The National Tertiary Education Union (NTEU) directly represents the professional and industrial interests of 28,000 staff working in higher education, including staff in Australia's universities and research institutes. On behalf of our members, we welcome the opportunity to provide a submission to the National Commission of Audit.

Our submission is framed by the current global agenda where innovation policy and strategy is a central tenet of economic policy-making, and where national strategies have become critical in fostering an environment for economic growth and progress. Our submission is couched in terms of higher education as part of the larger web of public investment in research and science. Education is Australia's largest services export, generating $15.0 billion of export income in 2012. Higher education is a core component of Australia's public investment in research and science with the Australian Government allocating a total of $8.9 billion for research and innovation, including higher education in 2012-13.

In this broader context, government expenditure represents a multifaceted investment in human intellectual capital, widening workforce participation, employability, productivity growth and the post tax earnings of individuals, as well as increasing the stock of knowledge in Australia, enabling innovation spillovers to industry through the commercialisation of new technologies, and underwriting the depth and diversity of Australian research capability, particularly in those areas where it is unlikely that industry has the capacity or inclination to invest (Larkins 2012).

These benefits underpin the rationale for and value of public investment in higher education and guide our evaluation of the efficiency and effectiveness of government expenditure in higher education. While there may be areas of existing government expenditure that might be distributed more efficiently, this must properly be framed by the longstanding underinvestment in Australian research and innovation when compared to the rest of the OECD.

1. Public investment in higher education and research

Higher Education

Research in higher education commonly focuses on the private or public return for completion of an undergraduate degree. Most studies have concluded that increasing levels of education provides positive private returns, in particular, for the completion of bachelor level qualifications and above (KPMG Econtech 2010). For instance, in 2001, Larkins explored private rates of return for three and four-year bachelor degrees, masters and doctorates and found a range between 8.8 and 20.1% based upon Humanities, Arts and Social Sciences (HASS) or Science, Technology, Engineering and Mathematics (STEM) discipline. In 2007 an Australian study (Leigh 2007) suggested that a bachelors' degree raises the estimated annual earnings by approximately 15%.

While private rates of return are a strong driver for private investment in higher education, it is social rates of return which are important in terms of public investment. The research shows that

private returns understate the social returns of education. The research also shows market failure in relation to the provision of higher education, with the extent to which the market would undersupply the optimal level of investment. That is, higher education has the characteristics of a public good.

Most studies of social returns are limited to quantifiable public benefits such as increased productivity, economic growth and government revenues. They rarely try to quantify less tangible forms of public benefit attributable to investment in education such as developing more educated, tolerant or civic-minded citizens. The exception to this is a study undertaken by the University of California (Stiles, Hout and Brady, 2012) which examined broader social benefits in addition to those economic gains that having a higher proportion of tertiary educated population brings (e.g. increased taxation revenue, higher standards of living, increased employment, less strain on social welfare and justice systems). This study found that for every dollar the state invests in higher education, it receives a net return of three dollars.

Compellingly, the University of California report also found that by the time today's university graduates reach age fifty, they will have repaid the nearly $4.5 billion dollars the state originally invested in them, plus an additional $10 billion. As a result, the authors of the report argue that it is precisely when the state is suffering from a budget deficit and increasing unemployment rates that there is substantial benefit in increasing the numbers of college graduates, and that appropriate funding support for this should be prioritised. Drawing from the findings of the UC report, it is vital that the broader impact of both social and economic returns of higher education and research must be taken into account for the Commission to draw an accurate picture of the impact of the sector.

The argument for investment contrasts significantly with the funding cuts already imposed on the sector. Nonetheless, since January 2011 and incorporating the financial adjustment recently proposed by the Federal Government through the *Higher Education Support Amendment (Savings and Other Measures) Bill 2013* and the *Social Services and Other Legislation Amendment Bill 2013,* the total savings higher education will contribute to the Commonwealth's tightening fiscal strategy will be in the order of $4billion. This includes:

- A $900m cut (described as an efficiency dividend) to university grants;
- Savings of $1.2b by abolishing student start-up scholarships and replacing them with HECS type loans;
- $230m in savings by removing discounts for upfront or early repayment of HECS debts;
- Cuts to higher education performance funding ($95m in May 2011, a further $241m in November 2011 and $269m in October 2012);
- Reduced and ultimate abolition of discounts for students who repay HECS upfront or early ($230m in May 2011); and
- Increased HECS fees to be paid by maths, statistics and science students by moving them from national priority rates to HECS Band 2 ($400m May 2012).

The real (cost adjusted) funding per student is less than it was in 2012 when adjusted for increases in costs and the implications of introducing the student demand driven model (through increasing

Commonwealth Supported Places (CSP)). This means that the real resources available to universities to educate each student and to undertake basic research will fall. These spending cuts have occurred when recent independent reviews have consistently recommended greater levels of public investment, such as the *Review of Australian Higher Education* (2008) which called for a 10% increase in base funding per student and the *Higher Education Base Funding Review* (2011), which concluded that the level of funding universities received to teach students was not sufficient to cover the real teaching, scholarship and basic research costs associated with their education.

Given the high rates of return on public investment in Australia's universities, the NTEU believes the Commonwealth should aim to significantly increase the level of public investment.

University Research

If we are to consider the return from higher education, we can see an important purpose in identifying its role as part of the fabric of Australia's public investment in research and science. Investment in the higher education sector, including the Australian Research Council (ARC) and performance-based block funding programs represented $2.8 billion of the $8.9 billion total in 2012-13.

There are a number of ways that return on investment has been looked at in relation to publicly-funded research (rather than in relation to private returns for completion of degrees). These are commonly more focused upon social rather than private return on investment, and predominantly associated with the spillover effects to industry. As argued by Salter and Martin (see Larkins 2011: 237) the benefits of public research included:

- Increasing the stock of useful knowledge;
- Training skilled graduates;
- Creating new scientific instrumentation and methodologies;
- Forming networks and stimulating social interactions;
- Increasing the capacity for scientific and technological problem-solving;
- Creating new firms;
- Providing social knowledge.

Taking into account the difficulties in measuring economic returns to research, KPMG Econtech (2010: 29) claimed that the estimated rate of return was between 20-40% and an average return of 25% for university research. The rates of return, however, are even higher for particular fields of research. Access Economics (2008), for instance, estimated that benefits attributed to Australian health R&D between 1992 and 2004 was $29.5 billion of $2.3billion per year, translating into a return on investment of 117%.

University research has also experienced effective cuts in funding in recent years, including about $500m in crucial Sustainable Research Excellence (SRE) over four years that has been denied to the sector as a result of a slowdown in the increase in funding that was slated to support the indirect costs of research, from 20cents to 50cents in the dollar. The impact of this measure

impacts upon the planning undertaken by researchers, research teams and institutions in guaranteeing support for research undertaken across all Australian universities. Estimates within the sector concluded this may involve the loss of as many as 1,450 job opportunities (Creagh 2012). The Commonwealth should reverse the decision to temporarily freeze the planned increases in SRE funding and restore the $500m cuts announced as part of the 2012 MYEFO.

2. Efficiency and effectiveness of government expenditure on higher education and research

$8.9 billion was spent by the Australian government in research and innovation in 2011-12. Within this funding envelope there are a wide range of discrete functions that government expenditure contributes to in terms of Australia's research capability. This included (DIISTRE 2012):

- Investment in the higher education sector, including the Australian Research Council (ARC) and performance-based block funding programs ($2.8 billion);
- Australian government research activities through CSIRO, Defence Science and Technology Organisation (DSTO) and other R&D activities ($1.8 billion);
- Public investment in business enterprise sector such as through the Industry R&D Tax Measures ($2.2 billion);
- Multi-sector investment including funding for the National Health and Medical Research Council (NHMRC) ($1.1 billion); and
- The Cooperative Research Centres (CRC) ($165 million).

A major set of policy developments in higher education funding in the last decade has been the introduction and transformation of performance-based block funding programs, including the allocation of research funding according to performance-based formulae. The Australian system of research funding, divided largely between performance-based research block grants and competitive research grant programs, is described as a dual support system.

Competitive research grant programs particularly through the ARC and NHMRC have provided a good return on investment. The Allen Consulting Group (Larkins 2011) evaluated estimated social return on investment from ARC funded research in 2003 and found that it:

- Increased the stock of useful knowledge (10%);
- Generated of commercialisable IP (3%);
- Improved the skills base (12.5%);
- Improved access to international research (7.5%);
- Better informed policy making (6%);
- Had heath, environmental and cultural benefits (indirectly estimated at 11%).

While the positive impacts of research expenditure are widely acknowledged, little scrutiny is given to the potential undesirable consequences of a distribution system which is based largely on competitive research grants. For example, little attention has been paid to the lost productivity or

opportunity costs associated with very low success rates for competitive research grant applicants. For ARC project grants, four out of five applicants are unsuccessful. This is a loss of millions of hours which could have been spent on actual research.

There have also been detrimental implications for researchers who have embarked upon research only or research focused careers, as illustrated in the recent online conversation occurring as a response to early career *cosmologist* Katie Mack (2013), who described the work life sacrifices female researchers face when they are poorly remunerated, tied to short term contracts (1-3 years) for sometimes longer than ten years, and are consistently travelling.

The NTEU is also highly concerned about an entire sub-prime labour market for researchers because employment conditions are being dictated by short fixed-term research grants. ARC discovery grants, for example, are typically three years in length. The NTEU believes that a review of these kinds of funding mechanisms and their efficiency is due, particularly in relation to:

- Lost productivity due to the scale of grant applications demanded from researchers;
- The efficiency of research;
- The attractiveness of research careers;
- Lost investment in human capital due to “discouraged” researcher affect.

The development of contestable funding together with the cult of accountability has resulted in funding becoming tied to the assessment of the quality of publicly funded research. There have been two assessment systems proposed in the last decade, the Research Quality Framework (RQF) in 2004 and the Excellence in Research Australia (ERA) exercise in 2007. The preparation for the second ERA exercise in 2012 overlapped with consultations conducted for the development of the Sustainable Research Excellence (SRE) program, a funding allocation method attached to the ERA scores. More recently, there was a national trial to measure the impact of publicly funded research called the Excellence in Innovation for Australia (EIA) and the ARC is currently exploring options for the design and development of an impact assessment program that it intends to pilot in 2014.

In 2012, the NTEU undertook research into the implications of the ERA exercise upon university staff. Researchers and research administrators reported concerns about the opportunity cost placed upon institutions for meeting their obligations to the ERA process (Kwok 2013). The ERA exercise has been speculated as costing approximately $100million per exercise (CRC 2013). However, while the SRE assigns elements of its funding on the basis of compliance with ERA and the Transparent Costings (TC) exercise, this does not account for the opportunity cost arising from the investment of time and resources by universities, senior leadership groups, senior administrators, research managers or support staff, and a legion of ‘eligible researchers’, preceding or following the ERA process.

NTEU’s research also found a range of unintended consequences upon university staff typified through institutional and management behaviours and practices - from the institution-wide down to the intra-departmental level, in both formal and informal ways, and adverse implications for the

ways professional associations, disciplinary groups and other groupings that can be generalised as 'communities-of-practice' function. Consequently, the NTEU called for a comprehensive independent review to be undertaken on the ERA's impact on institutional behaviour and its implications for the allocation of government resources, compliance costs, research careers and freedom of intellectual inquiry.

The fact that university research relies upon public investment means that the nature and effect of the interdependence between assessment instruments, funding allocation and institutional responses must be a primary concern for planning in relation to research funding policy and that the Australian public should also expect that the policy objectives are demonstrable, transparent, and seek to minimise systemic risk. The substantial international literature also demonstrates that the implications for 'research actors' and the 'constellation' of research within a national system are critical to the conduct of research quality evaluation 'in its proper context'.

Taking into account the $151,000 million decrease in the ARC's budget due to the cessation of the Future Fellowships scheme, and the stated intent of reprioritising $103 million of 'wasteful' humanities research, the NTEU believes the ERA, EIA and any other costly process for the assessment of research performance needs to be considered in terms of an assessment of the actual compliance cost and in the context of unintended and inappropriate use by research actors. Certainly, without any independent review of the ERA process the opportunity cost of the ERA exercise in terms of this resource commitment, and of REC members and ERA peer assessors, has not been quantified.

3. Privatisation of Outstanding HECS Debt

NTEU notes that the Minister for Education has specifically referred to the idea of "securitising" student debt to its Commission of Audit, citing the scheme proposed in the UK as an example. On the face of it, an examination of the system, which is part of the broader plan to dispose some 15 billion pounds (Aus$25.3 billion) of public assets by 2020, may seem appealing for a government looking for savings. However, there are a number of differences between the student loans system in the UK and here that need to be taken into account.

Currently in the UK, full-time or part-time UK resident students can apply for a loan for tuition fees which is paid directly to the institution. These students start repaying the loan when their income is over £21,000 ($35,421), at the monthly rate of 9% of any income over 21,000 pounds. Unlike in Australia, however, UK students pay interest on their loans as well as the rate of inflation; thus for someone earning over 21,000 pounds, they pay the rate of inflation plus interest of up to 3%. The impact of commercial interest rates on these loans changes both their attractiveness for investors and potential costs for students.

It should also be noted that Britain's attempts to sell off student debut has been fraught. While two sales of the student loan portfolio in the late 1990s (each totalling about £1 billion) attracted a string of institutional investors, later attempts to sell off larger tranches of debt failed, with the government saying market conditions precluded good returns for the taxpayer. The June 2013 announcement by the UK government of plans to sell off £10bn ($16.4bn) in student loans coincided with the release to government of a confidential report by investment bank Rothschild pushing for increases in the interest rates of student loans. In addition, a report by *Guardian* stated that Rothschild had also advised the government to underwrite investors' risk with a financial instrument known as a 'synthetic hedge', in effect using the public finances to guarantee returns to private investment.

While supporters of the UK scheme may still argue it has application here, the question must be, to what gain? While the NTEU appreciates that there are number of interesting aspects about whether a decision to privatise the HECS debt is a good financial decision for government, our immediate concerns are whether the decision to sell off the debt has any impact on the cost to government-supported students studying at university who elect to defer the repayment of their Higher Education Contribution Scheme (HECS) tuition fees through the Higher Education Loans Program (HELP).

That is, the NTEU believes it is absolutely essential to ensure that the proposal to privatise or securitise outstanding HECS debts does not distort existing, past or future student choices in relation to whether they study, what and where they study, and how they finance their studies. Any policies designed to change student behaviour in such ways need to be deliberate, transparent, and not an unintended side effect of the privatisation of debt.

Any proposal to privatise HECS debts needs to guarantees that:

- All existing conditions attached to HECS-HELP loans be protected, especially:
    - That any outstanding debts not attract any real interest and remain to be indexed at the rate of inflation (as measured by the CPI), and
    - Income contingent repayment thresholds apply and repayment schedules apply;
- The Australian Tax Office (ATO) remain responsible for the administration and collection of HECS debts;
- All future HECS-HELP loans continue to be made by the Commonwealth government and not transferred to private lenders.

Conclusion

In Australia, research and development activities are principally carried out by universities, specialised government agencies, and medical research institutes. During the 1990s, science and innovation moved to the centre of the policy agenda and have been of crucial interest in the development of science and innovation policies in other parts of the world.

OECD analyses have found that the medium to long-term payoff on the amount of taxpayer funds used to support people in higher education generates a strong return. On average, Australia directly invests less than $25,000 US in public sector funds to support an individual pursuing higher education. However, on average, Australia receives a net return of more than three times the amount of public investment, $84,532 US (LaRock 2012). In Australia, the private rate of return is consistently considered at being between 10 and 20%. Similarly, the estimated social rate of return for investment in university research is between 20-40%, an average return of 25%.

The NTEU agrees that if Australia is to continue to produce groundbreaking research outcomes, 'eureka' moments and Nobel Laureates, then a strong investment in both research and higher education is needed. Australia is well placed to build upon Australia's existing human and intellectual capital, but more investment is needed if we are to maximise our returns. At a time of increasing unemployment, volatile job markets and the slow-down of many areas of the economy, it is vital that we invest resources in our future intellectual and skills capital. The choice is clear – if we continue the current levels under investment in higher education and research, we risk failing to realise our potential. However, to subject the sector to further cuts will be to the clear detriment of our competitive future as a nation. Put simply, the time to invest is now, not when Australia has lost its international standing as a high quality provider of education, research and innovation.

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Recommendation 1

Noting the high rates of return on public and private investment in Australia's universities, and recognising that the Commonwealth Government plays a crucial role in investment in higher education and research with a major impact through the design and governance of institutions and the setting of the policy, regulatory and ethical environment in which research and innovation is conducted, the Government aims to significantly increase the commitment to fundamental and applied research in universities and research agencies and institutions.

Recommendation 2

That the temporary freeze on the planned increases in SRE be lifted to restore the $500m cuts announced as part of the 2012 MYEFO.

Recommendation 3

That a cost benefit analysis is undertaken to determine the impact of the higher education and research sector's reliance on competitive short-term research grants upon:

- **Lost productivity due to the scale of grant applications demanded from researchers;**
- **The efficiency of research;**
- **The attractiveness of research careers; and**
- **Lost investment in human capital due to "discouraged" researcher affect.**

Recommendation 4

That any proposal to privatise HECS debts guarantees that:

- **All existing conditions attached to HECS-HELP loans be protected, especially:**
    - **That any outstanding debts not attract any real interest and remain to be indexed at the rate of inflation (as measured by the CPI), and**
    - **Income contingent repayment thresholds apply and repayment schedules apply;**
- **The Australian Tax Office (ATO) remain responsible for the administration and collection of HECS debts;**
- **All future HECS-HELP loans continue to be made by the Commonwealth government and not transferred to private lenders.**