The Future of Higher Education

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Thanks David and it is terrific to be here. This is a very important forum I think and a very important time for everyone. My topic is the economics of education. I am going to look at selected inputs, some outputs and indicators of global competitiveness, which I think is the most interesting part of the story, in education and research.

Higher education and basic research in science in the universities are in continuum with earlier education, so I will start with the total national investment, compared to the OECD average and selected comparatives. I am using the same comparatives for the first half of the presentation. I have selected them, because career in Finland, are high performing career examples in relation to, particularly in relation to education and industry research linkages and USA, Canada, Australia, UK standards are a neatly comparable group.

The Netherlands is a interesting country because it is about our size, although it is not our size geographically. It is our size in population and GDP and has a roughly similar university sector. It still has a binary technics system and it is very energetic, probably even more than we are on the industry university interface.

You can see that we are an average total investor in education, we have higher than average private investment, mainly through private schooling and university fees and lower than average public investment, although that has change and we were a higher than average public investor until about ten years ago.

Well I am starting with numbers, but I will go to pictures half way through, so it gets a bit easier. Now in my judgement, Australia has three outstanding long term problems in this sector. One is weakness in early learning, which I have illustrated here. The second one is the run down of industry of training, since the training reform in the early nineties which was an exciting and worthwhile period in training. And the third one is the downward pressure on basic research capacity, which is a long term story, which is essentially an inverted result from our shift from reliance on largely public sector funding to private sector funding.

But the early learning story might be the most important one to tell and the is bipartisan concern about this I think now and increasing discussion in public. But we are essentially a low provider and a low spender. The areas world wide is mixed funded in most countries. Our public sector component funding is relatively low to other countries. We have less than half of our three to four years old in some kind of pre school program. When I say pre school program, I mean something more than childcare. Something that has more of an education component and in most cases, those

kids have got restricted hours weekly, sometimes three morning per week, that kind of thing. It is particularly poor in New South Wales and of course the expenditure reflects the state of provision.

The weakness in early learning feeds into what we then have, which is a biofixation between the majority who are educated, satisfactorily, if not well and a minority which are not educated successfully and this is a characteristic of the Australian system and the American system, but not of part of Western Europe and countries like Korea and Japan, where almost universal literacy is achieved in the adult population. There is a very striking difference between us and them.

Those who school early, are much more likely of course to lock into the long term unemployed and they reduce the average productivity of the labour force when they enter they workforce. They reduce the average productivity of the workforce, so this is an important problem, but socially and economically. When we look at schooling standards, you will find on the whole they are pretty good, despite the, some of the public debate, which is a bit misleading on this. We usually figure in the top six, in the OECD on reading and numeracy and in some indicators, in the top three. It depends a little bit which comparisons you take it off. Early mathematics is less strong that later mathematics for example in internally comparable terms.

But it is interesting to look at this distribution of *4:38, because when you see there is we did quite well at the top, amongst the top 10%. That is the far right hand column, compared to what is essentially the leader, Finland. We have our, almost as many people in the very top score range as Finland our average in that ninetieth percentile point is 645, Finland's is only 652, Korea's is 659, which is the highest. So we are not far off, at the ninetieth percentile point, but when you go back and look at the bottom 10% and go to the tenth percentile point, the gap between us and the lead is considerably greater. And this is this underclass, this minority that doesn't get successfully educated as it moves through. That's what's happening to it there and of course later on it will drop out.

Now turning now to tertiary education, starting with funding. Australia is an average investor over all. We use to be well above average. That is no longer the case. We still have slightly above average participation rates, but that is coming down as well, because there has been rapid advances in participation levels in most of our ECD countries in the last fifteen years and we haven't really moved much. And that is not just about universities, that is about TAFE and private training as well of course.

It is interesting to look at the US, because as we all know, the US is a great private investor, a successful private investor in higher education, particularly the great universities. But it is also a substantial public investor as well and this is one of the strengths of the US, this sort of capacity to sustain both sides of the public/private ledger.

There is much variation in the respective roles of the public and private source funding around the world. In Korea, the role of private funding is greatly boosted by the private tutoring industry which is central to the process of competition and the university entrance point.

The, in Australia, the private funding ratio has now risen above 50%, since 2003, when this data was recorded. Mainly due to student tuition and HECS contributions becoming increasingly important. Increasing reliance on private revenue does shift the expenditure patterns a bit. It means that you spend a bit more on the corporate function side and you spend more money on recruitment, for example, of our international students, then you previously did. And most universities that recruit fee based paid students, don't make much of a surplus out of them. Some make no surplus as far as we can tell, it is very difficult to unravel these expenditure and income flows in university accounts, as some of you will know. But it does look like that few universities make substantial

surplus, although there are cases where universities have been able to leverage significant developments in other areas from their international student revenue. They are probably a minority.

So as you shift into more reliance on these income sources, you spend more on raising the revenues themselves and you have a bit less to feed back into cross subsidies as [Glyn] *7:49 mentioned and also basic research. Now we are world leaders in one respect, as these are well known figures and they were quoted by the opposition leader in February. The figures though, are solid and they are from the OECD and he was fortunate to be able to pluck a figure like that out to make a case from, because it is very spectacular. Essentially, Australia has had the largest fall in public funding per student in the OECD region, in tertiary education and that includes vocational training as well as universities. A 30% drop since 1995, there is no dispute about this, about these figures, let me say. In most countries there has been both rises in public and private funding overall and in about half the countries, there has been an increase in public funding per student as well.

We have seen a dramatic drop in public funding per student, but a substantial rise in private funding per student, which is why the total funding level on drops about 6% or so. So that is total funding per student, only drops 6% or so. But you can see that universities have a case, they have substantially increased private income. The drop away in private income has overcome that, it has been greater than the increase in private income and they have been left worse off overall, without much to play with in terms of economy of scale on the domestic market, because that has been growing slowly. So as with most other things, it all then comes to depend on the foreign student market, which I will talk about in a minute.

This is the funding split up. Some public universities now receive more from international student revenues, that they get from the Commonwealth in, for teaching purposes, for teaching domestic students. Melbourne is one of those. We now have a situation where 26% of our students are foreign students and we earn about 18% of our income from that source and that is a very striking change of the last ten years and it shows that the policy of filling the whole, as Alan Gilbert called it, Glyn's predecessor, has been successful. But everyone has been doing the same thing of course and in a minute, I will give you some more data on the universities.

Before we get to the export industry though full on, just make, a bit of a note, that domestic students have also got issues. And there has been a surprising lack of focus on students, from student unions, which is a bit of a side issue if ever there was one. But the AVCC, The Australian Vice Chancellors Committee, has done a good survey, I should say it is good because I worked on it. My own centre was responsible for handling at the end of 2006, produced a very solid data set across the domestic student population. We didn't research international students, but we know, as many of you would realise, well over two thirds of under graduates are working during semester. About one sixth are working more than twenty hours a week, the average is fifteen and that a substantial minority, 40% of full time students report that work is cutting into their study time. A quarter or so are missing classes because of work commitments and there is also a lot of concern about rising levels of debt. This may just well be the of youth, not yet releasing that debts can work in their favour as an investment in tertiary education. But there clearly is a category of students that are at the point, that they simply can't take on more debt and the risk factors are too great.

And it is those student that is over represented in the group that is not eating enough. So there are some real issues there that we need to come to grips with. What, from a national productivity point of view, what really matters is that, the learning, the formation of our future workforce is being fragmented by this kind of student experience of not being able to study properly, not being able to attend classes, not being able to do projects and so on. The quality of their learning is effected and we are wasting the investment in them to that extent.

Now let's shift to the exports which is a more positive story. The export market is very strong, it has plateaued to some extent and there are more worries than there use to be, but when you have 10% to 15% growth for fifteen years, you end up with a very large export sector in deed and this is now the fourth biggest sector after coal, iron ore and tourism and I think it will overtake tourism. It is also in net terms, Australia is a tourism importer, whereas in net terms, it is overwhelmingly and education exporter and we take in about $9.5 billion in terms of the free revenues and the expenditure of the international students in the transport industry and accommodation and in their localities for living costs and so on and we only spend about a tenth of that or less, in importing education. That is, when Australian students go abroad. So it is one of the most successful industries in the country in that sense too.

It is attributed I think to federal coordination. The head of the Australian Education International, which now coordinates the industry, succeeds what has been a very effective departmental operation over a fifteen years period. This synchronisation over much of this period, between the education portfolio and the immigration portfolio was impressive. I wouldn't say it is as good as that now, but it has been very good and the industry has managed it's marketing offshore very well in a coordinated fashion, without eating itself up. in the early days, there was a lot of marketing against each other and that was put a stop to, by the Commonwealth and managed very effectively through the embassies and since then, the industry has managed itself very well in Asia indeed.

The business model that Australia has developed in this area, has been highly regarded around the world and much imitated and investigated. What isn't imitated around the world quite, is the driving incentives that have made the industry work. What's pushed us into this rather phonetic growth and arguable expanding some of the risk factors in the process, is that 30% cut in public funding per student and the fact that international student income has been our major and if not only source in some cases of discretionary finance for development.

On the demand side, the industry has been sustained by the migration route in part. The incentive for foreign students to gain residence and they have formed a major part of our school migration intake in recent years, about 40%. And may that continue, because that has been a tremendous source of productivity for the economy, but arguable the industry is too lightly regulated. I mean, there is perhaps a discussion to be had on whether we should have a cap on tuition, but I have left it uncapped and it is one of the things that has driven its growth, but we are not talking about caps for domestic students , with the GRA map, perhaps we need to revisit the synchronisation of foreign student fees with domestic student charges. But more importantly I think, quality especially off shore has been lightly regulated. And as whole, that hasn't been a great problem for us, but in the last two years in succession of incidents, which have received a great deal of publicity off shore, especially in Malaysia and Singapore and Hong Kong and we have got into China as well. Those incidents, some of them, concern claims about plagiarism and soft marking. Some of them concern our handling, our welfare handling of students and all those things need the closest attention.

A shudder went through the industry when central Queensland lost three thousand students this year and its percentage of income from international students, slipped from the 54% in 2066, that is the year after these figures, to 47% and it was starring down the barrel. Central Queensland was pinned by *16:22 for enrolling too many domestic free paying students, which they had clearly done to try and plug the whole in its foreign student fee paying numbers. Too many meaning that it enrolled additional fee paying students, which it still had HECS place unfilled. So Central Queensland stepped over the line and upset the balances between the domestic student population and the international student population and the industry started to fall apart and once that happened. So this in an important incidence and Central Queensland has been pulled back in, but its own financial position is now quite *16:55 and clearly you can't sustain the situation where half of your student

income is from this source. But other are, if they are not at that level, the at least the next level of the magnitude down, are substantially dependant upon the industry.

Turning to research. I have a slightly different view to Aaron on this. My reading of it, is that there has been a turn to curiosity driven basic research world wide in the last half decade, with Singapore, China and the other new major research players, which I will talk about in a minute. Focussing really on building capacity in that area. That isn't to say that curiosity driven research is unrelated to end users, it is not. It is a question of synchronisation, rather then being end user driven though. But of course Aaron is right about the emphasis on the disciplinatory. I think that is, that is an open and shut trend line and the productivity commission had a bit to say about this in an eight hundred page report on public sector R&D in March, as some of you will know.

The productivity commission said that the universities arguably were focussing too much on commercialisation, that that was an important part of what they did, but it wasn't the larger part of their potential and the larger part of their potential lies in development of curiosity driven research that goes into the public domain and by focussing primarily on commercialisation, some universities were crowding the private R&D industry and it is a long, as Aaron said, it is a long distance from the development of good ideas and research to commercial application. And a lot of parties how to come into that and if universities try to fill too many of those gaps themselves, arguably the outcome is less than optima.

So there is some questions there about the balance between commercialisation and basic research. But the point I wanted to make, is that basic research is a major indicator of your global competitiveness and on this indicator, as Glen said, we have two of the top one hundred research universities in the world. But both of those are in the second fifty, which is surprising I think. Or was surprising when we first discovered it and rather disappointing, because on, you would expect a country with our wealth and our English language advantages to be doing a little bit better than that. And Canada for example, which is our nearest comparator, has two universities in the top forty, including the university of Toronto at twenty four, which has the second largest number of publications and citations in science after Harvard in the world. So it is possible to do better with our kind of economy and society and political configuration.

The engine room of basic research and performance is the high sci researchers, the high citation researchers, who are at the cutting edge of their field. And this is why the US does so well, because it has such a high proportion of these people on a world wide basis. We don't do too badly on this indicator and it is ANU, with twenty five, that carries to some extent, but it is really an American business. The US spends $360 billion USD in purchasing power and parity in terms of higher education each year and a significant part goes to research. It's next competitor, Japan, spends $50 billion in US, that is a seventh and Australia spends on that measure, about $10 billion, one thirty sixth of what they US spends. So all that makes more sense, this disparity that is even more striking when you look it in pie chart forms. That is just the Asia Pacific notions, but I have left out the UK for example, there with its four hundred and forty odd, but still you can see that the US in dominant in basic research.

But it may not always have it's own way forever. The US has 5% of the world's population, but has 54% of the top one hundred universities, so it is using, Glyn's indicator of population to number of top universities in the top one hundred. The US had got ten times more than it should have. But the UK, which is on our standard of living, it is on our GDP per head and it is about three times as big as us in population and total GDP. The UK doesn't have six, but it has eleven, including a large proportion of the top forty.

So the UK, which doesn't spend at a high rate on universities, although it does spend more than us on basic research. Over performs considerably in this area, whereas arguably, for an English language country, when you compare us to the US, UK and Canada, we have a substantial problem. We are under performing. It is possible for a medium sized country to do better and if you look at Sweden or Switzerland who do, who have got some very strong universities at the top of their system, arguably they are better than us, in basic research capacity, even though they are considerably smaller as countries. And Singapore is going to go past us, I think, having just had a look at the National University of Singapore on present trends anyway, with the rate at which the Singapore government is investing in research at the National University of Singapore in [Nanyung] *22:03. I think both will be in the top one hundred and I think the NUS will be in the top fifty within five, ten years and will go past ANU, in present trends.

The new competition is an important issue for us in basic research. And this table shows you how four countries in particular, have made dramatic strides forward in the basic science, in the 1988 to 2001 period. See the multiplier there of 14.3 for Korea, but also Singapore and Taiwan and China. China is now the second biggest R&D spender in the world in aggregate terms. But what is interesting is it's rate of R&D spending as a percentage of GDP, has jumped from six, 1.6 to 1.2% in five years and it is now just below the Australian level and it is sort of roughly comparable to the weaker, western European countries, as we are.

So it is not yet up there at the 2.5% or 3%, like some countries are, like Sweden or Finland. But it is, a country of that size, spending 1.2% of GDP on research, is going to do an awful lot of research, both basic and applied and commercial. So it is a significant competitor for us.

So that in a nutshell is the economic story. Investing perhaps below our capacity, overall. Problems in early childhood and in school retention. Significant strength in the export industry and safe guarding and developing that is a primary task of policy. The export industry $9.5 billion, is just about as big as the whole higher education budget, almost as big. It is about 80% size of, all our expenditure on higher education. I mean, the export industry includes the expenditures outside the sector, you know, by the students. Their transport, their living costs, their accommodation and so on.

We have a weakness, clearly in our domestic teaching capacity. It has been thinned out in this funding configuration and the one that worries me more, is our long term research capacity is under pressure, as we can no longer fund it effectively from teaching places. And I think a really significant move, that the GR8 makes, is it begins to separate out, more decisively research funding from teaching funding, which opens up the possibility of more negotiation with end users too. And it means that, it means that we have got some chance of getting a targeted national investment in research, which would have to be differential by institution, given that we would want to follow our strengths, rather than out weaknesses, if we were to introduce a new funding, targeted funding as the GR8 suggests.

But before these issues can be addressed, we need to think about the political and policy conditions and my final and substantial slide, points to the federal/state area, as a key area of governments that need to focus on, to address most of the problems in education. Shamosel is a technical term, meaning a complicated, non transparent mixture. Work choices has thrown a gigantic spanner into this particular works. November 2006, a decision in the high court, clearly has change federal/state with ramifications right across all of the areas that are effected by federal/state relations. Education, as you can see in a very complex way, involves rings of government in almost every sector and even in the high reg sector, where the government has been in the vanguard for almost thirty years, the legislative framework is still one of state control. And accountability to the state level as the primary form of accountability. It doesn't make much sense in terms of where this sector has gone,

but it is the legal framework. But high court, I think has said that that will be revisited over time. If ever there was ever a case for intelligent collaborative federalism, it's established, I think by the many diseconomies, disjunctures and myopias and if not to mention, crash buck passing and blame shifting that our federal arrangements in education have created. But overcoming that one is a substantial task and perhaps can only be achieved at key moments in the notion.

Thanks very much for the opportunity to speak with you.

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