HISAR SCHOOL

JUNIOR MODEL UNITED NATIONS 2022

“Endorsing Accountability: Reapproaching Neglected Urgencies”

GA2: Economics

Bolstering job opportunities and economic prosperity in the face of extreme automation

Irmak Karadoğan

RESEARCH REPORT

Forum: Economics (GA2)

Issue: Bolstering job opportunities and economic prosperity in the face of extreme automation

Student Officer: Irmak Karadoğan - Deputy Chair

Introduction

Automation is a phrase used to describe technological applications that require little or no human involvement. Automation includes BPA, IT automation, and personal applications such as home automation, among other things. As technology develops and automation of jobs increases, machines start to do human's jobs. This results in increased unemployment. Concerns about the implications of automation on employment and workplace transformation go back generations, even to the Industrial Revolution in the 18th and 19th centuries.

In the 1960s, U.S. President Lyndon B. Johnson appointed a "National Commission on Technology, Automation, and Economic Progress" and it concluded that "The simple reality is technology eliminates employment, but not work,". Even today, significant breakthroughs in automation technologies, such as artificial intelligence, autonomous systems, and robots, have reignited the fears of unemployment in the face of automation—and with fresh urgency.

Despite the risk of unemployment, automation technologies like artificial intelligence and robots will provide major benefits to users, organizations, and economies, boosting productivity and economic growth. The speed with which these technologies emerge and are adopted, as well as economic growth and job demand, will determine the amount to which employees are displaced. Automation will transform many more jobs, even if it causes losses in some. In the upcoming decade, automation will be observed at least 30% of the labor activities in 60% of occupations. It will also, as previous technologies have, generate new vocations that do not exist now.

Definition of Key Terms

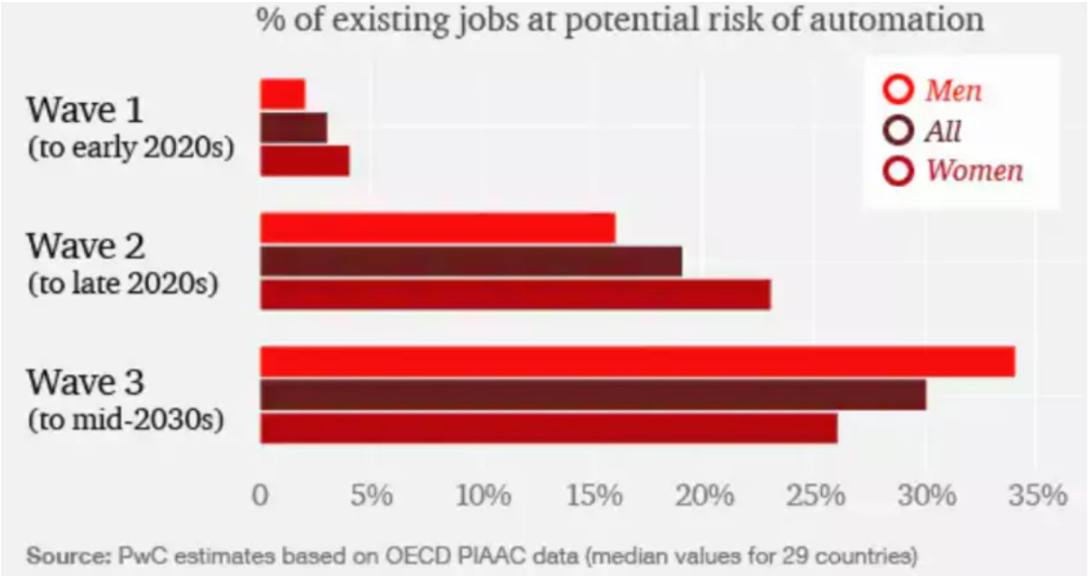
Automate: to control something using machines and not people

Revolution: a change in the way a country is governed, usually to a different political system and often using violence or war

Prospective: Prospective buyers, employers, parents, etc are not yet buyers, employers, parents, etc but are expected to be in the future.

Artificial intelligence: the study and development of computer systems that do jobs that previously needed human intelligence

General Overview



Since the Industrial Revolution, the threat of machines replacing humans in the job has been a constant concern, and with the advent of automation in recent decades, it has become an active issue of discussion. However, the excitement around automation — particularly robots that do not require humans to operate — has so far overwhelmed the facts about how it affects employment and pay.

The researchers discovered that for every 1,000 workers added to the workforce in the United States, salaries fall by 0.42 percent and the employment-to-population ratio falls by 0.2 percentage points, resulting in the loss of nearly 400,000 jobs. Within the locations where robots are deployed, the impact is greater: adding one more robot in a commuting zone (geographic areas utilized for economic studies) reduces employment by six people.

The economists used a model in which robots and humans compete for the production of certain activities to conduct their research.

The automotive industry has adopted robots more than other sectors, and the effects vary in different parts of the country and among different groups — workers who are lower and middle income, perform manual labor, and live in the Rust Belt and Texas are among those most likely to have their work affected by robots. Industrial robots are versatile machines that are autonomously controlled, reprogrammable, and

capable of doing tasks such as welding, painting, and packaging. They are completely self-contained and do not require human intervention to operate.

The displacement effect, in which robots or other automation do tasks previously performed by workers, has a negative impact on wages and employment. Technology can also increase productivity by making tasks easier to accomplish or by providing people with additional occupations and duties. Automation technologies, according to the researchers, always have both displacement and productivity effects, but robots have a stronger displacement effect.

Anxiety over employment losses induced by greater use of machines has existed for centuries. With each new breakthrough, someone's livelihood or quality of life was at risk of being irreversibly altered. The COVID-19 problem has resulted in millions of people losing their employment all around the world. Some of those jobs have already been regained in big nations like the United States, albeit "there remains a long road ahead," as Bank of America analyst Michelle Meyer told The New York Times. However, for many people, the work they used to have may not be returning. And, as companies grapple with the pandemic's issues, this might increasingly be attributable to technology.

Major Countries Involved and Their Views

China: China's transition away from agriculture and toward industry and services is certain to continue, and as earnings rise, so will spending. China will benefit from embracing technology to enhance productivity and satisfy expected labor demands in 2030, given its aging and decreasing workforce.

Japan: With increased workforce participation and technology, Japan is expected to have a 1.5 million job deficit by 2030. According to researchers, automation might displace roughly 56 percent of labor tasks in Japan, allowing businesses to cut costs and increase efficiency despite a declining workforce.

Germany: Germany's population is aging, and its working-age population is shrinking. Early automation adoption is bolstered by relatively high pay, whereas medium GDP growth generates sufficient labor demand in most scenarios. The majority of employment development will be driven by aging-related health-care demands and higher consumer expenditure.

India: India's economy is likely to continue to industrialize as it moves away from agriculture. Construction and the purchasing patterns of the increasing middle class will fuel many of India's future jobs as GDP per capita continues to rise alongside high labor force expansion.

South Korea: South Korea is one of the countries most vulnerable to the effects of automation. South Korea is expected to lose about 800,000 jobs over the next decade, despite a global loss of around 20 million manufacturing jobs, or about 8.5 percent, due to automation.

Singapore: In Singapore, workplace automation is predicted to treble in three years, covering 29 percent of all work done by businesses, up from 14 percent in 2018. This could result in at least 5% of Singapore's full-time workers losing their jobs.

Timeline of Events

16th- century	*Stockings from the sixteenth century* *Manual labor was the norm in the 16th century. Until a priest called William Lee came up with the concept of mechanizing — at least in part – the stocking-making process. He modified looms used to weave carpets to create a large sheet of stocking material that could then be cut and made into stockings. It was much faster and less expensive than the standard procedure.* *According to folklore, Queen Elizabeth I denied Lee's request for a patent on his machine because she was concerned about the welfare of former stocking knitters who would lose their jobs.* *His machine had a limited influence at the time, but it established the foundation for later textile machine improvements.*
19th- century	*19th-century textile riots* *Hundreds of years later, English textile workers were confronted with even more drastic changes. They weren't the only ones, either.* *People relocated from rural areas to the new, fast-growing metropolis as the Industrial Revolution progressed. They found work in mills and factories, where steam-powered machinery were allowing previously hand-crafted things to reach unprecedented levels of productivity.* *Mechanization posed a problem for farmworkers as well. As the world's population grew, so did the need for machines to manage everything from planting seeds to harvesting crops.* *Working people's reactions were not consistently favourable. In the United Kingdom, a movement known as the Luddites protested the rising use of automation. They rioted, wrecked machinery, and set fire to the homes of company owners.*
20th-century	*20th-century car manufacturing* *In the latter part of the twentieth century, the employment of robots in car manufacturing grew more frequent. Originally designed to do simple, repetitive*

	activities, they assisted in increasing productivity, standardizing manufacturing quality, and controlling costs. *In 1979, Fiat launched a television commercial depicting the construction of their Strada hatchback, with the phrase "hand built by robots" Assembly-line operations like welding and spray painting were among the first to be replaced by robots. Humans, on the other hand, were present to supervise the machines. As technology has progressed, the list of activities that robots can now perform has grown to include more sophisticated operations such as installing windscreens in automobiles. They were also commonly utilized in factories to transport large and bulky objects.*
Mid 2030's	*According to PwC research, by the mid-2030s, one-third of all employment will be at risk of being automated. The workforce segment most likely to be affected will be individuals with a low educational level.*
Future	*The future of automation* *Many experts believe that over the next few years, more jobs will be created than lost due to automation.* *Following COVID-19, the task for international leaders and policymakers will be to ensure that people are not forgotten in the race to restore economies.* *"COVID-19 has hastened our transition into the Fourth Industrial Revolution," says Klaus Schwab, the World Economic Forum's founder and executive chairman. "We must ensure that new technologies in the digital, biological, and physical worlds are human-centered and serve society as a whole, with equal access for everyone."*

Treaties and Events

The 2nd KU Leuven AI Law & Ethics Conference (LAILEC 2020) featured a Keynote Lecture on February 18, 2020. The lecture took place one day before the European Commission released its landmark White Paper on Artificial Intelligence: A European Approach to Excellence and Trust, which is the first policy paper of its kind by one of the world's major powers to include human rights protections insignificant detail when defining Europe's future policy on automation and artificial intelligence.

Evaluation of Previous Attempts to Resolve the Issue

The participants in the KU Leuven AI Law & Ethics Conference were invited to reframe automation and AI law and ethics discourses to include moral, political, sociocultural, and legal discourses and deliberations that an international community must undertake to preserve, respect, protect, and fulfill international human rights law.

When a central bank, such as the Federal Reserve, utilizes its powers to boost the economy, it is known as expansionary monetary policy. This involves reducing the fed funds rate to raise the money supply, which enhances liquidity and allows banks more money to lend. Mortgage and other interest rates fall as a result. Consumers may borrow and spend more with cheaper credit, helping firms to expand to satisfy the increasing demand. Companies can now hire more employees and give them more purchasing power as a result of the increasing demand.

Possible Solutions

Employees with higher education levels are expected to be less affected by automation as time passes, and with this knowledge, increasing the quality of education and future-oriented training can reduce the impact of automation on professions and the economy. This isn't only a corporate issue; governments, according to PwC (PricewaterhouseCoopers) , must also endeavor to provide chances for individuals to be retrained and prepared for prospective job shifts. This will necessitate a cultural shift in which adaptation and continuous learning will be critical in ensuring that society accepts the benefits of automation, AI, and robots, particularly as the population ages and the need to labor stretches into later life. For better governance and accountability, we should begin adopting structural reforms and strengthening institutions. To persuade people to stay and work in their home country, this involves increasing private sector investment and providing more and better jobs. It entails assisting businesses in growing, particularly small and medium-sized organizations, as well as fostering technology and innovation.

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