a Year 12 qualified male**[26]

Further, there is payoff from the research conducted by university staff. This often takes the form of the benefit of a general increase in knowledge available to the community, as well as leading directly to commercialised applications. The link is strong and well attested[27].

This is also a link that was well-recognised by Leader of the Opposition Tony Abbott in his first speech to the Australian Parliament:

> *"For the first 180 years or so of our national life, Australian government was an exercise in nation building…. In more modern times, government has launched the immigration program, which has helped to make our society so diverse and exciting; it has established the Snowy Mountains Scheme, which powers our cities and waters our farms; it has funded the universities, which are the basis of our technological edge; and it has sponsored much of the national development, which is the foundation of our prosperity."*
>
> Tony Abbott, Leader of the Opposition, 1994[28]

Today the pay-offs from universities are as strong or stronger, as is attested in the findings of a very wide range of studies[29].

Moreover, as Chart 7 shows, this payoff is consistent across all States and Territories and avoids the two-speed economy problem associated with returns from the resources sector.

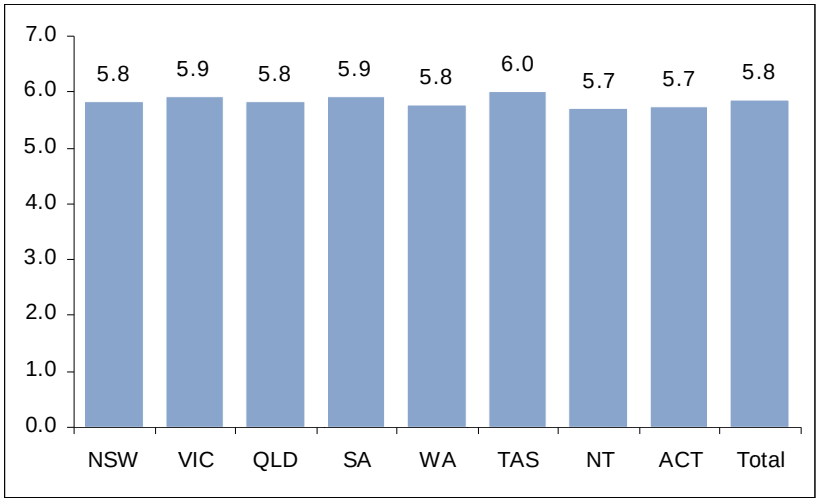



**Chart 7: State and Territory Living Standard Improvements: Bradley Reforms, 2040 (percentage deviation from baseline i.e. without reform)** [30]

## The contribution is derived from graduates and research

Universities' contribution to national productivity then comes from two sources:

- the skilled graduates of universities, who through their learning embody advanced existing knowledge; and
- the research contributions of universities, which represent the creation of new knowledge and knowledge transfer.

Some of this benefit is to the individual and the institution, and this is reflected in the salary and employment outcomes for graduates, and in commercialisation of university research.

The salary and employment benefits for individuals are striking, as Chart 8 shows. For each point in the life cycle, there are significant gains for university graduates after 30 years of

age. Further, the average graduate earns a cumulative $1.5 million more over their lifetime than a school-leaver with no further qualifications.

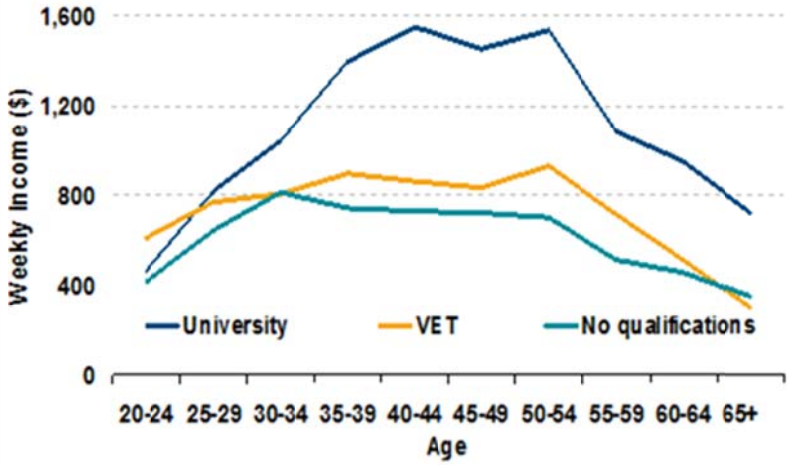



Chart 8: Income by Age and Level of Qualification [31]

We can also indirectly measure the contribution graduates make to productivity through spill-over effects. One such spill-over is the result of educated workers interacting with other workers, including in teams. Such benefit is measurably reflected in the overall relation between education and economic growth as well as in less directly measurable ways.

Well trained but adaptable and inquiring and creative workers are the essence of productivity gains. The causal relation between knowledge-intensive precincts or regions and their dynamism and resultant employment and earnings advantages is demonstrated, including in Australia[32]. For example, there is strong evidence of a causal relationship between knowledge-intensive precincts and regions, and increased employment and earnings in those areas over time. In the United States the work of Richard Florida[33] drew attention to this issue.

There are also spillover benefits from the knowledge generated when research is freely available to all who are interested in learning from it. Commercialised research can be funded by the market, but public good spillover benefits cannot. The generation and diffusion of publicly available research knowledge is part of university teaching, and of research student training as well as direct production of research. The important 'teaching-research nexus' here is a synergy which is unique to the university mission and not found in other tertiary teaching.

Barratt and Milbourne document this close linkage for Australia. Using the Excellence in Research in Australia (ERA) scores which measure research performance, they find that an increase in average ERA scores for the various disciplinary groups for a university translates into statistically reliable increases in student progress, completion rates and full-time employment outcomes. An increase in one point in ERA score gives significant percentage increases in average student outcome for each of full time employment, student progress and student retention[34].

The productivity payoff also comes with an employment participation benefit. The National Centre for Vocational Education Research[35] has shown that a person with a degree will be employed almost seven times faster, and a woman with a degree will be employed eight

times faster, than one who did not complete year twelve. Women who leave school before completing Year 12 are likely to face more than 19 months of unemployment before obtaining regular employment.

This productivity gain is derived from both the graduate contribution to productivity and the research contribution. Significantly, research has a demonstrable average rate of return of 25% (based on a meta survey of analysis)[36] and its enhancement would also help consolidate Australia's reputation as having world standard universities.

## University productivity is measurable, but complex

Currently in national accounts, education services productivity is measured purely as reflecting changes in the volume of hours worked in the sector. University productivity is much more complex than this measurement can reflect.

The measurement convention is derived from the manufacturing and agricultural paradigms of production, and is widely recognised as an inadequate measure for productivity in higher education. In the absence of a more sophisticated measure[37] proxy indicators are in use. Student-staff ratios are one such measure.

### Student-Staff Ratios

While the ratio of student numbers to university staff can be a helpful measure for commencing inquiry, they ignore financial costs, assessment workload for continuous assessment, quality of student experience and sustainability of staff effort. As a result, while some analysts see rising student-staff ratios as a productivity gain, this is because such a judgement considers labour input reductions only in direct teaching. Outcomes are ignored, particularly the following:

- individual attention to students reduces and this is detrimental to those students who are less well prepared for university and also costly to the very best students' learning; and
- staff time in other activities such as scholarship (including class preparation) and engagement is crowded out by extra grading, mentoring and communication responsibilities that occur out of class.

While some studies tell us that across a wide range of student-staff ratios performance does not diminish, the higher and lower ratios do have a significant impact. Specifically, high student-staff ratios do have an adverse effect on staff and student outcomes from retention through to results[38]. The student-staff ratios within Australia's universities have increased since 1990 and are now at the higher end of the spectrum of experience in Australia at 21.6, as shown in Chart 9. This represents an increase of 66% in class load across a little under a twenty year period.

The OECD reports that the student-staff ratio (across all tertiary education) is 16.9 in the United Kingdom, 15.0 in the United States and 17.8 in New Zealand. The OECD average is 16.2[39]. The Australian student-staff ratio score of 21.6 is therefore extreme. In the well performing Nordic economies the contrast is especially marked, with Denmark's ratio being 7.5, Finland 8.4, and Norway 7.6[40]. In the top British universities such as Oxford and Cambridge the ratio is 10.8 and 11.7 respectively, and in private not-for-profit universities in

Britain and Australia such as Buckingham and Bond, those universities have chosen to position themselves with ratios of 8.9 and 10.6 respectively.

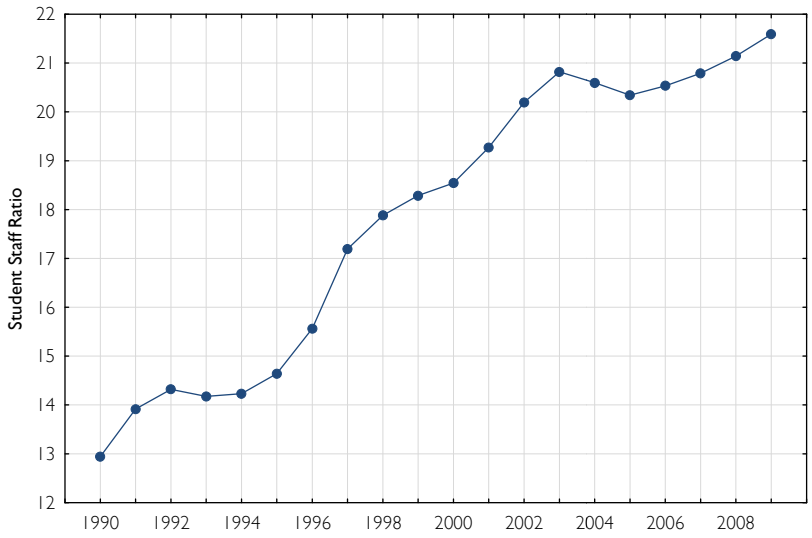



**Chart 9: Australian University Student-Staff Ratios**[41]

The fallacy in the argument that student-staff ratio increases of the magnitude (and extremity) shown in Chart 9 are a productivity gain also ignores the fact that international students especially can vote with their feet. These students can choose between crowded classrooms in Australia and more individual attention elsewhere – and Australia is now no longer competitive with major OECD alternatives. Certainly agent reports indicate that many potential international students are increasingly taking this cost into account in their locational choices.

Student-staff ratios can be lowered through increased funding. The payoffs include closer individual attention to students, as stated. But lower student-staff ratios also demonstrably raise research scores, with the attendant pay-off from to the economy from higher quality research performance. The relationship between teaching load and research performance is strong and clear as seen in Chart 10 which describes how ERA scores diminish for disciplines with high student-staff ratios.

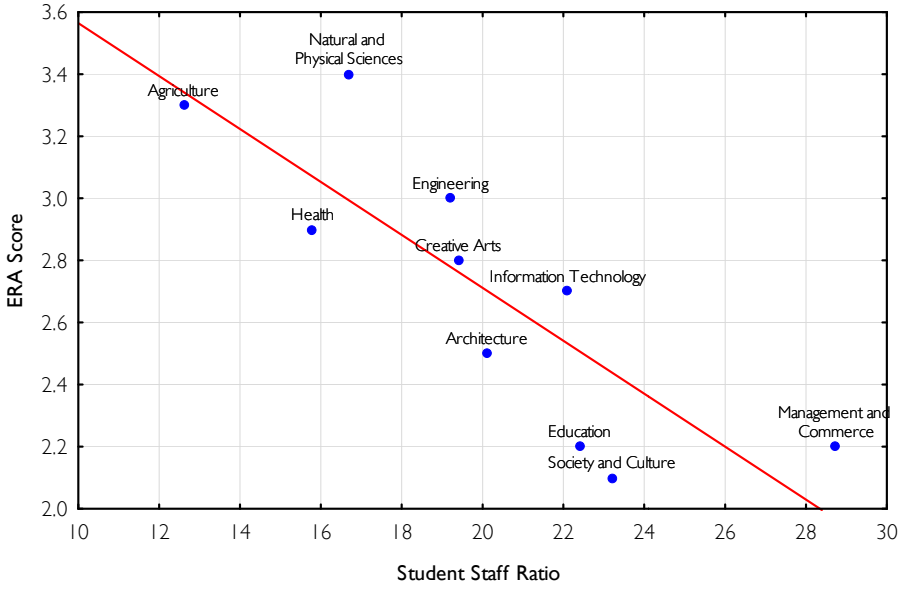


Chart 10: Relationship between Student Staff Ratio and ERA scores[42]

It follows that improved per student funding stands to have multiplied effects on productivity by ensuring lower student-staff ratios. The benefits accrue not just directly to students and staff, but to the nation through increased research performance.

The relatively low research metric performance in some humanities and social sciences was a feature of the government's recent ERA exercise. This outcome could well be addressed in part through better public funding, and a likely climb in international rankings for Australian universities would follow. Indeed in the QS rankings it is Australia's student-staff ratios that are directly responsible for slippage in position in those rankings.

## Cost per Student

Another proxy measure of productivity gain sometimes used is cost per enrolment or cost per graduate. The Universities Australia submission to the Higher Education Base Funding Review shows that the public funding of cost per student is dramatically below the 1995 peak and has been at a value of 90% or less of that peak, as reflected in Chart 11.

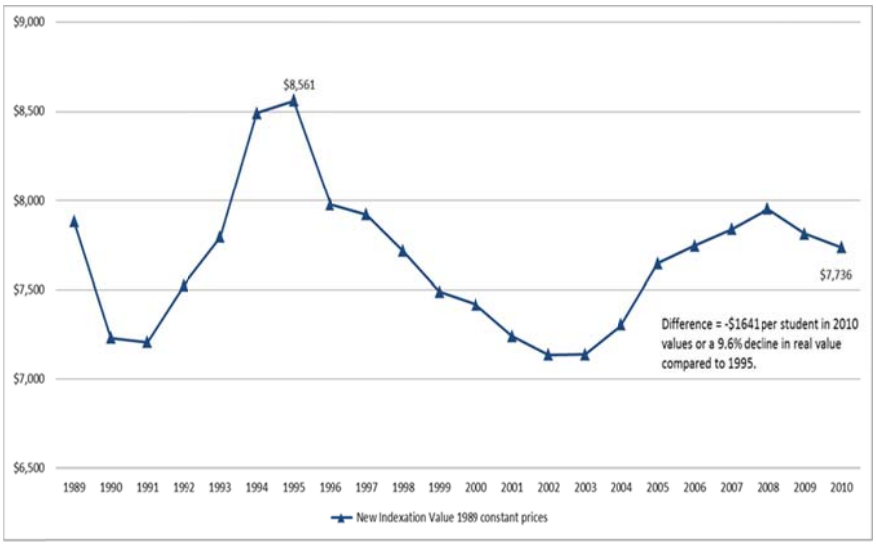



Chart 11. Public Base Funding - dollars per student at 1989 constant prices [43]

In Australia the university response to this pattern of declining real public funding per student has been to enhance fee and other commercial revenues. Consequently, Australian public universities now have one of the highest private payment shares in the world and most highly diversified revenue bases. In this way Australian universities have been enhancing management capabilities and responding to government imperatives in a highly effective and flexible manner.

There is evident cost to the increase in private funding alongside the longer-term decline of public funding per student below the earlier peak levels. As shown in Chart 12, the position of Australian student experience performance indicators has now fallen short of major competitors. The current levels of private and public contribution are not sustaining performance as seen across a range of student experience indicators, and as seen too in relative research performance in the high student-staff ratio areas.

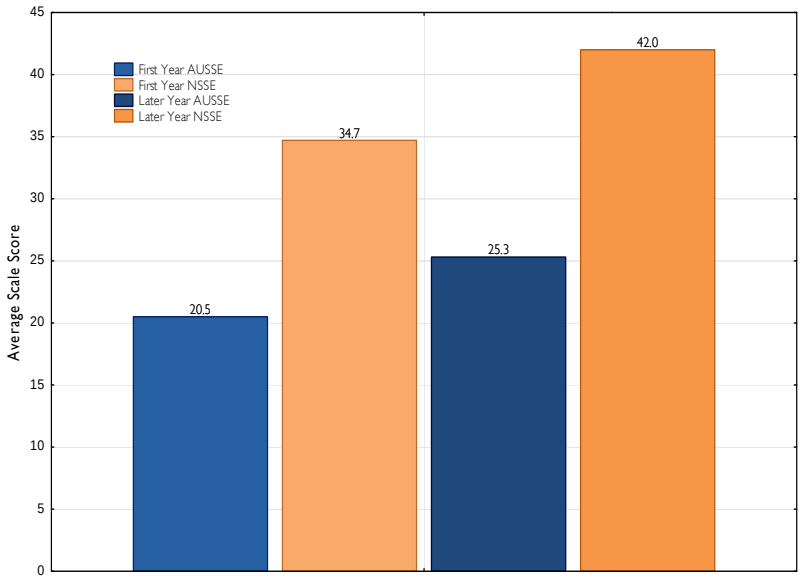



Chart 12. Average student and staff interaction scores for Australasian (AUSSE) and USA (NSSE) students 2009 [44]

## Universities have a history of being adaptable

Historically, Australian universities, more than those in any comparable country, have been flexible and entrepreneurial in the face of decades of change and reform. For example:

- in a little over a decade education has become the third largest Australian export industry;
- universities have achieved distinctive revenue diversification compared to overseas universities;
- Australian universities continue to have higher shares of their number in the top groupings in global rankings (top 100-500) than almost all other nations; and
- universities have developed excellent sector-wide services in broadband, insurance, service procurement, superannuation, leadership management training, and more.

Australia has developed world-leading capacity in areas such as English testing (IELTS), foundation studies (Navitas, Study Group), student recruitment and marketing (IDP), student housing (Campus Living Villages), distance education (Open Universities Australia), work-integrated learning (National WIL Portal), quality assurance and qualifications framework development (AUQA, AQFC).

Procurement activity through sector bodies such as Higher Education Services (HES) and training activities through sector entities such as the Australian Tertiary Education and Management Association (ATEM) and the L. H. Martin Institute and good practice in human resources through the Australia Higher Education Industrial Association and other avenues do help ensure proficient management capabilities[45].

Sector institutions exist to further this such as the role of national groupings such as Universities Australia with best practice guidelines,[46] and international bodies ranging from

university groups such as Universitas 21 to official bodies such as the OECD's Institute for Management in Higher Education. University senior staff meet for peer discussion regularly through representative member organisations such as Universities Australia and others, and numerous specialised peer groups share practice knowledge, including with overseas counterparts e.g. Council of Australian University Librarians, Council of Australian University Directors of IT, Councils of Deans etc.

In addition, excellent innovative research ranging from the Gardisil vaccine, finding the real cause of stomach ulcers, and smallpox control (to name but a few) are all contributions to the public good in science from the core activities of universities, with further notable contributions in social sciences and humanities ranging from the development of income contingent loan schemes, through immigration points arrangements to medical and health funding and the philosophy of animal and gay rights and nuclear disarmament. This list could clearly go much further but the point is made and the Learned Academies are a repository of what has been achieved, as are the honours lists and the memberships of academic societies around the globe, where an Australian presence is as common as Australian sporting achievement.

Box 1: Universities and micro-economic reform

Universities have therefore taken their mutual responsibility as institutions seriously, undertaking substantial reform and responding to external forces, even while funding has declined:

- In the 1990s the Dawkins reforms saw massive amalgamations and restructuring commensurate with the same restructurings in public enterprise under micro-reform.
- In the 2000s the private training provider market was opened to registered training providers, who have grown from a handful to many thousands, many working in partnership with universities. This too had its parallel in the privatisation and deregulation elsewhere in the economy.
- Also in the 2000s university governance and industrial arrangements were fundamentally changed under the Howard Government's National Governance Protocols and Higher Education Workplace Relations Requirements legislation that transformed university councils and moved the sector to enterprise bargaining. The universities underwent industrial and corporate transformation akin to that in the wider economy.
- In the next decade universities are to be subject to a new national regulator (TEQSA) that is to sweep away disparate state and territory jurisdictions for higher education providers, teaching, research, information and qualification standards. This is quite analogous, and further advanced, than much in the COAG reform process and productivity agenda.

## This adaptability has come at a cost

This higher education revolution has been a quiet one, accomplished without the self-conscious conflict and attention (and massive compensation claims) that have characterised reforms elsewhere. This largely co-operative and non-antagonistic process has not attracted

major media attention. Industries that have lost much less export or other revenue than universities due to government policy, have been very vocal in seeking compensation. As a result the degree of change and reform may be widely under-estimated.

But there has been a cost[47]:

- student-staff ratios have increased 66% in two decades with disadvantageous effects;
- increased casualisation of the academic workforce has seen sessional staff double in two decades at the expense of full-time employees;
- areas with limited competitive grant funding accessible, have fallen in research achievement: only 18% of humanities and social sciences disciplines are ranked at world standard or better, as opposed to 71% for sciences and technology;
- the deferral of facilities investment (both maintenance of existing resources and building new ones) is estimated at a deficiency of $1 billion per year; and
- Australian higher education student engagement scores are now 5-15% less than comparable performance measures for universities in the USA.

These matters speak to the long-term sustainability and adequacy of the outcomes for national benefit if their redress is not part of the higher education policy agenda, despite the major reform changes already made and still in train.

## Current funding provision doesn't cover core responsibilities

For the present level and form of university education, the extent of underfunding of the base can be calibrated from current cost accounting data for the universities. This provides a snapshot of the present cost of delivering university activities.

A selected and representative sample of six universities has been assisting the Higher Education Base Funding Review and their cost data is available to the Review and to Universities Australia. These data are the de-identified pooled data of the six universities who also provided their data to DEEWR, though the results reported here are the responsibility of Universities Australia. The universities range from small to large across multiple states, and include metropolitan and regional. Overall they enrol 23% of Australian students.

What these data show is that the current average cost per undergraduate student as of 2010 for base teaching and learning, scholarship and research is $21,363.

The problem is that funding direct to universities to subsidise students through the Commonwealth Grants Scheme (CGS) plus regulated payments by students under the Higher Education Contribution Scheme (HECS) in fact are on average only $16,068 per place. The gap is $5,295 per Equivalent Full Time Student Load (EFTSL) or 33%.

We can therefore estimate the extent of underfunding for each university student for this sample of universities for domestic undergraduate places. In dollars it is in fact $5,292 per student place. Put simply, the average cost of providing core university education services is

33% higher than the base funding currently provided for these representative Australian universities. The present standard and form of Australian university services to the economy and society are therefore arguably underfunded by one-third[48].

This gap in funding, if allocated across teaching, learning, scholarship and research, can be reduced into an indicative teaching and learning and scholarship gap for undergraduate places of $2,493 per EFTSL and an indicative base research gap of $2,802 per EFTSL, as shown in Chart 13.

This calculation simply assumes that all HECS loan payments on behalf of students is allocated to teaching and 75% of Commonwealth Grant Scheme subsidy funds are also allocated to this, with the remainder for base research. Legislation does make clear that funding is for both teaching and research and that universities have responsibilities for each, but the precise shares are not mandated, so these results are indicative only.

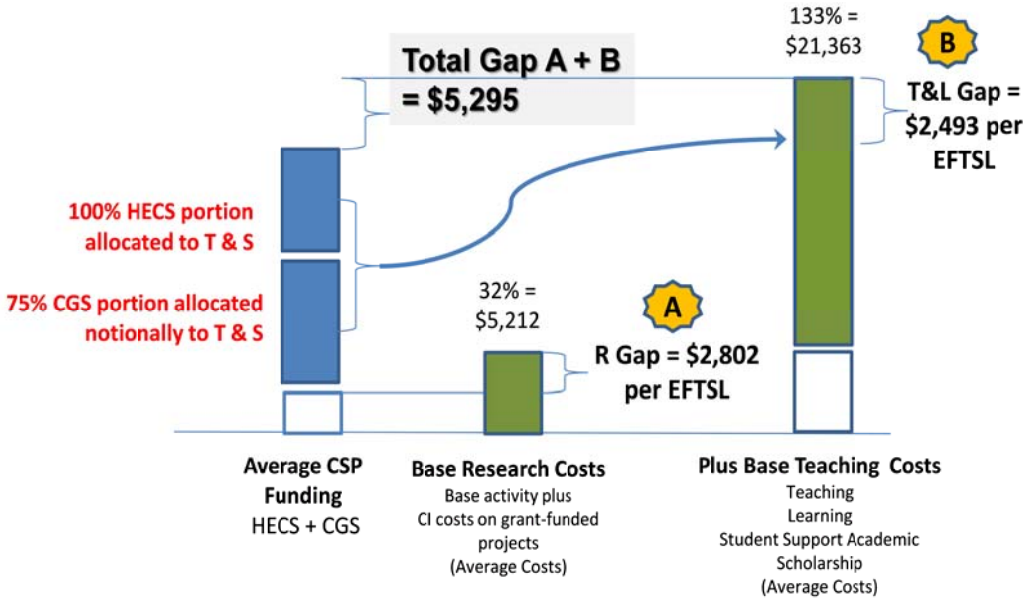



Chart 13: Funding Gaps with Apportionment of Current Base Funding 2010[49]

The magnitude of the underfunding gap in turn does vary substantially for each field of education ("cluster"), as shown in Chart 14 below. But the problem of underfunding as such actually exists across all fields. Only the degree of underfunding varies.

How universities then continue to operate responsibly and cover their base costs is the further part of the picture. They do not receive sufficient funding for domestic undergraduate students from government subsidy (CGS) and the permitted student payments (HECS) and they are not permitted under regulation to increase the domestic student contribution set by government.

The answer quite clearly is that revenues from sources beyond the government and beyond undergraduate domestic students are used to fund the shortfall. In particular international students are paying not only for their own costs of education but are also assisting with the cost per place for domestic students to the extent of $1,200 per domestic student[50]. Similarly postgraduate coursework students in a wide range of courses

which receive no student subsidy and where fees are not capped, also contribute substantially to domestic undergraduate education, along with university-owned registered training organisation revenues, non-award executive programs and commercial and philanthropic sources of revenue ranging from parking fees to alumni giving..

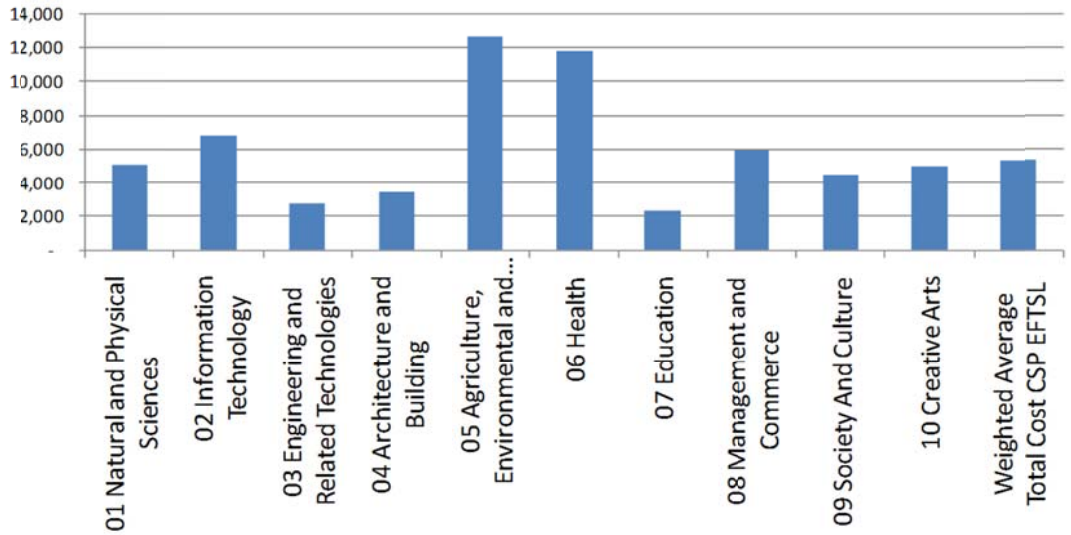



Chart 14. Funding Gap per Equivalent Full-Time Student Load[51]

It must be reiterated that these costing data are an average of current patterns for a sample of universities. Two fundamental problems result. The first is that this disguises differences between quite divergent missions of individual universities. Research intensive universities will differ from industry-linked specialists which will differ from institutions with multiple campuses etc. The figures cover undergraduates only, and they may not be fully representative.

The second is that such averages do not include costs that would be on the ledger were improved quality of education sought, such as through reducing class sizes or reducing the facilities backlog or underpinning the infrastructure required for increased participation and access. They are therefore current costs of delivery and not only do not indicate costs of improved performance e.g. higher enrolments of lower socio-economic group students or improved student experience, but they may or may not represent a sustainable delivery of existing performance e.g. where maintenance is deferred to keep student outcomes currently high.

The response to public underfunding has been for Australian universities to develop incredible talent ahead of many other countries' higher education systems in acquiring private revenue sources as shown in Chart 14. Nevertheless the net effect despite these huge efforts and accomplishments has been overall funding of higher education that is below world standard.

As another example, if similar American and Australian universities are compared, we find that Australian domestic students have been substantially underfunded compared not only to very top global best practice universities such as Harvard and Stanford but to other Australian equivalent institutions in the US and Canada as per Chart 15.

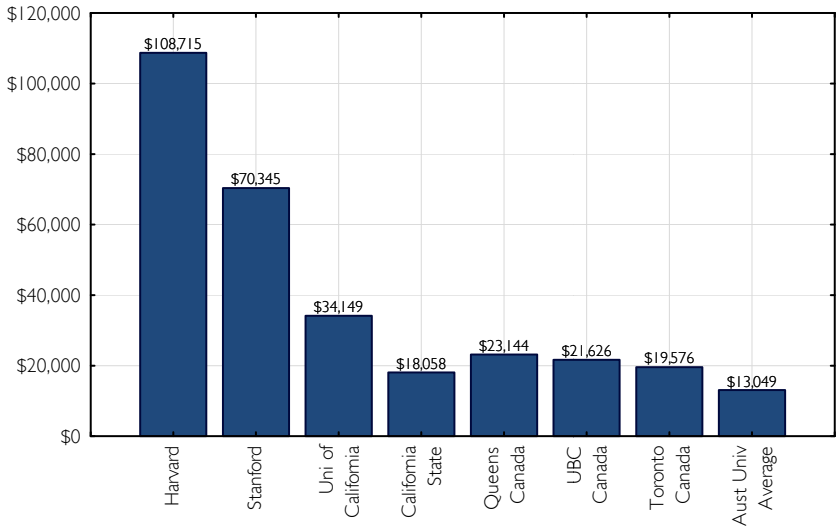



Chart 15. Domestic per student funding 2006[52]

## World class performance requires world class investment

The 33% deficiency revealed by the individual university cost data is almost exactly equal to the 30% increase that is required for Australian funding to come up to the OECD average level of higher education funding, as illustrated in Chart 16.

Chart 16 shows current shares of GDP coming from public and private funding of higher education and the supplementation required above that to implement the Bradley recommendations plus their extension to reach OECD average standards. This latter could be the contribution of the Higher Education Base Funding Review, if it operates with vision and purpose.

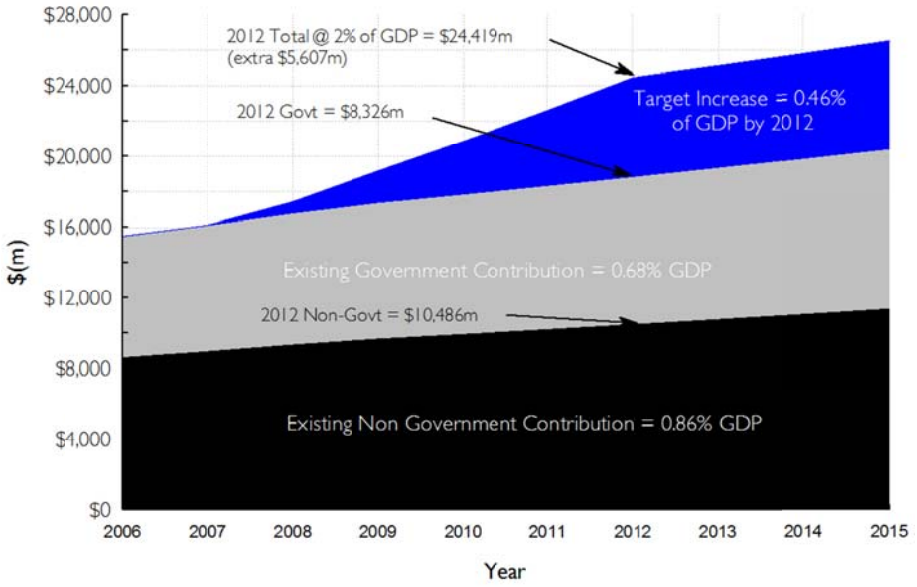



Chart 16. Future Implications of Current Funding Shares vs. Bradley Reform Shares[53]

It is revealing that the absolute increments in funding needed are not demanding in modern budgetary terms - and are certainly not large relative to the pay-off, including back to the public purse.

In fact Chart 17 shows the cumulative net benefit to public budget from the Bradley Review recommendations and their economic benefits. It takes account of new public revenue generated after deducting public outlays required, for the Bradley reform trajectory compared to a status quo set of policies for the universities.

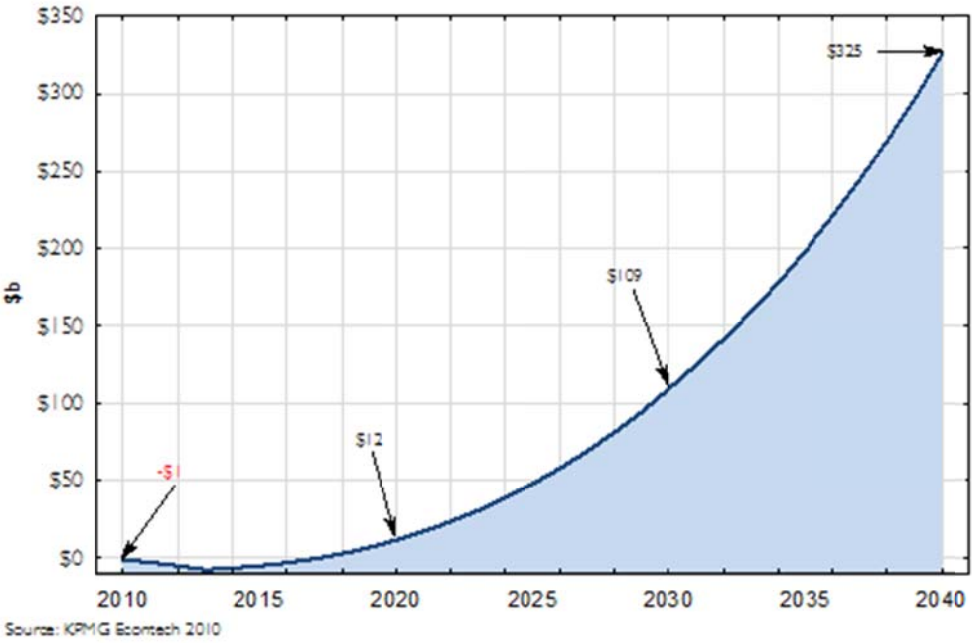



Chart 17. Cumulative Net Public Budget Benefit from Bradley Reforms[54]

It is seen that over the period 2010 to 2040, a total in 2010 dollars of $325.5 billion in public budget available for the national needs of the society beyond universities is projected as being generated. Australia cannot afford to forgo that contribution to its fiscal needs and the wider contribution to its standard of living. This is how the country can afford future spending or future tax cuts.

We have arrived at a position presently where through historical investments, cultural development, and our universities' abilities to adapt and be flexible, the Lisbon Council has ranked Australia's higher education system as amongst the world's best[55]. We have also arrived at a stage of evolution where we could be in danger of losing this position. This was the view of the Bradley Review itself, which in recommending an interim 10% increase in per student public funding stated that:

*"Without significant reform and significant investment, current performance is unlikely to be sustained and, as many other countries have already begun to invest to improve their relative performance, our position internationally is likely to decline, possibly quite rapidly."*

Bradley Review, 2008[56]

Bradley's prediction, if it were to come true, would have serious consequences for the economic, social and cultural progress of the nation. The reforms are in train, and important new investment has been provided, but on-going support and commitments for the future are similarly needed. Universities are institutions where long-term planning is integral to their mission. It can take ten years of tertiary full-time study to provide new qualified young staff.

At a time when some OECD (but not Asian) countries are now restricting higher education spending because of the impact on their budgets of the GFC, Australia can recruit skilled international staff to help redress its own aging academic workforce problem.

It is also arguable that in Australia in the past, in contrast to many countries, universities have reformed their own activities and yet they and the country have been punished by more than commensurate public funding withdrawals, as illustrated in Chart 18 showing the relatively modest increase in public support for Australian universities in the decade to 2007, compared to other OECD countries.

A necessary balance seems to have been missing. It has been partially redressed since 2007, but future commitments are less clear cut and subject to the many exigencies facing budgets across the world.

A clear-sighted view of the national interest as regards productivity, economic activity, skills supply and fiscal consolidation and growth would not lose sight of the opportunity offered by higher education policies for guiding the nation through challenging times.

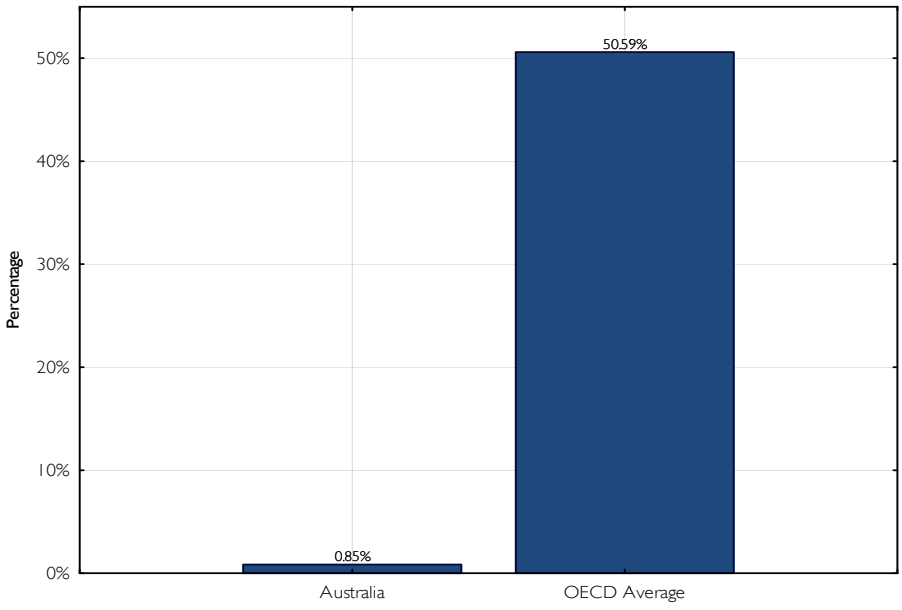



**Chart 18: Percentage Change in Public Expenditure, 1995 to 2007**[57]

Across the major OECD countries there is a strong relationship between tertiary spending and GDP per capita. It may be asserted that this says only that rich countries spend more on things, including higher education. In fact when direction of effect are allowed for over time, it is clear that there is a strong causal effect directly flowing from higher education funding to standard of living, even allowing for feedback symptoms of affluence[58].

Some significant dispersion does remain around this relationship nevertheless, indicating that designing a good system is also important. More benefit can be had for the same

funding if the system is an efficient and effective one. But the point for any nation and no less Australia is that both matter: good system arrangements and good resourcing are both to be sought. Arguably in Australia today the system has performed well and is further changing too in a still highly productive direction, but the danger is that resourcing may be about to once again lag behind.

Chart 19 gives the Forward Estimates for higher education spending from the 2010-11 Federal Budget documents, expressed as a share of GDP. This shows a very worrying projected decline after the welcome increases of recent years.

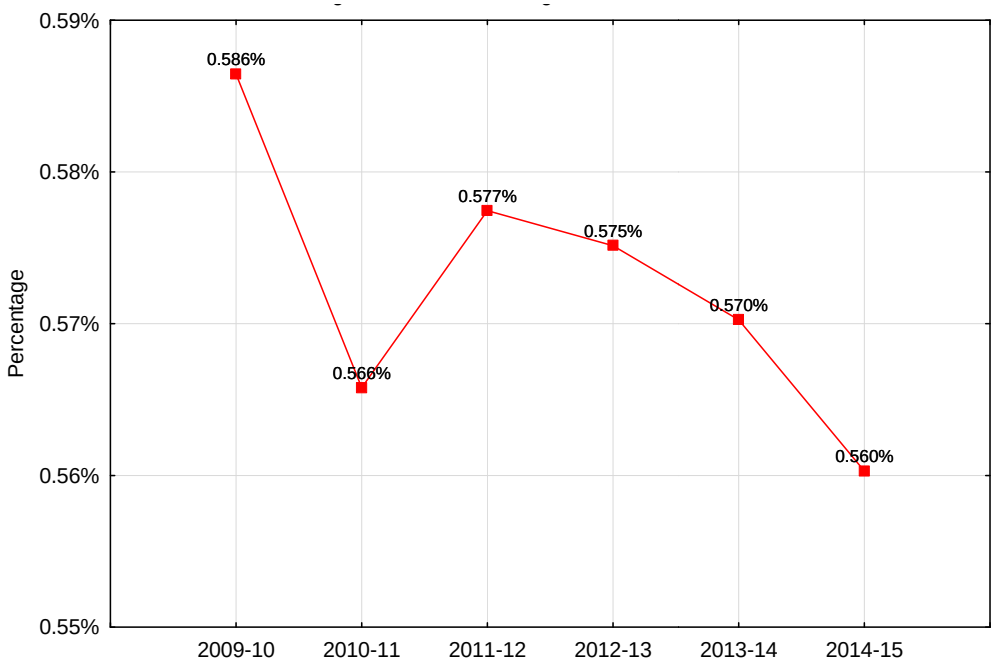



Chart 19. Higher education funding (% of GDP)[59]

## Public opinion favours a funding increase

Recent studies of public opinion strongly suggest that redressing the ongoing public per student under-funding of universities would be viewed in a positive way by many Australians. A June 2010 Nielsen survey for Universities Australia found overwhelming public recognition of the contributions of universities to economy, environment and society: the nation's triple bottom line (Chart 20).

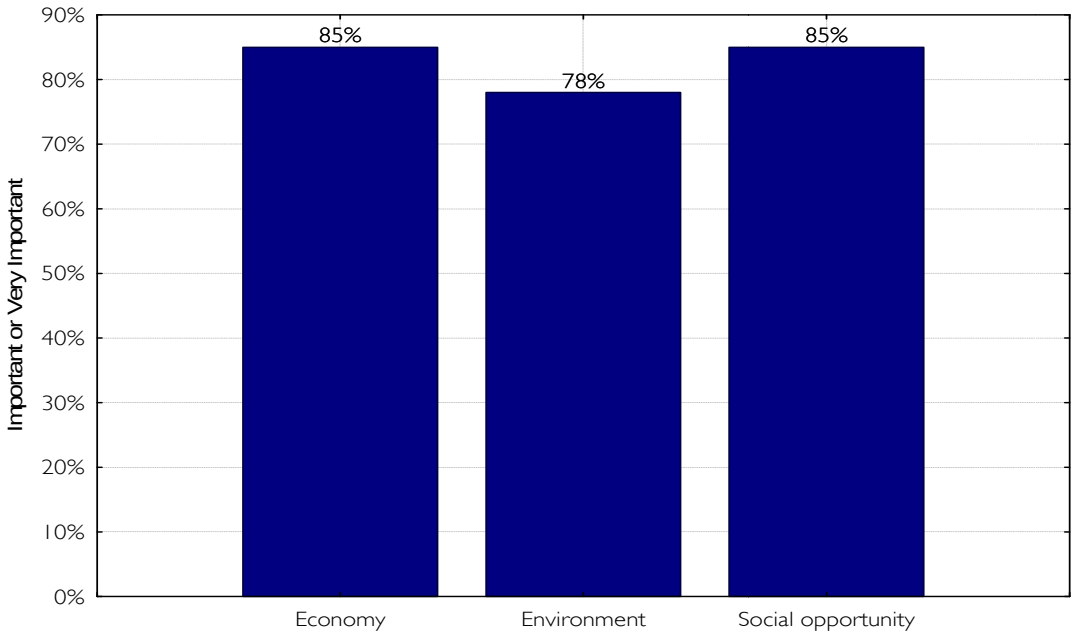



**Chart 20. Percentage of people seeing universities as making important contributions**[60]

A June 2011 public opinion study commissioned by the National Tertiary Education Union (NTEU) suggests further that 73% of people would support a moderate or significant increase in government funding for the sector (Table 3).

| # | Proposed method to turn around university funding decline | Response |
|---|---|---|
| 1 | Significant increase in government funding for the university sector | **43%** |
| 2 | Moderate increase in government funding for the university sector | **30%** |
| 3 | Keep things essentially as they are now | 5% |
| 4 | No change in government funding but an increase in domestic student fees | 4% |
| 5 | Reduce funding for universities and require our universities to become more like private businesses | 4% |
| 6 | Lift international student enrolments to compensate for any decline in government funding | 4% |
| 7 | Other | 3% |
| 8 | Unsure | 7% |

**Table 3. Public support for increased university funding** [61]

These results are fully consistent with recent, more general surveys of public preferences and attitudes towards spending and taxation priorities, which document a growing public support for improved funding in health and education[62].

## Mutual responsibility is essential

The more that universities increase their efficiency the greater their contribution to external national productivity from the resources provided.

There is still potential for universities to do more in this sphere. Continuous improvement is an obligation. In management terms universities are actually quite strong relative to private business in areas such as internationalisation, digitalisation, gender opportunity, cultural diversity, collaboration and partnership management and more. But other areas of management, such as asset utilisation, admission arrangements and teaching and delivery methods, can be improved and are being improved.

In some cases there is also a responsibility on government to assist in the process of efficiency improvement. The extensive reporting and accountability restrictions and regulatory controls imposed do add up to a significant cost and resource burden. The extent of this burden was recognised well by the Productivity Commission:

> *"While the Government has clearly stated its intention to reduce the regulatory burden associated with existing arrangements, the Commission is concerned that some of the announced reforms and increased focus on quality assurance have the potential to add to regulatory burdens, if not designed and implemented in an efficient manner.*
>
> *… It is understandable, given the track-record of regulatory burdens in this sector, that higher education institutions remain sceptical of assurances around controls on the regulatory burden emanating from recent review activity."*
>
> Productivity Commission, 2009[63]

Thus, as an example, the Excellence in Research Australia exercise embraced published research in 20,000 journals, all of which were graded and evaluated. 7,000 submissions were then processed on the evaluations.

Private consultancy firms have not been slow in promoting some opportunities for improvements in efficiency. Due regard must be had though for the nature of not-for-profit university missions which are sometimes not adequately understood by commercial organisations. The multiple and long-term objectives, the importance in the public interest of academic autonomy and the prevalence of a wide range of public accountability and reporting dimensions of university activity are quite different to private business imperatives. Similarly, due allowance must be made for the opportunism of external commercial agencies.

This said these possibilities for improved efficiency are being exploited where appropriate on an on-going basis to enhance further good practice in the sector particularly in support functions[64] – and it is clear that these private consulting firms are also learning much from university practice and are taking back lessons to a challenged private sector in Australia. In this way universities are contributing further again to national productivity.

In terms of comparative global reputation and performance, there are twice as many Australian universities in the Times Global 500 for higher education as there are Australian businesses in the Fortune Global 500 for private companies. This correlates with the Lisbon Council 2008 and British Council 2011 high ranking of Australia's university system[65]. This accomplishment must be maintained and strengthened.

Universities can use the current government mechanism of Mission-Based Compacts to demonstrate efficiency improvements, teaching and research quality improvements, transparency and accountability. This may require improved operation of compact arrangements themselves and associated incentive and performance payments, which are currently very modest. However university-specific negotiated funding must be transparent and fully accountable to ensure it remains apolitical. Issues will arise as to the nature of appropriate funding bodies at arms-length from government in these circumstances.

Nevertheless initiatives to improve productivity will vary significantly between universities. The diversity of Australian universities means that no single approach will be suitable for all institutions. Variations between missions and situations, such as regional service, research intensity, and student background, mean that each university will be able to further their goals in a different way. Likewise, universities that have multiple campuses and those with dual sector (university and vocational education) have differing needs and areas in which improvements can be made. The diversity that already exists is often under-estimated.

For this reason, innovation must be considered on a case-by-case basis as well as across the sector overall. Policies such as year-round use of campus facilities may benefit from a national framework and a set of incentives, but their local application and need will vary substantially. Getting the balance right will require creative and professional administration.

### Box 2: University surpluses and funding

A key particular feature of universities' responsible financial management is their need, as not-for-profit institutions, to carry surpluses to buffer them against volatility in market and economic conditions[66]. Not-for-profit enterprises need a margin over cost to manage variations because they do not carry a profit margin for this purpose. As the recent downturn in revenue from international students shows[67], universities with responsible operating surpluses are likely to be better placed to manage in such volatile markets through this downturn than those without.

This is mentioned specifically here as the issue of carrying a surplus is a two-edged sword for universities of a kind that can lead to sometimes unproductive debate alleging university inefficiency, despite the relatively small size of deficits or surpluses compared to levels of university operations wherein some universities are close to becoming $2 billion plus enterprises. The problems are:

- if universities carry a surplus, it can be claimed they therefore do not need any additional funds. But if they report deficits, they are subject to criticism for management failure. Nuances such as the differences between accrual accounting and cash accounting become lost in some public debate; and
- at the same time less-than-adequate core funding requires higher buffer levels for universities as well. This is because when universities have less in the way of reliable funding they need to lean more heavily on less reliable sources of funds (such as from international students) which in turn, requires higher surpluses to carry through downturns.

In the face of this, any argument that would require universities to expend their surpluses before seeking additional funds is one that asks universities to take unreasonable risks in uncertain markets.

## A policy roadmap is available

To realise this vision of a university system that can underpin the goal of being a productive nation, a clear roadmap does exist for government and the universities. It involves short, medium and long-term elements and is based squarely on the principle of mutual responsibility. The key components are:

Short-Term:

Government should deliver the Bradley Review recommended 10% interim increase in per student funding, through each of the Commonwealth Grant Scheme and the HECS-based student contribution[68], and

- continue the commitment to demand-driven and national priority enrolments;
- continue the commitment to true cost indexation for grants and full indirect cost funding for competitive research grants; and
- better fund the queues of attested infrastructure and research projects to support activity across Australia.

Universities will continue to deliver on increased enrolments to meet government participation targets especially from less well represented socio-economic groups

Medium-Term:

Government should continue implementation of an enhanced domestic and international regulatory framework under Bradley/TEQSA and Baird/Knight policies complemented by ongoing internal university reform of asset utilisation, management systems, teaching arrangements, research efficiency and community engagement.

Universities will also work to build a third wave of international education within the new framework that will deepen and strengthen the teaching and research and partnership dimensions of international engagement.

Long-Term:

In the longer-term:

- government should take university per student and further research funding to the highest levels of global standards for world leading performance, guided by clear funding principles for this purpose;
- universities themselves will sustain and deliver leading teaching and learning and research contributions and business and community engagement at the highest level; and
- universities will work with other stakeholders in secondary and tertiary spheres to deliver frameworks and pathways that will allow student choice of education and training that best suits the life courses of all individuals and deliver this too as world best practice.

Such a policy agenda will ensure that Australian higher education is a leader in national and international education both at home and abroad and that this education fulfils the promise of making Australia a productive country.

# Conclusion – a legacy for future generations and a productive country

> *"As well as physical capital there's human capital. As part of our abstemiousness, we've gone for several decades under-spending on all levels of education and training: early childhood development, schools, vocational training and universities. Particularly universities….If we've gone for so long under-spending on human capital, is it any wonder our productivity performance has worsened?"*
>
> *Ross Gittins, 15 August 2011*[69]

Universities provide one of the very best avenues for improving the long-term productivity of Australia. There is significant risk that the sector will be unable to provide this improvement at present, without additional public funding. There is substantial evidence that investment in universities gives increasing returns for living standards over time. Full implementation of the reforms recommended by the Bradley Review will deliver this.

Given Australian higher education efficiency and effectiveness further funding can provide above average performance. If funding were to match or exceed the global average a world class system with world class national payoff for Australians would be the result.

We need ongoing reform. But reform agendas that are limited to clearing out market impediments in areas such as tariffs, privatisation, tax reform and industrial relations (important as these are) now provide diminishing returns to the nation. They remain needed, but new approaches such as in knowledge creation that is accessible to the population can foster increasing returns that are widely shared and which keep improving as new ideas breed new ideas. Increasing the skills and knowledge that can enhance markets is the essence of a new reform agenda, which can create self-perpetuating growth in Australia.

It is timely to turn squarely to capability building for Australia's future, as the new wave approach that can build the country sustainably for the twenty-first century knowledge economy in Asia and beyond. This is the new reform agenda that Australia needs and which policy-makers and analysis must firmly embrace. Universities themselves need to be at the core of this. They have already shown they can deliver on reform and payoffs for Australia, and can continue to do so even more.

Any underfunding of higher education in Australia means that the government responsible is forgoing the clear and present opportunities to contribute to long-term productivity growth, build fiscal sustainability and to support current activity in the process. Universities will partner the process by increasing again their own productivity.

It is said that both laissez faire and welfare state models of economic and social have clearly shown of late their deficiencies, and that a middle way based upon investment in people and infrastructure is the new break-through that we need[70]. Higher education can be the core of any such middle way and neglect of this opportunity will unnecessarily short-change Australia's future.

# Endnotes

[1] Paul Krugman 1992.

[2] Productivity is the ability to produce material goods and services from the total available resources; Participation is the share of the population available for work.

[3] In 2006, almost 90% of women holding university qualifications were in the labour market compared to less than 70% of those with no post-school qualifications. Source: Kennedy et al., 2009, derived from ABS Census data.

[4] Source: Adapted from Dr Martin Parkinson, 30 June 2011

[5] Glenn Stevens, 26 July 2011.

[6] Tom Karmel, 2008.

[7] Centre for International Economics, 2009; Productivity Commission, 2008; Productivity Commission, 2007; Productivity Commission, 1997; KMPG Econtech 2009; NBNCo Limited, 2010; Australian Government, 2009.

[8] KPMG Econtech, 2010, p9.

[9] Heather Ridout, 30 June 2011.

[10] *The Economist*, 28 May 2011, p7.

[11] Chris Evans, Meet the Press, 3 July, 2011.

[12] Wayne Swan, Federal Treasurer, *7:30*, 1 June 2011.

[13] Malcolm Turnbull, 2011

[14] Gillard, J, 12 May 2009.

[15] Source: Access Economics, 2009.

[16] Source KPMG Econtech, 2010 .

[17] Source: KPMG Econtech 2010.

[18] Similarly, a Melbourne Institute study confirms these public finance benefits. See Borland et al, 2000, p41.

[19] Source: KPMG Econtech, 2010.

[20] KPMG Econtech, 2010, p24.

[21] Ken Clements et al 1992.

[22] KPMG Econotech, 2010, p8.

[23] Source KPMG Econtech, 2010 p.40

[24] ACER, 2006

[25] Source: KPMG Econtech, 2010, page 48.

[26] Source: KPMG Econtech 2010, page 35.

[27] Hall et al, 2009.

[28] Tony Abbott, 1994

[29] Borland et al, 2000.

[30] Source: KPMG Econtech, 2010, page 49.

[31] Source: NATSEM/AMP, 2008.

[32] National Economics, 2002.

[33] Richard Florida, 2008.

[34] Barrett and Milbourne, August 2011.

[35] NCVER, 2011.

[36] Source KPMG Econtech, 2010, p14.

[37] ACIL Tasman, 2010.

[38] For a survey see Ronald Ehrenberg et al, 2001

[39] Source: Education at a Glance, OECD Indicators 2010.

[40] http://www.nordforsk.org/files/rapp.bib.2011pub 21.5.11

[41] Source: DEST 1990 to 2000; DEST/DEEWR 2001 – 2009; Bond University, 2009. Note that Notre Dame is included from 2008.

[42] Source: Australian Research Council 2010 and Universities Australia Statistics 2009.

[43] Universities Australia, March 2011.

[44] Source: ACER AUSSE 2010

[45] For example, see the Australian's endorsement of the L. H. Martin Institute's seminars on productivity improvement in teaching, and their take-up by universities, conducted by US analyst Bill Massy. Stephen Matchett, January 13, 2010.

[46] Universities Australia commissioned Phil Ruthven of IBISWorld to examine university practice in historical and comparative context in 2011. Universities Australia has further commissioned a major international benchmarking study to compare Australian universities with European and North American universities. Such studies were instrumental in encouraging and guiding earlier micro-economic reform but were allowed to lapse by the Australian government.

[47] See Vin Massaro 2010; Times Higher Education Rankings; DEEWR Higher Education Student and Staff Statistics; Australian Research Council ERA Report 2010; GO8 Background Report; and ACER AUSSE 2010.

[48] This is not compensated for by national competitive research grants as they do not cover the full costs of the research that they support. Even with improved funding of grant indirect costs under the Sustainable Research Excellence initiative, this will explicitly not pay for the salaries of principal investigators, the time taken to pursue grants and some remaining general overheads involved in grant arrangements.

[49] Source: Universities Australia, 21 June 2011.

[50] G. Davis, 2011

[51] Source: Universities Australia, 21 June 2011.

[52] Ross Milbourne, 2007.

[53] Source: Universities Australia calculations

[54] Source: KPMG Econtech, 2010.

[55] Lisbon Council, 2008. See also the British Council International Education Index 2010.

[56] Bradley Review, p.9.

[57] Source: Education at a Glance, OECD Indicators 2010

[58] Universities Australia

[59] Source: Budget Paper no 1, 2011 – 2012.

[60] Source: Neilson survey, 29 July 2010.

[61] Source: NTEU, *Well-Funded Public Universities Critical for Australia's Future*, June 2011.

[62] Katherine Gregory and David Hetherington, 2011

[63] Productivity Commission, 2009, pp.312-4

[64] Ernst & Young, 2011; McKenzie & Company, April 2011; Deloitte, 2011.

[65] Lisbon Council, 2008; British Council, 2011.

[66] In 2010, 33 universities reported an annual operating surplus of $1.8 billion. They are also required to carry surpluses as lump sum capital grants and for abnormal items.

[67] Deloitte Access, 2011.

[68] Such parity in increased public and private payment accords with Universities Australia's submission to the Higher Education Base Funding Review regarding evidence and balance in public and private benefit in higher education. See Universities Australia, 2011.

[69] R.Gittins, *Sydney Morning Herald*, 15 August 2011.

[70] Nouriel Roubini, *Weekend Financial Review*, August 20-21, 2011.

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