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Revisiting the automation tax debate in light of Covid-19 and resulting structural unemployment

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-- With the "Fourth Industrial Revolution" that we live in today, the risk of mass displacement of human labour is more present. Significant progress in artificial intelligence, robot dexterity, processing power and sensor capabilities have reduced costs of automation and enhanced its potential benefits. The risk is extremely pertinent for repetitive and menial tasks.

Even before the Covid-19 pandemic, the idea of an automation tax or "robot tax" has been debated in several jurisdictions as a response to the increasing adoption of automation technologies. These broadly refer to various proposals attempting to tax the use of machines that replace human workers. This debate has been considered in greater detail in a piece which I co-authored with Glendon Goh, "**Taxation of Automation and Artificial Intelligence as a Tool of Labour Policy**". The focus of this debate has generally been on finding a balance between reaping the benefits to society of increased efficiency and productivity resulting from automation and the societal costs of worker displacement and structural unemployment. In the context of the current pandemic, as the economy suffers, the need for measures to protect jobs is greater than ever.

As lockdowns ease around the globe and businesses reopen, the threat of jobs being automated by machines and workers being displaced as a result has significantly increased. Businesses must keep the number of workers on site to a minimum to comply with safe distancing measures. Under these constraints while social distancing remains the norm, automation might be the way forward for companies that still want to continue production while minimising human contact. The threat of a workforce being replaced by robots and automation, a threat that has already alarmed the labour movement, is heightened with Covid-19. There will be considerable layoffs.

While a majority of the workforce will be able to continue in their roles after job alteration, for instance, through being trained to operate the machines that now perform their old jobs, some may not. Structural unemployment results as they lack the necessary skills to perform the redesigned job. Mass displacement of human labour results in significant negative exernalities to society in terms of the need to support and retrain these displaced workers. To illustrate, self-driving vehicles poses a threat to truckers. While there may be a short-term need for truck drivers to monitor self-driving vehicles, the technology entails the risk of one day fully automating the roles of a human driver.

An automation tax can potentially be used to correct this market failure. This can be achieved by some variation of a Pigouvian tax designed to make the creator of the externality pay for causing it. A simple way to implement such an automation tax would be to make companies pay a tax for each unit of automation used. The value of the tax could be set as equivalent to the costs of the social implications arising from automation, such as unemployment.

An ideal automation tax would disincentivise automation that displaces workers by taxing their purchase and/or use. The benefits of imposing an automation tax are two-fold. It first aims to slow the introduction of automation technology in industries that would otherwise suffer massive unemployment as a result of automation. This provides time for governments, welfare systems and workers to prepare for the impending effects of structural unemployment. Secondly, it serves as tax revenue for the support and re-training of displaced workers. With extensive and costly government intervention in light of the Covid-19 pandemic, regulators must begin considering how these bills will be paid. Tax-raising strategies may need to be implemented.

The efficiency gains from the adoption of automation technology are undeniably attractive. An automation tax remains however a useful tool for specific situations to slow the rate of automation, due to its social cost. Thankfully, these cases are likely to be small in number. Regulators must take caution to only adopt such policy responses in cases where structural unemployment is widespread, irreversible, and clearly attributable to automation.

Proponents of an automation tax often fail to draw a distinction between different types of automation. In some cases, an automation tax is effective in saving jobs. But in other situations where automation complements employment, regulators should be cautious about imposing such a tax, as this might threaten jobs instead of saving them. Employment-substituting technologies that render human workers redundant should be disincentivised. On the other hand, employment-complementing technologies used by human workers to enhance their productivity, should be incentivised. For example, the use of Computer Assisted Design software has enabled workers to perform tasks that would have previously been almost impossible. This distinction is crucial and worth bearing in mind when considering the potential economic measures to be taken.

Even if governments do not go as far as to implement an automation tax, the distinction between employment-substituting and employment-complementing technologies can be useful in guiding policy decisions such as how to support companies in this economic crisis. As governments provide generous fiscal stimulus packages designed to help companies survive, the impact of these packages on workers should be carefully considered. The aim of preserving jobs may not be met if companies use these support measures to invest in employment-substituting technologies. At a time when preserving jobs is crucial, steps should perhaps be taken to ensure that governmental support is not used to displace even more workers.

Companies that are bailed out with taxpayer money should not be allowed to use these funds to buy machines to replace their workers. But we should also make sure that companies have enough funds to invest in automation, if this will help to save jobs. Wherever possible, strong support should be given to companies investing in employment-complementing technologies instead. In this crisis more than ever, we need to safeguard jobs and prevent unemployment. Instead of blanket policies to tax automation or bail out companies, governments should implement judicious policies to make sure automation complements and supports workers, instead of replacing them.