Stephen Beban's Submission on 'Technological change and the future of work,' September 2019 Draft Reports[1]

Thank you for the opportunity to make a submission on this important topic of technology's impact on the quantity and nature of work.

I would like to make two points:
- The draft reports underestimate the risk of technological disruption in the labor market; and
- Consideration should be given to Guaranteed Minimum Income as a solution that can address present challenges (without the costs of Universal Basic Income), as well as future-proof against the risk of a high-tech low-employment scenario.

The risks (and opportunities) of technological unemployment are undervalued

Past data doesn't capture the nature of artificial intelligence

The report argues that there is little evidence in the available data that widespread disruption to work is coming soon,[2] with table 3.4 suggesting a high-tech low-employment scenario is very unlikely.

This assumes that current historical data is fundamentally analogous to future changes. And this premise is likely unsound. Past technology did not compete for analytical and/or non-routine work, merely replacing routine labour tasks.[3] However, future AI will be able to supplant, not merely augment, skills in all these categories.[4] Therefore we should expect and prepare for different patterns than the past.

Ways in which AI may be fundamentally disanalogous to previous market changes include:

- **Speed:** That the pace of change with AI technology outpaces the time it takes for humans to be retrained to new jobs. In which case, it would be quicker to simply adopt or teach a new AI. And/or,

- **Substance:** Whereas AI has previously replaced routine labour takes, future AI could compete for (and eventually subsume) non-routine or analytical roles – that there are few sectors of refuge for non-replicable human-skills.

With computational power increasing, and multiple techniques to reach an emulation of human-level intelligence,[5] AI should be expected to make the jump from artificial *narrow* intelligence to artificial *general* intelligence. AI experts expect that it's more likely than this will occur by the end of the century.[6] In other words, capacity for both the analytical and non-routine work they currently lack.

At the very least, the AI Forum NZ has recommended that: "If evidence of substantial negative impacts began to emerge this should provoke a reassessment of policy. A conversation to ascertain the potential 'trigger points' for further action could be a useful focus for policy discussion."[7]

By analogy, take horses in the early 19th century; based on the increase in the human population (demand side) and lower casualties from combat or disease (supply side), one would not have predicted the horse population to have peaked 1915. However, the competition with cars changed the game incomparably.

[1] Productivity Commission, "New Zealand, Technology, and Productivity," Draft Report 1, September 2019
Productivity Commission, "Employment, Labour Markets, and Income," Draft Report 2, November 2019
[2] Ibid, "New Zealand, Technology, and Productivity," Pg 56, Labour-market scenario likelihood
[3] Ibid, Table 2.1, Pg 25
[4] CGP Grey, "Humans Need Not Apply," 13 August 2014, https://www.youtube.com/watch?v=7Pq-S557XQU
[5] Tim Urban, WaitButWhy, "The AI Revolution: The Road to Superintelligence," 22 January 2015, Second Key to Creating AGI: Making It Smart, https://waitbutwhy.com/2015/01/artificial-intelligence-revolution-1.html
[6] Vincent Müller and Nick Bostrom, "Future Progress in Artificial Intelligence: A Survey of Expert Opinion," Oxford Future of Humanity Institute Linguistic and Philosophical Investigations, 2014 https://nickbostrom.com/papers/survey.pdf
[7] AI Forum NZ, "Artificial Intelligence: Shaping a Future New Zealand," 2 May 2018, Implications for Policy, Pg 53 https://www.mbie.govt.nz/dmsdocument/5754-artificial-intelligence-shaping-a-future-new-zealand-pdf

Humans Need Not Apply:[8] "There isn't a rule of economics that says 'Better technology makes more better jobs for horses'" – why should we expect that to be the case for humans? "As mechanical muscles pushed horses out of the economy, mechanical minds will do the same to humans. Not immediately, not everywhere; but in large numbers and soon enough that it's going to be a huge problem if we're not prepared… [Most] Horses aren't unemployed now because they got lazy as a species. They're unemployable. There's little work a horse can do to pay for its housing and food."

While there is reasonable debate as to the timeline (as with driverless cars projections[9]), this doesn't detract from the prospective destination. And even if one does not accept a short-term timeline, nor even as wide a change to employment as possible, there are still solutions that both make sense now and for the future.

Case Study:[1] Transportation

'Technology gets cheaper, better, and faster at a rate biology just can't much. Just as the car was the beginning of the end of the horse; so now does the car show us the shape of things to come.

… Self-driving cars are here and they work. The question is not if they'll replace cars, but how quickly. They don't need to perfect. They just need to be better than us. Human drivers kill 40,000 people a year in the US alone (for comparison, New Zealand lost nearly 400 lives on the roads in 2018). Given that self-driving cars don't blink, don't text while driving, don't get sleepy or intoxicated, it's easy to see them being better than humans because they already are.

… The transportation industry in the US alone employs 3 million people (in New Zealand 4.2% of the workforce is in Transport & Logistics[2]). These are jobs are inevitably over. There are huge incentives to replace human workers: for many transportation companies, salaries alone are a third of a business' costs. Human costs of time and money are further incurred by needs to sleep or illness, higher likelihood of accidents, and in turn higher insurance premiums.

The Shape of Things to Come

So it goes with automobiles, so it goes for everything… It's easy to think technology has always gotten rid of low-skilled jobs that we don't people doing anyway. However, white-collar work is no safe haven. If your job is sitting in front of a screen and typing, the bots are coming for you too. Given that white-collar workers are more expensive and more numerous than low-skill roles, companies have an even greater incentive to automate these jobs.

… Paperwork, decision-making, writing – the demand for human mental labour in these areas is on the way down. For example, the bulk of lawyers' work is drafting documents, predicting the likely outcome and impact of lawsuits, and legal discovery. All this can be AI work. Research bots already perform discovery work, more cheaply, quickly, and accurately than humans.

… Not every barista or white-collar worker need lose their job before things are a problem: the unemployment rate in the Great Depression was 25%. Automation is simply a tool to produce abundance for little effort. And we need to think about what to do when a large section of the population is unemployable through no fault of their own.'

[1] *Paraphrased from Humans Need Not Apply*
[2] MBIE, *New Zealand Sectors Report 2014*, – Part 1: Overview of the Economy by Sector, Total Employment by Sector, Pg 44

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[8] CGP Grey, "Humans Need Not Apply"
[9] Ibid, "New Zealand, Technology, and Productivity," Pg 35

A Guaranteed Minimum Income (GMI) creates benefits that address present risks

In the short-term, the report rightly recommends that we need to prepare for an uncertain future by pursuing policies that will help New Zealand embrace change. It also correctly criticises a universal basic income to all adults without means tests or obligations – on economic grounds of unacceptable fiscal impacts, less incentives to participate in work, and insufficient levels of support for some beneficiaries.[10]

A GMI would achieve the goal of preparing New Zealanders for an uncertain future, without the cost of a universal basic income. A GMI would reduce uncertainty for workers, and better support those (and their families) adversely affected by technology adoption. It would also facilitate the efficient allocation of capital by having the state take more of the burden of mitigating the risks of employment disruption, allowing individuals and companies to spend their time and resources more productively.

An effective guaranteed minimum income would have to cover the basic essentials for living: food, shelter, clothing, transport, and access to ICT (for information, social support, and employment opportunities). In other words, covering universal needs without duplicating big expenditures like health care or education. The exact amount is of course subject to debate; and, for individuals with children, a supplement would be necessary to account for costs per child on a parent(s)' income. For the sake of illustration:

Proposed GMI: For any adult (above 18 or emancipated minor), New Zealand could pay $18,000 per person annually, to enable the right to a fair standard of living in lieu of employment, subject to the following conditions:
- **Means-testing**: that 50 cents of each dollar of the GMI be deducted for each dollar received from any other income source (private or state benefits, sans education or health care, but including superannuation income). This would mean it fully phases out at $36,000 income; and
- **Workfare:** requiring the beneficiary be working, verifiably looking for work, studying, or some kind of exemption from these workfare requirements (such pregnancy leave, health or disability, etc.).
- And that it be paid fortnightly (to facilitate budgeting by beneficiaries);

Together these conditions avoid the practical economic and political risks of universal basic income proposals. It will avoid the perverse incentives of a hard cut-off (such as disincentivizing transitioning to a low-salary job); be more affordable and palatable by excluding paying those with already have the means to support themselves; enabling a higher level of benefit on those who actually need it; and maintain positive labour market dynamics in maintaining the supply of workers.

Policy-makers will have to be careful that the workfare requirement (to avoid the perceived risk of freeriders) does not extend to a counterproductive requirement to accept any job offered. Forcing people into unsuitable work (that does not reflect their skills and experience) makes people more likely to return to the benefit systems for a longer total period of time rather than achieve stable employment. Nonetheless, there are ways to surmount these challenges – for example:
- Ensuring there are sufficient amount of reasonable exemptions (as described above) to be flexible to skills-enhancing non-employment work (like education, young-child care, etc.) or disabilities;
- Reversing the burden of proof to the government that someone is *not* eligible (in other words, presumed eligibility creating default acceptance into GMI for applicants, and allowing WINZ to ask for information to prove a beneficiary is not meeting requirements, with failure to provide documentation allowing an inference to be drawn); and
- Raising the threshold from any job-offer to a skills-appropriate job-offer.

Similarly, while an adequate GMI would likely be more expensive than existing Jobseeker support[11] (to more fully account for the total cost of basic essentials); GMI can still be worth this greater expense, given the means-testing. For example, 1) the efficiency and simplicity in administration over Jobseeker support, combined with 2) the non-monetary benefit of a future-proofed economic system, and 3) increased

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[10] Productivity Commission, "Employment, Labour Markets, and Income," Pgs 70-71

[11] An $18,000 GMI would be $346~ per week, with the $36,000 full phase-out occurring at $692~ per week. Compared to: Work and Income, "Jobseeker Support cut-out points (current)," 1 April 2019
https://www.workandincome.govt.nz/map/deskfile/main-benefits-cut-out-points/jobseeker-support-cut-out-points-current.html

economic opportunities for citizens thanks to the extra infusion of cash for poor families that are employed (given the effects of wealth on economic opportunity).[12]

GMI also provides a just transition to the future of work (or lack thereof)

Importantly, GMI also mitigates the long-term risk of widespread technological unemployment. If this scenario does not pan out, a GMI policy supports the immediate goals of the draft report; whereas GMI becomes essential in future-proofing the economy against a high-tech low-employment scenario. So either way it's a net-positive policy.

GMI enables the link between to labour and income to be broken to the extent that jobs are in short-supply (while preserving the incentives to maintain sufficient labour supply for as long as it is necessary for human production within those roles). In a future severely disrupted by technological unemployment, GMI avoids penalizing the large segment of the population unable to work through no fault or decision of their own.

Other less sufficient government interventions (that either rely on employment, or create a patchwork of benefits) will not be adequate to producing fair economic outcomes for those in our population rendered unemployable by technology.

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[12] Jonathan Cohn, Huffington Post, "This May Be The Most Effective Anti-Poverty Program In America," 20 April 2015, "Early Childhood Development is a Smart Investment" https://www.huffpost.com/entry/anti-poverty-programs_n_7087622
Jonathan Chait, NY Magazine, "Republican Harvard Economist Writes Terrible Defense of the One Percent," 24 June 2013, "a child born into the top quintile who does not graduate from college is two and a half times more likely to reside in the richest quintile than a child from the bottom who does graduate from college. The advantages of birth overwhelm the advantages of educational success." https://nymag.com/intelligencer/2013/06/gop-economist-makes-terrible-defense-of-the-1.html