

Job Security and Unemployment in an Increasingly Mechanised World

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Summary

Are advents in technology a bane in disguise? Does increased investment in technology really lead to increased job opportunities? Do the multiplier effects as assumed in textbooks pan out in reality? Or leads to a contrary fall in the wages for low skilled workers? And can the results of human endeavours endanger the livelihoods of their creators themselves?

A machine, as we all know, serves the simple purpose of reducing human effort. To demand a smaller effort input while producing the same output results, is what has flabbergasted mankind for long. This is what makes “machine”, an alluring, alien concept whose adoption didn’t face much resistance by the society. That “it saves time” was the justification provided. The industrial revolution brought the very foundation of this concept and modern day society alike, and we thank it for giving the industry increased efficiency, accuracy and more spare time.

However, what if this very boon handed down to us is actually a bane in disguise? What if this very wave of efficiency gets too efficient for our own liking?

History has shown us time and again that change and improvement have always had their costs. And the costs that we would like to address here are essentially the jobs lost, people unemployed/underemployed,

and the class of workers trampled in the race for higher profits and efficiency.

Be it the Luddite Revolution concerning weavers in Aah or the entire Labour Movement as a whole right at the beginning of the Industrial Revolution, machines meant to revolutionise production, displace man (and quite a large section of them at that), which in turn leaves thousands unemployed or underemployed, reduces consumption of the society and therefore aggregate demand. The initially hopeful producers are then left with excess supply and increased inventories.

A simple macroeconomic concept that must be talked of is what makes up **Aggregate Demand (AD)**:

$$AD = C + I + G + NX$$

where,

C : Consumption

I : Investment

G : Government Spending

NX : Net Exports

One assumes that an increase in investment will directly increase Aggregate Demand and by a larger proportion than the investment itself because of the Investment Multiplier. The Investment Multiplier assumes that an increase in investment, gives more jobs to workers, which in turn will provide them with more income to spend, thereby increasing their demand for goods and services.

But what is often not considered is whether technological investment really follows this assumption that the economists have been blindly assuming for years now. Will technological investment increase jobs or actually reduce them?

We know that output (Y) is a function of Labour (L) and Capital (K):

$$Y = f(L, K)$$

So as capital increases, it is often assumed that more labour too would be required to operate it. However, that is not the case. As capital increases and firms turn more and more dependent on mechanisation, they require lesser and lesser workers, and a bare minimum of labour to operate these machines.

Machines can never displace the total workforce, but as has been seen in examples of cement highway workers where each machine reduced the need for 7 men; in building construction where 80-85% of the workforce was let go; and most commonly in the case of bakers and biscuit manufacturers where we have moved away from a situation of a 100% labour intensive methods to nearly 100% capital intensive methods.

A classic example of displaced labour can be seen in the reduced world population of horses. Before steam engines, ploughing devices and combustion engines, the world had a horse population of 3.25 million, which after the invention of all of the aforementioned technologies rendered them redundant which in turn led to a fall in their population to less than 2 million.

At this point in the conversation, I think it's wise to discuss how jobs with varying skill requirements are affected by the rapid wave of technology.

The phenomenon of *A Skill biased Technological Change* posits that increased mechanisation leads to an

increase in demand for high skilled labour but a decrease in one for low skilled labour.

For the most part we assume that machines reduce labour as a whole, but that is not the case. Machines simply do better what most low skill minimum wage workers could do, but with more accuracy, speed and a reduction in errors. Therefore, this chunk of the world's workforce, with no or bare minimum skill is let go, causing the supply of unskilled/ low skilled workers to exceed their demand by 11%.

These workers' equilibrium wages fall to new lows, and levels that are below the minimum needed for subsistence. This either drives them to leave their jobs whose pay is lesser than what they can make do with, or to keep on working just to facilitate a minimum standard of living. Therefore, the mechanisation tends to not only displace workers, but also lower the wages.



However, at the same time, the need for more efficient, educated and high skilled thinkers and workers in the world increases with time and unfortunately the supply fails to meet the demand. Faulty education, irrelevant and out-dated curriculums and an inability to apply one's education in a modern world scenario are cited as the top reasons that people fail to secure these jobs and are left unemployed/ underemployed.

In an ever changing industry, where opening new markets and sectors doesn't necessarily translates into increased output and employment opportunities, the solution is to cultivate and enhance employable skills among the workforce. This can be achieved through human

resource development, aimed at improving the health and education of the individual and this would in turn bridge the excess demand for modern thinkers and workers; for the purpose of machine is to reduce human effort and not the human entirely.