

Automation and Government Policy Tristan Marino Carnegie Mellon University, Pittsburgh, PA



Introduction

While automation has had an impact on the economy for decades, recent advances in AI and robotics have caused increased disruption in labor that has many people scared of what the future holds for work. The two primary effects of this disruption include job loss and decreased wages. As these effects become more prominent, it seems that new governmental policies must be put in place to deal with the potential for disruption brought on by AI and robotics. Ideas of how to cope with automation have come from debates in many different areas, such as politics, economics, computer science, etc. Current opinions on the future are mixed, but AI and robotics have real impacts on individuals today, so the importance of a consensus on this issue is paramount as companies accelerate technological innovation.

Possible Policies

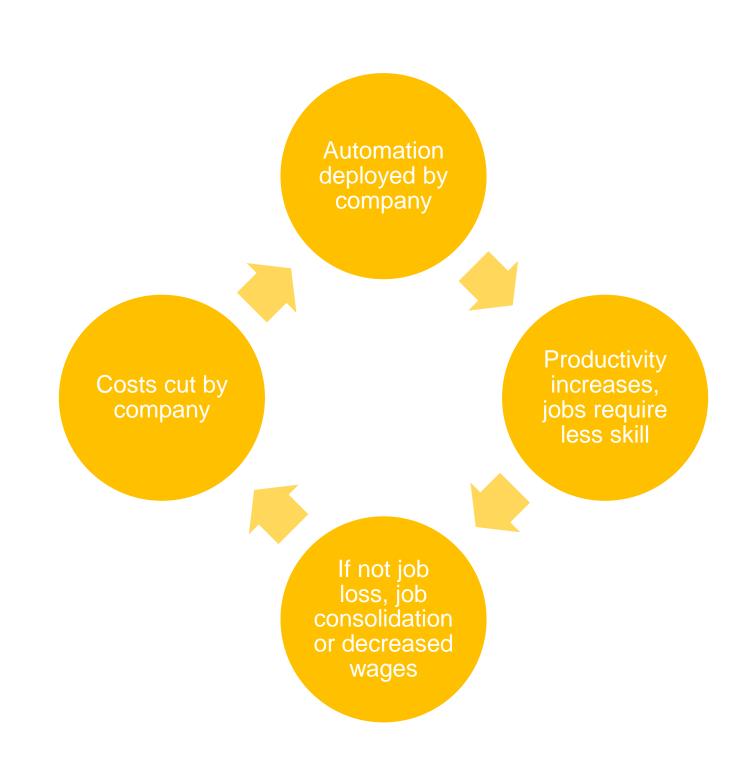
Many ideas have been proposed on how to deal with the challenges presented by automation. Some of the most notable are:

- **1.Inhibiting the advancement of automation** either reducing research into automation and making autonomous systems more difficult to deploy. But, technological innovation is a driver of economic growth, so this approach could have negative side effects.
- 2. Reducing work requirements reduce how much individuals are allowed work to allow redistribution of work among those who can. The logistics of this would be difficult, workers cannot just plug-and-play into different companies, and projects cannot always be broken down so easily to divide hours evenly among arbitrary numbers of people.
- **3. Job creation to offset job loss** either public works projects or government incentives for corporations to provide jobs. Although, public works may not be sustainable, and government incentives would need to continually adapt to incentives to automate.
- **4. Advances in education to match technological changes** lifelong education to prepare workers for high-skill jobs that are more difficult to automate. But, national education measures tend not to adapt fast enough to changing economic landscapes.
- **5. Universal Basic Income** provide a flat income to every citizen, regardless of income from work. Even outside the scope of automation, this option has gained popularity in recent years.
- 6. Shifting society away from a working-based culture collectively re-engineer how society works and what is expected out of an average life to accommodate the fact that people's lives are no longer centered around work. This could incorporate some of the other positions mentioned here, as this could mean wholesale change of culture.

Current Proposal

Shifting away from a work-based society -

- I propose that to offset the potential dangers brought on by automation, governments must take a more pronounced role in providing for its people, shifting society away from a workbased culture.
- Generalizing many of the measures already given by others, the government's duty to provide the basic rights of its people must be expanded to include necessities in an economy increasingly disrupted by automation, such as education and income provided throughout life.



Handling automation is more tricky due to productivity improvements having indirect results of job loss and decreased wages

Inhibiting automation is not enough -

- Not all automation is as obvious as someone losing their job to a robot.
- Al tools have so far not replaced many jobs directly, but have provided increased productivity in many areas. Increased productivity either allows employers to lower wages, as a high-skill job becomes lower skilled, or allows them to lose jobs as they can hire less people to do the same work.
- Technological innovation may seem to be the thing to stop then, but economic growth has largely been due to technological innovation, so inhibiting automation is not a promising option.

Other policies are mainly stopgap measures -

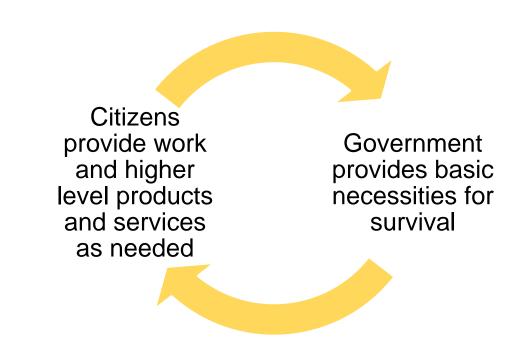
- Policies remedying the effects of automation seem necessary, but it does not seem that there would be a silver bullet.
- Many individual policies already proposed are stopgap measures and either attack one part of the problem (job loss or decreased wages) or do not prepare for the potentiality of an economy switched on its head.

A work-based society may not be sustainable -

Maintaining the current work-based society, where the government's role in providing for its people is to make sure they can get jobs, requires stopgap measures because a work-based society may not be sustainable in a world where AI and robotics are more job competitive than humans.

Dependency exchanged for personal freedom -

- Shifting away from a work-based society would both allow people to not rely on their jobs for survival and also mitigate the dangers of automation.
- This requires governments to provide income, education, and basic necessities such as food and shelter so that the reliance on a job for survival is not necessary.
- The relationship between a government and its people would become more dependent, but the result would be increased freedom for an individual to live their life.



The relationship between the government and its people becomes more dependent but allows for personal freedom.

Not the end of work, but a shift in focus -

- This does not mean the end of work, because there is still need for work beyond what would be necessary for survival, as people desire products and services beyond necessities.
- Money still comes from taxes on businesses and work that people decide to do, but the lifecycle of compulsory education, career, retirement would be altered.

Conclusion

Due to the effects of job loss and decreased wages, automation has been discussed in countless debates and many ideas about how to deal with issues raised by automation have been proposed. These ideas range from the conservative to the radical, but many of them are more stopgap measures which don't account for the full potential for disruption in the future.



The shift from a work-based culture to one where individuals can decide their focus.

Here, I propose that the key to a positive future is the reshaping of the social contract between the government and its people. Unchecked innovation has the potential for disastrous results, but the potential provided by automation should not be prevented. Instead, the government needs to provide the resources necessary for its people to survive in an economy less dependent on human labor. Ideas about providing lifelong education, universal basic income, public works, etc. point to a future where the government is responsible not just for protecting the rights of individuals, but for providing necessities such as education and income for life.

This policy, where the government is the provider of basic necessities as a means to counteract the effects of automation, in fact will only be possible if automation advances so that providing these necessities is reduced in cost to the point of being viable. Then, automation can be the key to remedying the effects of automation by allowing for a society not founded on what automation disrupts. Building out the infrastructure would take much time and money, so the transition would not be immediate. But the lasting effects of a society shifted away from relying on work could be a better quality of life and more diversity of life paths. Automation can make it so that life isn't work, and people don't need to work to live.

References

- 1. Arntz, M., Gregory, T., & Zierahn, U. (2017). Revisiting the risk of automation. *Economics Letters*, 159, 157-160. doi:10.1016/j.econlet.2017.07.001
- 2. Decanio, S. J. (2016). Robots and humans complements or substitutes? *Journal of Macroeconomics*, 49, 280-291. doi:10.1016/j.jmacro.2016.08.003
- 3. Decker, M., Fischer, M., & Ott, I. (2017). Service Robotics and Human Labor: A first technology assessment of substitution and cooperation. *Robotics and Autonomous Systems*, 87, 348-354. doi:10.1016/j.robot.2016.09.017
- 4. Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254-280. doi:10.1016/j.techfore.2016.08.019