Forum: ECOSOC

Issue: Addressing the Socio-Economic Impact of Automation in Manufacturing

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Introduction

Undoubtedly automation in manufacturing has a big influence on economy nowadays. Began in 18th century and caused by the Industrial Revolution, automation has led to fundamental changes in manufacturing and society. Automation is still making significant impact and probably will continue its influence on economy in future. Today automation is changing to the next level with help of recent scientific developments – robotization. The number of robots used by businesses to boost their productivity has increased rapidly over the past several years. This is a trend that is as well most likely to continue. This technological development is positive for economy as productivity and GDP is growing and wages are getting higher. On the other hand, there is a growing consensus among academics and politicians that technological change has been the main driver of rising inequality and slow productivity gains in advanced economies over the past couple of decades. Moreover, different robots and automatic technologies are becoming capable of fulfilling a constantly growing number of tasks that were performed only by people. As a result, the number of jobs available for people in different countries is decreasing and this brings the issue of unemployment in light of the discussion. Therefore, the solution of current issue is finding balance between development of manufacturing via automation and reducing possible negative impact of the automation.

Definition of key terms

Automation – the use or introduction of automatic equipment in a manufacturing or other process or facility.

Manufacturing – the process of making different goods on a large scale using machinery; industrial production.

The Industrial Revolution – the rapid development of industry that started in Britain in the late 18th and 19th centuries, brought about by the introduction of machinery. It was characterized by the use of steam power, the growth of factories, and the mass production of manufactured goods

Robotization – automation of industrial and business processes using robots of various guises.

Gross domestic product (GDP) – a monetary measure of the market value of all the final goods and services produced in a period of time, usually calculated annually or quarterly.

Background information

The Industrial Revolution, started in 18th century in the Great Britain, was the beginning of automation. In this period of time manufacturing was going through transition from hand production methods to machines' methods of production. There was a huge labor productivity growth as fewer workers were needed to produce the same number of manufactured goods. The possibility of using machines in manufacturing is tightly connected with scientific developments of that epoch, especially with the use of steam power. The main role of adapting the power of boiling water for obtaining energy belongs to James Watt, who created the first steam engine later used not only in industry but in transportation as well (recall the use of such engines in locomotives or steam boats). Surely, the effect of the Industrial Revolution on economy in general is enormous (in fact, the economy was totally transformed), however, there are several views on the effect the Industrial Revolution had on the standards of living of individuals. Some economists, such as Robert E. Lucas, Jr., say that the real impact of the Industrial Revolution was that "for the first time in history, the living standards of the masses of ordinary people have begun to undergo sustained growth." However, a lot of scientists argue, and we know from history, that most factory workers had to work for more than 10 hours each day with low salaries and lack of social and medical guarantees. This gave rise for workers struggling for their rights. It should also be kept in mind that the constant growth of produced goods led to one of the biggest economic crises in human history – the Great Depression (1929-1939). Even though the crisis was a long-term result of Industrial Revolution it is very important to keep it in mind as

the situation with the rapid growth of automation today may lead to the similar consequences in the future.

From one hand, talking about current situation, AI, robotics, and other forms of smart automation have the potential to bring great economic benefits, contributing up to $15 trillion to global GDP by 2030 according to PwC analysis. According to another analysis, automation of activities can enable businesses to improve performance, in some cases even achieving such outcomes that go beyond human capabilities. Speaking globally, it is estimated that automation could raise productivity from 0.8 to 1.4 percent annually. On the other hand, a perceived downside of automation is that it leads to jobs being displaced in traditional areas of work. According to research, 30% of jobs are at potential risk of automation by mid-2030s; about half the activities people are paid almost 16 trillion dollars in wages have the potential to be automated by adapting currently demonstrated technology. Obviously, activities that are most easily susceptible for automation are physical activities in highly predictable and structured environments, as well as the collection and processing of data. These jobs are more prevalent in manufacturing, accommodation, food-service, and retail trade.

However, automation is the reason for creation of new jobs but this process is currently less visible. Jobs of the future will use different skills and may have higher educational requirements. However, there are still concerns about the social and economic impact of the rapid job displacement associated with automation and globalization. Automation requires more specialized labor and sets us free from hand work. However, technological progress will most likely still lead to growing income inequality. Some will benefit significantly from automation – owners of more profitable factories, and software developers. However, those who lose jobs from the process of automation, may struggle to gain equivalent employment.

Major countries and organizations involved

More economically developed countries (MEDC) are more involved in process of automation as they are going through automation now. They are already facing problems mentioned above. Countries such as but not limited to:

1. Germany,
2. Singapore,
3. South Korea,
4. Japan
5. Canada

UN is also involved in current issue. 17 UN Goals, which are expected to be achieved by 2030, include GOAL 8: DECENT WORK AND ECONOMIC GROWTH, which should provide sustainable economic growth, which will require societies to create the conditions that allow people to have quality jobs.

Possible solutions

1) Due to inequality, there is a growing need to reallocate income from rich to poor and/or from owners to workers. In theory, there are three possibilities to try to partly offset or mitigate the ongoing decline in labor's share of income:
   a) Higher wages through collective bargaining or minimum wages;
   b) Redistribute wealth and income through tax-and-spend policies;
   c) Spread the ownership of capital to ensure a more equitable distribution of robotic rents
2) Talking about growing unemployment, we should probably rethink our educational systems. More wide knowledge is needed as simple hand work is replacing by machines. People graduating from universities must be ready to work in a highly demanding environment; special attention should be given to the development of the so called 'soft-skills' (*desirable qualities for certain forms of employment that do not depend on acquired knowledge: they include common sense, the ability to deal with people, and a positive flexible attitude*).
3) The possible decrease of jobs should also be taken into account in the sense that different strategies concerning possible consequences of this process.

Useful links:

Executive summary 'A Future that Works: Automation, Employment, and Productivity: https://www.mckinsey.com/~/media/mckinsey/featured%20insights/digital%20disruption/harnessing%20automation%20for%20a%20future%20that%20works/a-future-that-works-executive-summary-mgi-january-2017.ashx

https://www.economicshelp.org/blog/25163/economics/automation/

https://www.medcindia.com/single-post/2017/07/01/The-Socioeconomic-Impact-of-Automation