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An automation tax- adopt with caution

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An Automation Tax: Adopt With Caution

As scientific progress advances in the fields of machine learning, robot dexterity and processing power, it becomes increasingly feasible for machines to replace humans in a broad range of jobs traditionally requiring human labour. This has led to calls for the regulation of the automation of jobs and resultant displacement of workers. One of the measures proposed as a tool of regulation is an automation tax, also commonly known as a "robot tax". Such a tax could arguably be used to deal with the two main problems that can be caused by the automation of jobs.

The first problem is one of declining tax revenues. In general, tax systems are designed to collect a significant amount of revenue from employees and employers, whether in the form of personal income taxes, payroll taxes, national insurance contributions, etc... If a large number of workers were to suddenly be replaced by machines, there would be a significant drop in revenue collected from employment. On the other hand, tax systems are generally designed to incentivise investments in machinery and other forms of capital, with capital allowances or depreciation offering tax benefits to businesses who are willing to make these expenditures. The net result is that tax revenues are likely to decline if workers are laid off and replaced with machines.

Automation may result in productivity gains that are good for businesses and possibly for society as a whole. However, productivity aside, there remains an important question on how the resultant gains and losses are distributed amongst members of society and whether such a distribution is equitable. Without any regulatory intervention, the benefits of automation are likely to disproportionately accrue to businesses adopting such technologies, while the disadvantages are likely to disproportionately fall on workers displaced by such technologies. This unequal distribution of benefits creates an impetus for some kind of regulatory intervention to try to achieve a more equitable distribution of the benefits of automation.

The costs of the displacement of workers do not solely fall on the workers themselves. There are also social costs that may result from an increase in unemployment rates, such as the need for social support programmes to assist these workers in supporting and retraining themselves until they find new jobs. The key concern is one of structural unemployment. If displaced workers can readily find new jobs that largely use the same skillset and pay roughly the same salaries, then the costs of automation-induced displacement are likely to be limited. However, it is more likely that workers will have to train and pick up new skills in order to find new jobs. This will require workers to invest a significant period of time in training and they will have to be supported in some way by society in the meantime.

The extent of social costs also depends on the pace and scale of the displacement of workers. The faster the displacement occurs and the more workers are displaced, the more difficult it is for the displaced workers to retrain and find new jobs. Similarly, the strain on social support systems, and therefore, the resultant social costs, will also be greater. One can imagine the impact on workers and society if a large number of workers were to be laid off suddenly due to the widespread adoption of automation technology in a particular sector. Some jobs are more susceptible to replacement through automation than others, with unskilled or semi-skilled manufacturing, the operation of vehicles and machinery, and stocktaking, being some examples of jobs that are at risk of at least partial automation in the near future. When the relevant automation technology capable

of replacing workers in these roles becomes available, it is quite possible that automation will occur at a very rapid pace and at a massive scale, resulting in considerable social costs.

It is in this particular situation, and only in this particular situation, that an automation tax should be used as a regulatory tool. Automation brings with it great benefits to society at large due to the productivity gains which it can offer. We are currently in the middle of what has been termed the "Fourth Industrial Revolution", with a new wave of technologies changing the way manufacturing that is done. However, it is clear that the previous three industrial revolutions have greatly benefited humanity, improving the quality of goods and reducing their costs. In the highly interconnected modern world, it is simply not feasible for a country to stifle innovation and protect its citizens through automation taxes, since the rest of the world would simply proceed to adopt automation technologies and undermine the efforts of that country. This is known as the problem of "leakage", where controls of a negative activity or good in one country are rendered ineffective because the activity or goods simply move to another country and continue to affect the first country.

While it is economically unfeasible to resist automation in the long run, whether through an automation tax or otherwise, it may be a viable policy option to attempt to control the pace at which workers are displaced. As discussed above, the sudden displacement of a large number of workers can result in very severe social costs, which scale up exponentially the larger the displacement is. An automation tax can be used as a temporary measure to control the pace at which the displacement occurs, by incentivising businesses to delay their adoption of automation technologies for the time being, giving social support systems some breathing space and enabling workers to have enough time to retrain and find new jobs. Caution should be exercised when adopting this measure, since it is very likely that there will be considerable political pressure exerted by workers to attempt to keep the automation tax as a permanent feature, since displacement and retraining is a painful process. A country which succumbs to such pressure is likely to lose its international competitiveness in the long run, possibly resulting in even greater economic harm.

Having laid out the case for an automation tax and the specific circumstances under which it might be adopted, the next issue to be discussed is one of actually being able to identify what should be taxed in order to achieve the regulatory objectives. Here it becomes clear that adopting the language of a "robot tax" is decidedly unhelpful. There are significant conceptual difficulties in defining what a "robot" is, making it difficult to levy a "tax on robots". Framing the issue as "taxing automation" gets us slightly closer to the true issue but brings with it another concern of how exactly "automation" is to be defined. What should the cut-off point for when a form of "automation" should be taxed? Technically, all of modern manufacturing makes use of labour-saving technology that would result in fewer workers being employed than if all goods were produced by hand.

It is not "robots" or "automation" that an automation tax would have to address, but "job displacement". The former two are merely proxies for the latter, which is what actually results in the abovementioned social costs. But the adoption of different automation technologies and the specific industries in which these technologies are applied will determine the precise amount of job displacement. This makes it unfeasible to simply levy a flat tax on all "automation

technologies". Nor is it feasible to tax employers for every worker which they lay off, for such lay offs could be due to a variety of other factors, such as a poor economic outlook.

It is submitted that the solution to this conundrum of determining the thing to be taxed can already be found in the existing tax system. The capital allowances or depreciation framework in many tax systems is a schedular one, allowing governments the flexibility of attaching a particular tax benefit to each item in the schedule. Implementing an automation tax would involve creating a new schedule based on a range of different automation technologies and the different industries in which the technologies could be applied, and allocating a tax cost to each item (which can be conceptualised as "negative depreciation"). The schedule would be produced with the help of economists and scientists who would attempt to estimate the extent of job displacement that could be caused by each item in the schedule and allocate a tax cost accordingly. It could also be periodically updated to reflect the changes in technologies and industry conditions. As an added bonus, this mechanism could allow for a distinction to be drawn between employment-substituting technologies, which render human workers redundant and should be disincentived, and employment-complementing technologies, which can used by human workers to enhance their productivity, and which should be incentivised.

This is a summary of the key ideas discussed in a recent article: "Taxation of Automation and Artificial Intelligence as a Tool of Labour Policy" published in the eJournal of Tax Research. The article is accessible here: https://www.unsw.edu.au/content/dam/pdfs/unsw-adobe-websites/business-school/faculty/research/ejournal-of-tax-research/2022-volume-19,-number-2/2022-02-taxation.pdf or here: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3322306

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