Automation

the technology by which a process or procedure is performed with minimal human assistance

Technology's Impact on Wages and Employment

Automation and the rapid development of technology are fundamentally changing the way people work. Historically, the developed world has seen an incredible amount of change as it relates to the industry and the driving factors of the economy. The first major structural change in modern society started with the industrial revolution, a period approximately between 1760 and 1820. This marked a shift between an agricultural driven economy to a manufacturing one. Technologies such as steam power, machine tools, and overall iron making industrialized the economy and created thousands of jobs in factories. Centuries, later, society can be argued to have experienced other smaller scale industrial revolutions, ultimately paving the current technological landscape that exists today. The internet and mobile communication in general have brought tremendous change and these technologies have evolved even more in the 2000s.

With all the technologies available today, wealth inequality has become an impending international issue. Wages for the highest earning individuals have increased at a steady pace, yet most average workers have seen their real wages stagnate for decades now. Technology is one of the reasons for this. The United Nations Development Program suggests that "if technological change results in greater demand for skilled labor rather than unskilled labor by increasing its relative productivity, the ratio of skill to unskilled wages might increase"[1]. Intuitively, this makes sense, as jobs in technology (a high skilled profession) for example have enjoyed sharp increases in wages, further increasing income inequality.

On the employment front, one classic argument that Gregory Woirol describes is the stagnation of purchasing power due to technology[2]. This argument suggests that technology will increase overall supply and output, while decreasing price. The people that experience income increases due to these goods will be offset by the people whose income declined due to technology negatively affecting their employment. The net effect of this is that although demand and supply would continue to be equal, the level of unemployment will have risen.

Who Suffers the Most?

Technology's promise of a brighter future and simplified life have come true for certain groups of people. Executives and other high earning individuals have been able to harness technology's power to constantly improve their business models and innovate at levels previously not achieved[3]. Additionally, lower skilled jobs such as janitorial services have remained steady because automating these jobs would be more expensive than just hiring humans to perform these tasks. In this way, these jobs are not as high of a risk for automation and technological unemployment.

However, a variety of studies have shown that medium-income employment has suffered from wage declines the most from technology. Additionally, job growth fell from 20.2% in the 1980s to just -1% in the 2000s[4]. The measurement of skill required for the job seems to be an effective way of evaluating the risk of losing employment. Jobs between the 40th and 60th percentile for skill had the smallest growth of hourly wage[3]. Take manufacturing, an industry that fits this category and is almost perfectly suited for automation to take over. In just the manufacturing industry, since 1980, over 7.5 million jobs have been lost and 5.5 million of them are form the past 7 years alone[5]. Other jobs such as managerial and clerical work have also been deemed unimportant due to the efficiency and minimal cost of computers. Overall, it is theorized that 47% of US employment was at risk of automation[6].

Concluding Thoughts

Technological automation brings the promise of improving the lives of many, yet in the short term, millions will be negatively impacted. Companies now have lower costs to produce products and can produce more than ever before through the use of machines over humans. The efficiencies of robots and computers today is breathtaking as so many tasks can be done in such short periods of time. However, automation also threatens to increase income inequality and put many out of jobs. If power and wealth continue to get concentrated in only a few hands, society's problems will likely exacerbate, and certain families could be hurt for generations.

A lot of the burden for easing impacted workers through automation falls on the government through the use of social programs such as universal basic income. Additionally, a revamped education system will also play a pivotal role in shaping the next generation of the labor force.

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