Glenn Stevens: An accounting

Address by Mr Glenn Stevens, Governor of the Reserve Bank of Australia, to the Anika Foundation Luncheon, Sydney, 10 August 2016.

* * *

The Footnotes can be found at the end of the document.

I thank Emily Perry for very capable assistance in compiling this and other recent speeches.

Summary

The speech examines Australia's economic performance over the past decade, as compared with the global economy and Australia's earlier history. It notes that global growth was lower and much more variable in the past ten years than in the preceding decade. Although this meant that the international shocks hitting the Australian economy were larger than previously, Australia's economic outcomes were no more volatile than they had been previously. The inflation target was achieved, the average rate of unemployment was low and the variability of both real GDP and unemployment were if anything slightly lower than in the past. The speech attributes these outcomes to both the economy's improved capacity to adjust and to effective policy frameworks. In particular the speech concludes that the monetary policy framework has helped the Bank to deliver on its mandate through difficult times.

The speech goes on to note that, although the economy performed well overall, the average growth rate of real GDP has been lower in the past decade than the one before. Some slowing was inevitable given the earlier decade included a recovery from recession, but even allowing for that real growth has been lower. The speech then examines the reasons for this, both on the demand and supply sides of the economy.

Looking ahead, the speech notes the challenges for Australia in securing stronger future growth in the face of adverse demographics. It notes the need for fiscal consolidation but also the limitations faced by monetary policy in generating growth in demand when households already carry considerable debt. On the question of whether inflation targeting remains a suitable framework, the speech argues that the flexibility in Australia's arrangements allow policy makers to make sensible choices in managing deviations of inflation from target, even for reasonably lengthy periods.

******

Thank you for coming out once more to support the Anika Foundation.

The Australian Business Economists and Macquarie Securities Australia have been outstanding in their help over the past 10 years. Through their generosity and yours, as well as some remarkably generous individual donations, the Foundation is in a good financial position.

The only problem is that while the Foundation is required to donate at least 4 per cent of the fund each year to activities consistent with its charter, it is hard to find assets that earn 4 per cent with acceptably low risk.

That, of course, is a sign of the times in which we live. Very, very low interest rates for “safe” assets, and even many “not quite so safe” ones, have persisted for quite a long time now, and may well continue for some time yet. When I gave the first of these addresses 10 years ago, about the conduct of monetary policy, I certainly did not imagine that the world would look like this in 2016.

Since this is the last of these addresses I shall deliver, and since in fact it is the last public address I expect to give as Governor, I intend to use it to look back at those 10 years. This will be my account of the Bank’s stewardship over that time.
Rather than a chronology of events, I will take the approach of looking at average outcomes over decade-long periods, which I think is more useful.

I shall conclude with some observations about the future, though these should not be seen in any way as constraining the actions of the Bank under the guidance of my successor.¹

The world economy

The times have certainly been anything but boring, mainly because of events beyond our shores. Ten years ago, the “Great Stability”, as Lord Mervyn King² labels it, was about to come to an end in the advanced economies. That period of reduced economic volatility dating from the mid 1980s was associated with macroeconomic outcomes that were remarkably good. But it wasn’t a permanent state of the world.

In fact, in some ways, that period of stability and confidence could be said to have sown the seeds of its own demise. Low volatility in economic outcomes encouraged under-pricing of risk and a sense that higher leverage was safer for the individual household or firm (or government). But as leverage increased, this left the world financial system and economy more vulnerable when an adverse shock eventually came along. As we know, the international financial crisis was very serious and had major deleterious effects on economic activity in the advanced countries.

At the same time, the “China boom” really started to find its legs in the mid 2000s. The associated rise in Australia’s terms of trade was something my predecessor had already remarked upon.³ It ultimately went much further than even the optimists a decade ago would have expected. Some of this was due to the financial crisis. As the crisis unfolded in the period from 2007 to 2009, the Chinese economy, which was approaching the time it would experience a structural slowing anyway, decelerated abruptly, as did many other economies. The Chinese authorities responded with a very large stimulus that brought the boom back bigger than ever. This helped global growth recover in 2010 after its 2009 performance, which was the weakest since World War II. This in turn saw Australia’s terms of trade rise to the highest sustained level for more than a century. At the peak they were more than 80 per cent above the average level for the preceding hundred years. Of course, nothing is forever and the terms of trade have been falling for about five years now, and are down from the peak by about a third (though they are still about 20 per cent above that very long-run average).

Overall, then, the past decade has been a much more volatile time, from the external point of view, than either of the two preceding decades. This is easily demonstrated with some simple metrics for the growth and variability of the world economy, and Australia’s terms of trade. The tables show data for four decade-long periods.

Global growth has been lower than it was in the “great stability” period, led by much weaker outcomes for the major advanced countries. Those outcomes were in substantial part a legacy of the financial crisis, of course, though other longer-run factors may also have been at work. Global growth would have been weaker still were it not for two factors: emerging market economies as a group did not slow on average; and in addition, their weight in the global economy increased significantly. This change in weights alone added about one-third of a percentage point to the IMF’s measure of global growth in GDP in the latest period.⁴

The world economy has also been much more variable – even more variable than in the late 1970s/early 1980s, a period not fondly remembered by economic policymakers. Inflation among the advanced economies was lower on average, but noticeably more variable.⁵

As noted above, Australia’s terms of trade rose quite a bit in the period of the great stability, then rose even further, and became much more variable, over the past decade.
Table 1: Selected Indicators\(^{(a)}\)

<table>
<thead>
<tr>
<th>Per cent</th>
<th>World GDP growth</th>
<th>G7 GDP growth</th>
<th>Advanced Economies Inflation</th>
<th>Australia’s Terms of Trade</th>
<th>Index; 1976–1986 = 100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual standard deviation</td>
<td>Annual average</td>
<td>Annual standard deviation</td>
<td>Annual average</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>1976–1986</td>
<td>3.1</td>
<td>1.4</td>
<td>3.1</td>
<td>1.7</td>
<td>7.6</td>
</tr>
<tr>
<td>1986–1996</td>
<td>3.6</td>
<td>0.5</td>
<td>2.8</td>
<td>1.1</td>
<td>3.6</td>
</tr>
<tr>
<td>1996–2006</td>
<td>3.9</td>
<td>1.1</td>
<td>2.5</td>
<td>0.8</td>
<td>2.0</td>
</tr>
<tr>
<td>2006–2016</td>
<td>3.3</td>
<td>1.8</td>
<td>0.9</td>
<td>2.0</td>
<td>1.7</td>
</tr>
</tbody>
</table>

\(^{(a)}\) The most recent data for the annual GDP and inflation series are for 2015, and the first time period for the inflation series covers 1979–1986. Time periods used for quarterly terms of trade data are for the decades to: Q3 1986; Q3 1996; Q3 2006; and the 38 quarters to Q1 2016. Standard deviations are calculated from annual growth rates for the GDP and price series and from the quarterly level of the terms of trade.

Sources: ABS; IMF; OECD; RBA; Thomson Reuters

The Australian economy

If the global environment became more complicated and more variable, and if the shocks hitting the economy became larger, it would not be entirely surprising if this resulted in more variability of the Australian economy.

But that is not, in fact, what we find. Table 2 presents the relevant data.\(^{[6]}\)

Table 2: Selected Australian Indicators\(^{(a)}\)

<table>
<thead>
<tr>
<th>Per cent</th>
<th>Real GDP growth</th>
<th>Unemployment rate</th>
<th>Headline CPI Inflation</th>
<th>Underlying Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual standard deviation</td>
<td>Annual average</td>
<td>Standard deviation</td>
<td>Annual standard deviation</td>
</tr>
<tr>
<td>1976–1986</td>
<td>2.7</td>
<td>1.1</td>
<td>7.2</td>
<td>1.5</td>
</tr>
<tr>
<td>1986–1996</td>
<td>3.4</td>
<td>0.8</td>
<td>8.6</td>
<td>1.6</td>
</tr>
<tr>
<td>1996–2006</td>
<td>3.6</td>
<td>0.6</td>
<td>6.4</td>
<td>1.1</td>
</tr>
<tr>
<td>2006–2016</td>
<td>2.8</td>
<td>0.4</td>
<td>5.3</td>
<td>0.6</td>
</tr>
</tbody>
</table>

\(^{(a)}\) Quarterly data in the table are for the decades to: Q3 1986; Q3 1996; Q3 2006; and the 38 or 39 quarters to the latest available data for 2016. Both price measures exclude tax changes in 1999–2000 and interest charges before the September quarter 1998. Underlying inflation is calculated using the Treasury Underlying Rate of Inflation in the 1976–1986 decade and trimmed mean CPI inflation for subsequent decades. Standard deviations are calculated from quarterly growth rates for the GDP and price series, and from the quarter-average unemployment rate.

Sources: ABS; RBA

The first feature I want to point out is that the variability of growth, measured here as the standard deviation of the quarterly growth rate of GDP, was, if anything, slightly lower over the past decade than that in the period 1996–2006 and much lower than in preceding decades. Another way of putting this is that Australia has continued to avoid major downturns.\(^{[7]}\)

Second, we have achieved the inflation target. As of late 2007 and for the first half of 2008, it looked like inflation was going to be a material problem. It reached 5 per cent. The Bank’s analysis at the time was that the economy was overheating and inflation was rising mainly for that reason. That judgement stands the test of time. The marked change in the path of the
global economy in 2008 had a big effect on sentiment in Australia and the course of the economy and prices. Absent that, I suspect we may have had a fair bit more trouble containing inflation. But events being as they were, inflation came down pretty quickly and we have achieved something pretty close to 2½ per cent on average.

In fact, we have been achieving the inflation target for over two decades. From 1993 to 2016, a period of 23 years, the average rate of inflation has been 2.5 per cent – as measured by the CPI (and adjusting for the introduction of the GST in 2000). When we began to articulate the target in the early 1990s and talked about achieving “2–3 per cent, on average, over the cycle”, this is the sort of thing we meant. I recall very well how much scepticism we encountered at the time. But the objective has been delivered.

The variability of inflation has been a bit higher over the past 10 years than in the preceding decade. This reflects partly the brief period of high inflation in 2007–08, and some big swings in oil and utilities prices over the decade. Still, in the recent period inflation variability has been much reduced from the days prior to the inflation target.

Third, the rate of unemployment, on the standard definition, has been lower and less variable over the past 10 years than in the preceding three decades. This is to be expected given that two of the preceding periods included a major recession and the other included a recovery from one. But that is the point. Managing to avoid deep downturns has been a major advantage. It has given us an average unemployment rate “in the fives” and a low variation around that mean.

In summary then, we faced a more volatile world than the one of the “great stability” of the previous period. It was a world characterised by massive swings in our terms of trade, and a very serious international financial crisis followed by a deep global recession, not to mention the effects of the adoption of “non-conventional” policies in the major jurisdictions. And yet the Australian economy avoided a major downturn and turned in a performance on economic activity characterised by no more, and on some metrics slightly less, volatility. We have achieved the inflation target and with an average unemployment rate of between 5 and 6 per cent.

Had anyone, a decade ago, accurately forecast all the international events and simultaneously predicted that things would turn out in Australia as they have, they would not have been believed. But here we are.

No doubt many factors were at work in achieving this. The economy’s inherent ability to adapt has been considerably better than in past episodes of large shocks. I think that is a tribute to various reforms over earlier years and the better management of many individual enterprises.

Policy frameworks functioned effectively. The exchange rate responded to the external shocks in the way it is supposed to. Prudential supervision was effective. The managements of the most important financial institutions managed to avoid being caught up in a major way in the things that brought so much grief to their counterparts elsewhere in the world. Fiscal policy played a major countercyclical role in the most acute phase of the international downturn (though how much latitude it would have to do that again, if needed, is less clear).

And as you would expect, I think that the monetary policy framework has functioned very well. The operation of that framework has involved:

- an independent central bank focusing on the medium-term inflation target, taking account of the state of the real economy and the shocks affecting it;
- neither neglecting financial stability considerations nor letting them completely dictate monetary policy;
- allowing the floating exchange rate to adjust; and, importantly,
- realism and a degree of modesty, about what monetary policy can achieve.
I think it can be said that, operating this framework and under the guidance of the Board, the Bank has delivered on its mandate through difficult times.

Before leaving indicators of overall performance, though, a fourth observation needs to be made, which will frame the forward-looking part of my remarks. The observation is obvious from the numbers in the first column of Table 2: the average rate of economic growth over the past decade has been lower than it was previously. This requires some explanation.

To the extent that the economy was growing above its potential rate in the preceding decade, as the spare capacity created by the serious recession in the early 1990s was wound back, some slowing in actual growth was always likely. This could probably account for growth slowing from 3.6 per cent to about the 3 to 3¼ per cent growth that most people assumed, up until recently at least, to be trend or “potential” growth. If one further thinks that, by about 2006—07, the level of output was probably above the trend level, then one could expect a further slight reduction in average growth over the ensuing period as the level of output came back towards the trend level. But it’s unlikely this would account for much more than another tenth of a percentage point of slowing, measured over a 10-year average.

That still leaves something – maybe up to a quarter percentage point or so – of slower GDP growth on average to be explained. If we measure it on a per capita basis, the extent of slowing is considerably larger.

So what is the explanation?

There are likely to be both demand-side and supply-side factors at work.

On the demand side, it seems more difficult to generate growth in spending in an economy where households are already carrying significant debt. The real cash rate has been about 140 basis points lower, on average, than in the preceding decade.[8] So on that metric monetary policy has been easier. Even achieving the present trajectory of domestic demand that we have, which has left the economy with a bit of spare capacity, has involved some net rise in the ratio of household debt to GDP.

On the supply side, overall population growth increased and was its highest in many decades. But growth in the population of people aged 15 to 64 years was slower than overall population growth (see Table 3). This was in contrast to previous decades, when the “15–64” population typically grew as fast as or faster than total population – a “demographic dividend”. The rise in labour force participation that had been seen in the 1980s to the mid 2000s has not, in net terms, continued in recent years. Even if we accept that some of this may have reflected demand-side factors, it is likely that the increasing proportion of “baby boomers” moving into the 65–plus age group has started to dampen the trend in overall participation.[9] On top of that, growth in productivity per hour appears to have slowed a little in the 2006–16 period. All this suggests some moderation in potential output growth probably occurred.[10]

These factors individually are not especially large, but together they can explain why overall GDP growth has been lower in the past decade. And they largely explain, I submit, the considerably more marked slowing in growth of real GDP per head of total population. Total population grew faster than the population of people realistically available for work; those working continued the existing trend of working slightly fewer average hours; the growth of their productivity per hour was a bit slower; and the limits of our ability to generate demand in a private sector already carrying a good deal of debt meant we have been a little short of full employment in the most recent few years. The effect of much slower per capita GDP growth was obscured for a period by income effects of the terms of trade boom, but as we know that force has been in reversal for some years now.
Table 3: Additional Australian Indicators

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP per capita</th>
<th>Total population</th>
<th>Working-age population (15–64 years)</th>
<th>Real GDP per hour worked</th>
<th>Average hours worked</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976–1986</td>
<td>1.4</td>
<td>1.3</td>
<td>1.7</td>
<td>1.3</td>
<td>−0.2</td>
</tr>
<tr>
<td>1986–1996</td>
<td>2.0</td>
<td>1.3</td>
<td>1.3</td>
<td>1.7</td>
<td>−0.1</td>
</tr>
<tr>
<td>1996–2006</td>
<td>2.4</td>
<td>1.2</td>
<td>1.3</td>
<td>1.8</td>
<td>−0.3</td>
</tr>
<tr>
<td>2006–2016</td>
<td>1.1</td>
<td>1.7</td>
<td>1.4</td>
<td>1.5</td>
<td>−0.5</td>
</tr>
</tbody>
</table>

(a) Quarterly data in the table are for the decades to: Q3 1986; Q3 1996; Q3 2006; and 37–39 quarters to the latest available data.

Source: ABS

Looking ahead

With that assessment of the past, let me turn then, very tentatively, to the future.

I have already noted that Australia's trend growth rate has probably slowed a little. The demographic effects that are working to slow it are likely to continue over the coming decades.

All of this points to the need not only to calibrate our assumptions about future growth prudently, but also to maximise our efforts in those areas that can lift potential growth. This is not just an academic debate about “reform” among “elite” opinion. It's not just about what a response might be to some theoretical future slowing of growth in living standards. Slower growth is here now and has been for a while.

It's surely no coincidence that the path back to budget balance is turning out to be a very long one. At present, very low nominal GDP growth looms large in subduing revenue growth, because of the terms of trade decline. But when the terms of trade stabilise, weaker potential real growth per head of population will still be a problem.

Many difficult choices will need to be made along the path of budgetary adjustment. At present, general public debate starts with commitment to the need for reform and for putting public finances on a sustainable medium-term track. But when specific ideas are proposed that will actually make a difference over the medium to long term, the conversation quickly shifts to rather narrow notions of “fairness”, people look to their own positions, the interest groups all come out and the specific proposals often run into the sand. If we think this rather other-worldly discussion will not have to give way to a more hard-nosed conversation, we are kidding ourselves. That will occur should there be a moment of crisis, but it would be better if it occurred before then.

In addition, and this may complicate the fiscal discussion, we can't just assume that monetary policy can simply dial up the growth we need. We need some realism here.

Through a combination of extraordinary circumstances, the central banking community globally has found itself doing unprecedented things. We in Australia have done fewer such things, but we are connected to the world, and the effects of policies adopted elsewhere condition the policy choices available to us. Although we have not implemented “unconventional policies”, we nonetheless have interest rates at levels lower than any of us have seen before in our lifetimes. Moreover, the “return to normal” at the global level looks like being a very, very slow process. And normal is a different place now.

As would be clear from my utterances over the past couple of years, I have serious reservations about the extent of reliance on monetary policy around the world. It isn't that the central banks were wrong to do what they could, it is that what they could do was not enough, and never could be enough, fully to restore demand after a period of recession associated with a very substantial debt build-up.
Certainly easy monetary policy can reduce the burden on debtors through the cash flow channel, at the expense of savers. This is probably still expansionary in net terms, though possibly less so than it used to be. But in the end, the most powerful domestic expansionary impetus that comes from low interest rates surely comes when someone, somewhere, has both the balance sheet capacity and the willingness to take on more debt and spend. The problem now is that there is a limit to how much we can expect to achieve by relying on already indebted entities taking on more debt. So for policymakers looking to use low interest rates to boost growth, the question is: which entities, if any, in the economy can accept higher leverage safely?

In some countries there may be no safe way of borrowing and spending because debt, both public and private, is just too high. In Australia, gross public debt, for all levels of government, adds up to about 40 per cent of GDP. We are rightly concerned about the future trajectory of this ratio. But gross household debt is three times larger – about 125 per cent of GDP. That is not unmanageable – but nor is it a low number. It's an interesting question which sector would have the greater capacity to take on more debt, in the event that we were to need a big demand stimulus.

Let me be clear that I am not advocating an increase in deficit financing of day-to-day government spending. The case for governments being prepared to borrow for the right investment assets – long-lived assets that yield an economic return – does not extend to borrowing to pay pensions, welfare and routine government expenses, other than under the most exceptional circumstances. It remains the case that, over time, the gap in the recurrent budget has to be closed, because rising public debt that is not held against assets will start to be a material problem.

The point I am trying to inject here is simply that popular debate in Australia about government debt and how we limit or reduce it seems so often to be conducted while largely ignoring the size of private debt. To outside observers this seems odd. Foreign visitors to the Reserve Bank over the years have tended to raise questions about household debt much more frequently than they have raised questions about government debt. So the way ahead is going to have to involve a rather more nuanced consideration of all these issues.

What about the future of inflation targeting? For more than 20 years this framework as we have practised it has delivered the desired degree of price stability and has greatly contributed to overall macroeconomic performance. But some people have asked: is it a framework whose usefulness has now come to an end?

All frameworks come under stress sooner or later. Circumstances occur that were not envisaged when the system was put in place. When that happens, frameworks that are inflexible tend to break. The gold standard and countless exchange rate pegs in history are examples. Various fiscal rules in Europe have been “honoured in the breach”. And so on.

On the other hand, frameworks that have a degree of flexibility, that can bend with the circumstances but retain their essential integrity, like an aircraft wing in turbulence, stand a reasonable chance of coming through. I think the inflation target as we have operated it has the requisite degree of flexibility.

The irony is that when we first started talking about inflation targeting, it was our insistence on that very flexibility that made people think we weren't serious. The 2–3 per cent was not a hard-edged band. We were not promising that the Governor would be sacked, or have their salary reduced, if the target was missed. Many critics preferred the hard-edged, electric-fence style targets in vogue elsewhere at the time.

Now, it seems some people are concerned we are too committed. They worry that, in a period of very low inflation, the Bank may do things with monetary policy, in an effort to increase inflation back to the target in short order, that might create more problems than they solve.
I can assure you that the Board has been very conscious of that possibility and, accordingly, has proceeded very carefully. Of course we have run some risks from pushing interest rates so low, but then there are always risks in any course of action, including inaction. Our job is not to avoid all risk; it is to balance the various risks. To date, I think we have done that, aided by supervisory and regulatory actions by APRA and ASIC. Moreover, with the whole developed world in such a prolonged period of ultra-low rates, it would have been fanciful to think we were not going to be affected.

But in the end, we are living in a world in which the ability of monetary policy alone to boost growth sustainably is very likely to be a good deal more limited than we might wish. I think most people can sense this. So we need realism about how much we can expect monetary policy to do, including pushing inflation up quickly. If it were the case that undershooting the target for a period while achieving reasonable growth was the “least bad” option available, the inflation targeting framework has the requisite degree of flexibility to allow such a course.

Conclusion

That is all for the future and for others to judge. My time is up.

To conclude, over the past decade and in a very volatile world, Australia has achieved the inflation target, avoided a major economic downturn, seen remarkably little variability in real economic activity in the face of enormous shocks, experienced a fairly low average rate of unemployment, and had a stable financial system as well.

Looking ahead, challenges remain for Australia, not least sustaining a stronger growth outlook over the longer term. More than adjustments to interest rates will be needed to secure that.

The Reserve Bank will, I am confident, go from strength to strength under the leadership of its new Governor. We will be in very good hands.

It remains to thank all of you very much for coming to this event, and this series of events, in support of the Anika Foundation. Thank you again to the ABE and Macquarie Securities Australia for their support.

I also want to say thank you to many of you here who have been supporters of the Reserve Bank, and of me personally, over the years. There are always critics, but I've found there are many, many more who carry enormous goodwill towards the Bank and want us to succeed for the sake of the country. Quite a number of you here today are among that group. I have appreciated that support more than you can know.

Endnotes

1 It is also important to note that these remarks are confined to macroeconomic policies and outcomes. The Reserve Bank does much more than monetary policy and has been active across many fronts over the years. Payments policies, management of the balance sheet, note issue and other areas have all seen major innovation. The interested reader is referred to the succession of Annual Reports for these matters.


3 Macfarlane I.J (2005) “Global Influences on the Australian Economy”, Talk to the Australian Institute of Company Directors, Sydney, 14 June. It says something about the magnitude of the event that it played out during the tenure of two central bank Governors, each of whom were in the role for a decade, and will likely still be an important issue, in the early stages at least, for the next Governor.

4 This exercise uses IMF data to compare average annual growth in world GDP between 2006 and 2015 with what world GDP growth would have been over this period if the weights of “advanced economies” and “emerging and developing economies” had remained unchanged from their averages over the 1996–2006 period.

5 I use inflation for the advanced countries because global inflation data are always affected by a small number of countries that from time to time have very high inflation or hyperinflation. That results in a distorted picture.

6 The data used are the most recent vintages of the data, so that for some of the historical periods they differ from what may have been originally published. Likewise, some of the data for the past two or three years, particularly the GDP data, may further be revised over time. But these are the most up to date figures we have as of today.
For the GDP data, the figures are up to the March quarter of 2016 while those for inflation and the unemployment rate are up to the June quarter, so the annual averages are computed by expressing 38 or 39 quarters at an annual rate.

There have been some small downturns of course. One had occurred in 2000 and another happened in 2008. Had downturns of the same size occurred with a slightly different quarterly pattern in the statistics, they would have been labelled “recessions” in common discussion. While we like to keep retelling the story about how we didn't have recessions, I fear this risks us making the complacent assumption that we won't have them in future. It would be better to be asking how it was that these downturns were so temporary – and doing what we can to make future downturns like that. To say that does not diminish, however, the fact that this has been a very good run for Australia.

Even with the shift in margins between the cash rate and lending rates, real lending rates have been lower by between 70 and 90 basis points on average in the latter period.

Had participation rates within age groups moved in the way we have seen but the population age structure been unchanged from where it was in September 2006, simple calculations suggest that the participation rate would have been 1.8 percentage points higher in the June quarter 2016.

While over the next few years the ramp up in LNG production will temporarily raise potential GDP growth, demographic factors are likely to hold down potential growth for some years beyond that.

I can recall being asked by an IMF official during the mid 1990s whether, if inflation rose above the target, we were prepared to create a recession to get it down again. The implication was that we should be. We insisted on not being obliged to have a recession to shave a few tenths of a percentage point off inflation in a short period. We were not believers in the idea of destroying the world to save it.