

**Building Australia's Infrastructure for the Future**  
6<sup>th</sup> Warren Hogan Memorial Lecture,  
Department of Economics, University of Sydney  
Address by Annabel Spring, Group Executive Wealth Management, Commonwealth  
Bank of Australia.  
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**Introduction**

It is a tremendous honour to be asked to give this lecture in memory of Professor Hogan and thank you to the Economics Department for the opportunity. My family's association with Professor Hogan goes back to my grandfather Sir Frederick Deer, who was a member of Senate of the University when Professor Hogan joined the Economics Department.

As I was preparing this lecture, I read Professor Groenewegen's excellent history of the Economics Department. Sprinkled throughout were some robust debates - from the philosophical disputes between the economics schools, to whether night classes should be offered to broaden access to education. Professor Hogan lectured both my sister and me in our Honours years. Jane is here tonight, as well as Professor Hogan's children, Kerry and Warren.

Professor Hogan's career was a lesson in converting good economic ideas into practical action. He was an inspirational scholar, thinker and teacher in academic life, influencing the intellectual outlook of many of us here tonight, and many more.

It is particularly nice to see members of the Honours class of 1992, including Dr John Romalis who so kindly introduced me. Professor Hogan said of Honours classes that they were 'the pride, glory and joy' of Australian Universities and I hope he would be proud of our achievements to date.

He was never interested in economics just for the sake of a beautiful set of numbers. He was also active in business, policy-making and social engagement. He cared deeply about what he called 'policy themes and applications'.

**The case for more and better infrastructure**

Tonight in the spirit of Professor Hogan I want to call for a concerted Australian push to build the infrastructure we need for the 21<sup>st</sup> century. This is a call for both more and better infrastructure.

We all know the fundamental promise. Better infrastructure fuels commerce. It facilitates trade. It lowers the cost of doing business by increasing efficiency and productivity and further promoting investment. It creates more and better jobs. It has environmental dividends as we reduce congestion and decarbonize our economy, as well as improving our quality of life, and connecting us as people and as a nation.

As I sat nearly stationary on the M5 for over an hour last week, I reflected that this was a tremendously inefficient use of my time, and that of every other person on the road, particularly every truck driver (and there were many!).

We were all spending more time and money travelling than we should have been, and therefore less time with our families and friends. The usual argument for new infrastructure is that it removes obstacles to growth. Right now the gridlock in our capital cities is so significant that I would argue that new infrastructure would also remove obstacles to economic mobility and social opportunity.

If the current situation is not concerning enough, projections show that there will be 30 million people living in Australia in 2031 and that the cost of congestion will rise to \$53 billion.

So the need is real, it is immediate, and it will not go away.

The infrastructure required for the Australian economy and society of the future is both 'hard' and 'soft'. This means transport, including road, light rail, heavy rail, bridges and airports, it means communications and power generation and networks. It also means the technical knowledge, the innovative thinking about how we can optimise our hard infrastructure, and the education and skilled leadership to make the necessary changes.

We can and should accelerate these investments now.

First, because the benefits of visionary infrastructure are immense and will drive our national economy and improve the long-term wellbeing of Australian society. In this rapidly evolving environment if we do not act now we will be left behind as a nation.

Second, because we are almost uniquely well positioned as a nation to take advantage of the very factor that is troubling so many other countries – the low interest rate environment - to fund national growth.

And thirdly because we have a range of innovative and fiscally responsible solutions that we can sensibly deploy to achieve our goals.

So let me set the scene for what I am proposing. As I look out at Australia's environment today I see the many things that have changed in the years since I left university.

Two of those developments, with big future implications, we did not anticipate: the accelerating pace of technological change and the ongoing low yield, low growth, global economy.

## **Technological change**

Nothing better exemplifies this era of transformation in the global economy than the smartphone.

Right now, literally at your fingertips, you have a window to the world we are heading towards: you have better product access, more transparency and information, and greater connectivity and efficiency, than at any time in human history. This brave new world also has 3-D printing, robotics, driverless cars, data analytics and quantum computing. It has monitoring and sensing devices that can independently manage city traffic or your blood pressure. (Or both, if you are sitting on the M5).

The implications of new technology for our economy are exciting. Australia will be able to enhance our strengths in mining and agriculture, in finance, in our more sophisticated manufacturing, and further develop the structural shift towards services.

But we need the right infrastructure for this brave new world.

Obviously we need transport. These brave new world jobs are in cluster cities. We have gone from an agrarian society and a manufacturing society of regionally distributed employment, to an urbanised society with people needing to get to the city for work. World class urban transport, roads and rail, is one of the greatest wealth equalisers: it is one of our greatest levers to provide housing that is accessible to the major urban centres of employment – linking affordable accommodation with better employment opportunities.

We also need our economy to be decarbonised: we need to replace old power stations with cleaner and greener power generation and energy infrastructure.

We need world-class technology infrastructure: the classic example is the National Broadband Network. Whatever we may feel about its technology and the speed of roll-out, this huge project has the aim of facilitating the 21<sup>st</sup> century information economy. The economic benefits should flow around our country from the inner city creative industries, to the outback where farmers use sensors to monitor soil moisture levels, and to a vast array of enterprises. World-class information networks are an imperative as we compete globally rather than locally.

We also need social infrastructure to make all this work, in particular the education to compete and to innovate. The STEM (science, technology, engineering and maths) drive in education is important and underway. But we need education across every part of society to keep up. Not all the implications for employment of technology are rosy, with significant potential job losses due to digital disruption. We have all heard the statistics projecting that as many as 40% to 50% of current activities may one day become automated. We will have

to retrain ourselves. And we need to imagine what our children should know, and the jobs they might do, or invent, in a future world.

### **A low-yield, low growth world**

The second factor that has changed dramatically since I left university is the low yield and low growth economic environment. If we look at the global picture, global economic growth has been stuck at around 3% every year since 2011. This is well below the 4% plus seen prior to the GFC.

More importantly, this modest growth outlook seems set to persist, despite the extraordinary amount of monetary policy stimulus that has been applied to the global economy. This includes low to negative interest rates and quantitative easing on a grand scale. Even with so much monetary stimulus, inflation remains very low in nearly every country.

All of the major central banks are now working hard to get inflation up to their 2%, a stark contrast to the challenge of getting inflation down, that persisted over previous decades.

Here in Australia we are emerging from a long boom in mining infrastructure spending and now we find ourselves at a threshold. The mining investment boom helped protect us from the worst of the GFC, but we were not, and are not, immune from its effects. Despite low interest rates and a significant rise in government debt, economic growth is still sluggish.

Australia's long-term growth rate looks like it has been lowered to around 2.75%, rather than over 3.25% previously. Australian Government bond yields are only just above all-time lows.

Two months ago, outgoing Reserve Bank Governor Glenn Stevens somewhat ruefully observed the limits of monetary policy as a mechanism to stimulate the economic growth that Australia needs. Incoming Governor Philip Lowe amplified this last month, stating that, 'one response is to keep doing more of it in the hope it finally works' and concluded that his 'judgement is that that has not been particularly useful'.

In my opinion, this in no way represents a failure by the central banks. We are simply witnessing the outer limits of usefulness of the powers that central banks hold. It is a reminder of the age-old debate between Keynesianism and monetarism, and the complexities of the liquidity trap.

Households in Australia are reluctant to take on more debt and understandably so. As Glenn Stevens pointed out, Australian households are three times more indebted than the public sector as a share of GDP, 125% versus 40% in gross terms, even though I should note, as a banker, the serviceability of that debt is around the long-term average due to low interest rates.

Corporates too are currently wary of borrowing for expansion or new ventures. It's tough for CEOs to argue the case for substantial new investments in this uncertain environment. There is also significant liquidity in global markets so, in the context of my argument tonight, there is no chance of 'crowding out' private investment.

This low yield world also has financial implications, and we would be naïve as a country not to recognize that. In a low yield world many assets rise in value. Those who are fortunate to own assets, such as homes or investments, see the value of their assets increase. Those who rely on bank deposits, or have limited savings, do not. This issue, along with digital disruption, obviously has implications for society and for politics.

We already know that this widening gap has caused unrest across Europe. I would argue that it has also played its role in the Brexit vote, in the rise of Bernie Sanders, and on the other side of the political spectrum, in the rise of the very unpleasant phenomenon of Donald Trump.

### **Government role in infrastructure**

Why am I talking about infrastructure in the context of politics as well as economics? What makes this topic special? Why is it a matter for government and public policy not just markets?

Infrastructure has a number of characteristics that distinguish it from other investments. This means that government, more often than not, will have to be involved in its provision.

Most importantly, world-class infrastructure is always visionary. It isn't only about what we need now, it is also about what we will need in 10, 20, 30 years. So we need to build not just what 24 million people need today but what 40 million people will need in the future.

That means that if we build well, we will build excess capacity - capacity that one day we will be grateful for and not able to do without. Like the Harbour Bridge, maybe a second airport, and definitely our major water catchments.

The Bridge, for example, was commenced in 1923 when there were significantly fewer than 100,000 cars in Sydney. It was the widest bridge of its type at the time, partly because it was designed to accommodate trains. We started building that train network in 1916 with a population of fewer than 500,000 people, so the Harbour Bridge and rail networks represented visionary planning. These projects also provided essential employment during the Great Depression.

At this University, the Great Hall was built when the University had barely opened its doors and had only a handful of professors. Great Australians building an infrastructure for a great national future.

So it is up to governments, as the long-term guardians of our growth and our future, to have the vision and the will to embark upon projects with excess capacity and without an immediate full return.

Second, the upfront investment in infrastructure tends to be large, combining economics of scale with natural monopoly characteristics. It may well have NIMBY challenges. So governments may need to take a leadership role to provide planning approvals, take on the political risk of development, and to regulate pricing or performance standards to protect consumers.

Even the cost of development capital tends to be high when there are significant upfront costs and risks. We have seen the challenges faced by greenfield investments with uncertain forecasts like BrisConnect and the Cross-City Tunnel (twice). Development capital investors have struggled to fund major projects successfully.

Thirdly, infrastructure is often the provenance of governments because private investors can't always capture the full benefit of a project. For example the value of a rail line lies not just in the sales of tickets. It also flows from the increase in the value of the land near stations, and in the environmental benefits that accrue to the community as a whole.

At the extreme end of the spectrum are those cases where direct user charges are simply not socially acceptable or too high, such as for public education or public hospitals. Governments must step in.

### **Funding and leadership**

The Commonwealth will therefore need to continue to lead in the provision of the infrastructure of the future. The recent budget continued a program expected to deliver \$50 billion towards infrastructure development over the period to 2019. Among the States, NSW is leading the way, allocating more than \$20 billion this year for infrastructure.

This is set against a wide range of estimates for the infrastructure deficit – from \$250 billion to \$770 billion in stock (which is definitely a visionary number). Suffice it to say we need to invest. There is an infrastructure gap.

The critical point to make here is that Australia is incredibly well-positioned to take advantage of today's low yield environment. We have the capacity to invest and to close that gap.

This is the moment to borrow to invest for the long term. Rates are close to all time lows. For the first time in a very long time the Australian Government has just issued a 30 year government bond – with total bids just short of \$A14 billion and a yield only a little above 3.25%. This is clear evidence that we are now able to borrow at close to all-time low interest rates and over a time-frame

that will reflect the ambition and scale of the infrastructure that we need to build.

We can lock-in that attractive financing today for the long term which means that the yield that we will require on that infrastructure ‘to pay us and future generations back’ will also be at all time lows.

One concern that is often raised about infrastructure investment is the inter-generational concern around debt. It is a legitimate issue. But when we borrow to invest in productivity-enhancing infrastructure we won’t be leaving future generations with debt for nothing in return, we will be gifting to our children and grandchildren tangible assets delivering a tangible benefit and creating a stronger platform for their own nation-building activities.

Now, I could also be criticised for putting our excellent credit rating at risk by suggesting taking on more debt. Despite concerns around our fiscal position, the fact is that we have a level of government debt that is significantly lower than many other OECD nations. We are comparatively well-regulated and well-governed. We can be trusted to look long term and to utilise this environment to our benefit and for future generations.

And as graduates of economics I think we can make a few further assumptions. If GDP continues to grow, facilitated by infrastructure spending, the population will continue to grow, facilitated by sensible government policy. With very low funding costs, Australia has the capacity to actually see net debt decline over time despite the additional infrastructure investment. This leaves aside the tax feedback factor that the government, as a financier of infrastructure, is uniquely placed to benefit from.

In any case, the answer to a similar question to the RBA Governor last month was that the impact of a loss of Australia’s AAA credit rating ‘would not be overly material.’

As a nation we have to debate whether the benefit of ‘rating risk avoidance’ and so-called responsible fiscal constraint is worth the huge potential cost in growth and employment.

### **The right investment**

Now, as I have said, it is not just about more infrastructure, it also has to be about better infrastructure.

The choice of projects must be decided through a structured, rigorous and disciplined process with good governance. The aim must be to grow the economy in a more productive, and socially and environmentally positive, way. We are fortunate in Australia to have governance bodies and frameworks to help government make these decisions. The long term planning work done by

Infrastructure Australia will guide us— this is an absolutely essential function and must be allowed to be as visionary as we need.

This University has also made a contribution in the work of the John Grill Centre for Project Leadership with its call for Better Infrastructure. This also includes the concept of efficient usage of infrastructure and the incentives and pricing tools to achieve that, such as user pays and peak pricing.

### **Funding Options**

Now, to funding. When Ben Chifley wanted to build the Snowy Mountain Scheme he had no option but to rely on the one clunky lever of government borrowing. (I note here that construction started under Menzies, just to be bi-partisan!) And where would we be today without that investment?

But now there are many different funding arrangements available which can be tailored and adapted as required. They tend to revolve around three basic mechanisms: the segregated account model, the asset recycle model, and private sector involvement.

### **Segregated Account Model**

Firstly the segregated account model. This simple model recognises the nature of these investments for what they are in the government accounts. It is long-term capital expenditure, and the value of the eventual returns for these long term assets can be quite clearly delineated and segregated from current expenditure for the government. This is a simple reallocation of the accounts, and is similar to current practice in the UK.

A slightly more sophisticated version of this model is when these projects are financed separately from general government revenue, either with infrastructure bonds or capitalised within an infrastructure bank.

Even the simplest version of this model provides transparency for investors, rating agencies and the public, and accountability for the success of projects. It also encourages good project appraisal and avoids poor project evaluation, that might perhaps be overly influenced by short-term political cycles.

These models can also be used to provide transparency on the use of federal funds to finance state or local projects. A variant of this approach is already at work in Australia, embedded within the 2<sup>nd</sup> model that I want to introduce, the asset recycle model.

### **Asset recycle model**

The Commonwealth has established an incentive scheme by which, when a State Government sells an asset and uses that money to build new infrastructure, the Commonwealth contributes financially towards the new infrastructure asset. This is financially logical, as federal funding is considerably cheaper than state funding.

This model promises to become more important in future years and it offers a great motivation for State Government action, but there is still considerable resistance to it. Some State Governments and the broader community are yet to be persuaded of the benefit of capitalising the value of 20<sup>th</sup> century infrastructure in order to build 21<sup>st</sup> century infrastructure.

So there is a role for business, financial market and academic leaders here. We need to remind people of the lessons of the past and inspire them about the future. This is not a new idea, but it is a good one: long ago the Queensland government owned a string of butcher's shops. The Federal Government owned Belconnen Shopping Mall and indeed a bank. Governments don't own them today. Australia has benefited from the privatisation of these and many other formerly government-owned assets ranging from ship-building yards to Qantas, Telstra, and the Moomba-Sydney Gas Pipeline. As a public company, CSL (formerly the Commonwealth Serum Laboratory) is now the global market leader in blood products. Does anyone seriously argue that the government is the best owner of those assets and we should buy any of them back?

As we have seen from recent experience in NSW, there is no lack of interest in infrastructure assets in Australia, and this interest comes from domestic as well as global players. Once an infrastructure business is up and running with good management, investing is generally viewed as defensive: with generally stable cash flows, solid yield, and low correlations to other asset classes. It is very attractive to liability matching investors such as pension funds and insurance companies. And the other beneficiaries of these infrastructure projects are the investors in our pension and superannuation funds who value relatively high and stable returns.

Meanwhile, for example, selling off power stations helps makes the energy market more competitive, resulting in lower prices for consumers, if appropriately regulated and managed. The Government then has more money to invest in public transport or hospitals, and other beneficial investments.

### **Private sector participation**

And thirdly, there are many different arrangements that bring public and private funding together in infrastructure projects.

I could fill hours with a discussion of the variants. I love the three letter acronyms. There's BOO, or Build, Own and Operate. Or there are PPPs, Public Private Partnership. There are BOT arrangements, meaning Build Operate and Transfer back to the government. We have examples of them all in Australia.

What these models have in common is they recognise the private sector is willing and capable to participate in financing infrastructure. In fact, in many cases, it is much more efficient than governments in its delivery or management!

These variants allow a consideration of the search for the lowest cost of capital as well as the allocation of the risks to those most able to manage them. Often, therefore, the greenfield risk may go to the Government, while the subsequent management risk may go to the private sector. In most of these models, the infrastructure is ultimately paid for by taxpayers, or by users through tolls or other charges.

An example of this approach is the current WestConnex project where NSW will finance the development of a major toll road with an intention to divest to the private sector post-construction, once the toll revenues are known and stabilised.

These models are and should be encouraged in Australia to reduce the burden on governments. To grow this aspect of contribution the private sector needs a visible pipeline of investment opportunities to encourage mobilisation; efficient bidding and development approval processes; and policies that reduce development risk. Infrastructure Australia has an important role.

As I said before, though, financing privately funded infrastructure has its challenges where externalities of social benefit cannot be captured, so often it can be prohibitively expensive.

For these sorts of projects ‘value capture’ is also now part of the funding dialogue. This is still a fledgling concept in Australia whereby private sector beneficiaries of new infrastructure contribute some of the asset appreciation towards funding the project that has created that uplift.

Proving there are no truly new ideas - one of the first projects to envision this was the Harbour Bridge where it was contemplated that the properties benefiting from the bridge would pay a ‘betterment tax’, but this scheme was abandoned due to the Great Depression.

## **Conclusion**

In thinking about the infrastructure future for Australia we should be clear about our ambitions for our nation – economic, social and environmental. We need to stretch into the visionary and move beyond the simple desperation of our current congestion dilemma.

We must always ask ourselves; how will any investment make Australia a better place to live, learn, work and invest? Will it enhance our enjoyment of life and community; create new jobs and industries? It needs to be worth the investment for those that pay for it.

There is a lot of talk about international competitiveness but there is an even more important quality that Australia has now, and should take care to protect

and cultivate further. International attractiveness. You only have to walk around this beautiful campus to see Australia's appeal in action.

Students and scholars from around the world are drawn to Australia by our clean, safe environment. A wonderful quality of life, a decent society. And a haven in a dangerous world. We need to maintain, upgrade and modernise our infrastructure to keep pace with the best in the world and to retain and enhance our unique appeal as a nation. That means that we need to be careful not to be 'too economic' about our investments. Parks and opera houses, especially ours, are not a wasted investment.

It is this rare combination of competitiveness and attractiveness – almost unique among OECD nations – that will foster Australia's 21<sup>st</sup> century creativity and innovation in everything from architecture to education to tourism and medicine.

We need to build more and better infrastructure. The task is to create a confident, flourishing, prosperous Australia that works for all Australians. All potential investments should be measured on the broad view of value creation – on making Australia both more competitive *and* more attractive while catering for the digital transformation we are all living through.

While infrastructure investments, whether by governments or the private sector or a combination of both, never come with a cast-iron guarantee of success a sensible and coordinated 20 year plan of the right investments needed will help us as a nation prioritise appropriately.

To achieve that plan and fill our infrastructure deficit we will need to pull every lever. It is time to be brave and recognise that our reliance on monetary policy with uniform fiscal constraint is not enough.

To rebuild the potential for growth, and create an attractive and competitive society, we need to borrow and invest again for the long term. The only entity that can do that on a visionary scale is the government.

We will need pragmatic and carefully managed asset recycling, with sensible structuring to facilitate private participation.

Professor Hogan was an inspiration. He did not sit ruminating in an ivory tower. He contributed directly to governments, and made very direct contributions to the public life of his city and this nation.

It's time to build for the future. With the Federal Government taking the lead on world class infrastructure, supported by the States, business and the community, we can stimulate significant growth and employment in the short term, while laying the groundwork for our future national success and securing a better future for all Australians.

