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NZIER PUBLIC GOOD PROGRAMME
THINKING ABOUT AOTEAROA NEW ZEALAND'S FUTURE

How could generative AI transform our economy?

Part 2: Future developments and policy responses

This paper is the second in a two-part series on the economic impact of generative AI. It considers how generative AI could develop the future and what it means for New Zealand.

In the previous paper, we outlined the concept of a general purpose technology (GPT) – a technology that can be widely applied across the economy and is capable of ongoing improvements – and an invention of a method of invention (IMI) – a technology that opens up new opportunities for research. We also introduced theories for understanding the economic impacts of technological change and summarised emerging empirical evidence on generative AI.

There are reasons to be sceptical about AI's potential

There is a long history of technologies that promised significant productivity gains but took a long time to materialise. Robert Solow famously quipped in the 80s, "*you can see the computer age everywhere but in the productivity statistics*" (Solow 1987). It wasn't until the 90s that the introduction of IT led to measurable productivity growth. It is possible that the productivity gains from AI will also take several years or decades to emerge.

Daron Acemoglu – one of this year's Nobel Prize winners – estimates that AI will increase productivity by about 0.6-–0.7% over 10 years (Acemoglu 2024). He argues that while AI leads to large productivity improvements for certain tasks, only a small proportion of tasks are affected.

Acemoglu's estimates are based on Hulten's theorem, which states that the contribution of a sector's productivity growth is proportional to its share of the total economy. As the productivity in a sector improves, its share of the economy may decrease, resulting in a declining impact on productivity growth over time. This is why substantial gains in productivity in specific sectors do not always translate into significant improvements in overall growth.

This line of reasoning ignores the fact that AI is likely both a GPT and an IMI, which means it has the potential not just to improve directly the productivity of individual tasks but also to raise the general rate of technological progress.

Another reason for scepticism is the tendency for AI to make mistakes and perpetuate biases. However, the inherent unreliability of generative AI does not necessarily mean it will fail to improve productivity. In many applications, reliability is less important than versatility and speed – errors may have small impacts or be easy to identify and address. Human beings also make mistakes and are susceptible to bias, yet we trust others with important tasks.

But artificial general intelligence could have profound effects

So far, we have focused on the economic impacts of generative AI as it exists today. However, technology continues to develop at a rapid pace.

Technologists predict the development of artificial general intelligence (AGI) – AI systems capable of performing a wide range of tasks at least as well as humans – in as little

as 5 to 20 years. Based on this, some economists argue that generative AI heralds the introduction of a new economic era (Korinek 2024). If AI becomes a perfect substitute for labour, then the number of workers will no longer constrain economic growth.

This raises the prospect of a future where the size of the economy grows faster than ever before, but labour plays an ever-decreasing role, causing a greater share of income to go to capital rather than labour. These changes would require a radical re-think of large swaths of government policy.

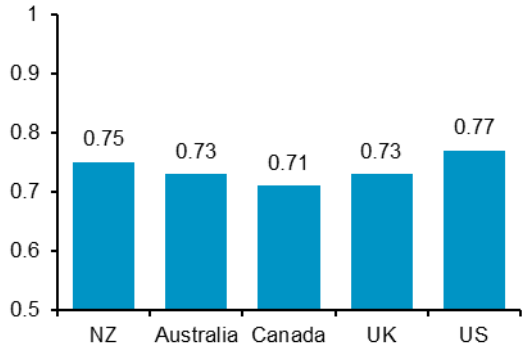
In our view, any claims about whether and when AGI will emerge are highly speculative. But given its potential impacts, it could pay to look ahead and start preparing now. Policymakers should begin considering possible scenarios for AGI and how best to manage them.

New Zealand faces unique challenges and opportunities

Earlier this year, the International Monetary Fund (IMF) released an AI Preparedness Index, which assesses the level of AI preparedness across four dimensions.

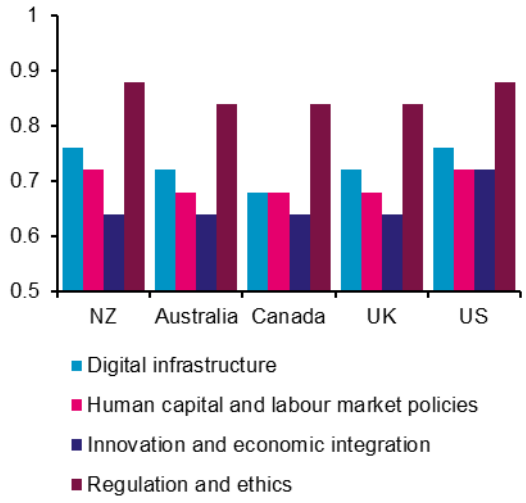
New Zealand scores relatively well compared to other anglophone countries, behind the US but ahead of Australia, Canada and the UK. Areas of strength include digital infrastructure, human capital and labour market policies, and regulation and ethics. There is room for improvement in innovation and economic regulation.

Figure 1 AI preparedness index



Source: IMF (2024)

Figure 2 AI preparedness index by domain

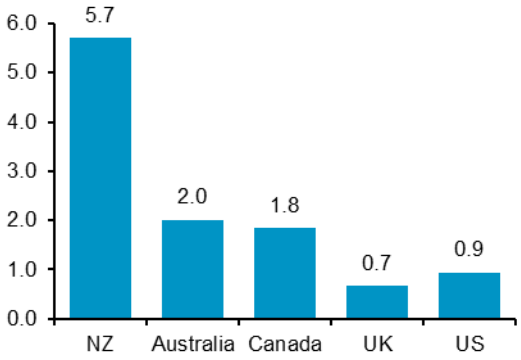


Source: IMF (2024)

New Zealand's economy is smaller and less diversified than other anglophone countries, and it is much more reliant on agriculture. Our agricultural sector is dynamic and innovative, but it is arguably relatively isolated from the rest of the economy.

Generative AI presents an opportunity for New Zealand to develop its strengths and position itself as a global leader in agricultural innovation. The key will be to facilitate the spread of new AI-driven applications and ideas within agriculture and support stronger integration with the wider economy.

Figure 3 Agriculture percent of GDP, 2020



Source: World Bank (2024)

It is time to start preparing

The impact of generative AI is highly uncertain. It's important to prepare for a range of possible futures while working to address the costs of disruption in the present.

Earlier this year, the Government published a Cabinet Minute stating its intention to encourage the use of AI in New Zealand to boost innovation and growth and its support for a proportion and risk-based approach to AI regulation (Office of the Minister of Science, Innovation and Technology 2024). It noted that New Zealand is behind its peers, with high levels of mistrust and relatively low uptake of AI.

The discussion in this *Insight* suggests three objectives for government policy:

- Encouraging the adoption and use of generative AI within appropriate guidelines
- Supporting a wide range of workers to benefit from AI and addressing potential inequalities
- Making adjustments less costly.

It is time to start preparing a range of policies that could be used to encourage the adoption of AI and manage its impacts. Here, we offer a starter for 10, specific policies that could be considered. This list should be adapted and refined as we learn more about AI and its economic potential.

Education

- Educate people and firms on the potential benefits of generative AI and how to use it effectively.
- Ensure the education system focuses on general transferrable skills – such as critical thinking, creativity, and social skills – rather than specific knowledge.
- Provide flexible retraining programmes to help people adapt to labour market changes.

Regulation

- Ensure labour market rules support flexibility and make it easy for firms and workers to adjust to technological change.
- Review IP and privacy regulations to ensure they provide the right balance between maintaining trust and enabling firms to innovate.

Taxation

- Consider ways to make the taxation system more progressive in case AI exacerbates existing inequalities.
- Explore new ways of raising revenue through taxes on capital in case AI reduces the labour share of income.

Welfare

- Strengthen social safety nets for those who lose their jobs due to additional churn caused by AI.
- Explore new forms of social welfare that are independent of work, such as a universal basic income (UBI).

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This Insight was written by Adrian Katz at NZIER, December 2024

For further information please contact Adrian Katz at adrian.katz@nzier.org.nz or 027 265 1955

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NZIER | (04) 472 1880 | econ@nzier.org.nz | PO Box 3479 Wellington