TEC submission on NZPC Frontier Firms draft Report

1. The TEC is pleased to respond to the NZPC's draft Report: New Zealand firms: Reaching for the frontier. This submission can be read in the context of TEC's 5 August 2020 submission on the Inquiry's Issues Paper.

2. TEC has some general and specific comments on the draft Report.

General comments

3. TEC agrees with the Report's key focus on the critical role innovation plays in our frontier firms and in relation to economy-wide productivity. Tertiary education and training plays a key role in innovation, especially through university advanced studies, research-led teaching, post-graduate research and links to industry. Universities are responsible for around 25% of all research undertaken in New Zealand (Universities New Zealand 2020). Most of the remaining 75% is undertaken by researchers whose skills were developed in our universities.

4. Much of the Report argues the need to concentrate effort, and to focus on a small number of areas of the economy to raise firm productivity and export success. There is a strong argument for New Zealand only focusing on a limited number of key opportunities and to concentrate resources. However, it is less certain whether directions should be set by government, or whether they should emerge from dispersed and self-directed innovation and entrepreneurship in firms, universities and other research entities.

5. Our universities have high autonomy, and the government through TEC does not actively steer them in specific disciplinary, research or technological directions. The NZPC in its final report might wish to raise the question of whether, and to what extent, more specialisation or central steerage might be appropriate for universities. This issue is canvassed in Greenaway-McGrevy et al (2020).

6. It is agreed that New Zealand's innovation system needs to be simplified so that firms can engage with it more easily, and to reduce administrative costs. As stated on p. 113: "Firm-focused support for innovation is cluttered and hard to navigate." Too much of our most able researchers' time is taken up with applying for funding and complying with its conditions. TEC agrees with the p.107 comment that "reputational and financial incentives for university researchers to engage in applied research are weak". It would be beneficial for more publicly-funded research to focus on clear pathways to technological applications.

Specific comments

7. On p. 22, F2.3 highlights the capital shallowness of New Zealand businesses and notes that this has depressed labour productivity. On p. 45, F3.6 notes that European countries perform better than New Zealand partly because their frontier firms have higher capital intensity. To reap fully the long-run benefits from innovation, knowledge-intensive New Zealand firms need deep and patient capital investment. This is also needed for them to grow and internationalise, whilst still retaining core capabilities and benefit streams in New Zealand.

8. Since capital shallowness is holding back our productivity, the NZPC might like to highlight this to government. A specific recommendation could, for example, suggest a policy work programme to address how New Zealand's domestic savings rates could be lifted to deepen and make more patient our capital markets, as well as deliver wider macro-economic benefits.

9. In relation to p. 42, TEC agrees on the criticality of "improving New Zealand's international connections in trade, investment, people and knowledge." Universities are key to our international connectedness, through their research, overseas staff recruitment and exchange, and their engagement with international education.

10. On p.73, R5.1 recommends that the government take a more proactive and deliberate approach to attracting multinational corporations (MNCs) that are knowledge-intensive, export-oriented, and a source of spill-over benefits. Singapore and Israel are examples of countries that have invested heavily and selectively in research universities to recruit top academic talent and attract international private sector investment. Greenaway et al (2020) note that key thought leaders in academia are key to encouraging major international companies to invest in a country or region.

11. On p. 96, F7.1 states that the New Zealand innovation ecosystem is notably weaker than comparator small advanced economies on measures that include shares of the world's top academic publications and the number of world-class universities. New Zealand has only 0.06% of the world's researchers but we produce 1.4% of the world's most highly cited research. All New Zealand universities are in the 2020 QS World top 600 University Rankings. All our universities are in the top 600 in Times Higher Education rankings and four are in the top 350. The number of New Zealand universities is on a par with Australia, the UK and Canada – one university per 600,000 people (Universities New Zealand 2020).

12. On p. 100 it is stated that industry-oriented CRIs are active mainly in the land-based industries and geothermal technology for "historical reasons". CRIs are best suited to relatively homogenous industries where inputs as well as product outputs are shared across many firms, making it possible for research needs to be met by one centralised research institute. For example, it may be possible for AgResearch to deliver most of the pastoral industries' needs for new forage cultivars. However it is impossible for a single institution to deliver most of the research needs of firms in highly differentiated industries such as manufacturing, digital or pharmaceuticals. So, CRIs are shaped by industry and market structure more so than by history (though history is a factor).

13. On p. 102 it states that the PBRF at around $321M a year funds a significant part of TEO research. The correct figure is $315M a year. The PBRF does not fund research. It is a capability fund that is calculated on the basis of TEOs' assessed research performance, however TEOs have discretion over what they choose to invest their PBRF allocation in.

14. On p. 107 it is suggested that the R7.3 first bullet point be amended to read: "…between businesses, universities, and public (or publicly-funded) research institutions…" This amendment would acknowledge universities' key role in international connections, and also signal the potential to strengthen their links with business.

15. On p. 117, TEC supports R7.8 and suggests an additional bullet point: "the role of universities in New Zealand's innovation system".

16. On pps. 119-120, F8.1 notes that scope exists to build the pipeline for post-graduate talent needed for innovation and increase retention of post-graduates in New Zealand by developing career pathways. F8.2 notes that creating more opportunities for research students to gain industry experience would build broader skillsets, strengthen industry relevance, and foster technology transfer from research. F8.3 canvasses post-doctorate funding and collaborative PhD schemes as ways to build domestic career pathways in advanced research.

17. However, the F8.1-F8.3 suite of findings does not lead to a recommendation. The NZPC could recommend that the government, working with the universities, MoE and TEC investigate the opportunities raised in F8.1-8.3, with a view to seeing what might be supported.

18. On p. 126 the Report's discussion of migration policy argues for "reassessing the employment rights of fee-paying students". Universities New Zealand (2020) strongly advises against changes to international student work rights. The opportunity to gain work experience helps make New

Zealand more attractive for international students. These students work largely in low wage and often casual roles in sectors such as hospitality, rather than competing with New Zealanders in more attractive and better rewarded roles.

References

Greenaway-McGrevy, R et al: 2020: New Zealand's Economic Future: Covid-19 as a catalyst for innovation. University of Auckland. Koi Tu: The Centre for Informed Futures.

Universities New Zealand 2020: UNZ Briefing to the Incoming Minister. Wellington, Universities New Zealand.