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**HOUSE OF  
REPRESENTATIVES**

STANDING COMMITTEE ON ECONOMICS

**Reference: Productivity growth in the Australian economy**

FRIDAY, 23 OCTOBER 2009

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BY AUTHORITY OF THE HOUSE OF REPRESENTATIVES



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**HOUSE OF REPRESENTATIVES**  
**STANDING COMMITTEE ON ECONOMICS**

**Friday, 23 October 2009**

**Members:** Mr Craig Thomson (*Chair*), Mr Andrews (*Deputy Chair*), Mr Bradbury, Mr Briggs, Mr Fitzgibbon, Ms Jackson, Mr Morrison, Ms Owens, Mr Anthony Smith and Mr Turnour

**Members in attendance:** Mr Andrews, Mr Bradbury, Mr Briggs, Mr Fitzgibbon, Ms Jackson and Mr Craig Thomson

**Terms of reference for the inquiry:**

To inquire into and report on:

The key factors influencing Australia's productivity growth rate, focusing on, but not limited to:

- a) trends in Australia's productivity growth rate during the past 20 years and reasons for the recent trending decline;
- b) trends in productivity growth rates against other OECD countries;
- c) the adequacy of productivity growth measures;
- d) the contribution made by microeconomic reform to the permanent improvement in the growth rate of productivity and the continuing effectiveness of the microeconomic reform agenda;
- e) the willingness and ability of small and medium enterprise to adopt best practice technology;
- f) the adequacy of the level of investment in physical capital;
- g) the adequacy of the level of investment in public infrastructure;
- h) the level of resources devoted to research and development;
- i) the adequacy of resources devoted to training and development of the labour force; and
- j) the key reforms and measures that can be undertaken to lift Australia's permanent rate of productivity growth.

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**Committee met at 9.16 am**

**CHAIR (Mr Craig Thomson)**—I declare open this public hearing of the House of Representatives Standing Committee on Economics for the inquiry into raising the rate of productivity growth in the Australian economy. To date the committee has received 27 submissions to this inquiry. Submissions have been comprehensive and have raised numerous issues. Today is the first public hearing of the inquiry to allow committee to consider these issues in more depth.

The committee will investigate the productivity growth trends in Australia and in other OECD countries over the last 20 years, the adequacy of investment levels, physical capital and infrastructure, the levels of resources devoted to human capital and research and development and strategic reforms and measures that could be undertaken to lift Australia's productivity growth. We will also consider the appropriate measure of productivity growth. Today we will hear from the Productivity Commission, the Australian Bureau of Statistics, the Australian Chamber of Commerce and Industry, the Department of Innovation, Industry, Science and Research, the Australian Bureau of Agriculture and Resource Economics and the Treasury.

I remind witnesses that although the committee does not require you to give evidence under oath this hearing is a legal proceeding of parliament and warrants the same respects as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. The evidence given today will be recorded by Hansard and will attract parliamentary privilege.

[9.17 am]

**BANKS, Mr Gary, Chairman, Productivity Commission**

**BRUNKER, Dr Donald, Assistant Commissioner, Productivity Commission**

**O'BRIEN, Mr Terrence, First Assistant Commissioner, Canberra Office, Productivity Commission**

**CHAIR**—I welcome representatives from the Productivity Commission here today. Would you like to make an opening address? We have your very comprehensive report and we have also had the benefit of a private briefing from you at our last hearing. Thank you for that.

**Mr Banks**—Thank you very much for the opportunity. I should add that Dr Brunker also heads our Productivity Analysis Branch, so he is obviously the relevant person on the technical material in our submission. That submission addressed a number of relevant matters including what productivity is and why it is important, how it is measured and how that sometimes can contribute to difficulties of interpretation and policy analysis, the development of Australia's productivity performance over time and the policy framework that needs to be considered in seeking to increase productivity in the future.

I would like to take this opportunity to outline some of the key issues relating to those matters before we have some discussion. As we have outlined in the submission, productivity growth will be a major determinant of Australia's ability to sustain future income growth over the decades. It will also affect how well the country recovers from the impact of the global financial crisis as well as its capacity to meet longer term challenges such as population ageing and climate change.

Over the past four decades Australia's market sector multifactor productivity growth, or MFP growth, a concept I am sure you are becoming very familiar with, directly accounted for over one-third of total real income growth in Australia, with the remaining growth attributable to growth in labour and capital and changes in the terms of trade, with the terms of trade being dominant in more recent times. Australia's long-term average MFP growth has been 1.1 per cent a year, which is around the middle of the MFP growth rates of major OECD countries.

Concerns about declining productivity, growth, income growth and income levels relative to other OECD countries in the early 1980s gave impetus to the major economic reforms, which were implemented from the mid-1980s. Subsequently, during the 1990s, average MFP growth surged to 2.3 per cent a year lifting Australia's MFP growth rate to second among major OECD countries. Analysis by the commission confirmed that this surge could not be attributed to international productivity trends, to normal recovery from recession, or to improved labour force skills or even to greater work intensity. While there was rapid uptake of new technology, including information communication technologies through the period their contribution to MFP growth was small. More fundamental and far reaching were the microeconomic reforms of the late 1980s and 1990s.

The fact that MFP growth has declined since then is not unexpected but the extent of the decline is, especially since 2003-04. Changes in the amounts or allocations of expenditure on infrastructure, education and training or R&D are unlikely to have played an immediate and direct role in the recent decline. The observed fluctuations in expenditure were too small and wrongly timed to explain the recent decline. I should say that that observation about short-term changes does not deny that efficient expenditures in these areas are obviously very important to productivity growth in the long term. Commission analysis suggests that 70 per cent of the decline since the productivity cycle ending in 2003-04 is accounted for by specific developments in three sectors: in mining, in electricity, gas and water and in agriculture.

The resources price boom has led to very strong growth in investment in mining and lags between major capital expenditures and corresponding increases in output, which can average around three years in that sector, have the effect of depressing measured productivity during periods of strong investment growth. In addition, mining has been experiencing a secular decline in the accessibility and quality of mineral resource deposits, particularly in the oil and gas sector, and this reduces productivity below what would otherwise have been the case.

The recent poor productivity in the utilities sector—electricity, gas and water—also reflects large increases in capital and labour inputs together with significantly reduced output growth. Reduced rainfall has necessitated the introduction of demand management initiatives to reduce urban water consumption, along with new capital investments for recycling and desalination. Rural water consumption is also significantly down and major conservation initiatives are underway. Agricultural productivity has also obviously suffered from an extended drought, with 2002-03 and 2006-07 being particularly bad years, again impacting on overall productivity.

As you well know, productivity growth is a means to achieving higher incomes, but it is not an end in itself. In the short to medium term productivity may move quite differently from income and aggregate economic welfare. Recent performance in the mining sector is an example of high profitability but low productivity growth. Short- to medium-term developments in official productivity estimates therefore have to be carefully analysed.

As the special factors—the ones that I have just talked about that have been reducing productivity in these sectors—work their way through and the lagged output associated with new investments comes on stream, some recovery in productivity growth is to be expected, but that provides no grounds for complacency. As we say in our submission, to raise the rate of productivity growth in broad terms, policy needs to address impediments to the efficient allocation of resources right across the economy, but, at the firm level, to heighten the incentive for firms to perform while facilitating organisational flexibility and capability.

Much of this is encompassed in the national reform agenda, which has been developed in recent years in part as a response to the longer term cyclical challenges of our ageing population and the costs of achieving sustainable environmental outcomes, particularly in the area of greenhouse. That reform agenda remains very important as we seek to recover from the impact of the global financial crisis.

Of the three areas in relation to firms, competition, the first one, is the key to providing the incentives for firms to perform well. The second one, flexibility, is crucial to enabling firms to be responsive to the ongoing change that affects them. Excessive or inappropriate regulation can

reduce firms' adaptability and burden them with unnecessary cost. And capabilities, human and knowledge capital as well as infrastructure in institutions, can be thought of as the support platforms for productivity growth. Improvements in the quality of education, the timely provision and efficient use of economic infrastructure and improved productivity in government service provision all have a role to play in supporting productivity growth. Regarding the latter, with the fiscal pressures that we now face coinciding with the need for greater attention to human capital development and provision of care in an ageing society, there is an imperative for the range of human services to be delivered more efficiently as well as more effectively. Services in the areas of education, health, child care and aged care are all important to Australia's future productivity and the wealth and the well-being of the community generally. But general propositions in these areas can only take us so far. For example, making schooling or health care more effective raises more complex policy challenges than lowering trade barriers or removing barriers to competition in industry. So the current third wave of reforms will rest on detailed evidence-based trials of what works best to build capabilities. I will conclude my remarks there and we look forward to having some discussion.

**CHAIR**—Thank you for that. We will now go to questions. There will be a range of questions. I will kick off. The trends in productivity growth: you say that the fact that the MFP has declined since 1989 to 1999 is not expected, but the extent of the decline is—especially since 2004. Can you describe the extent of the decline in the decade, and how the current decline differs from previous years? Is it entirely due to those three industry factors? You have said it is not, you have said that 70 per cent of it is.

**Mr Banks**—No, that is right, and there are obviously other things involved. The contribution we tried to make was to look at the areas that we could identify and measure. But I might ask my colleague, Don Brunner, to elaborate on that.

**Dr Brunner**—That is right. We have clearly articulated in our submission those things that we could identify unambiguously as having a significant effect. Some of the things that came up within those three industries may also be at play in some of the other industries. What I have in mind there is during periods of very high growth in investment, there may well be lags in other industries that we have not collected any data on to understand how severe those lags are. We would not expect them to be like mining, which is a standout, and even electricity, gas and water have some very significant lags in them, but they might also be a factor in some of the other industries. But other than that, there is nothing I could identify on the basis of our analysis that would clearly be a cause for that lower growth.

**Mr Banks**—Just on the point: to some extent Australia has been a bit of a victim of its own success because with the booming terms of trade and the booming demand for our exports, we have had a capacity constrained economy. So while we have identified particular things in particular sectors, what Don is saying is that more generally across the economy a lot of enterprises found themselves strapped. They were looking for skilled labour; they may have been taking on board people who they may not have recruited in earlier times when they had more choices and so on. So these things could well have impacted on productivity as well, with more emphasis on marketing and getting product out the door than necessarily reducing costs. Indeed, some of the decisions might have involved ways of getting production completed that were higher cost, but still profitable.

**CHAIR**—So you are saying we should not be concerned about the decline?

**Mr Banks**—No, not at all. That 30 per cent, there is an element of uncertainty as to what is driving it. I think it is a mix of factors, but ultimately our message is that totally the wrong message to take from all of that would be one of complacency because, as we say in our submission, it is going to productivity in the future that will be so important to raising income levels and living standards. Even though we have ruled out a number of issues like expenditure on infrastructure and education in the short term as having been drivers of the dip that we have seen, these things are absolutely crucial in the longer term.

**CHAIR**—Why do you rule them out in the short term? Just because it is too short a lag time to have had that effect?

**Mr Banks**—Yes, for a number of reasons. Typically because we have not observed changes in expenditure that would correlate even with building in some lags with what we have seen in productivity, whereas in the other areas that Don was also elaborating on there is a very close correlation that you can observe with what has happened in the short term. For example, in the area of infrastructure there is quite a debate, and one of the areas that you were looking at is the adequacy of infrastructure spending. In the period where we have seen the reduction in productivity growth, that was preceded by an acceleration in expenditure on infrastructure and, indeed, there is some link between those two because it takes a while for that spending to bear fruit in higher production. So in some of those areas we have anticipated the needs of the future for productivity, but the cost of that in the short term has been productivity numbers that have been a bit lower than you might expect.

**Mr O'Brien**—Pictorially, the notion of observed fluctuations in infrastructure and investments and so on do not seem to match up well with the productivity cycle. They are embedded in those charts from about page 29 to 33 of the submission. The other chart that I keep returning to myself is on page 14, which shows productivity growth over the cycles back to the mid-sixties. It is just a powerful reminder that productivity growth is intrinsically cyclical for reasons interactive with cycles in the broader economy. The comment that we would always have expected some productivity slowdown goes partly to that intrinsic cyclicity, but also to the fact that if you buy the storyline about intensive reforms in the eighties and the nineties shaking out the low-hanging fruit of poor manning practices or productivity in the infrastructure sectors and so on, those gains pass through the system. What you are left with then is a more competitive, more responsive economy, which is presumably picking up little opportunities for productivity gain going forward, but not so much as in that peak period of pay-off from the earlier reforms. Maybe a surprising impact this time around has been the terms of trade interaction with mining sector productivity. As you know from all sorts of sources, that terms of trade opportunity was enormous and, paradoxically, the very act of taking that opportunity by the mining sector drives short-term productivity negative.

**CHAIR**—You raised issues about how we should not lose sight that the ultimate aim of increasing productivity is about raising living standards. You spoke about the possibility of policy errors in relation to this. What do you mean by that? What possible policy errors do we need to be careful of before we lose sight of productivity growth as an end in itself?

**Mr Banks**—What we were referring to there is that if you focused—while there is no doubt that in the long term productivity is very important to income growth, in the short term it may not be, so you could in the short term have actions that were designed just to raise your headline productivity numbers.

**CHAIR**—Like not invest in the mining industry?

**Mr Banks**—Yes, that is right, or, as in France, if you were focused on labour productivity, you might push people out of the labour force and those who are left are of higher productivity and suddenly your numbers look a lot better by international rankings and so on. The important thing is to think about the longer term, that it is really about income growth. In the period in which we had that reduction in productivity growth, as Terry said, we had a terms of trade boom so that Australians were progressively better off every year. In fact, we had historically high growth rates.

*Mr Briggs interjecting—*

**Mr Banks**—That is right, and that is what really counts. The crucial thing we now face is in the adjustment as terms of trade come down to make sure that productivity can take up the slack again and that we can get that internally generated income growth that depends on the efficiency of production in enterprises through the country.

**Mr O'Brien**—I have sometimes thought that productivity analysis is a dangerous line of business because, after the event, in a productivity upswing you can always work out which happened to be the leading industries and after the event in a productivity growth slowdown you can always find out who suffered the most in productivity terms, but the policy error would be to go from there to trying to respond in an ex-ante sense to say: 'This industry has had a shocking productivity dive. What can we do to pump up productivity growth in that industry?' There is this strange sort of epistemological gap of what we can work out after the event and the lessons that will help us going forward. What we feel would help us going forward would be those general enabling policies that work on capabilities, flexibility and intense competition.

**Mr Banks**—Another cut on the question that you asked is that there are some sectors that have low productivity but are very important to living standards. Areas like education and health—where it is very hard to assess productivity and you do not see much improvement over time because it is very hard to measure it—are absolutely important. If policy were directed at moving and supporting high productivity sectors, you would find that you were not actually supporting the sectors that in the long term were so important to wellbeing and living standards.

**CHAIR**—Just on that, you have said that you could possibly add three per cent to GDP through reforms in health and education. Can you elaborate what you mean by that and what sorts of reforms you would be suggesting? You have said they are more difficult as well, and I presume your last comment is partly the answer to that.

**Mr Banks**—Yes. We only very briefly summarised in this submission—we tried to make it as readable as we could—a much fatter report that we did on the costs and benefits of the national reform agenda. In that we looked at the fledgling agenda that was being focused on to see what was potentially at stake for Australia. In health we looked at the efficiency of the health system

and if all jurisdictions within Australia met best practice what that would mean. We saw there was potentially a one per cent improvement in GDP available there.

The area which had the biggest potential bang for the buck was the impact of health and education on human capital and what it could do to labour force participation and productivity. The gross numbers there were potentially an increase of up to nine per cent of GDP in gross terms from reaching what we defined as best practice in that report in terms of the payoffs to participation and productivity from the sort of best arrangement of your health system and your education system. The caveat to that was that they were gross numbers. They did not look at the costs of doing those things. In this fiscally more constrained environment we are facing, spending a lot on education and health is going to be trickier than it was before. That was where we were coming at in those important areas.

**CHAIR**—Your recommendation to this committee would be that, if we are looking at making substantial increases in productivity, it is the human capital areas of health and education that we should be focusing on?

**Mr Banks**—Yes. I think the national reform agenda, or the COAG agenda as it is now called, has a good framework for thinking about the longer term because it embeds in it the three areas that we are talking about. It has also in part got the competition and regulation agenda as well as the human capital one. Let us face it, some of these human capital investments could take 20 years to pay off, so it is a long-term investment. Investments in education for young people and so on—improving the quality of teaching, for example, which is something we highlight—are really going to be very important for the longer term. The challenge for public policy is things with really long-term payoffs, in a sense, are politically more difficult because any change will involve some short-term disruption et cetera. If the payoffs are a decade hence—

**CHAIR**—The political cycle is a lot shorter.

**Mr Banks**—things are a little bit out of kilter. Another point we have made is that there is still some scope to reduce some of the red-tape burdens and regulatory inflexibilities. That is an important stream of the national reform agenda too. The committee would obviously be aware of what is happening there in terms of the hotspots and the work that Craig Emerson has been doing. We would support all of those. A federation has benefits but it also has costs. One of the costs is where you get regulation that passes its use-by date because it was designed for a particular jurisdiction when we now need national regulation in a global economy.

**Mr BRIGGS**—Would you put workers compensation and occupational health and safety in those buckets?

**Mr Banks**—Yes. In fact I have in the past described OH&S as a bit of a litmus test for our capacity as a nation to come up with regulatory reforms that will help build the national economy. In recent times, as you may be aware, there has been agreement among jurisdictions to come up with a uniform way forward in relation to OH&S. That is just one example but it is an important one.

**Mr BRIGGS**—And workers compensation?

**Mr Banks**—Workers compensation is related to that and it also is quite important, to the extent that you have national firms and more and more firms operating at a national level that face red-tape burdens from significant differences across jurisdictions. So there is a trade-off to be made, because if you are going to harmonise regulations you have to know what the perfect regulation is, or the best one. In those sorts of areas, almost by definition, jurisdictions have said, ‘Here are 27 areas where there’s broad agreement that a national approach would actually pay dividends and that the benefits would outweigh the costs.’ But still there is a little bit of work in a number of areas to work out which jurisdiction’s approach is best or, if none of them are ideal, how you would combine the best elements of each to come up with a good national system.

**CHAIR**—In relation to that particular area of human capital—and clearly our history in the Federation plays a role in this—how far down the track are we compared to other OECD countries in terms of moving on in that agenda?

**Mr Banks**—It is not easy to answer that definitively. We could get back with some more information for you. You can measure inputs but what you really want to know is outputs or outcomes. The test of it really is the productivity of those people in the workplace. At that level, Australia’s relative productivity levels have been probably middling in the OECD rankings. At the input level, the amount of resources we devote to education and training would probably also be middling. When you look at the results of children going through the school system, Australia probably ranks better than middling and towards the top of the OECD. But in some areas you find that, while the average is quite high, Australia has a longer tail of low achievement than other countries. It could well be that we report achievement more transparently across the spectrum than some other countries. So bringing the bottom up is a very important part of improving the human capital of Australia. It is quite a difficult thing to get really meaningful and revealing international comparisons on.

**Mr ANDREWS**—Going back to the discussion about occupational health and safety, the difficulty that is always confronted—and I am using that as an example—is that, whilst a rhetorical commitment can be obtained to harmonisation and moving forward, it is often difficult, if not impossible, to actually bring that about. For example, in occupational health and safety the states wish to retain their own systems. New South Wales says, for example, ‘You’ve got to have our system and not one which we regard as inferior than that,’ and that of course brings about problems. Is there a point where in some of these areas there should be a preparedness of the Commonwealth to say, ‘We’ve been trying to do this for five years or 10 years or whatever and the states are never going to really get together on it, so we should just have a national approach’?

**Mr Banks**—I think ultimately—

**Mr FITZGIBBON**—There are constitutional limitations. Isn’t that partly the issue?

**Mr ANDREWS**—If I could just answer my colleague: yes, there are some constitutional limitations, but the High Court’s decision in the Work Choices case indicated a broader approach to the Constitution than might have been the case in the past. My question is really: when we get this deadlock, when for year after year there is still a rhetorical commitment to bringing about harmonisation but it does not occur, what do we do?

**Mr Banks**—It depends—if we just take the point that you were making—whether the Commonwealth knows what the right answer is. If it is very clear what the appropriate regulatory framework is and in principle people agree with that but in practice they cannot meet it, then I think you could see a case for the Commonwealth, subject to some of the constitutional constraints, taking a lead. One way in which such a lead can be taken is by developing a parallel system that would allow companies within particular jurisdictions to opt out of the state based system into the federal jurisdiction. There have been some examples of that.

**Mr ANDREWS**—I am thinking of Comcare, for example.

**Mr Banks**—It has the attraction that it allows people to vote with their feet and to judge the relative merits for their company of going into a national system versus the state system, so in a sense it creates a little bit of vertical competition as well as the competition around the jurisdictions. In the case of OH&S, it looks like there has been agreement, particularly between New South Wales and Victoria, in terms of moving more in the direction of Victoria's regime, as I understand it. I think there has been a breakthrough there, but I agree that this process can take a long time. Sometimes it has parochial dimensions, but sometimes it just has genuine differences of opinion as to which system works best. One of the points that we have made is that we probably have not made as much out of our Federation as we could have in terms of learning from the different policy approaches of different jurisdictions. We just have not had a sufficient evaluation and review to do that well. Going forward, that is something that we should be focusing on: trying to understand far better which jurisdictions are doing it best as a kind of model for other jurisdictions or nationally.

**CHAIR**—That is an upside of Federation: innovation with different approaches. As well as the obvious problems, there is also an upside.

**Mr Banks**—That is right. We do have some mechanisms in Australia for learning across jurisdictions. The way COAG has taken the reform agenda forward is a good example of that. My organisation helps COAG by producing these big fat blue books on efficiency and effectiveness of government services. Our report on Indigenous disadvantage is a national one that tries to look at which jurisdictions are doing things more cost-effectively or appropriately. Other federations actually admire us for moving in that direction. It is a problem common to all federations, I think—both opportunities and costs.

**Mr ANDREWS**—Your submission states, on page 39:

Ultimately, raising overall productivity depends on the performance of individual firms ...

The complaint I get from individual firms in my electorate and elsewhere is about the stultifying, increasing burden of paperwork and red tape from all levels of government and other regulatory agencies that never seems to cease. People commonly talk these days about having to employ someone just to keep up with the regulatory paperwork. If you are Coles Myer or BHP, that can be factored into it, but it is different if you are a small to medium sized business, where this burden seems to be felt acutely. I am not making a partisan point here, because all governments say they are going to reduce red tape, but when you go and talk to businesses it seems like the opposite occurs. Is there anything that can be done about it, and have you got any ideas?

**Mr Banks**—It is important for the reasons you described. I was involved in a regulation task force which looked at this in the Commonwealth jurisdiction and we calculated that there might have been some \$8 billion of excessive costs which were not necessary to meet the policy objectives of the regulations concerned. \$8 billion is a significant amount of resources. If you multiply that according to the various other jurisdictions, what businesses often say is that the problems are just as much at the state level, and particularly at the local government level, as they are at the Commonwealth level. The Commonwealth has made quite significant moves. Again through COAG there has been a sustained effort to get the states and territories also focusing on this.

The commission has been doing work in relation to regulatory benchmarking across jurisdictions in areas including occupational health and safety and food regulation, and in other areas, which is part of their contribution. All the jurisdictions now are systematically going through different sectors and looking at regulatory burdens. So there is plenty being done. When you talk to small business, it is never enough and there are a lot of problems there but at least now we have identified them and we have processes in place to pursue them. One of the contributions we have made is to quantify what might be at stake, which is one of the things we do. It is very clear that there is a big payoff to productivity from reducing the drag on enterprise performance. It has two sides to it. One is just the deadweight cost of the paperwork and secondly is the inhibition of innovation and flexibility, particularly for small enterprises where are you are often tying up the decision maker in doing red tape kind of work.

**Mr ANDREWS**—Has your work extended to areas where there is unnecessary duplication? For example, in the environmental regulation area, it seems to me that the Commonwealth and the states are often doing the same thing.

**Mr Banks**—Yes. In the report I talked about, it was mainly focused on the Commonwealth jurisdiction but we also highlighted a whole range of areas where there seemed to be unnecessary duplication with the states and territories. Quite a number of those have got into the regulatory hotspots that I talked about, the 27 that COAG are focusing on. That is an area where COAG can make a contribution for the reasons I talked about earlier.

**Mr ANDREWS**—Finally, your submission states at page 43 that:

Flexibility to alter work arrangements plays an essential role.

Is the commission in a position to monitor the various changes which are being made to workplace relations laws as to what impact they might have over coming years?

**Mr Banks**—We have not been asked to do work in that detail. Some of the impact of that will flow through into other work where we are monitoring productivity performance at an industry level and so on. We have an ongoing research program where we are looking at some of the drivers of productivity performances I described earlier. Some of those things are also hard to measure, as you may know. In the past there have been attempts to do an analysis which identified a particular causality to different elements of the environment, including industrial relations laws and so on. My understanding of that literature is that it is suggestive but never definitive. Certainly we think it is important and we think there have been significant

improvements over time. We think it is important that any changes keep in mind the need to maintain adequate flexibility and scope for innovation in enterprises.

**Mr BRADBURY**—I would like to ask some questions in relation to two areas. The first area is competition, which is extensively covered in the submission. The second area I will come to is taxation and tax reform, which is not a large part of the submission but is certainly dealt with in other submissions. In relation to competition, pages 41 and 42 of the submission go to areas where there may be opportunities for improved efficiency of resource allocation. Some of the areas identified include coastal shipping, aviation, pharmacies, taxis and news agencies. I would like to get some commentary on specifically where the efficiencies might be in those areas. Before coming to that, I note that you have identified that the nearly \$17.5 billion of gross annual Commonwealth assistance to industry is not regularly reviewed for effectiveness in terms of outcomes achieved. My first question in relation to the figure is: is that a figure compiled on a regular basis or is it a figure you have had to wade through various government programs and tax expenditure statements in order to put together? Secondly, how would you see might be a logistically appropriate way of trying to undertake a regular review of these sorts of expenditures on an annual basis?

**Mr Banks**—I guess one of the core tasks of the commission in its annual reporting obligations is precisely to document the assistance to industry and what effects it might be having on the overall performance of the economy. The Productivity Commission and its predecessors going back a long way have done that. If you are interested in looking at that we produce an annual publication called the *Trade and Assistance Review*, which does do that documentation. But you are right: it means a lot of searching for information because every year there are a whole lot of new programs. We try to systematically monitor those and put them into that publication. It is probably the only publication in Australia that has a comprehensive overview, with the caveat that that applies to the Commonwealth. There is a lot of industry assistance and so on that occurs at the state level. In the past, we have raised some questions about some forms of that assistance, particularly that which is designed to attract investment from one jurisdiction to another—which we see as potentially a negative sum gain for Australia.

We did a comprehensive review of state assistance some years ago and we may well come back to that. But at the Commonwealth level at least we do document that every year. As I say, that is something that we have done for quite some time. Mind you, it is quite hard to find equivalent information in other countries to do with their protection regimes and assistance levels and so on.

**Mr BRADBURY**—In terms of developing a system by which an annual review of effectiveness of programs could be undertaken, do you have any suggestions?

**Mr Banks**—It would be up to the government to decide the priorities. There are so many things that could be done. We in other publications have pointed to some areas that seem to pass a number of criteria of being substantial in terms of the amount of outlays, that potentially are significant in terms of the impacts on performance and that have not been reviewed for some time. Indeed, the government does do this because we have had inquiries into drought assistance and antidumping, which used what the government saw as some priorities for us to review in a public way. In the past, there have been times when those reviews have been done as a program. For example, the National Competition Policy included the Legislative Review Program, which

was a program that lasted five years. There are different ways to do it. I think that is what you might be hinting at—that is, whether there is scope for a more systematic review program. I think there would be scope for that, yes.

**Mr BRADBURY**—In relation to those specific areas—coastal shipping, aviation and pharmacies, taxis and newsagencies—could you offer some general commentary on what it is that is the barrier to efficient resource allocation being achieved in those areas? Would you just scope the main issues?

**Mr Banks**—Essentially, any area where there is a major blocker on competition I think provides a *prima facie* case for looking at whether consumers are getting the best deal. But things change over time. In all of those areas, any reforms would have to be predicated on a review that clarified again in contemporary circumstances that the gains would exceed the costs. The tricky thing with those particular areas, particularly the more pervasive small business areas—like pharmacies, newsagents and so on—is that it is politically very difficult to deal with those things. But, on the other hand, they are services that people use all the time. When you are looking, for example, for a cost-effective health system, how cost effective the pharmacies are is very important to that. In the context of an ageing society as well I think it is quite important that we look at those and take the opportunity to review them. But it probably comes back to the areas of the economy and society where there are still very significant barriers to competition and then looking at those and asking, ‘Are those barriers delivering net benefits or not?’ The areas that we have identified are ones where we suspect *prima facie* there is a net cost to society.

**Mr BRADBURY**—There is a fair bit of attention given to the infrastructure projects in the submission. There are some statements on page 46 in relation to third-party access regimes for essential facilities and recent Federal Court decisions that may have created some difficulties in terms of competition. Could you please elaborate on those issues?

**Mr Banks**—That is all documented in some detail in the report we did on airport regulation. We have a third-party access regime where, for natural monopoly facilities, third parties if they fail to get satisfaction in access to those facilities can appeal initially to the ACCC *et cetera* to get a ruling that would allow them to proceed. The problem with that is that an assessment has to be made about the criteria that would be appropriate to allow that to go ahead. There is obviously a trade-off between making it too easy for a third party to access a facility that another investor has outlaid a lot on and ensuring that whoever has invested in that is not exploiting that monopoly position. Getting that balance right is quite hard. In the case that we referred to, it looked like the Federal Court had lowered the bar considerably to third parties accessing the infrastructure that other parties had invested in. That could impact in turn on the willingness to invest over time.

**Mr BRADBURY**—So you would form the view that that decision has meant that the pendulum has swung perhaps too far in favour of the third party seeking access to the infrastructure in the trade-off between third-party access and incentive to invest?

**Mr Banks**—Yes. In broad terms the test should be that there would be a clear improvement in efficiency or welfare through that access rather than just a potential improvement in competition at the margin, because everything comes with a cost. The detail of all of that is fleshed out in that report. It is just one example of an area where we have to keep vigilant that what is ostensibly a

procompetitive or procompetition set of regulations does not inadvertently actually compromise investment and innovation.

**Mr BRADBURY**—Yes. On the issue of tax reform, some of the suggestions have canvassed opportunities for tax reform that they assert might improve productivity. Obviously, taxation regimes do have an impact on resource allocation. You have not gone into any great detail on the issue of taxation. Could you offer some broad comments on the extent to which or perhaps why taxation is not dealt with in great detail in the report but also on whether there are any particular areas of the tax law that may be barriers to productivity growth?

**Mr Banks**—There is obviously a review—Ken Henry’s review—underway. That is a good reason for us not being pre-emptive at all.

**Mr BRADBURY**—I should add that the others who have commented have made submissions to that review.

**CHAIR**—Is that the primary reason you did not make a more extensive submission?

**Mr Banks**—I think that is an important reason. The other reason is that, partly because of Treasury’s primacy in that area, we have not done a lot of the kind of detailed inquiry type work that we would normally do in relation to taxation. We have done some work, however, from time to time, particularly looking at state taxes and some of the inefficiencies that arise from those. We have also looked at issues to do with pricing of infrastructure. We have looked at some of the vexed issues in relation to taxation of housing and things like that, but it has typically been in an inquiry that has focused on a particular part rather than a wide-ranging review about tax reforms that would enhance productivity per se. Clearly, Australia’s tax system has evolved considerably over time in ways that are productivity enhancing—for example, by reducing punitive marginal tax rates, which have been an impediment to effort in the past, and lowering taxation on capital to ensure that we are still attractive as a destination for investment and so on. I might see if my colleague, who formerly worked at the Treasury, has any more comment to make in that area. It is important but it is incredibly complex. I suppose that is the other point I would make.

**Mr O’Brien**—The question does draw us beyond our comparative advantage but one generalisation that is perhaps buried in our emphasis on flexibility and competition is that in productivity terms there is a lot to be said for a neutrality of tax treatment that allows unforeseeable new opportunities and new paths to productivity growth to proceed, and although we have not by any means dipped in to all the other submissions you have received—we have looked more at the aggregate of productivity measurement and drivers in the submissions—it does strike me, casting back to Treasury tax policy days, that this is an area which is very prone to the sort of magic ingredient solution.

The last productivity surge was information and communication technology, so depreciation changes that favoured that group of inputs or something might be very good for future productivity growth. That may be true. But it is terribly humbling to look back over the unpredictable course of productivity movement and its surges. If we had been sitting here back in the late eighties and we were wondering where productivity acceleration was going to come from—I am looking back on box 2.1 on page 19—we would not have guessed wholesale and retail trade. These are people driving around on forklifts and working checkouts and so on and it

is just a reminder that neutrality is a tremendously important principle in tax system design here and it is a word of caution about the sort of magic ingredient approach to productivity growth.

**Mr BRIGGS**—You mentioned in your opening statement that climate change was a challenge for productivity going forward or an opportunity to challenge it. I do not think you said either one but you mentioned it as an issue. Have you looked at the impact of emissions trading, whether it be an Australian scheme or a worldwide trading scheme of some description, and how that would impact on our productivity performance?

**Mr Banks**—No, we have not done that. The area where we have often made a contribution in these sorts of debates has been in modelling and that is a very complex area to model and resources have been allocated elsewhere within the government to do that work, so we have not. I guess a point that we have made—and we have made it in two submissions, one to a Commonwealth task force and another one to Ross Garnaut’s review—is that getting the design of the regulatory framework right will be very, very important for productivity for the reasons I was talking about earlier in relation to the \$8 billion of compliance burdens. This is the biggest regulatory challenge Australia has ever faced and by implication the potential for regulatory burdens and so on from not designing the system well is quite high.

As a kind of generic answer to your question I would say that the details of the design of the emissions trading system will be very important and the more what looks like a very coherent system to price carbon across the economy is affected by carve outs, special arrangements and assistance deals et cetera, the more complicated it becomes, the more that signal becomes a bit blurred, the more the burdens are placed on those firms that are not carved out that are left doing it and potentially the higher the burden in terms of productivity performance. So you are right to identify it. I think it is an important issue going forward and it is unprecedented territory for us to think about. The way in which we have invoked the whole challenge is that given the costs that are undoubtedly going to accompany that regime it is another reason for making sure that the rest of our economy is as efficient as possible so that we can be generating the income growth that is going to be needed to sustain that cost over time.

**Mr BRIGGS**—I have a question on the workplace arrangements in the nineties. Do you think that was part of the ‘low-hanging fruit’ that you mentioned earlier in terms of the immediate jump in productivity? Did the freeing up of the labour market have an immediate impact on productive performance, or do you think it is more long run?

**Mr Banks**—Industrial relations reform is a highly debated area politically, but, when you look at it objectively, there has been a progression of changes over time that have progressively liberalised the market and, indeed, given more autonomy to enterprises to work out what makes sense for them with their workforce and their business in their particular region. I think those changes that have moved in the direction of enterprise bargaining over time have been the stand-out changes that have made a difference. Coming back to the question of measuring it, I am not aware of any study that that has definitively shown that that has been the stand-out ingredient. Work that we have done—and Terry mentioned the wholesale and retail trades—shows, however, that that flexibility within enterprises was a great accompaniment to technological improvements because it facilitated changes in work arrangements which in turn led to big productivity pay-offs. That is why we say flexibility—the ability of enterprises to re-organise themselves to meet challenges and take advantage of opportunities—is absolutely crucial. If any

changes are to occur, we need to bear in mind the need, from a productivity perspective, to maintain their adaptability and flexibility.

**Mr BRIGGS**—I do not want to put words into your mouth, but would you be concerned about changes which increase the role of third parties in workplaces?

**Mr Banks**—As a general proposition, I refer to what I have just said. There are a whole lot of objectives in an area like industrial relations. Fairness, equity, what is appropriate and so on are all part of the mix. It is not purely an efficiency issue. But at the end of the day I think you have to get the balance right. For me, the litmus test is: do the provisions still give the enterprise sufficient flexibility to respond to opportunities and challenges? It is an important part of what you are doing because, after all, enterprises are where all this starts. The productivity of the firm ultimately translates into the productivity of the country.

**Ms JACKSON**—I have a couple of questions that might be slightly from left field. I have some concerns about the adequacy of our productivity growth measures. They seem a bit narrow to me. In fact, there is a lot of work being done in the economy which is not acknowledged or recognised in any way, shape or form in any kind of productivity measure—and it is perhaps not even valued—yet we know it is a significant contribution to the broader concept of the wellbeing of the community. With a couple of those, we have tried to put a dollar value on them. For example, the inquiry into carers last year identified that there was \$16 billion worth of work being done for the community by carers. I think your own report on the not-for-profit sector was heading in a similar direction. Of course, the unpaid work done by women in the economy has always been a passion of mine. I would appreciate your comment on that because it seems to me that an awful lot of productive work is being done that is not being measured or valued or in any way taken into account. In your submission you have a table showing how productivity contributes to wellbeing. Those examples I have given—who cares for the children, who raises the children, who has the workforce of the future—are not being factored in at all.

**Mr Banks**—The point you make is right. I think our submission indicates that a lot of what we are talking about is the stuff that we can actually measure. Even within the areas where you can measure productivity to some extent, there is a difference in the degree to which those measures are likely to be meaningful. So it is a fraught area. I suppose in terms of understanding whether an economy is getting better and more productive over time, you would hope that what you can measure and the growth rate you see in that might be reflected more widely. But, in terms of understanding what the national pay-off to resource allocation between paid and unpaid things and government and private sectors, it is very hard to come up with a meaningful total number. Related to the point that I was making earlier is that some of the lowest productivity sectors are also potentially the most highly valued in society and make the most difference to wellbeing. I think Don could give a more technical answer to your question.

**Ms JACKSON**—I do not think there is a technical answer in a sense, Don. It is a point that I want to make, because nowadays public policy makers focus a great deal on national economic indicators. We hear people chirping about them all the time in the parliament, on the radio and on the TV. Yet, they may not necessarily be quite everything we should be relying on.

**Dr Brunner**—Gary is absolutely right, and so are you. This is a very important issue and, as you are aware, there are some efforts being made to shed some light on it, for example, through

the ABS's wellbeing measures that they conduct. Just looking at those sorts of publications, you can see why it does not get into the productivity numbers—it is so very difficult to measure. And it is difficult to measure because, as you say, it is unpaid and that is very difficult to value. The way we aggregate things together is that we tend to use revealed valuations of these things to aggregate together to form GDP or the output for productivity. Those sorts of activities are very difficult to incorporate within productivity numbers.

While accepting your point as being entirely valid, I think it is also worth stepping back and recognising that productivity measures try to serve a particular purpose, and the particular purpose is about efficiency within business organisations. They were never really designed to give us an understanding of how well the community in aggregate is going, although they are clearly a very important ingredient to that. Maybe we should not expect too much from productivity numbers and, instead, look for complementary evidence and put those things together to make our judgments.

**Ms JACKSON**—I think you and I would agree on that absolutely. The second thing is that it seems to me that Access Economics—Access Economics and I do not agree on too much—was indicating in, I think, the inquiry into dealing with our ageing population that a significant factor that might assist productivity growth in improving our national output was to increase the level of women's participation in the labour force. The *Economist* magazine, in an article in April 2006, actually recognised that the increasing employment of women in the developed world had probably contributed more to global GDP growth than new technology or indeed, at that stage, the emerging economies of India and China. This is a significant issue for Australia to address. We have had an increase in women's labour force participation but it is still—if I can describe it this way—an incredibly untapped resource. It seems to me that, if we want more productivity growth, public policy measures might look at ways of increasing and improving women's participation in the labour force. I would be keen to get your response to that.

**Mr Banks**—You recall that some time ago Ken Henry gave a famous speech on the three Ps, which is productivity, participation and population—all of which combine to generate national income. They are all important. One of the reasons why we have stressed productivity going forward is that we have made a lot of participation gains in the past, including for women, as you say. The commission has done some work—in fact, we have a project underway that I am sure you would be fascinated by—on looking at why participation is not higher in certain age brackets for women, particularly women of child bearing age. I think this is the area where we were lowest in the international rankings. Overall, women's participation has increased, and that has been a very important source of income growth in the past. Obviously, that is going to taper off. Women of child bearing age and their relatively low participation in the workforce in Australia is an area of concern. Reports that have been done, including those by the commission, on child care, paid maternity leave and things like that are all part of the package of policies that you might want to look at to address it. Again, I think these issues are being identified. A range of policies are starting to be formulated, including in those areas, to deal with it. It is very important. But I do not know whether my colleagues have anything more to say on that. Terry, do you know where the report that I am talking about in relation to women's participation is at?

**Mr O'Brien**—We hope the staff working paper will be completed within a month or two.

**Mr Banks**—I am not sure that it will be completed within the time frame of this review; but, hopefully, that would be of interest.

**Ms JACKSON**—Thank you.

**Mr FITZGIBBON**—Gary, in the early parts of your report you went through a process of elimination and then you tend to come to some conclusions about what really drove the above-trend growth in the eighties and the nineties. One of the things you excluded from analysis was ICT. Can I invite you to talk a little more about that. Is it simply because we were not a developer of ICT and, therefore, the only gains were in labour productivity? To what extent, if any, have you looked at telecommunications specifically, such as the cost of access or availability to broadband or cost of broadband et cetera?

**Mr Banks**—The observation that we made about ICT was an empirical one, but I think we also said that ICT is an enabler of all sorts of things. It is a platform for innovations to occur and so it played a complementary role. To get to the other point you are making, I think a lot of the productivity surge in the United States came out of the IT sector itself. The productivity gains that were occurring in there—

**Mr FITZGIBBON**—That sort of Napa Valley effect.

**Mr Banks**—That is right. Whereas we did not have the production side. In Australia, ICT made its influence through use of ICT and innovations that were based on that. But, at the time, the analysis we did—and Don might want to comment on this a bit more—showed that, to some extent, that was overshadowed by other reforms that were really about, I suppose, taking the lead out of the saddle bags rather than streamlining the horse in other ways. They were complementary. It may well be that, again, it is very hard to be definitive about the separate contributions of things that are interrelated.

**Dr Brunner**—Just to add a little bit: there was some empirical analysis done to try to assess the role of IT in MFP itself. The IT did contribute to labour productivity quite substantially through capital deepening. We import a lot of IT capital. So there was a significant effect there. The question was on the MFP side. There was definitely a significant effect there but it was definitely small. As we say in the report: it did have a contribution but it was relatively small. I do not think there is anything else I can add to that.

**Mr Banks**—If you are interested in that, I think we had another study that focused particularly on that. You might have been on a reference group at that stage, Don, looking at the role of ICT in productivity performance. It was a separate publication and it formed part of an international suite of reports that, at the time, were drawn on by the OECD. It is a few years old now. It is a little bit dated, but I am happy to make it available to the committee.

**Mr FITZGIBBON**—If you could do that for us.

**Mr Banks**—Yes.

**Mr FITZGIBBON**—Just on the question of international comparisons, you make a point that it can be a dangerous exercise. What are the most comparable countries? And where do we go for the best analysis on our performance compared with the most comparable countries?

**Mr Banks**—I defer to Dr Brunker again on that. What we have said in our submission and elsewhere is that the US is at the frontier. It is probably the productivity leader and, for that reason, Australia is often compared to the US. But for a whole bunch of reasons that we have included in other reports we could not expect to achieve US performance, given the size of their economy and a lot of other things that they have. We do suffer a little bit from remoteness and the relative scale of the Australian economy. Don, do you have any comments to make in terms of what might be good comparators for us?

**Dr Brunker**—I think it is very difficult to pick one. It frequently depends on the issues that are driving productivity at that particular time. For example, at the moment, mining is a big issue in our aggregate productivity in Australia; but, on the flip side, it is a big issue in our income as well and on the positive rather than the negative side. So if you were to look at that then you would need to choose a country which is comparable in a sense and ask whether the same sorts of things are going on. For example, Canada's mining productivity is looking very much like ours. The same sorts of sources of difficulty within the mining sector are appearing in Canada and the outcomes look relatively similar.

As Gary just indicated, we would want to be very careful of making direct comparisons, for example, with the US in manufacturing because of the high productivity they gained through the manufacture of computers that we did not do. But that may well be an optimal economic decision for us not to get into trying to manufacture something which essentially becomes a commodity, and price competition is extremely difficult in that area. All the caveats we have put around interpretation of productivity work quite strongly here.

The other one that stands out a lot and is referred to in our submission and in the recent Productivity Commission report on *Public support for science and innovation* is the structure of our economy in relation to R&D in other countries. If you are using that for your comparison, you need to adjust for the industry structure. So it is very difficult. As Gary said, I think what we try to do is pick a country that, in general, represents best practice and benchmark ourselves against it. It does not mean that we can be the same but benchmarking ourselves over time may be valuable.

**Mr FITZGIBBON**—I will go back to my original question. I was going to let it go through to the keeper because you pointed us towards some analysis. I do not think the analysis is going to answer this question. I am just going back to ICT, because we have not been an innovator in that area as such. The impact has largely been on labour productivity. But surely the advent of the capacity to move huge volumes of data et cetera is going to have other impacts, like telemedicine et cetera. Can I invite you to talk a little more about that, how that affects the measurement and where we can expect that to have an impact in the future.

**Mr Banks**—I would make just one general point. With these general purpose technologies, as they call them—electricity was one; there have been a few through the ages and the internet and all the innovations around that is another one—history tells us that it can be 20 years before some of the real productivity benefits out of those technologies reveal themselves. It happens

quicker to the extent that organisations can adapt quickly and take those things into account. In Australia, we saw a very early pay-off in relation to distribution systems and so on, where they could use these new devices for classifying, storing and accessing goods. That has been very important. A range of other things will reveal themselves over time through that. I would not want to say that we have minimised the potential for ICT to transform or to underpin a higher productivity performance in Australia, but I guess what we were saying is that, empirically, when we looked at the surge in the nineties, maybe it was too early for some of those things to reveal themselves. I am sure that both Terry and Don have done more analysis in this area than I have.

**Mr O'Brien**—The only point that I would observe—and something that would perhaps be interesting to discuss with our ABS colleagues, whom you will be talking to later in the day—is that a lot of the progress in ICT is quality progress, which is very hard to measure. You suspect, as a consumer who finds yourself doing stuff with computers that you never imagined you would be doing, that that is actually only quite approximately captured in national accounts. To the extent that we do not fully capture it in national accounts, we do not fully capture in the productivity numbers derived back from it either.

**Dr Brunner**—That is an extremely important point. To take a small example that does not count too much in the big picture, if you go to a restaurant now your waiter or waitress will send your order straight to the kitchen without writing it on a bit of paper and so forth. It is arguable that part of that should show up in productivity because it reduces costs a bit but part of it shows up in the quality and timeliness of your meal and so on which we do not adjust for at all. There are relatively few quality adjustments that could be made easily. I suspect in terms of our wellbeing we are doing much better than it would appear from official productivity numbers in areas like this.

**Mr FITZGIBBON**—No matter how you put it, if Australia goes substantially up the league tables on the measure of affordability of and access to high-speed broadband then, by definition, it is going to go up the league table productivity isn't it?

**Mr Banks**—It will, with the caveat as to whether those investments are cost effective. Again, you could achieve that in more or less costly ways, so there are two sides to it. It is the outcomes that you get from that investment in technology, but it is also the costs and the relation of the two, one to the other, that counts. Certainly, I think broadband has wonderful opportunities as a way of strengthening this platform that I talked about from which a whole lot of innovations and so on that we cannot even think about now will eventually result, but there are two sides to the equation.

**Mr O'Brien**—Other things being equal, other things being continuing high flexibility and continuing high competitiveness. Again that kind of retail and wholesale example from the late eighties is a powerful exemplar of how to make good use of a fabulous tool that you did not have to pay too much for in the first place.

**Mr FITZGIBBON**—For the purposes of the *Hansard*, in my intervention I said Napa Valley effect. I meant Silicon Valley effect. I might have been thinking of the wrong industry although they are very much part of the same region, so I was pretty close!

**Mr Banks**—I should say for the record that I did not pick it up either, so I was obviously thinking the same thing!

**CHAIR**—Thank you for your attendance here today. It has been very helpful and useful for us, particularly being the first submission that we went through. I think that is a good basis for this inquiry. There are a number of issues on which you said you would forward us further documents, if they can be forwarded to the secretary. A copy of the transcript of your evidence will be made available to you if there corrections that need to be made. Thank you for your contribution today.

**Mr Banks**—Thank you very much. We would be happy if the secretariat approaches us for any particular publications in areas we have identified or other ones. We would be happy to provide them to you.

**Proceedings suspended from 10.32 am to 10.44 am**

**DAVIES, Mr Michael, Acting First Assistant Statistician, Macroeconomics and Integration Group, Australian Bureau of Statistics**

**RUSSO, Mr Jason, Branch Head, Economic Analysis and Reporting, Australian Bureau of Statistics**

**CHAIR**—We will recommence. I welcome the representatives of the Australian Bureau of Statistics to today's hearing. Do you have anything to add about the capacities in which you appear?

**Mr Davies**—The Macroeconomics and Integration Group compiles the macroeconomic accounts, including the balance of payments, the national accounts et cetera. It incorporates responsibility for the productivity analysis and measurement.

**CHAIR**—Welcome to today's hearing. Thank you for your submission. Although the committee does not require you to give evidence on oath, I should advise you that these hearings are legal proceedings of the parliament and therefore have the same standing as proceedings of the respective houses. We have a written submission from you to this inquiry. Do you wish to make an opening statement?

**Mr Russo**—I will make a short opening statement. I will recap some of the key features of our submission and provide perhaps a couple of other pieces of context around that. Focusing on the submission in the first instance, you will notice that it was focused very heavily on the measurement of productivity. That aligns with item (c) in the terms of reference, which is the adequacy of productivity growth measures. In the submission, we provided a broad outline of the various productivity measures that the ABS produces and also the broad methodology or framework that we use to construct those measures. That is based on the OECD's productivity manual. In a very general sense, the best way to think about productivity is by thinking of production. You can have increased production from an increase in inputs, you can have an increase in production due to a more efficient use of those inputs or a combination of both of those things. In a growth accounting framework you can in simple terms measure productivity by looking at the ratio of output to one or more inputs. When you decompose it, in a sense, productivity is actually the residual of that calculation.

In the submission, we also go on to describe some of the areas where we have improved our measures over time. We have also outlined a range of the challenges that lie ahead that we would like to tackle over coming years. As a broader concern, to put it further into historical context, it is fair to say that when you look at things like our national accounts and our GDP, we have had several decades of experience in developing those, so they are very reliable, and most other countries have done the same. But when it comes to productivity estimates, the methodologies and improvements in measurement have really only happened more latterly—probably in the last decade or two. Particularly when you think about the more sophisticated measures of multifactor productivity, we are probably talking about them being developed over the last decade. That will conclude my statement.

**CHAIR**—Do you want to go into a little bit more detail about some of the difficulties in measuring productivity in say the non-traditional areas of industry, particularly the service industries, which is clearly a more difficult area to gather that information on? Can you elaborate a little on that for us?

**Mr Russo**—In terms of the historical context that I briefly mentioned, I guess that it is fair to say that over the course of several decades the services areas of the economy have accounted for a growing share of GDP. In a sense, our productivity measures have to catch up to that. The measurement in the services sectors poses a range of challenges. One of the first challenges is producing output and input measures that are independent of each other. There has been some progress made in that, particularly in recent years.

If you think about service sectors, the range of services that are provided is quite heterogeneous. Think about going into a restaurant. Each restaurant is different. The food is different, the inputs are different and, in fact, the level of service you purchase is different. If you look at something like health, you think about GPs, hospitals and a whole range of very different services. When you are trying to create aggregate measures that are based on that detailed data, aggregating those up is quite challenging because all of those things have a different quality to them, if I can put it that way. Measuring the prices and the quality of all those different things is quite challenging.

**CHAIR**—I suppose that if you are looking at international comparisons where this has happened then that, again, complicates that even further. Is that the case?

**Mr Russo**—That is a very good point. We are not alone in facing this challenge and trying to tackle these sorts of difficult measurement issues. Most other countries are at a similar stage of development. In fact, the ABS adopts all of the main methodologies that other countries use, so in that sense we use best practice. It is also fair to say that our forward work program has quite a heavy emphasis on improving the measurement around services sectors, so it is a key priority over the coming years.

**CHAIR**—How do you measure productivity in health or education, for example? We have heard from the Productivity Commission that these are key, vital areas in terms of raising productivity. How do you measure that, though?

**Mr Russo**—We are probably at the very early stages in those particular sectors. In fact, I am not aware of any other countries that have advanced measurement in those areas to the point where they have reliable productivity statistics that can be generally used for analysis and assessing policy, for example. I guess the first point is that we would try and work with academics and other statistical agencies to learn about new methods and ways of measuring these things. In the first instance, here is what we would probably do: in my branch each year we develop a comprehensive program of analytical projects where we go out to stakeholders and are able to design relevant research topics. For example, we can do feasibility studies or scoping studies around these really difficult measurement issues; we can then go on and perhaps release a research paper or something that we can expose to the public for the community to provide feedback on.

In a more finite sense, I guess what we would have to do is systematically go through the pieces of productivity measures, starting with output. As I mentioned earlier, we have had improvements in output measurement, particularly recently. On the inputs, if you thought of something like capital services, we would have to do quite a bit of work. For instance, in the health sector I would imagine the capital composition is quite a bit different. With the asset lives, the efficiency and all the other issues around capital, we would probably have to do quite a bit of work to understand how it works. In the first instance, we would probably have to do a stocktake or audit of what data we actually have to do all of those things.

**CHAIR**—How long do you think this process is going to take? It is obviously important for policy makers, if we are looking at improving productivity, to be able to measure it. What is your view on these areas and on developing these new methods?

**Mr Davies**—I will add a little and then move on to answering the question. The productivity estimates we do are part of a much broader group or set of economic statistics we produce. With the problems that have been described in measuring the output of services—and when we say ‘measuring the output’ we are talking about volumes, so it is first of all measuring the value of the output and then splitting that value into volume and a price component, because when we are talking about productivity we are not particularly interested if the price just goes up or down; it is actually the volume of the output—and in the production of the volume estimates and the price estimates, those issues are also faced by the areas of the ABS that produce the national accounts, particularly, such as the quarterly GDP that is such a high-profile statistic that comes out. So there is the production of the quarterly and annual national accounts and the production of price indexes, including the CPI, which again has a very high profile. But there are also a whole series of other price indexes like the producer price indexes, which more closely reflect some of the outputs that we are talking about—the outputs of particular industries.

In terms of moving forward, there are a series of activities going on refining the estimates of output that enter into the national accounts, which subsequently are used as the inputs into the productivity estimation, and there is also quite a lot of work going on into the production of better price measures, which is where the quality issues that we talked about come in—whether something has changed in volume because it is of a better quality or worse quality than it used to be. So there is a feeder effect coming through from the improvements in those other statistics. They are being looked at one at a time.

For instance, in the areas of education and health, going back quite a bit the standard methodology, particularly because a lot of the services were provided by government, was simply the sum of the costs of the inputs. You are completely lost on productivity terms because it is just not there. You just have the sum of the costs. What goes into the national accounts benchmarks on an annual basis. There have been improvements to that looking at some more direct volume observations in health in terms of the number of interventions and some other aspects of actual activity that is happening. There is an incremental improvement of those estimates, which are also informed by the productivity debate. That does not say how long. There are quite limited resources applying to the actual productivity measurement work itself, but what we are doing is making that feeder chain more integrated and more explicit so that we can address some of these issues from the very beginning in terms of the national accounts and price estimates feeding through.

**Mr ANDREWS**—I want to follow it up a little further in relation to education. The Productivity Commission, who we heard from earlier, noted on page 45 that raising productivity in the provision of educational services is an important component in terms of possible future increases in productivity. I wonder how that can be best measured. It is arguable that in certain areas productivity in education has actually declined. I am basing this on anecdotal evidence to some extent, but when I talk to university professors there is a general sense that the standard of students entering first-year university is now lower than it was a couple of decades ago and, in fact, it is arguable that the new Melbourne model, which adopts a general degree as an undergraduate degree from which then students can go on and specialise, is an indication that that in fact is the case.

How do we measure productivity in education? Is there anything more than crude measures such as the number of students who complete year 12, the proportion of students doing science related subjects or the percentage of students who go on to university? It seems to me that they are fairly crude macro types of measures that do not really get to the real questions about productivity in education. I would be interested in any comments you have on that.

**Mr Davies**—I think my comments would be theoretical. As I pointed out, with education we do use some relatively basic but nevertheless volume based estimates in the national accounts. We have moved past just adding up the costs of production to some measure of pupils enrolled and there are some aspects of academic activity—research papers produced et cetera. There is a big international debate on outcomes versus outputs I guess. The same goes for health. You could say that you do not really care how many heart transplant operations there are; you just want to measure how much longer those people live. It is an unresolved debate. It engages a lot of people for a lot of time. Maybe Jason will follow up with specifics about where it is getting to in his productivity sphere.

In terms of the actual output measurement, I guess our inclination is to conservatism. The basic set of output measures that we use in our economic statistics are based around actual monetary transactions—people putting their hand in their pocket and paying for things. Our basic concept of a transaction is the amount someone has parted with in order to receive the good or service. When we build up our views of the value of services delivered we try to stick reasonably closely to that basic concept and build on that.

That leads to a relatively conservative approach to approximate a market transaction in what we are measuring. People are a lot happier when they have had their heart transplant or they live an extra 20 years. You are looking more at the number of heart transplants—and I am getting on to health here—and approximately what someone would be willing to pay for that in the private sector. For education, there is a tendency in our measurement towards that equation, with a market transaction—

**Mr ANDREWS**—To take that approach and tease it out a bit further, another way of looking at it, if you come back to, say, the educational field, would be that the total cost of educating a person to reach a certain standard could be a determinant of productivity—putting it in same-dollar values, obviously, because it changes over time. The cost input into achieving a level of proficiency as a truck driver, a machine operator or an engineer could be some measure of whether or not we are actually being productive in the provision of educational services. That is,

if it takes longer and is more expensive at the same-dollar value to achieve a certain end, then that could be some measure of whether productivity is going up or down.

**Mr Russo**—A slightly different way to look at it is that we have a program of work around measuring human capital, which itself is relatively experimental internationally, but work is advancing. One of the things we do in our productivity statistics is something along the lines of what you are saying, in a basic way, to adjust for the quality of labour. We do that in two ways. The basis of the labour inputs that go into productivity measures are essentially hours worked across the economy. What we then do is combine it with information, with levels of educational attainment—for example, postgraduate, graduate diploma, vocational or no specific post-school skills—and information on length of workforce experience. We are then able to build up a picture of a quality adjusted labour force and compare the basic measure of labour productivity with the quality adjusted measure. The difference between the two is the implied contribution of those improvements in human capital. It is quite basic in that we make a lot of assumptions to build up that profile, but it is an area where we will probably continue to look at more detailed data to improve measurement. But the questions around quality adjustment are very difficult.

**Mr ANDREWS**—That, though, is still measuring the outcome of the effect. This may be very difficult to do or impossible—I do not know—but is there a way, theoretically at least, of measuring the process? For a student going to school, starting at prep or grade 1 and coming out the other end at whatever point along the educational cycle, is there anything that can help us to measure the productivity within the provision of that educational service?

**Mr Russo**—My understanding is that the current measures, when you look at the output measures in education and health, do not have a detailed adjustment for quality. That is what we would have to do going forward: come up with some type of methodology to capture that. I am not aware of anything offhand, but first we would look internationally.

**Mr ANDREWS**—It has not been done internationally that you—

**Mr Davies**—People do different things.

**Mr Russo**—Yes.

**Mr Davies**—I remember one country, I cannot remember what it was, for lower education it was the sheer number of pupils and for higher education there was a quality adjustment that was inverse to the size of the class, so smaller university groups. The lower ratio of students to teachers showed a higher quality. So in the one country that had been more or less subjective adjustments that it was good in primary school to get a lot of students through but at a certain stage it was a higher quality with more contact time and lower student to teacher ratio. So different people do different things and in different spheres. Some of them will incorporate a little bit of that into their national accounts but on the whole, as I said, very conservatively, and others will do it as a separate study to illustrate the outcomes rather than the output.

**Mr ANDREWS**—It goes to other things. For example, I think I am correct in saying that I have heard or read that the ACTU is proposing to separate streams of secondary students. I have only glanced at this but in a sense it is almost going back to what was common 30 or so years ago, where kids went into tech high school, as it used to be called. It is probably a more

sophisticated version of that, I am sure, and I am not really commenting on it as such, but I suppose from a public policy point of view it would be desirable to be able to measure whether or not that system versus one which is operating as an integrated system of education at secondary level is more effective in terms of the results that it produces, not just for the individuals but for the country as well.

**Mr Russo**—One avenue, for example, that we could explore in thinking about quality adjustments around education, one more detailed disaggregation, could be to allow for the different streams of education, sciences et cetera. We do have some information in our human capital work program where you can build up profiles of the lifetime incomes that people experience. So that is one avenue that we could explore.

**Ms JACKSON**—I know you are dealing with methodology and have been involved in developing some best-practice guidelines. The actual underpinning concepts and definitions behind the tables, balance sheets, whatever, for the national accounts, where do they come from?

**Mr Davies**—More broadly in terms of output measurements within the national accounts. You are asking how did they evolve historically or who establishes them in the actual circumstances?

**Ms JACKSON**—Presumably for the purposes of international comparison they are agreed somewhere that these are the concepts and definitions that will be used.

**Mr Davies**—Absolutely. I always say that the standards for macroeconomic accounts are one of the most successful standards worldwide. They are adopted in I think every country of the world, with perhaps one exception. So they are more widespread than electricity and telephone plugs. It is quite an amazing achievement: every country in the world virtually signed up to the same set of international standards for compiling macroeconomic accounts. In fact, they are far more homogenous than, for instance, business accounts. The development and maintenance of the standards are coordinated by a consortium of international organisations, including the International Monetary Fund, OECD, United Nations et cetera. In fact, we have just had a refresh of the primary core standards and the major work we are doing is that by the end of this year—our last bit comes out by Christmas Eve—we will have put out a whole new set of national accounts, balance of payments et cetera on the new standards, where Australia is very active in contributing to the update of those standards. Some of the issues we are talking here we feed into that debate. Australia is particularly active on the edge of the debate in terms of measurement of the hard-to-measure areas and a lot around the financial area in terms of valuation of assets and the like. We would have quite a lot of input into the financial statistics for those.

**Ms JACKSON**—Ultimately, any work you develop for measuring productivity in the services sector would have to be fed through that process?

**Mr Davies**—As Jason said in his introduction, there is a core set of macro-economic indicators which have been developed over decades. They received quite a big boost during the Second World War but following that they quickly became established. When you hear ‘GDP’ or something like that, apart from the sorts of concerns you have raised about certain things being excluded, generally it is accepted as a reasonably robust and established measurement. It is a mature measurement which has its problems but is quite well-established in its own right.

The productivity estimates and methodologies are far less mature. They are in some kind of intermediate state of maturity. What tends to happen is that the more mature standards get a high level of agreement. We have an approach whereby we stick as far as we possibly can to international standards for transparency and for international comparability, and we put our best shot into influencing the international standards. Then we more or less accept the decision of the umpire and go with what has been decided. In the less mature fields such as productivity, there is not the same level of rigidity of development and the same consensus internationally. It is recognised as a field where there is still a lot of merit in letting people experiment, stretch and try different things. So there is far less commitment and drive towards international standardisation.

Having said that, it is at the leading edge of what is happening in macro-economic statistics and feeds back into the sorts of things we are talking about—measurement of education, which is an important industry in our quarterly national accounts that come out. So there is a feedback loop there, but it will be some while before there is enough consensus and similar thinking to establish an international standard, which is where the issues of international comparability come up.

**Ms JACKSON**—I want to go back to the difficulty you have in trying to put an appropriate market value, or transactional value, on health and education, but health in particular. Your example was of how much you are prepared to pay and a heart transplant was a good one. We are talking to people who are sick and are therefore not participating in the labour force. So there are those factors. There is also a difference between a heart transplant operation versus a hip or knee replacement, for example, which might actually be about repairing someone to put them back into the workforce. I would have thought it was in that general wellbeing area where you would be worried if you had an increasing number of patients other than the normal growth in the population. That would not be a good, healthy sign for our community.

**Mr Russo**—We sat in on some of the end of the discussion with the Productivity Commission and we support some of the views outlined there in the sense that aggregate productivity measures are important in understanding, in a very high level sense, the economic wellbeing of a country, but they have to be read in conjunction with a whole range of other indicators to build a profile of wellbeing. In relation to health specifically and the kinds of examples you just alluded to, referring back to the human capital program of work in my branch, the way we look at human capital and its contribution to productivity growth at the moment is firmly set around educational attainment, but possibly at some future point we could open that door a little further and actually try to capture health outcomes as part of that as well by using administrative and other data from the health system—though I do not know how you would do it—to supplement the educational data. You could perhaps incorporate that into productivity estimates in that simple way in the longer term.

**Ms JACKSON**—It is a very difficult piece of work you are undertaking and I wish you all the best.

**Mr Davies**—Thank you.

**Mr Russo**—Thank you.

**CHAIR**—Thank you for your attendance here today, it has been well worth it for us.

**Mr Russo**—Thank you for the opportunity to address the committee. These sorts of processes are very important because experimenting with all the things we have been talking about, and gaining input to that from government agencies and the broader community, is quite important to that. As we said in our submission, we look forward to the findings of the committee in relation to productivity measurement.

**Proceedings suspended from 11.15 am to 11.24 am**

**EVANS, Mr Greg, Director, Economics and Industry Policy, Australian Chamber of Commerce and Industry**

**GOO, Dr Siwei, Policy Adviser, Economics and Industry Policy, Australian Chamber of Commerce and Industry**

**CHAIR**—Welcome. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are legal proceedings of the parliament and therefore have the same standing as proceedings of the respective houses. We have a written submission to the inquiry from you. Would you like to commence with a statement?

**Mr Evans**—Yes. Very briefly, I would first like to thank you for the opportunity to appear before the committee and to provide some further background on our submission. I will make some very brief introductory remarks. As the economy slowly moves to recovery and the focus shifts from the immediacy of dealing with the global financial crisis, we certainly support greater focus on policy development which can assist in delivering productivity improvements via an agenda of microeconomic reform. Our submission provides significant background on our productivity performance to date but, more importantly, nominates some key measures to improve productivity into the future. These key areas include better regulation, delivering a competitive tax system, considering the area of expenditure reform, promoting competition in free trade, promoting research and development and innovation, energy market reform, infrastructure provision, providing for education and training investment and securing a flexible labour market. We are happy to field questions in these areas; however, specifically in two of the more specialist areas—education and training and the labour market—there is probably more extensive expertise within ACCI on those issues. I say to the committee that if you wish to explore those issues in more detail we could arrange for representatives of ACCI to speak on each of those discrete areas. Those are my opening remarks.

**CHAIR**—One of the areas that I would like to explore with you in a little bit more detail is R&D and innovation and your ideas and views of what sort of public policy positions the government could take that would help increase productivity in that area.

**Mr Evans**—Certainly. We talk about that in our submission. We are supportive of government expenditure which is directed at promoting greater R&D take-up and innovation. We are conscious, though, that these policies are formulated in a period of budgetary constraint, so whatever measures are adopted need to be clearly based on good cost-benefit analysis and on what actually can provide a payback to the economy and business to create further opportunities for employment and growth in the economy. The government has revamped issues with respect to the R&D tax credit, and we have been supportive of that. There is an issue there: we need to maintain the value of that. There has been discussion about reducing the company tax rate. By reducing the company tax rate you obviously reduce consequent benefit flowing from initiatives such as the R&D tax credit, so that is a policy issue that we continue to focus on.

**CHAIR**—You make the point in your submission that Australia ranked the lowest amongst OECD countries in terms of percentage of firms that introduce new-to-market product

innovations. What sort of public policy issues do you think the government should look at to raise our ranking in this area?

**Mr Evans**—That has been a feature of the domestic economy for some time. Business expenditure in R&D is below OECD averages. I think it is important to make some background comments on that, though. The Australian economy does have some features which may explain why that is so and why we would perform poorly against countries such as the United States. We are an economy which is dominated by SMEs. Their expenditure on what might be regarded as R&D does not always get classified as such. That is an issue of the profile of Australian industry. The other issue is that we do not have the large domestic markets that some other countries, particularly the United States, have. We do not have the dominance of the large industrial complexes such as in defence, pharmaceuticals and ICT, so our economy really is not geared for that to the extent that other economies, especially the major manufacturing economies such as the USA or Germany, might be. That is why we believe we sometimes do not necessarily perform as well in those international comparisons. I think we need to be mindful of that.

**CHAIR**—You have a chapter in your submission about infrastructure, and one of the recommendations was to encourage greater private sector involvement in Australia's infrastructure development. Are there any particular policies that you think we should be looking at to actively encourage that? I agree with you in terms of that need.

**Mr Evans**—In terms of the infrastructure spending of the government, we believe that needs necessarily to go through a cost-benefit analysis. The other arm, as you say, is greater participation of the private sector, which we would encourage. You would hope that would mean that the sorts of projects that are pursued are those that have an economic return or can be built and perhaps transferred ultimately to government in the most effective manner.

**CHAIR**—You imply there has not been enough by saying there should be more. Are there reasons why there has not been as much private sector investment in infrastructure?

**Mr Evans**—The nature of our economy. In a small economy it is hard to get those scales and to assemble that capital formation. The government is going through a process in terms of Infrastructure Australia. We would hope, as those business projects are rolled out, that they are leveraged up by private sector involvement.

**CHAIR**—So you see the process of Infrastructure Australia as a positive process in encouraging private sector investment.

**Mr Evans**—We would be careful to ensure that there is a priority list and that those with the highest cost-benefit returns are the ones at the front of queue, rather than pursuing projects that might be described as offering dubious economic return.

**CHAIR**—I understand the bit about making sure there is a cost-benefit analysis, but the actual process of Infrastructure Australia to encourage greater investment in infrastructure is a new thing. Is that the type of idea that you are talking about in terms of the need for infrastructure?

**Mr Evans**—We think it was a good idea to have an audit of what our infrastructure requirements are. There obviously were roadblocks in terms of much of our infrastructure,

particularly in the areas of ports and rail. It was a good idea to actually find out where those were and put a process in place to settle those priorities.

**CHAIR**—You offered to have someone provide us with something in terms of human capital. I will not ask any questions on the basis that we take up that offer—which we will, particularly given some of the comments from the Productivity Commission this morning about the potential for productivity growth in terms of human capital. So I leave that one with you.

**Mr Evans**—We feel that is such an extensive area, as with the labour market, that we would want to give ourselves the best opportunity to advocate our view.

**Mr ANDREWS**—Through you, Mr Chair, I would also like to take up the offer related to workplace relations. I would be very interested to explore that. If there is someone who can do that in more detail than you, Mr Evans, at some convenient time, I would appreciate an opportunity to look at the changes both past and the ones that are taking effect at the present time. I suppose that also applies supposed to human capital. In relation to population, there have been comments made in the last little while about how many people Australia needs and what our future population needs are. In your submission you recommend that the Commonwealth, state and territory governments should work collectively to develop an Australian population policy based on a cross-portfolio approach. Is it your experience that there is not a coordinated approach by the various levels of government and the various portfolio interests towards population?

**Mr Evans**—Principally what we are referring to there is coordination between the Commonwealth and the states. I am not sure that has been that well developed. There is a process at the Commonwealth level in terms of setting migration policy and migration levels, but the extent to which that is coordinated through the states is the area of doubt.

**Mr ANDREWS**—It seems to me that, if you are looking at it from a state level about roads, public transport and infrastructure, there does not seem to be a coordinated approach to what that means in terms, for example, of what the migration intake should be from year to year. That almost seems to be conducted in silos isolated one from the other.

**Mr Evans**—That may be correct, and I think you are obviously seeing evidence of that in terms of pressure in particular cities in terms of congestion and the outcomes of that.

**Mr ANDREWS**—Whilst this might be for someone who comes along subsequently, in terms of the mechanisms you obviously have an interest in skills and what to do when we cannot find enough skilled people in Australia. That is the debate around what we are doing to ensure we train people adequately. But, where that is not possible, then the desire is to bring people in from overseas who have those particular skills. Perhaps it could be a subsequent discussion, but I would be interested in a discussion about how that is appropriately determined. There have been criticisms, for example, of MODL, the migrant occupations in demand list, and the way in which that was put together. It was basically a statistical instrument originally designed for other purposes rather than determining who we need in Australia. I am not sure whether you can comment on that now, but I am quite happy to wait until the subsequent discussion.

**Mr Evans**—I will certainly highlight that to my colleagues and we will take that on notice as an area that you want to pursue in more detail.

**Mr ANDREWS**—I would like to put a couple of other things on notice. We have had a discussion in Australia recently about guest workers. There is a limited program to bring some people from the Pacific islands, for example, under a guest workers program. I would be interested in ACCI's views about that matter, about whether that is actually meeting needs and about the broader consideration of whether or not it is more desirable to bring people to Australia on a permanent basis, so that they put their roots down—to use that expression—and become part of the broader society or to have people coming in for a few months or a couple of years or whatever and then go back. I would be interested in that. Also I am interested in the balance in the immigration program between skills, family reunion and other components of the immigration program. I highlight those as a few areas that I would be interested in pursuing within the framework of what will lead to a more productive Australia in the future.

**Mr Evans**—Certainly. That obviously would be the angle that we are interested in: the impact on productivity and how that can be enhanced.

**Mr BRADBURY**—I want to ask some questions in relation to the part of your submission that deals with tax reform. I know that it cross-references another submission, and I have not had the benefit of reading that submission, so it may be that these are matters that are covered elsewhere. In respect of the recommendation that the top marginal tax rate be reduced, could you just elaborate on the benefits to productivity of that move?

**Mr Evans**—We do outline in the submission some support for that view and why that has been a long-term policy of the chamber movement. Principally one of the issues is that we represent small business as well as large business, and many small businesses are in fact unincorporated, so business would actually get a first round benefit of a reduced marginal tax rate. That is the first round, but the second round impact obviously is the benefits to the economy, the benefits for employees and the motivation that provides for greater workforce participation. Those sorts of reasons are our principal objective.

I suppose the other issue is to do with the discussion about reducing the company tax rate. The tax complexity and the tax planning that is potentially associated with having the top marginal tax rate out of line with the company tax rate, mean that there is much more incentive for people to change to a corporate structure. That is not necessarily delivering efficiency benefits, but people are doing that merely for tax planning purposes.

**Mr BRADBURY**—So the only way to eliminate that would be to reduce the top marginal rate to the corporate rate? Is that what you are proposing?

**Mr Evans**—Align as close as possible. We are not naive enough to suggest that this can happen quickly. It is an objective that we should try to lower our top marginal rate. The reason is that we obviously need a competitive taxation system. If you look around the world, and in particular this part of the world, our marginal income tax rates are still relatively high.

**Mr BRADBURY**—It is clear then that your preference is for a cut in the top marginal rate rather than a cut in the corporate rate.

**Mr Evans**—We have not actually said that that is our more immediate priority. We do not think reducing the company tax rate is bad policy; we are just saying that in terms of priority, you might want to look at the income tax rate before you do company tax.

**Mr BRADBURY**—In relation to the comments in the submission regarding capital gains tax and the suggestion there for the introduction of a stepped rate: could you provide a little bit more detail of what you have in mind there?

**Mr Evans**—There again, that is an issue of concern to small business and small business operators in particular. There are various CGT provisions which provide relief in relation to capital gains tax: how long to hold an asset if you roll over into a like asset et cetera. However, at the outset, the capital gains tax does impinge upon the decisions made by small business. Small business derives a lot of its ultimate wealth I suppose—if you build up a business and sell it then that provides capital for other activities, including buying another business. We are concerned that the CGT regime at the moment provides uncertainty in that regard and it is sometimes complex. We believe a simpler system would be that basically the longer you hold an asset, the lower the CGT that would apply. After a period of, say, 10 years, you would not have any CGT. It is not encouraging short-term speculative players; it is encouraging holding an asset, but holding it for a longer period as well. If you do that, there would be a lower CGT burden.

**Mr BRADBURY**—So you would have to abolish the CGT discount to give a regime of that sort—

**Mr Evans**—That is what it would imply. This is very much about encouraging entrepreneurship and risk-taking. If you are taking risks in a business context, then you get the reward of no CGT.

**Mr BRADBURY**—There need not be a connection between risk and productivity, whereas I would have thought incentives such as those that might be modelled along the lines of the business investment incentive, there would be a stronger correlation between measures such as that one and capital formation, the incentive to invest in plant and equipment, than there would be during the connection between the capital gains tax relief and productivity. Would you agree with that?

**Mr Evans**—I am not sure. With any business venture there is associated risk, and you will never be able to preclude that. But it is an important part of entrepreneurship that if you do take those risks, then there is not an unacceptable tax burden upon your realising a gain associated with that pursuit.

**Mr BRADBURY**—What I am trying to ask is: on the question of productivity, which is the focus of this inquiry, it would seem to me that measures such as business investment allowances would have a greater correlation with productivity improvements than a measure based upon a general and perhaps well-founded belief that providing greater certainty upon return by reducing CGT impacts might encourage greater risks. Would that be a fair—

**Mr Evans**—I am not sure I can necessarily draw that conclusion. We are a supporter of the business investment allowance. In fact, we proposed it to government. It was an important measure in providing a short-term stimulus, but we are not expecting it will become a permanent

part of the tax landscape. That does not mean things like depreciation benefits and accelerated depreciation are not important though.

**Mr BRADBURY**—I guess I am implying from your submission that you would consider any enhancements to depreciation arrangements as less important than relief on capital gains tax.

**Mr Evans**—We would rank the reform of CGT higher than any measures with respect to depreciation allowances. Not that they are not important, but we just have not considered them in that relative position.

**Mr BRADBURY**—I want to ask about an issue that has been raised in some of the other submissions about, in the competition context, third-party access to essential infrastructure. There are a number of areas where this has become a bigger issue. Do you have any comments or any thoughts in relation to that particular aspect of the competitive framework?

**Mr Evans**—ACCI basically represent users, be they energy users or telco users. Obviously asset owners belong through our network, but we would be representing the view of our users in that context.

**Mr BRADBURY**—Some of the mining companies are involved in rolling out their own rail lines, and competitor companies are looking to gain access to those. I would have thought that in that context you would have had some members that fell into that category.

**Mr Evans**—Certainly, but my perspective is that if there is a detriment to users that is where we would be particularly concerned. For example, if a gas pipeline was not built because of a regulatory constraint, then that would ultimately harm users, or if some telecommunications infrastructure was not built, that would actually harm users as well.

**Mr BRADBURY**—We heard from the Productivity Commission earlier today that, in their view, the pendulum has swung too far in favour of the user to the detriment of the asset owner. They referenced recent case law in the Federal Court. Would that be a view that you would agree with?

**Mr Evans**—Can I ask what particular industry?

**Mr BRADBURY**—They referred to airports. They were not clear that that particular case involved an airport, but they did refer to airports in that context.

**Mr Evans**—My experience is that there are a lot of instances where a user is prepared to pay more for a service, but a regulatory decision has denied the construction of that infrastructure and that has not really served anyone—it has not served the economy and it has not served the consumer well in the end either. You cannot have a regulatory system as such which constrains investment in important investments by too great a regulation on rates of return, for example.

**Mr BRIGGS**—Mr Evans, I am just going to put a note on Mr Andrews's request for when we have the experts come in in relation to—

**Mr Evans**—That is not to say that we are not experts!

**Mr BRIGGS**—No, I know you are a deep expert on this issue. I am interested in having a discussion on OH&S and workers comp. The opportunity is there for a national approach. But an area where you do have some expertise and interest is climate change. On page 7 of your submission, point 14 is headed ‘Affordable, clean, efficient and sustainable energy supplies’. You talk about the historic advantage of having a relatively cheap supply of fossil fuels, and you talk about the policy approaches of the government with the ETS and so forth. Do you see that in the current debate the danger to productivity is more on the downside than the upside with the approaches of the government to the productivity question?

**Mr Evans**—This week we made some observations on that issue. We expressed concern that the ETS and the CPRS debates have overshadowed a wider debate that maybe should have been had—that is, what the appropriate composition of our energy mix should be, the role of alternative fuels and the role of technology and efficiency improvements that you could achieve. By doing those things, you can reduce greenhouse gas emissions. We were making the point that the fairly narrow political debate about the ETS was distracting from that view.

I had the opportunity to attend a conference in Washington convened by the US Chamber of Commerce last month. It was clear from those discussions that economies around the world are looking at different ways in which they can reduce greenhouse gas emissions. An ETS or a cap and trade system was only one of those. There were other policy options. In fact, cap and trade was probably the least considered in those discussions. Issues such as carbon taxes were also discussed. We are just pointing out that there are other measures. One of the great sources of greenhouse gas emissions and where the greatest growth will be will be on developing countries. There are arguments that Australia’s greatest contribution could in fact be the development of technology to help developing countries reduce their greenhouse gas emissions, rather than purely a domestic focus on our own.

**Mr BRIGGS**—Is it ACCI’s position that there should be a price on carbon or a change in the energy structure in the country, or do you think the government is doing the wrong thing in implementing—

**Mr Evans**—No, we agree that carbon needs to be constrained and we agree that there should be measures put in place to achieve that. We do not believe that this necessarily needs to be resolved before Copenhagen; it could well be done after that when the international picture will be clearer. We made the point that, in order to achieve domestic consensus, there may be other options or a combination of options outside the CPRS, which may need to be considered.

**Mr BRIGGS**—So your concern with model before the parliament is that it will have a detrimental effect on productivity performance because of the regulatory impact. Would that be a fair summary?

**Mr Evans**—As you know, the Australian come economy is obviously strongly dependent on fossil fuels and on coal, and the extent to which the price of energy derived from coal goes up that will have a negative impact on productivity. It is not clear that we will be able to switch immediately to alternative energy sources. What is probably more achievable is that a lot of the coal-fired power stations which we have are ageing. They are up to 30 years old and the extent to which we can modernise them to use so-called supercritical technology, a greater uptake of gas

in terms of combined cycle technology—we think there are a lot of things you can do with the existing stock of generators which can be used to reduce carbon emissions.

**Mr BRIGGS**—Have you done any analysis internally about how an ETS in the current form or indeed in any form will impact on how business operates, the productivity performance of it?

**Mr Evans**—We have had approaches from a lot of different business organisations because different business organisations obviously represent a range of areas in the economy, be they generators or large energy users which are trade exposed. Our issue has been with respect to the impact of the CPRS on small-and medium-sized enterprises and the fact that, according to the Treasury analysis, their energy costs will go up. We did an examination of certain industry sectors—plastics and chemicals, food processing and metal manufacturing—to see what the impact might be on those particular firms. These are all firms which produce things. Therefore, they are trade exposed. They are either import competing or they are providing products to international markets. Those companies were variously affected, depending on their energy intensity. If you have a 25 per cent increase in your energy price and energy is a large component of your operating cost, that will have an impact. There were some impacts in terms of the CPRS on those companies, which we felt, at that point, had not adequately been represented in the debate.

**Mr BRIGGS**—So your analysis is that small business would be particularly affected in their ability to handle this regulatory to change?

**Mr Evans**—Yes, depending on that and obviously for a service oriented small business which does not have high energy costs the impact is that much less. For those which have comparatively high energy costs and are trade exposed, there is an impact. The government has recognised that with respect to large business in terms of the emission-intensive trade-exposed and we were just pointing out that this is an issue for small business as well.

**Mr BRIGGS**—All right. Thank you.

**Mr FITZGIBBON**—I do not want to draw on the ETS, but I simply make the point that given the level of government compensation to consumers there would be an assumption that those small business costs would be passed on to consumers.

**Mr Evans**—That is right. This is the pass-on argument. Some of these businesses are obviously trade-exposed to the extent to which they can pass those costs on at the end of the day—

**Mr FITZGIBBON**—Small firms?

**Mr Evans**—Yes. If you a metal manufacturer or in the food processing sector then you will have an energy cost that your overseas competitor may potentially not have.

**Mr FITZGIBBON**—I think it is refreshing that you highlighted the fact that you represent small firms. We tend at this level not to focus too heavily on them, particularly in inquiries such as this one. Could you give us a quick overview of where you see the issues for small firms. Obviously the regulatory burden always falls harder and taxation issues are always prevalent as

are—I'll say it—workplace relations issues. Do have a sort of ranking of priorities for small firms at the moment?

**Mr Evans**—The issues you nominated are obviously very central. We do very extensive business surveys, and our surveys are currently showing that it is still very difficult for small businesses in terms of their sales and profitability. They are still at contractionary levels. So is employment and the investment outlook. So although, as you have been making point, there is this discussion about recovery, expectations and confidence being good, as members would know, on the ground businesses are still not necessarily seeing the full benefits of that, even with slow recovery. We do ask them what the constraints are in investment and what their key concerns are. The issue that we have been looking at most recently is the availability of credit. That continues to be a problem. I am not sure that we actually referred to that directly in our submission because it might have fallen outside the direct terms of reference. However, access to credit continues to be a problem, especially for small business. It is not only access but also price. We have been disappointed at the extent to which the major lenders have passed on interest rate reductions. As you know, there has been four and a quarter per cent, officially. Many of those businesses' facilities were actually re-rated and repriced, and they may have only achieved one or two per cent out of that. Our concern going forward is that because there are fewer players in the financial market they in fact may get rate increases over and above official rate increases. So constraint on access to finance is the major issue.

**Mr FITZGIBBON**—What about innovation in small to medium firms? Do you have any more to say about that?

**Mr Evans**—That continues to be an area of difficulty, and one of the issues is small business having adequate financial resources in order to that. Having gone through a period of low sales and reduced retained earnings, for example, it makes it very difficult for business to assemble the capital to have greater investment levels in R&D and innovation. Siwei, is there anything you want to say?

**Dr Goo**—There is something that I want to say on innovation. Going forward, we know that our biggest competition comes from China and India, with their lower costs of production. So one thing that will help manufacturers in Australia to compete in this kind of arena will be to innovate and come up with new products that will suit the market and capture the niche market for these kinds of products. I think the government has to start with the Commercialisation Institute, which is a good incentive. But we would like to see more incentives come from commercialisation. Lots of small businesses have ideas but there is a brick wall against them marketing their ideas. R&D is R&D, but there are no diffusions in these kinds of ideas until you actually commercialise them into the market and you get the profit. Then you have a cyclical effect. You get commercialised and once you know that your product is good and has been well accepted then you continue to do this kind of innovation. If manufacturing is to survive in the new era I think innovation is really important, especially for small business.

**Mr FITZGIBBON**—Finally, I will preface my question by agreeing with you that the alignment of the marginal rate with the company tax rate should be a priority. It would certainly avoid many vehicles for tax minimisation et cetera. But you mentioned—there is always an irony in these things—that any reduction of the corporate rate would undermine the value of the R&D concession. What are we calling that concession now?

**Dr Goo**—Tax credit. It is starting in 2010.

**Mr FITZGIBBON**—I am not sure what that is worth—maybe around a billion and a half dollars or something? What does it cost the government bottom line currently? Do you know? I know it would depend on take-up rates and to what point you would reduce the company rate, but do we have any idea of what would be the cost to government to hold that concession at parity if the company rate were to be reduced?

**Mr Evans**—In other words, indexed?

**Dr Goo**—I think Venturous Australia in their reports, or the Cutler review, actually measured that, if I am not mistaken. Yes, they do have that.

**Mr FITZGIBBON**—The bottom line is: theoretically, if the company rate were reduced, how expensive would it be for government to maintain the value of that credit? That is basically my question.

**Mr Evans**—We can certainly take that on notice. But I think the changes that the government has made to the R&D tax credit basically restored it to the level of about where it was originally.

**Dr Goo**—Yes, 150 per cent.

**Mr Evans**—Based on the current company tax rate.

**Mr FITZGIBBON**—It is obviously helpful for the committee, if we are to make suggestions to government about holding the value of that concession, to know what it might cost government.

**Mr Evans**—Yes, I understand.

**Ms JACKSON**—I noticed quite a comprehensive section on workforce participation and social inclusion in your submission, and I appreciate that. But I am keen to get your view, because it is not actually clearly there, about the importance of increasing the participation of women in the workforce as part of improving Australia's overall productivity.

**Mr Evans**—I made the point to the chair at the beginning that the area of education and training in the workforce is a detailed area and we have other people within the ACCI that might be able to speak to that more fully. I made the offer that we would make those people available. I will, if I may, take your question on notice and have our representative look at that issue for you.

**Ms JACKSON**—That would be great. I would appreciate that. I was interested also in some of the recommendations you have made on the school-to-work transition. It had quite a heavy emphasis on career education and advice. I am from Western Australia and I think we have done a little bit of that. I have to say that in WA we are about to face again the pressures of skills shortages in some of our critical resource related industries. I think it is important that career advice, as it has been in my experience, is better when it comes from real people who have actually worked in the industry, as opposed to more broadly. But is there something else you

think we should be doing in that area, particularly getting young people of 16 or 17—we have compulsory school until 17 in Perth—into the workforce and in apprenticeships earlier?

**Mr Evans**—Certainly. That has raised an important point. ACCI is actually involved in the delivery of some of those programs. Again, I might just take that on notice and get an appropriate response on that.

**Ms JACKSON**—We had visits this week on the launch of a report from the Association of Superannuation Funds of Australia. In their report they talked about the contribution to productivity growth in Australia of compulsory superannuation. We all know, I think, the benefits of that superannuation for retirement incomes in the years to come. I am just curious—given some of your concerns about the labour market, changes in the labour market, increased wages and the like—about whether you had a view about the issue of increasing the superannuation guarantee.

**Mr Evans**—We do have a view, and it depends on the basis on which that increase proceeds, who pays for it, basically. At the moment we do not think it is a cost which can be borne by employers. But where there are other mixes of responses that may or may not be appropriate.

**Ms JACKSON**—It might be less of a concern if it was done like it was when it was first introduced, in lieu of some general wage movement in take-home pay.

**Mr Evans**—Any increase at the moment would be a cost to employers which we do not think would be affordable.

**Ms JACKSON**—The other concern I have and I do not know if there is more we can be doing to encourage employers to make a greater investment in skills development and upskilling of existing workers. I know you have touched on it but a lot of the recommendations, and rightly so, go to things that you think the government should be doing at a macro level. I am curious whether you think there are some better solutions to encouraging individual employers and firms along the same lines.

**Mr Evans**—There may well be, but again I just ask to take that on notice and get our person who deals with that issue to talk with the committee directly.

**Mr FITZGIBBON**—I am very interested in what Sharon had to say about the superannuation guarantee. I understand your concerns about who pays. Some time ago this committee did an inquiry into superannuation for people aged 40 and under. I think the recommendation there was a concept of a default additional voluntary contribution, so the employer takes the difference out of the employee's pocket until the employee elects not to have it taken out. Are you familiar with that concept and do you have a view about that? You go from nine to 13 or 15 or whatever it might be. The balance is paid for by the employee unless the employee elects not to have that additional taken out. That means a lot of workers will theoretically accept that as the standard contribution and not object. Others would take a different course.

**Mr Evans**—So the additional amount is paid by the employee.

**Mr FITZGIBBON**—Paid for the employee, yes.

**Mr Evans**—But you still use the architecture of the SGC system.

**Mr FITZGIBBON**—Yes. I suppose the only question for you and your members is any transactional cost.

**Ms JACKSON**—And they have become minimal, I would have thought, now.

**Mr Evans**—Effectively we have that option under salary sacrifice.

**Mr FITZGIBBON**—You do, but it is not default, it does not just happen automatically for the employee.

**Mr ANDREWS**—Just on that, Joel, as I understand it, as the scheme operates at the moment, if an employee contributes more than the statutory amount to superannuation, legally an employer can reduce their contribution, which actually defeats the purpose. Are you aware of that?

**Mr Evans**—No, I was not.

**Mr FITZGIBBON**—But if you introduced that scheme you would amend the legislation.

**Mr ANDREWS**—You need to deal with that sort of issue.

**Mr Evans**—These raise important issues of the adequacy of retirement income and people needing to actually see whether their current contribution is adequate.

**Mr BRADBURY**—I have just been reflecting on your responses earlier on capital gains tax. I want to ask a further question because I am not convinced of the connection between reductions in capital gains tax and productivity improvements. I take your point about the risk-reward ratio and what that means for someone looking to invest. But it just seems to me that in this country for a very long time capital gains were not taxed. We introduced a capital gains tax in 1985 and in the materials that I have seen I have not really seen any contribution to a decline in productivity that could be correlated with that major policy decision.

**Mr Evans**—I think it would always be difficult to quarantine a specific tax measure and actually find out what the consequent impact was. I might say that there are other jurisdictions in the world that do not have a CGT. New Zealand does not and many of our Asian counterparts do not. You need to have a competitive taxation system. It goes very much to the attitude and the drivers of small businesses. One of the issues that they constantly provide us feedback on is the disincentive effect associated with the capital gains tax. We are not saying abolish capital gains tax so there is no tax on those gains. We just think a measured and sensible approach could in fact be this stepped approach. I believe the UK had a similar regime. We just think it is a potentially important contribution.

**Mr BRADBURY**—And it would be the same right across.

**Mr Evans**—CGT is very complex tax which has gone into areas of the economy and industry associated with advice on CGT. It is a major compliance and regulatory burden.

**Mr BRADBURY**—But I guess your proposal would treat all capital assets equally, so the stepping would harness what it was and it would be three steps.

**Mr Evans**—We are not necessarily subscribing to that, but the notion is that ultimately a long-held asset would be CGT free but it would slide down.

**Mr BRADBURY**—But certainly not a return to that indexation form.

**Mr Evans**—No. You would obviate the need for all those different measures if you had a regime, such as the rollover relief for small business, which is complex, the CGT discount. If you hold an asset and sell it and put the proceeds into retirement it would take out those potential concessions.

**Mr BRADBURY**—So your view would be rollover relief then would not be needed.

**Mr Evans**—That is right.

**CHAIR**—Thank you for your attendance here today. There are a couple of issues that we are seeking to follow up and you have made the offer of giving us some additional expert witnesses, particularly in relation to human capital workforce. There were some taxation issues. Thank you also for being very wide-ranging in terms of some of the questions that I am not sure were necessarily directly productivity linked. I suspect some of these tax issues will be being ventilated shortly in relation to the Henry tax review. You will get a copy of the transcript and if there are any errors or omissions you could send corrections to the secretary. The secretary will be in touch in relation to those additional witnesses in those key areas. Thank you again.

**Committee suspended from 12.12 pm to 1.16 pm**

**BYRNE, Dr Anne, General Manager, Research Funding and Policy Branch, Department of Innovation, Industry, Science and Research**

**LOWNDES, Mr Terrance Anthony, Principal Adviser, Department of Innovation, Industry, Science and Research**

**SNABEL, Mr Richard Edward, General Manager, Industry Policy and Economic Analysis Branch, Department of Innovation, Industry, Science and Research**

**VALENTI, Ms Donna, Manager, Commonwealth Commercialisation Institute Team, Department of Innovation, Industry, Science and Research**

**ZIELKE, Mrs Judith, Head of Division, Enterprise Connect, Department of Innovation, Industry, Science and Research**

**CHAIR**—I now welcome the many representatives of the Australian Bureau of Agriculture and Resource Economics. No, sorry, it is Innovation. That scared you! We will welcome ABARE later, but I would now like to welcome the Department of Innovation, Industry, Science and Research to today's hearing. Do you have anything to say about the capacity in which you appear before the committee?

**Ms Valenti**—I have a bit of laryngitis; I apologise. I am the manager of the Commercialisation Australia team that has just been announced.

**Mr FITZGIBBON**—Is that a Senate estimates ailment?

**Ms Valenti**—No, I did not appear on that day. This is better than Senate estimates.

**CHAIR**—We are much more friendly.

**Ms Valenti**—Yes.

**CHAIR**—Welcome, everyone. Although the committee does not require you to give evidence on oath, I should advise you that these hearings are legal proceedings of the parliament and therefore have the same standing as proceedings of the respective houses. We have received a written submission from you. Do any of you want to make an opening statement?

**Mr Lowndes**—Yes, we will take that opportunity. A lot of what we are saying is just to go through our submission, but I think we will do that just to kick proceedings off. The key theme of our submission is to emphasise the role of innovation in enhancing productivity. To increase output from a given level of input, you have to produce a better product or have a better production process or organisational method. All of these involve innovation. It is the capability of the innovation system to stimulate improved products, processes and organisational methods that underpins the capacity of the economy to support rising per capita incomes over time.

Regarding the factors that drive innovation, we have focused on innovation capacity, research and development, skills and specific innovation support measures. This is not to suggest that broader framework factors such as the economic environment and competition are not important; they are. Our focus reflects, in part, our portfolio interests but also the fact that innovation capacity and the role of government in supporting the development of that capacity can sometimes be overlooked.

I will just emphasise three aspects of supporting innovation capability. The first is that research in the public sector can support productivity through enhancing innovation. It does this through many mechanisms: adding to the stock of knowledge, boosting research skills, developing new techniques and instrumentation and supporting knowledge transfer, both domestically and internationally. Also, public sector research agencies often collaborate directly with business. In our view public sector research is a complement to business research.

The second point is that government has a role in supporting business innovation. The existence of spillover benefits from research is widely accepted in the economics literature and also by policy makers around the world as the basis for government support. Information deficiencies and imperfect finance markets are also a rationale for targeted support for business innovation more broadly.

The third point is that innovation capacity is not just about science and research. The diffusion of best-practice management is also important. Recent cross country studies by McKinsey and by the London School of Economics have suggested improved management in firms can support productivity growth. This is consistent with data we have got from our new business improvement agency, Enterprise Connect, which has indicated that improved business planning can be quite significant to improve business performance.

In terms of where some of these thoughts lead to in terms of policy, the government's recent Powering Ideas innovation statement has emphasised the significance of innovation and of innovation capacity in the productivity agenda. Powering Ideas sets out a long-run agenda and is likely to yield new initiatives or modifications as the suite of initiatives that were announced are implemented. For example, we would expect that feedback from companies and business advisers through the operation of Enterprise Connect will identify options for ongoing improvement in the scope and direction of the services it provides. Similarly, the recently announced Commercialisation Australia, in providing a new approach to supporting commercialisation of Australian research and ideas, is likely to evolve over time. The related inquiry of the House of Representatives on building Australia's research capacity identified scope for improvements in delivering a skilled and innovative research workforce. The department is working on an ongoing research workforce strategy, as was announced in Powering Ideas.

Finally, consideration will be needed as to how to put support for research infrastructure on a more secure long-term footing over time, including funding recurrent as well as capital expenditure.

In closing I would also note that effective global integration will also be relevant to the productivity agenda. Absorbing innovation from the rest of the world will enhance significantly the new ideas and techniques we can apply to enhance productivity. More than that, the rest of

the world can provide a market for Australian innovation to provide the scale for Australians to turn innovation into sustainable business opportunities. Improved productivity can support exports but global integration can also support productivity.

As you can see we have a number of people here for questions. That ends my opening statement.

**CHAIR**—In your submission you talk about small firm size as being an impediment to innovation. What do you mean? In which ways is it an impediment and what sort of things should we be looking at for overcoming that, given the significant size of that sector?

**Mr Lowndes**—It can be an impediment partly through the small economies of scale type issue in that, because of the small size of the firm, they may not have access to the resources or the financial opportunities to be able to identify best practice management techniques and innovation. It is a simple question of the size of the firm.

**CHAIR**—I have found that many small firms are very innovative through necessity.

**Ms JACKSON**—In contrast, large organisations—and, I hesitate to say, departments—can be incredibly slow in introducing change and new work processes.

**Mr Lowndes**—There is certainly no rule that small is inefficient and big is efficient. No-one is suggesting that at all. The statistics that the ABS collects on innovation by firm size indicate that larger firms are more prone to introduce innovation than smaller business.

**CHAIR**—Is it innovation or research and development?

**Mr Lowndes**—It is innovation. The ABS survey covers R&D as well, but it also covers other forms of innovation. For very small firms the figures show that the difference is quite significant. In terms of the issues that we are looking at in that area, I will pass over to Judy.

**Mrs Zielke**—To build on what Terry was saying, from memory the figures are that something like 63 per cent of our small firms are innovative but, of that, only 31 per cent—and I am happy to come back to you with some final figures—are actually undertaking R&D innovation. So two-thirds of that group are more involved in non-R&D innovation, as we would see it. Small firms are often busy in the business rather than working on the business, so to speak. That is often the case with firms not necessarily having the time and resources to access others that they can to increase their innovation.

I am responsible for Enterprise Connect, which is largely focused on increasing the productivity of firms in Australia, particularly firms with a turnover of between \$2 million and \$100 a year. We provide some core services. One of these is a business review to help companies take a look at their firm, identify any gaps that they have and identify any areas that they could improve to increase their productivity. We also provide assistance to build on that by working with others who can help them put in place any improvements that have been identified. In the first instance we are working with companies with a key focus on non-R&D innovation. We are finding that management capability—not necessarily technological capability—within small

firms is the main factor limiting success in those firms and, therefore, limiting productivity improvement overall.

Through working with the companies, based not only on the research but on our experience with those companies, we are finding that the area that we are working in is critical to their improvement. It is not necessarily R&D innovation, although lots of firms, as a result of interacting with us, identify areas that they could be working on and then we assist them to access other programs or services in that regard. Of course, our key encouragement is to assist them to collaborate with research agencies or to seek technical advice, which we also offer, on improving their products, processes and services if that is the area that they need assistance in.

**Mr FITZGIBBON**—I want to ask a very basic question before it gets lost in the future conversation. How do we determine that a firm is innovative? How do we collect that data or measure that?

**Mrs Zielke**—The ABS undertakes a survey of innovation in firms in Australia.

**Mr FITZGIBBON**—What is the definition of innovative?

**Mrs Zielke**—I do not have that off the top of my head. Do you, Terry?

**Mr Lowndes**—Essentially, it covers the range of new products, new processes or new organisational methods, including new marketing techniques. It is really, broadly speaking, asking if the business has undertaken those new activities in those areas.

**Mr FITZGIBBON**—By sample survey?

**Mr Lowndes**—Yes.

**Ms JACKSON**—Do you know if it identifies a new idea or a new invention that, say, has not been able to attract capital?

**Mr Lowndes**—No, they do not look at that.

**CHAIR**—You talk about the relatively low levels of R&D in Australia compared to other countries. What do you think has contributed to that?

**Mr Lowndes**—A significant contributing factor is that we have an industrial structure that has less emphasis on industries that tend to do more R&D. Australia has a comparatively small manufacturing sector and manufacturing is typically the more R&D-intensive sector of the economy. Another factor is that over time this area has received less direct government support than it would have in some other countries. We have had assistance now for some time but certainly not as long as it has been available in other countries. We do have a relatively high number of small firms which tend to do less R&D than some of the larger firms. Another factor that does contribute to it is that you do get different definitions and processes for how you classify R&D. For example, the US has a significant defence research budget because it contracts that out. A lot of that would appear on business R&D. We do not have a defence budget of anything like that magnitude and, to the extent that we do, at least some of it is done through

the DSTO. So there are some classification differences. Our level is picking up; we are still below average but there have been quite significant increases in our R&D level in recent years.

**CHAIR**—Are there some public policy structural reasons that have been contributing to it?

**Mr Lowndes**—As I said, there are a range of policies that do support research. These policies are adjusted from time to time. The level of government support is a bit lower than it is in some other countries. Certainly in terms of direct grant support that would play some sort of role. Each country that has tax concessions has quite different arrangements; there is no one right way of doing things. It is not as if there is a model that we do not have and other places do. The differences we have are defensible and there is a proper process of reviewing it. There is not a lot of Australian multinationals. Multinationals tend to do their R&D close to their headquarters. Our multinationals are in the mining sector; they do a lot of research here. Some of the big ICT companies—the Nokias and so forth—of this world tend to do their research near their home base. That would contribute to some of the international comparisons.

**CHAIR**—I will try and ask the question in a slightly different way: are there things that you could recommend to this committee, given Australia's circumstances with a reasonably large number of small firms and the other issues that you have outlined, that we could be looking at to encourage private sector R&D to raise the levels that are there at the moment?

**Mr Lowndes**—Let me preface that by saying—I think it was mentioned in the introductory statement—the Powering Ideas initiative is relatively recent and it has had quite a range of changes that will bear on this question. The tax concession was altered significantly, in our view, to try to make it more effective. Also, as I mentioned earlier, there are a range of measures to support additional research in the public sector that will flow through and indirectly support additional business research. There is a connection between the two things.

So we have undertaken a lot of measures, and to some extent it will be a question of seeing how they pan out. In terms of where we go from here, again, I do not think there is any sort of magic answer, but there are some areas, without being specific, that are interesting areas of inquiry. One thing that we have done through Powering Ideas is set up industry innovation councils to bring together public agencies and various representatives within those industry sectors to look, at a sectoral level, at areas where additional innovation could be undertaken. It may be that some ideas flow from that process. As I said, it is relatively recent, and they are not fully operative, but it is an area that may point to further areas in the future.

I also mentioned in my introductory remarks the importance of global integration. Again, the issues there are to do with linkages between the Australian research community and those overseas to encourage the flow of ideas. You can also look at opportunities to facilitate overseas investment in our research capacity. There may be areas in which to look for opportunities in that space but, as I said, because we have had a major review, we do see how some of those things unfold.

**CHAIR**—So you are saying that the recent announcement sets an agenda that you think will start to re-address the comparatively poor performance of Australia in terms of R&D and innovation?

**Mr Lowndes**—We saw some strong growth before the announcement. The catch-up we have had has been quite significant. We are still below average, but we are closing in on that average. I think we are really saying that we have set sail, set a course. At least for the time being we will, in part, be looking at how that unfolds. I do not want to give the impression that Powering Ideas is an initiative that you just set and forget. A lot of these issues will evolve over time and the questions will be asked, as you have asked: is it working? Are there additional things we can do? It is not something that is finished, but I think we are comfortable with the directions it sets.

**Mrs Zielke**—The report acknowledges that we need to continue to build on and learn from the work that we are doing and therefore be flexible in the way in which we implement ongoing changes to those initiatives.

**Mr Lowndes**—I do not want to spend all our time on this one question, but one point I will add to that is that one area within R&D where our performance is not strong is collaboration. With Powering Ideas we have tried to emphasise the collaborative element across the whole suite of programs. There have been some modifications to the arrangements to fund higher education research that place a little more emphasis on collaboration, and similarly in the research infrastructure and in the business initiatives Enterprise Connect and Commercialisation Australia.

That is another angle where I think we are trying to shape the system in a favourable way in a manner which we think will build additional research. I am being very portfolio centric in what I am saying and I should also point out that innovation and R&D in particular will occur from a raft of initiatives across the board. It is not just what we do in the innovation department and a big area that will influence that is the climate change agenda. The changes there both in terms of the carbon trading scheme and also some of the innovation support mechanisms that go with it are likely to support significant additional investment in technology and R&D. Not all of that will be in the private sector but certainly some of it will be.

**CHAIR**—My last question is around the same area. We heard some evidence from an earlier submission about the difficulty in getting credit. You were saying that we have a large number of small firms and that is an impediment to innovation, is access to capital. Clearly, in the global financial crisis everyone is having issues but in terms of R&D and the structure of our economy has that been an issue that has contributed to the relatively low levels?

**Mr Lowndes**—The main barrier identified to additional R&D or innovation is lack of skills. Finance is No. 2, so it is identified as an issue. This comes from the survey where you are asking the person who wants to undertake the innovation and they cannot get finance. The person who is not giving it to them may well have a different view on whether that is a legitimate impediment or not, but I think the point you raise is clearly one of the issues. Perhaps I should have mentioned earlier that another potential impediment to a smaller firm that wants to do something new is that it can often be harder for them to get money than it is for a large firm. There is capacity for them to generate their own internal cash flows. It varies according to the firm but some of the lenders can be a little more loath to lend money. To follow on a little, in terms of finance we have programs to deal with commercialisation or the R&D side of it. Commercialisation Australia was announced earlier this week and is focused largely on small business as are some of our venture capital programs. But on the finance side of it innovation more broadly is an area where we provide information and act as enterprise connectors. We are

largely an information service. We do not lend people money through that to do the innovation activity.

**Mrs Zielke**—As Terry has pointed out, the key issues in relation to capital are for those more high-risk activities, in particular R&D, where companies continue to have trouble with raising the dollars. Encouragement by government to build our own industry in that regard is really important. Evidence from the US is that it took over 50 years to build the early stage venture capital market over there and we are probably 20 years in. I think 1988 was when we first started providing assistance here in Australia, so we still have quite some way to go to build and educate enough people and train enough fund managers here in Australia to be prepared to work in that space and to raise funding. That is why things like the Innovation Investment Follow on Fund and the Innovation and Investment Fund are so important.

**Mr BRADBURY**—Can you give me some idea of how cooperative research centres fit into the broader picture?

**Mr Lowndes**—They are probably one of our long-standing programs in the collaborative space. They involve, largely, the public research agencies, universities and business, depending on the particular CRC. It is quite a large program; I do not have the number in front of me but, as I say, they fall into that collaboration space of trying to encourage the different players in the innovation system to work together. They do cover a range of different disciplines. There are specific centres that look at particular areas of research and which are subject to these particular arrangements. Essentially, they are just partnership arrangements to address particular research challenges that are funded by government, generally for a finite period—they certainly do not go on forever. There is a selection round where particular CRCs are given funding.

They do range in terms of their commercial focus. Some of them are very much in the academic space for environmental and, perhaps some sorts of health issues and so forth. Some of them are more commercially orientated as an auto-CRC, which has got a business focus. So they do cover a range of public and private goods.

**Mr BRADBURY**—How significant a role do you believe they play in contributing towards productivity growth—not asserting that is the sole purpose for which they were established?

**Mr Lowndes**—The program has been reviewed in terms of its economic benefit. Unfortunately, I do not have that in front of me, but we can provide further information on that. You are right in the sense that some of the programs do not directly have commercial outcomes. It is not, in the overall scheme of the economy, a program whose size is going to have a specific outcome that you can identify. But it has been an effective program and it has been a long-running program, subject to a range of reviews.

In our view, this networking between business and the public research institutes does encourage interaction between the different research sectors and is part of spreading research knowledge and so forth throughout the community. There has been a specific review of the program, and rather than speak in generalities—

**Mr BRADBURY**—Was that conducted recently? When was that review?

**Mr Lowndes**—It was conducted concurrently with the review of the national innovation system. There was a review specifically undertaken of the CRC program by Mary O’Kane, who I think is now the New South Wales Chief Scientist.

**Mr BRADBURY**—That could be made available?

**Mr Lowndes**—Sure, yes.

**Mr BRADBURY**—I noted that in the Productivity Commission’s submission to this inquiry, it says that the Cutler report argued that:

... publicly-funded knowledge should be made freely available (Cutler 2008). Cutler sees the development of networks and linkages which facilitate dissemination of research findings for more commercial uses as an objective of “market facing” innovation programs. However, experience has shown that developing effective programs that can yield a net benefit over time to the community is challenging. For example, the Cooperative Research Centres, a major, long-standing policy initiative in this area, appear to have strayed from their original mission ....

Do you have anything to say in relation to that?

**Mr Lowndes**—That is the commission’s view, and I am second guessing where they are coming from; but the statement is fairly similar to one they made in a public review they did of the research and innovation system a couple of years ago.

**Mr BRADBURY**—They cross-reference it to a review in 2007.

**Mr Lowndes**—Pursuant to the O’Kane review of CRCs that I mentioned earlier, the original public good criteria in CRCs was restored. I think the commission were concerned that the CRCs were moving away from that towards a more commercial orientation, and that has been corrected. So, in a sense, I guess we are agreeing with them.

**Mr BRADBURY**—You have responded to that.

**Mr Lowndes**—We have responded.

**Mr BRADBURY**—I think the Productivity Commission does not directly make the point, but I guess it is also connected with the bigger issue that the commission makes in its submission which relates to the substantial size of assistance to industry that is provided under various programs and tax expenditures. The Productivity Commission puts forward the view that these programs of assistance are not always rigorously assessed to ensure that they are achieving the outcomes that they were established to achieve and are not necessarily assessed in the context of what impact they might be having on productivity growth. Do you have any views on that? Clearly, in the case of CRCs a review has been undertaken. We would all be interested to look at that more closely. Do you have any more general comments to make in relation to whether programs, where industry assistance is provided, are regularly assessed to determine the impact that they are having on productivity?

**Mr Lowndes**—Industry assistance programs are basically subject to the review procedures of all government programs. There is no lessening in any way or idea that they are in a different

category. The department of finance and Treasury are overlooking these programs quite regularly. Within the department we have our own internal evaluation unit that oversees and conducts reviews. Everything will be reviewed between three and five years, depending on the program. They will be reviewed through a range of mechanisms. Some of them will involve external reviews, some large-scale reviews and some somewhat smaller reviews.

To illustrate: our main budgetary program is the motor vehicle assistance scheme. It was subject to a major public review by Bracks last year. The PC were involved in that, producing economic modelling to support the review. Certainly the programs are subject to review processes. Do those review processes specifically focus on productivity? I would say for the larger ones, yes. Certainly, productivity is an issue in the PMV review. It is not the only issue. It is probably there implicitly. In terms of focusing on the competitiveness of the industry, which is a fairly standard criteria, part of that is productivity. I think the answer in that sense would be yes, even though we do not necessarily in the terms of reference for the review state productivity, although some might.

It would be less of a criterion in some of the pure research programs because the connection is a bit further removed. We would argue that there is a connection, and that is what we have argued in our submission, but it is not something that sits there directly as it would with an industry support program. The innovation programs are also subject to proper review processes. The Cutler review, which you mentioned earlier, was a public review process, as was the review of the CRC program. I am not sure exactly what they are referring to in terms of their report, but there is certainly no suggestion that industry programs are subject to any kind of lesser review. Their economic impacts are always part of what is being considered.

I do not want to go on too long, but historically a lot of assistance has been given through tariffs. They tend to be bit less transparent, of less concern perhaps in some sense to the funding agencies because a tariff raises money. It costs the consumer, not the government but that has now become less the case. The assistance to PMV is now delivered through direct financial assistance, and the tariff is less important. It is the same with TCF.

Most of our programs are either direct funding or in the case of the R&D via the R&D tax concession. Colleagues in Treasury and the tax office keep a very close eye on developments with that. As I say there are processes that do review these programs and certainly for the larger ones productivity would be part of the emphasis on building industry competitiveness that these programs have.

I should also say that the commission do produce quite a bit of work looking at industry assistance and we largely deal with support for research and manufacturing or other significant industry programs that do not fit under our portfolio. Again, most other departments are in the same position as we are. As an aside—the main area of increasing budget support for industry in total in recent years has been in agriculture and this has largely reflected the impacts of the drought and also, in the last year, the horse flu. Obviously this involves paying the money but it is probably not what you would call assistance designed to address some endemic problem within the industry, it is essentially necessitated by circumstances and I think everyone would rather it had not happened.

**Mrs Zielke**—In relation to the innovation programs evaluation of those is sometimes very difficult to do when the program has only been in place for, say, two or three years. A number of commercialisation cycles still fall within 10 years before you actually start seeing results in a number of areas. It is very difficult to get results earlier than that to justify fully the dollars that are going on some of those programs. So I therefore highlight the need to possibly give consideration to longer term arrangements in that regard when reviewing the outcomes from programs.

**Mr FITZGIBBON**—Can I just invite you to add to your answer to a question from the chair about why Australia's performances is seen to be relatively poor by international comparison? You mentioned the nature of our economy, in particular our relatively small manufacturing sector. It would also be true I suspect that the nature of our manufacturing sector is significant too. For example, we do not have many firms producing goods of necessity like pharmaceuticals et cetera. Is that also part of that explanation? I am very interested in this because I am always a bit suspicious of international comparisons.

**Mr Lowndes**—We do have firms in the pharmaceutical sector and they do research here. A lot of them are subsidiaries of other multinationals, but they do undertake research. I think you would have to sit down and work out the sums. It is a factor perhaps compared to some of the large European countries as I mentioned before. Typically, although not exclusively, companies do their research close to home and to the extent that they do some research here it is not going to be proportionate to what they are doing in their head office. I think that will be an issue with those pharmaceutical companies that even though some of them do research here they would do more—

**Mr FITZGIBBON**—It is true that R&D expense would be higher in firms where you are producing goods of necessity, pharmaceuticals, aircraft safety, defence et cetera. We do not tend to have any large primes here, if you like, doing that close to home, do we?

**Mr Lowndes**—No. Your point that we do not have the large primes holds right across most of the manufacturing industry, and that would certainly be a contributing factor.

**Mr FITZGIBBON**—Can I tease out exactly what we know about the relationship between government expenditure on R&D and business expenditure on R&D? Do they move together in any fashion? How does it tend to work?

**Mr Lowndes**—I do not think there is any sort of systematic link. In recent years business R&D has grown significantly more rapidly than either higher education R&D or R&D in the public sector. As I mentioned earlier, I believe these things are all connected. This is looking at innovation as a system, but it is not a system that gives you an instant one-to-one relationship. To the extent that the public research that has been done in the public sector has commercial implications, they may not be apparent for some time. It can be commercialised a couple of years after the research has started. While in the CRC program and so forth there is a level of collaboration where there is symmetry between the two, it is certainly not the case that, if you push university or CSIRO R&D up or down, that will immediately spill over into any relationship with business R&D.

Business R&D tends also to be sensitive, naturally, to the business cycle. I am probably going on a bit, but we have had this very strong growth in the last five or six years in business R&D, and in part I think the view is that that is partly because we have had very strong economic growth. People are more prone to see R&D as perhaps one of those goods where, when things are going well, you have more of it and, when you have to cut back, it can get cut back a little—although the signs that we have from some of the surveys are that, while there may be some lessening of effort in the GFC, it is not going to fall hugely. So, yes, I think those sorts of parameters such as economic growth and structural change within particular industries can have a significant impact on R&D. The incentive environment can also be quite important. We have seen a lot of growth of R&D in mining in recent times. That certainly coincides with the emergence of Rio and BHP as very big players internationally. It is the reverse of what we mentioned before; we do have multinationals and they are headquartered here, so they do most of their research in Australia.

**Mr FITZGIBBON**—You mentioned the collaboration, or lack thereof, in Australia. Indeed, when Mr Bradbury was asking about CRCs, you mentioned that the CRCs have a role to play in promoting collaboration. I am always reminded of a wonderful book by AnnaLee Saxenian that I read some years ago. It is called *Regional Advantage*; I do not know whether any of you are familiar with it. It did a comparative analysis between Silicon Valley and the so-called Route 128 in Massachusetts and the relative decline in Massachusetts compared to the rapid, dynamic growth in Silicon Valley. It was really a thesis on the role played by culture and, indeed, venture capital, which I think in some ways are one and the same. What do we do in Australia, if anything, on the cultural front either through our learning institutions or, indeed, through the CRCs? Do you know? Is there an attempt to promote a cultural change in Australia?

**Mr Lowndes**—I will give an answer to that, and I will invite some of my colleagues who might be just as well placed to comment on it to do so. I think there is a sense in which people do focus more on innovation as an issue now than they would have. You see it in little ways. *Business Review Weekly* now has a section on innovation, they have lift-outs on it and it is pushed a bit. If you look at the AIG—Australian Industry Group—website, they refer to skills development and research and innovation issues in a way that once upon a time they would not have. I think there is a greater awareness of the importance of it.

Looking at the culture of collaboration between institutions, there is an increasing level of collaboration between the CSIRO and business compared to 10 years ago or so. The stats suggest that is less so with the higher ed institutions. Like a lot of these stats, they are getting better but they are still pretty low. Talking about innovation more broadly, there is a culture of adopting new practices and so forth in the workplace and that type of thing. It is very difficult to measure that, but one comment I would make is that in the early days of the ICT revolution the OECD did an international study looking at how it had affected productivity across its member countries, and we were rated very close to the top. We were not a producer of ICT, but we were a very fast adopter. That reflects a culture of being willing to look at new practices and do new things.

I keep referring to powering ideas, and the idea of building an innovation culture gets mentioned in our submission. It is a bit hard to have a program that provides funding for someone who says they have a cultural thing; it is more something that develops over time through an awareness of the importance of the issue. We have a CRC program and there are

some other smaller specific programs, but most of the things we are doing to foster collaboration fit within the framework of the larger support mechanisms. That is to try and push a cultural response within the institutions towards looking at collaboration. Particularly in higher ed, it is not so much the actual money that we are linking to collaboration that is going to make a difference but the fact that we are saying to them: this matters.

**Mrs Zielke**—In the way in which we deliver our programs, our focus has continued to build on the importance of ensuring that companies are more aware of what is available. For example, in Enterprise Connect we have found that companies are eager to come forward and learn what new arrangements they might be able to put in place, but they then struggle to have the confidence to actually move to put those in place. So what we have done is initiate a program whereby we bring companies together to learn from the experience of another company and, based on that, form peer groups and then use those groups to collaborate, learn what others are doing and move forward from that point. Then we build on that through encouraging them to take on researchers to help them work in a particular area or on a project, which then encourages them to collaborate with research agencies et cetera in that regard. Coming from the company end is one way to encourage collaboration, and Terry was talking about also trying to encourage universities and research agencies to collaborate the other way. So there are various angles to approach it from.

**Ms JACKSON**—Picking up on the collaboration issue, Austrade has had a fairly successful model in doing that. I have recently come back from overseas, where we heard from people, especially in California, who are still interested in venture capital. We heard from a CSIRO scientist who was leading the pack on electric car batteries but could not get the relevant support here in Australia. We heard from another Australian company that has been providing all of the support in New York for the reforms to the New York education system. Austrade had some awareness of these people, so I just wonder if your collaboration is not missing out on a fairly important part of business in Australia, which is getting people export oriented or thinking about overseas markets.

**Mrs Zielke**—We actually have a rep with Austrade. For example, when Enterprise Connect meets with a firm, we meet with them with our other colleagues.

**Ms JACKSON**—So Austrade is there?

**Mrs Zielke**—It might be Austrade, it might be ICN or it might be local or state government or other Commonwealth agencies. We have a high focus on how you put companies in touch with the appropriate groups by trying to bring them together in those collaborations in meetings. Companies get a huge benefit from being able to do that as a group. Not only do the various government agencies think better when they all hear the story at once and bounce ideas off one another; it has the same impact on the company as well. They get a much better view of the various options that are available to them to look at. We take that individual company and put them in a group in those various arrangements, and it is the same thing with the various government agencies.

**Ms JACKSON**—Does that networking go to the extent that, if someone in Austrade hears that there is a gap or a need in the development of electric car batteries and someone in your

agency knows that the CSIRO is leading the field in research and development on electric car batteries, there is matching going on there?

**Mrs Zielke**—As much as we can—and I do not know if anyone else wants to comment. An example of that is that we have CSIRO SME engagement officers located within our offices. We therefore have a strong involvement with the actual centre in Sydney as well and we bring Austrade into that. We regularly have meetings with Austrade, ICN, Enterprise Connect, CSIRO et cetera around the table trying to share those ideas. Also, we have a very strong network so that, if somebody hears an idea, Austrade would ring Enterprise Connect, or whoever, and refer that company and try to put those groups together. I will not try to tell you that we do that with every single company where we are able to do that, but that there is definitely a working network that has that idea in mind and is trying to achieve that outcome.

**Ms JACKSON**—Are they coming at it from where the gap or the need is in emerging industries around the globe, or are they coming at it on the basis of what we are doing in Australia or what a firm might be doing here in Australia?

**Mrs Zielke**—Austrade comes around regularly to the various agencies and conveys the gaps they see and where the opportunities are—and vice versa—so that we are aware of those and can identify those back in return. We work the same way. If there is a new opportunity here, we ask Austrade if there is a market available.

**Ms JACKSON**—I noticed that one of your priority areas for action—I think it is part of the Powering Ideas 10-year agenda—is the importance of a research workforce strategy. I am not sure whether it has been developed, or is being developed, but there is some work going on with higher education institutions. Could you comment on research work opportunities after graduation? It seems pretty grim if you are a scientist or researcher in Australia. It seems that employment is very precarious. There is not necessarily secure tenured employment. Is this having an impact on our research and development capability?

**Dr Byrne**—I will comment on the two levels of your question. Firstly, as you say, the research workforce strategy is an initiative from Powering Ideas. The idea there is that, to underpin productivity improvements, we obviously need a skilled workforce. When we think about the skilled workforce for researchers, we are usually thinking about only the academic workforce. But the point of Powering Ideas, and the broad policy thrust, is that we need high-end skills across all segments of the employment market. So when we think about employers we are thinking about not just higher education institutions but employers more widely—from small businesses right through to the top-end employers in the academic environment.

What the department is doing is leading that process on behalf of the Commonwealth in close collaboration with the higher education sector, peak university groups and peak student body groups, including postgraduate student bodies, directors and deans of graduate studies in universities and the National Tertiary Education Union. Rather than take up time here, I am happy to provide you with information in detail on the make-up of the mechanism to develop it.

Just to reassure you, the key issues that we recognise are important to pick up here are: employer demand—how do we understand what is needed in the system here in Australia to support us to be the most innovative we can be across, as I said, all aspects of the market and not

just the academic workforce; what is the experience of research trained students; what attracts and retains students into an academic and wider research workforce pathway; what sorts of initiatives can be put into place to ensure that they are retained into early career, mid-career and beyond so that we can maintain highly skilled people here in Australia and not have leakage to other parts?

**Ms JACKSON**—Brain drain?

**Dr Byrne**—We could see it as brain mobility, but we want the brains to actually come back to our shores—we have got the best beaches, so I think that is where they need to be!

**Ms JACKSON**—Absolutely!

**Dr Byrne**—The other thing is, broadly, career development issues. Again, working with a reference group that the department has established, working in close collaboration with key stakeholders, we aim, by towards the middle of next year, to have prepared for government's consideration a research workforce strategy.

To pick up your second issue, I think it is true to say that there are a whole range of conversations that happen not just here in Australia but internationally about the pathways for early career researchers into the academic and wider workforce. We agree there are challenges in that space. *Powering ideas* and other documents, including the report of the House of Reps inquiry into research training, which Terry mentioned before, have gone to these issues about what we can do better.

On changes to some of our schemes—this is not making a comment beyond simply the facts of the matter—the government determined in the previous budget that there would be a doubling of the Australian Postgraduate Award scholarship over time to 2012 so that we can improve the numbers of people coming through. There are obviously opportunities through the Australian Research Council, which we can provide further details on, through their fellowship programs which support early career researchers.

So there is a mindfulness about the need to ensure that our capable people are retained within our education system long enough to be able to skill them up to provide the base of core capability that we need for small business, large business, the academic workforce, PFRAs and the wider community as a whole, all of whom are engaged in the space of innovative, creative ideas generation and dissemination of new knowledge. We need good people everywhere in the market to support that.

To pick up Terry's point, it is a long-term agenda. I think the fact that the workforce strategy is going out to 2020 is an example of the way we are all thinking. There are no quick fixes to this. We recognise the problem and we are working toward finding some solutions to it. We do not have all the answers, but we have some processes in place and some new initiatives, including through the Australian Research Council, as I mentioned, which hopefully support better creation and maintenance of a quality workforce for the future.

**Ms JACKSON**—Has there been some consideration of including the VET level in that workforce strategy? I do not think it is necessarily tertiary qualified people who have the

answers to everything. There seems to be a gap in my state of Western Australia, where we have a massive skills shortage, in the desire to try and get funding for small and medium enterprises for virtual training centres and the like, which are becoming increasingly commonplace in other parts of the world but not here.

**Dr Byrne**—It is a good point you raise. VET qualified people are also in the tertiary space. I can separate out the two—higher education qualified and VET qualified. Skills Australia, the new statutory body established by the Department of Education, Employment and Workplace Relations, as you know, is doing a whole body of work around provision of VET qualifications to meet future projected demand in that space. I would be happy, through Terry, to take on notice if you would like some more information—or our DEEWR colleagues could provide you with further advice on that. But government, through the establishment of Skills Australia, I think has identified a real gap.

The other thing I will say, just to reassure you—though it may not reassure you—is that conceptually, I think, the idea that we keep the tertiary education sector as a whole is foreshadowed in the establishment of the Tertiary Education Quality and Standards Agency, a new body announced by government. It is being led by the Deputy Prime Minister but also involves our minister. Over time, it is expected to move beyond higher education to VET as well because we recognise that, from a skills point of view, we need to have clear articulation and smooth pathways between all aspects of tertiary education.

**Ms JACKSON**—Going back to our starting conversation, this is what worries me about how slow it is to get this vital sector to actually turn around and be far more responsive to industry, research, development and innovation. I think this is a serious problem. I appreciate all those bodies and the efforts made, but I reckon turning around that education system is worse than turning the Queen Mary—it takes nine nautical miles to slow down before it can begin to turn.

**Dr Byrne**—Indeed. The educational participation and attainment is essential. But it is a long-term agenda.

**Ms JACKSON**—Is this maybe one of those cultural things that we were talking about? I do not know. It seems to me that, if you really want to take part, in this day and age, in the world, given how fast the world is moving, and if you want to stay out there in front of, or at least not fall behind, the pack, you need to pick up the speed of the implementation of these changes.

**Dr Byrne**—That could be a comment, and I would not necessarily agree or disagree. But I might just note, again, that it is a broader lens. As Terry mentioned before, all these initiatives are whole-of-government reform processes that are critical to Australia. The increasing participation rates in undergraduate higher education over time I think will also go to your question about increasing the overall supply of highly qualified people to take on the challenges and opportunities in the future. That will be important. But, again, there is a time lag in that as well.

**Ms JACKSON**—Thank you.

**CHAIR**—We have a couple of follow-up questions. I know we have kept you a lot longer than we intended but it is because of the quality of your responses.

**Mr BRADBURY**—This has been prompted by the discussion that we have just had. My question is on the notion of the creative classes and trying to attract the people who are going to be the innovators. There is a lot of talk here about the businesses, the companies and the organisations. There has been a fair bit written in this space about how the communities that you are able to create will be attractors of the people who are going to be the innovators. I wonder whether you have any view as to whether there is any evidence to support that. And are you aware of any initiatives, either here or abroad, where some effort is going towards some of those other considerations that might come into play when people decide where they are going to live and contribute?

**Mr Lowndes**—As to the idea of the innovation cluster—the Silicon Valley type thing: in a sense, that is really not the sort of line that we have gone down.

**Mr BRADBURY**—Is that because there is no evidence to support that proposition?

**Mr Lowndes**—For every success story you get with that there are lots of failures that you never hear about but which happened. People have tried to recreate Silicon Valley in lots of places and it just has not happened. The point you are making is that, ultimately, it is about people. Innovation research, obviously, is done by a person. Someone does it; it does not just happen. And there is some evidence to support this idea that when you get innovative people together they can generate ideas more quickly than if they are all working by themselves—that is part of what collaboration involves. It is not just between public and private but also between businesses and within firms. The notion of the networking side of how innovation is done has got a lot more coverage. In a sense, making Australia an attractive place in which to do business and to live, in terms of the environment, the physical climate, the general tax regime and so on, is going to be part of that, and it is probably an area of international competitiveness in a lot of ways. It is a relevant factor.

There are Australians who go to live abroad but foreign people come to live here. It is not as though there is a mass exodus; we are still reasonably competitive. In the higher education area, a lot of overseas people study here. So I am not sure that it is necessarily a problem area, but the question is: if you have the individual policy, which is what you are saying just happened, is it an issue that you have to concentrate on? I am just thinking it through: if we have the business incentives right and the university environment right, will the people follow, or are there other issues of attractiveness of Australia as a place to be. That sits on top of that and, in a sense, policy is set in terms of the institutional business level rather than the individual. The incentives are for a business. We do not have incentives for an individual or for research; they are subject to the same tax regime and the same salary determination process as everyone else.

I am not quite sure if I have answered your question, but what we are really saying is that, in terms of the innovation space, the idea is that you have a positive overall climate through having a strong economic framework—which we certainly have at the moment—and a strong education system. Notwithstanding comments that things may be moving slowly, overall we are in reasonably good shape. We have a business framework which is not looking at minimising unnecessary regulation where people can innovate, and we have a regime of tax where you get rewarded for your efforts. And as I was saying before, we have nice beaches and decent cities as a place to live.

**Mr BRADBURY**—That comment prompted the question in a way because there are natural advantages there, but it seems to me that implicit in your response is that, if we get all of these programs in place and we provide the incentives to businesses, then all of those things will get you the right result in the end anyway. I just wonder if there is scope for asking what comparative advantages we have, and is there a way of packaging them to achieve those objectives?

**Mrs Zielke**—Could I just give an example of what Chile has done recently in that regard? We have programs that encourage our diaspora to return, bringing the experience and expertise that they have gained overseas back to Australia and working here. But Chile has taken the opposite approach of providing incentives to that group to talk about how good Chile is whilst they are out working in other countries, with the idea that it will raise the profile of Chile and encourage people to go there. They keep those people informed of recent developments in their country so that they are able to share it with others they are working with and encourage them to move to that area. I find that to be a very interesting method.

**Mr BRADBURY**—I am going to be very cynical the next time I speak to a Chilean.

**Mrs Zielke**—But it works in that regard and I thought it was a very interesting way of encouraging people to move.

**Ms Valenti**—A feature of the new Commercialisation Australia is the introduction of volunteer business mentors. We are specifically working with Austrade to look at tapping into the expats who work around the world, to have those people operate as volunteer business mentors. There is also up to \$200,000 available to participating firms to assist them in getting experienced CEOs. Some of those might be returning expats. That is one specific little thing.

**CHAIR**—I have a follow-up to Mr Fitzgibbon's question who earlier asked about the link between public and private funding and you said there was no link. Isn't it a problem, with the money that we put into public R&D and infrastructure, encouraging that to happen, if there is no flow-on even if there is a lag? Doesn't that mean that we are mistargeting some of that public funding?

**Mr Lowndes**—I am saying there is not a direct flow-on in terms of an automatic link between \$1 of public money instantly transferring into private. The two things are linked in the sense that the generational knowledge in the public sector will spill over into the private sector.

**CHAIR**—Do we measure that link?

**Mr Lowndes**—They do by things like the number of patents used. It is also the case that some of the research infrastructure can be used by business groups. It is not like there is a super science package which just sits in the public sector and no-one else can use it. Some of it is available to business groups, and in that sense there is a connection. For example, CSIRO collaborate with business, and skills are developed in the public sector. People do not stay there all their working lives, they move out into business.

**CHAIR**—I know; you were the one who said there was no link.

**Mr Lowndes**—Sorry if I misled you. I was thinking in terms of a direct financial link. There is certainly a link and, as I said in our opening statement, our view is the public sector is connected to it. I also said we have had a very strong surge in business R&D in things like the economic environment and so forth, as well as what we do for the government.

**CHAIR**—Thank you for your extended contribution. We apologise for that. You will be sent copies of the transcript. If there are any errors or omissions, please get in touch. You volunteered to provide a couple of things, so please be in touch with the secretary about that.

[2.35 pm]

**GOODAY, Mr Peter, General Manager, Productivity, Water and Fisheries, Australian Bureau of Agricultural and Resource Economics**

**SHEALES, Dr Terry, Deputy Executive Director, Australian Bureau of Agricultural and Resource Economics**

**CHAIR**—Welcome to today's hearing. Although the committee does not require you to give evidence on oath, I should advise you these hearings are legal proceedings of the parliament and therefore have the same standing as proceedings of the respective houses. Is there an opening statement you would like to make?

**Dr Sheales**—Yes, I would like to make a few comments drawing on what we, at least, think are major things within our submission. First of all, just talking about productivity in the Australian economy and the contribution of agriculture—and I should emphasise that the main focus of our submission is on agriculture because that is what we do—there are a couple of things on the contribution side. First of all, agriculture is only a fairly small part of national GDP—about 2½ per cent. In economy-wide productivity growth, between 1974-75 and 2007-08, agriculture contributed about 17½ per cent. The bottom line is that agriculture is certainly one of the outperformers, if not the outperformer, in the economy in terms of productivity growth. That said, there has been some decline in agricultural productivity in recent years—or there appears to be. A fair bit of that is probably associated with the drought that we have had across much of the country in the last few years. But there are also other factors that affect it, such as resource constraints, ageing population perhaps, labour and skills shortages and declining research investment.

When we talk about productivity we should be clear on what we mean. Various organisations or analysts have a range of understandings when they are talking about productivity. When we are talking about productivity we talk about total factor productivity; it is the whole thing, not partial measures like crop yields, livestock slaughter or waste—that sort of thing. We are talking about the efficiency of the industry in converting inputs into outputs. We have a range of procedures for estimating that so that we can give an ongoing commentary on how productivity is changing in the agricultural sector.

It is effectively a measure of technological progress, but it is certainly not perfect because there is imperfect data, limits on our methodology and probably other constraints, too, in how we can assess productivity. It is important to note that ABS also puts out productivity measures, as does ABARE. Both of our approaches are consistent with international methodologies and use a consistent framework for doing those estimates of industry performance. We do vary a little bit in terms of the numbers we come out with, mainly because when ABS does its estimates it is talking about agriculture, fisheries and forestry as a whole. ABARE covers only what we call broadacre agriculture, which in my terminology would be dry land, cropping, cattle raising and sheep plus dairy. Our estimates have a narrower set of sources of data and that is because we base them on the farm surveys that we conduct. We have run quite an extensive survey of farms

every year. Productivity will vary between regions and industries and we have indicated that in our submission.

Moving on from there, what sort of factors do contribute to productivity growth? There are probably three main areas: the adoption of new technologies and knowledge; increasing adoption rates of new innovations, because it is not only about coming up with innovations but about the extent and speed with which they are adopted; and the other thing that people perhaps do not necessarily pick up on is the exit of the less productive firms from an industry. Agriculture is changing, as all industries are changing. Agriculture is changing, with farms leaving the industry. Typically, of those that leave, other farms either take over the whole operation or perhaps blend it in with their operations. So farms are steadily getting larger. Those ones that are getting larger are those that have actually been more productive. They are bringing that technology onto a larger and larger resource base, if it is typical land area we are talking about.

There are things specific to firms that affect productivity. Not only is managerial ability very important; human capital generally and the skill of the labour force are also. As I mentioned, there is the size of the operation. Financial capabilities affect the extent to which farm managers can actually introduce new technology or adapt it to their own particular circumstances. There are external factors that affect it. One, of course, is R&D and what is happening in the R&D side, in a formal sense. Market conditions and climate change have an effect. I referred to droughts there a while ago and it could be climate change. It is certainly a climate factor. There is public infrastructure, particularly the spread of new technologies, whether it is communications or transport, and also government policy has an effect.

The last things I want to touch on include the role of government policy in both enabling and encouraging productivity growth. We have suggested that there are a number of areas. First all, there is just R&D investment. The government does invest in R&D. Quite clearly, investment in R&D needs to be well directed, coordinated and it has to recognise there is a private sector component to R&D—probably an increasingly important component. By working closely with the private sector, there is the potential to accelerate the rates of development and adoption of technology. Government has a role perhaps in improving incentives and the capability of industry to adopt those new technologies. It might be through improved access to research results, more training and education that is specific to particular technologies, IT and communications, and public infrastructure.

In general, policy settings that remove regulatory constraints, that encourage competition within industries and enable flexibility in decision making amongst firms and within firms are all things that contribute to the ability of the sector to lift productivity, and therefore be more competitive and sustainable in the longer term. With respect to improved market access, one of the things that I suggest may have contributed substantially to the growth in productivity that we have witnessed in recent decades is the opening up of the Australian economy to competition from overseas suppliers in a range of areas. The reason being is that it gives domestic firms increased incentives to work hard at lifting their ability to compete in that global market. Just look at the grains industry and you can see lots of changes have happened there. A lot of that is because of less regulation and not so much the opening of the market, because that has always been open.

The environment is the last thing that I want to touch on. Climate change is a factor that we are all grappling with in various ways at the moment. Certainly, the challenge is out there in front of agriculture, particularly on the adaptation front. That is an area that they are going to have to deal with immediately. There is also mitigation, which will be part of the CPRS process in whatever form that may take. Certainly, some of the strategies on improving productivity growth in those areas would relate to accelerating the development of low environmental impact and mitigation technologies and also the implementation of policies that are designed to help meet environmental objectives at least cost. I will give you an example of what I mean by that. If we are talking about meeting community objectives in relation to native vegetation, for example, there are different ways you can do that. One could be through straight-out regulation, in other words a lot of stick, my word, or you could have a carrot approach through using market based incentives. Government is experimenting with those, but there is a long way to go. That approach probably comes up with more efficient and least cost outcomes. I am happy to take questions.

**CHAIR**—I have three questions. Clearly, the drought is the main cause of the decline in productivity growth in the industry in the mid-nineties that you talk about and in the early part of this decade. You do talk about it in the submission and you reiterated today the decreasing research investment, particularly public research investment. Are there things there that we should look at for the sector particularly? Are you arguing that there is a requirement now for more public sector research dollars to go there?

**Dr Sheales**—We are not arguing that, we are observing that that is a factor out there. I did say in my presentation that private sector investment is increasing at the same time partly because if there has been less public sector investment or slower growth in that, it opens up opportunities for private sector investment in R&D. The amount of public sector investment in R&D has fallen from about five per cent of agricultural GDP—I think we may have just said GDP in the submission, it should be agricultural GDP—between 1978 and 1986 to about three per cent for 2003. But at the same time, the overall value of the gross domestic product has gone up, so in absolute dollar terms it may not have fallen. It certainly is a smaller percentage of agricultural GDP.

**CHAIR**—You have identified that as one of the reasons for the decline in productivity.

**Dr Sheales**—It is certainly a factor. Investment in R&D is a long-term process and that is what makes it somewhat difficult because you invest money today but it might be 20 or 30 years before you get a payout.

**CHAIR**—That then leads to a conclusion that if we are looking at making recommendations about improving productivity in terms of the agriculture sector then we should be looking at improving public sector funding in relation to productivity. That is what flows from your submission.

**Dr Sheales**—Certainly.

**Mr Gooday**—With the observation that we make that productivity and growth in agriculture is slowing, part of that may be due to the drought or climate change so that this may be something that continues. The mitigation response to climate change also is likely to impose an

additional productivity drag, if you like, on the agriculture sector in terms of the increased cost. If we are looking at maintaining profitability in agriculture, the likelihood, is that we are going to need to increase productivity growth from what it has been in the past rather than the slight decline that we have seen recently. There are relatively few levers to pull. There is the R&D lever, there is the structural change lever that Terry mentioned and there is the adoption of currently available technologies.

**CHAIR**—You have also said, on a completely different topic, that limited internet access in some rural areas has also been a constraint to productivity growth. Will what has been happening with the National Broadband Network play some role in terms of increasing productivity in the rural sector?

**Dr Sheales**—Communications is an important business generally across Australia and internationally for that matter. For rural and regional areas to play a proper part in how Australia responds to the challenges of productivity more generally in terms of business, the better the infrastructure is the better they should be able to perform. Certainly, in rural areas at the moment—as you would probably know better than us—the speed of internet access in particular and also some phone services is certainly not what we experience in urban areas. There is room for improvement there. The way that happens will depend partly on how things rolled out and how that initiative proceeds.

**CHAIR**—Earlier you mentioned financial capability as being sometimes a constraint to productivity growth. I wonder if you could make some observations in relation to those aspects of agriculture where there may have been an increased corporatisation of activities and perhaps even if you could give some attention to the growth of managed investment schemes in the agribusiness space. Also could you offer any commentary as to whether or not you think that being able to attract a larger scale of finance into the sector has been a driver of productivity growth, or perhaps has failed to do that or perhaps even delivered an outcome in the other direction.

**Dr Sheales**—There are a couple of things there. First of all, something like 95-plus per cent of Australian farms are in fact family owned farms. Some of those may be family corporate structures but by and large they are family farms.

**Mr BRADBURY**—How does that compare with the rest of the world?

**Ms JACKSON**—Ninety-five per cent.

**Dr Sheales**—I think it is in excess; it depends how you measure it. There is a bit of variation but it is a high number.

**Mr BRADBURY**—How does that compare internationally?

**Dr Sheales**—I am not aware that we have any numbers for doing an international comparisons. What I would say in terms of this adoption of new technology is that, given that most Australian farms are still family owned farms, they are out front leading the adoption of technology. So I think it would be vary hard to identify the extent to which, say, corporate farming, in whatever guise it might be—non-family-owned corporate farming—is contributing

or not contributing to productivity improvement. I think they are all working in the same sort of area and there is no evidence that I am aware of—I am not saying that there is not any—that would suggest that commercially corporatised farms are performing better than family owned ones. It might vary a bit across regions. Across Northern Australia, in the beef industry there are a lot of corporately owned farms and they are certainly out front leading the cattle industry.

**Mr BRADBURY**—Where did you say that was?

**Dr Sheales**—Across Northern Australia within the beef industry. There are very large properties—investments. A lot of those are commercially corporately owned. But at the same time there are a lot of family owned businesses up there too that appear to be competing just as well.

**Mr FITZGIBBON**—In your submission under the subheading ‘Removing policy impediments’ you say what I thought were some pretty courageous things there, which I congratulate you for. You say:

Policy settings can act as incentives or constraints to productivity growth. Some current policies are likely to be inhibiting productivity growth by constraining flexibility in production ...

You go on to suggest that changing these policy settings would be helpful. You do not then really expand on them and I would invite you to if you feel willing and able. You do go on then to talk about drought and improving efficiency in water allocation, but I do not think you meant those. You seem to be referring to other areas of policy but do not then go on to mention them.

**Dr Sheales**—There are things to do with drought policy which are important in terms of farmers’ abilities to change the structure of their operations. That is a factor. We have talked about that in public before. I know that drought policy is being reviewed. No doubt they are looking at that sort of thing. A lot of these things—it is a bit hard to come up with specifics—are often quite small. I mentioned in my opening comments about native vegetation policy. We have moved, although we are still largely in the area of regulated native vegetation policy and a lot of that is state-government managed, if not most of it. There is a move on now, with support from the Commonwealth, to introduce more market oriented approaches to conservation of native vegetation and water resources by providing economic incentives to landowners to respond in a way which better fits in with their business than a regulated approach. That is an example—

**Mr FITZGIBBON**—More carrot, less stick.

**Dr Sheales**—That is what I am suggesting, yes. In general, you tend to find people respond better to that approach than to a regulated approach. I do not have any other particular ones to mention here at the moment. They can be found if people walk around. As I said, there is no single big one.

**Mr FITZGIBBON**—I gave you the opportunity. If you do not want to take it up, that is a matter for you.

**CHAIR**—You scared him off!

**Ms JACKSON**—Apart from growing up in the bush, my family is involved in sheep and wheat farming in Western Australia around Nungarin. Whereas farms were smaller and able to support three of the kids taking over the farm, it is a very difficult situation now. Farms are bigger and you are probably lucky if one of them stays on to run the farm. I would be interested in your comments about your workforce issues. I also spent some time on the primary industry training council. It seems to me that there is an increasing difficulty in attracting and retaining skilled workers in your industry. I do not know whether that applies to all of them. I cannot imagine what would possibly convince a person to become a dairy farmer in Australia any more. I am interested in what steps you think we might be able to take to support skills development because greater skill in the workforce gives a greater ability to be flexible to change.

**Dr Sheales**—This is a very important issue, quite clearly, as you have pointed out. We have rural industries, agricultural industries which are out there competing in the marketplace. They compete for a range of inputs and one of them is labour, as you have pointed out. In parts of Western Australia, for example, they are competing with the mining industry, which has the ability to pay way above—

**Ms JACKSON**—Ten times.

**Dr Sheales**—what agriculture can. Obviously there is great competition there but the ability of the farm sector to match that is somewhat limited. That is why we are seeing the exodus—not total exodus, fortunately—as generational change occurs and farms get bigger. What is happening is that farms are substituting capital for labour to the great extent they can, and Western Australia would be a great example in the grain growing areas where you are getting larger and larger machinery to replace what was labour in the past. As labour has become more expensive, they substitute capital.

There is also substitution, in a broad sense, within farming operations of more and more land for labour. People talk about land, labour and capital—economists typically do, as a basic thing—and we are getting more capital and more land substituted. Also, as surveys show quite clearly, over the last couple of decades there has been a big increase in purchased services going into the farming sector, especially in the cropping sector—more herbicides, more fertilisers and that sort of thing. In a roundabout way it is all substituting for the loss of labour, but at the end of the day the industry has to compete for labour in the labour market and when the labour market is very tight, as it has been until recently, it is going to be very difficult. I understand that, in the downturn last year in the mining sector, quite a bit of that labour came back and was available for the farming sector, but that is the market we work in. Unfortunately there is no easy way around it.

**Mr Gooday**—One of the interesting statistics is what is happening to the average age of farm owner-managers. In the mid-1980s around 40 per cent of farm owner-managers were less than 45 and today that is around 15 per cent. There has been a real drop-off in recruits into farming. I suppose the productivity implication of that is that all the research tells us that the older you are the less likely it is that you going to adopt—

**Ms JACKSON**—Change and adapt.

**Mr Gooday**—these new innovations we need to drive productivity growth. I am not sure what the answer is, but there is certainly an issue there.

**Ms JACKSON**—I think this is a significant concern. It seems to me that in this industry we need to look at whether there is enough access to training. Are we not doing enough on career advice and promotion to attract people into the industry or is it just getting too hard so they go and do something else?

**Dr Sheales**—As unattractive as it might be to some people—but as I am talking to an economics committee I am sure you understand the situation—it is very much an economic issue. People will vote with their feet, particularly as generations change. They look at the opportunities ahead of them and for a range of reasons—it is not just financial rewards; it is psychic rewards and other things that might be associated with working in one field as opposed to another field—they will tend to make those decisions. That is all part of the big economic picture that perhaps you cannot put dollars on. It is not just salary or wages; there is more than that.

**Ms JACKSON**—From a lifestyle point of view—or at least this was the case in my day—it can be a very attractive and satisfying place to be. What drives people to do things is not always money. I noticed the agricultural industry had picked up some productivity places in the last round of funding. Are you able to give us any advice on whether there has been any retention of those training places once people have completed training programs or has it not been in place long enough for you to say?

**Dr Sheales**—We do not have any information on that; we do not collect that sort of information. Probably the department that is running those—

**Ms JACKSON**—So your statistics are very much related to the four areas that you look after or are interested in.

**Dr Sheales**—The four areas?

**Ms JACKSON**—Wheat, sheep, cattle and dairy.

**Dr Sheales**—That is where our database is principally from. We do draw in some employment data from ABS. As part of our process of collecting farm information we know how many people are employed on farms and all of that, but it is a bit too broadbrush to comment on the question you just asked.

**Ms JACKSON**—What do you think the outlook for your industry is, given the ageing population? You can only capitalise so far. Where do you think you are going, particularly 20 or 30 years down the track?

**Dr Sheales**—It would be easy to be gloomy about the industry but there is no good reason to be gloomy. It is just that the industry is changing. In fact, the agriculture industry has shown an ability to change faster than probably most other parts of the economy. I heard people comment 10 years ago, 20 years ago and 30 years ago that we cannot do any more change. Yet people do change; in fact, they have prospered by doing so. That does not mean to say that the number of

farmers is increasing; in fact, as you know, the number is declining. And that is part of the reason why the remaining farmers have been able to prosper. Whether we like it or not, it is what has been happening. Where will we go in the future? I think we will see those sorts of trends continuing. The rate of change may slow down in terms of a decline in employment in agriculture, but it will wax and wane. There are other sorts of agriculture. The horticulture industry is labour intensive. There has been growth in the wine industry. That has provided a lot of additional employment in some areas, but not in areas where it does not exist. The wine industry is going through a bit of a downturn at the moment but long term it has good prospects. You can say that about all of our industries.

**CHAIR**—One of the things I am interested in in terms of this inquiry is the effect of the change in workforce structure on farm productivity. I am interested in your comments about the reduction in innovation that has come from there. Is there anything more you want to add on that?

**Mr Gooday**—We can send you the information we have on that plus the references to some of the other work that has been done. There has been a fair bit of work done on that subject, not by us but by others, and we can refer you to that.

**CHAIR**—That would be interesting.

**Ms JACKSON**—If there are any other specific policy settings that you think need to be considered, that would be interesting too.

**Dr Sheales**—There is just one other thing. On page 8 of our submission there have been a few numbers updated because new information has become available. It does not affect the basic thrust of anything we have said, but we can send the relevant page to you.

**CHAIR**—That would be great. Thank you for your attendance today. It would be appreciated if you could get that additional material to the secretariat. A copy of the transcript will be sent to you so that you can make corrections.

[3.08 pm]

**McDONALD, Mr Tony, General Manager, Macroeconomic Policy Division, The Treasury**

**WILKIE, Ms Joann, Acting Manager, Macro Dynamics Unit, The Treasury**

**CHAIR**—Welcome. Thank you for your attendance today. Although the committee does not require you to give evidence on oath, I should advise you that these hearings are legal proceedings of the parliament and therefore have the same standing as proceedings of the parliament. We have already received a written submission from you. I now invite you to make an opening statement.

**Mr McDonald**—We welcome this inquiry. We think it is a very important issue which is worthy of serious exploration in this forum. In our submission we have sought to address the terms of reference. We have tried to condense a broad range of material into an accessible form. We are happy to explain any particular parts of the submission and to elaborate further in evidence here or through further work that the committee would like us to do.

One point that I think we touched on, but only touched on, in the submission is that all measures of productivity have GDP as the numerator. What that means is that they have all of the limitations of GDP as an indicator, and that is something which various studies, most recently the Stiglitz-Sen commission, have gone into. It is something which we in Treasury have long been aware of, and it is part of why our mission statement refers to wellbeing rather than living standards, which might imply simply GDP. When we want to discuss policies to increase productivity, which we as a department have obviously been arguing for for a long time, it is always with the proviso in our mind that there are going to be circumstances where policies that increase productivity would actually be bad for wellbeing, and of course we would not be arguing for those. With those brief remarks, we are happy to answer the questions of the committee.

**CHAIR**—I would like to start with some questions about infrastructure and public policy in relation to infrastructure. We have frequently come out of downturns, and the next problem is always capacity constraints in the economy. Clearly with the global financial crisis there has been a massive program of infrastructure. What sorts of things do we need to be looking out for in terms of a public policy situation right now with the infrastructure programs we have in place or ones that we should be looking at to make sure that we do not have these capacity constraints as we move out of the post-global-financial-crisis period?

**Mr McDonald**—I think that is a very good question. We went through this in some detail in statement 4 of the budget last year. I think there are two broad factors. The first is to bear in mind that it is important to use the infrastructure that you have as well as you possibly can. There are a lot of aspects to that, whether it is in the price signals that you send, access arrangements or other factors. That is a very important element. The second is that when you have new investment in infrastructure it should be efficient—as with all capital decisions, but with infrastructure that is a particularly important process. Infrastructure can be invested in by

either the private sector or the public sector, and in theory and in principle it is possible to have underprovision under either model.

The key that you are looking at is that there is a combination of regulatory arrangements which are very important, making sure that you are sending the right signals to both potential investors in infrastructure and potential users. That will be particularly important where you are looking at the potential private provision of infrastructure. Also, if you are looking at public infrastructure, you have to make sure that the right analysis is underway. When that occurs, public investment decisions should be based on whether the overall social rate of return—the direct return to the investor in the infrastructure as well as the broader return to the economy as a whole—outweighs the opportunity cost of actually putting that infrastructure in place. They are often difficult assessments. It may not always be possible to quantify benefits, but at least qualitatively an attempt needs to be made to do that. But if you get a situation where the benefits exceed the costs of undertaking the infrastructure investment then we think that those investments should occur and that artificial constraints should not get in the way of that investment occurring.

**CHAIR**—So the process of a national audit of infrastructure issues is the type of process you would go through first of all to identify those areas, and then you would do a cost-benefit analysis in relation to those projects?

**Mr McDonald**—Yes, I think we would regard that as a very good model for the type of processes that you would go through. We set out on page 4-15 of last year's budget some broad principles for public infrastructure investment, and the first of those was 'a nationally coordinated approach to the development of significant strategic infrastructure'. So I think that is a fair statement.

**CHAIR**—We have heard from the Productivity Commission that human capital is the area where it is most likely there will be gains in terms of future productivity growth, in particular in education and health. Do you want to make any comment in relation to that statement?

**Mr McDonald**—Firstly, I have a very high degree of respect for the work that the Productivity Commission do. That would be evidenced, if it had not already been by their previous work, by their extensive and comprehensive submission to the inquiry. It is a fine piece of work. We agree that human capital is an area in which there are substantial future gains to be had. I guess it comes back to the broader principle of how you get productivity gains. Productivity is all about optimally allocating the resources available to you. Part of that is having the best resources, and so ensuring that people have access to quality education, but it is also about ensuring that education provision is responsive to the needs of students and the economy more generally. We have outlined some of those factors in our submission. I think we would regard them as consistent with what the Productivity Commission is saying. We also outlined those points in statement 4 of last year's budget.

I want to make an additional point on human capital—and this also goes to a measurement issue with productivity—about the importance of increasing participation, or at least removing barriers to further participation, in the workforce. This can be a little bit tricky. Labour productivity, for example, is GDP per hour worked. Some people who are not currently in the labour force, if you brought them into the labour force, may be less productive than the current

average worker. So, if you took a strict measure, you could say they may reduce labour productivity through reducing the average. That might be a nice technical point but it would be a pretty silly conclusion. Given that there are a range of disincentives for participation, removing those and improving overall workforce participation outcomes clearly enhances wellbeing overall. On a broader definition of productivity, I would say it increases productivity. On some of the measures, the effect may be ambiguous.

The other point that is a common thread through the human capital point and some others is the importance of public sector efficiency. This can suffer somewhat because, as we mentioned in our submission—and I am sure it is in the PC's submission as well—GDP measures the market sector well but it does not measure the non-market sector well, particularly parts of the public sector. If we do not measure something well then it is hard to know how much progress we are making.

Improving productivity in the public sector and improving public sector efficiency may or may not show up in measured productivity, but it would clearly be an area where relatively little work has been done. I think that will be an important area of work, one way or another, into the future. I think that with some of the reforms through COAG, particularly in relation to the way in which special-purpose payments are put in place, it is important to see them in that context.

**Mr BRADBURY**—That is a nice little lead-in for my question. With the COAG agenda, the National Reform Agenda, there are various components of microeconomic reform that the Productivity Commission have identified. They have said it is important to proceed with the National Reform Agenda and that there should be more competition in coastal shipping and aviation. They have identified pharmacies, taxis and newsagencies, to name a few. I wonder if you could share with us your thoughts on some of those priorities. I know the submission does not go into that level of detail, but clearly at the moment the government is grappling with microeconomic reform in the telecommunications sector in its discussions with Telstra in relation to structural or functional separation—whatever happens to be the outcome there. Do you have any particular hot spots, as it were, or priorities that you would see as being in need of being tackled by the government?

**Mr McDonald**—I think I need to be a little bit careful here, because I do not think it would be appropriate for me to be seen as offering an opinion on government policy and also because obviously there is a very wide agenda and very many different parts of the department are commenting on those as well.

**Mr BRADBURY**—Can you talk about sectors?

**Mr McDonald**—Yes. I think I would agree with what the Productivity Commission is saying: that there is an ongoing need for microeconomic reform, particularly as we take a definition of microeconomic reform that is about improving the allocation of resources in the economy over time. That is a process that does not ever really stop. I think one of the key challenges that we have over coming decades—and our secretary went through this in some detail in a speech yesterday; he has been talking about it for a while—is adjusting to structural changes in the economy. One that he identified in particular was the continued emergence of China and India, what that means for our resource sector and what it means in allowing resources and factors of production—which basically means people and capital—to move to those sectors. In a relative

sense—not necessarily in an absolute sense—that means that some parts of the economy, particularly the resource sector, would be growing faster than others. There are measurement issues in there which the secretary has talked about before and which we alluded to in our submission. The bottom line, I think, is that for us to capture the benefits of this situation we need to be looking at all of those things that allow resources to flow to where they are going to be most productively used.

Another part of the secretary's speech was the population projections; the Treasurer outlined them last month, I believe. That is talking about a population of 35 million in about 40 years time. One of the things that means, as we were talking about with the chair earlier, is that you have to think about a range of questions there, particularly about what that means for urban infrastructure and also about the way in which the government delivers services. The answers to those questions are going to depend critically on the quality of the policy settings that we have in place and the quality of the policy decisions that are taken, with many of those taken today.

Where that leads to is a broad focus, not just on the amount of money that the government spends, although often that will be important, but critically on going through and looking at—and this is a continual process—those regulations and incentives that we have in place to make sure that they are sending the right signals to allow those adjustments to occur.

The other broad point I make, and it is related to the human capital point, as I was saying before, is that I think there is an ongoing need for those of us who are in the public sector to look at making sure that, given that resources are finite and will prove increasingly so over time, we are operating as efficiently as possible without under-providing public goods. Public goods need to be provided and you must provide the most public goods you can at the least necessary cost. That is an ongoing challenge, one that never stops. Beyond that, I do not know that I should go into specifics.

**Mr BRADBURY**—That is okay. Given the first point you made in relation to efficiency of resource allocation towards sectors such as the resource sector, is what you are saying really about ensuring that government is not intervening elsewhere in the economy to prop up other industries that might stop the allocation of resources towards those sectors where capital and labour might be required? Is that essentially what you are saying?

**Mr McDonald**—I would see that as an implication of what I am saying, yes, although I refer back to my opening remarks about facts from the point of view of productivity and GDP. There will be times when governments will take decisions that take broader factors into account. It is for others to judge, in those circumstances, whether that is appropriate.

**Ms JACKSON**—I was delighted by your introduction. It is nice when someone from Treasury acknowledges that there are some question marks when it comes to the measurement of productivity and the issues of the wellbeing of the community as a whole. One of the issues I have asked people about is the participation of women in the paid labour force. I am assuming from your earlier comments that you, like me, think we should be addressing as a priority any barriers to the increase of women in the paid labour force. I read an article in the *Economist* that indicated that the increase of women's participation in the paid labour force in OECD countries over the last 20 years was as significant as India's and China's economic development. I am

interested in whether you agree with that because I think this is one way of addressing productivity pretty easily—not easily, but readily.

**Mr McDonald**—Let me take your first point first. I have observed that in 1964 Treasury put out a paper making the points I made in my introduction and there was a Treasury economic paper in the early 1970s. The point that there are limitations on the measurement of GDP has been long understood, if sometimes forgotten, within Treasury.

I think the point you make about the participation of women in the labour force, and I noted your injunction about the ‘paid labour force’, is an important one. I was trying to be careful before that what we are talking about is removing barriers or artificial disincentives that are put in place to participation in the paid labour force. I am sure that we are not saying that participation is of itself a goal. That is a subtlety that can be lost. We have been talking about the three Ps for an extended period, and we do not resile from that. We still are. But when we talk about the participation P, if I can call it that, it is an optimisation question rather than a maximisation one. We are saying that there are a range of policies that are often very sensible policies, such as having a social safety net and various minimum labour conditions. Those are very sensible in their own right but they act as a disincentive to participate in the labour force. There is a balancing act there between, on the one hand, having the sort of society that we want that does not have people in need left without assistance while, on the other hand, recognising that we want to send the right signals to ensure that people who are able to are participating in the workforce—or at least sending the signals for that, while also recognising that it will be entirely appropriate in certain circumstances for people not to be in the labour force.

On your last point, I think we will need to take that on notice. I think we have looked at some of that work, and I think we are happy to have a look at those estimates, both for the OECD as a whole and for Australia, and see what they might mean and how they might be quantified against counterfactors. I do not think I want to hazard a guess.

**Ms JACKSON**—That is fine. Part of where I am coming from as well is that it may be argued—and it certainly would be by me—that lack of pay equity and the gender pay gap may well be a barrier to some women’s greater participation in the workforce. Yet if we were to address that rapidly, that might on the surface, at least for some individual firms, appear to have a negative impact on the productivity. If you look at the straight market transaction in the workplace, if I have got to pay an extraordinary increase in wages to attract or retain my skilled female workforce, in the short term that may not be so good, but at a macroeconomic level and at a broader level for the future, it might in fact be part of attracting more women back into the labour force.

I guess the same could be said from a completely different angle. We had the Association of Australian Superannuation Funds in the parliament this week, and they released a report. They talked about the contribution that superannuation made to GDP. I imagine you might have a bit of an argument with them, because there is a bit of a delay before the benefits of some superannuation. But they certainly had a research paper that talked about the contribution that superannuation had made to improving productivity. So, in the short term, an increase in, say, the superannuation guarantee charge, might appear to have a less than optimistic impact on productivity but in the long term have a positive impact on productivity growth. Does that make sense?

**Mr McDonald**—It does, although I should note that I have not—

**Ms JACKSON**—modelled any of this.

**Mr McDonald**—No, I have not actually had the benefit of looking at the ASFA paper. Undoubtedly colleagues in the department have. I am not exactly sure on what basis they are arguing that the superannuation guarantee has increased productivity.

**Ms JACKSON**—I think they were talking about increased funds for investment, in particular, as well as somehow counting the savings.

**Mr McDonald**—There are probably three separate elements to this type of question. One is what the super guarantee may have done to national savings. That is a difficult question to be definitive on but I think it is a reasonable conclusion that the super guarantee has made some possible contribution to national savings.

The second part is what the increase in national savings has done to overall national investment. If we were operating in a closed economy then the two would go together. Given Australia's pretty open capital markets—and we have not looked at their studies so I could stand to be corrected—it is just not immediately obvious that that necessarily results in an increase in the level of national investment.

The third element of that is what having a body of savings in superannuation might do to the efficiency of investment—how well we invest. If it were making a difference to that it very certainly would be making a difference to productivity, and an extremely important one. That is a very interesting question but it is just not one that I am aware we have looked at. Colleagues may well have but I have not really looked at that a great deal.

I will come back to your first point. I do not know an enormous amount about the equal pay debate other than it is dangerous territory for me to get into. The point, though, is that I would have thought as a matter of law we do have a requirement for equal pay. I would not be so brave as to suggest that that is necessarily the outcome, although it is a matter of conjecture. So the idea that there would be a cost to employers and a short-term macroeconomic negative effect, and a positive one in the long run, would depend very much on exactly what measure you were doing. But again it comes back to this: are the right price signals being sent to employers. It is hard to see how there would be a negative effect from labour that is the same in all respects other than gender. Why it should have a different price signal on it is not immediately clear, and if it did it probably would not be an optimal outcome. I am sorry if that is not in English.

**Ms JACKSON**—No, but kind of. Maybe we should just leave it if you think it is an issue that an increase in women's participation in the labour force—not necessarily a maximisation but an increase—would be a positive thing overall.

**Mr McDonald**—I think that is a fair statement, yes.

**Mr BRADBURY**—This takes us a bit beyond the scope of the inquiry but I think one of the issues that has emerged from the outset has been the limitations associated with productivity as a

measure of improved living standards. Obviously, it is within that context that we view productivity, but productivity need not necessarily deliver improved living standards.

Your explanation goes to the issue that there is a connection between that and GDP—that the measure of productivity is linked to GDP and that there has been ongoing debate about the limitations of GDP as a measure. What progress has been made in all of those years in trying to move towards developing a measure that might have some universal acceptance? Clearly, that is not the case, but what progress has been made towards developing a measure that might better and more accurately describe the range of improvements to not just the economy but society more generally? Are there any?

**Mr McDonald**—Let me answer in this way: a lot of effort has gone in over time to understanding the limitations of GDP, and there are probably at least two strands of work. One is to say, ‘Well, GDP is limited but let’s try and improve GDP to be a better measure of output.’ Progress there is mixed in that there has been a steady improvement in the quality of statistics over time. I think it is fair to say that the ABS has a reputation internationally of doing a lot of good work in this area. But, particularly in some of the areas that we talked about on the measurement of the non-market sector and services and the split between quantity and quality, to date I think there has been relatively little progress. However, progress in this area need not be linear in that it might require a great deal of work until you get to the point where you are comfortable in actually coming up with a measure.

The second strand of work is to look at what measures of progress we might be able to use that go beyond GDP. This is an area that the OECD and its global project on the measurement of societies—I think I have got that right.

**Ms Wilkie**—It is measuring the progress of societies.

**Mr McDonald**—Thank you. It has been doing work on that for an extended period, and the third OECD world forum on this is being held in Korea next week. Again, I think it is fair to say that there is a lot of effort put in and a lot of smart people are trying to look at this issue. That leads me to a sort of combination of the second and third points. Recently Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi released a report commissioned by President Sarkozy of France. I would have brought it here but it is larger than all of the other papers that I have.

**Mr BRADBURY**—We have already ordered it.

**Mr McDonald**—It is an extensive piece of work. Our own wellbeing framework drew reasonably heavily on the work of Sen, so we see many things within it that we can recognise. But, even with the number of people who are looking at that, there is still a broad conclusion. From my recollection, it is quite difficult to come up with a broad, single measure that tells you, ‘Don’t use GDP; use this instead.’ Perhaps where those reports come and where we come to as well, I think, is to say, ‘We know GDP has limitations.’ It is trying to measure output, it is not trying to measure wellbeing, and it measures output imperfectly. So we would not suggest, and I do not think others are seriously suggesting either, that you stop producing or measuring GDP. We would say, though, that it is very important in a policy context to be aware of the limitations of the measure. All measures are going to have limitations.

Probably the final piece of work that I should mention is that the ABS has for some period of time been producing a publication called *Measures of Australia's Progress*. That looks at a range of economic, social and environmental indicators. It links back to the Joseph Stiglitz idea that in order to measure wellbeing you need to look at a range of different indicators. One of the problems you come up with then is knowing just exactly which indicators to use in that what are important to one person may be less important to someone else and vice versa. So, coming up with a unique indicator across the society as a whole that reflects individual's different preferences is likely to be somewhat problematic, although I would be pleased if someone could come up with such an answer.

**Mr BRADBURY**—It seems probably more important now than it has been in the past, with the attention worldwide that has come to the need to respond to the challenges of climate change, to the extent that there might be a global response or various responses across the globe to it. We had a discussion not long ago in the committee about the fact that in responding to climate change there might be a series of very sensible measures that a government could embark upon. But, in measuring productivity growth and measuring GDP, the success of those measures for overall wellbeing need not be reflected and in fact might be adversely reflected in those measures. Whilst I appreciate what you are saying about it being important to appreciate those limitations and conduct the debate accordingly, the public discourse in these matters does not necessarily play out that way. It would be helpful, if it were possible, to try to come up with a measure that was more comprehensive than GDP.

**Mr McDonald**—I guess I agree with that, although I would also comment that the analysis at the start of your question referred to the idea that it might be possible for something to be negative for productivity and output in the short run but clearly positive for wellbeing in both the short and long run. I think, in the case of climate change, that you can also argue that mitigation measures would be positive for productivity in the medium to longer run. Certainly, I have seen papers and analysis that would show that. You mentioned public discourse, and measures are only that. They are numbers. People who produce numbers have a healthy respect for their limitations, but it can be a human response to attribute a greater degree of certainty to something that has a numerical value as opposed to a verbal description, even if it is exactly the same information conveyed in a different way. The very fact, though, that people can make the argument that you have in relation to climate change would be the case with just about any measure that you came up with. The important point is that, with any measures that are used, it is important to understand the limitations. I would say, though, that if you are doing a measure of, say, climate change mitigation, what would be important—I think, unambiguously so—is to achieve the desired degree of mitigation at the least cost to the economy, and the same point would be applicable in relation to adaptation.

**CHAIR**—Thank you for your attendance here today. It was very illuminating.

Resolved (on motion by **Mr Bradbury**):

That this committee authorises publication, including publication on the parliamentary database, of the transcript of the evidence given before it at public hearing this day.

**Committee adjourned at 3.50 pm**