

Trends in Automation and the Unemployability Problem

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Abstract: Automation technologies that already exist can dramatically reduce the number of workers involved in labour-intensive industries. Typically, technology that improves productivity leads to the displaced labour finding alternative employment. In the long term, this doesn't happen with automation because the sorts of jobs that can be automated are the same as those that low-skilled workers can do. Automation will shift the distribution of skill-levels demanded by economies. This reduces the number of jobs available for workers with lower levels of intellectual and creative capacity. New industries are not likely to emerge to make use of low-skilled labour, since they will be able to take advantage of automation instead. This is likely to create a large class of the unemployable.

A shift in the demand distribution of capacity levels (DD) while the supply distribution (SD) remains unchanged has many consequences, but there is a genuine question about their desirability. The shift makes leisure more available and will be accompanied by huge improvements in productivity. But without substantial changes to how people conceptualise work, quality of life is likely to diminish because of the importance of employment in subjective quality of life assessments. The conceptualisation of work needs to change in any case. Currently, employment is seen as a test of character as well as a measure of involvement in, and commitment to, the community. As a result, it is seen as a plausible prerequisite for welfare provisions. After the shift, this position would be unjustified.

We can alter the SD to avoid wide-scale unemployability by improving education techniques or using intelligence-boosting drugs. Research on improving intellectual capacity is a long-term economic necessity for developed nations. In the very long term, even this is unlikely to stop eventual wide-scale unemployability.

1. Chapter 1: Automation and Demand for Labour
 - a. Why automation distorts the demand distribution (DD).
 - b. Why automation is different to productivity-improving tools.
 - i. The distinction between a skill-gap and a capacity-gap
 - ii. Future generations won't just be learning a new tool or machine, they'll have to be able to contribute to an information economy
 - c. The medium-term implications of automation for manufacturing, retail, and distribution.
2. Chapter 2: Objection: Market Forces Will Push Back
 - a. If wide-scale unemployability is a risk then falling labour prices will make automation and research into automation uneconomical
 - b. Response 1: Minimum Wage is a floor for labour price (and should be)
 - c. Response 2: Many automation technologies have non-automation applications whose economics are not affected by labour price (e.g. automated driving)
 - d. Response 3: Many automation technologies have huge safety, efficiency, and reliability considerations in their favour, so labour will not be a gross substitute for automation

3. Chapter 3: Objection: New Industries Will Emerge to Use Cheap Low-Skill Labour
 - a. The characteristics of low-skilled labour are very similar to the characteristics that facilitate automation
 - b. New industries are in a better position to take advantage of automation because they don't have legacy supply chains and infrastructure.
 - c. What about (government sponsored) make-work schemes?
 - i. These have numerous disadvantages
4. Chapter 4: What happens if the SD stay as it is while the DD shifts?
 - a. A rough estimate of 'end-state' unemployability on the current trajectory.
 - b. The value of leisure.
 - c. Employment as a prerequisite for happiness.
 - d. The value of expanding human productive capacity.
 - e. Conclusion: We should probably avoid wide-scale unemployability, at least assuming that the pace of technological change is faster than the pace of social change.
5. Chapter 5: How would wide-scale unemployability change the social role of employment?
 - a. Employment cannot be a measure of social involvement or commitment
 - b. Employment cannot be a measure of character
 - c. Employment cannot be a prerequisite for welfare provision
 - d. Moreover, employment cannot be a necessary condition for access to economic resources
6. Chapter 6: Solution: Change the SD
 - a. Improvements in education
 - i. Automation of teaching to the rescue!
 - b. Intelligence-boosting drugs
 - c. This reduces unemployability and boosts productive capacity
7. Chapter 7: Conclusion
 - a. Radical shifts to the DD are likely to occur over the next century.
 - b. To avoid likely penalties of wide-scale unemployability, governments should prioritise research into improving intellectual capacity as a long-term economic necessity.
 - c. If research into intellectual capacity improvements does not keep pace with developments in automation, attitudes about the conceptualisation of work and unemployment will need to change.