

MEMO

Date: 19 August 2013

From: Paul Conway, Chair Productivity Hub Board

To: Productivity Symposium attendees and others

Subject: **Key take-outs from the productivity symposium**

Context

The Productivity Hub held a Symposium on *Unpicking New Zealand's Productivity Paradox* on 2 July 2013 at Te Papa Tongarewa. Many of you attended. The following is a briefing on key take-outs from the Symposium. This was prepared originally for the Minister of Finance, but the Board of the Productivity Hub decided it would likely be of interest to Symposium attendees and others interested in New Zealand's productivity performance. The briefing tries to capture the key take-outs from the Symposium including the panel discussion, and also summarises five of the presentations.

Please note that slides of all the presentations, and videos and papers of some of the presentations, are publically available on the Productivity Commission's website:

<http://www.productivity.govt.nz/event/unpicking-new-zealand%E2%80%99s-productivity-paradox-symposium>.

The Hub Board is developing a research agenda that will help fill knowledge gaps in understanding New Zealand's productivity performance and what can be done to improve it. It will then invite a collaborative approach to undertaking this research and drawing policy implications.

Key take-outs

New Zealand's performance

There was broad acceptance at the Symposium of (i) the well-known account that New Zealand's relative per capita GDP had, after declining for some time, stabilised at around 20% below the OECD average since the mid-1990s; (ii) that GDP per hour worked has continued to deteriorate relative to the OECD indicating that New Zealanders are working longer rather than smarter; and (iii) that better future performance and living standards depend on higher productivity growth, because continued improvements in the terms of trade and employment rates cannot be relied on to support growth.

Is there a paradox?

Most, but not all, agreed there was a paradox, i.e. that New Zealand's performance could have been expected to be better given the overall quality of its policy settings. There was broad acceptance that small size and distance, particularly in combination, are a challenge and special case for New Zealand. Few, though, would regard those as insurmountable obstacles to higher performance. Returns to agglomeration have risen over time but not as fast as the returns to investment in local human capital. Auckland is only a modest sized city, limiting agglomeration effects. But what really matters is the richness of knowledge interactions and spill overs, including how well Aucklanders can plug into international networks, and the city's attractiveness to talented people as a place to live.

Regarding New Zealand's policy settings, their 'overall quality' is a comparative concept. OECD composite indicators of regulatory quality – which are fairly crude measures – suggest that New Zealand was close to best in class in the 1990's, but fell off the pace subsequently as we reversed some earlier progress, but also as others lifted their game. Even when near the top of the class there remains plenty of scope to improve. And given other disadvantages, New Zealand needs to retain a strong focus on continuous improvement of its regulatory frameworks.

Where are the areas where policy should focus?

Human capital – There is strong evidence that investment in human capital generates a range of positive spill-overs and pays off in economic performance. New Zealand is doing well on some measures – ahead of many richer countries – but is nevertheless behind top countries which are also increasing their lead (eg Singapore and Hong Kong).

Entrepreneurship – Ed Glaeser demonstrated that a history of large firms and large plantations is not a good heritage for an entrepreneurial culture, and the opposite holds for a small-firms legacy (he compared the garment-trade heritage in New York versus steel in Pittsburgh) potentially including small family-owned farms. New Zealand doesn't look badly placed as an environment for entrepreneurs.

International connections – These, of course, are vital to counter the effects of isolation. New Zealand trade-to-GDP is low and exports are typically not well-integrated into global value chains. Lifting trade and knowledge flows would support scale and innovation. Promoting more competition from foreign suppliers would push sheltered local firms to lift their game. The non-tradable sector, particularly many services, feed into export products and need to perform well to support their competitiveness.

Policy options for lifting New Zealand's productivity growth need to keep in mind opportunities to improve New Zealand's interaction with the rest of the world. For example, we shouldn't just "promote exports" but, instead, think about how New Zealand connects to the global economy and where that creates opportunities. New Zealand needs to keep moving away from the 'make it', 'pack it', 'send it' export paradigm and get more connected with suppliers and customers. Future improvements in technology – such as cheap, high-quality video conferencing – could also change the game in terms how the challenges of agglomeration and distance affect New Zealand.

Auckland – A strong theme was that large cities play a key role through enabling simultaneous achievement of scale, specialisation and diversity, including from face-to-face contact, human-capital and knowledge spill overs, attracting talented people, and having deep international connections. Auckland shows up on some measures as well connected internationally (e.g., accounting services via the local presence of international firms) but is inevitably a small city and will need to "out-perform" on internal and international linkages to counter its size disadvantage.

Regulations have pervasive effects on business costs, competition, and ability to achieve efficient scale. This is an area, along with the quality of institutions, for on-going attention, and improvement. The Productivity Commission's new inquiry is an important opportunity to examine this area from a different, broader perspective – seeing what can be learnt from looking across regulatory regimes.

R&D and innovation – International comparisons suggest that New Zealand is underperforming in these areas and that they are important determinants of overall productivity performance. Getting better at this is an important part of resolving the paradox. New Zealand should aim its knowledge investments to get the maximum leverage from the global knowledge pool.

Information and Communications Technology (ICT) - New Zealand firms have invested in ICT to an extent that matches their counterparts in other countries. But many have not yet learnt how to use it productively. Devising new business models around the potential capability of new ICT and leveraging worker skills effectively is key. In too many cases, it seems firms are content to simply "computerise" or

“web-enable” existing processes. Air NZ and ASB have been at the leading edge of local ICT innovation, noting that a common thread here was the leadership of Ralph Norris.

Saving – Low national saving is a feature of New Zealand. Higher saving would likely lead to more investment over time as it appears to have done in Australia.

Some industries could do a lot better – New Zealand’s construction industry is well behind US productivity benchmarks. The key to better performance lies in scale and pre-fabrication. Customisation is expensive in the US too. Good regulations that facilitate scale can be a substitute for agglomeration. Regulation should support not hinder pre-fabrication and mass-production and reduce the need for designs to be site specific.

Industry composition: some new industries beckon – industry composition seems to matter for productivity growth but the record of governments trying to influence it is very mixed, depending in part on the quality of public administration. Even then, there are many commentators (Ed Glaeser in particular at the Symposium) that argue the development route should be via human-capital policies and other broad support, not by making (and risking) narrow choices. Developing new-product business lines is easier where the capabilities needed already exist. New Zealand has the problem of being situated in a ‘sparsely populated part of product space’ with few adjacent products. Either it needs to unhook from biological limits (or, as one commentator put it, ‘get off the grass’) or build more of the adjacent products around our existing biological base. This is essentially an argument for moving to a stronger focus on the intellectual property – and the marketing of that – which has accumulated from the huge investments New Zealand has made in human capital and knowledge around its primary industries.

A selection of points from the main presentations

1. 'Investigating New Zealand-Australia productivity differences: Comparisons at industry level' by Geoff Mason, Senior Research Fellow, National Institute of Economic and Social Research, London

The research behind this presentation was jointly commissioned by the Productivity Commission, Treasury and MBIE with active participation by Statistics NZ and the Australian Bureau of Statistics. It provides a solid basis for comparisons of levels of industry productivity using data sets that were not available previously. The data and results are likely to prove invaluable for future analysis.

- The average level of labour productivity in New Zealand across all market industries was more than a third lower than in Australia, in 2009. New Zealand's lower multi-factor productivity contributed 57% of this labour productivity gap, while lower physical capital per worker, contributed 39% (Figure 1)
- The research estimated new measures of labour quality by industry (based on qualifications and wages). Australia has pulled ahead in the proportion of graduates and sub-degree qualifications but the gaps are not large. Hence, only 4% of the labour-productivity gap is estimated to arise from differences in labour quality (Figure 2).
- Another way to decompose the labour-productivity gap is by comparing industry structure. 30% of the gap arises from differences in industrial structure with Australian employment more concentrated in some high-productivity industries (mining, electricity) and less concentrated in some lower-productivity industries (primary sector and food and beverage manufacturing). The remaining 70% is due to productivity differences across the countries within the same industry.
- Estimates suggest that Australia was ahead in 2009 on both labour productivity and MFP in 12 industries, while New Zealand was ahead on both measures in 5 industries.

Figure 1: Average capital per hour worked

Figure 2: Workforce qualifications

Figure 4.1: Average capital per hour worked (US\$2009), total market industries, 1997-2010

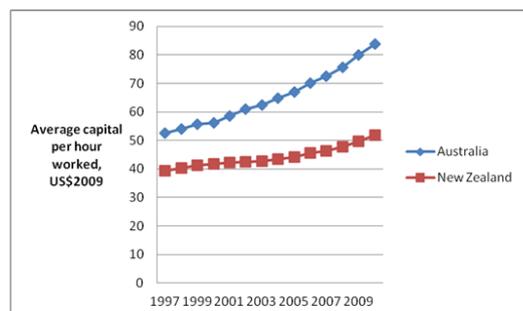
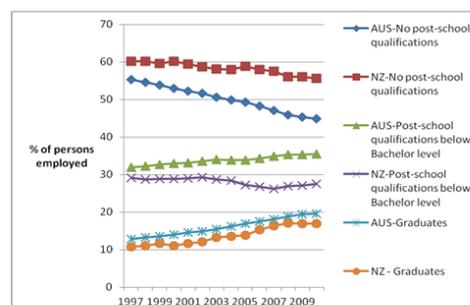


Figure 5.1: Australia-NZ differences in workforce qualifications

Figure 5.1: Highest qualifications held by workers in total market industries, 1997-2010



Sources: Derived from ABS, Survey of Education and Work and SNZ, New Zealand Income Survey.

2. 'New Zealand's performance in an OECD context' by Alain de Serres, Division Head, Economics department, OECD

OECD economists have acknowledged the New Zealand paradox for some time. In their eyes, New Zealand is an interesting and important case that presents a challenge to their conventional wisdom and advice.

The OECD undertook new research to present at the Symposium. The approach used a relatively straightforward growth model that explained a lot, but not all, of the differences between OECD countries in labour productivity and GDP per capita. The model estimated contributions from physical and human capital in each country. It then explored the possible contribution of three determinants not included in the model: geographic location, intangible capital, and labour force composition.

The model predicts the paradox: given policy settings, GDP per capita in New Zealand is predicted to be 20% above the OECD average. In reality, it is 20-23% below the average – a gap of 40-43 percentage points (Figure 3).

- New Zealand’s investment in physical and human capital is comparable to that of other OECD countries (the finding in the previous presentation that New Zealand is capital shallow relative to Australia partly reflects above-average investment in Australia). So MFP is where the problem seems to lie – New Zealand’s MFP has fallen relative to other countries and is now 30% below the OECD average and 60-65% below the US.
- Investment in knowledge-based capital or intangible assets has become more important than investment in physical capital in some countries. But New Zealand is not included in cross-country studies of knowledge-based capital so it is difficult to know how it compares in this respect.
- New Zealand has low levels of investment in business R&D, which could explain up to 10% of the gap in GDP per capita. In some broader measures of innovation, New Zealand compares favourably eg on trademarks registered abroad but the score relating to the service sector is low.
- ICT is a crucial driver of innovation, particularly in services. ICT investment in New Zealand has been low compared to other OECD countries but is catching up. It takes time for firms to figure out how to use ICT capital effectively.
- Management in New Zealand firms is below average in international comparisons and improving to best practice could significantly improve productivity growth. There is also room for improvement in access to venture capital and the regulation of professional services.
- The return to investment in knowledge-based capital is dependent on the size of the market. New Zealand’s distant location inhibits this. In fact distance accounts for a large share of New Zealand’s gap in GDP per capita. According to the model, sorting R&D and distance eliminates a large part of the gap in New Zealand’s GDP per capita.
- While not much can be done about distance itself, New Zealand can do things to reduce its impact. Some trade modelling interestingly suggests that New Zealand’s bilateral trade flows could be configured more effectively (eg, based on market size and geography, it should now trade more with Latin America and China) (Figure 4).

Figure 3: Structural policies and GDP per capita

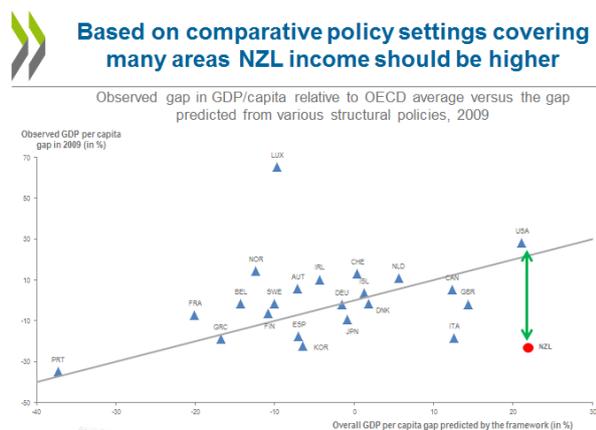
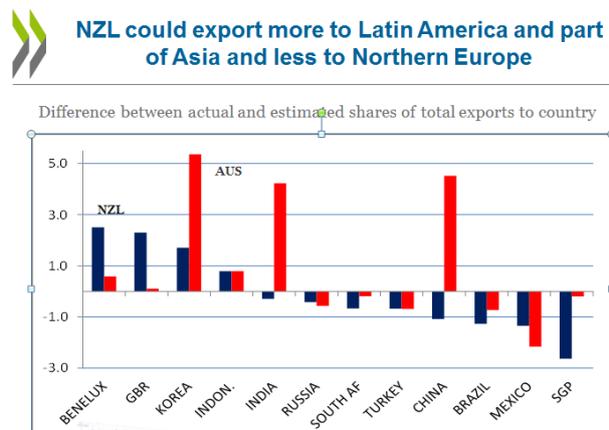


Figure 4: NZ’s bilateral trade flows



3. 'Unpicking New Zealand's Productivity Paradox' by Roger Procter, Chief Economist, Ministry of Business, Innovation and Employment

The presentation examined industry and firm performance to understand what is driving New Zealand's relatively poor productivity performance. It assessed firms' innovation performance since innovation lies at the heart of economic growth and development. Innovation is influenced by the business environment with scale and competition being particularly important.

- The distribution of productivity across firms in similar industries appears to be very wide in New Zealand. This suggests low intensity of competition in New Zealand, which inhibits incentives to innovate and the process of 'creative destruction' that allocates resources to successful firms.
- Increasing trade and competition would improve innovation and reduce the firm-level distribution of productivity. This would improve New Zealand's productivity performance considerably.
- Trade improves competition and specialisation, which promotes economic growth. Low trade compounds New Zealand's poor productivity performance and partly reflects aspects of the business environment (low competition, the high currency).
- New Zealand's employment share has shifted towards low-productivity and low-productivity-growth industries, which has had a harmful effect on aggregate productivity performance. Research by Macmillan and Rodrik on Latin America associates this "adverse restructuring" with rigid labour markets, exports of primary products and currency over-valuation. New Zealand has relatively flexible labour markets but shares the other two features.
- New Zealand has good policy setting for an average OECD country. But New Zealand is not an average OECD country and we cannot assume that "big-country" policy settings will be enough.

4. 'Productivity and Growth: Education, agglomeration and entrepreneurship' by Edward Glaeser, Professor of Economics, Harvard University

Professor Glaeser is a world expert on the role of cities in modern economies.

- The presentation examined the dynamics of cities and agglomeration focussing predominantly on human capital. Both education and entrepreneurship (which Glaeser sees as a form of human capital) are key ingredients of economic success.
- Agglomeration matters; this shows up in many findings that productivity rises with employment density. Cities with initially higher concentration of graduates, experience faster increases in human capital and are more successful. The returns to agglomeration/cities have gone up because of high returns to knowledge and innovation. Complexity of transactions involving new knowledge place a premium on face-to-face relationships.
- But returns to human capital have gone up even faster than returns to agglomeration. New Zealand has strong potential because the future labour force (ie, current students) score high in PISA tests. Yet it is behind the Asian leaders such as Singapore and Hong Kong who are not only leading the pack but pulling away. By contrast, Sweden is off the pace and going backwards.
- Agglomeration is a challenge for New Zealand, so education and entrepreneurship must compensate. It should also do all it can to make the country an attractive place for skilled and talented people to come to and return to.
- New Zealand should not rest on its laurels in education. The highest returns would come from replacing bad teachers with good teachers. There is clear evidence that good teachers who raise test scores of a student also raise his/her adult earnings. Constant experimentation, innovation and evaluation in education is required.

- New Zealand's advantages, apart from its achievements in education, are that it's a well-run place, and also performs well in areas such as ease of starting a business.

5. 'Productivity by the numbers: The New Zealand experience' by Paul Conway, Director, Productivity Commission

This presentation described New Zealand's productivity performance at the economy, sector and industry level; both over time and in comparison to other OECD countries.

- Employment and the terms of trade gains have supported income growth over the 1990s and 2000s. Going forward, productivity growth will need to contribute more to income growth.
- New Zealand's firms have invested in ICT but it is not clear that they know how to use it productively (in terms of worker training and adopting new business models and practices).
- The contribution of industries to aggregate productivity growth differs markedly – for example, the information, media & telecoms industry and the finance & insurance industry have contributed around one third of aggregate labour productivity growth from 1996 to 2011, whereas construction and some low-productivity-growth service industries have detracted from aggregate productivity growth.
- Much of the output of low-productivity-growth services industries is used as intermediate inputs by firms in other parts of the economy. So down-stream firms could face higher cost and lower quality inputs that reduce their competitiveness in international markets. Improved performance from the non-tradable sector would assist in increasing exports to GDP.
- There is no evidence of New Zealand's productivity 'catching up' to that in more advanced countries, although it is likely that some New Zealand firms do operate at the global productivity frontier.