

Speaking notes: “Technological change and productivity” conference

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Introduction

Let me say up front that I’m a technological optimist. I think that new technology is having a real and fundamental impact on how businesses and the economy operate.

And this process is not always and everywhere a constructive force. I suspect that in the long run technology will create as many jobs as it destroys. But in the shorter term, some of its impacts can be destructive as innovation runs ahead of peoples’ capacity to adjust.

So the challenge I’m going to talk about is how we adapt and make the most of new technology while guarding against these downside risks.

For us in New Zealand, the stakes couldn’t be higher. If we get this right, there are clear opportunities in a shift to a more “weightless” economy based on trading knowledge-intensive products down fibre optic cables. And if we get it wrong, then we continue our long-run slide down the OECD productivity rankings.

Setting the scene: New Zealand’s productivity performance is poor

But I’m not going to stand up here and play the role of the miserable economist. So let me say that in lots of ways we have had a pretty good run since the GFC: average income growth has been relatively good, lots of people have got jobs and our public finances are in pretty good shape.

But our productivity performance is still weak, so lots of the jobs in our economy are low-pay and it can be a struggle to get by in New Zealand, even for people in work.

We get another year of productivity data in a ten days’ time and the picture will have improved given recent upward revisions to GDP. But it won’t be enough to make this long-run structural problem go away.

But this is not just about data: look across New Zealand firms and very few of them resemble the innovative, skills and capital intensive, globally connected firms that drive productivity growth internationally.

Just who are our productivity champions?

The public policy challenge

Now there are clearly some exceptions to these generalities, but it is no exaggeration to say that lifting productivity continues to be one of our greatest public policy challenges.

Just how do we transition from a development model based on working more hours per person and depleting the environment to one based on using new technologies to lift productivity and generate sustainable growth? That is the question we are progressing today.

There are two things we need to understand in answering this question.

First are the reasons why New Zealand firms have endured low productivity for so long. This will highlight policies with the potential to break the economic feedback loops that lie in behind this poor performance.

The **second** is the impact of new technology on firms and the global trading environment. This will give us an idea of New Zealand’s productivity potential in the 21st century.

I'm going to talk briefly about each of those before touching on the policy agenda that sort of falls out the bottom.

Why New Zealand underperforms

We now know quite a bit about why most New Zealand firms have low productivity – the so-called “productivity paradox” is dead and gone.

Let's start with the most obvious: **we are a long way from anywhere else**.

The sign in Bluff – down the road from where I grew up in Invercargill – tells us that Bluff is about 19 thousand kms from London and 35 kms from Stewart Island.

In some ways, I think of New Zealand as the Stewart Island of the world. An amazingly beautiful place that no one has ever been too.

Because distance works against international connection. So our trade intensity is one of the lowest among small economies, the vast majority of our firms aren't involved in Global Value Chains and foreign direct investment has become relatively less important here compared to other countries.

Since we lost preferential access to UK markets, the negative effects of isolation have hit home and for a small economy our firms are not very outward-looking.

This wouldn't matter if our domestic markets were big. But they're not – they're miniscule.

This combination of small domestic markets and large distances to global markets works against the diffusion of new technologies and ideas into the economy and across New Zealand firms.

So very few New Zealand firms operate at the global technological frontier in their industry and there are long tails of very small and low-tech firms surviving in small, fragmented and insular domestic markets with weak competition.

That is not exactly a recipe for productivity growth.

We are also a **capital shallow economy**, meaning that business investment is low given how fast the labour market is growing. So lots of people with not much kit.

This could be because the very numerous small firms that make up the bulk of the New Zealand economy simply don't have the scale and sales volume necessary to justify large capital outlays.

But perhaps more importantly, the cost of capital is relatively high in New Zealand while labour is moderately cheap. This most likely also pushes firms towards more labour-intensive production methods.

Why the high cost of capital? Well, for decades real long run interest rates here have been well above the OECD average.

We don't really understand why. And there are a number of other associated “macro mysteries” that, well, are mysteries.

I would argue that from a macro perspective we don't really know that much about the supply side of the NZ economy, which feels potentially costly to me. So calling all macro economists.

On **investment in knowledge-based assets**, we also don't know that much about the New Zealand situation. But there are indications that it isn't that flash – for example, R&D is low and management quality may also be an issue.

If firms really want to make the most of new technology, they need to reinvent much of what they do, which is a major managerial challenge.

But for whatever reason – probably low competition in New Zealand markets – many firms here don't seem able or incentivised to turn themselves inside out to make the most of new ideas.

Now aspects of this story sort of feed off and reinforce each other. And the whole thing kind of pivots around the macro features of high real interest rates and associated exchange rate pressure.

So these feedback loops keep us “disconnected and stuck” when it comes to lifting productivity.

The impact of new technology

Does new technology give us a way out of this “disconnected and stuck” productivity performance? And if so, how can we use policy to bring it on?

Dirk has already spoken about many of the impacts that new technologies are having on firms and economies. The aspect I would like to focus on is the impact it's having on the global trading environment. Because I think that is very relevant to our productivity story.

Technology improvements have lowered the cost of moving goods internationally and we have seen massive increases in telecommunications services and dramatic falls in their price.

No one says “this must be costing you a fortune” anymore when you call them up from overseas. Because chances are it's free.

This has changed global trade, which has morphed from a linear system connecting producers and consumers across borders into complex sprawling producer networks and global value chains.

Some services have become tradable internationally and cross-country flows of data and people have grown strongly, including in New Zealand.

Intuitively, you would think that these large falls in the cost of doing business across distance would be good for a small remote island economy.

But it has actually proven to be a double-edged sword, because lower spatial transaction costs have allowed large firms to serve global markets from a distance and locate in massive clusters of like-minded firms.

That's good for their productivity and these benefits of agglomeration have worked against a flatter spread of economic activity across the globe.

Now, very importantly for us, these agglomeration effects vary by industry.

For example, Catherine Mann, the OECD's former Chief Economist, presented at the GEN conference in this room last year and highlighted clear agglomeration effects in ICT manufacturing but a more even global spread of growth in ICT services.

So these patterns of agglomeration and dispersion give us a clue as to the areas of economic activity that might work in terms of international connection from down here in the South Pacific.

The other promising development is that by slicing production into increasingly fine slivers of activity, Global Value Chains are creating hyper-specialised niches in international markets.

So this potentially allows relatively small firms to specialise in narrow areas of comparative advantage without needing a full set of underlying capabilities or being part of a domestic supply chain.

So in some specific areas of economic activity, the forces that have restricted international connection by New Zealand firms may be loosening their grip.

Of course, this is consistent with some promising signs in our economy, including increasing export diversity and a growing high-tech sector. Think Xero, Datacom, Fisher & Paykel Healthcare...

This window of opportunity may even continue to widen as we get better at using technology to communicate, learn and interact from a distance. Just because face-to-face communication hasn't become seriously less important yet, doesn't mean it never will. It may just be a complicated type of change that takes time.

For example, it took us ages to learn how to use electricity productively, so why wouldn't it be the same for high-bandwidth, universally connected telecoms?

So clearly an area of new technology in which we have a strong interest.

Policy

Let's finish up with a few words on policy.

Just how do we map our growing understanding of New Zealand's poor productivity performance on the one hand and the impact of new technology on the other into the policy space?

Let me make three points.

First, and please don't take this the wrong way, but I think there is an unhelpful narrative in the public sector about our regulatory institutions and policies all being very good.

I must confess, feel partly responsible, having spent some years at the OECD building policy indicators that typically show New Zealand in a good light.

But good policy is not a one-shot exercise and we should never really get to say "job done". It's a continuous improvement business. And that has probably never been truer than now, with markets and technology changing so quickly.

Second, using new technology to lift productivity is increasingly about intangible assets or knowledge-based capital, which is the key driver of growth in 21st century economies. Knowledge is the new oil.

But it has some very different characteristics to more tangible productive inputs such as oil.

And this is really impacting on the way firms and the economy work. The increasing spread of productivity across firms, secular stagnation and increasing inequality have all being linked to the rise of intangibles.

So with intangibles having such a big impact on the world around us, it follows that they should have a big impact on policy.

Of course, none of this is straight-forward and intangibles are throwing up lots of gnarly policy questions that the likes of the OECD and the Productivity Commission and others are grappling with.

Which brings me to my **third** point, which is that no one has all the answers.

For example, economics can give us the broad contours of a policy response. But then we need to work with public policy people to assess our existing frameworks in detail and make improvements consistent with the big picture.

I don't think anyone can this alone, not even MBIE.

So what is an appropriate policy response? I don't pretend to have all the answers so I'll speak in questions to give a brief taste of the kinds of things we need to think about.

For example, to make the most of new opportunities, should we reorient our **international connection strategy** towards services and "behind the border" barriers? As distinct from the seemingly never-ending and sometimes frustrating battle for lower tariffs on primary products...

But to make the most of potential new areas of international connection, New Zealand firms need comparative advantage.

So do we need to tweak **migration and FDI strategies** to attract international people, capital and expertise into areas where firms have a proven track record and a solid chance of global visibility?

Building up knowledge-based assets is also key in developing comparative advantage.

But financing intangible investment can be tricky, as they are prone to spillovers and sunk costs (meaning it can be a struggle to get your money back if it all goes horribly wrong).

Banks seem to prefer houses and a lot of investment in New Zealand flows to low-productivity firms.

So are there ways of **making intangibles more bankable**? Or is equity finance the way to go, in which case is the NZX and associated regulatory frameworks ready and up for that?

And given financing difficulties, how should the Government play its role of investor of last resort?

For example, do the **funding models** used by the public sector channel resources to areas and firms most likely to succeed?

And with the government such a big player, how can we improve **spillovers between universities and firms**?

More generally, how do we balance the importance of property rights over intangibles with the synergies that can come from working **more collaboratively** in an open source environment?

On rules of the game, can our **competition policy framework** cope with “winner takes all” dynamics, which can come from network effects associated with intangibles?

And how should we manage any trade-off between scale and competition in New Zealand’s very small markets?

How about **infrastructure**? Is it fit for purpose and well-managed? I certainly don’t seem to pay much in tolls or congestion charges when driving through Auckland.

Not just physical infrastructure, but also **soft infrastructure**, such as the standards, rules and norms that create local predictability for investors in intangibles.

And are these standards internationally coherent or more a barrier to cross-border markets?

New technologies enhance the **skills** of some workers while making others redundant. So is the education system helping people adjust and make the most of new technology over their lifetimes?

Or, to put it differently, are we winning the “race between education and technology” in New Zealand? (The answer is no!)

And because experimentation is such a critical part of using new technology, churn may become more important. So can our labour market institutions cope as technology continues to disrupt? Or do we need to think harder about **active labour market policies**?

And how hard is it to go bankrupt in New Zealand and then start over?

Because intangible spillovers still often happen face-to-face in cities, do our **urban planning systems** deliver affordable housing so that people can live where their skills are most valuable?

And are there changes in **tax and savings policies** that might reduce that interest rate premium I mentioned earlier. That might lower the cost of capital and encourage investment into the high-productivity outward-facing part of the economy.

Now I’m going to run out of time if I keep going. But I could keep going. For ages.

In some of these areas, we know quite a bit while in others we don't have much of an idea. And in many of those areas, if Commission inquiries are anything to go by, we could be doing much better.

Conclusion

Let me end by saying that for the reasons I outlined earlier, New Zealand lags behind the more advanced OECD economies when it comes to technology adoption. And this is a big part of why we have low productivity.

But we also haven't seen much of the short-run downside that can come with new technology: the productivity spread across firms hasn't increased much in New Zealand and income inequality hasn't blown out.

I do think our society has become more unequal, but much of that has come out of the housing market instead of the labour market.

So perhaps this gives us a grace period in which to make our economy more flexible and resilient so we can take what's good with new technology while avoiding any adverse consequences.

Then we won't end up with Trump-like politics or calls for "Oz-exit" or whatever.

But getting the benefits of technology without any short-run negative consequences is really hard.

So this is a very challenging agenda and I think there are legitimate question about whether the public sector – that's us – can deliver.

Working harder on integrating the insights of economics and public policy would help.

Then we can make coordinated improvements across a broad range of areas and push the myriad of underlying influences on productivity in the direction of higher living standards.

Thanks.